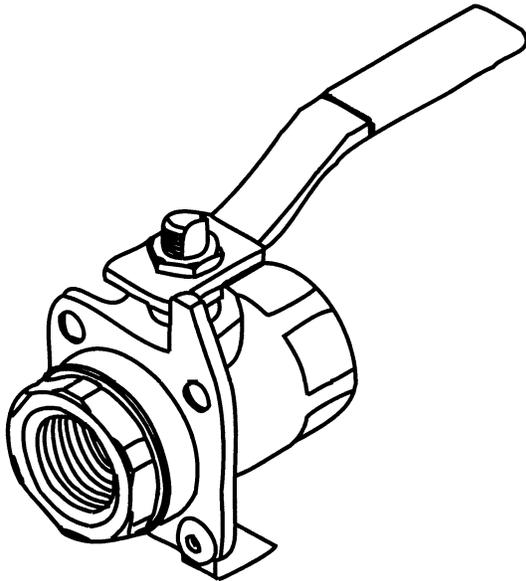


# IMO - 293EN Issue Date: 2/04

## INSTALLATION, MAINTENANCE, AND OPERATING INSTRUCTIONS

### 1/4" – 2" (DN 8 – 50) ELIMINATOR® 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® 1/4" – 2" (DN 8 – 50) Eliminator Ball Valves. 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.) **NOTE:** IF FITTING OR PIPE REMOVAL IS TO BE A REGULAR PRACTICE, JAMESBURY RECOMMENDS EITHER THE WELDED BODY CAP VERSION OF THE ELIMINATOR OR OTHER VALVE STYLES STYLE, WHICH ARE OF THE BOLT TOGETHER OR UNIT BODY DESIGN.

(NOTE: ROUND HANDLES ARE OPTIONALLY AVAILABLE FOR THESE VALVES IN PLACE OF LEVER HANDLES.)

## 2 INSTALLATION

Screwed end valves have NPT threads. To insure a leaktight joint, liberal use of a compatible pipe joint compound is necessary. The Eliminator may be installed for flow in either direction. It is recommended, however, that a screwed valve be installed with the body cap facing upstream. 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 the **MAINTENANCE** Section of this IMO.

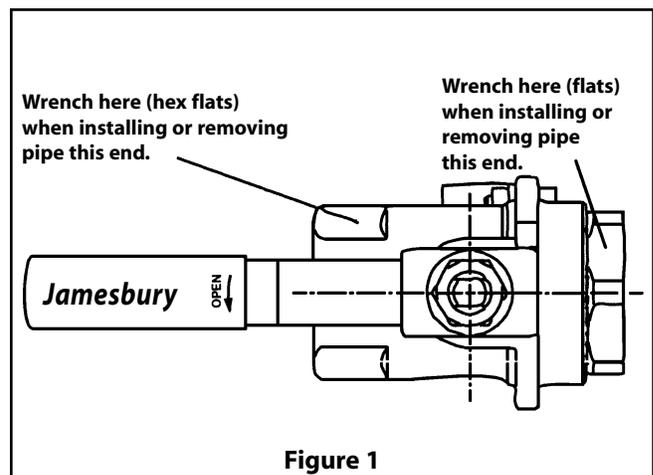


Figure 1

### 3 MAINTENANCE

1. **General Maintenance** consists of tightening the lower stem nut (16) to the value shown in **(Table 1)** periodically to compensate for the wear caused by the stem turning against the stem seals. This may be done as follows:

A. Manual Valves: Loosen the handle nut (16). Unbend the stem nut lock tab (15). Tighten the lower stem nut (16) to the value shown in **(Table 1)**. Re-bend the stem nut lock tab that is in line with a flat on the stem nut. Re-tighten the handle nut (16) to the same value.

B. Actuated Valves: When valves are connected to an actuator, refer to the applicable actuator mounting instructions (AMI) prior to adjusting the stem nut.

TABLE 1		
Stem Nut (16) Assembly Torque		
Valve Size		Torque – IN•LBS (N•m)
inches	DN	
1/4 – 3/4	8 – 20	30 (3.4)
1 – 1-1/4	25 – 30	70 (8)
1-1/2 – 2	40 – 50	160 (18)

2. **Overhaul Maintenance** consists of replacing seats and seals. A standard Service Kit consisting of these parts may be obtained from your Metso Automation Distributor **(See Table 3)**.

**NOTE:** Service Kits contain the seats and stem seals for both the fire-tested and non-fire-tested valves. Refer to the **ASSEMBLY** Section for details on the correct installation of these parts.

#### 3.1 DISASSEMBLY

**NOTE:** If complete disassembly becomes necessary, replacement of all seats and seals is recommended. Refer to Service Kit chart, **(Table 3)** on page 4.

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 upper stem nut (16), lockwasher (19), and handle (17).
4. Unbend the stem nut lock tab (15) and remove the lower stem nut (16) and the stem nut lock (15).
5. Remove the compression ring (21).
6. Unscrew and remove the body cap (2) and body seal (6). Heat may be required to assist body cap removal.

7. 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.
8. Press the stem (4) from the top into the body and remove it through the body cap end of the body.
9. Using a wire brush, clean the body cap threads and body threads to remove any excess thread lock. Be careful not to nick or scratch the chamfer of the body cap or shoulder in body, which creates the metal to metal stop.
10. Using a pointed instrument, pry out and discard the old stem seals (8). The stem bearings (24) and Fire-Tite® bearing (7), if applicable. Be very careful not to scratch any sealing surfaces in the valve body (surfaces on which seats and seals rest).

#### 3.2 ASSEMBLY

1. Clamp the valve body (1) securely in a vise, place one seat (5) into the body with the flat surface of the seat on the bottom. **(See the exploded view diagram, Figure 3.)**
2. Insert from the inside a stem bearing (24), a Fire-Tite seal (7), and another stem bearing (24) into the lower stem bore. For non-Fire-Tested valves use one stem bearing (24). **(See note under the parts list in Figure 3.)**
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 (4) in place from the bottom, insert the upper stem seals (8), drop on the compression ring (21) and the stem nut lock (15).
5. Screw on the stem nut (16) and torque to the value shown in **(Table 1)**.
6. Select the tab of the stem nut lock that aligns with a flat on the stem nut. Bend the tab up until it contacts the flat.
7. Attach the handle (17), the lockwasher (19), and secure them with stem nut (16). **(See Table 1 for torque value)**.
8. Insert the ball (3), rotating it onto the stem (4) in the closed position. If necessary, turn the stem blade to align with the ball slot.
9. Insert the second seat (5) into the body (1) so that the sealing surface of the seat is towards the ball. **(See the exploded view diagram, Figure 3.)** Apply Loctite® 270® or equivalent, one bead 260° around the body cap (2) covering a minimum of two threads.

*(text continued on page 4)*

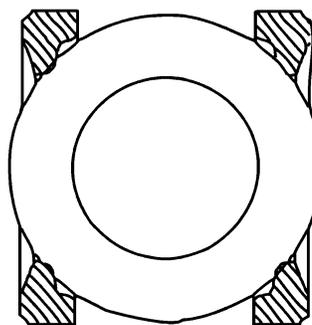
PARTS		
ITEM	NAME	QTY.
1	Body	1
2	Body Cap	1
3	Ball	1
4	Stem	1
5	Seat	2
6	Body Seal	1
7	Secondary Stem Seal	1
8	Upper Stem Seal	2
15	Stem Nut Lock	1†
16	Stem Nut	2
17	Handle	1
19	Shakeproof Washer	1
21	Compression Ring	1
22	Identification Tag	1†
23	Rivet	1†
24	Lower Stem Bearings	1*

\* Two requires for Fire-Tite valves. Filled PTFE for PTFE- & filled PTFE-seated valves. Two Delrin® for delrin-seated non-Fite-Tite valves. One filled PTFE upper bearing and one Delrin lower bearing for Fire-Tite, delrin-seated valves.

† ANSI only.

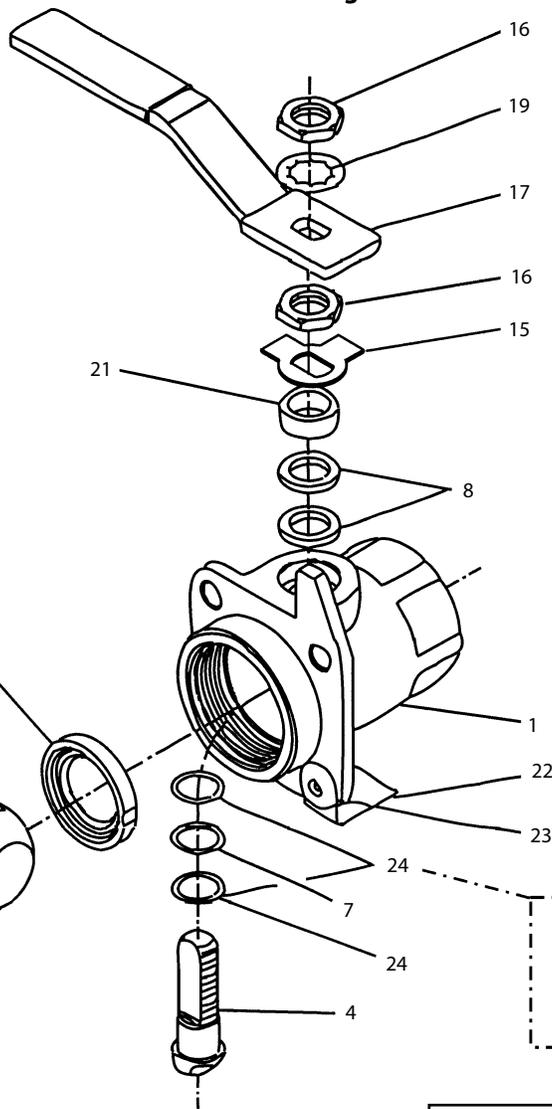
Delrin is a registered trademark of DuPont

### EXPLODED VIEW AND PARTS



Seats should be in this position at assembly

Figure 2



Only one lower stem bearing required for non fire-tested valves instead of items 7 & 24

Figure 3

10. Place the body seal (6) in the body against the shoulder located just beyond the body threads.
11. Insert the body cap (2), screw it down and tighten to the required torque shown in **(Table 2)**. A small gap between body and body cap after assembly is normal. This insures adequate metal/metal contact of the body cap with the body.
12. Cycle the valve slowly twice to ensure permanent seating of the ball between two seats.

#### 4 SERVICE KITS

We recommend that valves be directed to our service center for maintenance. The service centers are equipped to provide rapid turn around at reasonable cost and offer new valve warranty with all reconditioned valves. Standard service kits **(Table 3)** include seats, seals, and other required parts.

#### 5 REPAIR KITS/SPARE PARTS

For further information or assistance on repair kits and spare parts visit our website at [www.Jamesbury.com](http://www.Jamesbury.com).

TABLE 2		
Body Cap (2) Assembly Torque		
Valve Size		Torque – FT•LBS (N•m)
inches	DN	
1/4 – 3/4	8 – 20	100 (11)
1	25	150 (17)
1-1/4	30	200 (23)
1-1/2	40	250 (28)
2	50	350 (40)

TABLE 3 – SERVICE KITS						
SEAT MATERIAL	FOR FIRE-TESTED VALVES VALVE SIZE – INCHES (MM)					
	1/4" – 1/2" (DN 8 – 15)	3/4" (DN 20)	1" (DN 25)	1-1/4" (DN 30)	1-1/2" (DN 40)	2" (DN 50)
<b>PTFE</b>	RKN-107-TT	RKN-108-TT	RKN-109-TT	RKN-110-TT	RKN-111-TT	RKN-112-TT
<b>Filled PTFE</b>	RKN-107-MT	RKN-108-MT	RKN-109-MT	RKN-110-MT	RKN-111-MT	RKN-112-MT
<b>Delrin</b>	RKN-107-RT	RKN-108-RT	RKN-109-RT	RKN-110-TT	RKN-111-RT	RKN-112-MT
<b>Xtreme®</b>	RKN-107-XT	RKN-108-XT	RKN-109-XT	RKN-110-XT	RKN-111-XT	RKN-112-XT
FOR NON-FIRE-TESTED VALVES						
<b>PTFE</b>	RKN-137-TT	RKN-138-TT	RKN-139-TT	RKN-140-TT	RKN-141-TT	RKN-142-TT
<b>Filled PTFE</b>	RKN-137-MT	RKN-138-MT	RKN-139-MT	RKN-140-MT	RKN-141-MT	RKN-142-MT
<b>Xtreme</b>	RKN-137-XT	RKN-138-XT	RKN-139-XT	RKN-140-XT	RKN-141-XT	RKN-142-XT

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