

Value-Line® 3/4" - 3" (DN 20 - 80) Series 6FR 2-Piece Ball Valves

Installation, Maintenance and
Operating Instructions

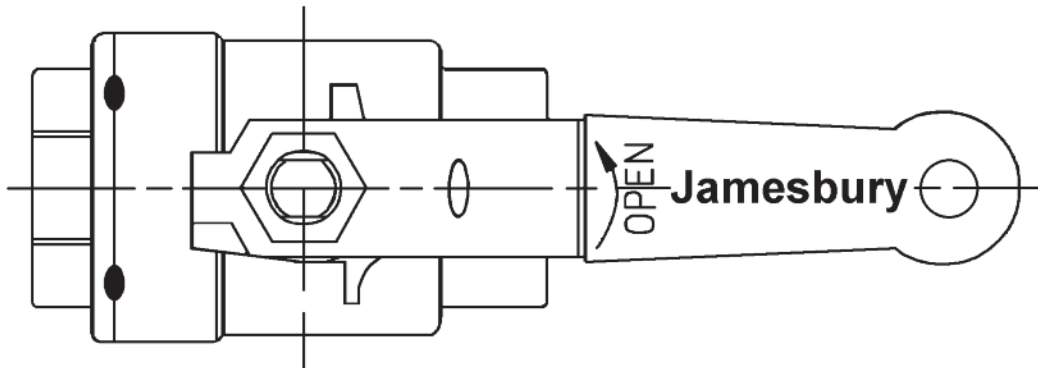


Table of Contents

1	GENERAL	3
	1.1 Warning	3
2	INSTALLATION	3
3	MAINTENANCE	3
	3.1 Disassembly	3
	3.2 Assembly	3
4	REPAIR KITS/SPARE PARTS	5

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!

Subject to change without notice.
All trademarks are property of their respective owners.

1 GENERAL

This instruction manual contains important information regarding the installation, maintenance, and troubleshooting of Jamesbury® Series 6FR *Value-Line* 2-piece Ball Valve. Please read these instructions carefully and save them for further reference.

1.1 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.
3. WHEN INSTALLING OR REMOVING PIPING FROM THE VALVE, PLACE A WRENCH ON THE BODY OR THE BODY CAP NEAREST THE END BEING WORKED. MAKE CERTAIN BODY CAP END OF VALVE DOES NOT TURN OUT OF THE VALVE BODY. (BODY/BODY CAP JOINT IS A RIGHT HAND THREAD.)

2 INSTALLATION

The valve may be installed for flow in either direction. However, for close tank mounting, install the valve with the cap end toward tank. Use standard piping practices when installing valves with threaded parts. When tightening the valve to the pipe, apply the wrench to the end nearest the pipe being worked (**see Figure 1**). Adjust packing prior to installation. See **MAINTENANCE** Section of this IMO.

3 MAINTENANCE

1. Periodically observe the valve to be sure of proper performance. More frequent observation is recommended under extreme operating conditions.
2. Routine Maintenance consists of tightening the stem nut 1/4 turn periodically to compensate for the wear caused by the stem's turning against the resilient PTFE seal.

Service Kits include two seats (5), two stem seals (7), two stem bearings (8), a secondary seal (13), and one body seal (6) (**see Table 1**).

TABLE 1

SERVICE KITS		
Valve Size	T Seats	M Seats
3/4" (DN 20)	RKN109-TT	RKN109-MT
1" (DN 25)	RKN110-TT	RKN110-MT
1-1/2" (DN 40)	RKN112-TT	RKN112-MT
2" (DN 50)	RKN198-TT	RKN198-MT
3" (DN 80)	RKN225-TT	RKN225-MT

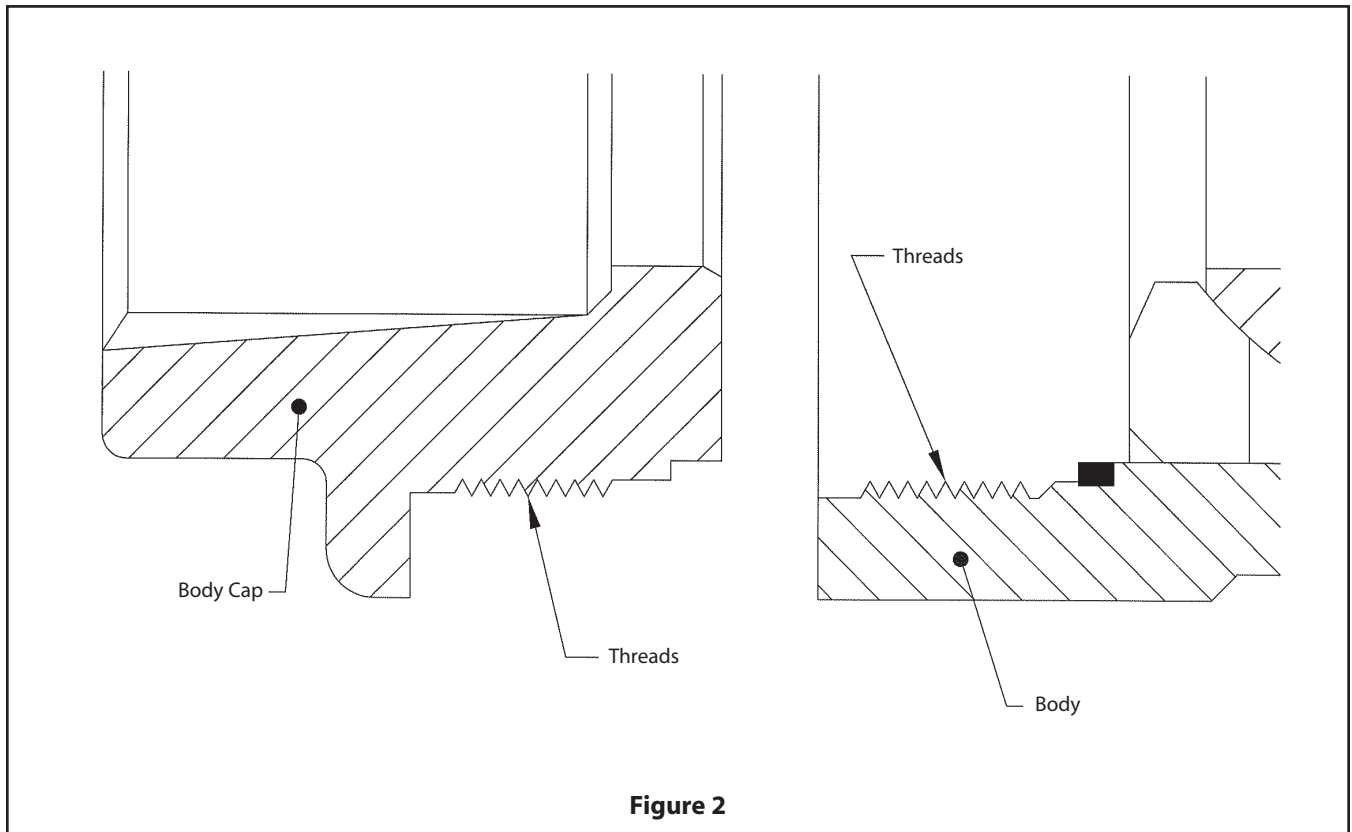
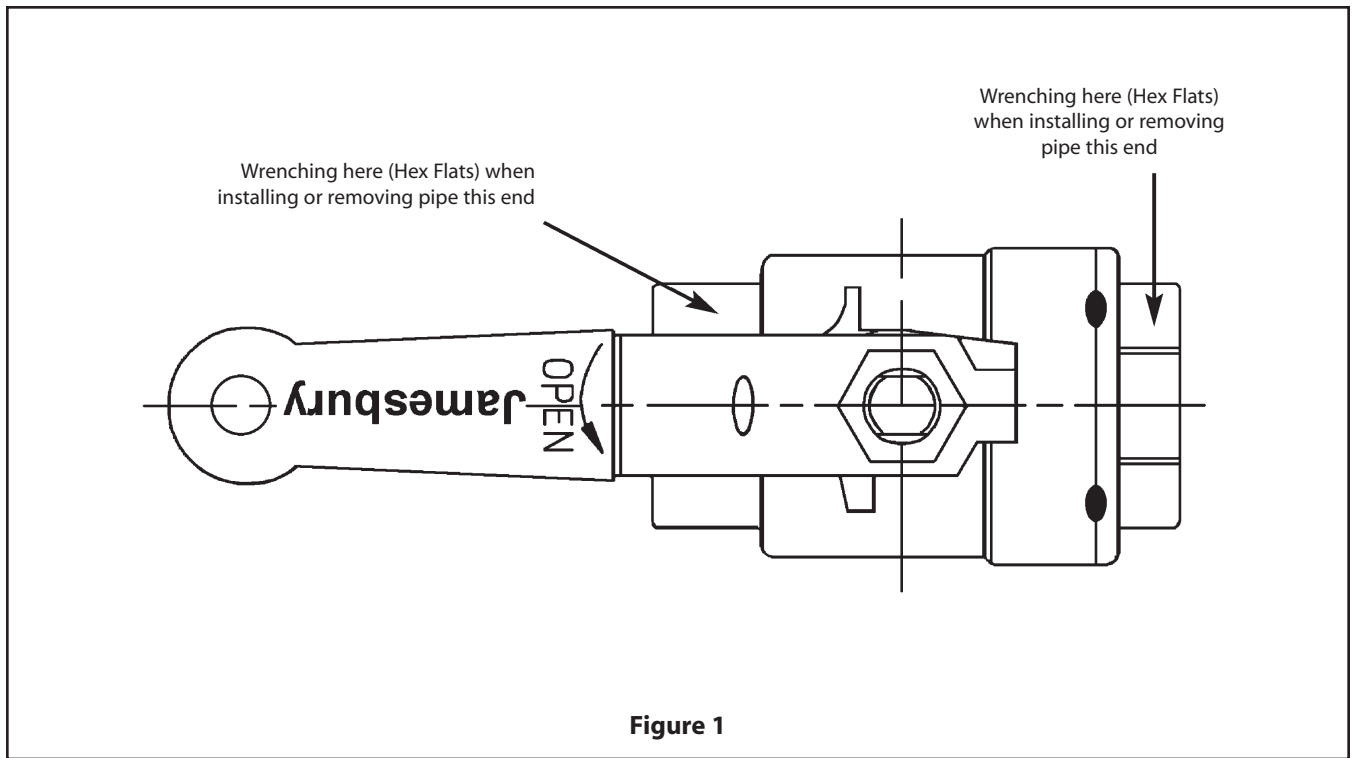
3.1 Disassembly

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

1. Close the valve. Then remove the handle nut (16), handle (15) and lower stem nut (19).
2. Remove the compression ring (18).
3. Hand grind the existing tack welds, and then chisel, to break the remaining weld. Unscrew and remove the body cap (2) and body seal (6).
4. If the ball (3) and seats (5) do 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 body cap). This will unseat these parts without damaging the ball.
5. Press the stem (4) from the top into the valve body and remove it through the body cap end of the body.
6. Using a wire brush, clean the internal body cap thread and internal body threads (**see Figure 2**).
7. Remove and discard the old stem seals (7), stem bearings (8) and sec. stem seal (13). Be very careful not to scratch any sealing surfaces in the valve body (surfaces on which seats and seal rest).

3.2 Assembly

1. Clamping valve body (1) lightly but securely in a vise.
2. Apply grease, Chevron Duralith EP2 or equivalent to both seats. Drop one seat (5) into valve body (1) with flat surface on the bottom.
3. Insert from the inside a stem bearing (8), a sec. stem seal (13), and another stem bearing (8) into the lower stem bore of the body.
4. Insert the stem (4) through the open end of the body (1), being careful not to scratch the stem bearings and stem bearing surfaces. Press it gently up into the stem hole.



5. Holding the stem in place from inside the valve, install two stem seals (7), the compression ring (18), and thread on the stem nut (19) until the stem starts to turn.
6. Place a wrench through the body on the bottom of the stem blade to hold the stem stationary. Place another wrench on the stem nut (19), and turn the nut down until the seals bottom and the stem comes snugly in place. Tighten the stem nut (19) until snug, plus an additional 1/4 - 1/2 turn.
7. Align the stem blade inside the valve body (1) with the ball (3). Insert the ball (3) and rotate the stem (4) to the ball fully closed position.
8. Insert second greased seat (5) into the body (1) so that the sealing surface of the seat is towards the ball. Insert the body seal (6).
9. Insert the body cap (2), screw it down and tighten to the required torque (**see Table 2 for Body Cap Torque specifications**).
10. Place the handle (15) and handle nut (16) over the stem (4). Tighten the handle nut (16) until snug.

TABLE 2	
BODY CAP ASSEMBLY TORQUE	
Valve Size	Body Cap Torque
3/4" (DN 20)	250 FT•LBS (203 N•m)
1" (DN 25)	225 FT•LBS (305 N•m)
1-1/2" (DN 40)	350 FT•LBS (475 N•m)
2" (DN 50)	600 FT•LBS (814 N•m)
3" (DN 80)	600 FT•LBS (814 N•m)

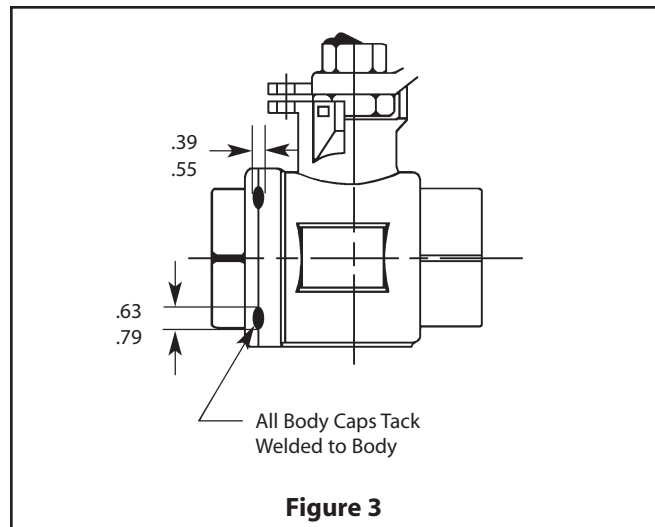


Figure 3

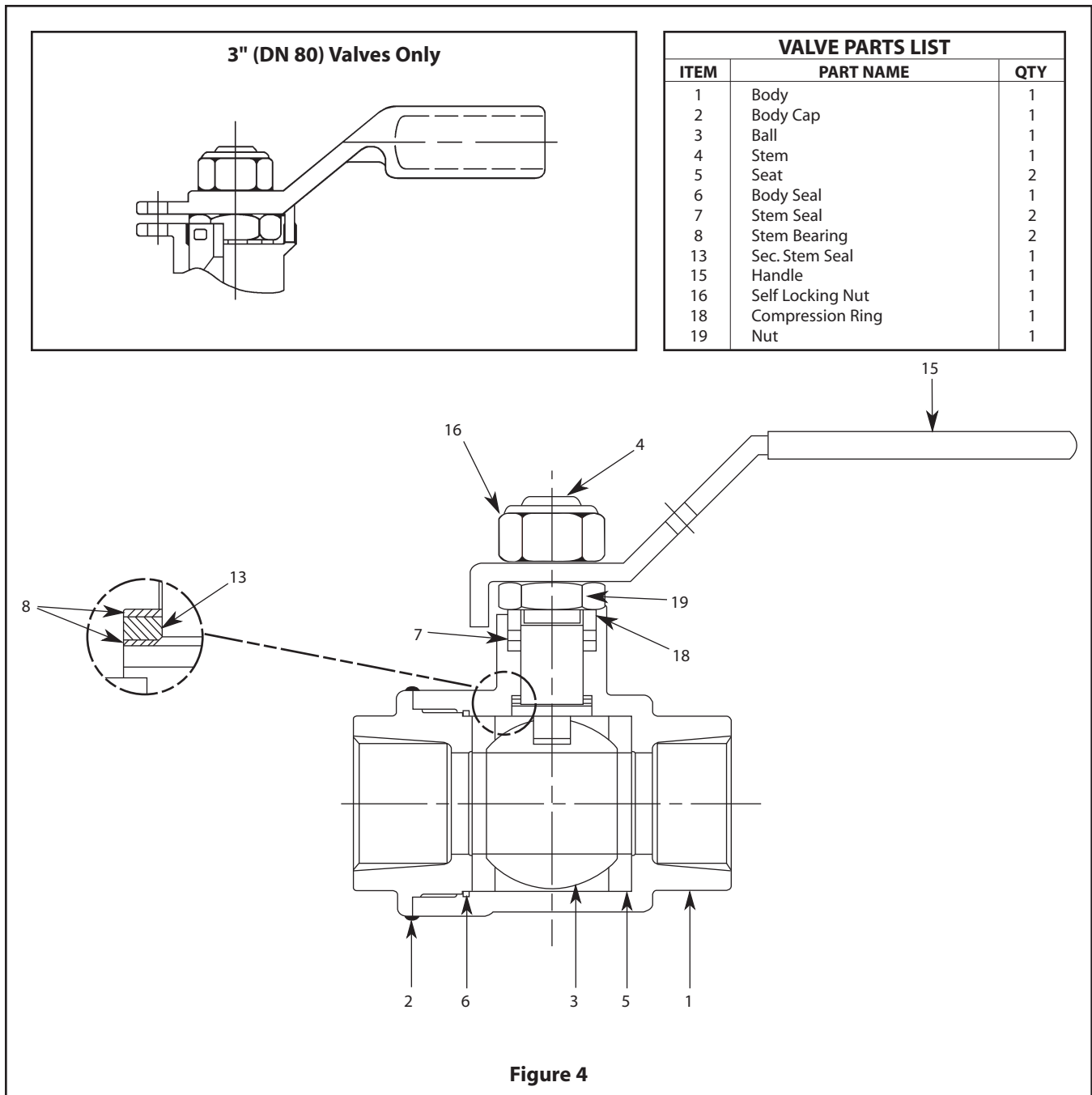
TABLE 3	
NUMBER OF WELDS	
Valve Size	No. of Welds Required
3/4" (DN 20)	2
1" (DN 25)	3
1-1/2" (DN 40)	4
2" (DN 50)	
3" (DN 80)	

TABLE 4	
WELD ROD REQUIRED	
Valve Material	Welding Rod Required
Carbon Steel	AWS 80SD-2 or E70S-2 or E71T-1
Stainless Steel	AWS ER 316/312 or E316LTX-X

11. Cycle the valve slowly twice to ensure permanent position of the ball between the two seats.
12. Tack weld the body cap to the body following the instructions in **(Figure 3 and Table 3)**. Tack welds must be equally spaced $\pm 10^\circ$. Weld not to exceed 1/8" (3.175 mm) depth of penetration.

4 REPAIR KITS/SPARE PARTS

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



Subject to change without prior notice.

Metso Automation Inc.

Europe, Vanha Porvoontie 229, P.O. Box 304, FI-01301 Vantaa, Finland, Tel. +358 20 483 150, fax +358 20 483 151

North America, 44 Bowditch Drive, P.O. Box 8044, Shrewsbury, Massachusetts, 01545-8044, USA, Tel. +1 508 852 0200, fax +1 508 852 8172

South America, Av. Independência, 2500-Iporanga, 18087-101, Sorocaba-São Paulo, Brazil, Tel. +55 15 2102 9700, fax +55 15 2102 9748/49

Asia Pacific, Haw Par Centre No. 06-01, 180 Clemenceau Avenue, 239922 Singapore, Singapore, Tel. +65 6511 1011, fax +65 6250 0830

China, 19/F, the Exchange Beijing, No. 118, Jianguo Lu Yi, Chaoyang Dist, 100022 Beijing, China, Tel. +86-10-6566-6600, fax +86-10-6566-2575

Middle East, Roundabout 8, Unit AB-07, P.O. Box 17175, Jebel Ali Freezone, Dubai, United Arab Emirates, Tel. +971 4 883 6974, fax +971 4 883 6836

www.metso.com/valves

