

Installation Procedures

Seal installation is as important to the performance of the bolted joint as the flange, bolt and seal design. Following these simple steps will help ensure a successful installation.

Preparation Verify the seal part number, required bolt loading and any special handling or installation instructions. Seals should remain in original protective packaging and preferably be stored in a controlled environment until time of installation. Finally, the packaging should be opened carefully to avoid scratching or damaging the seal. Be especially careful when using razor knives to open seal packaging or container.

Inspection Inspect the groove and flanges to make sure the seal track area is free of burrs, debris and any radial marks or scratches. If necessary, clean the groove carefully with acetone or alcohol using a lint free cloth. Any radial scratches must be removed by careful polishing (polishing marks must follow seal circumference). Deeper scratches may require re-cutting the groove and/or re-facing the flange. Additionally, the sealing surface of the seal should be inspected for scratches and carefully handled to avoid dings, dents and radial marks or scratches.

Seal installation Carefully, place the seal into the groove or onto the flange. Gently bring the mating flange into place taking care not to scratch or damage the seal during all steps of the process.

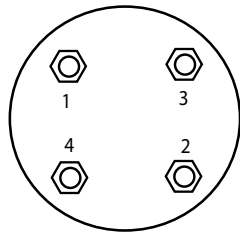
Note: Large seals (> 36") should be supported every three feet of circumference to prevent bending or crimping.

Bolts / Fasteners Bolts, bolt holes and nuts should be free of burrs, debris and galling. Bolts and nuts should be well lubricated with a process compatible lubricant. Hardened washers should be used when possible to further reduce friction. Note: for critical applications the installer may want to preload the bolts and release (without the seal) two or three times to "run in" the threads.

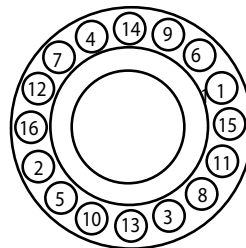
Bolt Tightening Bolts should be tightened using a star pattern (see diagram). Number the bolts with an indelible marker to make the process easier. First, tighten the nuts until "finger tight". Then, tighten bolts in one-third increments, according to the proper star bolting pattern. Make a final check pass at the final target torque value moving consecutively from bolt to bolt in a rotational order starting with bolt number one. It is recommended to re-torque 12-24 hours after initial installation, especially for high temperature applications.

Removing Used Seals Most metal seals are designed to make some light contact with the groove wall during compression and service. This helps to reinforce the seal against the system pressure. As a result, it may be difficult to remove the seal with finger force only, especially if the groove is very narrow. Ideally, a hard plastic pick can be used to remove the seal. For some seals, you may carefully drill a small hole in the top of the seal and use a small pick. In all cases, great care must be taken not to scratch the groove when using tools to remove the seal.

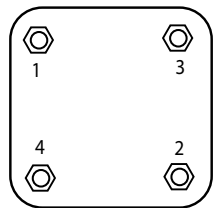
Correct Bolting Patterns



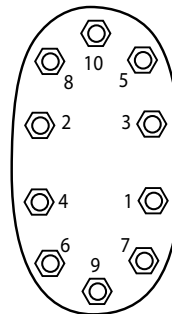
Circular Four-Bolt



Circular Multibolt



Square
Four Bolt



Noncircular
Multibolt