



**SEAL-LOCK APEX
ANCILLARY
SPECIFICATIONS**

SECTION	V	
Prepared by	RBI	04/13/18
Engineer	SJH	04/16/18
GM QA	GJR	04/12/18
REVISION	005	04/16/18

SUBJECT: VISUAL THREAD INSPECTION

1.0 SCOPE

1.1 This document sets forth the broad guidelines for the field visual thread inspection of Hunting’s **SEAL-LOCK APEX** connections.

2.0 DEFINITION

2.1 Visual thread inspection shall be defined as those inspections that may be performed on Hunting’s proprietary connections without the use of proprietary thread element gages.

3.0 PIN/FIELD END INSPECTION

3.1 Pin Face

- 3.1.1 Place a straight edge across the pin face. Sight between the pin face and the straight edge to determine that the pin face has been cut at a negative angle.
- 3.1.2 Visually inspect the pin face for surface irregularities. Minor dents or dings to the pin face are detrimental to the connection, however, most can be repaired by lightly filing to remove all protrusions. Dents or dings on new connections that are sufficiently deep to cause a raised area or protrusion on the seal surface are rejectable.
- 3.1.3 The pin face, ID chamfer and OD chamfer are to be smooth and free from burrs.

3.2 Seal Surface

- 3.2.1 The active portion of the seal surface should be a slightly tapered, flat surface. Galls, burrs, dents, or dings on a new seal surface is cause for rejection.
- 3.2.2 Visually inspect the phonograph seal finish. The microgrooves should be distinct and uninterrupted from the pin face to the thread start within the definitions of minor pitting and continuity of seal surface.
- 3.2.3 Repair of a new seal surface by wire brushing, sanding or filing is unacceptable. Acceptable repair methods include polishing with 000 and 0000 steel wool, medium or fine grit Scotch Brite, #5 sugar sand blasting and (re)phosphate coating.

NOTE: Rephosphate coating must be performed in accordance with Ancillary Specification titled REWORK OF PHOSPHATE COAT FAILURES.

3.3 Threaded Area

- 3.3.1 Visually inspect for full form thread length. The full form thread length is measured from the thread start point axially along the thread crests.

NOTE: To meet the minimum pin connector full form thread length for SEAL-LOCK APEX requirements, the minimum continuous threads that are fully topped by the threading insert are as follows:

<u>PITCH</u>	<u>SIZE</u>	<u>THREADS</u>
6	2 3/8"	2
	2 7/8"	3
	3 1/2"	4
5	ALL	5
4	ALL	7

Thread height is the determining factor for full form thread length; a full height load flank is required to provide tensile strength.



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4.0 COUPLING/MILL END AND FIELD END INSPECTION

4.1 Mill Make-up

- 4.1.1 Visually inspect the powertight connection for indications of proper make-up. For internally shouldering connections such as SEAL-LOCK APEX, the pin face shall be in contact with the coupling torque shoulder. This may be checked by trying to pass a 0.005" feeler gage between the mill pin face and the ID torque shoulder.
- 4.1.2 Visually inspect the made-up pin ID on internally shouldered connections. It should show no signs of the seal buckling to the tube ID or torque shoulder rollover due to an overtorque condition during mill make-up.

4.2 Internal Torque Shoulder

- 4.2.1 Visually inspect the internal torque shoulder. The torque shoulder height should be approximately the same height for 360°. It shall be free from protrusions due to corrosion pitting or impact damage and free from burrs for 360°.

NOTE: The internal torque shoulder and seal surface on the field side of the coupling may have been damaged by the drift inspection.

4.3 Seal Surface

- 4.3.1 Visually inspect the thread-to-seal radius and the seal surface. The radius shall present a smooth, burr free transition from the thread relief groove to the seal surface. The seal shall be a slightly tapered, flat surface with a phonograph finish. Galls, burrs, dents or dings (hydrotest or drift created defects) on new couplings or box connectors are rejectable.
- 4.3.2 Visually inspect the phonograph seal finish. The microgrooves should be finer than those on the pin but still distinct and uninterrupted for the entire seal length within the definitions of minor pitting, inclusions and continuity of seal surface.

NOTE: The microgrooves of the phonograph seal finish may be hard to detect because of the phosphate coating.

4.4 Threaded Area

- 4.4.1 Visually inspect the full form thread area for damage. Small areas of impact damage or galls must be repaired. Field repairable thread damage on new connectors shall not exceed 0.125" in circumferential length or 0.003" in depth. All repaired areas should be covered with an anti-gall and anti-corrosion compound such as molybdenum disulfide spray.
- 4.4.2 Allowable corrosion pitting in the full form thread area shall be as defined in the Ancillary Specifications titled **STEEL IMPERFECTIONS**.

4.5 Coupling Face

- 4.5.1 Visually inspect the coupling face and OD chamfer for impact damage. Impact damage that has caused the starting thread crest to be indented sufficiently to cause interference with the pin connector thread root on make-up is cause for rejection. Minor impact damage may be repaired by lightly filing away all protrusions.



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5.0 CONNECTION GAGING
 5.1 The gaging of Hunting’s proprietary connections shall only be performed by a Hunting Quality Assurance or Service Representative or an approved Licensee. Hunting personnel or Licensee are the only persons that have availability to the proprietary gages to which the products are manufactured.

6.0 LONG TERM STORAGE
 For long term storage (more than 30 days), the connections shall be properly protected with a storage compound and properly tightened thread protectors. Hunting recommends the use of Kendex as the approved storage compound.

6.1 Remove the thread protectors.

6.2 Clean the connection using soap and water (preferable). Thoroughly dry the connections and thread protectors.

NOTE: Care must be taken to ensure that the cleaning process does not cause environmental pollution.

6.3 Verify that the connection is clean and free from contaminants.

6.4 Verify that there is no visual damage on the thread and seal areas of the connection. If any damage is found, please contact Hunting’s QA Department.

6.5 Apply Kendex on all areas of the connection. Please verify that there is no holidays or places without storage compound. Failure to do so, may lead to oxidation or pitting of the areas not covered by the storage compound.

6.6 Clean the thread protectors. The protectors shall be free from debris, dirt, oil and any other contaminant.

6.7 Apply the thread protectors and verify that they are tight.

7.00 RIG PREP

NOTE: Hunting recommends Best-O-Life PTC, Best-O-Life 4010NM, OCR 325, OCR 167ML50 for CRA material, LTF 4444, HTM 1001, Clear Glide, Jet Lube Seal Guard and Topco II as the tested and approved thread compounds for Hunting premium, metal-to-metal sealing products.

7.1 Remove the thread protectors.

7.2 Clean the connections using soap and water (preferable). Thoroughly dry the connectors and thread protectors.



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NOTE: Care must be taken to ensure that the cleaning process does not cause environmental pollution.

- 7.3 Verify that the connection is clean and free from contaminants.
- 7.4 Verify that there is no visual damage on the thread and seal areas of the connection. If any damage is found, please contact Hunting's QA Department.
- 7.5 Apply the water displacing corrosion inhibitor (CRC SP350 or equivalent) on the entire area of the connectors. A thin and even coat shall be applied.
- 7.6 Apply a thin and even coat of the recommended thread compound on the connections (pin and box). The whole thread and seal area shall be covered with an even coat.
- 7.7 Clean and dry the thread protectors. The protectors shall be free from debris, oil and any other contaminant.
- 7.8 Apply the thread protectors and verify that they are tight.

Failure to follow these directions can be detrimental to the connections.

8.0 REJECTION

- 8.1 Any thread that does not meet the specified requirements, shall be considered a reject.
- 8.2 All rejects shall have the entire thread area painted red.
- 8.3 All rejects shall be clearly identified as "reject" to protect against out-of-tolerance material being shipped as prime material.
- 8.4 Rejection may be reworked by removing the defective condition and re-threading the parts within the appropriate tolerances.
- 8.5 Any discrepancies shall be clarified and dispositioned by Hunting's Q.A. Department before any further processing or delivery.