

Jamesbury ball valves

6RA3 Fire-Tite™ tank car
top loading and unloading valve
2" (DN 50)

Installation, maintenance and
operating instructions

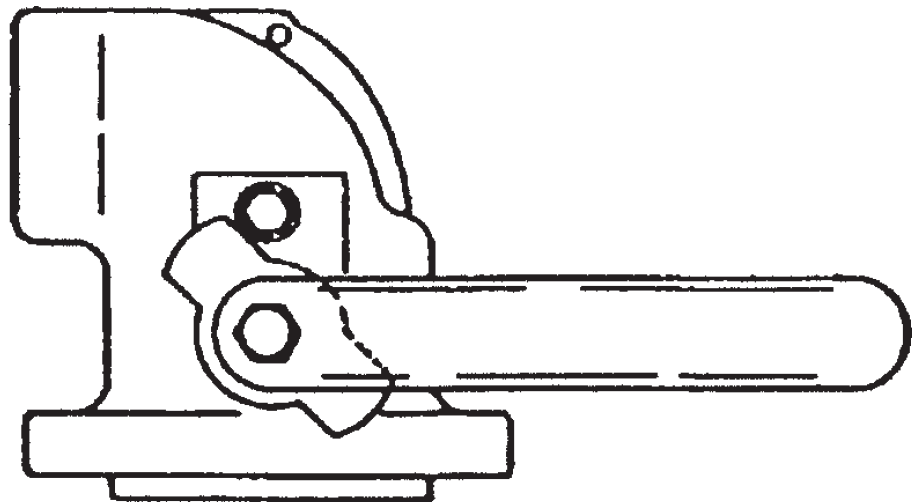


Table of contents

GENERAL	3
Scope of the Manual	3
Valve Markings	3
Safety Precautions	3
TRANSPORTATION AND STORAGE	3
INSTALLATION	4
General	4
Handles	4
Installing on Tank Car	4
Commissioning	4
MAINTENANCE	4
General	4
Disassembly	5
Checking Parts	5
Assembly	5
Pressure Testing the Valve	6
REPAIR KITS	6
SERVICE/SPARE PARTS	6
HOW TO ORDER	7

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

1.1 SCOPE OF THE MANUAL

This instruction manual contains important information regarding the installation, maintenance and troubleshooting of Jamesbury™ 2" (DN 50) 6RA3 *Fire-Tite* Tank Car Top Loading and Unloading Valve. Please read the instructions carefully and save them for future reference.

WARNING:

AS THE USE OF THE VALVE IS APPLICATION SPECIFIC, A NUMBER OF FACTORS SHOULD BE TAKEN INTO ACCOUNT WHEN SELECTING A VALVE FOR A GIVEN APPLICATION. THEREFORE, SOME OF THE SITUATIONS IN WHICH THE VALVES ARE USED ARE OUTSIDE THE SCOPE OF THIS MANUAL.

IF YOU HAVE ANY QUESTIONS CONCERNING THE USE, APPLICATION OR COMPATIBILITY OF THE VALVE WITH THE INTENDED SERVICE, CONTACT VALMET FOR MORE INFORMATION.

1.2 VALVE MARKINGS

The valve has an identifications plate attached to the pipeline flange (See **Figure 1**).

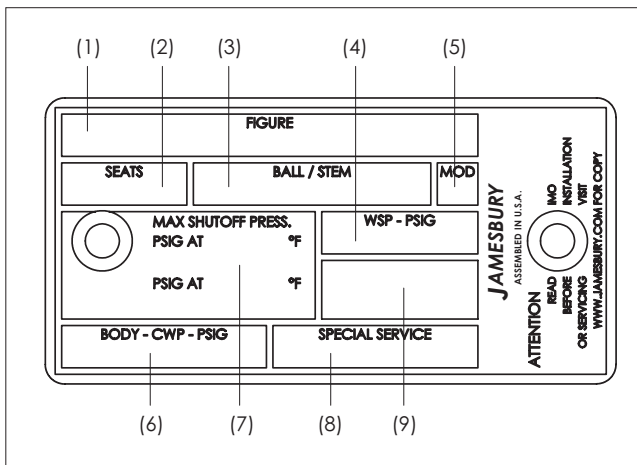


Figure 1. Identification plate

Identification plate markings:

1. Valves catalog code
2. Seat Material
3. Ball/Stem Material
4. Working steam pressure
5. Model
6. Maximum operating pressure
7. Maximum/minimum shut-off pressure/temperature
8. Approvals/Special Service marking
9. Assembly date

1.3 SAFETY PRECAUTIONS

WARNING:

DO NOT EXCEED THE VALVE PERFORMANCE LIMITATIONS!

EXCEEDING THE PRESSURE OR TEMPERATURE LIMITATIONS MARKED ON THE VALVE IDENTIFICATION PLATE MAY CAUSE DAMAGE AND LEAD TO UNCONTROLLED PRESSURE RELEASE. DAMAGE OR PERSONAL INJURY MAY RESULT.

WARNING:

SEAT AND BODY RATINGS!

THE PRACTICAL AND SAFE USE OF THIS PRODUCT IS DETERMINED BY BOTH THE SEAT AND BODY RATINGS. READ THE IDENTIFICATION PLATE 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, AND TEMPERATURE. **DO NOT EXCEED THESE RATINGS!**

WARNING:

BEWARE OF BALL MOVEMENT!

KEEP HANDS, OTHER PARTS OF THE BODY, TOOLS AND OTHER OBJECTS OUT OF THE OPEN FLOW PORT. LEAVE NO FOREIGN OBJECTS INSIDE THE TANK CAR. WHEN THE VALVE IS ACTUATED, THE BALL FUNCTIONS AS A CUTTING DEVICE. DISCONNECT ANY PNEUMATIC SUPPLY LINES, ANY ELECTRICAL POWER SOURCES AND MAKE SURE SPRINGS IN SPRING-RETURN ACTUATORS ARE IN THE FULL EXTENDED/RELAXED STATE BEFORE PERFORMING ANY VALVE MAINTENANCE. FAILURE TO DO THIS MAY RESULT IN DAMAGE OR PERSONAL INJURY!

2. TRANSPORTATION AND STORAGE

Check the valve and the accompanying devices for any damage that may have occurred during transport.

Store the valve carefully. Storage indoors in a dry place is recommended.

Do not remove the flow port protectors until installing the valve.

Move the valve to its intended locations just before installation.

The valve is usually delivered in the open position.

If the valve(s) will be stored for a long period, follow the recommendations in IMO-S1 to maintain valve's integrity.

3. INSTALLATION

3.1 GENERAL

Remove the flow port protectors and check that the valve is clean inside. Clean valve if necessary.

Flush the tank car carefully before installing the valve. Foreign objects, such as sand or pieces of welding electrodes, will damage the ball and seats.

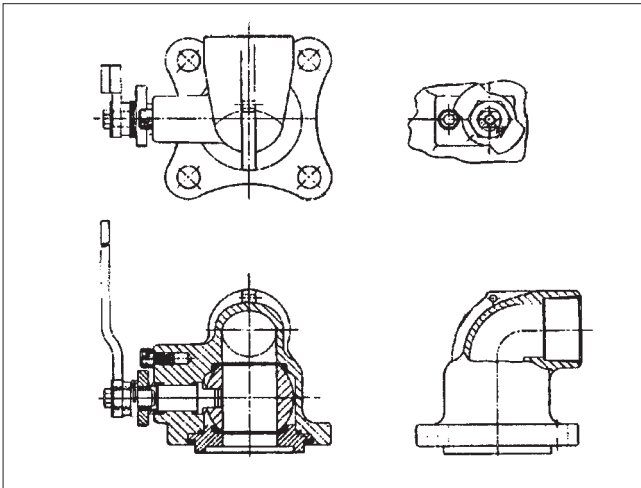


Figure 2.

3.2 HANDLES

If the valve handle (31) has to be removed for any reason, the handle must be remounted in the same orientation.

WARNING:

FAILURE TO PROPERLY MOUNT THE HANDLE MAY RESULT IN IMPROPER VALVE OPERATION, DAMAGE OR PERSONAL INJURY.

3.3 INSTALLING ON TANK CAR

WARNING:

THE VALVE SHOULD BE TIGHTENED ON FLANGES USING APPROPRIATE GASKETS AND FASTENERS COMPATIBLE WITH THE APPLICATION, AND IN COMPLIANCE WITH APPLICABLE PIPING CODES AND STANDARDS. CENTER THE FLANGE GASKETS CAREFULLY WHEN FITTING THE VALVE BETWEEN FLANGES. DO NOT ATTEMPT TO CORRECT MISALIGNMENT BY MEANS OF FLANGE BOLTING.

The valve may be installed in any position and offers tightness in both directions. It is recommended, however, that the valve be installed with the cap (2) towards the tank car.

Refer to **Section 4, MAINTENANCE**, for stem seal adjustment. If there is weepage past the stem seals upon installation, it means

the valve may have been subject to wide temperature variations in shipment. Leak-tight performance will be restored by a simply stem seal adjustment described in the **MAINTENANCE** section.

3.4 COMMISSIONING

Ensure that there is no dirt or foreign objects left inside the valve or tank car. Flush the tank car carefully. Make sure that the valve is fully open when flushing.

Ensure that all nuts and fittings are properly fastened.

WARNING:

GOOD PRACTICE DICTATES THAT ONCE INSTALLED, BUT PRIOR TO FIRST USE, THE VALVE IS LEAK TESTED IN PLACE TO ASSURE LEAK-TIGHTNESS HAS NOT BEEN COMPROMISED BY THE INSTALLATION PROCESS. INSTALLATION ACTIONS THAT CAN CAUSE LEAKAGE INCLUDE, BUT ARE NOT LIMITED TO; WRENCHING, SOLDERING, WELDING AND/OR HOISTING. SEE **SECTION 4.5**.

4. MAINTENANCE

4.1 GENERAL

Although *Jamesbury* valves are designed to work under severe conditions, proper preventative maintenance can significantly help to prevent unplanned downtime and in real terms reduce the total cost of ownership. Routine maintenance consists of tightening the hex nuts (18) in (**Figure 4**) periodically to compensate for stem seal wear. The inspection and maintenance frequency depends on the actual application and process condition.

Overhaul maintenance consists of replacing seats and seals. A standard repair kit consisting of these parts may be obtained through your authorized Valmet Distributor.

WARNING:

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

1. WEAR ANY PROTECTIVE CLOTHING OR EQUIPMENT NORMALLY REQUIRED WHEN WORKING WITH THE FLUID INVOLVED.
2. DEPRESSURIZE THE TANK CAR AND CYCLE THE VALVE AS FOLLOWS:
 - A. UPON VERIFYING THE TANK CAR IS EMPTY, PLACE THE VALVE IN THE OPEN POSITION.
 - B. CYCLE THE VALVE TO RELIEVE RESIDUAL PRESSURE IN THE BODY CAVITY BEFORE REMOVAL FROM THE TANK CAR.
 - C. AFTER REMOVAL AND BEFORE ANY DISASSEMBLY, CYCLE THE VALVE AGAIN SEVERAL TIMES.
3. THESE VALVES ARE SUITABLE FOR A WIDE VARIETY OF FLUIDS AND GASES. BE CERTAIN THAT THE VALVE MATERIALS SELECTED ARE SUITABLE FOR THE APPLICATION.

4.2 DISASSEMBLY

NOTE: If complete disassembly becomes necessary, replacement of all seats and seals is recommended. Refer to the repair kit chart on the next page.

1. Read the instructions in the **WARNING** Section.
2. Remove the valve from the car and cycle the valve several times again. Leave the ball in the closed position.
3. Remove the cap screw (18) and washer (17) holding the handle to the stem, and then remove the handle (13).
4. Remove the stem nut (15), and indicator stop (11).
5. Remove the compression ring (12).
6. Remove the spirolox ring (14) and the insert (2).

NOTE: To remove the spirolox ring, secure the valve in a vise (use only enough pressure to hold valve from falling out of vise) with the insert facing up, press down on the insert and, using a screwdriver, pry the ring from the groove (tang on end of ring will allow access for screwdriver) and unwind the ring until it is fully disengaged from the groove.

7. Remove the body seal (6) and insert seat (5), being careful not to scratch the ball or sealing surfaces.
8. If the ball (3) does not fall from the body, with the ball in the fully closed position, use a piece of soft pliable material to gently tap the ball (from the threaded end of the valve). This should loosen the ball so that it can be pivoted free of the stem.
9. Press the stem (4) from the top into the valve body and remove it through the end of the body.
10. Pry out from the inside and discard the old bottom stem seal (7) and the secondary stem seal (8) **BEING CAREFUL NOT TO SCRATCH ANY SEALING SURFACES IN THE BODY.**
11. Remove the second seat (5).
12. Remove the top stem seal (7).

4.3 CHECKING PARTS

NOTE: For detailed instructions on visual inspection of critical components, refer to IMO-R26.

1. Clean all disassembled parts.
2. Check the stem (5) and ball (3) for damage. Pay particular attention to the sealing areas.
3. Check all sealing and gasket surfaces of the body (1) and body cap (2). Also sealing surfaces should be clean, with no corrosion, old seal material or commodity residue.
4. With a wire brush, clean threads of body studs (12), body stud nuts (16) as well as gland studs (14) and gland stud nuts (18) of foreign material, such as paint, thread locker, grime, and commodity.
5. Replace any fastener where the threads are damaged or have been heated, stretched or corroded.
6. Replace any damaged parts.
7. Replace any parts that have cracks.

4.4 ASSEMBLY

1. Clamping the body (1) securely in a vise, drop in one seat (5) with the flat surface on the bottom (see **Figure 4**).
2. From the inside, insert secondary stem seal (8) first and then the lower stem seal (7). Insert the upper stem seal (7) from the outside of the valve.
3. Insert the stem (4) through the end of the body (1) and, being careful not to scratch the seals, press it gently up into the stem hole. **DO NOT** attempt to push the stem all the way up into place. Push it up only until you encounter resistance from the lower seal.
4. Drop on the compression ring (12), and the indicator stop (11) making sure that side marked "BOTTOM" is down.
5. Put on the stem nut and tighten down until the stem is fully seated, then tighten the nut an additional 1/8 to 1/4 turn. Stem nut torque should be about 400 in-lb.
6. 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.
7. Gently press the body seal (6) into the machined recess of the body (1).
8. Place the second seat (5) into the insert (2) so that the sealing surface of the seat is toward the ball (see **Figure 4**).
9. Place the insert (2) into the body and install the spirolox ring (14).

NOTE: To install the spirolox ring, compress the insert (2) until it bottoms in the body and hold it in that position (vise, press, clamp, etc., may be used to hold insert). Uncoil the ring by stretching it, and insert one end into the groove in the body using a screwdriver. Press the ring into the groove until the ring is fully engaged. Release compression on the insert and the ring will hold it in place.

10. Install the handle (13), securing it with the cap screw (18) and washer (17).
11. Compare the handle orientation against that shown in **Figures 3 and 4**. If orientation does not correspond to these illustrations, reposition the handle (13) and/or indicator stop (11) as required.
12. Cycle the valve slowly twice to insure permanent positioning of the ball between the two seats.

4.5 PRESSURE TESTING THE VALVE

WARNING:

WHEN PRESSURE TESTING, EXERCISE CAUTION AND MAKE SURE ALL EQUIPMENT USED IS IN GOOD WORKING CONDITION AND APPROPRIATE FOR THE INTENDED PRESSURE.

If the valve is to be tested prior to returning to service, make sure the test pressures are in accordance with an applicable standard.

When testing the valve for external tightness, keep the ball in the half open position.

If testing the valve seat tightness, please contact Valmet for advice.

WARNING:

WHEN PERFORMING ANY TESTS, NEVER EXCEED THE MAXIMUM OPERATING PRESSURE OR MAXIMUM SHUT-OFF PRESSURE LISTED ON THE IDENTIFICATION PLATE.

5. REPAIR KITS

REPAIR KITS: RKN-79-TT OR RKN-79-MT. The repair kit for this valve contains one pair of seats, a body seal, two stem seals, a secondary stem seal, and maintenance instructions. Repair kit designations are RKN-79-TT or RKN-79-MT.

NOTE: TT = PTFE seats and seals.
MT = Filled PTFE seats and seals.

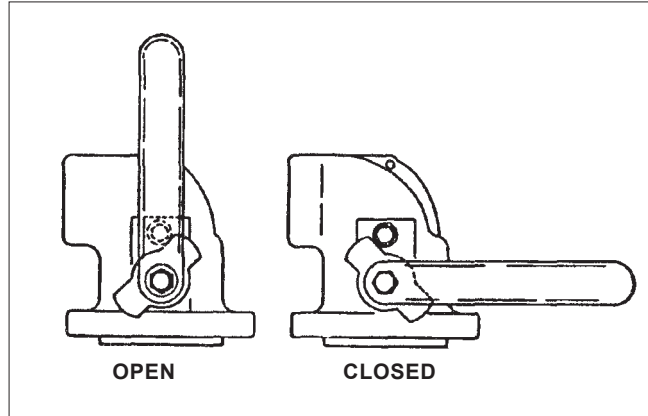


Figure 3.

6. SERVICE/SPARE PARTS

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

NOTE: When ordering spare parts, always include the following information:

- Valve catalog code from identification plate
- If the valve is serialized, the serial number (stamped on the valve body)
- From **Figure 4**, the ballooned part number, part name and quantity required.

Exploded View

Seats should be in this position at assembly

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	2
8	Secondary Stem Seal	1
10	Stop Screw	1
11	Indicator Stop	1
12	Compression Ring	1
13	Handle	1
14	Spirolox Ring	1
15	Stem Nut	1
17	Washer	1
18	Hex Head Cap Screw	1

HOW TO ORDER 6RA3 BALL VALVES

To specify one of these valves, it is necessary only to select the proper body and seat material to meet a particular service requirement. All other components are of materials appropriate for the most severe conditions.

The catalog designations below fully describe a valve, identifying body, trim, seat, and seal materials. The codes are:

Carbon steel body with 316 Stainless steel trim:

2" (DN 50) 6RA3-2236 TT

316 Stainless steel body and trim:

2" (DN 50) 6RA3-3600 TT

For filled PTFE seats, simply substitute MT or TT.

To order a repair kit for these valves, specify RKN-79-TT or MT.

Valmet Flow Control Oy

Vanha Porvoontie 229, 01380 Vantaa, Finland.

flowcontrol@valmet.com

Tel. +358 10 417 5000.

www.valmet.com/flowcontrol

Subject to change without prior notice.

Neles, Neles Easyflow, Jamesbury, Stonel, Valvcon and Flowrox, and certain other trademarks, are either registered trademarks or trademarks of Valmet Oyj or its subsidiaries in the United States and/or in other countries.

For more information www.neles.com/trademarks

