



JDV CONTROL VALVES CO., LTD.

A SPECIALIST IN DESIGN & MANUFACTURE OF VALVES

JBSM Series Manual

3-PC High Performance Metal Seat Ball Valve Manual



1. Please read this manual before installation or servicing.
2. Before installing or servicing, please ensure the line pressure has been relieved and any hazardous fluid has been drained or purged from the system.



1. Please do not use the valve exceeding its designed pressure range.
2. Please do not use the valve exceeding its designed temperature range.

INSTALLATION

1. Before installing, check all valves and end connections are perfect without damage to ensure gasket surfaces free from defects.
2. Make sure all valves and lines are clean without any dirt or debris, which may cause valve seats damaged.
3. Check the piping is in alignment with appropriate supports. It is not recommended to install valves in improperly positioned pipes.
4. Valves are preferred direction design, so install the valve by following the flow arrow on valve body.
5. Valves should be installed in the whole set when connecting with pipes. Do not disassemble the valves to install.
 - **Thread ends:** Make sure the thread specification of pipe match with the valve thread. Connect the valve ends with pipes by tightening in proper strength. Over tightening or loose may cause the leakage.
 - **Weld ends:** Make sure the pipe dimension match with the valve. Connect the valve ends with pipes by fully welding.



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MANUAL OPERATION

1. Make sure the valve in open position. Each valve should be set in open position when ex-factory.
2. Rotate the handle in 90° (1/4 turn) counter-anticlockwise to the close position. The handle should be parallel to the pipeline in open position or perpendicular to the pipeline when in close position.

GENERAL MAINTENACE

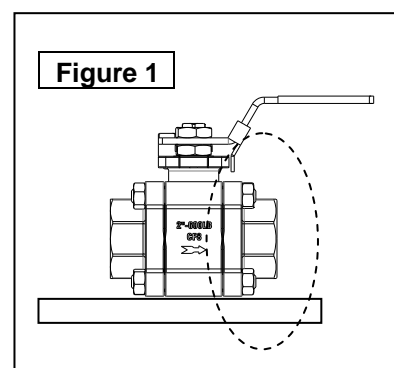
It is recommended to observe the valves periodically for ensuring the system in proper performance.

1. It is recommended to replace new Seat Gasket (5) and Seat Spring Seal (7), and Gasket (9) after the disassembling.
2. All bolts of valve body have been tightened in even strength by the pre-set torque when ex-factory, so do not tighten or loose the bolts any more. Over tightening or loose may cause the leakage.

Please refer parts drawing in <Figure 5> when disassembling or assembling.

DISASSEMBLY

1. Before disassembling, ensure the line pressure and dangerous media have been relieved.
2. Turn the valve to the close position.
3. Put the valve on clean platform as Figure 1.
4. Loosen Cap Bolts and Nuts (10).
5. Downstream side as Figure 1: Remove the Cap (2) and Gasket (9). Take out the Seat (4), Seat Gasket (5) and Ball (3). Be careful above parts may drop out when being taken out from the cap.



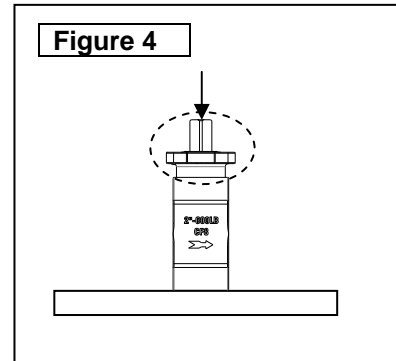
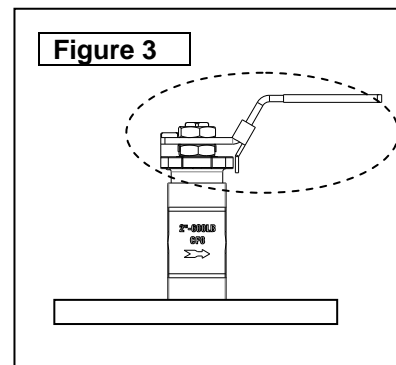
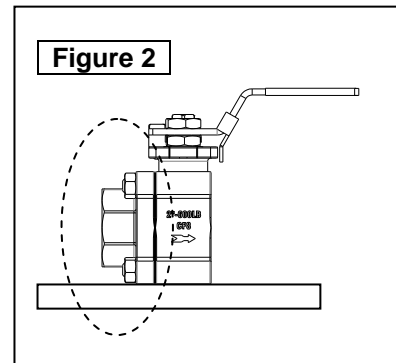
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6. Upstream side as Figure 2: Take out the Cap (2), Gasket (9), Seat (4), Seat Spring (8), Seat Spring Retainer (6) and Seat Spring Seal (7). (See Figure 2)
7. Loosen the Lever Nut (19), take out Lever Handle (18). Then remove Packing Lock Washer (17), take out Nut (16), Bevel Washer (15) and Ring (14). See Figure 3.
8. Press the stem toward valve body and take it out from the body side. See Figure 4
9. The Gland Packing (12) should be remained inside the valve body after the Stem (13) is removed. It is suggested not to take out the Gland Packing (12) unless there is the stem leakage problem and the Gland Packing (12) must be replaced the new one.
10. Use a wire brush or bristle brush to clean the body, cap, ball, and other parts.
11. Remove the old or damaged Seat Gasket (5) and Seat Spring Seal (7). Be careful not to damage the good ones.



ASSEMBLY

1. Put the Thrust Washer (11) on Stem (13). If gland packing (12) needs to be replaced, put the Gland Packing (12) on Stem (13) from stem top to the bottom, the Gland Packing (12) should be in the direction of reverse V upward. Put the Stem (13) into valve body and pull it from the valve top till it is stopped.
2. Put Ring (14) and Bevel Washer (15) on Stem (13), and tighten the Nut (16). Put Packing Lock Washer (17) and Lever Handle (18) on stem, and then fix by tightening Lever Nut (19).



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3. Turn the Lever Handle (18) to open position. Put Ball (3) into the body (1).
4. Upstream side: Put Gasket (9), Seat Gasket (5), and Seat (4) into Cap (2).
5. Downstream side: Put Gasket (9), Seat Spring Seal (7) into Cap (2). Put the flat side of Seat Spring Retainer (6) toward Seat Spring Seal (7). Then put Seat Spring (8) and Seat (4) into Cap (2).
6. Combine upstream cap assembled in step 4 and downstream cap assembled in step 5 with Body (2) by tightening Bolts & Nuts (10). Tighten the bolts and nuts in the sequence of diagonal according to suggested torque in <sheet A> so that the strength can be distributed in even.

<Sheet A>

Tighten Torque				
JBSM-C3 600LB				
Size	Bolts of Joint Side		Gland Nut	
	Nm	In-Lbf	Nm	In-Lbf
1/2"	> 20	> 177	> 8	> 70.79
3/4"	> 20	> 177	> 8	> 70.79
1"	> 40	> 354	> 10	> 88.49
1-1/2"	> 70	> 619.5	> 12	> 106.19
1-1/4"	> 80	> 708	> 12	> 106.19
2	> 80	> 708	> 15	> 132.74



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TROUBLE SHOOTING

Area	Description	Solution
Inner	Leakage from downstream bore	<ol style="list-style-type: none"> 1. Turn the valve in half open position to check if there is any damage on the contacted surface of Ball (3) and Seat (11). 2. If no, replace Seat Gasket (5) and Gasket (9). 3. If yes, replace damaged Ball (3) or damaged Seat (11), Seat Gasket (5) and Gasket (9). 4. Gaskets (9) must be replaced to new once the valve is disassembled.
Outer	Leakage from stem	<ol style="list-style-type: none"> 1. Tighten Nut (16) on the gland. 2. If step 1 cannot stop leakage, disassemble valve to replace Gland Packing (12) 3. Gaskets (9) must be replaced to new once the valve is disassembled.
	Leakage from joints between body and caps.	<ol style="list-style-type: none"> 1. Tighten Bolts & nuts (10). 2. Replace Gaskets (9).



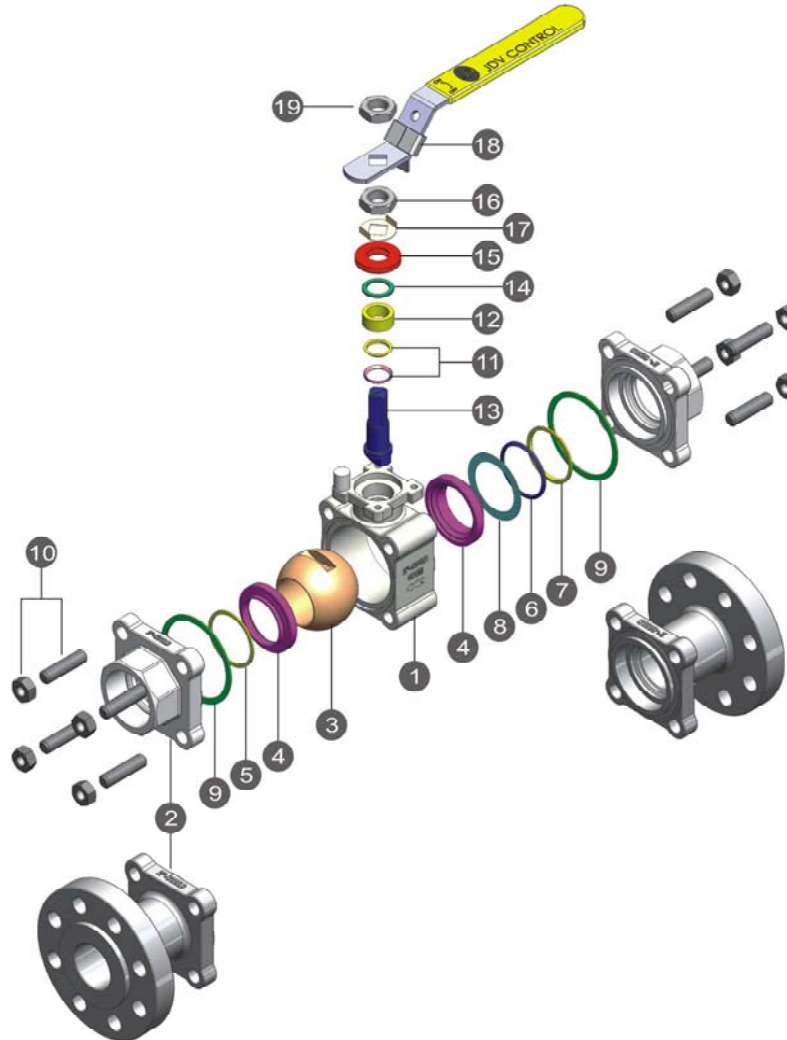
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Figure 5



NO.	PART NAME	NO.	PART NAME	NO.	PART NAME
1	BODY	8	SEAT SPRING	15	BEVEL WASHER
2	CAP	9	GASKET	16	GLAND NUT
3	BALL	10	BOLT & NUT	17	PACKING LOCK WASHER
4	SEAT	11	THRUST WASHER	18	LEVER HANDLE
5	SEAT GASKET	12	GLAND PACKING	19	LEVER NUT
6	SEAT SPRING RETAINER	13	STEM		
7	SEAT SPRING SEAL	14	RING		



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