

## IMO - 82

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### INSTALLATION, MAINTENANCE, AND OPERATING INSTRUCTIONS

## 2" x 3" (DN 50 x 80) DZFRA TANK CAR TOP LOADING AND UNLOADING VALVES

Read entire instructions carefully before installation or servicing

## 1 GENERAL

This instruction manual contains important information regarding the installation, operation and troubleshooting for the Jamesbury 2" x 3" (DN 50 x 80) DZFRA Tank Car Top Loading and Unloading Valves. Please read these instructions carefully and save them for future reference.

### 1.1 WARNING

FOR YOUR SAFETY, IT IS IMPORTANT THAT THE FOLLOWING PRECAUTIONS BE TAKEN PRIOR TO REMOVAL OF THE VALVE FROM THE TANK CAR OR BEFORE ANY DISASSEMBLY.

1. EXERCISE NORMAL SAFETY PRECAUTIONS TO PROTECT YOURSELF AGAINST BOTH THE FLUID AND POSSIBLE UNRELIEVED PRESSURES IN THE VALVE ITSELF.
2. DO NOT REMOVE THE VALVE FROM A LOADED TANK CAR.
3. TURN THE VALVE FROM FULLY CLOSED TO FULLY OPEN AND BACK AGAIN TWO TIMES BEFORE REMOVAL FROM THE EMPTY TANK CAR. THIS RELIEVES ANY RESIDUAL PRESSURES.
4. AFTER REMOVAL AND BEFORE DISASSEMBLY, CYCLE THE VALVE AGAIN SEVERAL TIMES (AS IN NO. 3).

## 2 INSTALLATION

Follow the recommended practices of the gasket manufacturer when tightening flange bolts.

If there is weepage past the stem seals upon installation, it means the valve may have been subject to wide temperature variations in shipment. Tight sealing will be restored by a simple packing adjustment described in the **MAINTENANCE** Section.

### 2.1 Disassembly

1. Read the instructions in the **WARNING** Section.
2. Place the valve in the open position.
3. Remove screw (15), washer (16), handle (not shown), retaining ring (14), indicator stop (11), nuts (13), bonnet plate (10), stem bearing (9), and bearing washer (8).
4. Pull out the stem (4), emergency stem seal (17) (emergency stem seal not used in DFRA non-fire-tested valves) and stem seal (7).
5. Place the valve in the vertical position with the insert end up.
6. Unscrew and remove the threaded body insert (2).
7. Lift the body seal gasket (6), seat (5) and ball (3) from the body.
8. Pry the bottom seat (5) out of the body cavity. Use care to prevent damage to the seat face and sealing surface of the body.

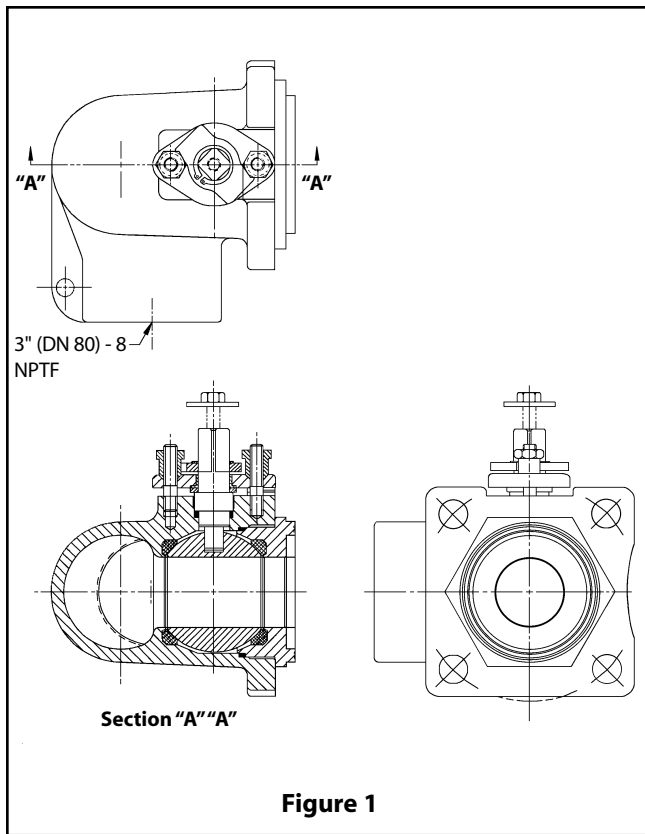


Figure 1

## 2.2 Assembly

A good lubricant compatible with the flow medium should be applied lightly to seats, seals, ball and stem to facilitate assembly and for ease of initial operation.

1. Slide the first valve seat (5) into the body (1) to below the stem opening, and tilt it into place so that the bevel surface (see drawing in Figure 2) will be adjacent to the ball (3).
2. Place the ball (3) into the valve in the open position, and adjust so that the slot faces the stem opening. Insert the stem (4) as a temporary means of holding the ball, and turn the ball to the closed position.
3. Insert the second seat (5) into the insert, again with the concave surface adjacent to the ball. Insert the body seal gasket (6) into the machined sealing area of the body.
4. Thread on the insert (2) and screw down until flange of insert is flush with body face.
5. Remove the stem, and insert the stem seal (7) with the chamfer on the I.D. facing down. Place the emergency seal (17) on top of the stem seal (emergency stem seal not used in DFRA non-fire-tested valves). Lubricate the stem with a compatible lubricant and insert it. The stem should be tapped into place gently to avoid cutting the PTFE stem seal.

6. Drop bearing washer (8) over the stem. Drop stem bearing (9) over the stem. Attach bonnet plate (10) with bonnet studs (12) and nuts (13).
7. Tighten the bonnet nuts (13) evenly until the heads contact the bonnet plate (10); then tighten another 3/4 of a turn.
8. Attach indicator stop (11) with retaining ring (14).
9. Place the handle (not shown) on the valve stem and rotate the ball slowly with a gentle back and forth motion to build gradually to the full quarter turn. By rotating slowly, the seat lips will flow into place to maintain a permanent seal against the ball. A quick turning motion at this point may cut the seats before they have a chance to flow into place.
10. Attach the handle (not shown) using washer (16) and screw (15).

## 3 MAINTENANCE

Good operating procedure requires periodic observation to ensure that the valve is functioning well. The frequency of observation will depend on the application.

### Stem Packing Adjustment

Routine maintenance consists of tightening the two nuts (13) periodically to compensate for the wear caused by the stem's turning against the resilient PTFE seals. Tighten about 1/2 turn.

The bonnet nuts (13) should not be tightened down too severely, since this will destroy the seal by permanently deforming it.

Overhaul maintenance consists of replacing seats and seals. A standard Service Kit consisting of these parts may be obtained by contacting Metso Automation.

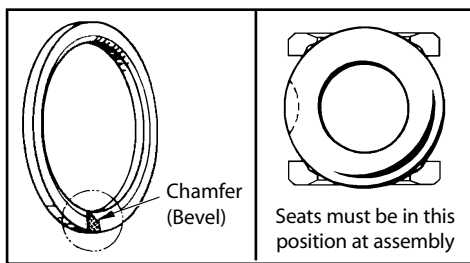
TABLE 1	
Service Kit	
Valve	Kit Number
2" x 3" (DN 50 x 80) DFRA	RKR-14-TT
2" x 3" (DN 50 x 80) DZFRA	RKR-28-TT

## 4 REPAIR KITS/SPARE PARTS

For further information on spare parts and service or assistance visit our web-site at [www.Jamesbury.com](http://www.Jamesbury.com).

PARTS LIST		
ITEM	PART NAME	QTY
1	Body	1
2	Insert	1
3	Ball	1
4	Stem	1
5	Seat	2
6	Body Seal	1
7	Stem Seal	1
8	Bearing Washer	1
9	Stem Bearing	1
10	Bonnet Plate	1
11	Indicator Stop	1
12	Bonnet Stud	2
13	Nut	2
14	Retaining Ring	1
15	Screw	1
16	Washer	1
17	Emergency Stem Seal*	1

\* Not used in DFRA non-fire-tested valves.



STEM SEAL (7)

SEATS (5)

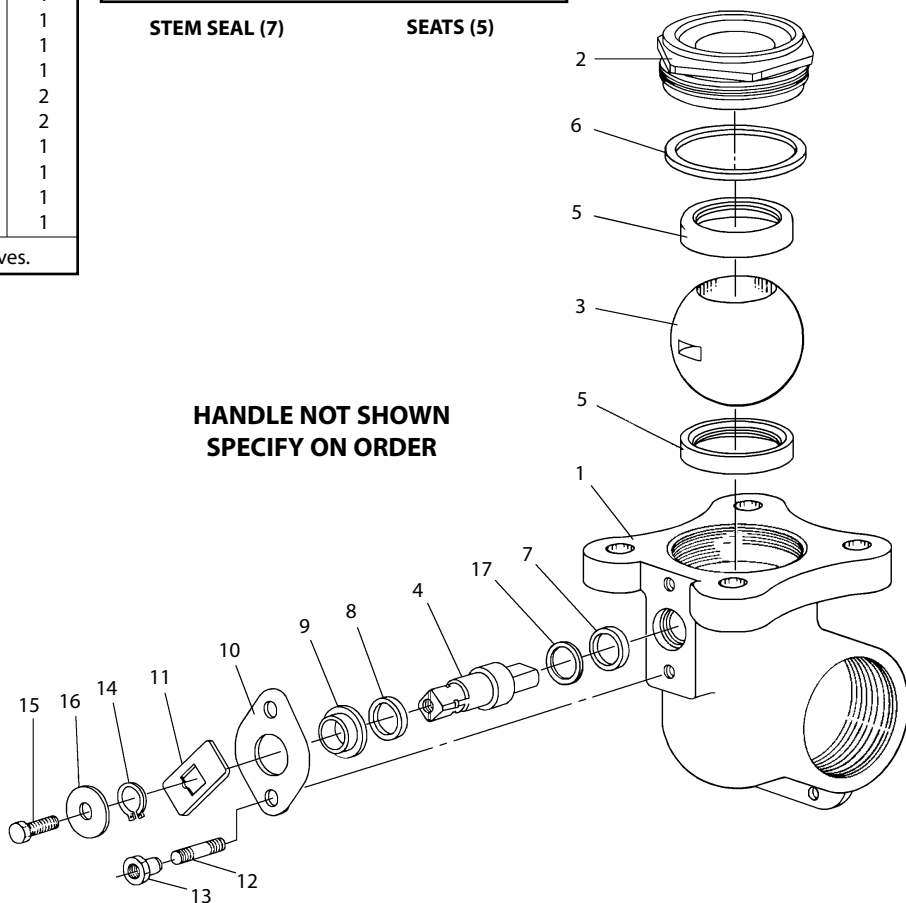


Figure 2

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