FLOWSERVE

*McCANNA/MARPAC Valves*

**FCD MMAIM2011-00**

# *½" - 2" JRP1/JRP3 One-piece, Flanged Ball Valves*

*Installation, Operation and Maintenance Instructions*

**CAUTION: Flowserve recommends that all product which must be stored prior to installation be stored indoors, in an environment suitable for human occupancy. Do not store product in areas where exposure to relative humidity above 85%, acid or alkali fumes, radiation above normal background, ultraviolet light, or temperatures above 120°F or below 40°F may occur. Do not store within 50 feet of any source of ozone.**

## INSTALLATION

Valve may be installed for flow or vacuum in either direction. Use care to exclude pipe sealants from the valve cavity.

When installing, use standard gaskets suitable for the specific service. Tighten flange bolts or studs evenly.

## OPERATION

The operation consists of turning the handle and/or stem quarter-turn clockwise to close. The valve is open when the handle and/or stem flats are in-line with the pipeline. These valves may also be automated.

These valves will provide bubble-tight shutoff when used in accordance with the Flowserve published pressure/temperature chart.

It is not good practice to leave ball valves partially open (throttling operation) without knowledge of the pressure drop and flow at that position.

Media which can solidify, crystallize or polymerize should not be allowed to stand in ball cavities.

Torque Requirements: Operating torque requirements will vary depending on the length of time between cycles, line pressure, type of valve seats, and the media in the system.

***NOTE**: Media which contain fine powders (25 microns or less) will significantly raise ball valve torque requirements.*

## MAINTENANCE

If seepage is noted at stem, tighten retaining nut per the following steps.

**CAUTION: For maximum stem seal life, proper stem adjustment procedure must be followed.**

**Excessive tightening causes higher torque and shorter stem seal life.**

**For Valves with Two Stem Nuts and a Lockwasher (with or without handle):**

Tighten retaining nut (lower nut) until Belleville washers are flat, the nut will “bottom”.

Back off retaining nut ⅛ turn.

Tighten handle nut securely to lock retaining nut in place. (On some automated valves, two retaining nuts are used with a lockwasher in between. Hold the bottom nut securely with a wrench while tightening the top nut to lock the two nuts in place.)

**For Valves with Self-Locking Stem Nut (and four Belleville washers):**

Tighten self-locking stem nut until Belleville washers are flat, the nut will “bottom”.

Back off nut ⅓ turn.

**CAUTION: The self-locking stem nut is difficult to tighten, and must fully flatten Belleville washers before backing off.**

# REBUILDING

**⚠ WARNING: BALL VALVES CAN TRAP PRESSURIZED FLUIDS IN BALL CAVITY WHEN CLOSED.**

Special handling and cleaning procedures are necessary for oxygen and vacuum service valves. Refer to industry practices when overhauling these units

If the valve has been used to control hazardous media, it must be decontaminated before disassembly. It is recommended that the following steps are taken for safe removal and disassembly.

Relieve the line pressure. Operate the valve prior to attempting removal from line.

Place valve in half-open position and flush the line to remove any hazardous material from valve.

All persons involved in the removal and disassembly of the valve should wear the proper protective clothing such as face shield, gloves, apron, etc.

**Disassembly of Valve:**
Remove valve from line. Unscrew end plug and set aside. If the body seal was not removed with the end plug, remove it from the valve and discard. Remove and discard the near seat and seat back seal (if any). Place valve in closed position and remove the ball.

***NOTE**: If required, end plug disassembly tools are available from your supplier or from Flowserve.*

**Removing Stem Assembly**
Remove handle nut, lockwasher, also separate handle and stop or one-piece handle/stop (if manual valve). (This step is not applicable to valves with self-locking stem nut.)

Remove retaining or self-locking stem nut. Prevent stem from turning with wrench.

Remove and discard Belleville washers. Push stem into ball cavity and remove. On the ½" size, the far seat must be removed before pushing stem into cavity.

Remove and discard stem seal(s), stem seal protector (if any), thrust bearing, and thrust bearing protector (if any), which may be on the stem or in the body stem cavity. Remove and discard the far seat and the seat seal (if any). Retain the follower.

**Visual Inspection:**
The ball and the surfaces against which the seats and seals are installed should be undamaged, clean and free of pit marks and scratches. Light marring from the action of the ball against the seats is normal and will not affect the operation of the valve. Flaws which can be seen but barely detected with finger tips are acceptable.

The stem and body surfaces that the thrust bearing(s) and stem seal(s) contact, must be undamaged, clean and free of pit marks and scratches.

**Reassembly**
Lightly lubricate the ball, seats, body seal, stem seal(s), stem seal protector and seat back seals (if any), thrust bearing, and thrust bearing protector (if any), with a lubricant compatible with the media being handled. White petroleum jelly is a good general purpose lubricant.

On all except the ½" size, install the far seat and seat back seal (if any) in the body cavity.

The seat should appear to sit flat into the back of the cavity indicating that the seat back seal is properly located on the seat. If the seat back seal is not correctly positioned it could be damaged or cause the valve to leak.

For stem area rebuilding, refer to exploded view and also the stem build illustrations on the following pages that pertain to the valve being rebuilt.

**Order of Assembly:**
Place new thrust bearing(s) on stem and insert assembly through body cavity. Place new stem seal(s), stem seal protector (if any), and the follower in position. PEEK thrust bearing and stem seal protectors are placed outside of seals and bearings. The seals/bearings must contact the body.

***NOTE**: For valves having graphite stem seal(s), care must be taken when installing the graphite parts because they are easily damaged by squeezing the OD of the seals. Handle gently by holding seal(s) on flat surfaces rather than on the OD. If resistance is encountered when installing seal(s) over the stem, use follower to gently push the stem seal(s) down.*

Stem seals, stem seal protectors and thrust bearings that are the same size and color are interchangeable.

Place two new Belleville washers in position with the larger diameter sides touching each other.

For those valves with single-locking stem nut, place four new Belleville washers in position (two pairs of washers with larger diameter sides touching each other).

Place retaining or self-locking stem nut on stem and using handle or a wrench to prevent rotation, tighten nut to make snug and firm. Follow section C, Maintenance, for proper stem adjustment.

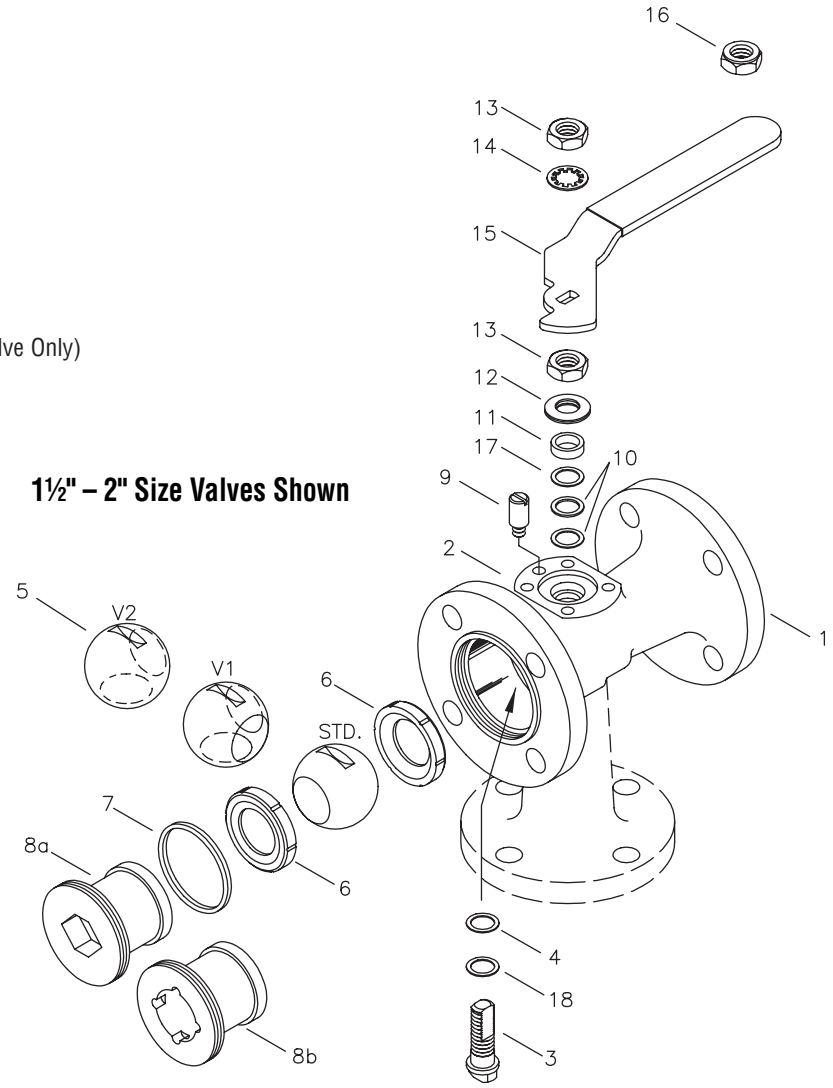
Replace separate stop and handle or one-piece handle and stop (if manual valve), lockwasher and handle nut on stem. (This step is not applicable to valves with self-locking stem nut.)

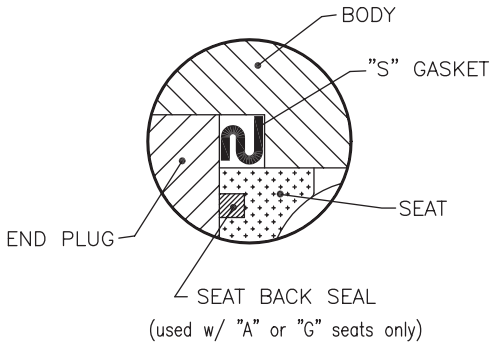
Install far seat and seat back seal (if any) (½" valves only), ball (see Caution below), body seal, second seat and seat back seal (if any) and end plug. When end plug and body are metal-to-metal, end plug face may project up to .009" beyond surrounding serrated surface. End plug must be fully tightened against machined step in body. If in doubt, assemble end plug without seat and seal, make a witness mark, and reassemble the full assembly.

**CAUTION: If the seats and seals installed differ from those removed, the valve nameplate or stop must be replaced or remarked to indicate the altered materials and ratings, or valve tagged to so indicate.**

| Item | Qty | Description |
|---|---|---|
| 1 | 1 | Body |
| 2 | 1 | Nameplate |
| 3 | 1 | Stem |
| 4 | 1 | Thrust Bearing |
| 5 | 1 | Ball |
| 6 | 2 | Seat |
| 7 | 1 | Body Seal |
| 8a | 1 | End Plug (½" - 1") |
| 8b | 1 | End Plug (1½" - 2") |
| 9 | 1 or 2 | Stop Pin (Manual Valve Only) |
| 10 | 1 or 2 | Stem Seal |
| 11 | 1 | Follower |
| 12 | 2 or 4 | Belleville Washer |
| 13 | 2 | Retaining Nut |
| 14 | 1 | Lockwasher |
| 15 | 1 | Handle (Manual Valve Only) |
| 16 | 1 | Self-Locking Stem Nut (Automated Valve Only) |
| 17 | 1 | Stem Seal Protector |
| 18 | 1 | Thrust Bearing Protector |

**1½" – 2" Size Valves Shown**

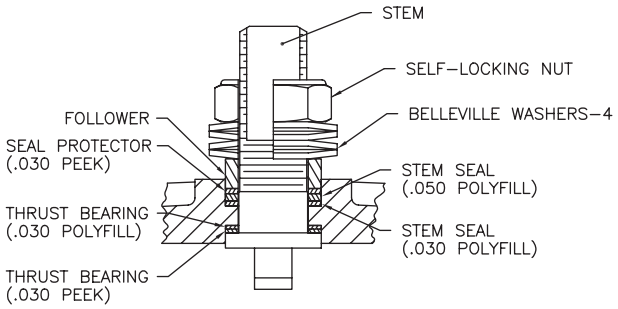


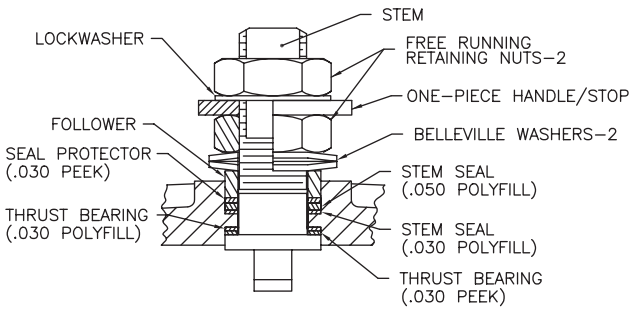

**View A-A**

# New Style JRP1/JRP3 Valve Stem Builds

**Automated Valve Shown**




**Manual Valve Shown**




***NOTE:*** *Manual valve stem build components such as stem seal(s), thrust bearings and seal protector are the same as automated valves.*



For more information about Flowserve Corporation, visit www.flowserve.com or call USA 1 800 225 6989.

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