

Jamesbury™ reactor discharge flanged ball valves

Series 7000, Model A, Standard Bore,
Class 300, 3" & 4" (DN 75 - 100)

Installation, maintenance and
operating instructions

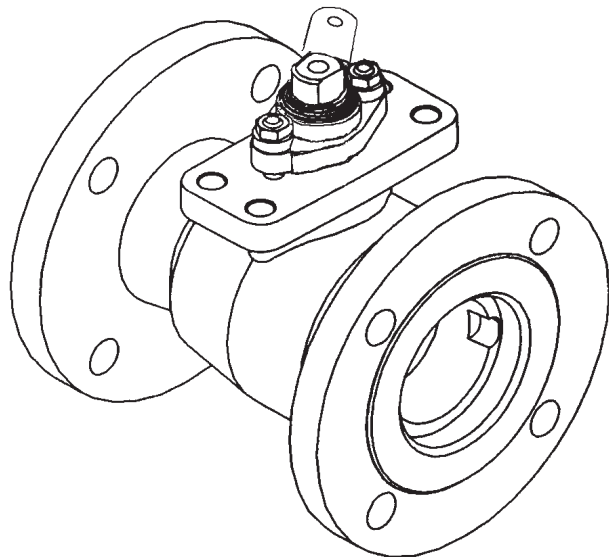


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READ THESE INSTRUCTIONS FIRST!

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, maintenance, and troubleshooting of Jamesbury™ 3" & 4" Class 300 Series 730S & 7300 Standard Bore Reactor Discharge valves. Please read the instructions carefully and save them for future 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.

2. INSTALLATION

Refer to the **MAINTENANCE** section for packing/v-ring set adjustment. If there is weepage past the packing/v-ring set upon installation, it means the valve may have been subject to wide temperature variations in shipment. Leak-tight performance will be restored by a simple packing adjustment described in the **MAINTENANCE** section.

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!

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, IT IS IMPORTANT THAT THE FOLLOWING PRECAUTIONS BE TAKEN PRIOR TO REMOVAL OF THE VALVE FROM THE LINE OR BEFORE ANY DISASSEMBLY:

1. WEAR ANY PROTECTIVE CLOTHING OR EQUIPMENT NORMALLY REQUIRED WHEN WORKING WITH THE FLUID INVOLVED.
2. DEPRESSURIZE THE LINE AND CYCLE THE VALVE AS FOLLOWS:
 - A. PLACE THE VALVE IN THE OPEN POSITION AND DRAIN THE LINE.
 - B. CYCLE THE VALVE TO RELIEVE RESIDUAL PRESSURE IN THE BODY CAVITY BEFORE REMOVAL FROM THE LINE.
 - C. AFTER REMOVAL AND BEFORE ANY DISASSEMBLY, CYCLE THE VALVE AGAIN SEVERAL TIMES.

Overhaul maintenance consists of replacing seats and seals. A standard repair kit consisting of these parts may be obtained through your Neles distributor.

NOTE: Repair kits include thrust bearing (70), secondary stem seal (71), two seats (7), body gasket (65), packing/v-ring set (69) and spring (36).

Table 1		
Repair Kits		
Valve Size	3"	4"
Filled TFE Seats	RKY171MTT	RKN172MTT

4. DISASSEMBLY

Tools needed to disassemble Jamesbury valves such as the "insert field wrench" mentioned in step 5, may be ordered as (kit MA0026426 for 3" and 4" Series 7000 from your local Valmet Distributor.

NOTE: If complete disassembly becomes necessary, replacement of all seats and seals is recommended. Refer to the Repair Kit chart (Table 1).

1. Follow the steps in the **WARNING** section before performing any work on the valve.
 2. Open the valve.
 3. Remove the handle screw (35), holding the handle to the stem.
 4. Remove the handle (31).
 5. The insert design requires that the insert be unthreaded in a counterclockwise motion using the following method: a. Using the insert field wrench - assemble the field wrench as follows, (refer to **Figure 5**):
 - 1) Place driver (A) into the insert.
 - 2) Put the plate (C) on top of the driver (A).
 - 3) Place the studs (E) through the plate (C) and flange holes. Thread the nuts onto the stud below the flange.
 - 4) On the top side of the plate (C) put a flat washer (G), die spring (H), flat washer (G) and nut (F). Tighten to slightly compress springs.
 6. Place a pipe or rod that will tightly fit thru the hole in the driver (A) and loosen the insert by turning counterclockwise. Ensure the pipe or rod is of sufficient strength so as not yield or break during the loosening operation.
- NOTE:** Use caution when loosening the insert, especially during the initial break.
7. Remove the tool and lift out the insert.
 8. Place the valve in the vertical position with the insert end up.
 9. Lift out the body gasket (65), seat (7) and ball (3). Rotate the stem so that the ball is in the closed position for removal. The spring (36) which is between the bottom of the stem (5) and ball (3) may fall out at this time. If the spring does fall out with the ball, remove it from the stem to prevent it from being lost.
 10. Carefully pry the bottom seat (7) out of the body, **BEING CAREFUL NOT TO SCRATCH THE BODY SEALING SURFACE BEHIND THE SEAT.**
 11. Remove the retaining ring (34), spring (33) and the indicator stop (32).
 12. Remove the bonnet stud nuts (14), stop bushing (37), compression plate (90).
 13. Push the stem (5) from the top into the valve body and remove it through the insert end of the body.
 14. Using a pointed instrument, pry out from the inside and discard the thrust bearing (70), and secondary stem seal (71), **BEING CAREFUL NOT TO SCRATCH ANY SEALING SURFACES IN THE BODY.**
 15. Pry out from the top, the packing/v-ring set (69), **BEING CAREFUL NOT TO SCRATCH ANY SEALING SURFACE INSIDE THE STEM BORE.**
 16. If the valve is to be grounded, clean packing bore so that it is free of rust or foreign material.

5. ASSEMBLY

It is advisable to replace seats and seals if complete disassembly and reassembly become necessary. Refer to the Repair Kit chart (**Table 1**). A good lubricant compatible with the flow medium **MUST** be applied to the insert threads to prevent galling during assembly. A good lubricant compatible with the flow medium should be applied to all seats, seals and the ball to facilitate assembly and for initial operation.

1. Slide one valve seat (7) sideways into the body (1) to below the stem bore, and tilt it into place so that the proper surface (**see Figure 4**) will be adjacent to the ball (3), being careful not to cut or scratch the seat.
2. From the inside, insert the thrust bearing (70) and secondary stem seal (71) into the stem bore.

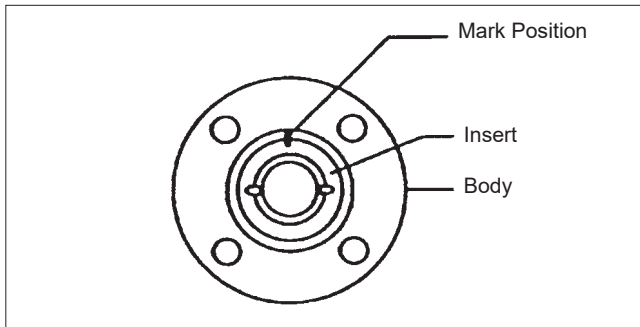


Figure 1

3. Insert the stem (5) through the insert end of the body (1), being careful not to scratch the thrust bearing, and press it gently up into the stem bore until resistance is felt from the thrust bearing. Holding the stem in place from the bottom, insert the packing/v-ring set (69) (**see Figure 3 for proper v-ring orientation**), over the stem (5) and studs (14) and the compression plate (9). If valve is to be statically grounded, remove middle ring and place grounding washer on top.

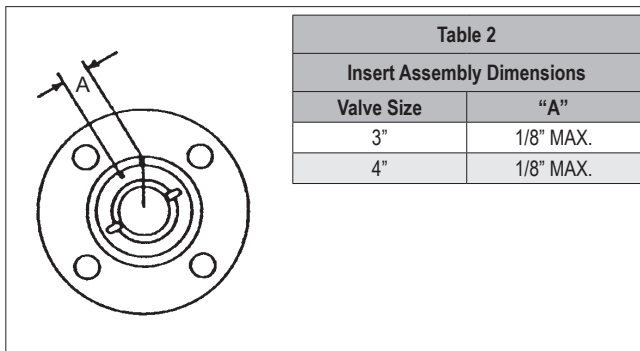


Figure 2

4. Place a stop bushing (37) and a bonnet stud nut (18) on each bonnet stud and tighten nuts alternately so that the compression plate (9) remains parallel with the body bonnet. Tighten down the nuts until the packing/v-ring set is fully seated, then tighten the nuts an additional 1/4 turn.
5. Screw the insert (2) into the body until it is fully seated, and then mark its position as shown in **Figure 1**. Counting the number of turns, remove the insert.

6. Place the valve in a vertical position, insert end up, on a clean surface such as a folded rag or a piece of cardboard. Place the spring (36) in the hole in the bottom of the stem (5). Insert the ball (3) rotating it onto the stem (5) in the closed position, being careful not to dislodge the spring from the stem. 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 the ends of the slot. Rotate the ball if necessary. (**See Figure 4**)
7. Place the second seat (7) into the insert (2) with the proper surface adjacent to the ball.
8. Insert the body gasket (65) into the body, and gently press it into the groove.
9. Using a thread lubricant compatible with the flow medium, screw the insert (2) into the body. The tightening of the insert should be done using the insert field wrench. Tighten the insert the same number of turns as in step 5, until the marks line up according to dimension "A" shown in **Table 2**, and illustrated in **Figure 2**. The insert must be tightened until the spacing between the marks is no more than dimension "A."
10. Place the indicator stop (32) over the stem (5) and down flush with the compression plate (9).

Stem Must Be Centered In Ball Slot As Shown At Assembly



Figure 4

Seats Must Be In This Position At Assembly

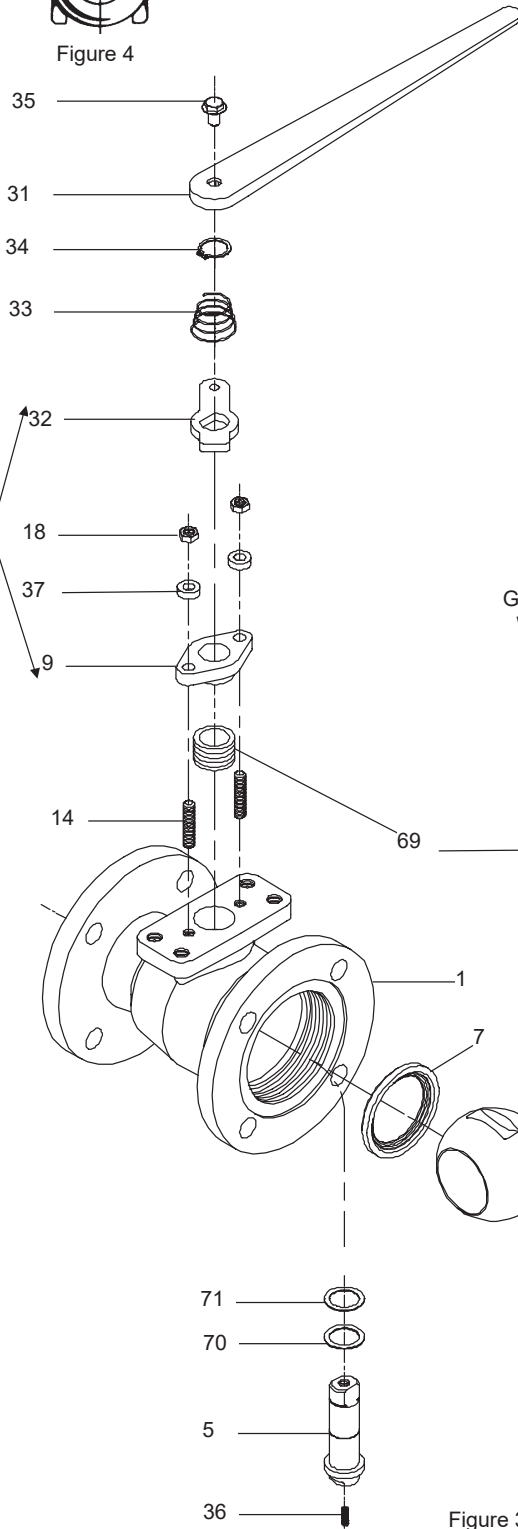
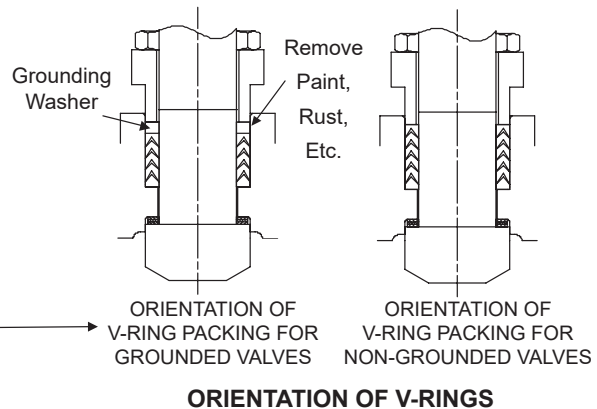


Figure 3

Valve Parts		
Item	Part Name	Qty.
1	Body	1
2	Insert	1
3	Ball	1
5	Stem	1
7	Seat	2
9	Compression Plate	1
14	Bonnet Stud	2
18	Bonnet Stud Nut	2
25*	Identification Tag	1
31	Handle	1
32	Indicator Stop	1
33	Spring	1
34	Retaining Ring	1
35	Handle Screw	1
36	Spring	1
37	Stop Bushing	2
65	Body Gasket	1
69	Packing/V-Ring Set	1
70	Thrust Bearing	1
71	Secondary Stem Seal	1
*Not Shown.		



ORIENTATION OF V-RINGS

11. Place the spring (33) over the stem(5) on top of the indicator stop (32). Secure the spring and indicator stop by placing the retaining ring (34) over the stem (5) until it is flush with the shoulder on the stem.
12. Place the handle (31) on the stem and fasten with the handle screw (35) securely.
13. 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 seat against the ball. A fast turning motion at this point may cut the seats before they have a chance to form the proper seal.
14. If the valve is to be grounded, test as follows:
 - a. Use an ohmmeter accurate to within +/- 10%.
 - b. Check continuity between top of stem and body base metal, also check between ball and body base metal. Precaution should be taken to prevent scratching the ball O.D.
 - c. Resistance in either the open, half open or closed position shall not exceed 10 ohms using a source not exceeding 12 volts.

6. SERVICE / SPARE PART

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.

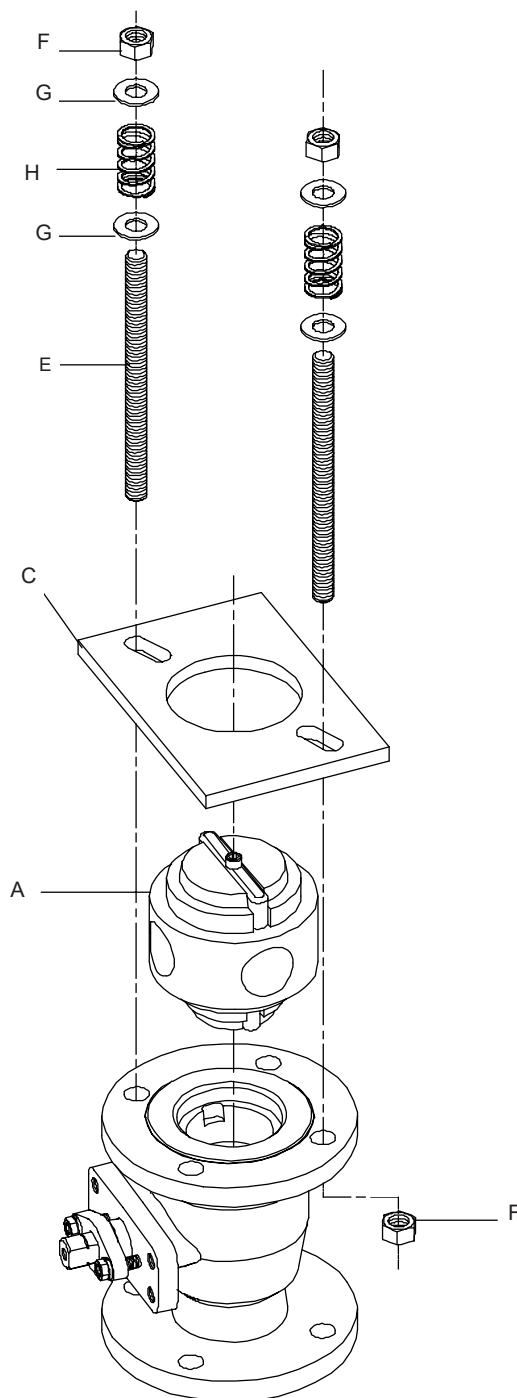
NOTE: When sending goods to the service center for repair, do not disassemble them. Clean the valve carefully and flush the valve internals. Include the material safety datasheet(s) (MSDS) for all media flowing through the valve. Valves sent to the service center without MSDS datasheet(s) will not be 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 1**, the ballooned part number, part name and quantity required.

Insert Field Wrench (kit # MA0026426)



Parts List		
Item	Description	Qty.
A	Driver	1
C	Plate	1
D	Socket Hd. Cap Screw	2
E	Threaded Rod	2
F	Hex Nut	4
G	Flat Washer	4
H	Die Spring	2

Figure 5

Subject to change without prior notice.

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