SUBJECT: COUPLING MAKE-UP

1.0 SCOPE

1.1 This document sets forth the specification for the mill end make-up or bucking of **TKC 4040 RTC** 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.

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.

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 SEALLUBE HTM-1001, or LTF 4444 as applicable.

NOTE: The TKC 4040 RTC coupling make-up shall only be performed using SEALLUBE to ensure the right performance.

NOTE: Due to increased surface area, for sizes larger than 3 1/2", use LTF 4444; for 3 1/2" and smaller, use HTM 1001.

NOTE: For Seallube application see "Seallube Application Procedure".

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

3.1.4 Power tongs capable of producing the required torque at 5 - 14 RPM.

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.

3.1.5 Latest Hunting sales drawing with specified torque values for the appropriate size, weight and grade product of **TKC 4040 RTC**.

3.1.6 **OPTIONAL -** Torque turn monitoring system.

4.0 CERTIFICATION

4.1 The torque unit shall be calibrated for accuracy every four (4) months.

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.

Thread Compound Application
TKC 4040 RTC

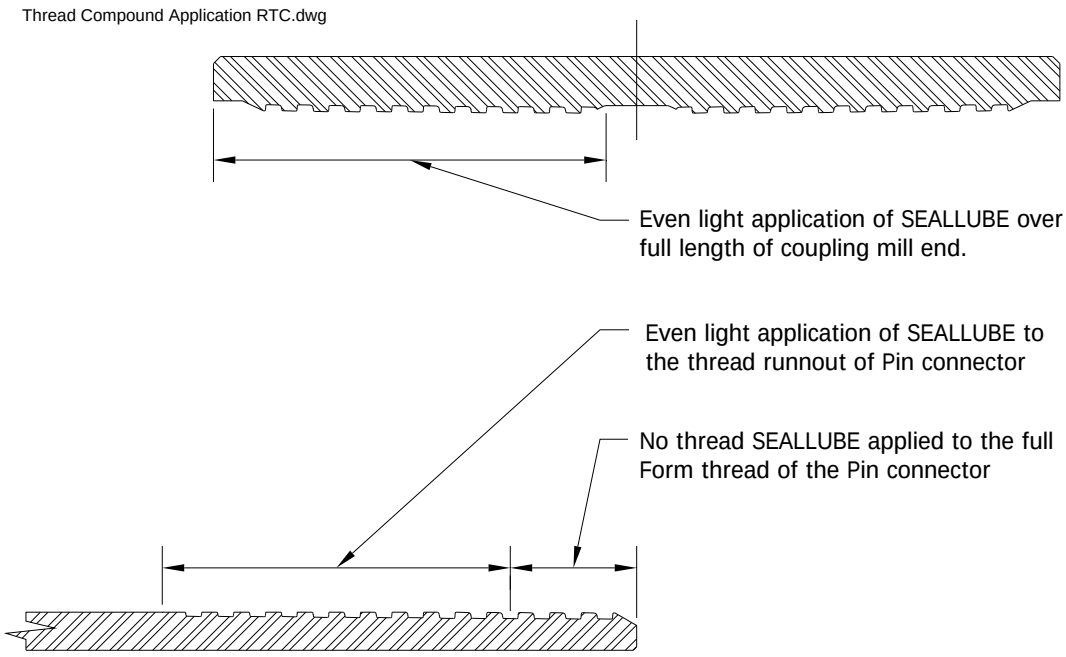


Figure A

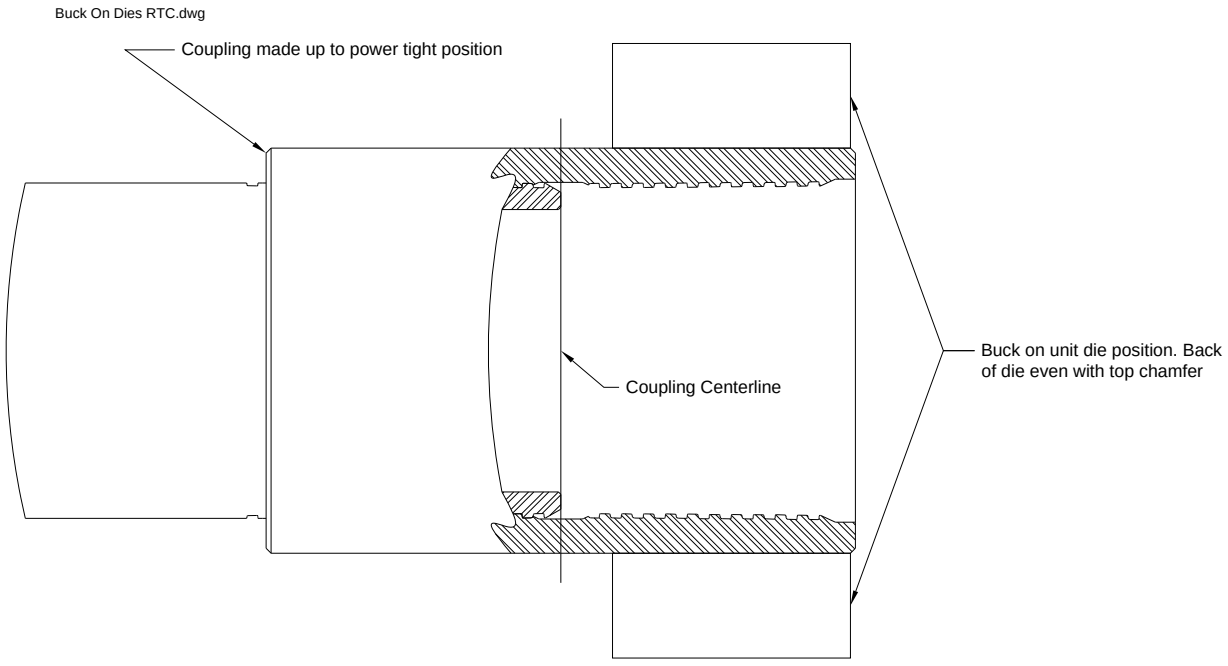
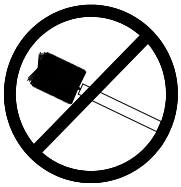


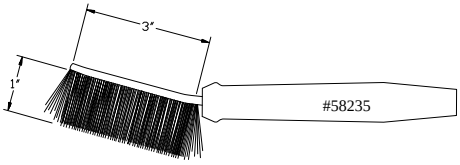
Figure B

SUBJECT: COUPLING MAKE-UP

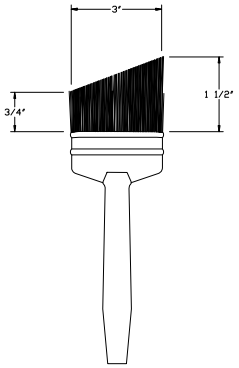
5.2 Apply a light to moderate, even coating of SEALLUBE to cover the full box/coupling threaded surface and the thread runout of the pin connector, per SEALLUBE Application Procedures (see Figure A).



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.

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

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

5.5 Apply the specified torque to the connection at 5-14 RPM. Make-up speed should not exceed 14 rpm. Make-up speed should not vary excessively during make-up and should be continuous with no gear changing.

TARGET MAKE-UP RPM

2 3/8"	14 RPM
2 7/8"	12 RPM
3 1/2"	10 RPM
4"	8 RPM
4 1/2"	8 RPM
5”	8 RPM
5 1/2”	8 RPM
7”	8RPM

NOTE: The TKC 4040 RTC connection is a position make-up connection, and the pin connector on the mill end shall be located in the middle of the coupling (see Figure B and E). Example: For tubing sizes the make up position measured from the open end of the coupling shall be: 2.750” + 0.000” / - 1/32” (2.719” to 2.750” or 2 23/32” to 2 3/4” shall be the scale reading).

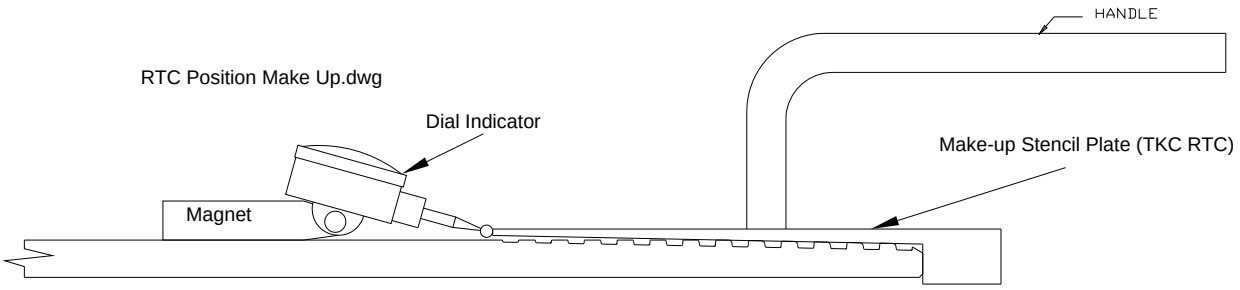


Figure C

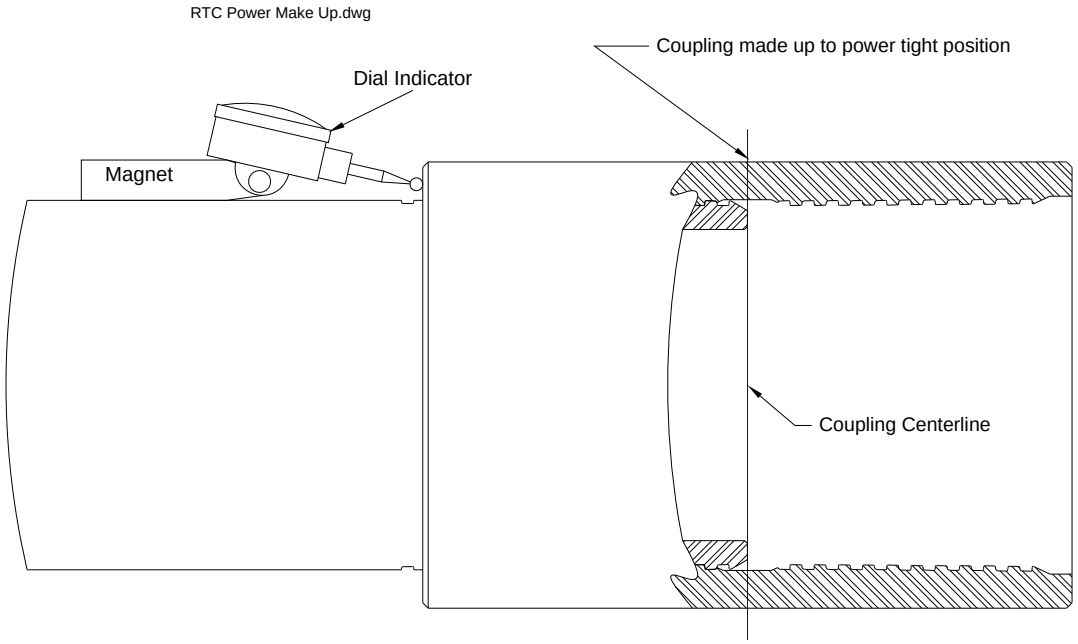
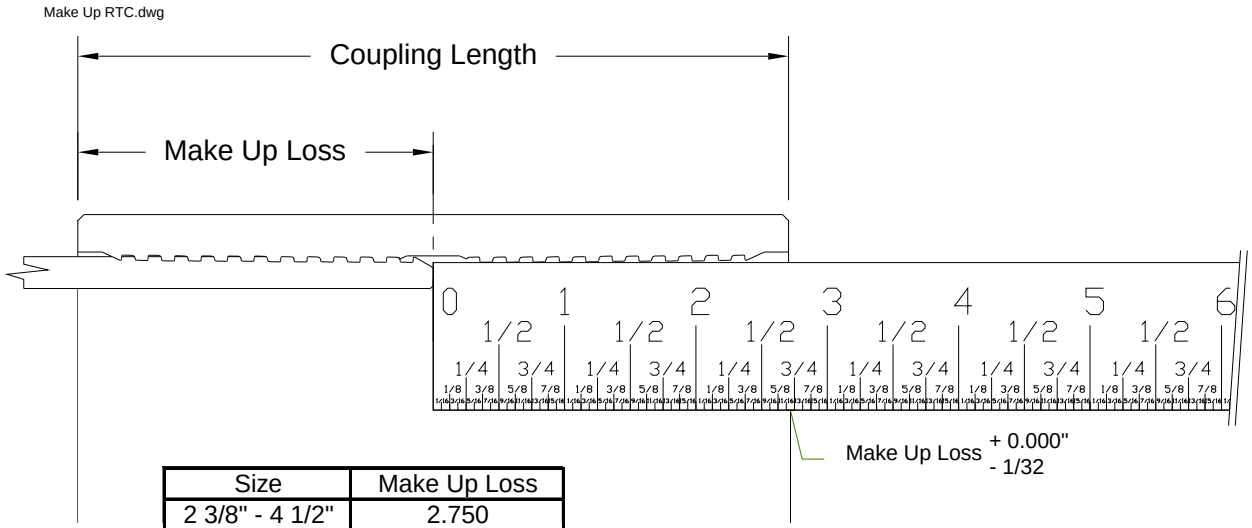


Figure D



Size	Make Up Loss
2 3/8" - 4 1/2"	2.750
5"	3.250
5 1/2"	3.750
7"	4.125

Figure E

SUBJECT: COUPLING MAKE-UP

5.6 Position Make Up Using the Position Plate

5.6.1 Use the make up position plate for the appropriate connection size.

5.6.2 Place the position plate on the pin connector to be made up (see Figure C).

5.6.3 Place the position gauge magnet on the OD of the pipe (see Figure C), and verify that the tip of the dial indicator is in contact with the coupling face.

5.6.4 Set the indicator to "zero" position.

5.6.5 Remove the position plate, and apply the coupling to the "Hand Tight" position.

5.6.6 Start the make up at the recommended rpm's.

5.6.7 Stop the buck on unit when the indicator is at "zero" to plus 0.030" (see Figure D).

Note: TKC 4040 RTC is a position make up connection, and it is extremely important that the position is within the specified tolerances to ensure the right performance.

5.6.8 Verify the position through the open end using a scale, as shown in the figure (see Figure E).

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

5.7.1 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 four (4) months, traceable to the appropriate national standard.

5.7.2 If the optional torque/turn monitoring equipment is used, a make-up torque/turn graph should be generated for every connection.

MILL END TORQUE VALUES		
SIZE	MILL END TORQUE (FT/LB)	
	MIN.	MAX.
2 3/8" - 4 1/2"	1,000	4,000
5" - 5 1/2"	1,000	5,000
7"	1,500	6,000

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: The TKC 4040 RTC connection is a position make-up connection. The internal torque shoulders on box accessories determines the correct make-up position on accessory connections.

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SUBJECT: COUPLING MAKE-UP

6.0 MAKE-UP ACCEPTANCE AND REJECTION

6.1 For an acceptable make-up both position and torque requirements must be met.

6.1.1 The criteria for proper make-up shall be as described in Section 5.5 of this document.

6.1.2 The torque applied to the connection should meet the minimum published torque when the position requirements are met.

6.1.3 Accessory connections must exhibit a positive shoulder; pin face to box shoulder engagement. The delta torque of the shouldered connection shall be a minimum of 10% of the actual shoulder torque. The maximum published torque may be exceeded on thick wall accessories but shall not exceed 80% of the published minimum yield torque.

6.2 Connections which do not meet the criteria of Paragraph 6.1 should be set aside and a Hunting representative contacted as soon as possible.

6.3 Following buck-up, the ovality or out-of-roundness shall be within the specified manufacturing tolerances for the product when measured on the open end of the coupling.

6.4 End drift the made-up connection in accordance with the Hunting **"Full Length Drift/End Drift Inspection Procedure" (Generic).**

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 visually inspect.

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