JFLOW SERIES VALVES
(DM4600 SERIES)
THREE PIECE BALL VALVE
INSTALLATION – MAINTENANCE MANUAL

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DM4600 Series Ball Valve
Installation – Maintenance Manual
Document #: IM-DM4600-01
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Installation & Maintenance for J Flow DM4600 Series Ball Valve

General Information

The J Flow DM4600 series ball valve has been designed and engineered to provide a long lasting, worry-free valve service when installed according to the instructions and specifications given in this manual. If repairs need to be made, only use genuine J Flow Controls parts which are readily available for immediate shipment (See Table B).

The following set of instructions refers only to the J Flow DM4600 series ball valve. Please contact J Flow Controls if this is not the valve series in your possession.

J Flow Controls is committed to providing The Right Valve for the Right Application, Right Now.

Delivery Condition and Storage

Manual valves will be shipped in the open position. Incoming quality control should check both the packing condition to see if there is any damage during transportation and to make sure the bolts on the valve and its stem are not loose.

When storing the valves, make sure to leave the valve in the fully open or fully closed position. This will prevent damage to the seat due to contact with the balls edge. Make sure to keep protective cover in place to prevent damage to the ball surface. It is highly recommended that valves be stored indoors in a clean and dry environment until readyfor use.

Safety Precautions

To prevent injury to yourself, others, or equipment, make sure to read this section in its entirety before performing any installation or operation of this valve.

The pressure ratings of the valve are based on a variety of elements, including valve series, size, body, seats, and bolt material. Verifythat your application does not exceed pressure or temperature ratings on the nameplate of the valve.

Make sure to ALWAYS depressurize the line with your valve in the full open position before disassembly ofthe valve. Cycle the valve in the depressurized line before removing the valve.

Always wear protective equipment and take appropriate precautions to safeguard against injury caused bydischarge oftrapped fluids.

Only use J Flow Controls approved spare parts for maintenance on any J Flow Controls valve. A complete spare parts list is given in Table B.

As to ensure your safety and maintain warranty, do not modify the valve in any way without prior approval fromJ Flow Controls.

Installation

The valve may be installed in either direction. Prior to installation, be certain the valve is in the full open position. The pipe should be flushed of any media that could damage the ball or seats. If being welded, see page 6 for installation details.

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Operation

J Flow Controls valves provide tight shut off when used under normal conditions and in accordance with J Flow Controls published pressure and temperature chart. All valves are provided standard with a locking device for either the open or closed position. It is advised to never leave the valve in a partially open position as seat life can be reduced.

J Flow Controls DM4600 series are a 1/4 turn valve which closes in the clockwise direction. The valves handle points at the flow direction, so when the handle is in line with the pipeline, the valve is open. Subsequently, when the handle is parallel to the pipeline, the valve is closed. There is also a notch on the valve stem indicating flow as well.

Make sure when installing an actuator that the position of the valve matches the actuator.

Media which may solidify, crystallize or polymerize should never be allowed to remain in the ball valve cavities unless regular maintenance is performed.

Maintenance

J Flow Controls valves are designed to easily be disassembled and reassembled in the field for easy service. It is imperative that before completing any maintenance on a J Flow Controls valve, that the Safety Precautions section of this I&M is reviewed.

Ballvalves normallydo not require an internal lubricant or routine maintenance once installed. Packing can be adjusted if the valve has stem leakage or if the stem seems loose. See the Troubleshooting section of this I&M for more information.

Internal maintenance by replacing the packing, seats, seals, ball, or stem if any piece is damaged will require disassembly (see Valve Disassembly).

Troubleshooting

STEM LEAKAGE

Examinethe diskspringsfordamage. Iftheyare in good condition, then tighten the gland nut until disk springs are firmly compressed, then back nut off 1/16th of a turn. If damaged, take apart the stem down to the gland, fit new disk springs with their outer edges touching, replace and retighten with the stem nut. Any further maintenance will requirethe dismantlingofthe valve.

LEAKAGE AT BODY JOINT

Check to see if the body connector bolts have been tightened. If loose, tighten body bolts according to the torque requirements given in Table A. Ifvalve still leaks, the valve has to be disassembled and body seals will need replaced.

IN-LINE LEAKAGE

Position the valve in the closed position. If leakage occurs while the valve is closed, ball sealant surface or seat could be damaged and the valve will have to be disassembled.

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Valve Disassembly

Before beginning any maintenance, make sure to read the Safety Precautions section of this I&M.

Note: An exploded view of valve parts is available at the end of this I&M.

1. To inspect and/or replace body seals, seats, packing, and/or ball, the valve must be in the open position with no flow through the valve and removed from pipeline.
2. With the valve in the open position, undo Body Bolts (6) from body nuts (18) to separate valve Body (1) and End Caps (2).
3. Remove the Seats (5) and Gasket (3).
4. Turn valve in the closed position so the Ball (4) can be taken outfrom the Body(1).
5. Remove Handle Nut (15), Handle (17), Spacer (14), and Nut Stop (13).
6. Remove the Stem Nut (12) to remove Disk Washers (11), Gland Washer (10), and Stem Packing (9). 8. Push the Stem (8) down into the body cavity to remove. Once removed take off the Thrust Washers (7 /7A) and Half Split Rings (8A).

When the valve is disassembled, be sure to clean and examineallvalve parts.

1. Ball surface should be free from defects, and if any are found, ball should be replaced. Using a defective ball willseverelyimpairthevalve performance.
2. The replacement ofvalve seats is recommended.
3. Stem seals and body seals (including the thrust washer) should be discarded and replaced.
4. After cleaning the rest of the valve parts, examine them for wear, corrosion, or mechanical damage. Replace any defective parts.

Recommended spare manufacturers parts are indicated by an asterisk on Table B by the part name, numbered bythe exploded view atthe end ofthis I&M.

Be sure to specify the exact valve part number to ensure the correct parts are ordered.

J Flow Controls does not take responsibility for incorrectly ordered spare parts.

Valve Reassembly

1. Apply an adequate amount of lubricant, that is compatible with the media being handled, around the Ball (4), Seats (5), Gasket (3), Stem (8), and Thrust Washer (7/7A).
2. For stem reassembly, disassembly procedure should be followed in reverse order.
3. When stem assembly is complete, tighten Stem Nut (12) accordingtothe values on Table A.
4. With the Stem (8) in the closed position, insert the Ball (4) into the Body (1) so that stem slot engages with the slot atthe base of the stem.
5. Insert Seats(5) and Gasket (3) into the Body (1).
6. Place End Caps (2) on either side of the Body (1).
7. Insert and finger tighten Body Bolts (6) to Body Nuts (18) diagonally, in accordance to the cross pattern procedure to End caps (2) and Body(1).
8. In the final assembly step ensure that body bolts are tightened accordinglytothe torquesvalues in Table A.
9. Replace Nut Stop (13), Spacer (14), Handle (17), and Handle Nut (15) then tighten.

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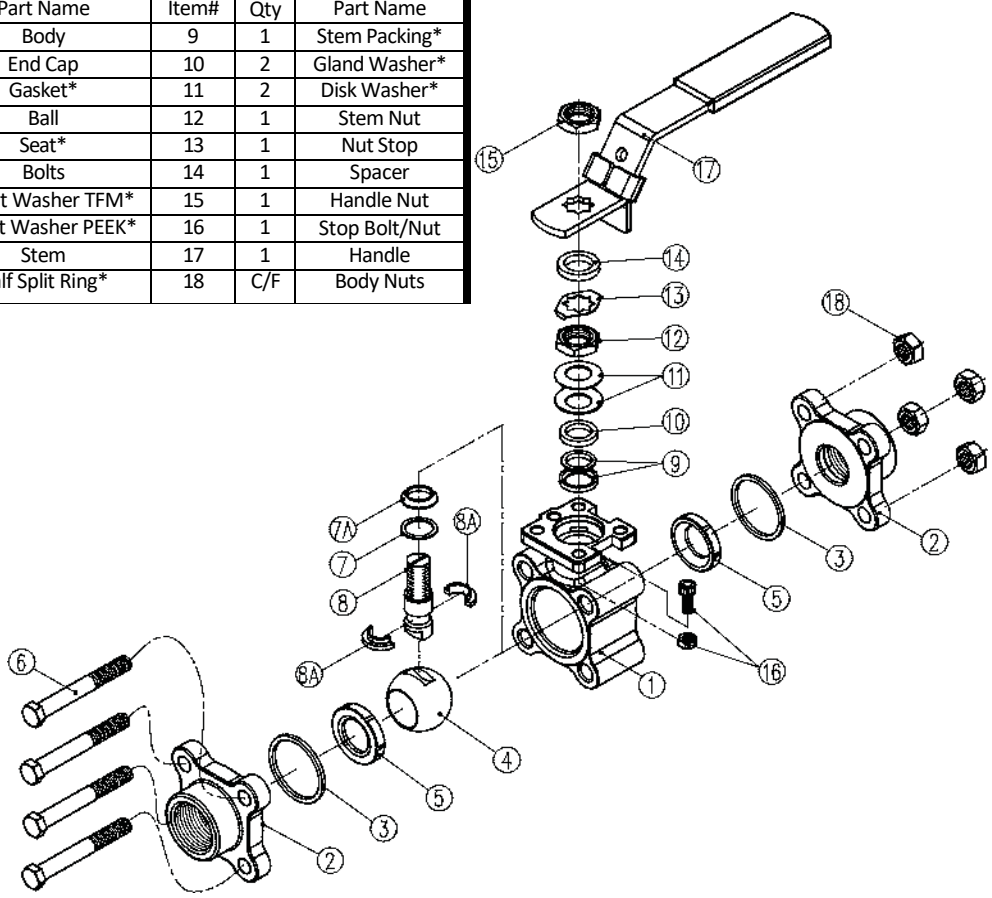
Testing

After completing the reassembly of the valve, check that operates smoothly by cycling the valve open and closed several times.

If the entire valve was removed from the pipeline, test the valve to appropriate specifications.

Table B: DM4600 Spare Parts List

Item#	Qty	Part Name	Item#	Qty	Part Name
1	1	Body	9	1	Stem Packing*
2	2	End Cap	10	2	Gland Washer*
3	2	Gasket*	11	2	Disk Washer*
4	1	Ball	12	1	Stem Nut
5	2	Seat*	13	1	Nut Stop
6	C/F	Bolts	14	1	Spacer
7	1	Thrust Washer TFM*	15	1	Handle Nut
7A	1	Thrust Washer PEEK*	16	1	Stop Bolt/Nut
8	1	Stem	17	1	Handle
8A	2	Half Split Ring*	18	C/F	Body Nuts



Fastener Torque Chart			
Valve Size	**50% of Max Body Bolt Torque (In-lbs.)**	**Max Torque of Body Bolt (In-lbs.)**	**Max Torque of Stem Nut (In-lbs.)**
¼”	50	100	69
3/8”	50	100	69
½”	65	130	78
¾”	80	160	78
1”	100	200	122
1-1/4”	110	220	122
1-1/2”	188	375	165
2”	203	405	165
2-1/2”	220	440	191
3”	243	485	191
4”	258	515	217

INSTALLATION OF WELD-END VALVES

Recommended procedure

1. Tack weld the valve on the pipe in four points on both end caps.
2. With the valve in the open position, (lever to be parallel to the axis of the pipe), remove all the body bolts except one. Loosen the nut on the remaining bolt. Swing the body outside the pipe. Finish welding both end caps on the pipe.
3. When the valve has cooled down, clean both end caps and body surface.
4. Swing the body back in position and replace the bolts. Tighten all nuts slightly. This operation is very important to keep the body and end caps perfectly parallel, thus preventing distortion of the end caps. Tighten body bolts evenly (see Table A)
5. Make sure that maximum tightening torque is observed. Check proper operation of the valve.

Alternative procedure

1. If disassembly of the valve is unfeasible, weld-in-place installation may be performed with proper precaution. *Improper welding can expose valve seats and seals to excessive heat, causing damage and voiding the JFlow warranty*
2. Ensure valve is in the fully open position
3. Weld the end caps while closely monitoring the temperature of the valve. Use cooling methods as needed - such as cool, wet rags - to prevent overheating. Pause the welding process if necessary to allow the valve to cool.
4. After welding, thoroughly clean both end caps and body surface. Verify the proper operation of the valve.

INSTALLATION OF EXTENDED WELD-END VALVES

If the valve has extended socket weld or butt weld end caps, ensure the valve is in the open poistion prior to performing any welding procedure.

Check proper operation of the valve.

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