

Durlon® Bolt Tightening Worksheet

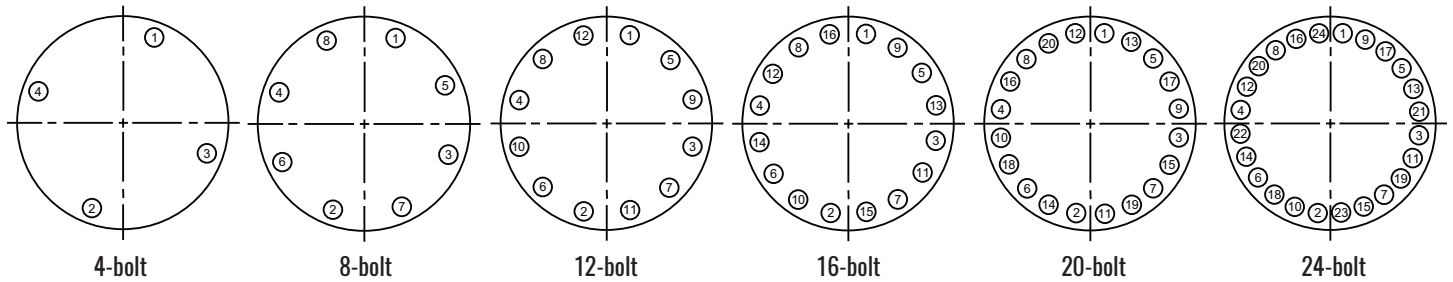
We recommend the completion of any installation assembly worksheet with the details, including the installer signature and date for verification. You can use the Durlon® worksheet for easy adoption into your QC program.

Location/Identification: _____ Nominal Bolt Size: _____

Gasket Contact Surface Finish on Flange: _____ Lubricant Used: _____

(Initial each step as you progress through the list below.)

- _____ 1. Be sure system is at ambient temperature and depressurized. Follow local safety rules.
- _____ 2. Visually examine and clean flanges, bolts, nuts and washers. Replace components if necessary.
- _____ 3. Lubricate bolts, nuts, and nut bearing surfaces. Use of hardened steel washers are recommended.
- _____ 4. Install new gasket. DO NOT REUSE OLD GASKET, OR MULTIPLE GASKETS.
- _____ 5. Number bolts in cross-pattern sequence according to the appropriate illustrations below.
- _____ 6. **IMPORTANT! HAND TIGHTEN NUTS, then using a hand wrench, SNUG BOLTS $\frac{1}{8}$ TO $\frac{1}{4}$ turn, following the appropriate cross-pattern tightening sequence for the number of bolts below.**
- _____ 7. Starting at the #1 bolt, use the appropriate cross-pattern tightening sequence for Rounds 1, 2, and 3 (each sequence constitutes a "Round").



_____ Final Torque: _____ Ft-lbs

LUBRICATE, HAND TIGHTEN, PRE-TIGHTEN BOLTS

- _____ Round 1: Tighten to _____ Ft-lbs - 1st torque value in torque chart (30% of final torque)
- _____ Round 2: Tighten to _____ Ft-lbs - 2nd torque value in torque chart (60% of final torque)
- _____ Round 3: Tighten to _____ Ft-lbs - Final torque value in torque chart (100% of final torque)

Check gap at 90° intervals around the flange between each of these rounds. Larger flanges may require checking the gap in smaller intervals.

If the gap is not reasonably uniform, make the appropriate adjustments by selective bolt tightening before proceeding.

_____ **Rotational Round** - 100% of Final Torque (same as Round 3). Use rotational, clockwise tightening sequence, starting with Bolt No. 1, for at least two complete rounds and continue until no further nut rotation occurs at 100% of the Final Torque value for any nut.

_____ **Retorque** - Short-term bolt preload loss can occur between four to twenty-four hours after initial tightening due to bolt relaxation and/or gasket creep. Repeating the Rotational Sound recovers this loss. This is especially important for PTFE gaskets.

Joint Assembler: _____ Date: _____

For torque questions, or tightening patterns for large diameter flanges, contact tech @durlon.com

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