I  INTRODUCTION

These rugged and universal purpose valves are suited for many fluids, in industrial, commercial and original equipment applications. Well-suited for steam service to 150 psi. Fire safe, ideal for fuel lines, LP gas and a variety of petroleum and petrochemical processes. Also available for oxygen, chlorine, high vacuum and hydrogen peroxide services.

II  PREPARATION AND INSTALLATION

1. Before installing a new valve in the line, make sure the seats and seals are suited for the intended service. The seat material and pressure rating are indicated on a tag fastened to the valve. If this information is missing, consult Velan for maximum ratings.

2. This ball valve is designed for bi-directional flow, unless the ball is drilled for cavity relief.

3. Valve must be installed with sufficient Teflon tape (or similar suitable sealant) to ensure proper installation.

III  WARNING

For safety reasons, it is important to take these precautions before you start to work on the valve.

1. Personnel making any adjustments on the valves should wear equipment normally used to work with the process where the valve is installed.

2. Line and valve must be depressurized by shutting off the valves and the bleed line, then cycling the valve once and leaving it half open to relieve the pressure from the ball cavity.

3. When installing or removing the valve from the piping system, place a wrench on the body end nearest to the end being worked on. Make certain body end does not turn out of the valve body.

IV  GENERAL MAINTENANCE

Normal maintenance consists of tightening the two gland screws as necessary. However, they should not be tightened excessively because it will result in high torque and high packing wear or packing damage (see Table 2).
V  DISASSEMBLY & ASSEMBLY

DISASSEMBLY

NOTE: If complete disassembly becomes necessary, replacement of all seats and seals is recommended.

a) Follow the instructions in the warning section.
b) Remove valve from line. The valve should be in the closed position for disassembly.
c) Remove the handle and spring.
d) Remove the gland screws and the packing flange.
e) Unscrew and remove the body end and the body seal.
f) Place the valve on a table in a vertical position with body end side down.
g) Push the ball out of the body. If necessary tap the ball using soft material to remove it.

TABLE 1  Recommended body end torque

<table>
<thead>
<tr>
<th>Valve size</th>
<th>Torques</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>lbf-ft</td>
</tr>
<tr>
<td>½</td>
<td>100</td>
</tr>
<tr>
<td>¾</td>
<td>150</td>
</tr>
<tr>
<td>1</td>
<td>175</td>
</tr>
<tr>
<td>1¼</td>
<td>225</td>
</tr>
<tr>
<td>1½</td>
<td>400</td>
</tr>
<tr>
<td>2</td>
<td>550</td>
</tr>
</tbody>
</table>

h) Remove stem by pushing it into the body, then remove and discard the old packing and the thrust washer (see exploded view for details).
i) With a screwdriver, carefully push the seats out of seat area.

NOTE: do not scratch body in gasket or seat area

ASSEMBLY

a) Clean and inspect all parts for damage and change any parts if in doubt. If possible, use a lubricant which is compatible with fluid in the line for smoother operation.
b) Insert new seat in body and push it down using the ball to avoid damage to seat ball contact area.
c) Install thrust washer on stem. Then install stem in valve.
d) Install new packing rings, packing washer, gland bushing, packing flange and tighten the gland screws then reinstall spring & handle. See Table 2 for Required torques.
e) With handle in closed position carefully slide ball in place with bore in closed position.
f) Install seat in the body end so that the sealing face of the seat is towards the ball.
g) Press the body seal on to the body end.
h) Apply PTFE paste or a lubricant to the body and body end threads. Screw the body end into the body until a metal-to-metal contact is achieved. Tighten the body end to the required torque as shown in Table 1.
i) Cycle the valve twice to ensure permanent position of the ball between the two seats.

TABLE 2  Required gland screw torques

<table>
<thead>
<tr>
<th>Valve size</th>
<th>Packing material</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>RPTFE</td>
</tr>
<tr>
<td></td>
<td>lbf-in</td>
</tr>
<tr>
<td>½</td>
<td>6</td>
</tr>
<tr>
<td>¾</td>
<td>6</td>
</tr>
<tr>
<td>1</td>
<td>9</td>
</tr>
<tr>
<td>1½</td>
<td>25</td>
</tr>
<tr>
<td>2</td>
<td>25</td>
</tr>
</tbody>
</table>

ITEM  QTY  PART NAME
1  1  Body
4  1  Stem
5  1  Ball
6  1  Thrust washer
9  2  Seat
11 1  Packing flange
12 1  Gland bushing
13 2  Packing ring
17 2  Gland screw
18 1  Gland bushing sleeve
19 1  Body seal
30 1  Handle nut
31 1  Locking device
33 1  Handle
46 1  Coil spring
63 1  Packing washer
71 1  Seat retainer

(1) Included in seal kit