IMPORTANT
Whenever possible, install the valve with the shaft in the horizontal position and, if possible, with the cast-in disc stop located top-side of the pipe. If the shaft cannot be positioned horizontally, position the shaft so that it is not on the vertical centerline in a horizontal pipe run. This will minimize any depositing of solid particles present in the fluid into the lower bearing.

CAUTION
The valve should be installed in the closed position to insure that the seat and disc are not damaged during installation. Particular care should be taken with valves equipped with ‘fail open’ actuators. Failure to insure proper handling may result in damage to the valve.

If the pipe is lined, confirm that the disc rotation does not contact the lining during the opening stroke. Failure to confirm that the disc rotation does not contact the lining may result in damage to the valve.

GENERAL
Suggested installation orientation is with valve shaft horizontal or inclined from vertical. Unless otherwise recommended by Emerson, mount the valve in the preferred direction with the directional arrow pointing to the lower pressure side so that the front face of the disc will be upstream when the valve is in the closed position.

Thermal insulation of the body is mandatory for operating temperatures above 392°F [200°C]. K-LOK offers the following body styles:

Series 36 and 37 – Wafer style

INSPECTION

3. Inspect the seat and disc edge to insure that they were not damaged in handling. This is especially important in the case of valves with ‘fail-open’ actuators.

4. Confirm that the materials of construction listed on the valve nameplate are appropriate for the service intended and are as specified.

5. Locate the directional arrow on the body that defines the preferred mounting orientation in respect to the pressure. In most cases, the valve is properly installed when the actual fluid flow or high pressure is acting on the front face of the disc when the valve is closed.

6. Ensure that the packing gland and bottom cover bolting nuts are tight.

CAUTION
Whenever possible, install the valve with the shaft in the horizontal position and, if possible, with the cast-in disc stop located top-side of the pipe. If the shaft cannot be positioned horizontally, position the shaft so that it is not on the vertical centerline in a horizontal pipe run. This will minimize any depositing of solid particles present in the fluid into the lower bearing.
INSTALLATION

The valves are shipped with flange gasket surface protection. Before installing the valve, remove the protection and carefully clean and de-grease both surfaces with a solvent.

Series 36 and 37 – Wafer style
1. Orient the valve with the directional flow arrow (preferred direction) pointing in the proper direction.
2. Insert the valve between the flanges until the alignment holes at either side of the valve match the corresponding holes in the flanges.
3. Insert a long bolt or stud through the flange and thread it through the alignment hole. This will allow the valve to center itself properly for the installation of the flange gaskets.
4. Install the flange gaskets and the remaining flange bolting.
5. Remove the long bolts/studs from the lower alignment holes and replace with correctly-sized bolts.
6. Using the crossover method, tighten all flange bolts.

VALVE CHECKOUT

1. Tighten the packing gland bolting just enough to prevent shaft leakage. Over-tightening will decrease packing life and increase operating torque requirements.
2. Check the operation of the valve by stroking it to ‘full open’ and ‘full close’. To determine the valve orientation of the disc, double D’s and keyways are aligned with the disc. The valve disc travels clockwise to close.
3. For automated valves, set the air pressure/electrical voltage for at least the minimum given to operate the actuator. For pneumatic actuators, do not apply more than 1.25 times the pressure for which the actuator was designed.

Note: for spring return actuators with positioners, overpressure will cause excessive time delay in the spring movement for the valve disc to travel out of the seat.

OPERATION

The K-LOK has been designed to require a minimum of maintenance. Generally, only maintenance on the packing box is required.

MAINTENANCE

If shaft leakage is observed through the packing box, tighten the gland nuts.

Note: do not over-tighten packing box gland nuts. Over-tightening will increase the torque required to operate the valve. When tightening the gland nuts, use half-turn increments until leakage has stopped.

DISASSEMBLY

To begin disassembly, refer to the parts list (Figure 4) and proceed as follows:

WARNING
Depressurize the valve and associated piping before disassembly. Failure to do so may cause serious personal injury and/or equipment damage.

1. Remove the valve from the line. Clean the valve according to proper cleaning procedures as outlined by the plant or according to a prescribed procedure.
2. Remove the actuator and relevant connecting key. Note the actuator position relative to the valve.
3. Removing the Bracket and Adapter
To disassemble adapter and bracket remove the following components:
  : Bracket (30)
  : Adapter (28)
  : Washers (31, 33)
  : Bolts (32)
  : Grub screw (34)
  : Key (27)
  : Nuts (16)

CAUTION
Throughout disassembly and assembly, always use cardboard or brass shims to protect the valve body, disc, flange and sealing surfaces from damage. Failure to do so may result in serious damage to the valve.

Note: Some of the weld on the taper pins [S] may need to be removed by grinding.

WARNING
When placing the valve into the bench vise, make sure the small end of the disc [2] taper pin faces the assembler. (see Figure 1)

Hold the punch with a punch holder or a pair of vise grips. Otherwise, serious injury may occur.

Figure 1 - Valve properly clamped in place.

Removing the disc-to-shaft tapered pin connections
1. Open the valve disc [2] to its full open position.

Note: on valve sizes NPS 10 (DN 250) and larger, it is recommended that two workers perform the disc tapered pin [S] removal process.

2. Place the disc in a vise.
3. Using a tool steel punch, locate the punch on the small end of the disc taper pin [S] and then strike the punch with a heavy hammer.

Figure 1 - Valve properly clamped in place.
Removing the seat retainer gasket
Remove the seat retainer gasket (22). Use a powered wire brush tool to remove the gasket material that may have adhered to the mating body surfaces.

Removing the seat assembly
To remove the seat assembly, treat the seat (21) and its associated components as a single assembly by removing the following:

- seat (21.1)
- wire wrap (21.2)
- seat backing ring (21.3)

Removing the upper shaft and disc

**CAUTION**
Throughout this operation, make sure the disc edges remain protected from contact with the body by installing cardboard at all disc hub areas. Failure to do so may cause damage to the disc sealing edge.

1. Spray penetrating oil into the disc hub where it meets the shaft connection.
2. Insert an eyebolt into the lower shaft (4) and use it to pull the lower shaft (4) out of the disc (2). See chart below for proper eyebolt size.

<table>
<thead>
<tr>
<th>Valve size</th>
<th>Tap</th>
</tr>
</thead>
<tbody>
<tr>
<td>NPS 2 to NPS 6</td>
<td>M6 x 1</td>
</tr>
<tr>
<td>NPS 8 to NPS 12</td>
<td>M10 x 1.5</td>
</tr>
<tr>
<td>NPS 14 to NPS 36</td>
<td>M14 x 2</td>
</tr>
</tbody>
</table>

3. Lightly strike the backside of the disc hub area with a hammer if the shaft is resistant to removal.

Removing the lower shaft assembly

**CAUTION**
Throughout this operation, make sure the disc edges remain protected from contact with the body by installing cardboard at all disc hub areas. Failure to do so may cause damage to the disc sealing edge.

1. Spray penetrating oil into the disc hub where it meets the shaft connection.
2. Insert an eyebolt into the lower shaft (4) and use it to pull the lower shaft (4) out of the disc (2). See chart below for proper eyebolt size.

3. Lightly strike the backside of the disc hub area with a hammer if the shaft is resistant to removal.

Removing the upper shaft and disc

**CAUTION**
Throughout this operation, make sure the disc edges remain protected from contact with the body by installing cardboard at all disc hub areas. Failure to do so may cause damage to the disc sealing edge.

1. When removing the upper shaft (3) from the disc (2), clamp the vise jaws on to the upper shaft (3) area above the valve body top plate.
2. Once the vise jaws are secure against the upper shaft (3), drive the wedge-shaped chisel/punch between the valve body (1) top plate and the bench vise. (see Figure 2)
3. As the valve body (1) moves away from the bench vise, the upper shaft (3) is removed from the upper disc (2) hub.
4. Continue to reposition the valve body (1) with the bench vise so as to allow removal of upper shaft (3).

Removing Bottom cover gasket
Remove the Bottom cover gasket (17). Use pick and hook tool to remove the gasket that may have adhered to gasket groove in bottom cover.

Removing the lower shaft assembly

**CAUTION**
Throughout this operation, make sure the disc edges remain protected from contact with the body by installing cardboard at all disc hub areas. Failure to do so may cause damage to the disc sealing edge.

1. Spray penetrating oil into the disc hub where it meets the shaft connection.
2. Insert an eyebolt into the lower shaft (4) and use it to pull the lower shaft (4) out of the disc (2). See chart below for proper eyebolt size.

3. Lightly strike the backside of the disc hub area with a hammer if the shaft is resistant to removal.

Removing the upper shaft and disc

**CAUTION**
Throughout this operation, make sure the disc edges remain protected from contact with the body by installing cardboard at all disc hub areas. Failure to do so may cause damage to the disc sealing edge.

1. When removing the upper shaft (3) from the disc (2), clamp the vise jaws on to the upper shaft (3) area above the valve body top plate.
2. Once the vise jaws are secure against the upper shaft (3), drive the wedge-shaped chisel/punch between the valve body (1) top plate and the bench vise. (see Figure 2)
3. As the valve body (1) moves away from the bench vise, the upper shaft (3) is removed from the upper disc (2) hub.
4. Continue to reposition the valve body (1) with the bench vise so as to allow removal of upper shaft (3).

Removing the bottom cover assembly
To disassemble the bottom cover assembly, remove the following bottom cover assembly components:

- bottom cover plate (18)
- bottom cover gasket (17)
- washer (19)
- screw (20)

Removing Bottom cover gasket
Remove the Bottom cover gasket (17). Use pick and hook tool to remove the gasket that may have adhered to gasket groove in bottom cover.

Removing the lower shaft assembly

**CAUTION**
Throughout this operation, make sure the disc edges remain protected from contact with the body by installing cardboard at all disc hub areas. Failure to do so may cause damage to the disc sealing edge.

1. Spray penetrating oil into the disc hub where it meets the shaft connection.
2. Insert an eyebolt into the lower shaft (4) and use it to pull the lower shaft (4) out of the disc (2). See chart below for proper eyebolt size.

3. Lightly strike the backside of the disc hub area with a hammer if the shaft is resistant to removal.

Removing the upper shaft and disc

**CAUTION**
Throughout this operation, make sure the disc edges remain protected from contact with the body by installing cardboard at all disc hub areas. Failure to do so may cause damage to the disc sealing edge.

1. When removing the upper shaft (3) from the disc (2), clamp the vise jaws on to the upper shaft (3) area above the valve body top plate.
2. Once the vise jaws are secure against the upper shaft (3), drive the wedge-shaped chisel/punch between the valve body (1) top plate and the bench vise. (see Figure 2)
3. As the valve body (1) moves away from the bench vise, the upper shaft (3) is removed from the upper disc (2) hub.
4. Continue to reposition the valve body (1) with the bench vise so as to allow removal of upper shaft (3).

Removing Bottom cover gasket
Remove the Bottom cover gasket (17). Use pick and hook tool to remove the gasket that may have adhered to gasket groove in bottom cover.

Removing the lower shaft assembly

**CAUTION**
Throughout this operation, make sure the disc edges remain protected from contact with the body by installing cardboard at all disc hub areas. Failure to do so may cause damage to the disc sealing edge.

1. Spray penetrating oil into the disc hub where it meets the shaft connection.
2. Insert an eyebolt into the lower shaft (4) and use it to pull the lower shaft (4) out of the disc (2). See chart below for proper eyebolt size.

3. Lightly strike the backside of the disc hub area with a hammer if the shaft is resistant to removal.

Removing the upper shaft and disc

**CAUTION**
Throughout this operation, make sure the disc edges remain protected from contact with the body by installing cardboard at all disc hub areas. Failure to do so may cause damage to the disc sealing edge.

1. When removing the upper shaft (3) from the disc (2), clamp the vise jaws on to the upper shaft (3) area above the valve body top plate.
2. Once the vise jaws are secure against the upper shaft (3), drive the wedge-shaped chisel/punch between the valve body (1) top plate and the bench vise. (see Figure 2)
3. As the valve body (1) moves away from the bench vise, the upper shaft (3) is removed from the upper disc (2) hub.
4. Continue to reposition the valve body (1) with the bench vise so as to allow removal of upper shaft (3).

Removing Bottom cover gasket
Remove the Bottom cover gasket (17). Use pick and hook tool to remove the gasket that may have adhered to gasket groove in bottom cover.

Removing the lower shaft assembly

**CAUTION**
Throughout this operation, make sure the disc edges remain protected from contact with the body by installing cardboard at all disc hub areas. Failure to do so may cause damage to the disc sealing edge.

1. Spray penetrating oil into the disc hub where it meets the shaft connection.
2. Insert an eyebolt into the lower shaft (4) and use it to pull the lower shaft (4) out of the disc (2). See chart below for proper eyebolt size.

3. Lightly strike the backside of the disc hub area with a hammer if the shaft is resistant to removal.

Removing the upper shaft and disc

**CAUTION**
Throughout this operation, make sure the disc edges remain protected from contact with the body by installing cardboard at all disc hub areas. Failure to do so may cause damage to the disc sealing edge.

1. When removing the upper shaft (3) from the disc (2), clamp the vise jaws on to the upper shaft (3) area above the valve body top plate.
2. Once the vise jaws are secure against the upper shaft (3), drive the wedge-shaped chisel/punch between the valve body (1) top plate and the bench vise. (see Figure 2)
3. As the valve body (1) moves away from the bench vise, the upper shaft (3) is removed from the upper disc (2) hub.
4. Continue to reposition the valve body (1) with the bench vise so as to allow removal of upper shaft (3).

Removing Bottom cover gasket
Remove the Bottom cover gasket (17). Use pick and hook tool to remove the gasket that may have adhered to gasket groove in bottom cover.

Removing the lower shaft assembly

**CAUTION**
Throughout this operation, make sure the disc edges remain protected from contact with the body by installing cardboard at all disc hub areas. Failure to do so may cause damage to the disc sealing edge.

1. Spray penetrating oil into the disc hub where it meets the shaft connection.
2. Insert an eyebolt into the lower shaft (4) and use it to pull the lower shaft (4) out of the disc (2). See chart below for proper eyebolt size.

3. Lightly strike the backside of the disc hub area with a hammer if the shaft is resistant to removal.

Removing the upper shaft and disc

**CAUTION**
Throughout this operation, make sure the disc edges remain protected from contact with the body by installing cardboard at all disc hub areas. Failure to do so may cause damage to the disc sealing edge.

1. When removing the upper shaft (3) from the disc (2), clamp the vise jaws on to the upper shaft (3) area above the valve body top plate.
2. Once the vise jaws are secure against the upper shaft (3), drive the wedge-shaped chisel/punch between the valve body (1) top plate and the bench vise. (see Figure 2)
3. As the valve body (1) moves away from the bench vise, the upper shaft (3) is removed from the upper disc (2) hub.
4. Continue to reposition the valve body (1) with the bench vise so as to allow removal of upper shaft (3).

Removing the upper shaft and disc

**CAUTION**
Throughout this operation, make sure the disc edges remain protected from contact with the body by installing cardboard at all disc hub areas. Failure to do so may cause damage to the disc sealing edge.

1. When removing the upper shaft (3) from the disc (2), clamp the vise jaws on to the upper shaft (3) area above the valve body top plate.
2. Once the vise jaws are secure against the upper shaft (3), drive the wedge-shaped chisel/punch between the valve body (1) top plate and the bench vise. (see Figure 2)
3. As the valve body (1) moves away from the bench vise, the upper shaft (3) is removed from the upper disc (2) hub.
4. Continue to reposition the valve body (1) with the bench vise so as to allow removal of upper shaft (3).
Figure 4
MATERIALS OF CONSTRUCTION
### STANDARD MATERIALS OF CONSTRUCTION

<table>
<thead>
<tr>
<th>Pos</th>
<th>Description</th>
<th>Material</th>
<th>Material standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Body</td>
<td>Carbon Steel</td>
<td>ASTM A216-WCB/ EN 10213 GP240H/ 1.0619</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Stainless Steel</td>
<td>ASTM A351-CF8M/ EN 10213 1.4408</td>
</tr>
<tr>
<td>2</td>
<td>Disc</td>
<td>Stainless Steel</td>
<td>ASTM A351-CF8M/ EN 10213 1.4408</td>
</tr>
<tr>
<td>3</td>
<td>Upper Stem</td>
<td>17-4PH SS</td>
<td>ASTM A564- Condition H1075 or H1100</td>
</tr>
<tr>
<td>4</td>
<td>Lower Stem</td>
<td>17-4PH SS</td>
<td>ASTM A564- Condition H1075 or H1100</td>
</tr>
<tr>
<td>5</td>
<td>Taper Pin</td>
<td>17-4PH SS</td>
<td>ASTM A564- Condition H1075 or H1100</td>
</tr>
<tr>
<td>6</td>
<td>Spacer</td>
<td>316 SS</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Thrust Washer</td>
<td>316SS/BRZ/PTFE</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Bearing</td>
<td>316SS/BRZ/PTFE</td>
<td>RTFE/Composite</td>
</tr>
<tr>
<td>9</td>
<td>Anti-Extrusion Ring</td>
<td>316 SS</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Stem Packing</td>
<td>PTFE</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Ring, Stem Retention</td>
<td>316 SS</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Gland</td>
<td>316 SS</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Gland Bridge</td>
<td>17-4PH SS</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>Stud</td>
<td>B8 CL2</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>Belleville Washer</td>
<td>50 CrV4</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>Hex Nut</td>
<td>Stainless steel 18.8</td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>Bottom Spiral Wound</td>
<td>A51 316+graphite</td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>Bottom Cover</td>
<td>Carbon steel</td>
<td>ASTM A516 Gr.70-WCB</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Stainless steel</td>
<td>ASTM A240</td>
</tr>
<tr>
<td>19</td>
<td>Washer, ext. Tooth Lock</td>
<td>Stainless steel 18.8</td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>Screw, Hex HD Cap</td>
<td>B8 CL2</td>
<td></td>
</tr>
<tr>
<td>21</td>
<td>Seat Assembly</td>
<td></td>
<td></td>
</tr>
<tr>
<td>21.1</td>
<td>Seat</td>
<td>Polymer</td>
<td>PTFE, RTFE</td>
</tr>
<tr>
<td>21.2</td>
<td>Wire Structure</td>
<td>Stainless steel</td>
<td></td>
</tr>
<tr>
<td>21.3</td>
<td>Seat Backing Ring</td>
<td>Stainless steel</td>
<td></td>
</tr>
<tr>
<td>22</td>
<td>Gasket Seat Retaining Ring</td>
<td>Graphite</td>
<td></td>
</tr>
<tr>
<td>23</td>
<td>Seat Retaining Ring</td>
<td>Carbon steel</td>
<td>ASTM A516 Gr.70-WCB</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Stainless steel</td>
<td>ASTM A240</td>
</tr>
<tr>
<td>24</td>
<td>Retainer Plate</td>
<td>Stainless steel</td>
<td>Carbon steel/zinc plated</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Carbon steel/zinc plated</td>
<td></td>
</tr>
<tr>
<td>25</td>
<td>Retainer Plate/Clip Screw</td>
<td>Stainless steel 18.8</td>
<td></td>
</tr>
<tr>
<td>26</td>
<td>Clip</td>
<td>Stainless steel</td>
<td></td>
</tr>
<tr>
<td>27</td>
<td>Key</td>
<td>Carbon steel</td>
<td></td>
</tr>
<tr>
<td>28</td>
<td>Coupling [Adaptor]</td>
<td>17-4PH SS</td>
<td></td>
</tr>
<tr>
<td>29</td>
<td>Indicator Pin</td>
<td>Rubber</td>
<td>Black color</td>
</tr>
<tr>
<td>30</td>
<td>Bracket</td>
<td>Carbon steel</td>
<td>Protection level C2 per ISO2081</td>
</tr>
<tr>
<td>31</td>
<td>Washer, Split lock</td>
<td>Stainless steel</td>
<td></td>
</tr>
<tr>
<td>32</td>
<td>Hex Head Bolt</td>
<td>Stainless steel</td>
<td></td>
</tr>
<tr>
<td>33</td>
<td>Plain Washer</td>
<td>Stainless steel</td>
<td></td>
</tr>
<tr>
<td>34</td>
<td>Set screw</td>
<td>Stainless steel</td>
<td></td>
</tr>
</tbody>
</table>

All fasteners are SS (B8M CL2/B8 CL2)
ASSEMBLY

Installing shaft bearing
1. Insert the body into a vice as shown below. Protect the body flange surfaces from the vise clamping surfaces with cardboard or brass shims.
2. To avoid damaging the shaft bearing (8), gently press the bearing into the shaft body journal by lightly striking the bearing (8) with a rubber mallet.
3. Once the shaft bearing (8) has been partially inserted into the valve body journal, insert the installation/removal tool against the upper shaft bearing. (see Figure 5)
4. Strike the tool with a hammer to continue inserting the shaft bearing until it is flush with the body flowpath surface. (see Figure 6)

Installing the disc/shaft assembly

CAUTION
To prevent damage to the disc, do not allow the disc edges to contact the body flowpath surface.

1. Install the upper shaft (3) and lower shaft (4) into the valve body shaft journals with the pinning grooves position on top of the shaft side view.

Note: The upper and lower shafts are correctly installed when the lower ends of the shafts are flush with the body flowpath surface.

Removing the shaft bearing

Note: a special bearing removal/installation tool is required to remove or install the shaft bearing (8). The tool O.D. dimension should be as near in size as the valve shaft bore I.D. dimension and have a Class 3 fit. Any Machinist Handbook can provide Class 3 tolerances.

1. Insert the removal tool in the valve body (1) top plate area and down the upper shaft journal until the tool contacts the upper shaft bearing.
2. Remove the upper shaft bearing (8) by striking the tool with a hammer.
3. Insert the removal tool in the valve body (1) bottom plate area and down the lower shaft journal until the tool contacts the lower shaft bearing.
4. Strike the tool until the lower shaft bearing (8) is clear of the lower body shaft journal.

Inspecting the valve components

1. After disassembly, visually inspect the seat retainer ring (23) and the bottom cover plate (18).
2. Make sure all body sealing surfaces:
   • are flat
   • are free of corrosion damage
   • have a smooth surface
   • are free of burrs.

Remove any burrs with fine grit sandpaper.

3. Inspect for scratches around disc edges:
   • If scratched, smooth the edge with fine grit sandpaper (220/400 wet/dry sandpaper)
   • Remove the scratch by using a blending motion and extend the smoothed area at least two inches above, below and around the original scratch
   • To polish the disc edge, use a powered wire brush
   • Finish sand or polish the edge on a lathe, as required.
4. Check to see that the upper and lower [3, 4] shaft-to-bearing (8) contact locations are free of galling.
5. Check to see that the upper [3] shaft-to-packing (23) contact area is free of scratches.

Note: if scratched or galled, these surfaces should be polished or replaced.
2. Insert the disc locating spacers [6] and thrust washers into the grooves on either side of the disc [2]. Align the spacer flat surface with the body flat surface on the shaft journals.


5. If required, rotate the shafts until the shaft tapered pin holes are in alignment with the disc [2] hub tapered pin holes.

6. Manually push the disc tapered pins [5] to install them through the disc hub tapered pin holes.

7. Install the packing set (see Installing the packing set).


**Installing the packing set**

1. Install the anti-extrusion packing ring [9], packing set [10], second anti-extrusion ring [9], shaft retention ring [11], belleville washers [15] and packing gland [12] into the upper journal of the valve body [1]. (See Figure 8)

2. Keeping the disc assembly [2 - 6] in the closed position, tighten the packing nuts [16]. Nuts have been correctly tightened when the packing gland plate [13] is flush with the valve body [1] top plate.

**Belleville Washer**

<table>
<thead>
<tr>
<th>Size</th>
<th>Qty</th>
</tr>
</thead>
<tbody>
<tr>
<td>NPS 2 - NPS 12 [DN 50 to DN 300]</td>
<td>8</td>
</tr>
</tbody>
</table>

**Torque for Gland Bolts**

<table>
<thead>
<tr>
<th>Valve (in)</th>
<th>Stud</th>
<th>Torque (Nm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>M8 x 1.25</td>
<td>23</td>
</tr>
<tr>
<td>2.5</td>
<td>M8 x 1.25</td>
<td>23</td>
</tr>
<tr>
<td>3</td>
<td>M8 x 1.25</td>
<td>24</td>
</tr>
<tr>
<td>4</td>
<td>M8 x 1.25</td>
<td>28</td>
</tr>
<tr>
<td>5</td>
<td>M8 x 1.25</td>
<td>28</td>
</tr>
<tr>
<td>6</td>
<td>M10 x 1.5</td>
<td>39</td>
</tr>
<tr>
<td>8</td>
<td>M10 x 1.5</td>
<td>48</td>
</tr>
<tr>
<td>10</td>
<td>M10 x 1.5</td>
<td>57</td>
</tr>
<tr>
<td>12</td>
<td>M10 x 1.5</td>
<td>61</td>
</tr>
</tbody>
</table>

**Installing the standard seat assembly**

1. Check to make sure the disc [2] is in the closed position against the body [1] disc stop.

2. Install the seat with the smallest inside diameter down. If the seat is incorrectly installed, it will ride higher on the disc than if installed correctly.

**To install RTFE and PTFE seats:**

1. Place the seat backing ring [21.3] into the seat [21.1].

2. Press the backing ring into the seat [21.1] until no gaps are present between the backing splits.

3. Rotate the seat assembly until the seat backing ring [21.3] splits align with the body shaft journals.

4. Place the seat assembly [21] into the valve body [1] seat pocket. The seat assembly is correctly placed when the 'V' groove on the side of the seat [21] is facing toward the assembler.

**Installing the bottom cover assembly**

1. Place the bottom cover gasket [17] on the bottom cover plate [18] gasket groove.


3. Tighten the four bolts and washers [19, 20].

4. There should be a uniform gap between bottom cover and body.

<table>
<thead>
<tr>
<th>Table 1: Bottom Cover Gasket Screw Torques</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class 150/300</td>
</tr>
<tr>
<td>Metric bolt size</td>
</tr>
<tr>
<td>M6</td>
</tr>
<tr>
<td>M8</td>
</tr>
<tr>
<td>M10</td>
</tr>
</tbody>
</table>

**Figure 7 - Proper placement of seat retainer gasket.**

**Figure 8 - Installing the Packing Set**
After assembling and testing the valve, lock the three disc/shaft taper pins (5) by forcefully driving the tapered pins in place with a hammer and steel punch.

2. TIG weld the disc taper pins (5). Weld using filler rod referenced in Table 1.

CAUTION
To prevent damage to the valve when clamping, protect the body flange surfaces from the vise clamping surfaces with cardboard or brass shims.

Press the seat retainer ring into the seat (21) and body (1) using two C-clamps to provide the needed compressive load. To press the seat retainer ring with the C-clamps, place the C-clamps on the valve assembly to allow an even load to be applied all around the seat retainer ring (23) and tighten until the seat retainer gasket (22) is compressed.

6. With the C-clamps pressing the seat retainer ring (23) into the gasket (22). Tighten the screws (25).

Neither Emerson, Emerson Automation Solutions, nor any of their affiliated entities assumes responsibility for the selection, use or maintenance of any product. Responsibility for proper selection, use, and maintenance of any product remains solely with the purchaser and end user.

Keystone is a mark owned by one of the companies in the Emerson Automation Solutions business unit of Emerson Electric Co. Emerson Automation Solutions, Emerson and the Emerson logo are trademarks and service marks of Emerson Electric Co. All other marks are the property of their respective owners.

The contents of this publication are presented for informational purposes only, and while every effort has been made to ensure their accuracy, they are not to be construed as warranties or guarantees, express or implied, regarding the products or services described herein or their use or applicability. All sales are governed by our terms and conditions, which are available upon request. We reserve the right to modify or improve the designs or specifications of such products at any time without notice.

Emerson.com/FinalControl