SEAL-LOCK HT-S (TIMED) ANCILLARY SPECIFICATION

SECTION	V	
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REVISION	011	11/19/24

SUBJECT: COUPLING MAKE-UP

1.0 SCOPE

1.1 This document sets forth the specification for the mill end make-up or bucking of **SEAL-LOCK HT-S (TIMED)** connectors.

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 Hunting Seal-Lock HT S-Timed is a position make-up connection. Torque values are for reference only and shall not be used as the acceptance / rejection criteria.

3.0 EQUIPMENT

3.1 The following list of equipment is required in the making-up or the bucking-on of couplings to pin connectors of the **SEAL-LOCK HT-S (TIMED)**:

3.1.1 Appropriate size, grade, type box connector, or coupling to match the pipe and pin connector.

3.1.2 Ample supply of fresh, unopened thread compound.

NOTE: Hunting recommends the use of Seal Lube under the coupling (mill end) as follows: Seal Lube LTF 4444 for any size larger than 3 1/2", and either Seal Lube HTM 1001 or Seal Lube LTF 4444 for 3 1/2" and smaller.

For other applications, accessories and field end, 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 on "Connection Technology" and look for the link: "Recommended Thread Compounds approved by Hunting".

3.1.3 Thread lubricant application brushes (Model 58235 moustache brush recommended.)

3.1.4 Power tongs capable of producing the required torque at 3 RPM.

3.1.5 Molybdenum disulfide spray or equivalent (Molykote).

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

3.1.6 Latest Hunting sales data sheet with specified torque values for the appropriate size, weight and grade product of **SEAL-LOCK HT-S (TIMED)**.

3.1.7 **MANDATORY -** Torque turn monitoring system.

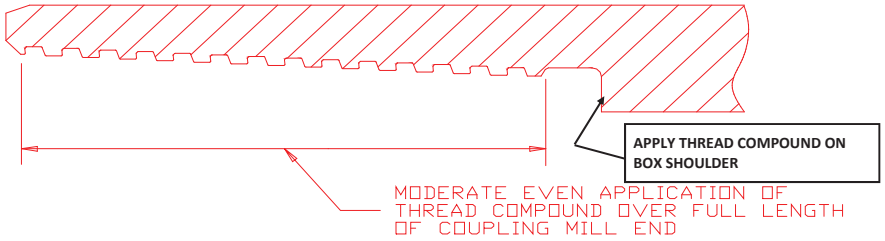
4.0 CERTIFICATION

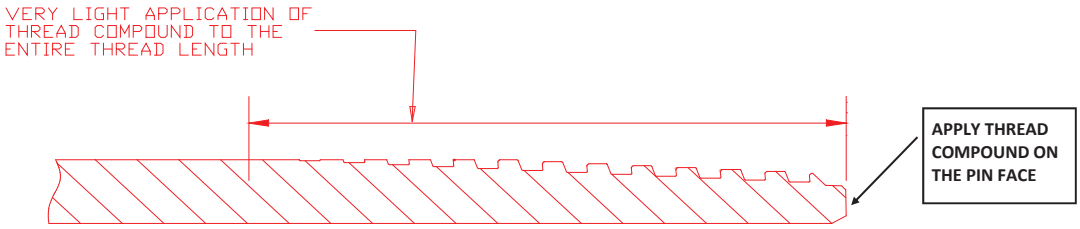
4.1 The torque unit shall be calibrated for accuracy every six (6) months.

MILL END ASSEMBLY PROCEDURES - SLHT-S TIMED CASING

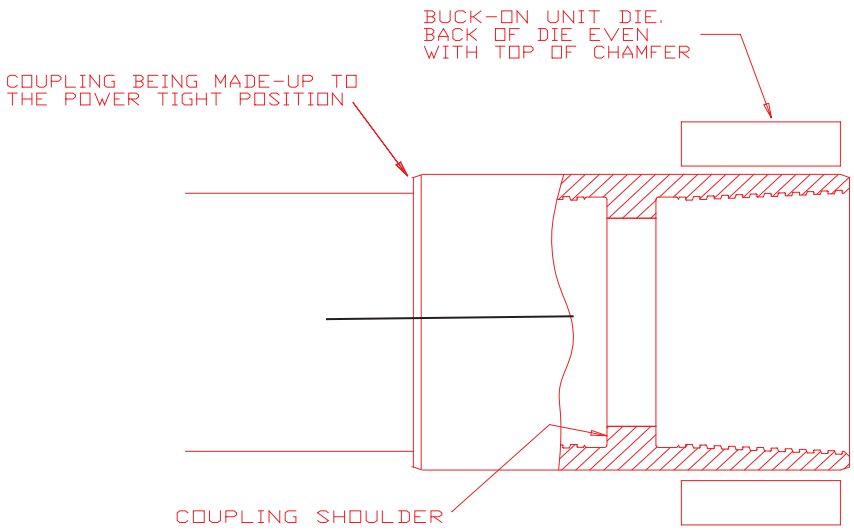
THREAD LUBRICANT APPLICATION - SLHT-S TIMED MILL END CONNECTIONS

SLHT-TMU





BUCK-ON UNIT DIE POSITION



SUBJECT: COUPLING MAKE-UP

5.0 MAKE-UP PROCEDURE

5.1 Thoroughly clean and visually inspect both sides of the connection to be made-up.

5.1.1 Ensure that the pin thread start and full form threads are free from tears and burrs.

5.1.2 Ensure that the coupling or box connector is free from burrs or tears on the starting threads and throughout the full form thread length.

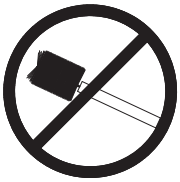
5.1.3 Both connectors shall be free of any debris such as chips, shavings, dirt or other foreign particles that could create galling or damage to the connection during make-up.

5.1.4 For all sizes, the use of stiffeners is recommended to avoid deformation on the open side of the coupling. If the stiffener is not used during the make-up, the ovality shall be verified and meet the criteria shown below:

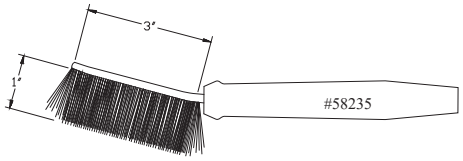
2 1/16" through 4 1/2"	Maximum Allowed Ovality: 0.015"
4 1/2" through 7"	Maximum Allowed Ovality: 0.020"

5.2 Apply a light to moderate, even coating of thread lubricant, per Section 3.1.2 NOTES of this procedure, to cover the full box/coupling threaded surface.

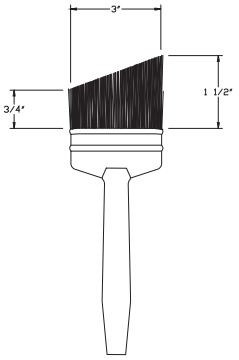
5.3 Apply a very light coat of the recommended thread lubricant to the full thread area only on the pin connector.



Do Not Use
Bottle Brush



Preferred Moustache Brush #58235



Alternate Acceptable
Modified Paint Brush

NOTE: 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. However, the thread form should remain clearly visible.

NOTE: Adjust the amount of lubricant applied to the pin and coupling connectors to cause a gradual increase in torque throughout the make-up. An indicator of connection overlube is during the last one-half of a turn to final make-up position there is no gradual increase of torque even though the pin is continuing to advance into the coupling.

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

5.5 Position the connection in the power tongs.

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5.6 Apply torque to the connection at 3 RPM maximum. Make-up speed should not exceed 3 rpm. Make-up speed should not vary excessively during make-up and should be continuous with no gear changing.

5.7 **MANDATORY** Make-up Torque/Turn Monitoring

5.7.1 Mandatory Torque-Turn Equipment - A torque-turn /time or torque/turn monitoring system ay 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 monitoring equipment should be capable of dumping during the make-up by either the computer technician or when maximum parameters are reached or shoulder alignment marks are in position. As the torque enters the acceptable window, the technician should be able to depress a function key to manually terminate the make-up. The system should be capable of automatic dumping as input parameters are met. The load cells used with the torque monitoring equipment should be calibrated every six (6) months, traceable to the appropriate national standard.

5.7.2 A make-up torque/turn graph shall be generated for every connection.

NOTE: 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: If torques are high or low, adjust the thread compound application to give good make up torque curves. For high torque, apply more compound. For very high torque, apply Molybdenum disulfide to both pin and box connectors prior to the application of the thread compound.

NOTE: The SEAL-LOCK HT-S (TIMED) connection is a position make-up connection. The connection shall shoulder and the make-up indicator lines must be properly aligned for the connection to work as designed.

6.0 MAKE-UP ACCEPTANCE AND REJECTION

6.1 To achieve an acceptable make-up, the following requirements shall be met:

a) The "Timed" alignment make-up marks shall be the main criteria for achieving proper make -up.

b) For connection sizes smaller than 4-1/2", the final torque-turn graph shall exhibit a clear and distinct shoulder prior to reaching the timing marks.

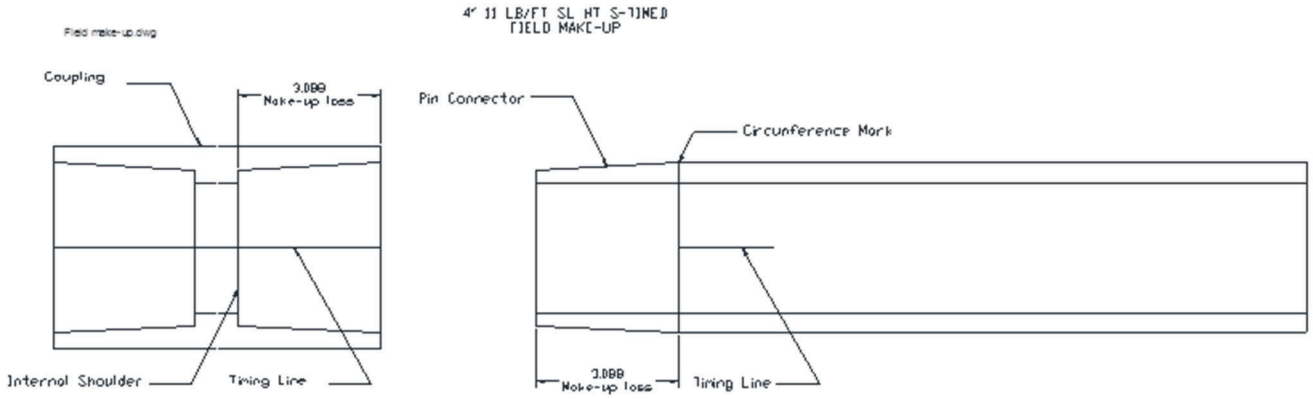
c) For connection sizes 4-1/2" and greater, the connection should achieve a shoulder with a minimum of 500 ft-lb of shoulder delta torque prior to reaching the timing marks.

NOTE: Delta Torque is defined as the amount of torque applied to the connection shoulder (pin face to box shoulder) once the pin face reaches the integral shoulder within the box connection.

NOTE: The "Dump Torque" of the torque-turn unit shall be set at the torque value published in the CDS.

6.2 The torque – turn graph shall be analyzed in order to ensure that the connection will perform as designed. The illustrations below show examples of an acceptable make-up and an unacceptable make-up that yielded the connection during the make-up process:

EXAMPLE: 4” 11.60 LB/FT 13CR80 SEAL-LOCK HT-S-TIMED



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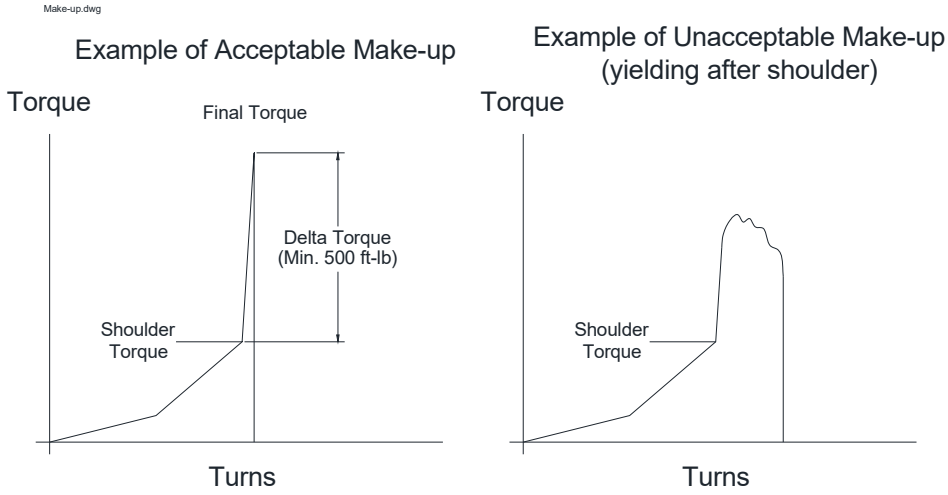

If a decision cannot be made based on the above information, or if there are some questions or concerns about the make-up, please contact Hunting Energy Services at ++1 (281) 442 7382, and ask to talk with a Field Service Representative.

If the Dump Torque is exceeded and the timing marks are not in position, the connection shall not be used.

6.3 Following make-up, if stiffener is not used during the make-up process, the ovality or out-of-roundness shall be verified and meet the criteria shown below:

2 1/16” through 4 1/2”	Maximum Allowed Ovality: 0.015”
4 1/2” through 7”	Maximum Allowed Ovality: 0.020”

6.4 End drift the made-up connection in accordance with the Hunting **"Full Length/End Drift Inspection Procedure" (Generic).** Perform a Visual Inspection of the alignment of the “Timing Lines”. The “Timed” alignment make-up marks shall be the main criteria for achieving proper make-up.

6.5 If a connection that was made-up using SealLube needs to be un-bucked, the following procedure shall be applied:

6.5.1 Break the initial torque on the connection, then release the tongs and re-bite. Rotate 90°and release the tongs. Repeat the cycle until the coupling can be released or removed using a strap wrench or by hand.

NOTE: SealLube is an anaerobic compound that activates in the absence of oxygen, presence of carbon and heat. Attempting to break-out a connection without following the procedures, might increase the risk of galling.

6.5.2 If the coupling gets hot during the break-out, pour cold water on the external surface of the coupling to keep it cool.

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6.5.3 Proceed to break the coupling with extreme care. It is recommended to constantly pour cold water on the external surface of the coupling to avoid overheating.

6.5.4 Once the coupling has been un-bucked, clean both connections (Pin and Coupling) and perform a visual inspection. If no damage is found, follow the make-up specification in section 6.1 to 6.4.

7.0 REWORK

7.1 If the connection does not shoulder or make-up to the proper position, remove the coupling, clean and visually examine both pin and box for damage. If no damage is found remake up as directed in Section 5.0 and inspect as directed in Section 6.0 of this document. The amount of the thread lubricant may be altered and a higher make-up torque may be used.

7.2 Connections which will not meet the criteria of Section 6.0 should be set aside and a Hunting representative contacted for disposition.

8.0 RUNNING PROCEDURE FOR ACCESSORIES MADE UP USING THREAD LOCKING COMPOUND / LUBRICANT

8.1 Using steam, soap and hot water, or safety solvent, remove all thread storage or running compound from both pin and box connectors.

8.2 Ensure that the thread and sealing surfaces are clean, dry, and free of oil, grease, or residues.

8.3 On thread sealing connections, apply the Hunting recommended thread compound on the first three (3) thread of the pin and last three (3) threads of the box (area of the perfect threads engagement).

8.4 Just prior to make up, the thread locking lubricant shall only be applied on the pin threads (not on the box), on the area that has not been covered by the approved thread compound.

8.5 When making up accessories like float equipment, hangers, thick wall accessories, and others, shoulder torques might be higher than normal due to relationship of the friction factors of the thread locking lubricant in comparison with the API Modified thread compounds and the wall thickness.

8.6 Set the “Dump Torque” of the torque-turn unit at 500 ft-lb over the maximum torque value published in the connection Data Sheet.