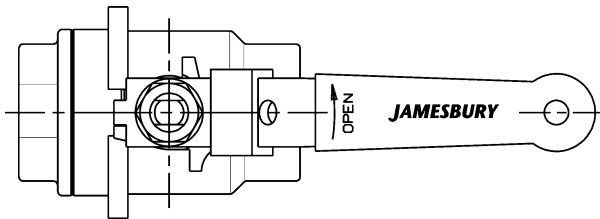


IMO - 209

Issue Date: 12/01

INSTALLATION, MAINTENANCE, AND OPERATING INSTRUCTIONS



SERIES 5H & 5HW VALUE-LINE® 1/4" – 2" (DN 6 – 50) 2-PIECE HIGH-PRESSURE BALL VALVES

Read entire instructions carefully before installation or servicing

1 GENERAL

This instruction manual contains important information regarding the installation, operation and troubleshooting of the Jamesbury Series 5H and 5HW VALUE-LINE 1/4"-2" (DN 6 - 50) 2-Piece High Pressure 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.

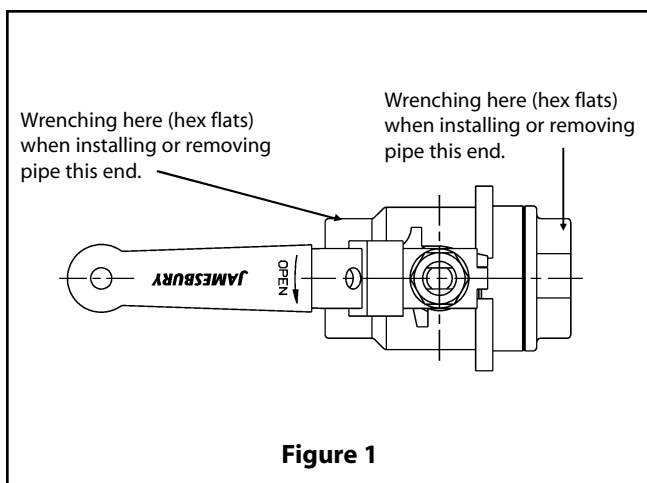
2 INSTALLATION

The valve may be installed for flow in either direction. It is recommended, however, that a screwed valve be installed with the body cap facing upstream. Screwed end valves have NPT threads. To insure a leaktight joint, liberal use of a compatible pipe joint compound is necessary. Figure 351 and 356 valves may be installed for flow in either direction. 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. Adjust packing prior to installation. See **MAINTENANCE** Section of this IMO. (See **Figure 1.**) Include compatible pipe fitting compound or PTFE tape.

3 MAINTENANCE

Periodically observe the valve to be sure of proper performance. More frequent observation is recommended under extreme operating conditions.

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.

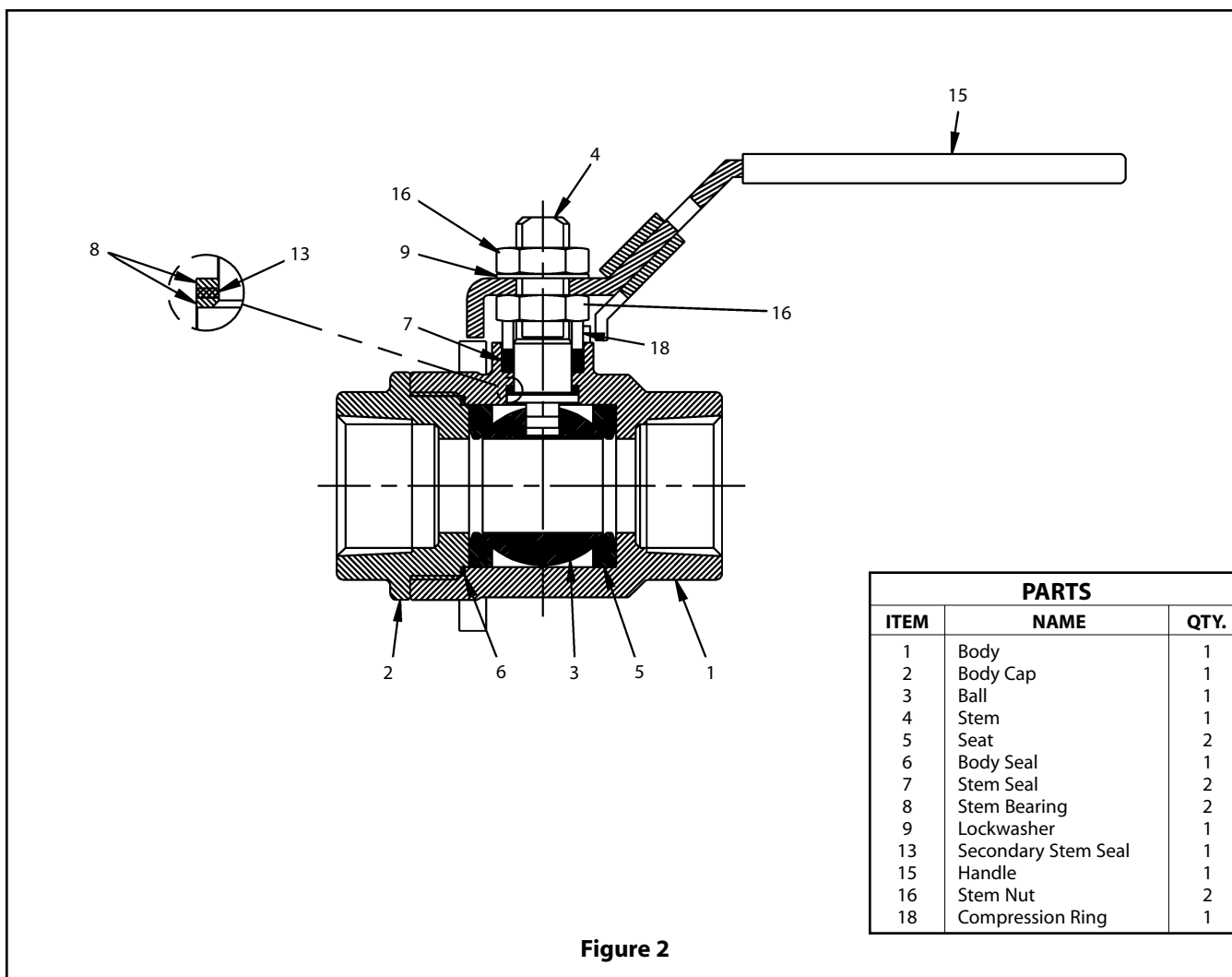


3.1 Disassembly

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

1. Remove the valve. Then remove the upper stem nut (16), lockwasher (9), handle (15), and lower stem nut (16). (See Figure 2.)

2. Remove the compression ring (18).
3. Unscrew and remove the body cap (2) and body seal (6). Heat may be required.
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 the 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 body cap thread and body threads to remove any excess thread lock.
7. Using a pointed instrument, pry out and discard the old stem seals (7), stem bearings (8), and *FIRE-TITE* bearing (13), if applicable. Be very careful not to scratch any sealing surfaces in the valve body (surfaces on which seats and seals rest).



PARTS		
ITEM	NAME	QTY.
1	Body	1
2	Body Cap	1
3	Ball	1
4	Stem	1
5	Seat	2
6	Body Seal	1
7	Stem Seal	2
8	Stem Bearing	2
9	Lockwasher	1
13	Secondary Stem Seal	1
15	Handle	1
16	Stem Nut	2
18	Compression Ring	1

3.2 Assembly

1. Clamping valve body (1) securely in a vise, drop in one seat (5) with the flat surface on the bottom. (See Figure 2.)
2. Insert from the inside a stem bearing (8), a FIRE-TITE seal (13), and another stem bearing (8) into the lower stem bore.
3. 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.
4. Holding the stem bearing in place from inside the valve, install two stem seals (7), the compression ring (18), and thread on one of the stem nuts (16) until the stem starts to turn.
5. 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 (16), and turn the nut down until the seals bottom and the stem comes snugly into place. Tighten the stem nut (16) until snug, plus an additional 1/4-1/2 turn.
6. 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.

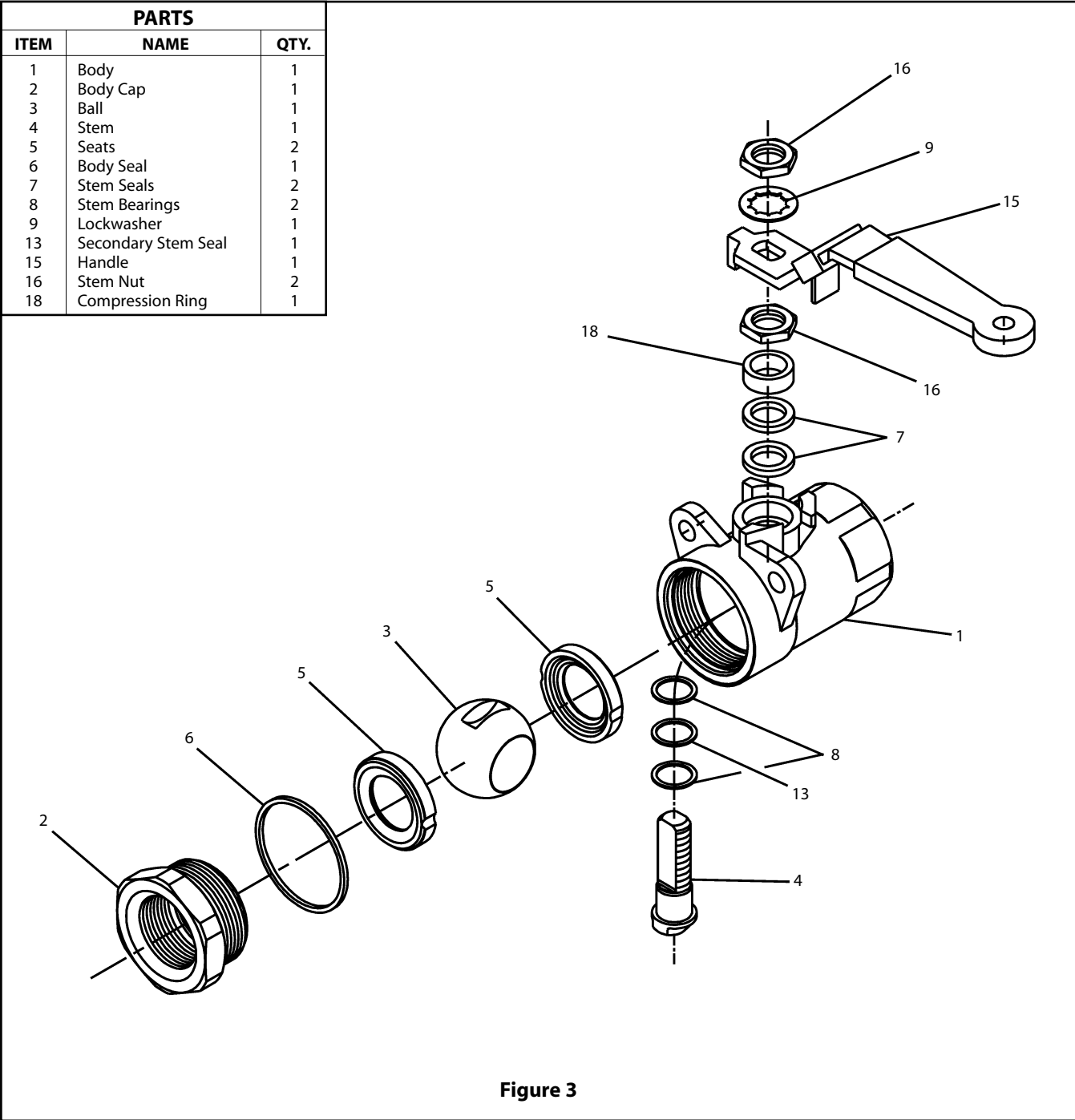


Figure 3

7. Insert second seat (5) into the body (1) so that the sealing surface of the seat is towards the ball. Insert the body seal (6).
8. Apply Loctite® 272 or equivalent, one bead 360° around the body cap (2) covering a minimum of two threads.
9. Insert the body cap (2), screw it down and tighten to the required torque, (**See Table 1 for Body Cap Torque specifications**).

TABLE 1		
Service Data		
Valve Size	Body Cap Assembly Torque	Service Kit (DELFIN Seats)
1/4" – 1/2" (DN 8 – 15)	100 lb.-ft. (136 Nm)	RKN-220-RT
3/4" (DN 20)	225 lb.-ft. (305 Nm)	RKN-221-RT
1" (DN 25)	225 lb.-ft. (305 Nm)	RKN-221-RT
1-1/4" (DN 30)	275 lb.-ft. (373 Nm)	RKN-222-RT
1-1/2" (DN 40)	350 lb.-ft. (475 Nm)	RKN-223-RT
2" (DN 50)	600 lb.-ft. (814 Nm)	RKN-224-RT

10. Place the handle (15), lockwasher (9), and stem nut (16) over the stem (4). Tighten the stem nut (16) until snug.
11. Cycle the valve slowly twice to ensure permanent position of the ball between the two seats.

4 SERVICE KITS

Service kits include two seats (5), two stem seals (7), two stem bearings (8), a secondary seal (13), and one body seal (6).

5 REPAIR KITS/SPARE PARTS

For further information on spare parts and service or assistance visit our web-site at **www.jamesbury.com**

Metso Automation, Field Systems Division

Europe, Levytie 6, P.O.Box 310, 00811 Helsinki, Finland. Tel. int. +358 20 483 150. Fax int. +358 20 483 151

Europe (UK), 8 Pipers Wood Industrial Park, Waterlooville, Hampshire PO7 7XU UK. Tel. int. +44 (0)23 9223 8500. Fax int. +44 (0)23 9223 8510

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

North America, 3100 Medlock Bridge Road, Suite 250, Norcross, GA 30071, USA. Tel. int. +1 770 446 7818. Fax int. +1 770 242 8386

Latin America, Av. Central, 181- Cháracas Reunidas, 12238-430, São Jose dos Campos. Tel. int. +55 12 335 3500. Fax int. +55 12 335 3535

Asia Pacific, 501 Orchard Road, #05-09 Wheelock Place, 238880 Singapore. Tel. int. +65 735 5200. Fax int. +65 735 2955

www.jamesbury.com

