Jamesbury valves
3” (DN 80) AZFRR
tank car Fire-Tite™
top loading and unloading valve

Installation, maintenance and
operating instructions

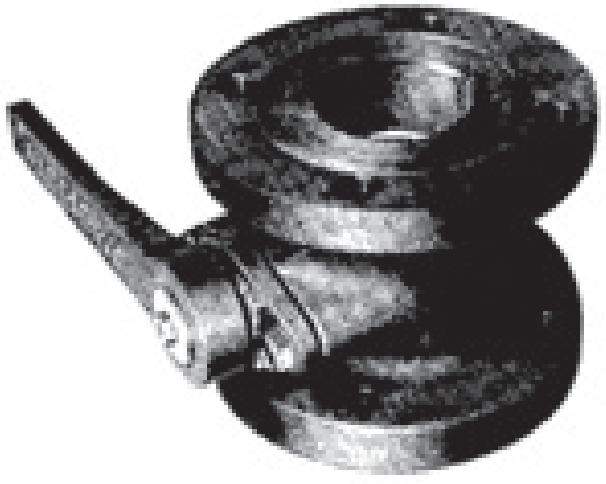


Table of contents

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 for the Jamesbury™ 3” (DN 80) AZFRR *Fire-Tite* Tank Car Top Loading and Unloading Valve. 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

Flow through a *Jamesbury* valve can be in either direction. It is recommended, however, that a flanged valve be installed with the body insert against the tank car.

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

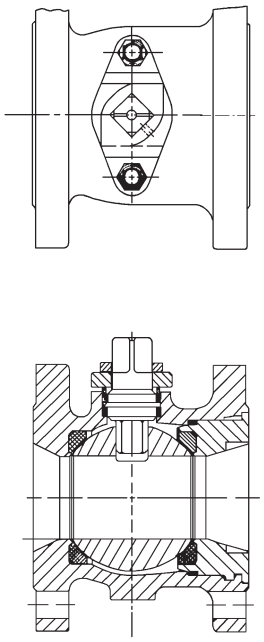
Follow the recommended practices of the gasket manu- facturer when tightening flange bolts.

2.1 DISASSEMBLY

The *Jamesbury* Breechlock insert is designed to minimize valve disassembly and assembly time. Disassembly requires a compressive load to seat the insert and a 60˚ rotation to unlock it. Slots are machined into the insert to provide engagement for rotation. A *Jamesbury* Breechlock field wrench may be used to facilitate disassembly and assembly. The tool eliminates the need for an arbor press and special engagement tools, and allows the valve to be serviced more easily in the field.The tool is available from Valmet.

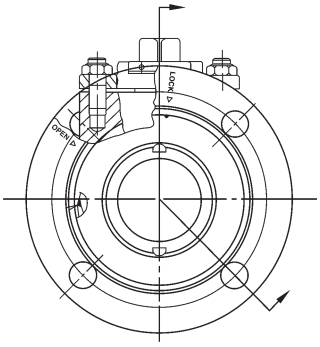
Instructions that follow cover use of this tool. If other means are used, skip **DISASSEMBLY** Instruction 4 and **ASSEMBLY** Instruction 6.

1. Read the instructions in the **WARNING** Section.
2. Place the valve in the open position. Remove the handle screw (24), washer (25), and handle (15).
3. Remove the bonnet plate assembly (9, 10, 12, 18), the stem (4), and the stem seals (7). Remove the emergency stem seal (13).



Section “A”“A”

Figure 1A

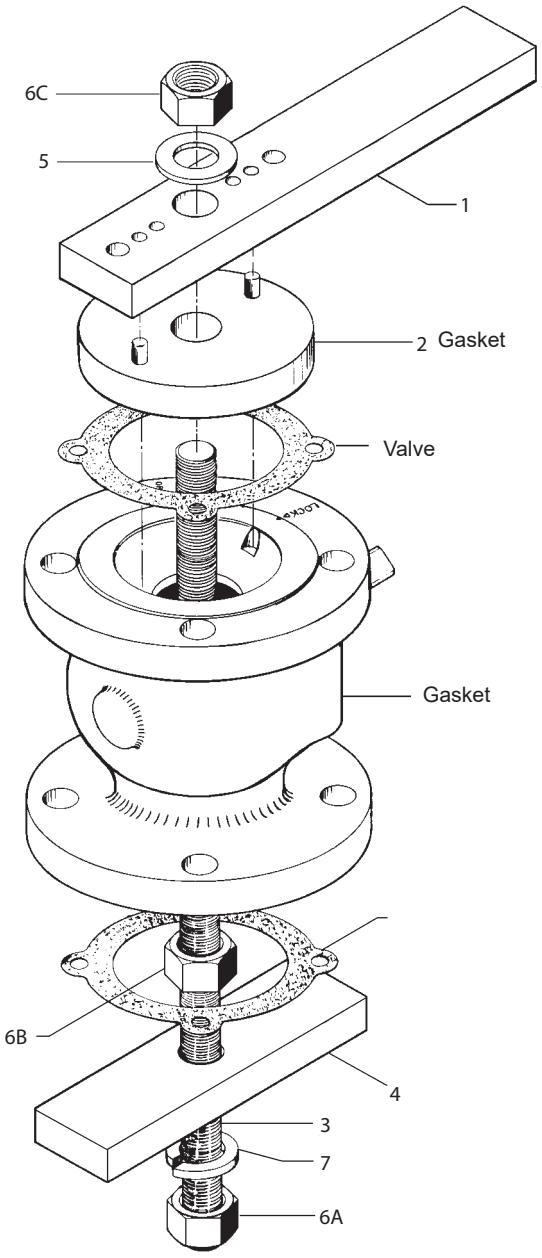


Fire-Tested Lip Detail

Figure 1B

4. Attach the field wrench to the valve in the following manner:
   A. Thread a hex nut (6A) onto the rod (3) as shown in (**Figure 2**).
   B. Slide the lockwasher (7) and base (4) down the rod and securely fasten with another hex nut (6B).
   C. Slide a gasket over the rod and push the rod through the open ball from the end opposite the breechlock insert.

D. Place the other gasket on the insert (2) (**Figure 3**) and slide the second plate (2) over the rod engaging the dowel pins with the wrenching grooves in the insert.



Field Wrench

Figure 2

E. Fit the handle (1) over the dowel pins of the plate.

F Fit the flat washer (5) over the rod and tighten the entire assembly with the remaining hex nut (6C).

G. Tighten the nut (6C) to preload the insert enough to ease rotation. The face of the insert should be flush with the mating surface of the flange.

5. Rotate the insert with a counter clockwise turning motion until the notch on the insert is aligned with the **OPEN** mark on the valve flange.

NOTE: Failure to properly align the notch before insert removal may result in damage to the breechlock tabs.

6. Remove the tool and pull out the insert (2). If the insert does not come out easily, close the ball and with a piece of wood or some other soft material gently tap the ball from the end opposite the insert. This should un-seat the insert.
7. Place the valve in the vertical position with the insert end up.
8. Lift out the body seal (6), seat (5), and ball (3).
9. Pry the bottom seat (5) out of the body cavity with a screwdriver. Use care to prevent damage to the bottom seat face and sealing surface of the body.

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. Clean seat and seal areas and other parts before assembly.

1. Slide the first valve seat (5) into the body (1) to below the stem opening, and tilt it into place so that the proper surface will be adjacent to the ball (3) (**see seat detail in Figure 3**).
2. Place the ball 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 body insert (2) so that the proper surface will be adjacent to the ball. Insert the body seal (6) with the chamfer on the I.D. away from the ball. Turn the ball to the fully open position.
4. Wipe a liberal amount of lubricant on the body seal and locking grooves and tabs of the body and insert (2).
5. Place the insert into the body, and align the notch on the insert with the **OPEN** mark on the valve body so that the breechlock tabs engage without interference. Use caution to insure that the body seal is not dislodged from its shoulder.
6. Assemble the field wrench as described in **DISASSEMBLY** Instruction 4. Tighten the hex nut (6C) until the face of the insert is flush with the mating surface of the flange.
7. Rotate the insert with a clockwise turning motion until the notch on the insert is aligned with the **LOCK** mark on the valve flange. If rotation is difficult, further adjustment of nut (6C) (usually by tightening) will improve the engagement between the insert and body.
8. Remove the stem. Insert one stem seal (7) into the body with the chamfer on the I.D. facing down the emergency stem seal (13) on top of this seal. Lubricate the stem with a compatible lubricant and insert it. The stem should be tapped into place gently to avoid cutting the seal. The slotted top of the stem will give a visual indication of ball position.

9. Slide the second stem seal (7) and compression ring (18) onto the stem. The chamfer on the I.D. of this stem seal should also be facing down.
10. Fit the bonnet plate (9) over the stem and bonnet studs.
11. Tighten the nuts (10) against the bonnet evenly and alternately until the stem seals are seated. Turn each another 3/4 of a turn to insure proper stem seal compression.
12. Assemble the indicator stop (12) and secure it with the set screw (21). The valve should open in a counter- clockwise direction.
13. Place the handle on the valve stem so that it points in the direction of the ball port and rotate the ball 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 premature quick turning motion may cut the seat before it has a chance to flow into its proper place.

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 bonnet nuts (10) periodically to compensate for the wear caused by the stem's turning against the resilient PTFE seals. If weepage occurs, tighten 1/2-turn. The bonnet nuts should not be tightened down too severely, since this will destroy the seals by permanently deforminq them. Stem nut torque should be about 240 in.-lb.

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

TABLE 1	
Repair Kit	
Valve	Kit Number
3" (DN 80) AZFRR	RKA-47-TT

4 REPAIR KITS/SPARE PARTS

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

EXPLODED VIEW & PARTS LIST

PARTS LIST		
ITEM	**PART NAME**	**QTY**
1	Body	1
2	Body Insert	1
3	Ball	1
4	Stem	1
5	Seat	2
6	Body Seal	1
7	Stem Seal	2
9	Bonnet Plate	1
10	Nut	2
12	Indicator Stop	1
13	Emergency Stem Seal	1
15	Handle	1
18	Compression Ring	1
21	Indicator Stop Set Screw	1
24	Hex Head Screw	1
25	Flat Washer	1

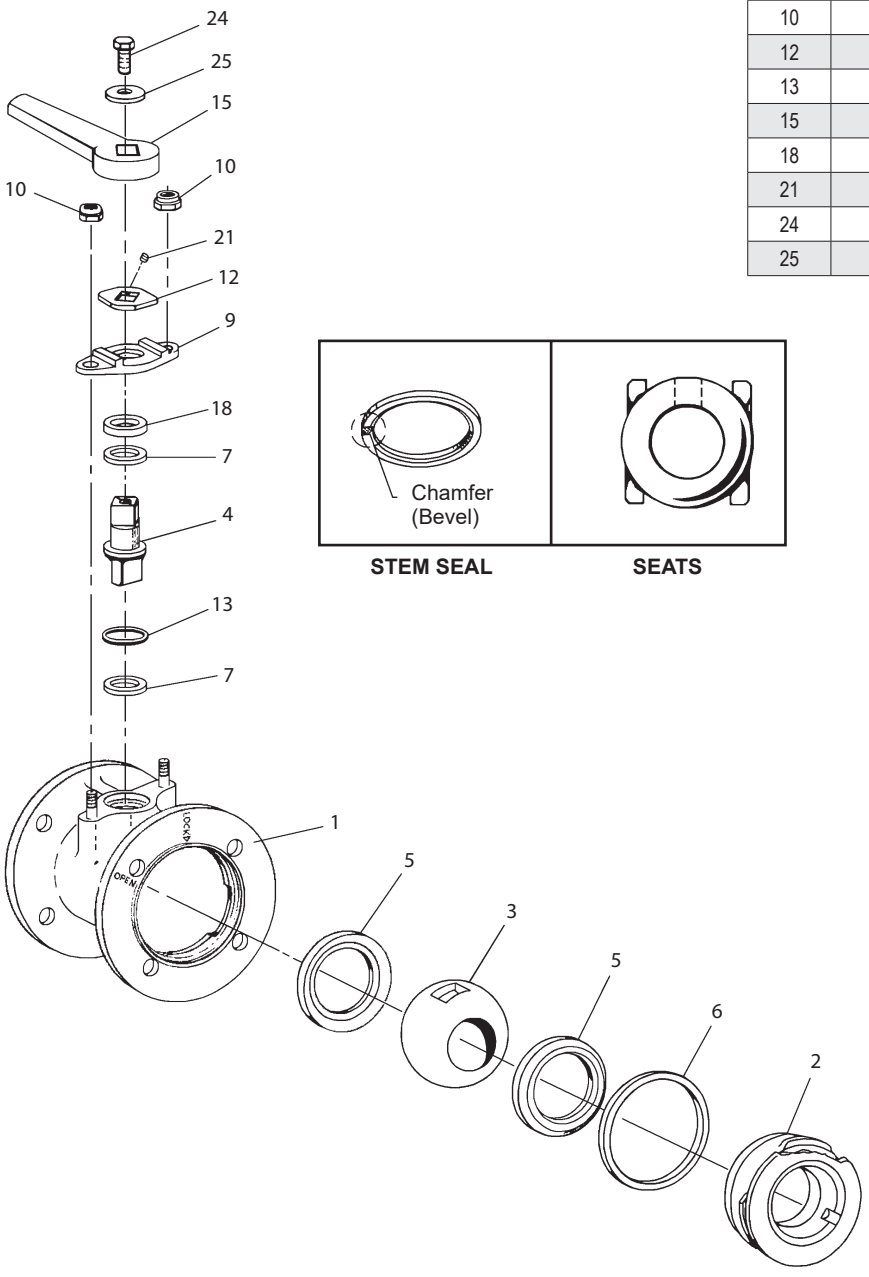


Figure 3

Valmet Flow Control Oy
Vanha Porvoontie 229, 01380 Vantaa, Finland.
flowcontrol@valmet.com
Tel. +358 10 417 5000.
www.valmet.com/flowcontrol