

OVC 4100/4800/4802 Butterfly Valve Installation, Operation & Maintenance Instructions

Installation Recommendations

Valve Ratings

Each valve has a clear pressure rating on the nameplate. Check the valve pressure rating before proceeding with installation.

Valve Seat Position

All the OVC Resilient Seated Butterfly Valve are completely bi-directional, so installation is not dependent on seat orientation.

Disc Clearances

Before installing the valve, it is important to ensure the pipe's ID and the pipe flanges are large enough to allow the disc edge to swing into the opening without interference. Damage to the disc edge can severely affect the performance of the valve.

Opening Rotation

The Resilient Seated Butterfly valve disc can rotate 360° without damaging the valve or elastomer seat. The valve is designed to open with either clockwise or counterclockwise rotation of the shaft.

Installation Position

To prevent damage to the disc and seat during installation, the valve disc should be slightly open but not extending beyond the valve liner face. Positioning the disc in this “almost closed” position will reduce seat interference and initial torque build-up during valve installation. In general, it is preferable to install the valves with the shaft in a horizontal orientation. In this position, shaft and disc weights are evenly distributed, minimizing seat wear. The resilient seated butterfly valves are designed to operate between two flanges. If the valve installation calls for the use of one pipe flange only, a Lug type valve with Dead-End Service feature must be used.

Valve and Flange Preparation

If the valve and mating pipe are properly prepared for installation, future problems can be avoided. All valve seat and pipe flange faces should be free of dirt, grit, dents, or surface irregularities which may disrupt flange sealing and cause external leakage. The valve disc sealing surface should also be inspected to eliminate any dirt or foreign material that will adversely affect the operation of the valve.

Installation Tools

The only tool required in the installation of the OVC 4100/4800/4802 Valve is a wrench suitable for tightening the flange bolts and/or nuts required to secure the valve in-line. A hoist may be required to help manipulate valves 10" and larger. Smaller-sized valves can usually be installed by hand. Temporary pipe supports may be used to keep mating flange faces parallel to aid in valve installation.

Installation Recommendations

Required Bolting

The table outlined on Page 5 is furnished to provide information regarding the size, type, and quantity of bolting recommended for the installation of the OVC Resilient Seated Butterfly valve. This table is intended for use as a planning and procurement guide. All recommendations are based on pipe flanges in accordance with ASME 125/150 specifications. Flange bolting is not included with the valve shipment.

Unpacking and Storage Instructions

1. Check the packing list against the valve received to verify that the size, material, and trim are correct.
2. Check to make sure that the valve and operator were not damaged during shipment.
3. When lifting the valve, take care to avoid damage to the flange faces, disc sealing edge, or operator.
4. If the valve is to be stored before being installed, it should be protected from harsh environmental conditions.
5. Store the valve with the disc in the "almost closed" position to protect the sealing edge and the seat.
6. Keep the valve in a clean location, away from dirt, debris and corrosive materials.
7. Keep the valve in a dry area with the flanges protected and on a suitable skid or pallet.
8. Keep the valve in a cool location if possible, out of direct sunlight.

Pre-Installation Procedure

1. Remove any protective flange covers from the valve.
2. Inspect the valve to be certain the waterway is free from dirt and foreign matter. Be certain the adjoining pipeline is free from any foreign material such as rust and pipe scale or welding slag that could damage the seat and disc sealing surfaces.
3. Any actuator should be mounted on the valve prior to installation to facilitate proper alignment of the disc in the valve seat.
4. Check the valve identification tag for materials, and operating pressure to be sure they are correct for the application.
5. Check the flange bolts or studs for proper size, threading, and length.

Valve Installation Procedure

Position the connecting pipe flanges in the line to insure proper alignment prior to valve installation. Spread the pipe flanges apart enough to allow the valve body to be located between the flanges without actually contacting the flange surfaces (See Figure 1). Exercise particular care in handling the valve so as to prevent possible damage to the disc or seat faces.

For Wafer type valves:

- b. Loosely install the two upper and lower flange bolts that pass through the body alignment holes.
- c. Install the remaining flange bolts, shifting the valve as necessary to permit the bolts to pass by the valve body. Hand tighten all bolts as necessary.

Installation Recommendations

For Lug type valves:

- a. Place the valve between the flanges.
 - b. Install all bolts between the valve and the mating flanges. Hand-tighten bolts as necessary. (4800/4802 Butterfly valve set screw is at the best position, no need to adjust.)
1. Before completing the tightening of any bolts, the valve should be centered between the flanges and then carefully opened and closed to insure free, unobstructed disc movement (See Figure 2.)
 2. Using the sequence shown in Figure 3, tighten the flange bolts evenly to assure uniform compression.
 3. If an actuator is to be used, air hoses or electricity should be connected to the unit as specified by the actuator manufacturer.
 4. Cycle the valve to the fully open position, then back to the fully closed position, checking the actuator travel stop settings for proper disc alignment. The valve should be operated to assure that no binding is taking place.
 5. The valve is now ready for operation.

Remember: Install the valve with the disc in the “ALMOST CLOSED” position. Do not use any flange gaskets.

Figure 1 Initial Installation of Valve

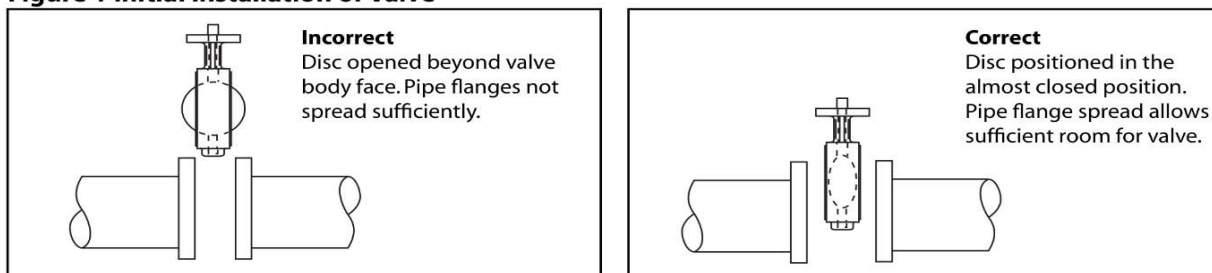


Figure 2 Centering and Flanging of Valve

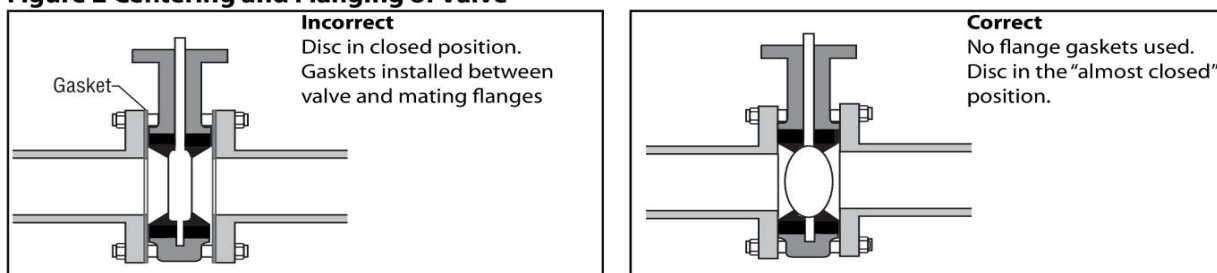
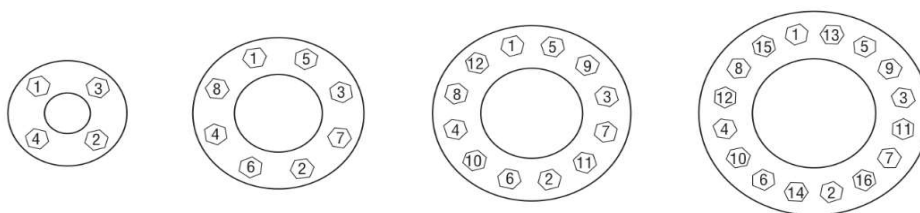
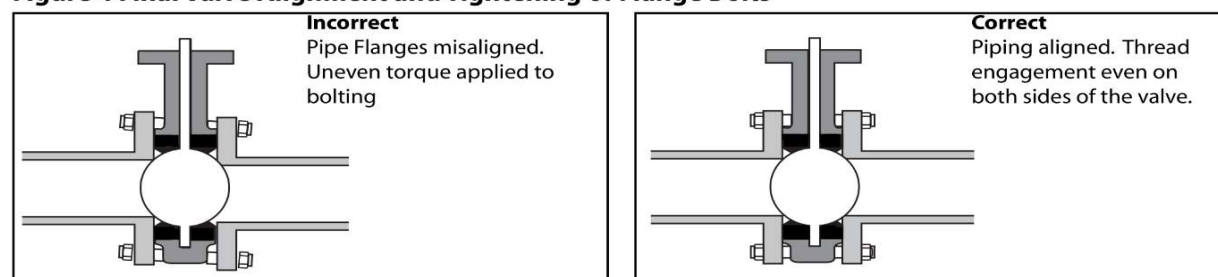


Figure 3 Flange Bolt Tightening Sequence



Installation Recommendations

Figure 4 Final Valve Alignment and Tightening of Flange Bolts



Flange Bolting Datasheet

VALVE SIZE	BOLT SIZE	WAFER			LUG	
		Number Required	Bolt "A" Length	Stud "B" Length	Number Required	Bolt "C" Length
2"	5/8-11	4	4 1/4	4 3/4	8	1 3/8
2 1/2"	5/8-11	4	4 3/4	5 1/4	8	1 1/2
3"	5/8-11	4	4 3/4	5 1/4	8	1 1/2
4"	5/8-11	8	4 3/4	5 3/4	16	1 3/4
5"	3/4-10	8	5 1/2	6	16	1 3/4
6"	3/4-10	8	5 1/2	6	16	1 7/8
8"	3/4-10	8	6	6 1/2	16	2
10"	7/8-9	12	6 3/4	7 1/4	24	2 1/4
12"	7/8-9	12	7	7 3/4	24	2 3/8
14"	1-8	12	7 3/4	9 1/4	24	2 5/8
16"	1-8	16	8 1/4	10	32	2 3/4
18"	1 1/8-7	16	9 1/4	11	32	3 1/4
20"	1 1/8-7	20	9 7/8	11 3/4	40	4
22"	1 1/4-7	20	11 1/4	12 1/4	40	4
24"	1 1/4-7	20	11 3/8	13 1/8	40	4 3/8
26"	1 1/4-7	20 8 (Bolt "C")	12 1/4	13 1/2	48	4 1/8
28"	1 1/4-7	24 8 (Bolt "C")	12 1/4	13 1/2	56	4 3/8
30"	1 1/4-7	24 8 (Bolt "C")	13	14	56	4 3/8
36"	1 1/2-6	32	14 7/8	16	64	4 3/8
48"	1 1/2-6	40 8 (Bolt "C")	17 1/4	18 3/8	88	5 1/4

Maintenance Instructions

Safety Precautions Butterfly Valve Assembly

Before removing the valve from the line or loosening any bolts, it is important to verify the following conditions:

1. Be sure the line is depressurized and drained.
2. Be sure of the pipeline media. Proper care should be taken for protection against toxic and/or flammable fluids.
3. Never remove the valve without an Operator (Manual or Automatic) already attached to the valve shaft.
4. Never remove the Operator from the valve while the valve is in the pipeline under pressure.
5. Always be sure that the disc is in the closed position before removing the valve.

General Maintenance

The following periodic preventative maintenance practices are recommended for all Center Line Butterfly Valves.

1. Operate the valve from full open to full closed to assure operability.
2. Check flange bolting for evidence of loosening and correct as needed.
3. Inspect the valve and surrounding area for previous or existing leakage at flange faces or shaft connections.
4. Check piping and/or wiring to actuators and related equipment for looseness and correct as needed.