

# Trunnion Flanged Ball Valves Series 7000 & 9000

8"–12" (DN 200 - 300) 9150, 9180 Model A

6"–8" (DN 150 - 200) 9300, 9380 Model B

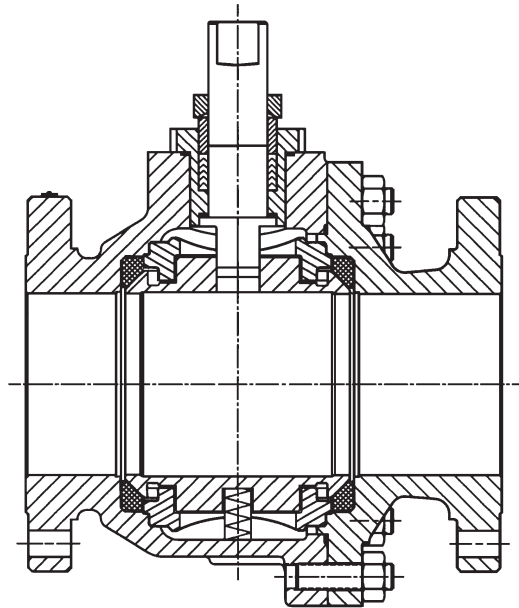
10" (DN 250) 7150, 7180 Model A

10"–12" (DN 250 - 300) 9300, 9380 Model A

8"–10" (DN 200 – 250) 7300, 7380, 730S, 738S Model A

8" (DN 200) 930L, 938L Model B

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.  
 Addresses and phone numbers are printed on the back cover.  
 See also [www.metso.com/valves](http://www.metso.com/valves) for the latest documentation.

### **SAVE THESE INSTRUCTIONS!**

# 1. GENERAL

## 1.1 Scope of the Manual

This instruction manual contains important information regarding the installation, operation and maintenance of the Jamesbury® Series 9000 Soft-Seated Trunnion 8" – 12" (DN 200 – 300) Class 150 Full-Bore, 6" – 12" (DN 150 – 300) Class 300 Full-Bore, Series 7000 Soft-Seated Trunnion 10" (DN 250) Class 150 Standard-Bore, 8" and 10" (DN 200 and 250) Class 300 Ball Valves. Please read these instructions carefully and save them for future reference.

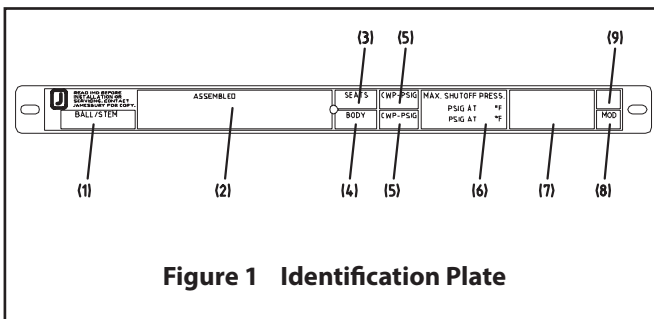
**WARNING:**

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 METSO FOR MORE INFORMATION.

## 1.2 Valve Markings

The valve has an identification plate attached to the pipeline flange (see **Figure 1**).



**Figure 1 Identification Plate**

Identification plate markings:

1. Ball/Stem material
2. Valve catalog code
3. Seat Material
4. Body Material
5. Maximum operating pressure
6. Maximum/minimum shut-off pressure/temperature
7. Approvals/Special Service marking
8. Model
9. Assembly date

## 1.3 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:**

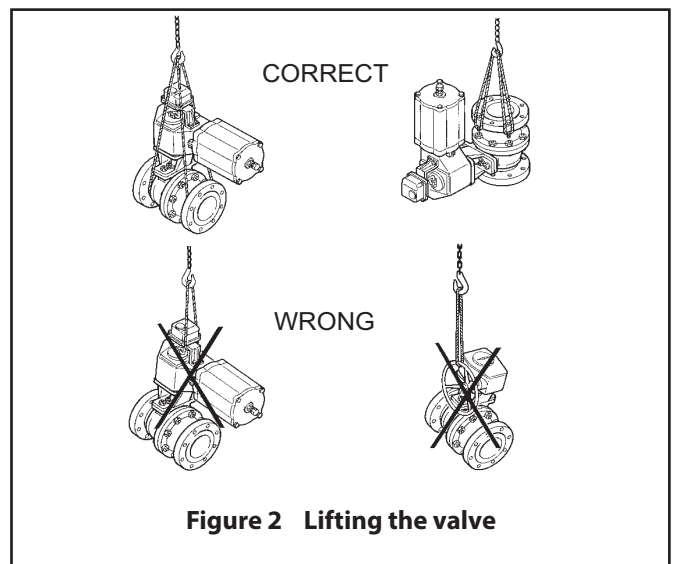
**BEWARE OF BALL MOVEMENT!**

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 SPRING-RETURN 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!**

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**).



**Figure 2 Lifting the valve**

## 2. TRANSPORTATION AND STORAGE

Check the valve and the accompanying devices for any damage that may have occurred during transport.

Store the valve carefully. Storage indoors in a dry place is recommended.

Do not remove the flow port protectors until installing the valve.

Move the valve to its intended location just before installation.

The valve is usually delivered in the open position.

If the valve(s) are to be stored for a long duration, follow the recommendations of IMO-S1.

## 3. INSTALLATION

### 3.1 General

Remove the flow port protectors and check that the valve is clean inside. Clean valve if necessary. Place the valve in the open position. In some sizes the ball in the closed positions protrude beyond the pipeline flange. Failure to install the valve in the open position may result to damage to ball.

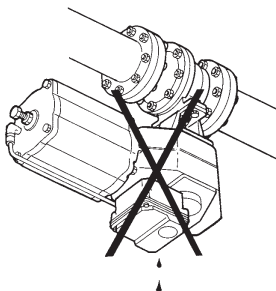
Flush the pipeline carefully before installing the valve. Foreign objects, such as sand or pieces of welding electrodes, will damage the ball and seats.

### 3.2 Installing in the pipeline

#### 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!

The valve may be installed in any position and offers tightness in both directions. It is recommended; however, that the valve be installed with the body cap facing upstream. It is not recommended to install the valve with the stem on the underneath side because dirt in the pipeline may then enter the body cavity and potentially damage the stem packing (see **Figure 3**).

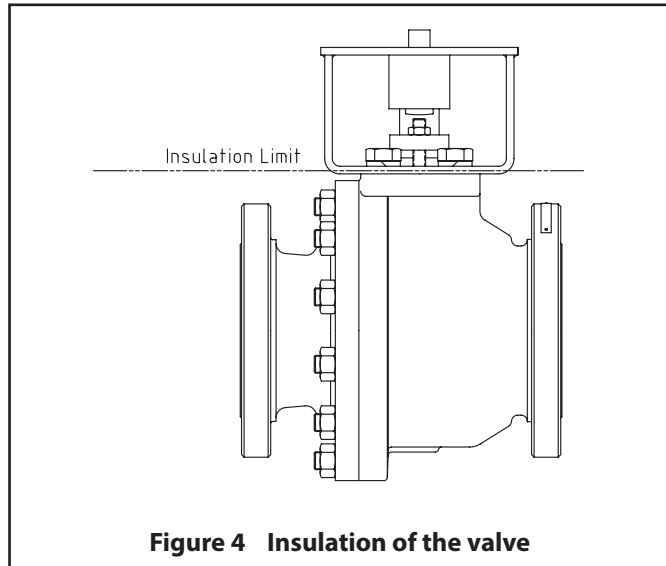


**Figure 3** Avoid this mounting position

Refer to the Section 4, **MAINTENANCE** for stem seal adjustment. If there is weepage past the stem seals 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 stem seal adjustment described in the **MAINTENANCE** section.

### 3.3 Valve Insulation

Jamesbury 7000 and 9000 Series valves do **NOT** require insulation to function properly. If desired the valve may be insulated; however, the insulation must not continue above the upper level of the valve (see **Figure 4**).



**Figure 4** Insulation of the valve

### 3.4 Actuator

#### WARNING:

WHEN INSTALLING THE ACTUATOR ON THE VALVE, MAKE SURE THAT THE VALVE ASSEMBLY FUNCTIONS PROPERLY. INSTALLATION INFORMATION FOR METSO ACTUATORS IS GIVEN IN THE SEPARATE ACTUATOR INSTRUCTIONS MANUALS LISTED IN **TABLE 2**.

The actuator should be installed in a manner that allows plenty of room for its removal.

The upright position is recommended for the actuator. The actuator must not touch the pipeline, because pipeline vibration may interfere with its operation. In certain cases it may be considered advantageous to provide additional support to the actuator. These cases will normally be associated with large actuators or where severe vibration is present. Please contact Metso for advice.

### 3.5 Commissioning

Ensure that there is no dirt or foreign objects left inside the valve or pipeline. Flush the pipeline carefully. Make sure that the valve is fully open when flushing. Ensure that all nuts, fittings, and cables are properly fastened.

If so equipped, check that the actuator positioner and/or switch are correctly adjusted. To adjust any accompanying device(s) refer to the separate control equipment instruction manuals.

## 4. MAINTENANCE

### 4.1 General

Although Metso's *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. Metso recommends inspecting valves at least every five (5) years. The inspection and maintenance frequency depends on the actual application and process condition. Routine maintenance consists of tightening the hex nuts (18) in **(Figure 9)** periodically to compensate for stem seal wear. **NOTE:** If there is weepage past the stem seals upon installation, "leak-tight" performance may be restored by turning stud nuts (18) an additional 1/4 to 1/2 turn clockwise.

Overhaul maintenance consists of replacing seats, bearings and seals. A standard repair kit consisting of these parts bearings may be obtained through your authorized Metso Distributor.

**NOTE:** Repair kits include thrust bearings (70), secondary stem seal (71), seats (7), body seal (65), stem seals (69), trunnion bearings (92), bearing spacers (91) and stem retainer seal (66). Refer to the Repair Kit chart (see **Table 3**).

#### WARNING:

FOR YOUR SAFETY IT IS IMPORTANT THE FOLLOWING PRECAUTIONS BE TAKEN PRIOR TO REMOVAL OF THE VALVE FROM THE PIPELINE OR BEFORE ANY DISASSEMBLY:

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

### 4.2 Actuated Valve

It is generally most convenient to detach the actuator and its auxiliary devices before removing the valve from the pipeline. If the valve package is small or if it is difficult to access, it may be more practical to remove the entire assembly.

**NOTE:** To ensure proper reassembly, observe the position of the actuator and positioner/limit switch with respect to the valve before detaching the actuator.

#### WARNING:

ALWAYS DISCONNECT THE ACTUATOR FROM ITS POWER SOURCE, PNEUMATIC, HYDRAULIC OR ELECTRICAL, BEFORE ATTEMPTING TO REMOVE IT FROM THE VALVE!

#### WARNING:

DO NOT REMOVE A SPRING-RETURN ACTUATOR UNLESS A STOPSCREW IS CARRYING THE SPRING FORCE!

1. Detach the air supply, electrical supply, hydraulic supply and control signal cables or pipes from their connectors.
2. If the valve uses a two-piece "no-play" bolted coupling, loosen the valve/actuator coupling screws.
3. Unscrew the actuator mounting bracket screws.
4. Lift the actuator straight up in line with the valve stem until the coupling between actuator drive and valve stem is completely disengaged.
5. Place actuator in a safe location to avoid damage or personal injury.

### 4.3 Disassembly

**NOTE:** If complete disassembly becomes necessary; it is recommended to replace all seats and seals. Refer to the Repair Kit chart (see **Table 3**).

**NOTE:** Always use original OEM parts to make sure that the valve functions properly.

1. Follow the steps in all the **WARNING** sections above before performing any work on the valve.
2. Open and close the valve and leave in the closed position. Place the valve in the vertical position with the body cap end up. **NOTE:** For 10" [DN 250] Series 7150, 7180, and 8" [DN 200] & 10" [250] 730S & 738S the ball protrudes beyond the pipeline flange in the closed position and needs to be raised slightly to avoid damaging the ball sealing surface.
3. Remove the stud nuts (18), compression plate (10) and gland follower (9). **NOTE:** On 10" (DN 250) and larger valves, the gland follower and compression plate are one piece.
4. Mark the body joint flanges to assure correct body (1) and body cap (2) orientation during assembly. Remove body stud nuts (16) or the socket head cap screws (12) and remove body cap (2). **BE CAREFUL NOT TO SCRATCH THE BALL.**
5. Remove the seat (7) from the body cap.

6. Remove the stem (5) and stem retainer (8) as a subassembly by removing cap screws (13). It may be necessary to loosen the stem retainer by tapping with a block of wood and a hammer. Remove and discard stem retainer seal (66).
7. Remove and discard the body seal (65).
8. Lift the ball (3), along with the trunnions (89) out of the body, **BEING CAREFUL NOT TO DAMAGE ANY SEALING SURFACES ON THE BALL.**
9. Carefully remove the bottom seat (7) out of the body, **BEING CAREFUL NOT TO SCRATCH THE BODY SEALING SURFACE BEHIND THE SEAT.**
10. Remove the trunnions (89) from the hubs on the ball (3).
11. Remove the trunnion bearing (92) and bearing spacer (91) from each trunnion, and discard.
12. Press the stem (5) from the top to remove it from the stem retainer (8).
13. Remove and discard the thrust bearings (70), and secondary stem seal (71), **BEING CAREFUL NOT TO SCRATCH ANY SEALING SURFACES ON THE STEM.**
14. Remove and discard the stem seals (69), **BEING CAREFUL NOT TO SCRATCH ANY SEALING SURFACE INSIDE THE STEM BORE.**

#### 4.4 Checking Parts

1. Clean all disassembled parts.
2. Check the stem (5) and ball (3) for damage. Pay particular attention to the sealing and bearing areas.
3. Check all sealing and gasket surfaces of the body (1) and body cap (2).
4. Replace any fastener where the threads are damaged or have been heated, stretched or corroded.
5. Replace any parts that have cracks, gouges or pits that will affect sealing.
6. Replace any damaged parts.

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

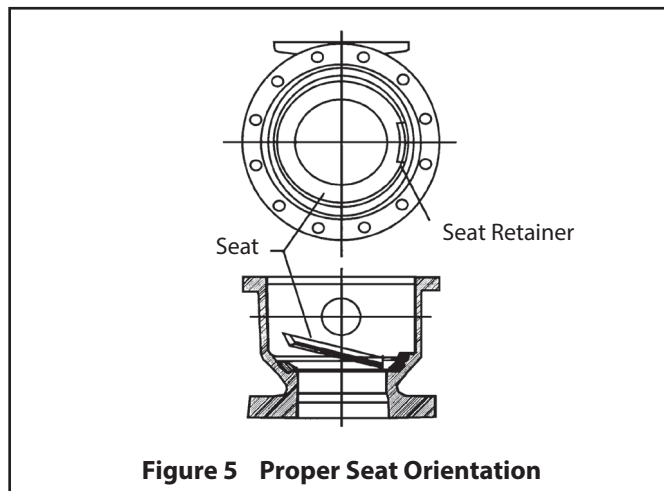
- a. Valve catalog code from Identification plate,
- b. If the valve is serialized – the serial number (stamped on the valve body),
- c. From **Figure 9**, the ballooned part number, part name and quantity required.

#### 4.5 Assembly

It is advisable to replace all seats and seals if complete disassembly and reassembly become necessary. Refer to the Repair Kit chart (see **Table 3**).

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

1. Clean all valve components if not done previously.
2. Re-inspect all components for damage before reassembling the valve. Look for damage to the seating areas, stem, body and body cap; and look for wear in the bearing areas. Replace any damaged parts.
3. Carefully clean and polish the ball (3) 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.
5. Place the body and body cap carefully on the pipeline flange, on a soft surface, taking care not to damage the raised face sealing surface.
6. Insert one valve seat (7) by sliding one side under the seat retainer in the body (1), and placing the seat into the cavity (see **Figure 5**). Repeat the procedure for the second seat in the body cap (2).



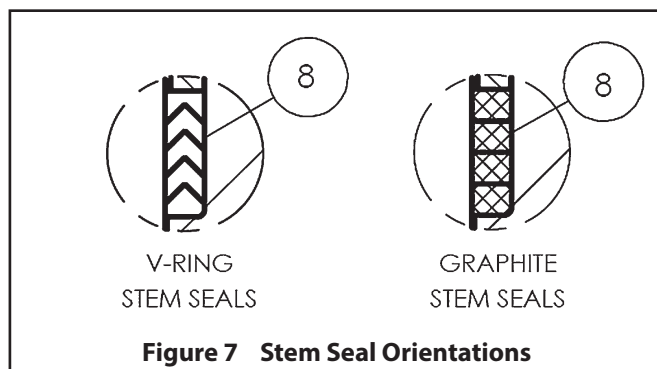
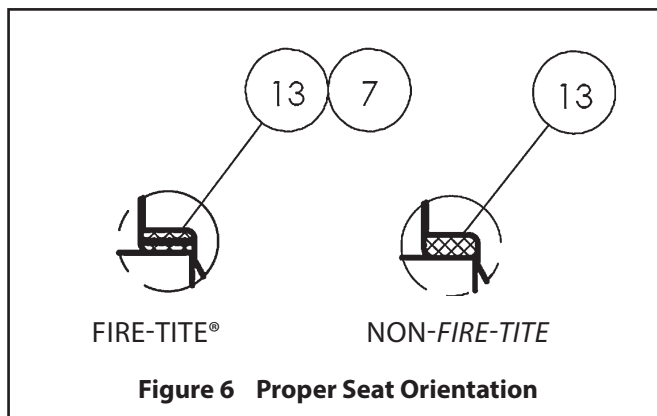
**Figure 5 Proper Seat Orientation**

7. Insert a trunnion bearing (92) into each trunnion plate counterbore and lightly lubricate bearing I.D.'s with a lubricant compatible with the media flowing through the valve.
8. Place a bearing spacer (91) over each ball trunnion.
9. Fit a trunnion plate over each ball trunnion until the plate rests against the bearing spacer (91). This operation must be performed with care and without



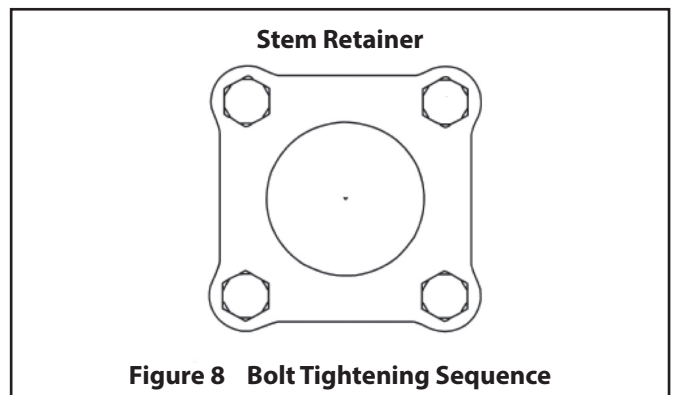
excessive force or the bearing will be damaged. It may be necessary to tap the plate on with a plastic mallet.

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. **NOTE:** This procedure is critical and careful attention is important! 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 the trunnion plates are aligned, lower the subassembly until the trunnion plates are seated in the bottom of the counterbore.
12. Slide the one thrust bearings (70), the secondary stem seal (71), and the second thrust bearings (70) over the stem (5). (See **Figure 6** for proper orientation).
13. Insert stem subassembly through the stem retainer (8) and install packing. (Refer to **Figure 7** for proper orientation of packing). Install gland follower (9) (bevel side up) over the stem and slide down to touch packing. **NOTE:** On 10" (DN 250) and larger valves the gland follower and compression plate are one piece.
14. Install stem retainer subassembly, stem retainer seal (66), and stem retainer cap screws (13). Lubricate the threads



and under the head of stem retainer cap screws with Never-Seez® or equivalent. Tighten according to bolt pattern shown in (**Figure 8**) and to values in (**Table 1**).

15. With a wire brush, clean studs (14) and stud nuts (18) of foreign material, such as paint, thread locker, grime and commodity. Inspect the threads for damage or defects with appropriate ring or plug gauge. Repair any out-of-tolerance threads, or replace in-kind. Check that nut can be run up and down entire usable portion of the threads. See **Figure 9**.
16. Place compression plate (10) over stem (5) and studs (14).
17. Place a stud nut (18) on each stud (14) and tighten "finger tight".
18. Gently place the body seal (65) into the machined recess of the body (1).
19. With a wire brush, clean body studs or socket head cap screws (12) and body stud nuts (16) of foreign material, such as paint, thread locker, grime and commodity. Inspect the threads for damage or defects with appropriate ring or plug gauge. Repair any out-of-tolerance threads, or replace in-kind. Check that nut can be run up and down entire usable portion of the threads. See **Figure 9**.
20. Place the body cap (2) over body studs (12) being careful to properly orient body cap and body as originally assembled by matching orientation marks made prior to disassembly. Take care not to damage body seal (65) or the cap seat (7) during this operation.
21. Lubricate the threads and face of nuts (16) with NeverSeez® or equivalent. Install nuts (16) on body studs (12) so that material identification marks will be visible after tightening. Tighten sequentially as shown in the diagram (**Figure 10**), to the recommended torques as shown in the torque chart (**Table 1**).



22. Cycle the valve slowly with a gentle back and forth motion building gradually to the full quarter turn. By cycling slowly, the seat lips will seat against the ball. Take care to avoid scratching the ball O.D.

23. Tighten 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. **NOTE:** If there is weepage past the packing upon installation, “leaktight” performance may be restored by turning the stud nuts (18) an additional 1/4 to 1/2 turn.

<b>Table 1</b>				
<b>Lubricated Torques - ft-lbs (N-m)</b>				
Fastener Size	Fastener Material			
	A193 GR. B7	A193 GR. B8	A193 GR. B7M	A193 GR. B8M
	Fastener Identification Mark			
	B7	B8	B7M	B8M
3/8 - 16 UNC	30 - 38 (40 - 51)	24 - 29 (32 - 39)	23 - 29 (31 - 39)	27 - 35 (37 - 47)
1/2 - 13 UNC	75 - 93 (101 - 126)	57 - 70 (77 - 95)	57 - 71 (77 - 96)	68 - 84 (92 - 114)
5/8 - 11 UNC	150 - 190 (203 - 257)	110 - 140 (149 - 189)	110 - 140 (149 - 189)	130 - 170 (176 - 230)
3/4 - 10 UNC	260 - 330 (352 - 446)	200 - 250 (271 - 338)	200 - 250 (271 - 338)	240 - 300 (325 - 406)
7/8 - 9 UNC	380 - 445 (515 - 603)	290 - 340 (393 - 461)	290 - 340 (393 - 461)	250 - 295 (339 - 400)
1 - 8 UN	575 - 630 (780 - 854)	435 - 510 (590 - 691)	435 - 510 (590 - 691)	385 - 435 (522 - 590)
1-1/8 - 8 UN	850 - 1000 (1152 - 1356)	526 - 615 (713 - 834)	650 - 760 (881 - 1030)	475 - 555 (644 - 752)
1-1/4 - 8 UN	1160 - 1360 (1573 - 1844)	715 - 840 (969 - 1139)	885 - 1030 (1200 - 1396)	625 - 725 (847 - 983)
1-1/2 - 8 UN	2000 - 2360 (2711 - 3199)	1030 - 1120 (1396 - 1518)	1530 - 1800 (2074 - 2440)	900 - 1000 (1220 - 1356)

#### 4.6 Testing the Valve

##### **WARNING:**

WHEN PRESSURE TESTING, EXERCISE CAUTION AND MAKE SURE ALL EQUIPMENT USED IS IN GOOD WORKING CONDITION AND APPROPRIATE FOR THE INTENDED PRESSURE.

If the valve is to be tested prior to returning to service make sure the test pressures are in accordance with an applicable standard.

When testing the valve for external tightness, keep the ball in the half open position.

If testing the valve seat tightness, please contact Metso for advice.

##### **WARNING:**

WHEN PERFORMING ANY TESTS, NEVER EXCEED THE MAXIMUM OPERATING PRESSURE OR MAXIMUM SHUT-OFF PRESSURE LISTED ON THE IDENTIFICATION PLATE!

## 5. REPAIR KITS

Standard repair kits (**Table 3**) include seats, packing, 316 stainless steel/filled PTFE trunnion bearings and filled PTFE spacers, 316 stainless steel/PTFE spiral wound body gasket and a stem retainer seal. The trunnion bearing and body gasket are 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. When ordering repair kits for your valve refer to **Section 1.2, Valve Markings** and check area “3” on your valve’s identification plate to determine the correct seat material for your valve.

## 6. SERVICE/SPARE PART

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

**NOTE:** When sending valves to the service center for repair, do not disassemble them! Clean the valve carefully and flush the valve internals. Include the material safety datasheets (MSDS) for all media flowing through the valve. Valves sent to the service center with MSDS forms will not be accepted. For further information on spare parts and service or assistance, visit our web-site at [www.metso.com/valves](http://www.metso.com/valves).

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

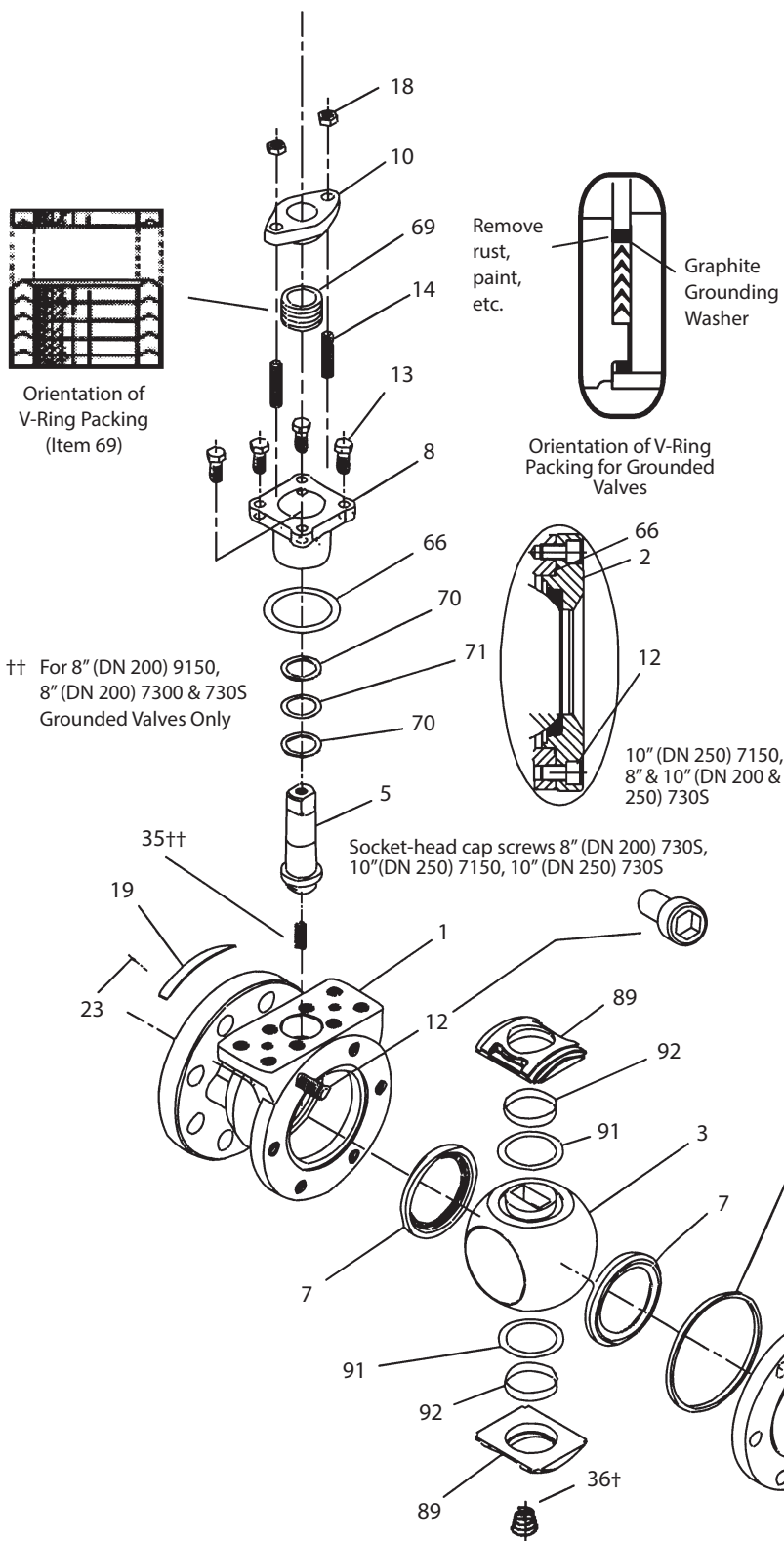
- Valve catalog code from identification plate,
- If the valve is serialized – the serial number (from identification plate).
- From **Figure 9**, the ballooned part number, part name and quantity required.



<b>Table 2</b>	
<b>Actuator Installation, Maintenance and Operating Instructions</b>	
<b>Actuator</b>	<b>IMO</b>
QPX	215
VPVL	553
B1C	6 BC 71
B1J	6 BJ 71
BCH	6 BCH 70
M	549
Contact your authorized Metso Distributor for copies of these instructions	

<b>TABLE 3</b>				
<b>REPAIR KITS - Standard Bore in [ ]</b>				
<b>Seat Material</b>	<b>Valve Size</b>			
	<b>6" (DN 150) [8" (DN 200)]</b>	<b>8" (DN 200) [10" (DN 250)]</b>	<b>10" (DN 250)</b>	<b>12" (DN 300)</b>
T Seats	RKN-186TTT	RKN-187TTT	RKN-190TTT	RKN-191TTT
M Seats	RKN-186MTT	RKN-187MTT	RKN-190MTT	RKN-191MTT
W Metal-Wrapped Seats	RKN-186WTT	RKN-187WTT	-	-
PFA Seats & Seals	RKN-186PBT	-	-	-
Xtreme® Seats	RKN-186XTZ	-	RKN-190XTZ	RKN-191XTZ
* For grounded valves, grounding washers listed below also need to be ordered.				
Grounding Washer	004-0850-60	004-0851-60	004-0852-60	004-0853-60

**EXPLODED VIEW AND PARTS LIST**



†† For 8" (DN 200) 9150, 8" (DN 200) 7300 & 7305 Grounded Valves Only

Socket-head cap screws 8" (DN 200) 730S, 10" (DN 250) 7150, 10" (DN 250) 730S

10" (DN 250) 7150, 8" & 10" (DN 200 & 250) 730S

PARTS LIST		
ITEM	PART NAME	QTY
1	Body	1
2	Body Cap	1
3	Ball	1
5	Stem	1
7	Seat	2
8	Stem Retainer	1
9	Gland Follower**	1
10	Compression Plate	1
12	Stud, Body (See Note 1)	-
13	Cap Screw	4
14	Stud, Bonnet	2
16	Hexagon Nut, Bonnet Stud (See Note 1)	-
18	Hexagon Nut, Bonnet Stud	2
19	Identification Plate	1
23	Rivet	3
35	Spring††	1
36	Spring†	1
37	Caution Tag***	1
65	Body Gasket	1
66	Stem Retainer Seal	1
69	Packing	1
70	Stem Bearing	2
71	Secondary Stem Seal	1
89	Trunnion	2
91	Bearing Spacer	2
92	Trunnion Bearing	2

\*\* Not used in 10"-12" (DN 250-300) 9150 & 9130  
 \*\*\* 10" (DN 250) 7150 & 730S Only

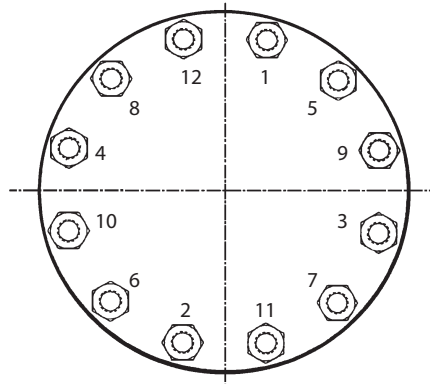
NOTE 1: Quantity of studs and nuts required - Standard Bore in ( )		
Valve Size	Class 150	Class 300
6 (DN 150)	-	12
8 (DN 200)	12	12 (12)
10 (DN 250)	10 (12)	14 (12)
12 (DN 300)	14	20

† For 10" - 12" (DN 250 - 300) 9150, 6" - 12" (DN 150 - 300) 7300, 10" (DN 250) 7150 & 10" (DN 250) 7300 & 730S Grounded Valves

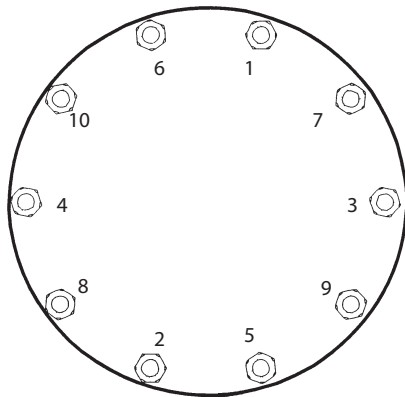
**Figure 9**

**BOLT TIGHTENING SEQUENCE**

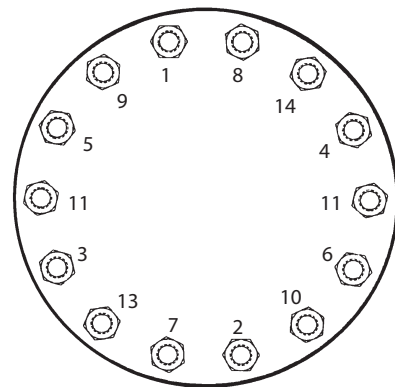
**Body Flanges**



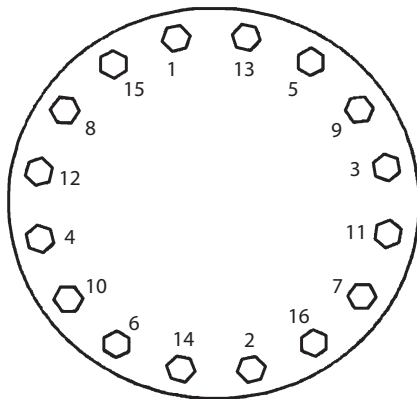
**12 Hole Pattern**



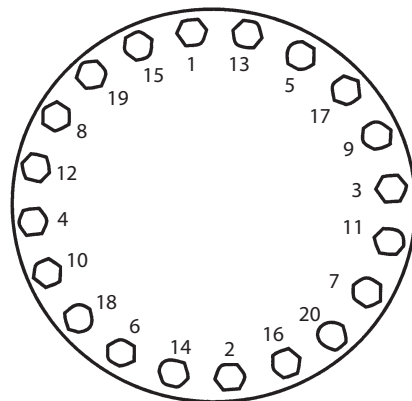
**10 Hole Pattern**



**14 Hole Pattern**



**16 Hole Pattern**



**20 Hole Pattern**

**Figure 10**

## JAMESBURY FLANGED BALL VALVES SERIES 7000 & 9000 (Trunnion)

### 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 Metso for more information.

1	2	3	4	5	6	7	8	9
8	9150	-	71	22	36	XTZ	1	A

1. sign	VALVE SIZE ( inch / mm )
<b>INCHES</b>	6, 8, 10, 12
<b>DN</b>	150, 200, 250, 300

2. sign	VALVE SERIES & STYLE	SIZE RANGE
<b>7150</b>	Standard Bore Class 150	10"
<b>7180</b>	Standard Bore Class 150*	10"
<b>7300</b>	Standard Bore Class 300	8" & 10"
<b>7380</b>	Standard Bore Class 300*	8" & 10"
<b>730S</b>	Standard Bore Class 300**	8" & 10"
<b>9150</b>	Full Bore Class 150	8" - 12"
<b>9180</b>	Full Bore Class 150*	8" - 12"
<b>9300</b>	Full Bore Class 300	6" - 12"
<b>9380</b>	Full Bore Class 300*	6" - 12"
<b>930L</b>	Full Bore Class 300*	8" only
<b>938L</b>	Full Bore Class 300*	8" only

\* Metric unit on nameplate. CE marked.

\*\*Special short pattern uses Class 150 face-to-face.

3. sign	CONSTRUCTION / SPECIAL SERVICE
-	Standard (no entry)
<b>O</b>	Oxygen
<b>C</b>	Chlorine
<b>HV</b>	High Vacuum
<b>HVC</b>	High Vacuum Certified
<b>N</b>	NACE MR0103
<b>STG</b>	Grounded

4. sign	SEAT TYPE
<b>51</b>	Raised Face Trunnion (non-Fire-Tite)
<b>71</b>	Raised Face Trunnion (Fire-Tite)

5. sign	BODY MATERIAL
<b>22</b>	Carbon Steel
<b>35</b>	Alloy 20 (CN7M)
<b>36</b>	Stainless Steel (CF8M)
<b>37</b>	Stainless Steel (CG8M)
<b>71</b>	Monel® (M-35-1)
<b>73</b>	Hastelloy® C

Other materials available on application.

6. sign	BALL AND STEM MATERIAL
<b>00<sup>1</sup></b>	Same as body material
<b>HB</b>	316 Stainless Steel ball, 17-4 PH shaft
<b>35</b>	Alloy 20 ball and stem
<b>36</b>	316 Stainless Steel ball and stem
<b>37</b>	317 Stainless Steel ball and stem
<b>71</b>	Monel ball and K-Monel stem
<b>73</b>	Hastelloy C ball and stem

<sup>1</sup> Not available with 22 body material

7. sign	SEAT/BODY SEAL/STEM SEAL MATERIAL
<b>XZ</b>	Xtreme/PTFE/PTFE
<b>TTT</b>	PTFE/PTFE/PTFE
<b>UUU<sup>1</sup></b>	UHMW/UHMW/UHMW
<b>MBT<sup>1</sup></b>	Barrier Seat-Filled PTFE/PTFE/PTFE

<sup>1</sup> Non-Fire-Tite only

8. sign	BOLTS/NUTS
<b>1</b>	B7 / 2H
<b>2</b>	B8, B8C, B8M or B8T / 8B, 8CB, 8MB, 8TB or 8FB
<b>4<sup>1</sup></b>	Monel / Monel
<b>5<sup>1</sup></b>	B7M / 2HM

<sup>1</sup> Required for NACE MR0103

9. sign	MODEL
<b>A</b>	8" - 12" (DN 200 - 300) 9150, 9180 10" - 12" (DN 250 - 300) 9300, 9380 10" (DN 250) 7150, 7180 8" - 10" (DN 200 - 250) 7300, 7380, 738S, 730S
<b>B</b>	6" - 8" (DN 150 - 200) 9300, 9380, 930L, 938L

Monel® is a registered trademark of Special Metals Corporation  
Hastelloy® is a registered trademark of Haynes International, Inc.

Subject to change without prior notice.

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[www.metso.com/valves](http://www.metso.com/valves)

