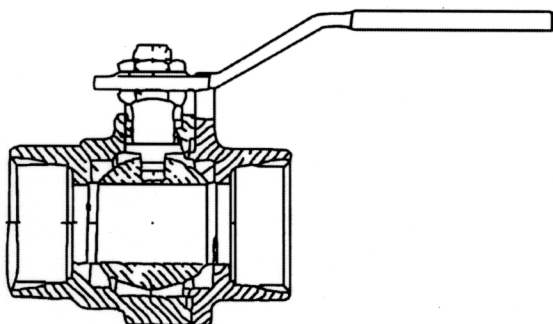


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Issue Date: 11/01

INSTALLATION, MAINTENANCE, AND
OPERATING INSTRUCTIONS



CLINCHER® VALVES 1/4" - 2" (DN 15 - 50) SERIES 2000

Read entire instructions carefully before installation or servicing

1 GENERAL

This instruction manual contains important information regarding the installation, operation and maintenance of the Jamesbury **CLINCHER** Valves 1/4" - 2" (DN 15 - 50) Series 2000. Please read these instructions carefully and save them for future reference.

1.1 WARNING

SAFETY FIRST! FOR OUR SAFETY, TAKE THE FOLLOWING PRECAUTIONS BEFORE REMOVING THE VALVE ASSEMBLY FROM THE LINE, OR BEFORE ANY DISASSEMBLY.

1. WHAT'S IN THE LINE?

BE SURE YOU KNOW WHAT FLUID IS IN THE LINE. IF THERE IS ANY DOUBT, DOUBLE CHECK WITH THE PROPER SUPERVISOR.

2. ARE YOU PROTECTED?

WEAR ANY PROTECTIVE CLOTHING AND EQUIPMENT NORMALLY REQUIRED TO AVOID INJURY FROM THE PARTICULAR FLUID IN THE LINE.

3. IS THE LINE DEPRESSURIZED?

DEPRESSURIZE THE LINE AND DRAIN THE SYSTEM FLUID. CYCLE THE VALVE SEVERAL TIMES TO RELIEVE ANY PRESSURE STILL INSIDE THE VALVE.

4. CYCLE THE VALVE SEVERAL TIMES AGAIN AFTER REMOVAL FROM THE LINE.

2 INSTALLATION

The **CLINCHER** may be installed for flow in either direction. Screwed end valves have NPT threads. To insure a leaktight joint, liberal use of a compatible pipe joint compound is necessary. To ensure that a good installation is achieved, follow standard piping practices. When tightening valve to pipe, apply wrench to end nearest pipe being worked.

After valve is in line, or before testing, tighten stem nuts (16) according to the **MAINTENANCE** Section.

3 MAINTENANCE

1. General Maintenance consists of periodically tightening the lower stem nut (16) to the values shown in **(Table 1)**. This is to compensate for the wear caused by the stem turning against the stem seals and may be done as follows:

A. Manual Valves - Loosen the handle nut (16) and tighten the lower stem nut (16) to the value shown in **(Table 1)**. Retighten the handle nut (16) to the same value.

B. Actuated Valves - When valves are connected to an actuator, refer to the applicable actuator mounting instructions (AMI) prior to adjusting the stem nut.

2. Overhaul maintenance consists of replacing seats and seals. A standard service kit consisting of these parts may be obtained from your Jamesbury Inc. Distributor. Refer to the **REPAIR KITS/SPARE PARTS** Section.

TABLE 1

Stem Nut (Item 16) Assembly Torque

Valve Size — Inches (mm)	Torque — lb-in (Nm)
1/4 — 3/4 (DN 6 — 20)	30 (3.4)
1 — 1-1/4 (DN 25 — 30)	70 (8)
1-1/2 — 2 (DN 40 — 50)	160 (18)

3.1 Disassembly - (Refer to Figure 1)

1. Read the instructions in the **WARNING** Section.
2. Place the valve in the open position.
3. Remove the stem nut (16), shakeproof washer (19), and handle (17).
4. Remove the lower stem nut (16) and remove and discard the old disc spring washers (31), if present.
5. Remove the top ground springs (70) (brass valves only).
6. Remove the compression ring (21).
7. Unfasten the four body bolts (52) and remove the body cap (2).
8. Turn the stem (4) so that the valve is fully closed.
9. Remove the ball (3).
10. Remove and discard the body seal (6) and seats (5).
11. Press the stem (4) from the top into the valve body and remove it through the end of the body.
12. Using a pointed instrument, pry out and discard the old stem seals (8) and (24), and the secondary seal (7) in fire-tested valves, **BEING CAREFUL NOT TO SCRATCH ANY SEALING SURFACES IN THE VALVE BODY.**

3.2 Assembly - (Refer to Figure 1)

1. Clamping the body (1) securely in a vise, drop in one seat (5) with the flat surface on the bottom.
2. a.) **STANDARD:** Insert the lower stem seal (7) from the inside. Insert the upper stem seal (8) from the outside of the valve. **NOTE:** In standard valves these two seats are identical.
b.) **FIRE-TESTED:** From the inside, insert secondary stem seal (7) first and then 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 flanged 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. Holding the stem in place from the bottom, drop on the compression ring (21), top ground spring for brass CLINCHER, and the two disc spring washers (31) and screw on one stem nut (16).

NOTE: Disc Spring washers have been eliminated on 1/4" - 3/4" (DN 6 - 20) sizes, and should only be used if present on existing valves. For all sizes with Monel® trim or for chlorine service, these washers are not used.

5. Tighten down the nut (16) to the value shown in (Table 1).
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. Insert the body seal (6) and gently press it into the groove in the body.

As shown in Figure 2, there is a substantial size difference between the brass and steel **CLINCHER** standard body seals. They are not interchangeable.

NOTE: Fire-tested spiral wound body seal 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 1**).
9. **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 hand corner as the body cap faces you (**see Figure 1**). Join the body (1) and body cap (2) by inserting the four body bolts (52). Bolt heads should be on the body cap.
10. Screw on the four hex nuts (53) with the four lockwashers (55) until they are snug.

NOTE: A449 carbon steel body bolts do not use lockwashers. Be careful to see that the body and cap are properly aligned. Using 2-lb-ft increments, tighten the bolts alternately in a diagonal pattern until the torques shown on page 3 are met.

DO NOT TIGHTEN ONE NUT COMPLETELY, THEN PROCEED TO THE NEXT.

11. Install the handle (17), the shakeproof washer (19), and the second stem nut (16) and tighten.

IMPORTANT NOTE: With the valve in the closed position, the handle curves up and to the left as the body cap (2) faces you (**refer to Figure 1**). The extended edge of the handle should just touch the handle stop on the cap.

12. Cycle the valve slowly twice to insure permanent positioning of the ball between the two seats.

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.

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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.: 

EXPLODED VIEW

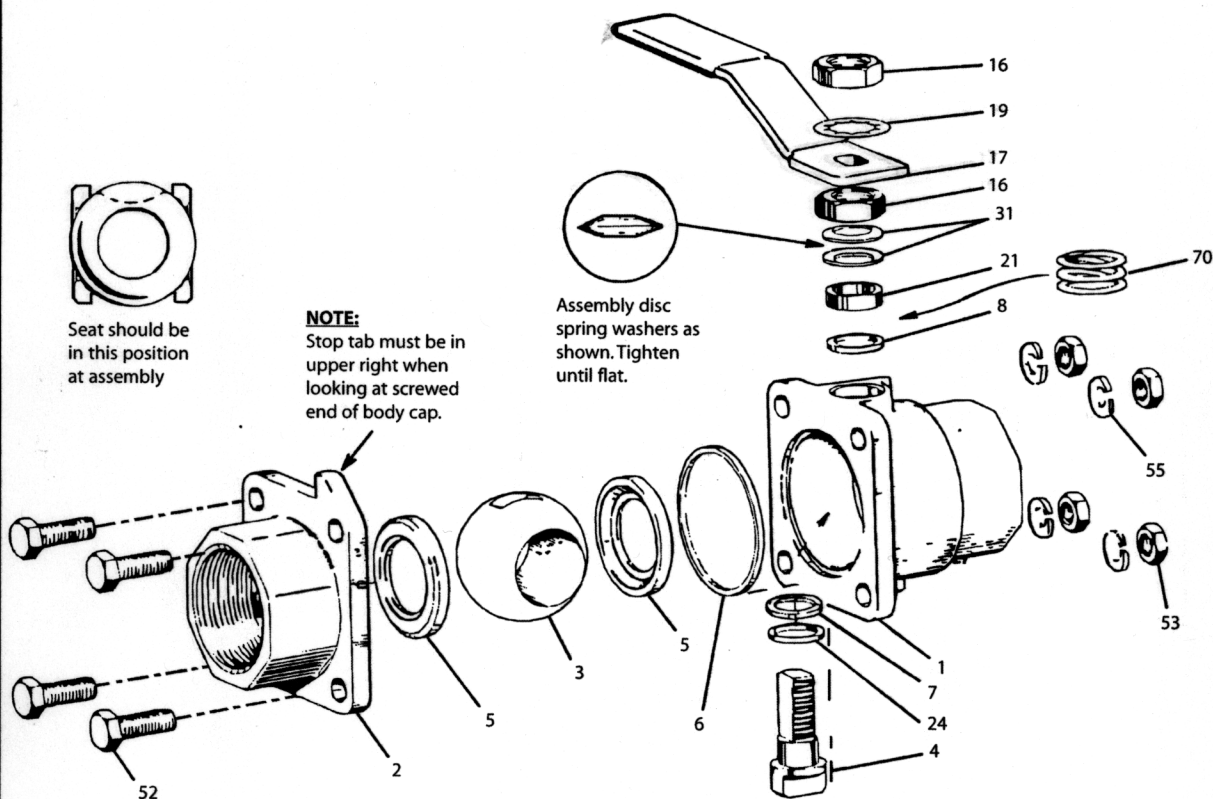


Figure 1

4 SERVICE KITS

Service kits contain one pair of seats, a body seal, a pair of stem seals, and a pair of disc spring washers.* Kits for fire-tested valves also include a secondary stem seal. Kits for standard valves include both A and B body seals (**Figure 2**). The body gasket is suitable for valves with carbon steel or stainless steel trim. Consult the factory for replacement parts of valves with trim other than carbon or stainless steel, and for seat materials not listed or for special services.

When ordering service kits, seat and seal material must be specified. For example, a kit for a 1" (DN 25) standard

CLINCHER valve with filled PTFE seats and PTFE seals should be ordered as: RKC23MT.* **NOTE:** Disc spring washers have been eliminated on 1/4" – 3/4" (DN 6 - 20) sizes, and should only be used if present on existing valves.

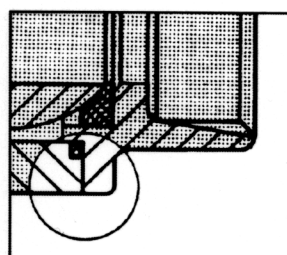
5 REPAIR KITS/SPARE PARTS

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

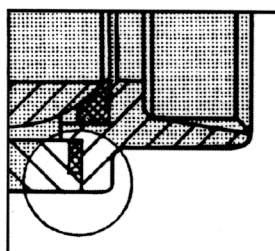
Valve Size	1/4" (DN 6)	3/8" (DN 10)	1/2" (DN 15)	3/4" (DN 20)	1" (DN 25)	1-1/4" (DN 30)	1-1/2" (DN 40)	2" (DN 50)
Standard	RKC21	RKC21	RKC21	RKC22	RKC23	RKC24	RKC25	RKC26
Fire-Tested	RKC15	RKC15	RKC15	RKC16	RKC17	RKC18	RKC19	RKC20

Add To Kit Number: TT = PTFE Seats and Seals or MT = Filled PTFE Seats and PTFE Seals

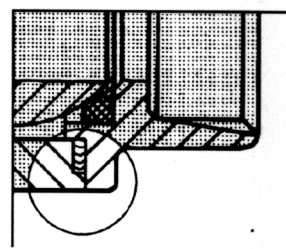
BODY SEALS



A
Brass Standard



B
Steel Standard



C
Steel Fire-Tested

Figure 2

Metso Automation, Field Systems Division

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Europe (UK), 8 Pipers Wood Industrial Park, Waterlooville, Hampshire PO7 7XU UK. Tel. int. +44 (0)23 9223 8500. Fax int. +44 (0)23 9223-8510

North America, 44 Bowditch Drive, P.O.Box 8044, Shrewsbury, Massachusetts, 01545-8044 USA. Tel. int. +1 508 852 0200. Fax int. +1 508 852 8172

North America, 3100 Medlock Bridge Road, Suite 250, Norcross, GA 30071, USA. Tel. int. +1 770 446 7818. Fax int. +1 770 242 8386

Latin America, Av. Central, 181- Cháracas Reunidas, 12238-430, São Jose dos Campos. Tel. int. +55 12 335 3500. Fax int. +55 12 335 3535

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