

Jamesbury™ Clincher™ 2-piece thread-end ball valves series 2000 1/4" - 2" (DN6 - 50)

Installation, maintenance and
operating instructions

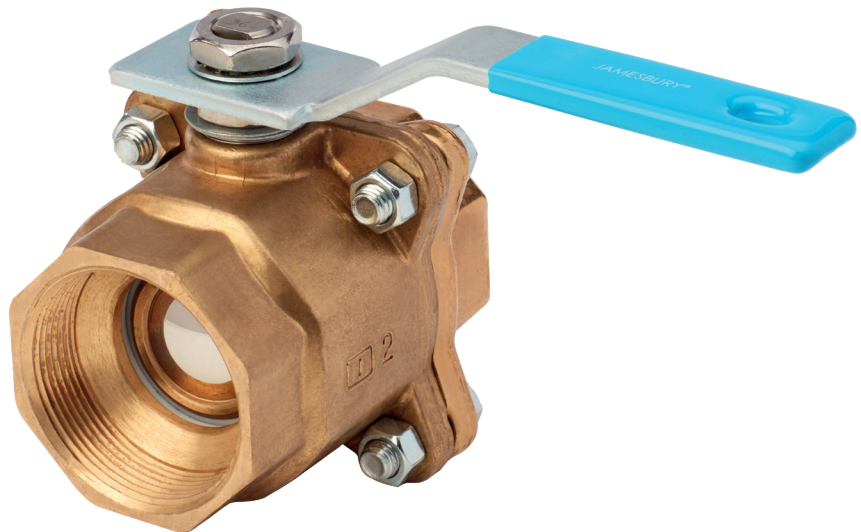


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READ THESE INSTRUCTIONS FIRST!

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

1.1 SCOPE OF THE MANUAL

This instruction manual contains important information regarding the installation, operation and maintenance of the Jamesbury™ 1/4" – 2" (DN6 - 50) Standard Bore; Series 2000, *Clincher* Thread-end Ball Valves. Please read these 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.

WARNING:

DOUBLE-SEATED BALL VALVE DESIGNS, LIKE THE SERIES 2000, *CLINCHER*, CAN UNDER CERTAIN CONDITIONS TRAP FLUID IN THE BALL CAVITY. RAISING THE TEMPERATURE OF THE TRAPPED FLUID CAUSES THE INTERNAL VALVE PRESSURE TO RISE. EXTREME TEMPERATURE RISE CAN BUILD UP EXCESSIVE PRESSURE WHICH COULD LEAD TO UNCONTROLLED PRESSURE RELEASE. DAMAGE OR PERSONAL INJURY MAY RESULT.

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 VALVE. WHEN THE VALVE IS ACTUATED, THE BALL FUNCTIONS AS A CUTTING DEVICE. FAILURE TO DO THIS MAY RESULT IN DAMAGE OR PERSONAL INJURY!

WARNING:

BRASS *CLINCHER* VALVES CONTAIN LEAD. LEAD AND LEAD COMPOUNDS ARE KNOWN TO THE STATE OF CALIFORNIA TO CAUSE CANCER. FOR MORE INFORMATION GO TO WWW.P65WARNINGS.CA.GOV.

1.2 VALVE MARKINGS

The valve has an identification marking stamped on bottom of valve. (See **Figure 1**)

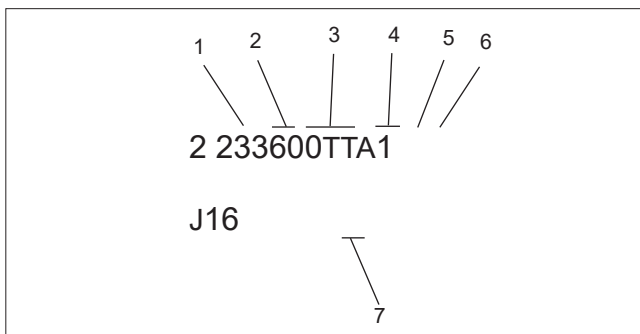


Figure 1. Valve ID

Identification markings:

1. Valve Size
2. Valve Series
3. Body/Trim Material
4. Seat/Seal Material
5. Model
6. Bolting
7. Assembly date

The valve also has marking cast into the sides of the valve. On one side is cast the valve cold working pressure (CWP) in psi. (See **Figure 2**)

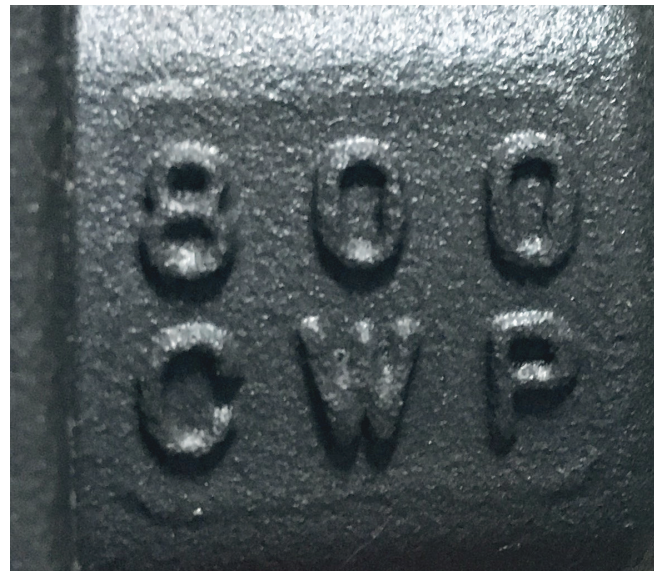


Figure 2. Valve Rating

On the opposite side of the valve is the cast in size and body material. (See **Figure 3**)

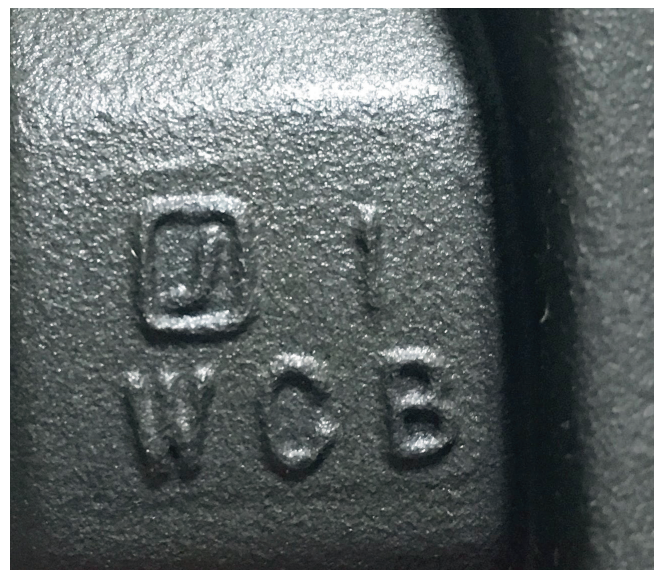


Figure 3. Size/Material

1.3 SAFETY PRECAUTIONS

WARNING:

VALVE RATINGS!

THE PRACTICAL AND SAFE USE OF THIS PRODUCT IS DETERMINED BY THE CWP RATING: CAREFULLY CHECK RATING. (SEE **FIGURE 2**) THIS IS THE SAFE USE PRESSURE FOR THIS VALVE BETWEEN -20 TO +100F (-29 TO +38C). DO NOT EXCEED THESE RATINGS! FOR INSTALLATION TEMPERATURES BELOW AND ABOVE THESE LIMITS CONTACT VALMET.

2. TRANSPORTATION AND STORAGE

Check the valve 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 location just before installation.

The valve is usually delivered in the open position.

If the valve(s) are to be stored for a long duration follow the recommendations in IMO-S1.

3. INSTALLATION

3.1 GENERAL

Always loosen and tighten fasteners with the appropriate wrench to avoid damaging the valve, handle, linkage, actuator, fittings or flats.

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

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

3.2 INSTALLING IN THE PIPELINE

Read and follow all **WARNINGS!**

Refer to the 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 simple stem seal adjustment described in the **MAINTENANCE** section.

Thread-end valves like the *Clincher* Series 2000 have NPT threads. To insure a leak tight joint, liberal use of a compatible pipe joint compound is necessary.

WARNING:

ANY COMPOUND OR LUBRICANT USED ON THREADS SHALL BE SUITABLE FOR THE SERVICE CONDITIONS AND SHALL NOT REACT UNFAVORABLY WITH EITHER THE SERVICE FLUID OR THE PIPING MATERIAL.

Flow through the *Jamesbury Clincher* Series 2000 valve can be in either direction, but the preferred method to install the valve is with the body cap end upstream.

Use standard piping practices when installing the valves with threaded connections. When tightening the valve to the pipe, apply the wrench to the end nearest the pipe being worked.

It is not recommended to install the valve with the stem on the underneath side because dirt in the pipeline may then enter the body cavity and potentially damage the stem packing (see **Figure 4**).

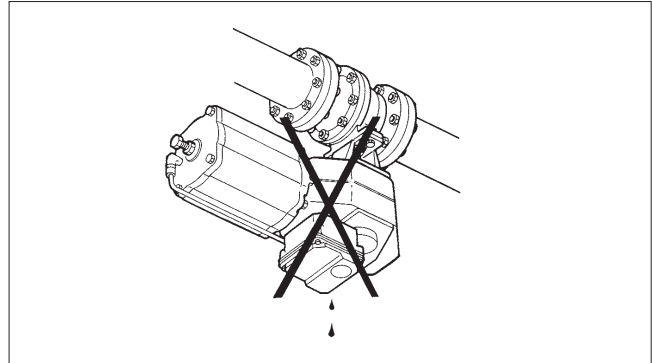


Figure 4. Avoid this mounting position

3.3 HANDLES

If the *Clincher* Series 2000 valve handle (17) has to be removed for any reason, the handles must be remounted with the handle stop tang as shown in **Figure 6**.

WARNING:

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

3.4 VALVE INSULATION

If necessary, the valve may be insulated. Insulation must not continue above the upper level of the valve (see **Figure 5**).

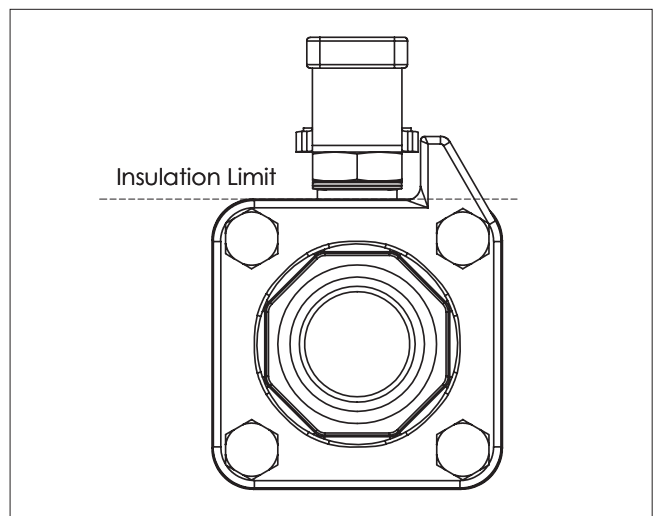


Figure 5. Insulation of the valve

3.5 ACTUATOR

WARNING:

WHEN INSTALLING THE ACTUATOR ON THE VALVE, MAKE SURE THAT THE VALVE ASSEMBLY FUNCTIONS PROPERLY. INFORMATION ON ACTUATOR INSTALLATION IS GIVEN IN SECTION 5 OR IN THE SEPARATE ACTUATOR INSTRUCTIONS.

The actuator should be installed in a manner that allows plenty of room for its removal.

The upright position is recommended for the actuator.

The actuator must not touch the pipeline, because pipeline vibration may interfere with its operation.

In certain cases it may be considered advantageous to provide additional support to the actuator. These cases will normally be associated with large actuators, extended stems, or where severe vibration is present. Please contact Valmet for advice.

3.6 COMMISSIONING

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

WARNING:

GOOD PIPING 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. PIPELINE MIS-ALIGNMENTS AND/OR LACK OF SUFFICIENT SUPPORT CAN ALSO PLACE UNDUE STRESS ON THE VALVE, POSSIBLY RESULTING IN LEAKAGE.

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. Valmet recommends inspecting valves at least every five (5) years. The inspection and maintenance frequency depends on the actual application and process condition. Routine maintenance consists of tightening the hex nuts (16) in (Figure 6) periodically to compensate for stem seal wear. The valve should be fully closed during the tightening. **CAUTION:** Tightening hex nuts (16) too severely will shorten the life of the shaft seals.

Overhaul maintenance consists of replacing seats and seals. These parts may be obtained through your authorized Valmet distributor.

WARNING:

FOR YOUR SAFETY IT IS IMPORTANT THE FOLLOWING PRECAUTIONS BE TAKEN PRIOR TO INSTALLATION, SERVICING OR REMOVAL OF THE VALVE FROM THE PIPELINE OR BEFORE ANY DISASSEMBLY:

1. WEAR ANY PROTECTIVE CLOTHING OR EQUIPMENT NORMALLY REQUIRED WHEN WORKING WITH THE FLUID INVOLVED.
2. DEPRESSURIZE THE PIPELINE AND CYCLE THE VALVE AS FOLLOWS:
 - A. PLACE THE VALVE IN THE OPEN POSITION AND DRAIN THE PIPELINE.
 - B. CYCLE THE VALVE TO RELIEVE RESIDUAL PRESSURE IN THE BODY CAVITY BEFORE REMOVAL FROM THE PIPELINE.
 - 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 ACTUATED VALVE

It is generally most convenient to detach the actuator and its auxiliary devices before removing the valve from the pipeline. If the valve package is small or if it is difficult to access, it may be more practical to remove the entire assembly.

NOTE: To ensure proper reassembly, observe the position of the actuator and positioner/limit switch with respect to the valve before detaching the actuator.

WARNING:

ALWAYS DISCONNECT THE ACTUATOR FROM ITS POWER SOURCE, PNEUMATIC, HYDRAULIC OR ELECTRICAL, BEFORE ATTEMPTING TO REMOVE IT FROM THE VALVE!

WARNING:

DO NOT REMOVE A SPRING-RETURN ACTUATOR UNLESS A STOP-SCREW IS CARRYING THE SPRING FORCE!

1. Detach the air supply, electrical supply, hydraulic supply and control signal cables or pipes from their connectors.
2. Unscrew the actuator mounting bracket screws.
3. Lift the actuator straight up in line with the valve stem until the coupling between actuator drive and valve stem is completely disengaged.
4. Place actuator in a safe location to avoid damage or personal injury.

4.3 DISASSEMBLY – ALL VALVES

NOTE: If complete disassembly becomes necessary, replacement of all seats and seals is recommended. Refer to the Repair Kit Chart (Table 2).

NOTE: Always use original OEM parts to make sure that the valve functions properly.

4.4 DISASSEMBLY – MANUAL VALVES

1. Follow the steps in all the **WARNING** sections above 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), handle (17).
4. Remove lower stem nut (16). Remove and discard the old disc spring washers (31), if present.
5. Remove compression ring (21).
6. Unfasten the four body bolts (52) and remove the body cap (2).
7. Remove the ball (3).
8. Remove and discard the body seal (6) and seats (5).
9. Press the stem (4) from the top into the valve body and remove it through the body cap end of the body.
10. Remove and discard the old stem seals (8) and (24) and the secondary stem seal (7) on Fire-Tite® valves. Be very careful not to scratch any sealing surfaces in the valve body (surfaces on which seats and seal rest).

4.5 DISASSEMBLY – ACTUATED VALVES

1. Follow the steps in all the **WARNING** sections above before performing any work on the valve.
2. Open and close the valve and leave in the closed position.
3. Remove the locking nut (16) from stem (4).
4. Remove and discard the old disc spring washers (31), if present.
5. Remove compression ring (21).
6. Unfasten the four body bolts (52), remove the body bolts, the actuator bracket and separate the body (1) and body cap (2).

NOTE: Make note of the actuator bracket orientation and be sure to reorient the bracket to the same position when re-assembling the valve.

7. Remove the ball (3).
8. Remove and discard the body seal (6) and seats (5).
9. Press the stem (4) from the top into the valve body and remove it through the body cap end of the body.
10. Remove and discard the old stem seals (8) and (24) and the secondary stem seal (7) on Fire-Tite valves. Be very careful not to scratch any sealing surfaces in the valve body (surfaces on which seats and seal rest).

4.6 CHECKING PARTS

1. Clean all disassembled parts.
2. Check the stem (4) 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).
4. Replace any damaged parts.
5. Replace any fastener where the threads are damaged or have been heated, stretched or corroded.

6. Replace any parts that have cracks, gouges or pits that will affect sealing.

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

- a. Valve catalog code (see **Section 1.2**),
- b. If the valve is serialized – the serial number (stamped on the valve body),
- c. From **Figure 6**, the ballooned part number, part name and quantity required.

4.7 ASSEMBLY – MANUAL VALVES

1. Secure the valve body (1) and drop in one seat (5) with the flat surface on the bottom.
2. a.) **STANDARD:** Insert from the inside the lower stem seal (24). Insert the upper stem seal (8) from the outside of the valve. **NOTE:** In standard valves these two seals are identical.
b.) **Fire-Tite:** Insert from the inside the secondary stem seal (7) first and then the red-tinted lower stem seal (24). Insert the upper stem seal (8) from the outside of the valve.
3. Insert the stem (4) through the open end of the body (1), being careful not to scratch the stem seals and stem bearing surfaces. 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 stem seal.
4. Holding the stem in place from inside the valve, install the compression ring (21), top ground spring (70) for brass Clincher valves and the two disc spring washers (31). Thread on one of the stem nuts (16) until the stem starts to turn.

NOTE: Disc spring washers have been eliminated on 1/4" – 3/4" (DN8-20) sizes and should only be used if present on the existing valve. For all sizes with Monel trim or for Chlorine Service, these washers are not used.

5. Place a wrench through the body on the bottom of the stem blade to hold the stem stationary. Tighten the lower stem nut (16) to the value shown in **Table 1**.

Table 1	
Stem Nut (16) Assembly Torque	
Valve Size - inches (mm)	Torque - lb-in (Nm)
1/4 - 3/4 (DN8-20)	30 (3.4)
1 - 1 1/4 (DN25-30)	70 (8)
1 1/2 - 2 (DN40-50)	160 (18)

6. Align the stem blade inside the valve body (1) with the ball (3). Insert the ball (3) and rotate the stem (4) to the ball fully closed position.
7. Insert the body seal (6) and gently press it into the groove in the body.

As shown in **Figure 7**, there is a substantial size difference between the brass "A" and steel *Clincher* "B" standard body seals. **They are not interchangeable.** The repair kit for standard valves contains both the "A" and the "B" body seal. Pay close attention when selecting the body seal for your valve.

NOTE: The spiral wound body seal in the *Fire-Tite* steel *Clincher* valves may be a loose fit.

8. Insert the second seat (5) in the body cap (2) so that the sealing surface of the seat is towards the ball (**see detailed diagram in Figure 6**).
9. Assemble the body cap (2) to the body (1). Insert the four body bolts (52). The bolt heads should be on the body cap.

NOTE: The handle stop is part of the body cap (2). When assembling the valve, be sure the handle stop that projects from the body cap is in the upper right corner as the body cap faces you (see **Figure 6**).

10. Place the four lock washers (55) over the body bolts (52). Thread on the four hex nuts (53) and tighten until snug.

NOTE: A449 carbon steel body bolts (bolting code "0") do not use lock washers (55).

11. Assure that the body and body cap are properly aligned. Tighten the body bolts alternately in a diagonal pattern in 2 lb.-ft. increments until achieving torque values in the Recommended Torques for Body Bolt Table in **Figure 6**.

WARNING:

DO NOT TIGHTEN ONE BOLT COMPLETELY, THEN PROCEED TO THE NEXT!

12. Place the handle (17), lockwasher (19) and stem nut (16) over the stem (4). Tighten the stem nut (16) until snug.
13. Cycle the valve slowly twice to ensure permanent position of the ball between the two seats.

4.8 ASSEMBLY – ACTUATED VALVES

1. Secure the valve body (1) and drop in one seat (5) with the flat surface on the bottom.
2. a.) **STANDARD:** Insert from the inside the lower stem seal (24). Insert the upper stem seal (8) from the outside of the valve. **NOTE:** In standard valves these two seals are identical.
b.) *Fire-Tite:* Insert from the inside the secondary stem seal (7) first and then the red-tinted lower stem seal (24). Insert the upper stem seal (8) from the outside of the valve.
3. Insert the stem (4) through the open end of the body (1), being careful not to scratch the stem seals and stem bearing surfaces. 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 stem seal.

4. Holding the stem in place from inside the valve, install the compression ring (21), top ground spring (70) for brass *Clincher* valves and the two disc spring washers (31). Thread the locking nut (16) on to the stem until the stem starts to turn.

NOTE: Disc spring washers have been eliminated on 1/4" – 3/4" (DN6-20) sizes and should only be used if present on the existing valve. For all sizes with Monel trim or for Chlorine Service, these washers are not used.

5. Place a wrench through the body on the bottom of the stem blade to hold the stem stationary. Tighten the lower stem nut (16) to the value shown in **Table 1**.
6. Align the stem blade inside the valve body (1) with the ball (3). Insert the ball (3) and rotate the stem (4) to the ball fully closed position.
7. Insert the body seal (6) and gently press it into the groove in the body.

As shown in **Figure 7**, there is a substantial size difference between the brass "A" and steel *Clincher* "B" standard body seals. **They are not interchangeable.** The repair kit for standard valves contains both the "A" and the "B" body seal. Pay close attention when selecting the body seal for your valve.

NOTE: The spiral wound body seal in the *Fire-Tite* steel *Clincher* valves may be a loose fit.

8. Insert the second seat (5) in the body cap (2) so that the sealing surface of the seat is towards the ball (**see detailed diagram in Figure 6**).
9. Assemble the body cap (2) to the body (1).

NOTE: The handle stop is part of the body cap (2). When assembling the valve for actuation, be sure the handle stop that projects from the body cap is in the bottom left corner as the body cap faces you (see **Figure 8**).

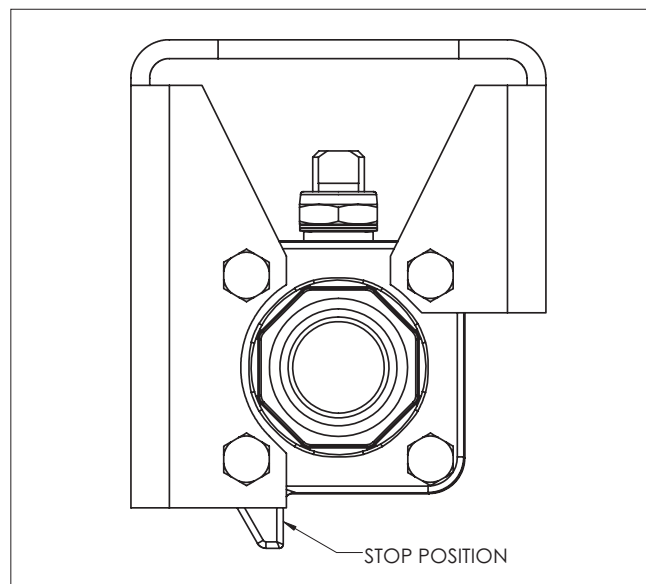


Figure 6. Stop Position for Actuated Valve

10. Place the actuator bracket on to the body cap in the orientation noted in the disassembly directions.
11. Insert the four body bolts (52). The bolt heads should be on the actuator bracket. Place the four lock washers (55) over the body bolts (52). Thread on the four hex nuts (53) and tighten until snug.
12. Assure that the body and body cap are properly aligned. Tighten the body bolts alternately in a diagonal pattern in 2 lb.-ft. increments until achieving torque values in the Recommended Torques for Body Bolt Table in **Figure 6**.

WARNING:

DO NOT TIGHTEN ONE BOLT COMPLETELY, THEN PROCEED TO THE NEXT!

13. Cycle the valve slowly twice to ensure permanent position of the ball between the two seats.

4.9 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. ACTUATOR MOUNTING

When these valves are equipped with an actuator, and the actuator is removed to service the valve, proper alignment of the actuator driver and valve stem is essential when the actuator is remounted.

Follow the instructions in AMI-002 for Neles pneumatic actuators, or AMI-434 for Neles electric actuators.

6. REPAIR KITS

Repair kits include two seats (5), a body seal (6), two stem seals (8) & (24), and two disc spring washers (31). Kits for *Fire-Tite* valves also include a secondary stem seal (7).

Kits for Standard Valves include both "A" and "B" body seals (see **Figure 7**).

Kits for Fire-Tite Valves contain a body seal that is suitable for valves with carbon steel and stainless steel trim. Consult Valmet for replacement parts of valves with trim other than carbon steel or stainless steel, and for seat materials not listed or for special services.

When ordering repair kits for your valve refer to **Section 1.2, Valve Markings** and check area "4" to determine the correct seat material for your valve, then refer to **Table 2**.

7. SERVICE / SPARE PART

We recommend that valves be directed to our service centers for maintenance. The service centers are equipped to provide rapid turn-around at a reasonable cost and offer new valve warranty with all reconditioned valves.

NOTE: When sending goods to the service center for repair, do not disassemble them. Clean the valve carefully and flush the valve internals. Include the material safety datasheet(s) (MSDS) for all media flowing through the valve. Valves sent to the service center without MSDS datasheet(s) will not be accepted. Send the valves to the service center in the half open position.

For further information on spare parts and service or assistance visit our web-site at www.valmet.com/flowcontrol/valves.

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

- a. Valve catalog code stamped on the valve,
- b. If the valve is serialized – the serial number (from identification plate)
- c. From **Figure 6**, the ballooned part number, part name and quantity required

Table 2		
Repair Kits - Standard Valves		
Valve Size	T SEATS	M Seats
1/4" (DN6)	RKC-21TT	RKC-21MT
3/8" (DN10)	RKC-21TT	RKC-21MT
1/2" (DN15)	RKC-21TT	RKC-21MT
3/4" (DN20)	RKC-22TT	RKC-22MT
1" (DN25)	RKC-23TT	RKC-23MT
1-1/4" (DN30)	RKC-24TT	RKC-24MT
1-1/2" (DN40)	RKC-25TT	RKC-25MT
2" (DN50)	RKC-26TT	RKC-26MT
Repair Kits - Fire-Tite Valves		
1/4" (DN6)	RKC-15TT	RKC-15MT
3/8" (DN10)	RKC-15TT	RKC-15MT
1/2" (DN15)	RKC-15TT	RKC-15MT
3/4" (DN20)	RKC-16TT	RKC-16MT
1" (DN25)	RKC-17TT	RKC-17MT
1-1/4" (DN30)	RK-C18TT	RKC-18MT
1-1/2" (DN40)	RKC-19TT	RKC-19MT
2" (DN50)	RKC-20TT	RKC-20MT

8. EXPLODED VIEW

PARTS		
ITEM	DESCRIPTION	QTY
1	Body	1
2	Body Cap	1
3	Ball	1
4	Stem	1
5	Seat	2
6	Body Seal	1
7**	Secondary Seal	1
8*	Upper Stem Seal	1
16	Stem Nut	2
17	Handle	1
19	Shakeproof Washer	1
21	Compression Ring	1
24*	Lower Stem Seal	1
31***	Disc Spring Washer	2
52	Body Bolt	4
53	Hex Nut	4
55†	Lockwashers	4
70‡	Top Ground Spring	1

* Upper and lower stem seals are identical in standard valves.
 ** Fire-tested valves only.
 *** Not required on valves with Monel trim or valves for chlorine service.
 † Except with ASTM A449 bolts.
 ‡ Brass valves only.
 Monel is a registered trademark of INCO.

Recommended Torques for body Bolts		
Valve Size inches (mm)	Torque lb-ft (Nm)	
	CS & Alloy Bolts	300 SS Bolts*
1/4" - 1" (DN 6 - 25)	12 (16)	7 (9.5)
1-1/4" (DN 30)	20 (27)	15 (20)
1-1/2" - 2" (DN 40 - 50)	35 (47)	27 (37)

* Identified by (2) bolt head marks at 90°, i.e.: ☉

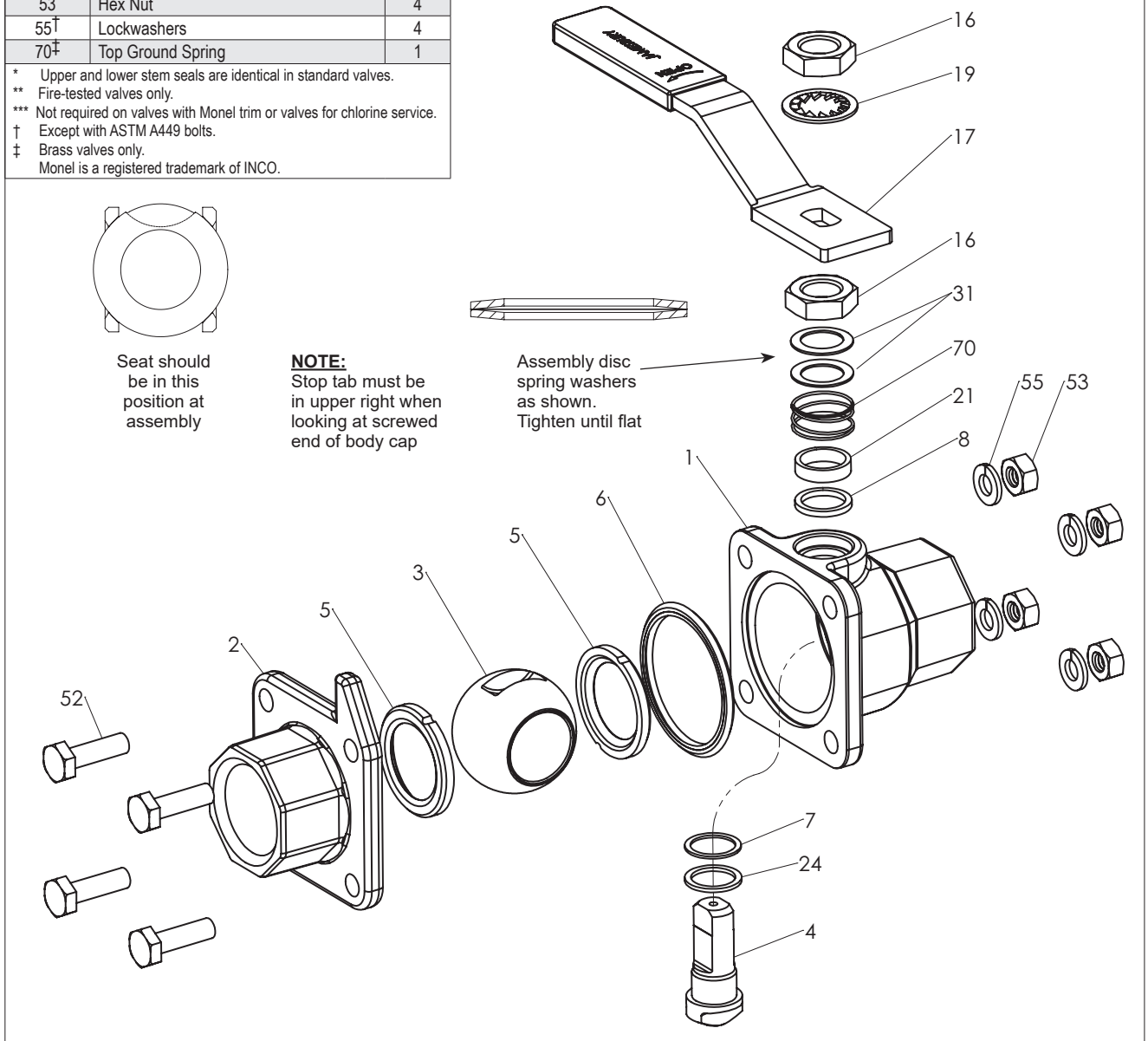


Figure 7.

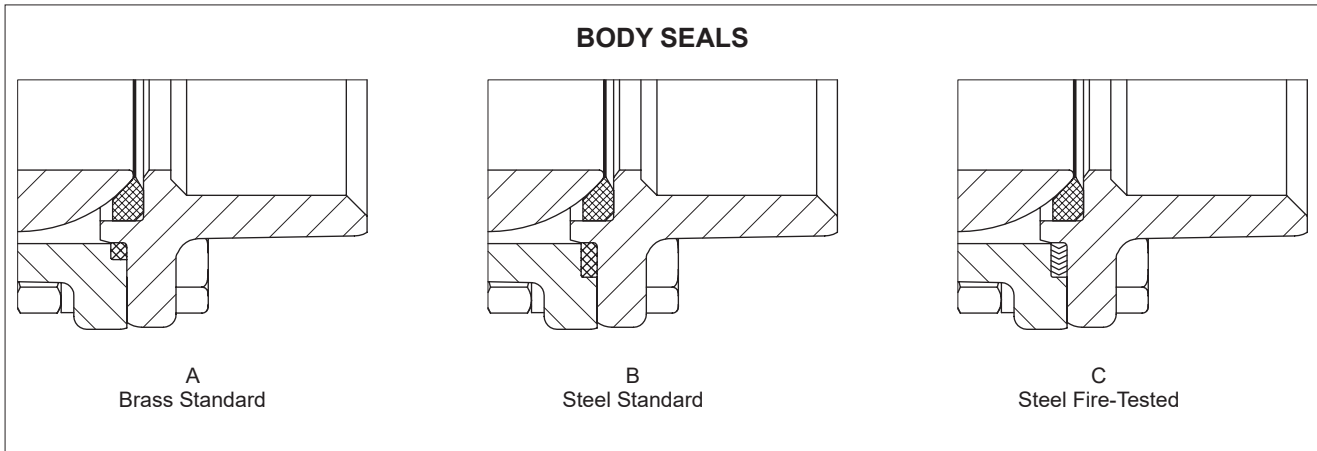


Figure 8.

9. HOW TO ORDER

1	2	3	4	5	6	7
2	23	-	22	36	TT	1

EXAMPLE: 2" *Fire-Tite*, Standard Service, Carbon Steel Body, 316 SS TRIM, PTFE SEATS and SEALS, B7 bolts with 2H nuts.

JAMESBURY BRAND CLINCHER BALL VALVE

1. sign	VALVE SIZE (inch / mm)
INCHES	1/4, 3/8, 1/2, 3/4, 1, 1 1/4, 1 1/2, 2
DN	8, 10, 15, 20, 25, 30, 40, 50

2. sign	Body Style
21	Standard (brass only)
23	<i>Fire-Tite</i>

3. sign	SPECIAL SERVICE
blank	Standardservice
C	Chlorine
O	Oxygen
V	High Vacuum (brass only)
VC	High Vacuum Certified (brass only)

4. sign	BODY MATERIAL
11	Brass
22	Carbon Steel (<i>Fire-Tite</i> only)
36	Stainless Steel (<i>Fire-Tite</i> only)

5. sign	TRIM MATERIAL
00	Same as body material (Carbon Steel not available)
36	316 Stainless Steel
71	Monel

6. sign	SEAT/SEAL MATERIAL
TT	PTFE Seats / PTFE Seals
MT	Filled PTFE Seats / PTFE

7. sign	BODY FASTENERS	
	Bolts	Nuts
0	ASTM A449	Carbon Steel
1	ASTM A193 Gr. B7	ASTM A193 Gr. 2H
3	300 series Stainless Steel	

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