

Jamesbury™ reactor discharge trunnion flanged ball valves Series 7000 & 9000

Series 7000, Standard Bore, Class 300, 8" - 10"
(DN 200 - 250);

Series 9000, Full Bore, Class 300, 6" - 12"
(DN 150 - 300)

Installation, maintenance and
operating instructions

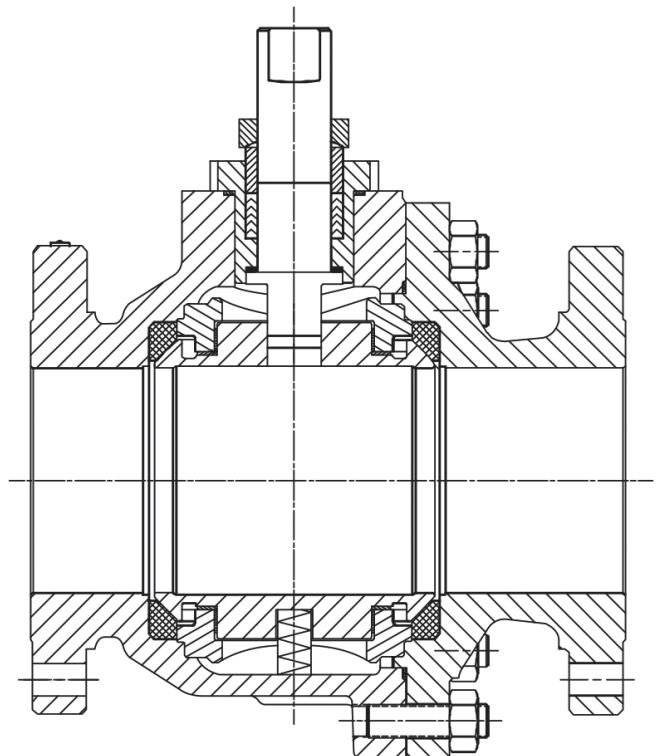


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Subject to change without prior notice.

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 information regarding the installation, operation and troubleshooting of the Jamesbury™ Reactor Discharge Valves, Trunnion Design 8" – 10" (DN 200 – 250) 730S AND 7300 6" – 12" (DN 150 – 300) 9300. 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.

2. INSTALLATION

1. Place the valve in the open position.
2. Flow through a *Jamesbury* valve can be in either direction. To ensure that good installation is achieved, standard piping practices should be followed.

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. If there is weepage 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

3.1 GENERAL

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 A VERTICAL POSITION AND CAREFULLY CLOSING AND OPENING THE VALVE SEVERAL TIMES.

Routine maintenance consists of tightening the bonnet stud nuts (18) periodically to compensate for stem seal wear. This may be done by tightening the bonnet stud nuts (18) until snug, then tighten an additional 1/4 turn.

3.2 DISASSEMBLY

We recommend that valves be directed to our service center for maintenance. The service center is equipped to provide rapid turn round at reasonable cost and offers a new valve warranty with all reconditioned valves.

NOTE: If complete disassembly becomes necessary, replacement of all seats, packing and seals is recommended. Refer to Repair Kit Chart (**Table 3**).

1. Follow the steps in the **WARNING** Section before performing any work on the valve.
2. Open and close the valve and leave in the closed position.
3. Remove the bonnet stud nuts (18), and gland (9). **NOTE:** On 10" (DN 250) and larger valves, glands are one piece.
4. Mark the body joint flanges to assure correct body (1) and body cap (2) orientation during reassembly.
5. Remove body stud nuts (16) and remove the body cap (2).
6. Remove the stem (5) and stem retainer (8) as a subassembly by removing cap screws (13). It may be necessary to loosen with a block of wood and hammer.

7. Remove the body gasket (65).
8. Remove the seat (7) from the cap.
9. Lift the ball along with the trunnions (89) out of the body.
10. Remove the seat (7) from the body.
11. Remove the trunnions (89) from the hubs on the ball.
12. Remove the trunnion bearing (92) and bearing spacer (91) from each trunnion.
13. Remove the spring (36) from the bottom of the ball (3).
14. Push down on top of stem (5) to remove it from the stem retainer (8).
15. Remove thrust bearing (70) from the stem. Pry out the packing (69) from the stem retainer (8). **BE CAREFUL NOT TO SCRATCH ANY SEALING SURFACES.**
16. If thrust bearing (70) is a thin (1/8" [3.1 mm] thick) black plastic part, the stem retainer (8) must be reworked according to drawing I-1657 supplied with repair kits and included in this IMO. If thrust bearing (70) is thick (1/2" [12.7 mm] thick) bronze metal part, nothing else needs to be done to stem retainer (8).
17. Remove and discard the stem retainer seal (66) from the body.
18. If valve is to be grounded, clean packing bore so that it is free of rust or foreign material.

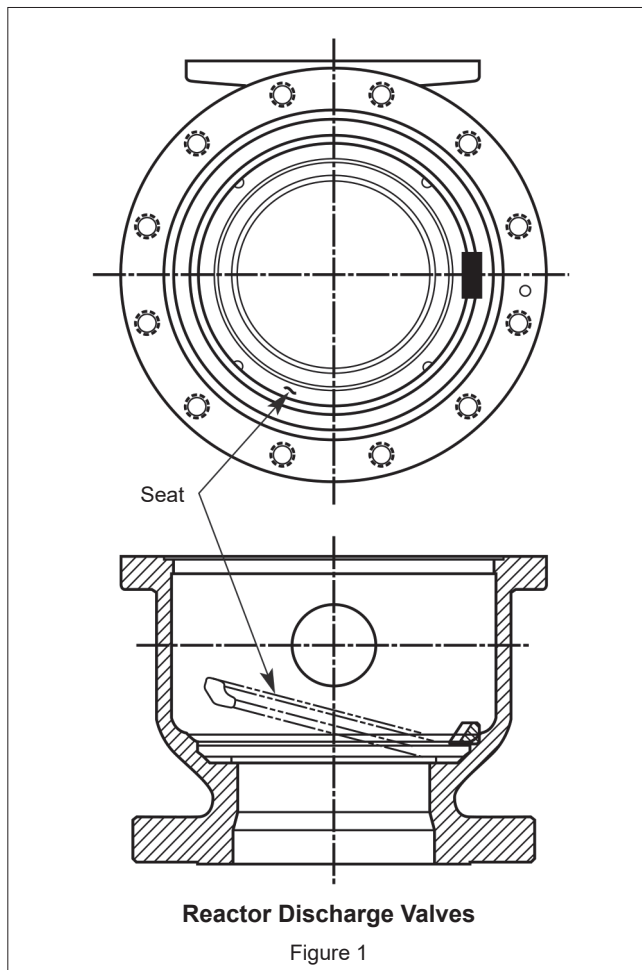
3.3 ASSEMBLY

NOTE: Seats, seals and bearings should be lubricated with a lubricant compatible with the media.

1. Clean all valve components.
2. Inspect all components for damage before reassembling the valve. Look for damage to the sealing areas on ball, stem, body and body cap, and look for wearing in the bearing areas.
3. Carefully clean and polish the ball sealing surface. It should be free of all scratches and grooves.
4. If the ball is slightly damaged, it may be possible to smooth the sealing surface with crocus cloth or equivalent. If deep scratches are present, replace the ball or return the valve to the factory for service.
5. Stand the body and cap carefully on the pipeline flange with body joint facing upwards, taking care not to damage the raised face sealing surface.
6. Insert the seats (7) by sliding one side under the seat retainer (**see Figure 1**).
7. Insert a trunnion bearing (92) into each trunnion plate counterbore and lightly lubricate bearing I.D's.
8. Place a bearing spacer (91) over each ball trunnion.
9. Fit a trunnion plate (89) over each ball trunnion until the plate rests against the bearing spacer (91). This operation must be performed with care and without excessive force or the bearing will be damaged. It may be necessary to tap the plate on with a plastic mallet.
10. Align the trunnion plates (89) relative to the ball port in the "closed" position. This will approximate the proper position when the ball and trunnions are lowered into the body.
11. With the ball (3) in the "closed" position, lower the ball/trunnion plate subassembly partially into the body as the spring (36) is compressed. **NOTE:** This procedure is critical and careful attention is a must. The outside diameter of the trunnion

plates must pilot in the body counterbore. Carefully lower the subassembly until a trunnion plate enters the counterbore (Usually one trunnion plate will enter the counterbore and the other will be out of position.) Use a plastic mallet or a block of wood to rotate the second trunnion into position. Once trunnion plates are aligned, lower the subassembly until the trunnion plates are seated in the bottom of the counterbore.

12. Slide the thrust bearing (70) over the stem (5). (**See Figure 2 for proper orientation.**)
13. Insert stem subassembly through the stem retainer (8) and install packing (69). (**Refer to Figure 2 for proper orientation of packing.**)
14. Install stem retainer subassembly, stem retainer seal (66) and stem retainer cap screws (13). Lubricate the threads of stem retainer cap screws with Never-Seez® or equivalent. Tighten according to bolt pattern (**Figure 3a**) and to values in (**Table 1 & 2**).



15. Place gland (9) over stem and bonnet studs. Install bonnet stud nuts (18) on studs and tighten "finger tight."
16. Gently place the body gasket (65) into the machined recess of the body (1).
17. Place the cap (2) over the body joint studs (12) being careful to orientate the cap with the body (as originally assembled by matching orientation marks made prior to disassembly), and taking care not to damage the body gasket (65) or the cap seat.

TABLE 1					
Recommended Torques (FT.LBS)					
Fastener Size	Fastener Material	A193 GR. B7	A193 GR. B8	A193 GR. B7M	A193 B8M
	Fastener Ident. Mark	B7	B8	B7M	B8M
1/2" - 13		75 - 85	70 - 85	55 - 65	60 - 75
5/8" - 11		160 - 190	155 - 180	125 - 145	135 - 160
3/4" - 10		250 - 290	235 - 275	190 - 220	205 - 240
7/8" - 9		380 - 445	290 - 340	290 - 340	250 - 295
1" - 8		575 - 630	435 - 510	435 - 510	385 - 435
1-1/8" - 8		850 - 1000	526 - 615	650 - 760	475 - 555
1-1/4" - 8		1160 - 1360	715 - 840	885 - 1030	625 - 725
1-1/2" - 8		2000 - 2360	1030 - 1120	1530 - 1800	900 - 1000

TABLE 2					
Recommended Torques (N.m)					
Fastener Size	Fastener Material	A193 GR. B7	A193 GR. B8	A193 GR. B7M	A193 B8M
	Fastener Ident. Mark	B7	B8	B7M	B8M
1/2" - 13		102 - 115	95 - 115	75 - 88	81 - 102
5/8" - 11		217 - 258	217 - 244	170 - 197	183 - 217
3/4" - 10		339 - 393	319 - 373	258 - 298	278 - 325
7/8" - 9		515 - 603	393 - 461	393 - 461	339 - 400
1" - 8		780 - 854	590 - 692	590 - 692	522 - 590
1-1/8" - 8		1153 - 1356	713 - 834	881 - 1031	644 - 753
1-1/4" - 8		1573 - 1844	970 - 1139	1200 - 1397	848 - 983
1-1/2" - 8		2712 - 3200	1397 - 1519	2075 - 2441	1220 - 1356

18. Lubricate the threads and face of body joint nuts (16) with Never-Seez or equivalent. Install nuts and tighten sequentially (**as shown in Figures 3a & 3b**), to the recommended torque values (**listed in Table 1 & 2**).
19. Tighten bonnet stud nuts (18) 1-1/2 to 2 turns beyond the "finger tight" condition. Pull on the stem (5) while tightening to assure that stem and thrust bearings are always in contact with the body.
20. If there is weepage past the packing upon installation, "leak-tight" performance may be restored by a packing adjustment described in the **MAINTENANCE** Section.

TABLE 3*				
Valve Size	6" (DN 150)	8" (DN 200)	10" (DN 250)	12" (DN 300)
T SEATS	RKY107-TTT	RKY108-TTT	RKY109-TTT	RKY141-TTT
M SEATS	RKY107-MTT	RKY108-MTT	RKY109-MTT	RKY141-MTT
* For Grounded Valves, Grounding Washers Listed Below Also Need To Be Ordered.				
Valve Size	6" (DN 150)	8" (DN 200)	10" (DN 250)	12" (DN 300)
Grounding Washer	233398	234271	234501	234407

3.4 REPAIR KITS

Standard repair kits (**Table 3**) include seats, packing, 316 stainless steel/PTFE spiral wound body gasket, bearings, spacer and stem retainer seal. The body gasket is suitable for valves with carbon steel or stainless steel trim. Consult the factory for replacement parts of valves with trim other than carbon or stainless steel or for seat materials not listed.

4. 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.

5. WELDING WARNING

WARNING

WELDING AND/OR GRINDING OF STAINLESS STEEL AND OTHER ALLOY STEELS CONTAINING CHROMIUM METAL MAY CAUSE THE RELEASE HEXAVALENT CHROMIUM. HEXAVALENT CHROMIUM, CHROMIUM(VI) OR CR(VI), IS KNOWN TO CAUSE CANCER. BE SURE TO USE ALL APPROPRIATE PPE WHEN WELDING METALS CONTAINING CHROMIUM. IF YOU HAVE ANY QUESTIONS CONSULT YOUR SUPERVISOR.

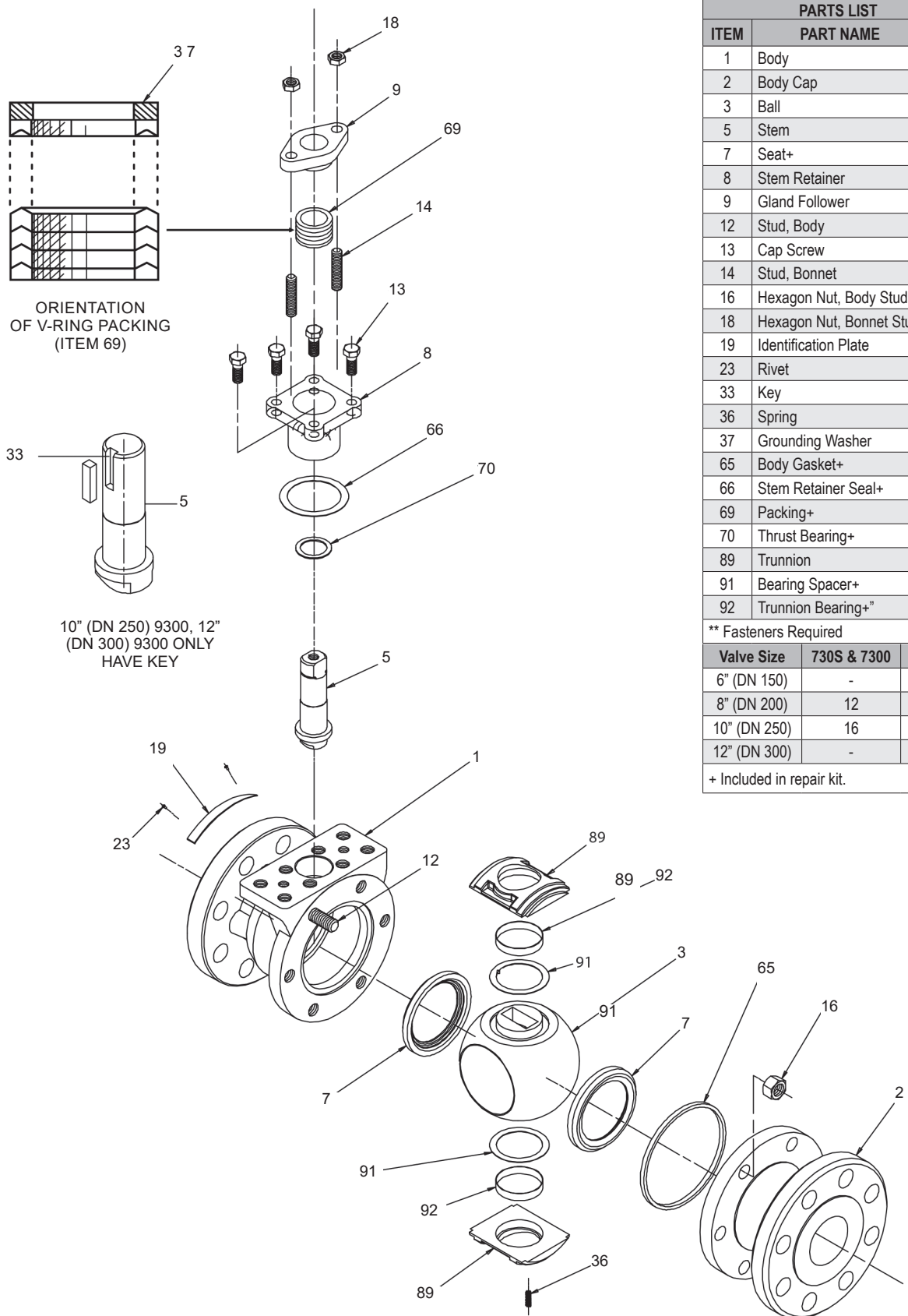
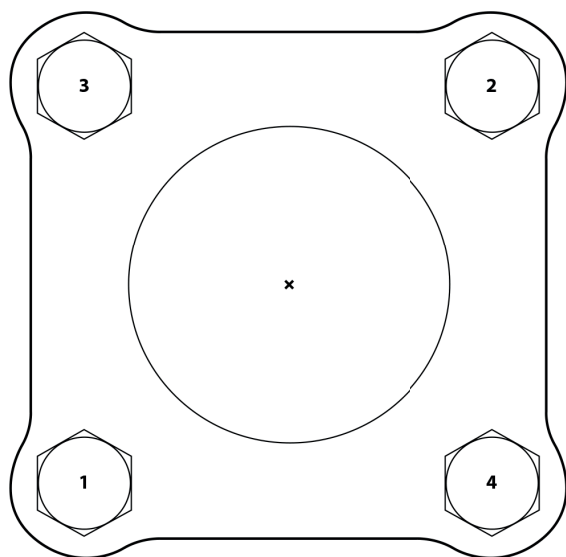


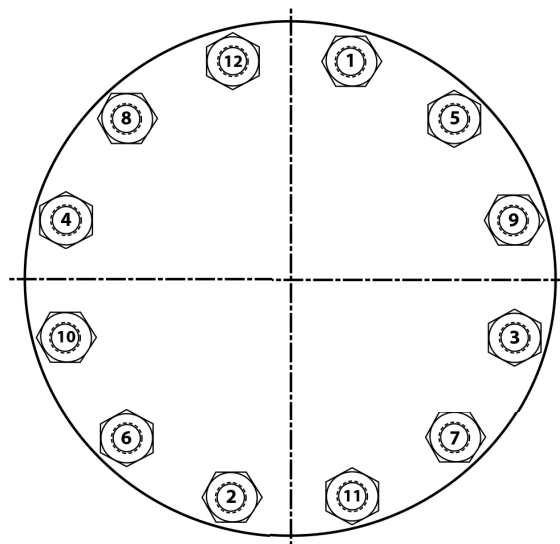
Figure 2

BOLT TIGHTENING SEQUENCE

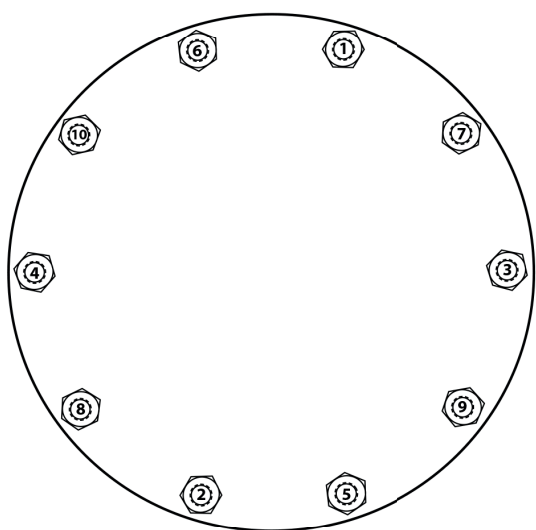
STEM RETAINER



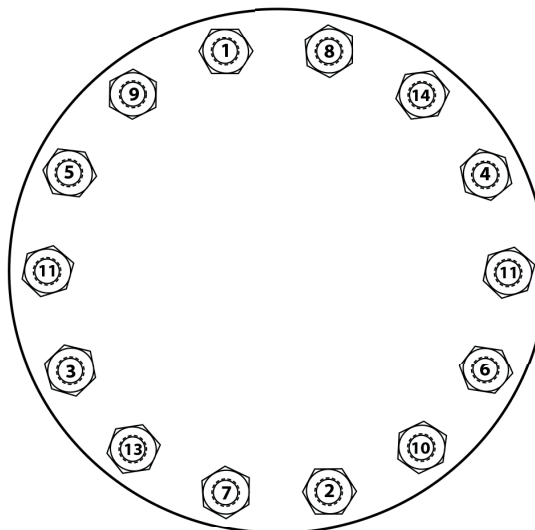
BODY FLANGES



12 HOLE PATTERN



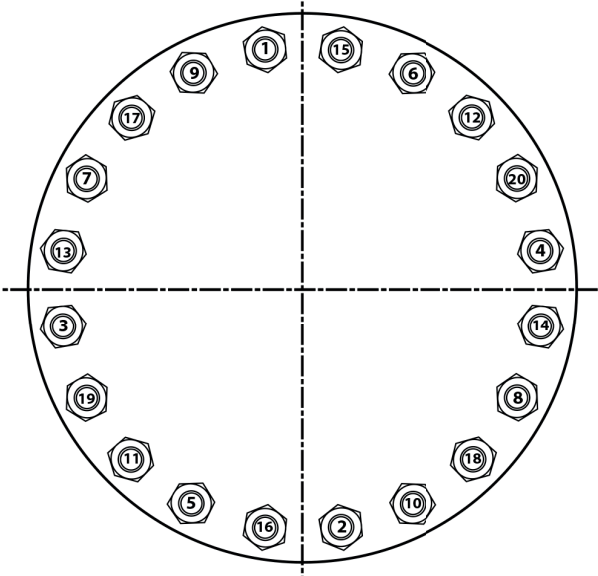
10 HOLE PATTERN



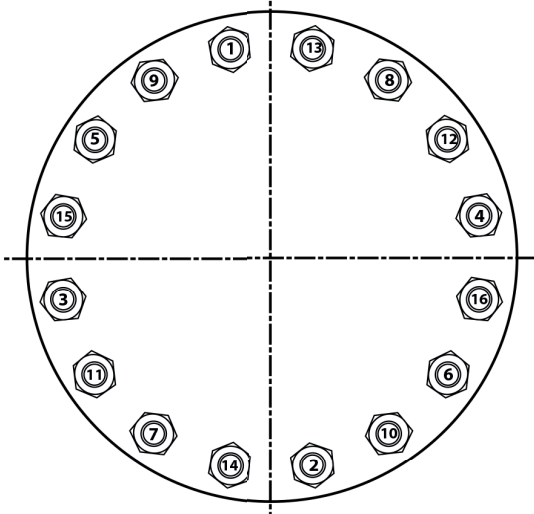
14 HOLE PATTERN

Figure 3a

BOLT TIGHTENING SEQUENCE (CONTINUED)



20 HOLE PATTERN



16 HOLE PATTERN

Figure 3b

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