

**SERIES 2" – 4" (DN 50 – 100)
6300, 2" – 6" (DN 50 – 150)
6150, 6" (DN 150) 5300 &
530S, 6" & 8" (DN 150 & 200)
5150 BALL VALVES**

Installation, Maintenance and
Operating Instructions

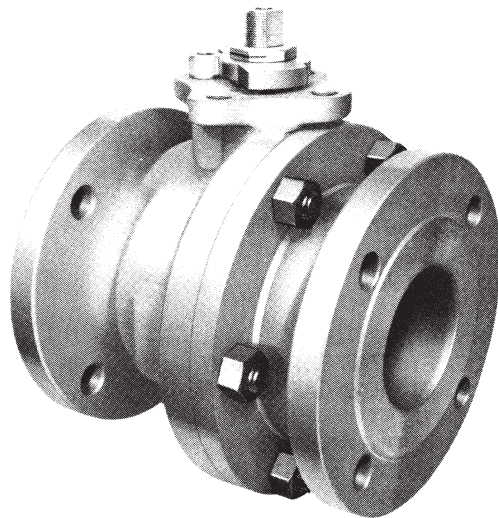


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READ THESE INSTRUCTIONS FIRST!

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 for the latest documentation.

SAVE THESE INSTRUCTIONS!

1. GENERAL

This instruction manual contains important information regarding the installation, operation and trouble shooting of the Jamesbury® Series 2"– 4"(DN 50 – 100) 6300, 2"– 6" (DN 50 – 150) 6150, 6" (DN 150) 5300 & 530S, 6" & 8" (DN 150 & 200) 5150 ball valves. Please read these instructions carefully and save them for further reference.

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. AT ALL TIMES DURING THIS ENTIRE PROCEDURE, KEEP HANDS OUT OF THE VALVE. A REMOTELY ACTUATED VALVE COULD CLOSE AT ANY TIME AND RESULT IN SERIOUS INJURY.
2. KNOW WHAT MEDIA IS IN THE LINE. IF THERE IS ANY DOUBT, CHECK WITH THE PROPER AUTHORITY.
3. WEAR ANY PROTECTIVE CLOTHING OR EQUIPMENT NORMALLY REQUIRED WHEN WORKING WITH THE MEDIA INVOLVED.
4. 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.
5. SEAT AND BODY RATINGS - THE PRACTICAL AND SAFE USE OF THIS PRODUCT IS DETERMINED BY BOTH THE SEAT AND BODY RATINGS. READ THE NAME TAG 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, BOLTING MATERIAL, AND TEMPERATURE. DO NOT EXCEED THESE RATINGS.

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 and 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.

IMPORTANT: The valve should be tightened between flanges using appropriate gaskets and fasteners for the service, in compliance with applicable piping codes and standards.

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 Metso's *Jamesbury* valves are designed to work under severe conditions, proper preventive 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.

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 Metso 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	2" (DN 50)	3" (DN 80)	4" (DN 100)	6" (DN 150)	3" (DN 80)	4" (DN 100) 6300
	6150 2" (DN 50) 6300	6150	6150 6" (DN 150) 5150	6150 8" (DN 200) 5150	6300	6" (DN 150) 530S & 6" (DN 150) 5300
PTFE SEATS	RKN79TT	RKN80TT	RKN81TT	RKN10TT	RKN82TT	RKN12TT
FILLED PTFE SEATS	RKN79MT	RKN80MT	RKN81MT	RKN10MT	RKN82MT	RKN12MT
PFA SEATS	RKN79BT	RKN80BT	RKN81BT	RKN10BT	RKN82BT	RKN12BT
UHMW SEATS	RKN79UU	RKN80UU	RKN81UU	RKN10UU	RKN82UU	RKN12UU
PFA SEATS SEALS	RKN79BP	RKN80BP	RKN81BP	RKN10BP	RKN82BP	RKN12BP

Standard repair kits include seats, stem seals and a 316 stainless steel/PTFE spiral wound body seal. The body seal is suitable for valves with carbon or 316SS trim.

3.1 Disassembly

NOTE: If complete disassembly becomes necessary, replacement of all seats and seals is recommended. Refer to the Repair Kit Chart.

1. Read the **WARNING** Section before performing any work on the valve.
2. Open and close the valve and leave in the closed position.
3. 4" (DN 100) 6300, 6" (DN 150) 6150, 6" (DN 150) 530S, 6" (DN 150) 5300 and 8" (DN 200) 5150 when equipped

with a manual tee handle, remove the cap screw (18) and washer (19) holding the pipe handle to the stem. Then remove the pipe handle (17) and the tee handle adapter (16).

TABLE 2

Recommended Torques Fastener Torques in FT•LBS (N•m)				
Fastener Size	Last Digit in Figure Number	1	2	5
		Fastener Material A193 GR. B7	A193 GR. B8	A193 GR. B7M
	Fastener Ident. Mark	B7	B8	B7M
1/2" - 13		75 – 85 (102 – 115)	75 – 85 (102 – 115)	55 – 65 (75 – 88)
5/8" - 11		160 – 190 (217 – 258)	"155 – 180 (210 – 244)"	125 – 145 (170 – 197)
3/4" - 10		250 – 290 (339 – 393)	235 – 275 (319 – 373)	190 – 220 (258 – 278)"

- For 2"(DN 50) 6300, 2"(DN 50) 6153, 3"(DN 80) 6300, 4" (DN 100) 6150 and 6" (DN 150) 5150 valves when equipped with handle remove the cap screw (18) and handle (17).
- Remove the stem nut (15), lockwasher (33), indicator stop (12) and retain. Discard the spring washers if the valve is so equipped.
- Remove the compression ring (21).
- Remove the body stud nuts (11) and remove the body cap (2).
- Remove the body seal (6) and seat (5) being careful not to scratch the ball.
- If the ball (3) does not fall from the body, with the ball in the fully closed position, use a piece of wood or some other soft material to gently tap the ball (from the end opposite the body cap). This should loosen the ball so that it can be pivoted free of the stem.
- Remove the second seat (5).
- Press the stem (4) from the top into the valve body and remove it through the end of the body.
- Pry out from the inside and discard the old bottom seal (8) and the secondary stem seal (7), **BEING CARE- FUL NOT TO SCRATCH ANY SEALING SURFACES IN THE BODY.**
- Remove the top stem seal (8 or 24).

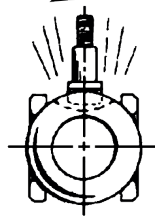
3.2 ASSEMBLY

- Standing the body (1) carefully on end, drop in one seat (5) with the flat surface on the bottom. See exploded view (**Figure 1**).
- Insert the secondary stem seal (7) and the bottom stem seal (8) into the body from the inside (**See Figure 1**). Insert the stem (4) from inside the valve body through the seals and bonnet of the valve. Next, insert the top stem seal (8 or 24), the compression ring (21), 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**" being up.
- Tighten down the nut until the top stem seal is fully seated, then tighten the nut an additional 1/8 to 1/4 turn.
- Insert the ball (3) rotating it onto the stem (4) in the closed position. Gently rock the ball to make sure the stem is centered in the ball slot (**See Figure 1, stem-to-ball location**).
- Gently press the body seal (6) into the machined recess of the body (1).
- Insert the second seat (5) into the body cap (2) so that the sealing surface of the seat is toward the ball. (**See Figure 1**).
- Insert the body cap (2) with the section marked "**TOP**" in line with the stem. Lubricate the nuts and studs with Never-Seez® or equivalent. Install nuts (11) on the body studs (10) and tighten sequentially as shown in the sequential diagram and torque chart (**Table 2**).
- Cycle the valve slowly twice to insure permanent position of the ball between the two seats.

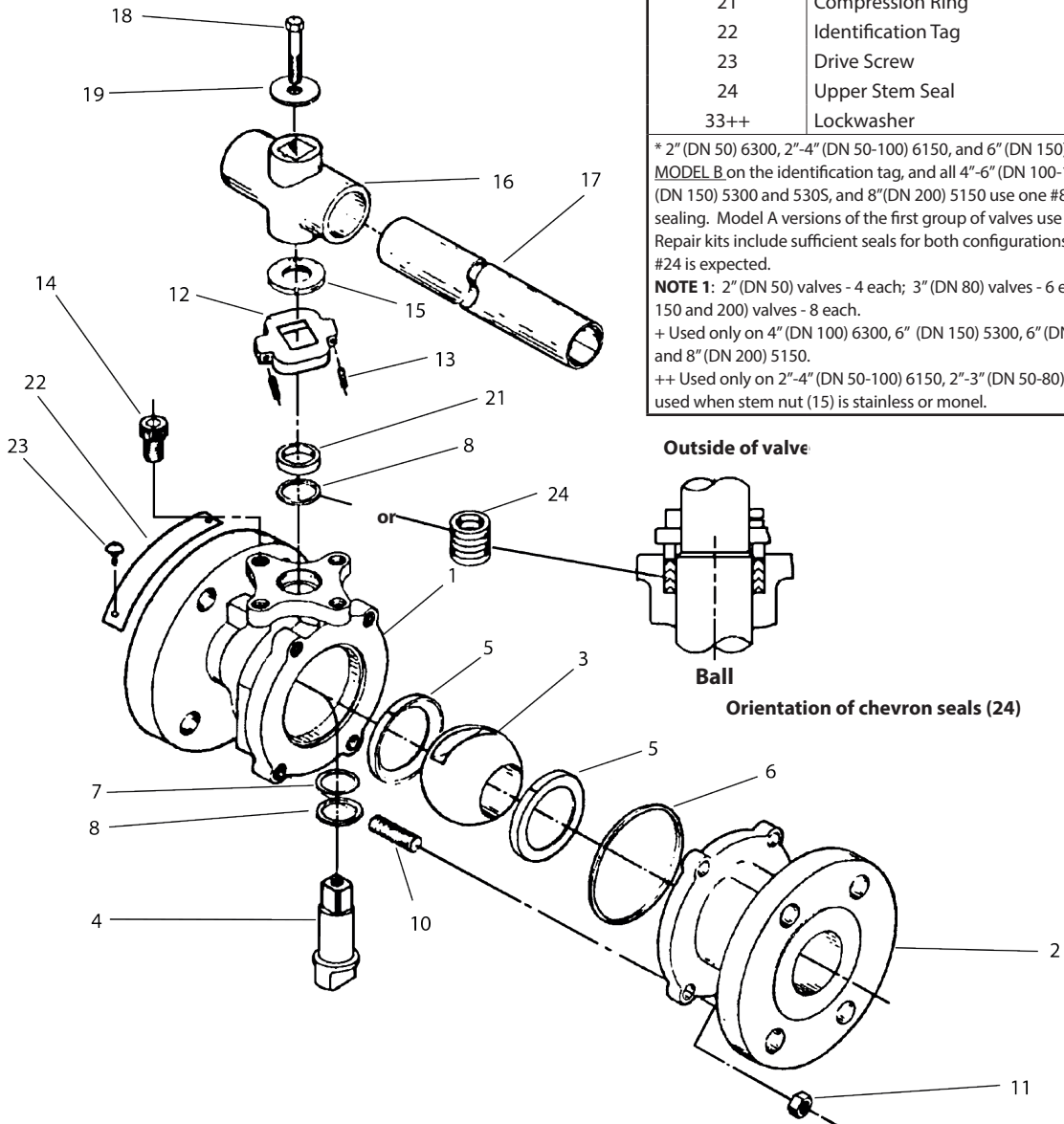
4. ACTUATOR MOUNTING

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 bracketry bolts. In the case of valves and actuators with solid, loose fit couplings, the actuator should be positioned on the valve without any side loading of the coupling before final tightening of the valve bracketry bolts.

Stem must be centered in ball slot as shown at assembly



Seats must be in this position at assembly



PARTS LIST

ITEM	PART NAME	QTY
1	Body	1
2	Body Cap	1
3	Ball	1
4	Stem	1
5	Seat	2
6	Body Seal	1
7	Secondary Graphite Stem Seal	1
8	Stem Seal	1*
10	Body Stud	See Note 1
11	Nut	See Note 1
12	Indicator Stop	1
13+	Socket Head Set Screw	2
14	Socket Head Cap Screw	1
15	Stem Nut	1
16+	Tee Handle Adapter	1
17+	Pipe Handle (Handle)	1
18	Cap Screw	1
19+	Washer	1
21	Compression Ring	1
22	Identification Tag	1
23	Drive Screw	3
24	Upper Stem Seal	Set*
33++	Lockwasher	1

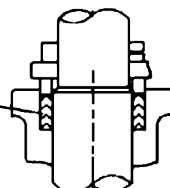
* 2" (DN 50) 6300, 2"-4" (DN 50-100) 6150, and 6" (DN 150) 6150 with the designation MODEL B on the identification tag, and all 4"-6" (DN 100-150) 6300, 6" (DN 150) 6150, 6" (DN 150) 5300 and 530S, and 8" (DN 200) 5150 use one #8 and one set of #24 for stem sealing. Repair kits include sufficient seals for both configurations; therefore a leftover #8 or #24 is expected.

NOTE 1: 2" (DN 50) valves - 4 each; 3" (DN 80) valves - 6 each; 4" (DN 100), 6" and 8" (DN 150 and 200) valves - 8 each.

+ Used only on 4" (DN 100) 6300, 6" (DN 150) 5300, 6" (DN 150) 630S, 6" (DN 150) 6150 and 8" (DN 200) 5150.

++ Used only on 2"-4" (DN 50-100) 6150, 2"-3" (DN 50-80) 6300 and 6" (DN 150) 5150, used when stem nut (15) is stainless or monel.

Outside of valve



Ball

Orientation of chevron seals (24)

Figure 1

5. REPAIR KITS/SPARE PARTS

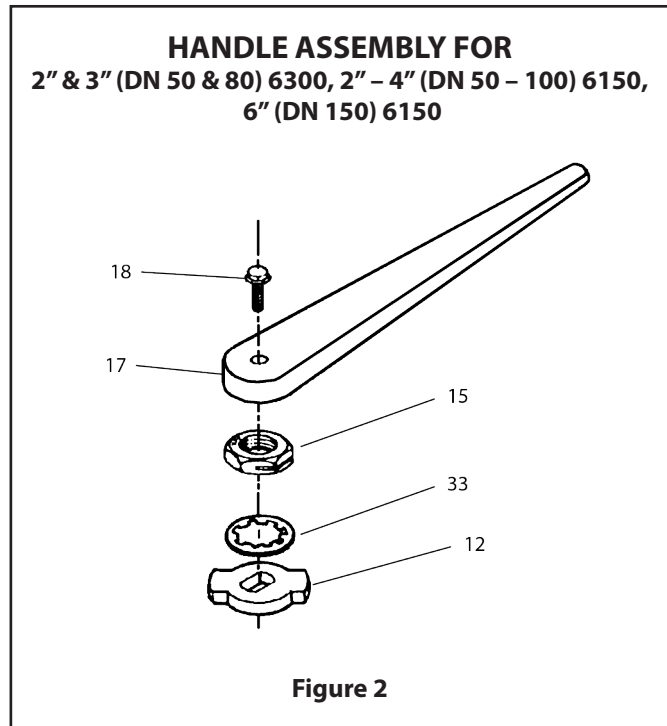
We recommend that valves be directed to our service centers for maintenance. The service centers are equipped to provide rapid turnaround at a reasonable cost and offer new valve warranty with all reconditioned valves.

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.

For further information on spare parts and service or assistance visit our web-site at 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 8 plate).
- From **Figure 1**, the ballooned part number, part name and quantity required.



BOLT SEQUENCE

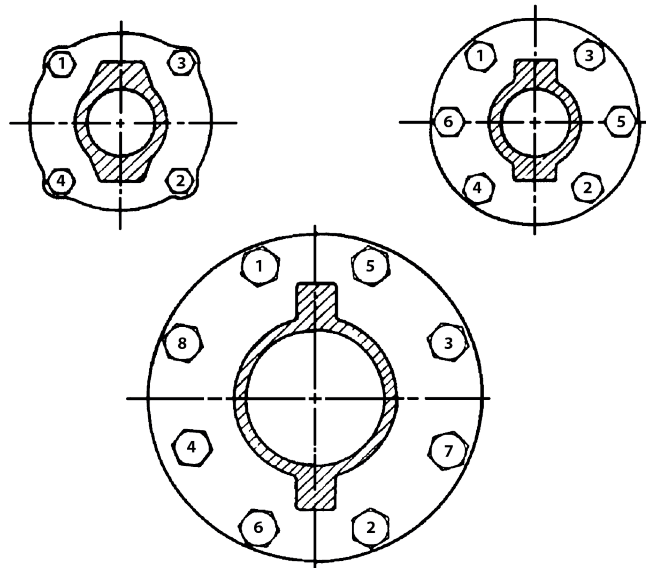


Figure 3

Subject to change without prior notice.

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