

**DESIGN:**

Central body design, three-flanged end piece construction, allows ease of maintenance, without special tools. This type of valve utilizes a true trunnion ball principle. The ball is fixed, it is not free to move with line pressure. This particular feature allows tight shut-off to flow in either direction or dead ended, regardless of the position of the valve in-line.

**1. ON-SITE INSTALLATION**

The valve may be fitted to any position on the pipeline.

Before installation, pipes must be flushed clean of dirt and debris that could result in damage to hard or soft parts of the valve.

Piping must be supported so as not to add undue stress to the valve.

**2. USE**

Maximum results and long life of the valve can be maintained under normal working conditions in accordance with proper pressure / temperature and corrosion data.

**3. MANUAL OPERATION**

The manual operation for the proper flow plan is done by turning the handle ¼ (90 degree) turn.

Visual indication of position is done by visual inspection of the markings on the top of the stem.

**4. AUTOMATED OPERATION**

Valves with actuators should be checked for actuator / valve alignment. Angular or linear mis-alignment will result in high operational torque and premature packing failure.

**5. DISASSEMBLY AND CLEANING PROCEDURE**

If the valve has been used to control hazardous media, it must be decontaminated before disassembly. It is recommended that the following steps be taken for safe removal and assembly.

Valves come shipped from the factory containing a lubricant. This is for break-in and may be removed if it is objectionable to a particular application by disassembly and cleaning with a proper solvent.

**6. DISASSEMBLY FOR STEM AND SEAL REMOVAL**

(Caution: Ball valves can trap pressurized media when closed)

Stem seal leakage may be corrected without disassembly by tightening the packing gland bolts until such leakage stops. If the leakage continues or valve operating torque becomes excessive, or the stem seals are worn, replacement will be necessary.

**(Warning: Do not remove the packing gland while line is under pressure! Stem does not back seat. Begin with the valve partially open in a depressurized line.)**

**6. DISASSEMBLY FOR STEM AND SEAL REMOVAL** continued...

Remove flange bolts and nuts and lift valve from line for servicing. NOTE: care should be taken to avoid scratching or damaging serrated flange faces. Valves can be heavy, they should be adequately supported before removal from the line has begun.

Loosen handle set screw and remove handle and stop plate. Remove gland nuts and packing gland.

Mark each flange to the body joint. (3 flanges) Mark top cap to the body joint. This is to allow ease of alignment in reinstallation.

Remove the nuts holding flanged pieces and top cap for disassembly.

Remove the three end pieces, then the top cap, leaving the ball to last.

Take Extreme care when removing ball as not to scratch seating surface or the stem, which will result in leakage after reassembly.

Remove all seats, seals and the thrust bearing.

**7. RECOMMENDED SPARE PARTS**

The recommended spare parts for normal service conditions are the “soft” parts contained in the repair kit available from FTI; stem and body seals, and seats. For more severe conditions, spare balls and stems may be needed.

**8. VISUAL INSPECTION**

Clean and inspect metal parts. It is not necessary to replace the ball and stem unless the seating surface have been damaged by abrasion or corrosion. We strongly recommend replacement of all soft parts whenever the valve is disassembled from reconditioning. This is the best protection against valve leakage after assembly. Replacement parts can be ordered in kit form. NOTE: the valve maybe assembled and operated dry where no lubricants are allowed in the system; however, a light lubrication of mating parts will aid in assembly and reduce initial operating torque. Lubricant used must be compatible with intended line content.

**9. ASSEMBLY**

Install the thrust bearing in the bottom center of the body.

Install the ball in the body, making sure the trunnion of the ball goes into the thrust bearing.

Install the seats in each of the flanged end pieces with spherical curvature facing the mating ball.

Install the top cap and body gasket making sure to align the marks made during disassembly. Tighten down in a criss-cross pattern. Keep gap even. This will insure the valve stop or actuator is in the proper position. Now install the packing and packing gland with packing gland bolts. Tighten bolts evenly.

The installation of the flanged end pieces must be done in the following way to insure no seat damage.

First install the left and right end pieces with the nuts aligning the marks made during disassembly. This is to insure flange-to-flange mating and alignment of the valve bolt holes. Make sure the ball ports are aligned with the end pieces as not to pinch the seats during tightening. Do not tighten one end piece fully until both ends are installed. Due to the location, the nuts should be torqued down evenly using a criss-cross pattern and alternating between each end until metal-to-metal contact is achieved. During this step, check body to end piece gap and keep gap consistent. Uneven tightening may result in pinching of the seats and subsequent leakage after reassembly.

**9. ASSEMBLY continued...**

The installation of the center end piece is done first by rotating the ball until the blind side of the ball is facing the area where the end piece is being installed, aligning previous marks. Tighten the nuts using a criss-cross pattern. Make sure the gap of the end piece to valve remains consistent metal-to-metal contact is achieved.

Cycling the valve slowly back to the proper flow plan by turning the ball slowly insures the seat lips assumes a permanent seal against the ball. A fast turning motion may not allow proper mating to occur.

Test valve, if at all possible, prior to placing valve back into line.

Warning: Not properly securing valve may cause it to separate from the pressure source and result in injury. Always join the valve to the companion flanges of the same pressure rating as the valve. Use a full set of proper bolts.