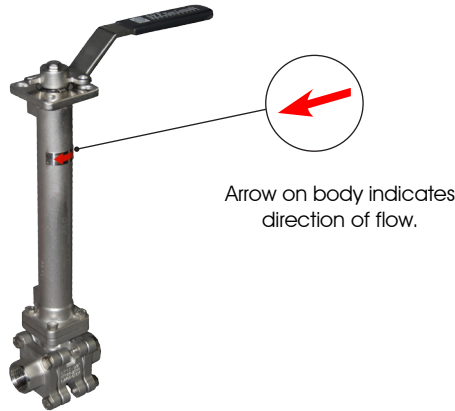




INSTALLATION, OPERATION & MAINTENANCE FOR SVF SERIES K8 BALL VALVES



!!!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.

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 K8 Cryogenic 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.

If requested, valves can be shipped from the factory containing a silicon based lubricant which aids in the assembly of the valve. This may be removed with a solvent if found intolerable.

Certain ferrous valves are phosphate and oil dipped during the course of manufacture, but they are completely non-toxic and the valves are quite safe to use for edible or potable products.

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.

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INSTALLATION

The valve must be installed for flow or vacuum in one direction (Arrow on side of body denotes direction of flow). Carefully exclude pipe sealants from the valve cavity. When installing, use standard gaskets suitable for the specific service. **Tighten flange bolts or studs evenly.**

Note: When valve is equipped with flange end connections, be sure to support the valve adequately throughout the installation process.

Flange weight will exert undesirable loads on the valve body bolts.

OPERATION

SVF valves provide excellent modulating control when used under normal conditions and in accordance with SVF's published pressure/temperature chart.

SVF valves have 1/4 turn operation closing in a clockwise direction.

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.

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.

If stem leakage is evident proceed as follows:

STEM LEAKAGE*

Tighten the gland nut firmly. If the leakage continues, a new stem kit may be necessary.

LEAKAGE AT END CAP JOINT*

Check for tightness at the End Cap connector. If loose, tighten End Cap. Excessive force will damage the End Cap. Follow the torque values listed in Table A, Page 4. If there is still leakage it will be necessary to dismantle the valve and replace the body seal.

IN-LINE LEAKAGE

Check that 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: Stem leakage and leakage at the end cap joint, if not cured by simple means described above, may necessitate dismantling 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 reassembling. When rebuilding, cleanliness is essential to allow long valve life and provide cost effective maintenance. **CAUTION: NO BODY, BONNET OR STEM SEALS ARE REUSABLE.** Care must be taken to avoid scratching the seats and seal during installation.



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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 and face shields, gloves, etc. **MUST BE USED** for this operation. Remove any accessories attached to the valve before attempting disassembly of valve.

A DISASSEMBLY OF VALVE (Removed from line)

- 1.) With the valve in the open position, undo Body Bolt Nuts (#16) to separate valve Body (#1) and End Cap (#2).
- 2.) Once the Body (#1) and End Cap (#2) have been separated, remove the Seats (5) and the Body Seals (#6).
- 3.) Make sure the Ball is in the closed position, thus the Ball (#3) can be taken out easily from the Body (#1).
- 4.) Remove the Handle Nut (#15) and remove the Handle (#11).
- 5.) Remove the Tab Lock (#10)
- 6.) Loosen and remove the Stem Nut (#9), the Thrust Washers (#7), O-Ring (#8A) and Stem Seals (#8).
- 7.) Remove the Bonnet Bolts (#21) and pull the Bonnet (#18) away from the Body (#1).
- 8.) Remove the Bonnet Seal (#20) from the Body (#1). If the Body Seal is GRAFOIL, carefully remove using a sharp pointed object such as a pick hand tool. Be careful not to scratch the Body Seal grooves.

C INSPECTION

The ball and the surfaces of the seats 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.

The stem, thrust bearing, stem seal and surrounding body surfaces should be free of pit marks and scratches.

D REASSEMBLY

- 1.) Insert the Stem (#4) through the bottom of the Bonnet (#8).
- 2.) Install the Stem Seal (#8) over the Stem (#4) followed by the O-ring (#8A).
- 3.) Install the Thrust Washers (#7) over the Stem (#4) until it rests on top of the Stem Seals (#8).
- 4.) Lubricate the Stem (#4) threads with anti-galling lubricant approved for cryogenic applications
- 5.) Thread the Stem Nut (#9) onto the Stem (#4), and tighten the stem nut to completely compress the thrust washer and then back off by 1/4th of a turn.
- 6.) Install the Tab Lock (#10) on top of the Stem Nut (#9)
- 7.) Install the Bonnet Seal (#20) on the seal groove on top of the Body (#1). Slide the Thrust Bearing (#19) into the bottom of the Bonnet (#18). Install the Bonnet (#18) on the Body (#1).
- 8.) Lubricate the Bonnet Bolts (#21) with anti-galling lubricant approved for cryogenic applications.
- 9.) Install the Bonnet Bolts (#21) onto the Bonnet (#18). Tighten the Bonnet Bolts to the recommended torque on Table A, Page 4.
- 10.) Rotate the Stem (#4) to close the valve.
- 11.) Install the Ball (#3) into the Body (#1) by orienting the slot in the ball to engage to the stem tang. When the valve is in the closed position, the vent hole on the ball should face the upstream direction.
- 12.) Rotate the Stem (#4) until the ball is in the open position. Install the Body Seals (#6) and Seats (#5) into the Body (#1).
- 13.) Merge the End Caps (#2) onto the Body (#1) and Insert and tighten the Body Bolts (#16) diagonally in accordance to the cross pattern procedure.
- 14.) In the final assembly step ensure that the body bolts are tightened according to the torque values in Table A, Page 4.

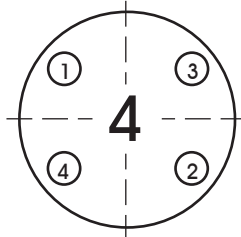


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TORQUE SPECS

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 down bolts it is necessary to follow the corresponding bolt pattern shown below.



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 and stem. 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 A: TORQUE REQUIREMENTS (in-lbs)

Valve Size	Body Bolts		Bonnet Bolts	
	First Pass	Final Pass	First Pass	Final Pass
1/2" (Full Port)	90	155	35	60
3/4"	90	155	35	60
1"	90	155	35	60
1-1/2"	180	300	50	80
2"	180	300	90	155

TABLE B: GENERAL REPAIR KIT

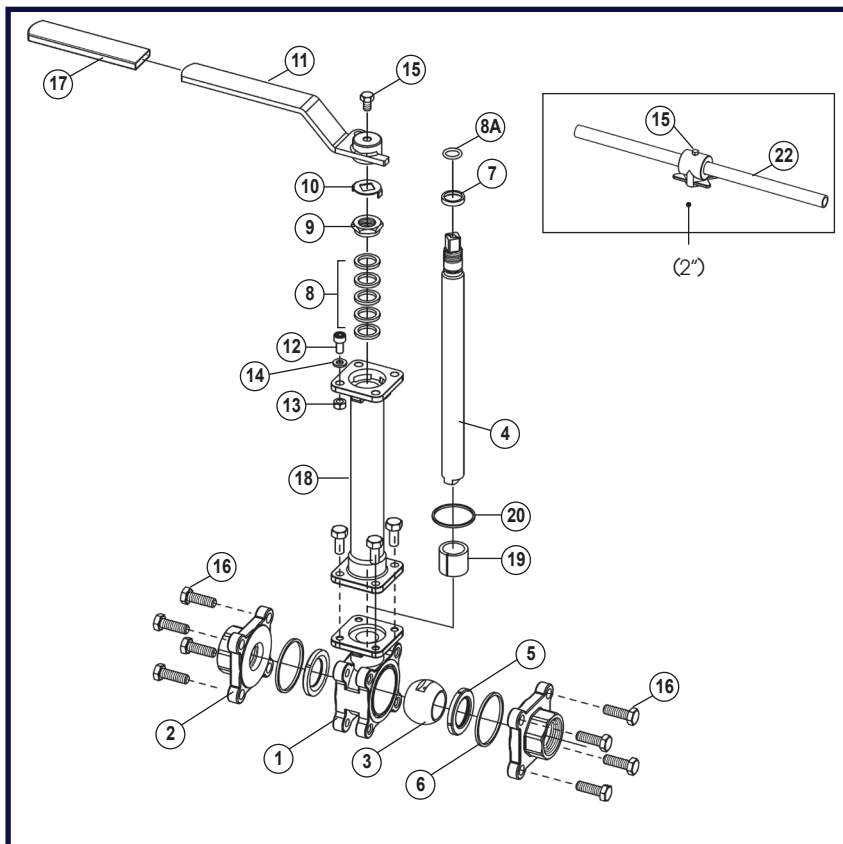
Part	Quantity
Thrust Washer	1
Stem Seals	5
Bonnet Seal	1
Seats	2
Thrust Bearing	1
Body Seals	2
O-Ring	1

Notes:



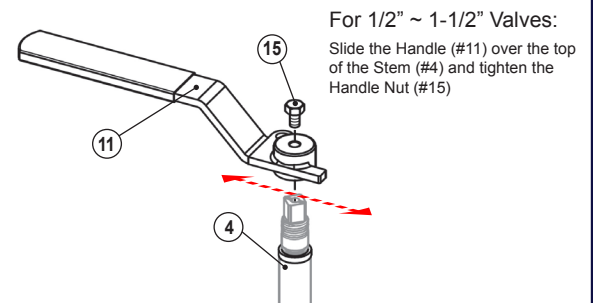
MATERIALS OF CONSTRUCTION FOR SVF SERIES K8 BALL VALVES

Item #	Part Name	Materials	Repair Kit Parts	Wetted
1	Body	A351-CF8M	-	X
2	End Cap	A351-CF8M	-	X
3	Ball	A351-CF8M	-	X
4	Anti-Static Stem	Stainless Steel 17-4 ph	-	X
5	Seat	PCTFE	X	X
6	Body Seal	GRAFOIL®/PCTFE	X	X
7	Thrust Washer	PCTFE	X	X
8A	O-Ring	Viton®	X	X
8	Stem Seals	PCTFE	X	X
9	Stem Nut	SS304	-	-
10	Tab Lock	SS304	-	-
11	Handle	SS304	-	-
12	Stop Bolt	SS304	-	-
13	Stop Nut	SS304	-	-
14	Stop Washer	SS304	-	-
15	Handle Bolt	SS304	-	-
16	Body Bolt	SS304	-	-
17	Handle Sleeve	Vinyl	-	-
18	Bonnet	A351-CF8M	-	X
19	Thrust Bearing	Carbon Filled PTFE	X	X
20	Bonnet Seal	GRAFOIL®/PCTFE	X	X
21	Bonnet Bolt	SS304	-	-
22	Pipe Handle (2")	SS304	-	-



VALVE HANDLE INSTALLATION

NOTE: After valve assembly is completed, install the proper valve handle parallel to the groove on the top of the stem as shown.



For 2" Valves:

Slide the Pipe Handle (#22) through the Pipe Handle Adapter (#11) and tighten the Handle Bolt (#15).

