DUXAOIL TEXAS LLC
A **Duralitte** Company

Recommended Practice for the Running and Make Up of API Steel Sucker Rods and Pony Rods - North America

Objective:
API products Make-up introduction and recommended practices.

Summary:
Duxaoil recommends the following procedure to run API sucker rods and pony rods on field locations.

Step by Step:

1. Verify the size and grade of sucker rods and ancillary equipment on location.
   BEFORE START: Please review that the equipment in the well matches the well data sheet.

2. Run the subsurface pump and other necessary downhole equipment into the well. (i.e., sinker bars, on-off tools,shear tools, etc.) WHEN HANDLING DOWNHOLE EQUIPMENT, please follow the manufacturer's recommendations.

3. Remove the plastic pin protector with anappropriate spanner wrench or an air impact wrench and 6-point socket. SELECT as many rods as necessary to run rods as continuously as possible.
   IT IS RECOMMENDED to work with a rod rack and prepping area on location. AVOID the use of sharp objects to remove the plastic pin protectors.

4. Clean the thread spin shoulder of all rods with no end caps until completely remove dope or oil storage compound from connection.
   Use cleaning solvents or biodegradable detergents (i.e. VARSOL) that may be supported with a non-metallic bristled brush.
   After cleaning dry using cloth, towels or pressurized air. DO NOT use gas-oil or any other compound that leaves oil residues. ALWAYS remove all debris during cleaning (i.e., dirt, scale, old lubricant, plastic, etc.)

5. Visually inspect the threads, pin shoulder and coupling face for indications of damage (i.e., pitting, wear, dents, etc.). IF FOUND, Please remove and replace damaged product prior to installation.

6. Remove enough couplings from the box and apply cleaning solvents or biodegradable detergents to the coupling face to remove any remaining lubricant film.

   USE a clean rag for drying.
   DO NOT allow lubricant to remain on the pin shoulder or coupling face.

7. Apply small drop of lubricant on the clean and dried pin thread just only on the first threads as is indicated on the picture below.

   DO NOT use pipe dope, or other lubricants that contain fillers on sucker rod threads.

Figure 1: example of applied thread lubricant.

8. Prior the assembling operation, it is important to hand tight the couplings at the ends of the rods on the opposite side to the ones heading towards the wellhead,

   REMEMBER than the pin should be already cleaned according to the procedure from the point 4.

9. Pick up the sucker rod, latch one end into the rod elevator and carry the other end until the sucker rod is hanging freely in the derrick.

   ALWAYS utilize two people when picking up and handling sucker rods.
   DO NOT allow the sucker rod to drag on the ground or over other metal objects.

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10. Carefully "stab" the sucker rod onto the pump bushing, pony rod pin, sinker bar pin or coupling, whichever is looking up. Start the lead or first threads by hand. With a rod wrench, spin the connection together until the pin shoulder and the coupling face touch, which is the hand-tight assembly.

DO NOT over-tighten. The connection is hand-tight when the pin shoulder and the coupling face touch without extraneous pressure applied.

11. Draw or scribe a vertical line across the top end of the coupling OD and the pin shoulder of the sucker rod.
Use an appropriate Circumferential Displacement (CD) Card to measure and draw a second mark across the pin shoulder in the direction of tightening.
Repeat the procedure at the bottom end of the coupling. DO assure that you are using the proper CD Card for your application. See the Circumferential Displacement Cards information sheet for details.

12. Use power tongs for final tightening, following the proper procedures for usage and calibration shown below.

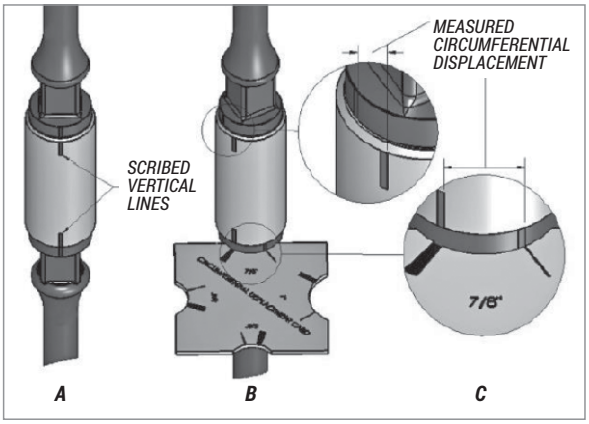
Power Tong Calibration and Usage Procedures:

(a) Back the tong pressure off to zero and position the power tongs on the connection.
(b) Attain full throttle and maintain constant engine RPM.
(c) Engage the power tongs and slowly increase the tong pressure until the first drawn mark on the coupling rotates to the second mark on the pin shoulder. The power tongs should come to a complete stop (i.e., the power tongs should stall) while engaged. DO NOT hit (bump) the connection again with the power tongs.
(d) Run this connection in the well.
(e) Repeat steps 3 through 10 with respect to handling, stabbing, hand-tightening the assembly and marking the connection for the next sucker rod.
(f) Attain full throttle and maintain constant engine RPM.
(g) Engage the power tongs and displace the connection at the current tong pressure setting. The power tongs should come to a complete stop (i.e., the power tongs should stall) while engaged. DO NOT hit (bump) the connection again with the power tongs.

(h) Check the pin shoulder and coupling marks for the correct displacement. If necessary, adjust the tong pressure, break and remake the connection.

(i) Once the correct displacement is obtained, run this connection in the well.

(j) With correct displacement now established, repeat steps 12e through 12i for a total of five times to audit the mechanical integrity of the power tongs and related equipment before proceeding to step 13.



13. Makeup Procedures:

- Repeat steps 3 through 10 with respect to handling, stabbing and hand-tightening the connection for next sucker rod.
- Attain full throttle and maintain constant engine RPM.
- Engage the power tongs and displace the connection at the current tong pressure setting. The power ongs should come to a complete stop (i.e., the power tongs should stall) while engaged. DO NOT hit (bump) the connection again with the power tongs.
- Run this connection in the well.

Recalibration Recommendations:

- Repeat steps 12e through 12i every tenth connection.
  DO adjust tong pressure as necessary at this step. This will account for changes in the temperature of the hydraulic oil and the resulting change in tong pressure displacement.
- Repeat steps 12e through 12i when changing sizes.
  EVERY change in rod size requires a change in circumferential displacement and an associated change in the tong pressure setting.
  ALWAYS use the current tong pressure setting for sub-couplings (i.e., changeover couplings, crossover coupling, combination couplings, etc.)
- Repeat steps 12e through 12i after scheduled or unscheduled downtime such as lunch breaks, equipment repairs or other delays.
  DO adjust tong pressure as necessary at this step. This will account for changes in the temperature of the hydraulic oil and the resulting change in tong pressure displacement.

Other Recommendations:

- Keep the power tong and the related equipment well maintained in accordance with the manufacturer specifications.
- When using power tongs, it is recommended that the hydraulic oil system be circulated until a normal operating temperature is reached and that this temperature be maintained within a reasonable level through calibration and installations of the sucker rod string.
- Use power tongs for break-out to prevent damage to the sucker rod connection.
- When Checking CD, the top and the bottom mark may not line up exactly in the same position. This is usually not cause for concern. As long as both the top and the bottom of the connection are lined up to within of the mark on the CD card, the rod is within the correct make-up tolerance.