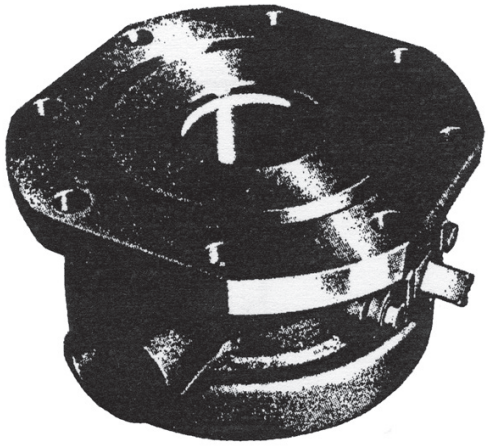
Jamesbury valves 4” (DN 100) SUZRC tank car Fire-Tite™ bottom unloading valves

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.

SAVE THESE INSTRUCTIONS!

Addresses and phone numbers are printed on the back cover.

1 GENERAL

This instruction manual contains important information regarding the installation, operation and troubleshooting of Jamesbury™ 4” (DN 100) SUZRC Tank Car *Fire-Tite* bottom unloading valves. Please read the 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. AFTER REMOVAL FROM CAR AND BEFORE DISASSEMBLY, CYCLE THE VALVE SEVERAL TIMES TO RELIEVE ANY RESIDUAL PRESSURE.

2 INSTALLATION

Refer to the **MAINTENANCE** Section for stem packing adjustment.

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 the handle (15).Remove the retaining ring (32), hex nuts (10), indicator stop (12) and bonnet plate (9).
4. Pull out the stem (4), with the compression ring (18), emergency stem seal (13), stem seals (7), stem bearing (11) and weather seal (14).
5. Place the valve in the vertical position with the insert up.
6. Remove the body insert cap screws (20) and jack the insert (2) out of the valve body by tightening the jacking screws (26) evenly, and alternately. Seat (5) is tack welded to insert.
7. Reinsert the stem (4) and turn the ball (13) to the closed position. Remove the stem.
8. Lift out the body seal (6) and the ball (3).
9. Break tack welds and remove the bottom seat (5) out of the body cavity. Use care to prevent damage to the seat face and sealing surface of the body.
10. Break tack welds and remove top seat (5) from insert (2).

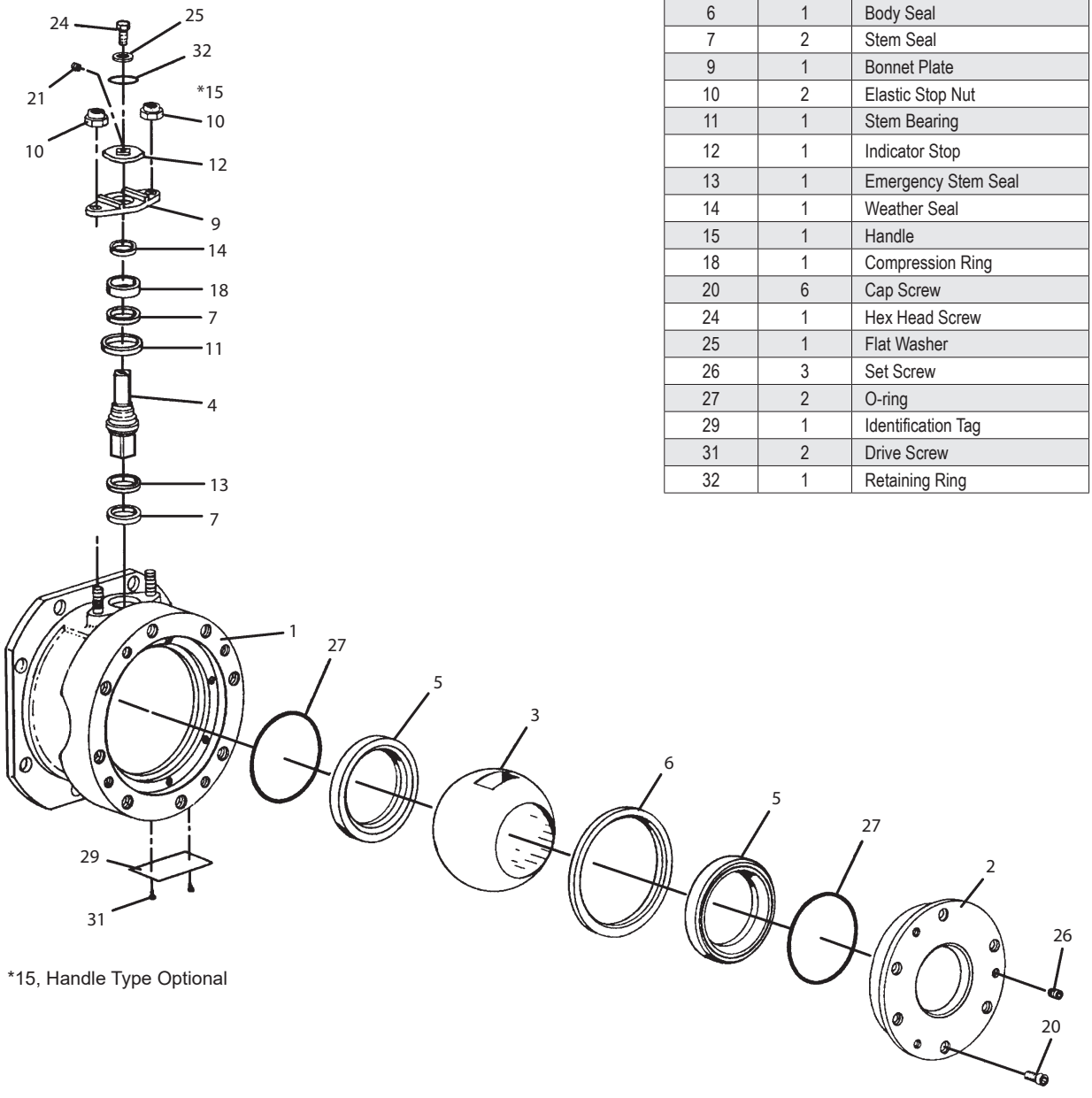
2.2 ASSEMBLY

A 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) with O-ring (27) into the body (1) to below the stem opening and tilt it into place so that the bevel surface (**Figure 2**) will be adjacent to the ball (3). While clamped firmly and centered, tack weld seat to the body (**Figure 3**).
2. Place the ball (3) into the valve body (1) in the closed position. Insert the stem (4) as a temporary means of holding the ball.
3. Insert the second seat (5) with the O-ring (27) into the insert (2). While clamped firmly and centered, tack weld seat to insert (2) (**Figure 3**). Insert body seal (6) into the machined sealing area of the body with the chamfer on the I.D. facing away from the ball.
4. Adjust the jacking screws (26) so they do not protrude through the insert or above the insert face.
5. Fit the insert (2) into the valve body,aligning the mounting holes in the insert with threaded holes in the body.
6. Compress the insert into the body with the body insert cap screws (20) by tightening them evenly and alternately until the insert is bottomed and all cap screws are tight, (Torque: 24 - 34 ft.-lbs.).
7. Remove the stem (4) and insert a stem seal (7) with the chamfer on the I.D. facing down. Place the emergency seal (13) on top of the stem seal. Preassemble stem (4) and stem bearing (11) as per (**Figure 4**). Lubricate as noted with compatible lubricant. Insert the stem/stem bearing assembly into the stem hole. Exercise caution so that the stem bearing remains in place to support the outside diameter of the stem shoulder. **NOTE:** Two stem bearings are included in the kit. Install only one.
8. Slide the second stem seal (7) over the stem. The chamfer on the I.D. of this stem seal should also face down.
9. Place the compression ring (18) on the stem. Slide weather seal (14) down stem into compression ring (**Figure 5**).
10. Tighten the bonnet nuts (10) evenly until they contact the bonnet plate (9).Then tighten another 3/4 of a turn.
11. Place the indicator stop (12) over the stem,positioning it so that counterclockwise rotation will open the valve. Place the retaining ring (32) over the stem and into the groove on the stem.
12. Place the valve handle 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.
13. Secure the handle (15) on the stem (4) so that the handle is parallel with the ball port. Secure the handle with the hex head screw (24) and washer (25).

EXPLODED VIEW & PARTS LIST

PARTS		
ITEM NO.	QTY.	PART NAME
1	1	Body Sub-Assembly
2	1	Insert
3	1	Ball
4	1	Stem
5	2	Seat
6	1	Body Seal
7	2	Stem Seal
9	1	Bonnet Plate
10	2	Elastic Stop Nut
11	1	Stem Bearing
12	1	Indicator Stop
13	1	Emergency Stem Seal
14	1	Weather Seal
15	1	Handle
18	1	Compression Ring
20	6	Cap Screw
24	1	Hex Head Screw
25	1	Flat Washer
26	3	Set Screw
27	2	O-ring
29	1	Identification Tag
31	2	Drive Screw
32	1	Retaining Ring



*15, Handle Type Optional

Figure 1.

TYPE 4” (DN 100) SUZRC VALVE

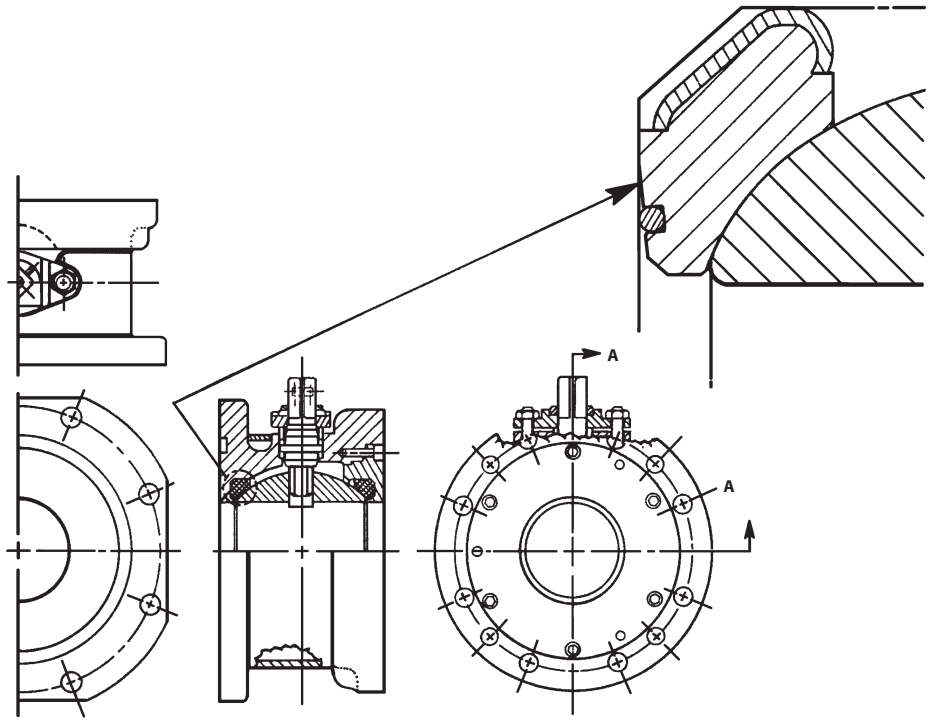
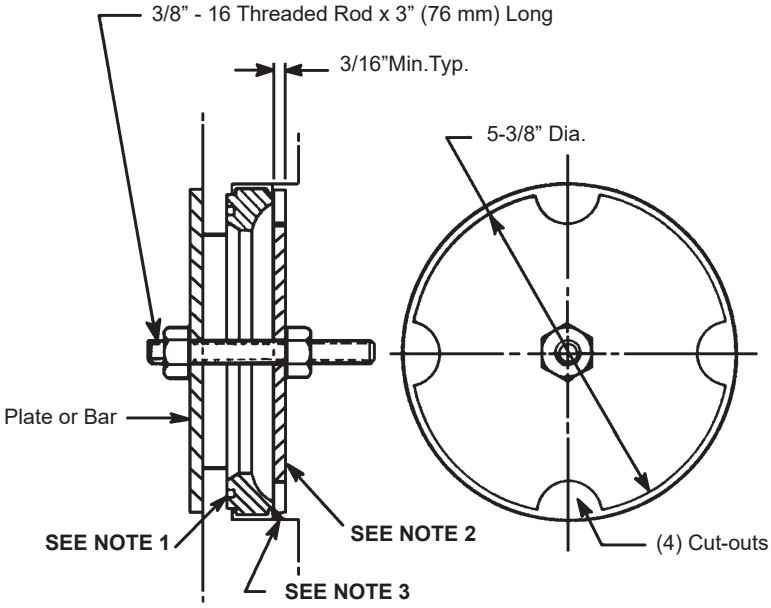


Figure 2.

TOOL FOR COMPRESSING SEAT and SEAL



1. Hold O-ring in place in back of seat with silicone grease during assembly
2. Clamp seat firmly in body or body cap seat cavity.
3. Tack weld 1/4” (6 mm) long in (4) places 90° apart using 308L weld rod. Do not exceed 300°F (149°C) at weld. Clean weld areas to bare metal before welding.

NOTE: Dimensions are in inches

Figure 3.

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 elastic stop bonnet nuts (10) periodically to compensate for the wear caused by the stems turning against the resilient PTFE seals. Tighten the bonnet nuts equally 1/2 turn. If weepage still occurs, tighten another 1/2 turn. Stem nut torque should be about 240 in.-lb. The bonnet nuts should not be tightened down too severely, since this will destroy the seals and permanently deform them.

Table 1	
Repair kits	
Valve	**Kit no.**
4” (DN 100) SUZRC	RKR-39

Overhaul maintenance consists of replacing seats and seals. A standard Repair Kit consisting of these parts may be obtained from Metso. (See **Table 1**) for kit designations.

4 REPAIR KITS/SPARE PARTS

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

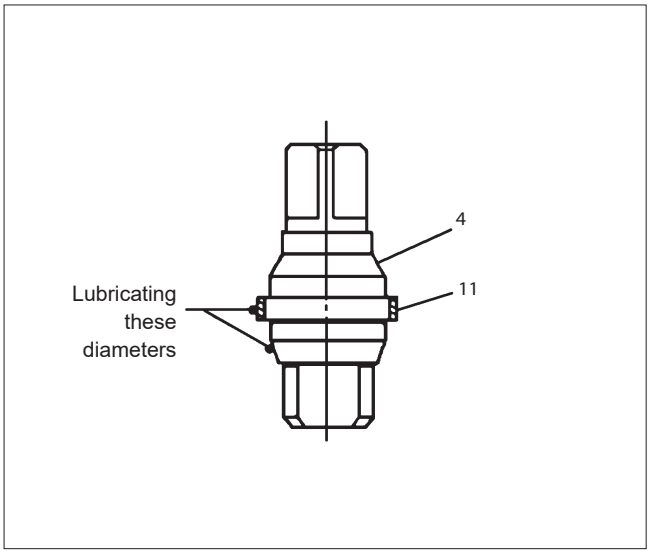


Figure 4.

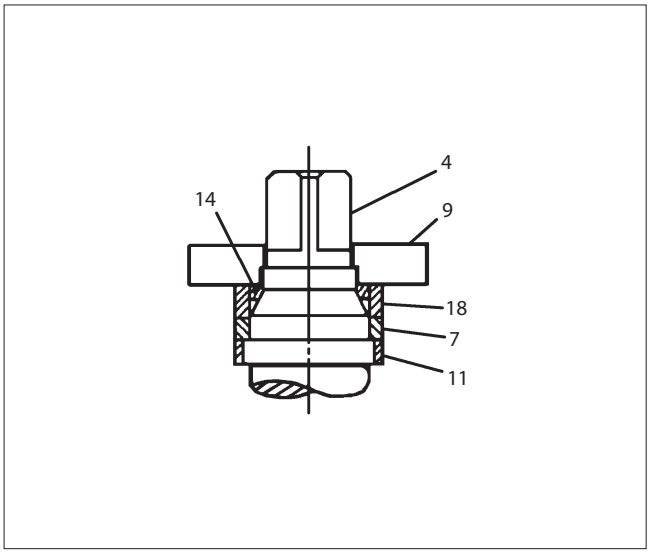


Figure 5.

Valmet Flow Control Oy
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