

BOLT TORQUES — PROPER FLANGE INSTALLATIONS IPP Deltaflex® Flange Bolt Tightening Procedures

IPP recommends the following procedures to ensure a reliable and tight IPP Deltaflex® flange joint.

Alignment

I. The sealing faces of the two stub-ends in a joint should contact each other or in the case of rubber gasketed joint be parallel to each other all around the circumference and in full contact (see lines A-A, B-B, C-C in Fig. 1 and 2).

II. The IPP Deltaflex® flange face D-D (see Fig. 3) should be in full contact all around the circumference with the upper face of the stub-end to avoid fulcrum effect which will lead to leaking and even breaking of the flange itself while torquing the bolts.

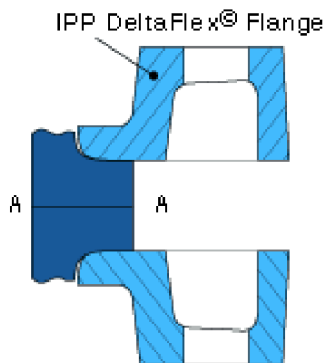


FIGURE 1: HDPE Stub-end

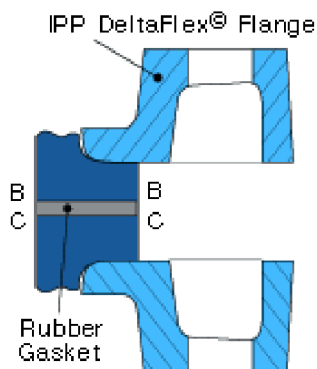


FIGURE 2: Steel Stub-end

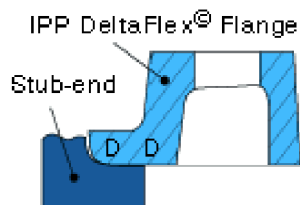


FIGURE 3

Bolt Tightening

1. Install all the bolts and nuts finger-tight, ensuring at all times that the alignment conforms to figures 1, 2, and 3.

2. As the first torquing step, tighten the bolts in a crisscross sequence as shown in Fig. 4. Using a torque wrench with 20% of the final torque listed in the table on the other side of this sheet, taking care that points (I) and (II) are satisfied at all times.

3. In the four remaining steps, repeat step two four times, each time increasing the torque by 20% of the final value.

4. After reaching the final torque, use rotational tightening until all bolts are stable at the final torque value (in general two complete times around is required).

Always use the crisscross pattern!

Caution! Do not use this procedure to align and/or pull the joint together.

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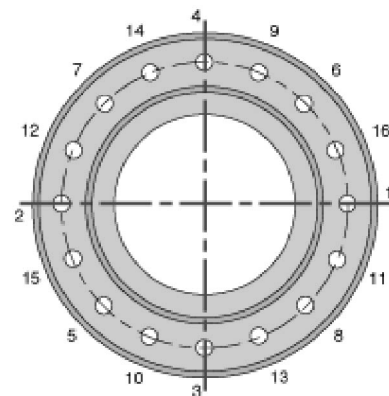


FIGURE 4: Tightening Sequence