

Jamesbury flanged ball valves

Series 5000, Model A & B, Standard Bore,
Class 150 & 300, 3" & 4" (DN 80 & 100)

Installation, maintenance and
operating instructions

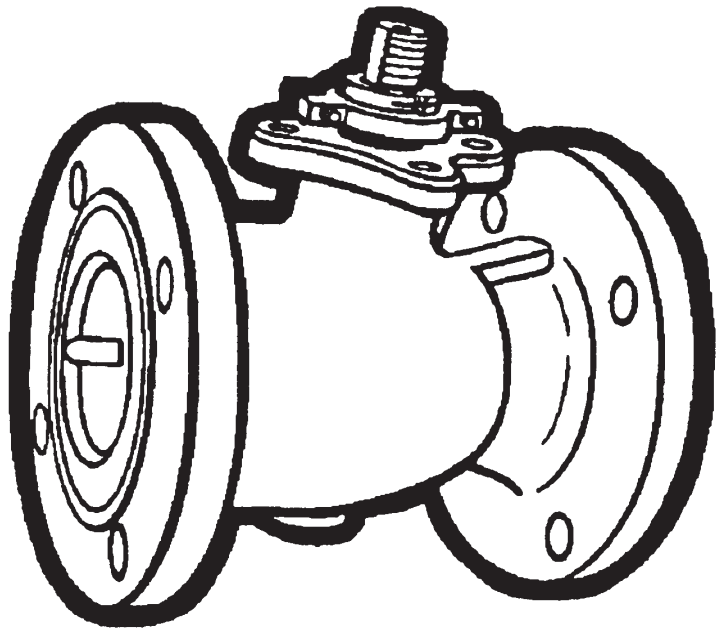


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READ THESE INSTRUCTIONS FIRST!

These instructions provide information about safe handling and operation of the valve.

If you require additional assistance, please contact the manufacturer or manufacturer's representative.

SAVE THESE INSTRUCTIONS!

Addresses and phone numbers are printed on the back cover.

1. GENERAL

This instruction manual contains important information regarding the installation, operation and trouble shooting of the Jamesbury™ 3" & 4" (DN 80 & 100) Series 5000 Flanged Ball Valves. Please read these instructions carefully and save them for further reference.

WARNING:

AS THE USE OF THE VALVE IS APPLICATION SPECIFIC, A NUMBER OF FACTORS SHOULD BE TAKEN INTO ACCOUNT WHEN SELECTING A VALVE FOR A GIVEN APPLICATION. THEREFORE, SOME OF THE SITUATIONS IN WHICH THE VALVES ARE USED ARE OUTSIDE THE SCOPE OF THIS MANUAL. IF YOU HAVE ANY QUESTIONS CONCERNING THE USE, APPLICATION OR COMPATIBILITY OF THE VALVE WITH THE INTENDED SERVICE, CONTACT VALMET FOR MORE INFORMATION.

1.1 SAFETY PRECAUTIONS

WARNING:

DO NOT EXCEED THE VALVE PERFORMANCE LIMITATIONS!

EXCEEDING THE PRESSURE OR TEMPERATURE LIMITATIONS MARKED ON THE VALVE IDENTIFICATION PLATE MAY CAUSE DAMAGE AND LEAD TO UNCONTROLLED PRESSURE RELEASE, DAMAGE OR PERSONAL INJURY MAY RESULT.

WARNING:

SEAT AND BODY RATINGS!

THE PRACTICAL AND SAFE USE OF THIS PRODUCT IS DETERMINED BY BOTH THE SEAT AND BODY RATINGS. READ THE IDENTIFICATION PLATE AND CHECK BOTH RATINGS. THIS PRODUCT IS AVAILABLE WITH A VARIETY OF SEAT MATERIALS.

SOME OF THE SEAT MATERIALS HAVE PRESSURE RATINGS THAT ARE LESS THAN THE BODY RATINGS. ALL OF THE BODY AND SEAT RATINGS ARE DEPENDENT ON VALVE TYPE AND SIZE, SEAT MATERIAL, AND TEMPERATURE. DO NOT EXCEED THESE RATINGS!

WARNING:

BEWARE OF BALL MOVEMENT!

KEEP HANDS, OTHER PARTS OF THE BODY, TOOLS AND OTHER OBJECTS OUT OF THE OPEN FLOW PORT. LEAVE NO FOREIGN OBJECTS INSIDE THE PIPELINE. WHEN THE VALVE IS ACTUATED, THE BALL FUNCTIONS AS A CUTTING DEVICE. DISCONNECT ANY PNEUMATIC SUPPLY LINES, ANY ELECTRICAL POWER SOURCES AND MAKE SURE SPRINGS IN SPRINGRETURN ACTUATORS ARE IN THE FULL EXTENDED/ RELAXED STATE BEFORE PERFORMING ANY VALVE MAINTENANCE. FAILURE TO DO THIS MAY RESULT IN DAMAGE OR PERSONAL INJURY!

WARNING:

WHEN HANDLING THE VALVE OR VALVE/ACTUATOR ASSEMBLY, TAKE ITS WEIGHT INTO ACCOUNT! REFERENCE THE APPLICABLE TECHNICAL BULLETIN FOR VALVE WEIGHTS.

NEVER LIFT THE VALVE OR VALVE/ACTUATOR ASSEMBLY BY THE ACTUATOR, POSITIONER, LIMIT SWITCH OR THEIR PIPING. PLACE LIFTING DEVICES SECURELY AROUND THE VALVE BODY. FAILURE TO FOLLOW THESE INSTRUCTIONS MAY RESULT IN DAMAGE OR PERSONAL INJURY FROM FALLING PARTS (**SEE FIGURE 2**).

2. INSTALLATION

1. Place the valve in the open position.
2. Flow through a *Jamesbury* valve can be in either direction. However, it is recommended that the valve be installed with the insert facing upstream. For dead ended service 3" and 4" (DN 80 & 100) Series 5000 valves must be installed with the insert upstream.
3. Flow through this *Jamesbury* valve can be in either direction. It is recommended, however, that the valve be installed with the insert facing upstream.

WARNING:

THE VALVE SHOULD BE TIGHTENED BETWEEN FLANGES USING APPROPRIATE GASKETS AND FASTENERS COMPATIBLE WITH THE APPLICATION, AND IN COMPLIANCE WITH APPLICABLE PIPING CODES AND STANDARDS. CENTER THE FLANGE GASKETS CAREFULLY WHEN FITTING THE VALVE BETWEEN FLANGES. DO NOT ATTEMPT TO CORRECT PIPELINE MISALIGNMENT BY MEANS OF FLANGE BOLTING!

4. If there is seepage past the packing upon installation, the valve may have been subjected to wide temperature variations in shipment. "Leak-tight" performance will be restored by a packing adjustment described in the **MAINTENANCE** Section.

3. MAINTENANCE

Although Jamesbury™ valves are designed to work under severe conditions, proper preventative maintenance can significantly help to prevent unplanned downtime and in real terms reduce the total cost of ownership. Valmet recommends inspecting valves at least every five (5) years. The inspection and maintenance frequency depends on the actual application and process condition.

WARNING

FOR YOUR SAFETY AND PROTECTION, IT IS IMPORTANT THAT THE FOLLOWING PRECAUTIONS BE TAKEN PRIOR TO REMOVING THE VALVE FROM SERVICE OR BEFORE ANY DISASSEMBLY OF THE VALVE.

1. WEAR ANY PROTECTIVE CLOTHING OR EQUIPMENT NORMALLY REQUIRED WHEN WORKING WITH THE MEDIA INVOLVED.
2. DEPRESSURIZE THE LINE AND VALVE AS FOLLOWS:
 - A. OPEN THE VALVE AND DRAIN THE LINE.
 - B. CLOSE AND OPEN THE VALVE TO RELIEVE ANY RESIDUAL PRESSURE THAT MAY BE IN THE VALVE PRIOR TO REMOVING THE VALVE FROM SERVICE. LEAVE THE VALVE IN THE OPEN POSITION.
 - C. AFTER REMOVAL AND PRIOR TO ANY DISASSEMBLY, DRAIN ANY REMAINING MEDIA BY PLACING THE VALVE IN THE VERTICAL POSITION AND CAREFULLY OPEN AND CLOSE THE VALVE SEVERAL TIMES.
1. Routine maintenance consists of tightening the packing nut (15) periodically to compensate for stem seal wear. This may be done as follows:
 - A. Manual Valves - Loosen the handle screw (18) and tighten the packing nut (15) until snug, then tighten an additional 1/4 turn. retighten the handle screw.
 - B. Actuated Valves - When the valve is connected to an actuator by a no-play (clamped) type coupling, loosen the coupling before tightening the packing nut.
2. **Overhaul Maintenance** consists of replacing seats and seals. A standard repair kit consisting of these parts may be obtained through your Valmet distributor (**See Table 1**). Refer to the Disassembly and Assembly sections below for details on installing the repair kits.

TABLE 1

Repair Kits

Valve Size	3" (DN 80) 5150, 530S, 5300	4" (DN 100) 5150	4" (DN 100) 530S, 5300
PTFE Seats	RKN75TT	RKN76TT	RKN77TT
Filled PTFE Seats	RKN75MT	RKN76MT	RKN77MT
PEEK® Seats	RKN75LT	RKN76LT	RKN77LT
UHMW Seats	RKN75UU	RKN76UU	RKN77UU
PFA Seats	RKN75BT	RKN76BT	RKN77BT
PFA Seats & Seals	RKN75BP	RKN76BP	RKN77BP

Repair Kits contain one pair of seats, a body seal, upper stem seals, a lower stem seal and maintenance instructions.

NOTE: Repair kits contain two #8 seals and one #24 seal set. Depending on valve model, one #8 or one #24 will not be used. See note under parts list on page 4

3.1 DISASSEMBLY

Tools needed to disassemble *Jamesbury* valves, such as the "breechlock field wrench" mentioned in Step 5, may be ordered as service parts from your local Valmet distributor.

NOTE: Replacement of seats and seals is recommended if any disassembly becomes necessary.

1. Read the **WARNING** sections **before** performing any work on the valve.
2. Open the valve.
3. Remove the cap screw (18) holding the handle to the stem.
4. Remove the handle (17).
5. The "breechlock" design requires that the insert be compressed and rotated approximately 60 degrees before removal. Use one of the following methods:
 - A. Using the breechlock field wrench - assemble the field wrench as follows. (Refer to **Figure 1**).
 1. Thread a hex nut (6A) onto the rod (3) as shown in (**Figure 1**). the second plate (2) over the rod engaging the dowel pins with the wrenching grooves.
 2. Slide the lockwasher (7) and base (4) down the rod and securely fasten with another hex nut (6B).
 3. Slide a gasket over the rod and push the rod through the open ball from the end opposite the breechlock insert.
 4. Place the other gasket on the insert and slide the second plate (2) over the rod engaging the dowel pins with the wrenching grooves.
 5. Fit the handle (1) over the dowel pins of the plate.
 6. Fit the washer (5) over the rod and tighten the entire assembly with the remaining hex nut (6C).
 7. Tighten the nut (6C) to preload the insert enough to ease rotation. The face of the insert should be flush with the mating sur- face of the flange. Proceed to Step 6.
 - B. If a breechlock field wrench is not available, follow these steps:
 1. Create a bar tool that fits into the two wrench grooves in the insert and protrudes above the insert raised face.
 2. Place the bar tool into the insert wrench grooves.
 3. Place the valve in the arbor press and posi- tion the ram over a flat washer on the bar tool approximately at the center of the insert.
 4. Load the insert with the press until the raised face is flush with the body face. Proceed to Step 6.
5. Rotate the insert with a counterclockwise turning motion until th notch on the insert is aligned with the OPEN mark on the valve flange.

NOTE: Use caution when loosening the insert, especially during the initial break.

NOTE: Failure to properly align the notch before insert removal may result in damage to the breechlock tabs.

6. Remove the tool and pull out the insert. If the insert does not come out easily, close the ball, and with a piece of wood or some other soft material gently tap the ball from the end opposite the insert. This should unseat the insert.
7. Place the valve in the vertical position with insert end up.
8. Lift out the body seal (6), seat (5), and ball (3). Rotate the stem so that the ball is in the closed position for removal.
9. Remove the second seat (5).
10. Remove the stem nut (15), lockwasher (33), and indicator stop (12). Retain. Discard spring washers if valve is so equipped.
11. Remove the compression ring (21).
12. Push the stem (4) from the top into the valve body and remove it.
13. Using a pointed instrument, pry out from the inside and discard the old bottom stem seal (8) and the secondary stem seal (7). **BEING CAREFUL NOT TO SCRATCH ANY SEALING SURFACES IN THE BODY.** **NOTE:** Secondary stem seal (7) is not used in non-fire tested valves.
14. Remove the top stem seal (8) or (24).
8. Place the insert subassembly into the body, and align the notch on the insert with the OPEN mark on the valve body so that the breechlock tabs engage without interference. This alignment should be checked with the proper OPEN position permanently marked on the flange before further assembly takes place. Use caution to insure that the body seal is not dislodged from its shoulder.
9. Follow the instructions as described in Step 5 in **DISASSEMBLY** Section, and then proceed to Step 10 below.
10. Rotate the insert with a clockwise turning motion until the notch on the insert is aligned with the LOCK mark on the valve flange. If rotation is difficult, further compression of the insert will improve the engagement between the insert and body.
11. Place the handle on the valve stem and tighten the cap screw securely. Cycle the valve slowly with a gentle back and forth motion to build gradually to the full quarter turn. By cycling slowly, the seat lips will assume a permanent seal shape against the ball. A fast turning motion at this point may cut the seats before they have a chance to form the proper seal.

3.2 ASSEMBLY

A lubricant compatible with the flow media should be applied seats, seals, ball and stem to facilitate assembly and ease of initial operation. It is advisable to replace seats and seals if any disassembly and reassembly becomes necessary. Refer to the Repair Kit chart (See **Table 1**).

1. Standing the body (1) carefully on end, drop in one seat (5) with the flat surface on the bottom (see **Figure 2**).
2. From the inside insert the secondary stem seal (7), and then the lower stem seal (8) into the stem bore.

NOTE: Item (7), the secondary stem seal, is omitted on the non-fire tested valves.

3. Insert the stem (4) through the insert end of the body (1), being careful not to scratch the seals. Press it gently up into the stem bore until resistance is felt from the lower seal. Holding the stem in place from the bottom, insert the upper stem seal (8) or (24), drop on the compression ring (21) as shown in the diagram, and the indicator stop (12) (making sure that the side marked **"BOTTOM"** is down). Add lockwasher (33), and screw on the stem nut (15) with the side marked **"TOP"** in the up position.

NOTE: Refer to the footnotes under the parts list.

4. Tighten down the nut until the stem seal is fully seated, then tighten the nut an additional 1/8 to 1/4 turn.
5. Insert the ball (3) rotating it onto the stem (4) in the closed position. If necessary, turn the stem blade to align with the ball slot. Make certain that the stem blade is in the middle of the ball slot, i.e., equal distance from ends of slot. Rotate the ball if necessary.
6. Place the second seat (5) into the insert (2) with the proper surface adjacent to the ball. Insert the body seal (6) into the body (1). Turn the ball to the open position.
7. Apply a liberal amount of lubricant on the body seal, locking grooves and tabs of the body and insert (2).

4. ACTUATOR MOUNTING

IMPORTANT: When these valves are equipped with an actuator and the actuator is removed to service the valve, **PROPER ALIGNMENT OF THE ACTUATOR DRIVER AND VALVE STEM IS ESSENTIAL WHEN THE ACTUATOR IS REMOUNTED.** In the case of valves and actuators connected with a split no-play (clamped) coupling, tighten the coupling bolts before final tightening of the valve bracket bolts.

5. REPAIR KITS/SPARE PARTS

We recommend that valves be directed to our service centers for maintenance. The service centers are equipped to provide rapid turn-around at a reasonable cost and offer new valve warranty with all reconditioned valves.

NOTE: When sending goods to the service center for repair, do not disassemble them. Clean the valve carefully and flush the valve internals. Include the material safety datasheet(s) (MSDS) for all media flowing through the valve. Valves sent to the service center without MSDS datasheet(s) will not be accepted. Send valves to the service center in the half open position.

For further information on spare parts and service or assistance visit our web-site at www.valmet.com/flowcontrol/valves.

NOTE: When ordering spare parts, always include the following information:

- a. Valve catalog code from identification plate,
- b. If the valve is serialized – the serial number (from identification plate)
- c. From **Figure 2**, the ballooned part number, part name and quantity required.

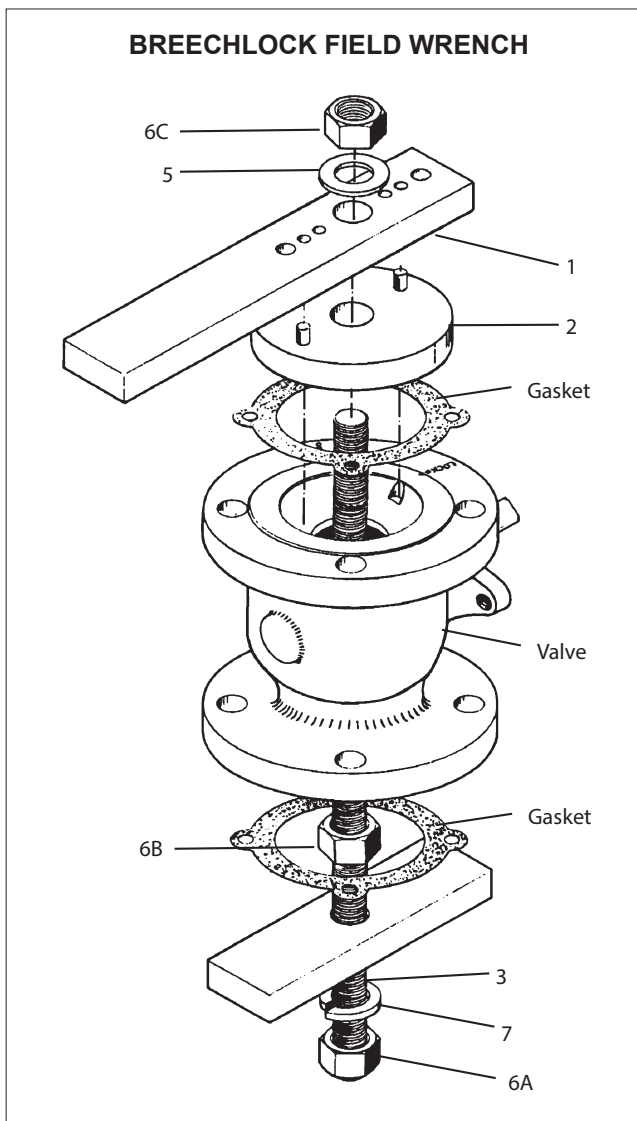


Figure 1.

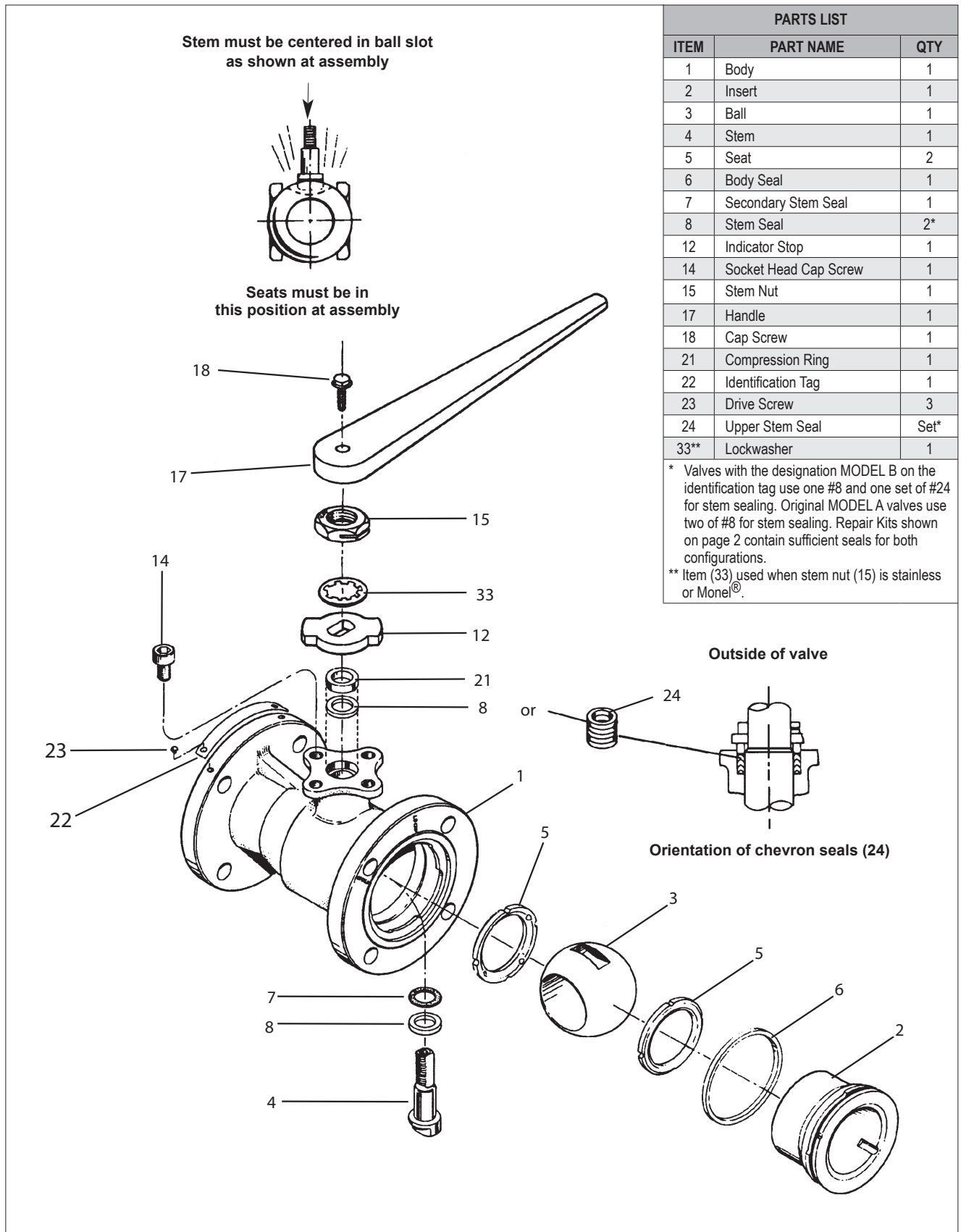


Figure 2.

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