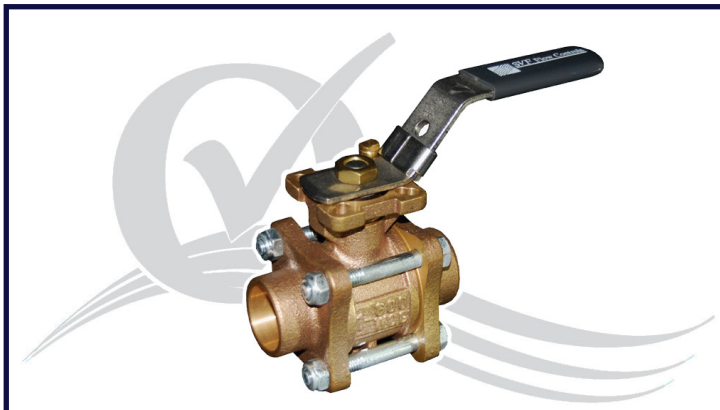
SVF FLOW CONTROLS

BZ9 Series Ball Valves

IOM-BZ9

INSTALLATION, OPERATION & MAINTENANCE FOR SVF SERIES BZ9 BALL VALVES



GENERAL

SVF Ball valves have been designed and engineered to provide long lasting and trouble free service when used in accordance with the instructions and specifications herein.

The following instructions refer only to SVF Series BZ9 Ball Valves.

Keep protective cover in place until moment of installation. Valve performance depends upon preventing of damage to ball surface. Upon removal of cover, make sure that the valve is completely open and free of obstruction.

INSTALLATION

The valve may be installed for flow or vacuum in either direction. Carefully exclude pipe sealants from the valve cavity. When installing, use standard gaskets suitable for the specific service. Tighten end connection bolts evenly.

STORAGE:

All manual valves are shipped in the fully open position with protective end caps (covers). Keep all protective packaging, flange covers, or end caps attached to the valves during storage. To avoid damage to the seat due to contact with the balls edge, leave the valve in the fully open or closed position during storage. It is recommended to keep the valves in a clean and dry environment until ready for use.

!!!CAUTION! Safety Precautions!!!

Before removing valve from pipeline NOTE that:

Media flowing through a valve may be corrosive, toxic, flammable, a contaminant or harmful nature. Where there is evidence of harmful fluids having flowed through the valve, the utmost care must be taken. It is suggested that the following minimal safety precautions be taken when handling valves.

1. Always wear eye shields.
2. Always wear gloves and overalls.
3. Wear protective footwear.
4. Wear protective headgear.
5. Ensure that running water is readily accessible.
6. Have a suitable fire extinguisher ready if media is flammable.
7. Be sure that you are aware of the fluid that has been passing through the valve before opening or dismantling any valve. Require MSDS information.

By checking line gauges ensure that no pressure is present at the valve.
Ensure that any media is released by operating valve slowly to half open position. Ideally, the valve should be decontaminated when the ball is in the half open position.

These valves, when installed, have body connectors which form an integral part of the pipeline and the valve cannot be removed from the pipeline without being dismantled.

Valves and accessories must not be used as a sole support of piping or human weight. Safety accessories such as safety relief (overpressure) valves are the responsibility of the system designer.

It is the user/system designer's responsibility to use insulation in high temperature applications. Refer to OSHA documents for more details.

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WELDING ENDS

Welding of valves shall be performed by a qualified person according to the ASME Boiler Construction code Section IX. Sweat End valves must be partially disassembled to prevent heat damage during welding of the soft plastic seats and seals in the valve. Prior to disassembly, the valve may be temporarily fitted in line, and the ends tack-welded to the piping for alignment purposes.

1. With the valve in the OPEN position, remove Body Bolts (#9) and Body Bolt Nuts (#10).
2. Separate the End Connections (#2) from the Body (#1) and carefully remove the Seats (#5), Body Seals (#13) and Ball (#3) to avoid damaging them.
3. With the soft components and Ball (#3) removed from the Body (#1), loosely reassemble the End Connections (#2) to the valve Body (#1).
4. Tack weld the End connections (#2) to the pipeline, then remove the valve Body (#1).
5. Complete the welding, being careful to avoid weld splatter on the exposed end faces.
6. When cooled, clean faces of the ends before reassembling the valve. (See Reassembly Procedure)

OPERATION

SVF valves provide tight shut off when used under normal conditions and in accordance with SVF's published pressure/temperature chart. If these valves are used in a partially open (throttled) position seat life may be reduced.

SVF valves have ¼ turn operation closing in a clockwise direction. It is possible to see when the valve is open or closed by the position of the wrench handle. When the wrench is in line with the pipeline, the valve is open. There is also a marking on the top of the stem indicating the flow path.

Any media which might solidify, crystallize or polymerize should not be allowed to stand in the ball valve cavities unless regular maintenance is provided.

TORQUE REQUIREMENTS

Torque ratings are subject to variations depending on the length of time between cycles and the media in the system.

Breakaway torque is that force which must be exerted to cause the ball to begin to open. Operating torque requirements will vary depending on the length of time between cycles, media in the system, line pressure and type of valve seat.

MAINTENANCE

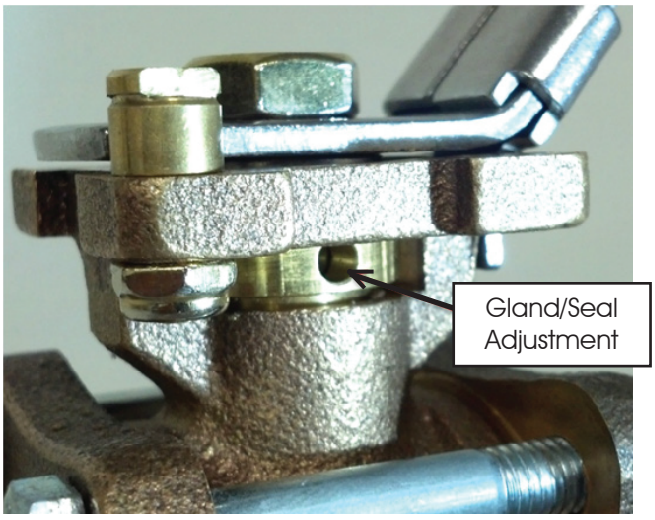
With self-wiping ball/seats, SVF valves have a long, trouble free life, and maintenance is seldom required. But, when necessary, valves may be refurbished, using a small number of components, none of which require machining.

SVF valves are designed for easy service and assembly in the field. The following checks will help to extend valve life, or reduce plant problems.

STEM LEAKAGE

Examine the Gland/Seal adjustment for damage (see image below). If in good condition tighten the Gland to the torque values provided in Table A. Due to wear and tear the Gland can become loose and will need to be re-torqued. Further maintenance necessitates dismantling of the valve.

The stem nut can be tightened to compress the stem packing without removing any actuation devices. Using the proper Gland Wrench tighten the Gland (clockwise motion) until leakage completely stops.



LEAKAGE AT BODY JOINT

Check for tightness at the body connector bolts. If loose, tighten body bolts. Excessive force will damage the bolts (See Table A and Bolt Tightening Sequence). If there is still leakage it will be necessary to dismantle the valve and replace the body seals.

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IN-LINE LEAKAGE

Check that the valve is fully closed. If leakage occurs while the valve is in the closed position, a seat or ball sealant surface may be damaged and it will be necessary to disassemble the valve.

NOTE: If Stem leakage and leakage at body joint are not cured by the simple means described above, it will be necessary to dismantle the valve. If there is no stem leakage the stem assembly should not be touched.

REBUILDING

Before rebuilding, check that all the correct components are available and that they are fit for reassembly. When rebuilding, cleanliness is essential to allow long valve life and provide cost effective maintenance. CAUTION: NO BODY OR STEM SEALS ARE REUSABLE. Care must be taken to avoid scratching the seats and seals during installation.

NOTE: Caution must be taken with valves that have been in hazardous media. They must be decontaminated before disassembly by relieving the line pressure and flushing the line with the valve in the partially open position. Protective clothing, face shields, gloves, etc., MUST BE USED for this operation.

A DISASSEMBLY OF VALVE (Removed from line)

1.) Remove the End Connectors (#2) by removing the Body Bolts (#9) and Body Bolt Nuts (#10).
2.) Once the End Connectors (#2) have been separated from the Body (#1), remove the Seats (#5) and Body Seals (#13).
3.) Make sure the Ball (#3) is in the closed position, thus the Ball (#3) can be taken out easily from the Body (#1).

B REMOVING STEM ASSEMBLY

1.) Remove Handle (#8) by removing Handle Nut (#15).
2.) Remove the Washer (#17), Gland (#7), & Stem Seal (#6).
3.) Push the Stem (#4) down into the body cavity to remove. Once removed take off the O-Rings (#11) and Thrust Washer (#12).

C INSPECTION

1.) The ball and the surfaces against which the seats wipe and make contact should be 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.
2.) The stem and body surfaces, which the thrust washer and Stem Seals make contact with, should be free of pit marks and scratches.

D REASSEMBLY

1.) Apply an adequate amount of lubricant compatible with the media being handled around the Ball (#3), Seats (#5), Stem (#4), Thrust Washer (#12), and O-Rings (#11).
2.) For stem reassembly, disassembly procedure should be followed in reverse order.
3.) When stem assembly is complete, tighten Stem Nut according to the values in Table A.
4.) With the Stem (#4) in the close position, insert the Ball (#3) into Body (#1) so that stem slot engages with the tang at the base of the Stem (#4).
5.) Insert Seats (#5) and Body Seals (#13) into the Body (#1).
6.) Merge the End Connectors (#2) with the Body (#1).
7.) Insert and tighten Body Bolts (#9), and Body Nuts (#10), in accordance to the cross pattern procedure shown in Diagram A.
8.) In the final assembly step ensure that the Body Bolts (#9) and Body Bolt Nuts (#10) are tightened according to the torque values on Table A and Bolt Tightening sequence as noted in Diagram A.

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TORQUE SPECS

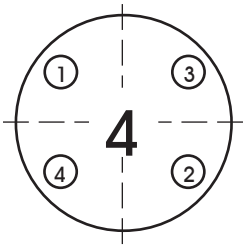
Certain precautions need to be followed when tightening bolts down to their corresponding torques to help prevent bolt galling. There are two passes each bolt has to undergo during the process, first pass and the final pass. Once every bolt has met the first pass requirement, the final pass can be initiated. When tightening bolts it is necessary to follow the corresponding bolt pattern shown in Diagram A.

TABLE A: TORQUE REQUIREMENTS (in-lbs)

Series BZ9 Valve Size	Body Bolts			Stem Nuts
	Bolt Pattern	First Pass	Final Pass	
1/2"	4	48	80	56
3/4"	4	53	89	56
1"	4	95	159	83
1-1/2"	4	106	177	135
2"	4	106	177	135

DIAGRAM A

BZ9 SERIES BOLT PATTERN
BOLT TIGHTENING SEQUENCE



REPAIR KITS

Repair Kits are available from SVF Flow Controls, Inc. Table B below shows what the kits consist of. When ordering a Repair Kit, please be sure to specify the type, size and seating material of the valve.

When repairing a valve use only SVF Flow Controls, Inc. authorized spare parts including; bolts and nuts, etc. In addition to maintenance kits, spare parts are available from SVF Flow Controls, Inc. They are: balls, stems and glands. If additional parts are required (body and ends) it is normally recommended that the complete valve be replaced.

Components from a different valve series should not be used with the repair of any other valve. If the valve is altered in any way, no liability can be accepted by SVF Flow Controls, Inc.

TABLE B: GENERAL REPAIR KIT

Part	Quantity
Thrust Washer	1
Stem Seal	1
Seats	2
Body Seals	2
O-Rings	2

BZ9 REPAIR KIT PART NUMBERS

Valve Size	Part Number
1/2"	RKBZ905TT
3/4"	RKBZ907TT
1"	RKBZ910TT
1-1/2"	RKBZ915TT
2"	RKBZ920TT

MATERIALS OF CONSTRUCTION FOR SVF SERIES BZ9 BALL VALVES

Item #	Part Name	Materials	Recommended Spare	Wetted
1	Body	Bronze C84400	-	X
2	End Connector	Bronze C84400	-	X
3	Ball	316 Stainless Steel	-	X
4	Stem	316 Stainless Steel	-	X
5	Seat	PTFE	X	X
6	Stem Seal	PTFE	X	-
7	Gland	Brass	-	-
8	Handle with Locking Device	304 Stainless Steel	-	-
9	Body Bolt	304 Stainless Steel	-	-
10	Body Bolt Nut	316 Stainless Steel	-	-
11	O-Ring	NBR	X	X
12	Thrust Washer	PTFE	X	X
13	Body Seal	PTFE	X	X
14	Handle Cover	PVC	-	-
15	Handle Nut	Brass	-	-
16	Lock Pin	Brass	-	-
17	Washer	304 Stainless Steel	-	-
18	Nut	Steel	-	-