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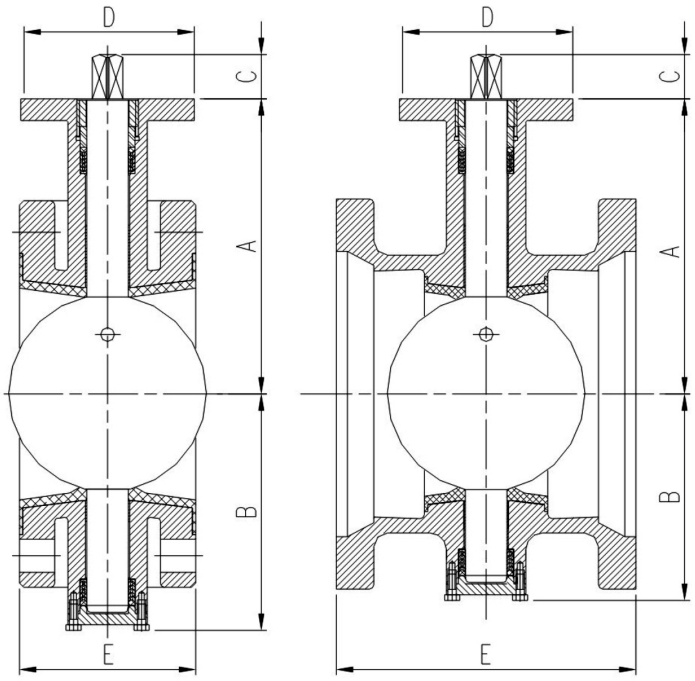
1040/1041 Series
Butterfly Valve Installation, Operation, and Maintenance Manual

Flange Butterfly Valve Configuration
Size 3"–24", 150PSI / 250PSI



Flange Type MJ Type

Parts	Material	ASTM Spec.
Body	Ductile Iron	A126 Class B
Seat	EPDM	Commercial
Disc	Stainless Steel	A351 CF8/CF8M
	Ductile Iron with SS317 Edge	A536 65-45-12
Stem	Stainless Steel	AISI 420
V-Packing	EPDM	Commercial
Cover Plate	Ductile Iron	A536 65-45-12

Size		3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"
A		6 5/16	7 1/16	8 3/8	9 5/8	10 15/16	12 1/2	14 1/16	16 1/16	17 1/4	18 9/16	22 9/16
B		3 11/16	5 1/2	6 13/16	8	9 5/16	10 13/16	12 1/8	12 3/8	13	14 5/16	16 3/4
C		1 3/16	1 3/16	1 3/16	1 3/16	1 3/16	1 3/16	1 3/4	1 3/4	1 3/4	1 3/4	1 3/4
D		3 9/16	3 9/16	4 15/16	4 15/16	4 15/16	5 15/16	5 15/16	8 5/16	8 5/16	8 5/16	8 5/16
E	ANSI 125# FL.	5	5	5	6	8	8	8	8	8	8	8
	ANSI 250# FL.	5	5	5	6	8	8	8	8	8	8	8
	MJ × MJ	8 1/2	8 1/2	8 1/2	8 5/8	9 1/4	9 1/4	11 1/2	12	12 1/4	12 1/4	13 1/4
Top Flange		F07	F07	F10	F10	F10	F12	F12	F16	F16	F16	F16
Weight (lb)		92.59	132.28	165.35	180.78	220.46	374.79	451.95	551.16	696.66	1005.31	1373.48

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GENERAL

Butterfly valves are a significant component of any water distribution system or treatment plant operation. Valve failure due to faulty installation, improper operation, or maintenance in such systems could result in damage, down time, and costly repairs. In buried or underground installations, problems or malfunctions can result in extensive, costly unearthing operations to correct or eliminate the problem. Many problems with butterfly valves can be traced to improper installation, operation, or maintenance procedures.

UNLOADING

Inspect valves on receipt for damage in shipment and conformance with quantity and description on the shipping notice and order. Unload all valves carefully to the ground without dropping. On valves larger than 36", use forklifts or slings under skids. On smaller valves, do not lift valves with slings or chains around the operating shaft, actuator, or through waterway. Lift these valves with eye bolts or rods through flange holes.

STORAGE

If not practical to store the valve indoors, protect the valve and actuators from weather and accumulation of dirt, rocks, and debris. When valves fitted with power actuators and controls are stored, energize electric actuators or otherwise protect electrical-control equipment to prevent corrosion of electrical contacts due to condensation resulting from temperature variation. Do not expose rubber seats to sunlight or ozone for any extended period.

INSPECTION PRIOR TO INSTALLATION

Make sure flange faces, joint sealing surfaces, body seats, and disc seats are clean. Check bolting attaching actuator to valve for loosening in transit and handling. If loose, tighten firmly. Open and close the valve to make sure it operates properly and that stops or limit switches are correctly set to that the valve seats fully. Close the valve before installing.

INSTALLATION

It is strongly recommended that all instruction manuals supplied by the valve manufacturer be reviewed in detail before installing butterfly valves. Be sure that inspection is carried out at the jobsite prior to installation.

1. Handle valves carefully when positioning, avoiding contact or impact with other equipment, vault walls, or trench walls.
2. Valves are to be installed in accordance with the manufacturer's instructions.
3. Where practical, valves in buried installations should be located in unpaved areas, unless otherwise indicated in plans and specifications.
4. Foreign material in a butterfly valve can damage the rubber seat when valves are operated. Be sure valve interiors and adjacent piping are cleaned of foreign material prior to making up the valve to pipe joint connection.
5. Prepare pipe ends and install valves in accordance with the pipe manufacturer's instructions for the joint used. Do not deflect the pipe-valve joint. Do not use a valve as a jack to pull pipe into alignment. In plant piping, install so as to minimize the bending to the valve connection with pipe loading.
6. Concentrically center the valve disc between the mating flanges.
7. Make sure the valve disc, when opened, will not contact the pipe port. This is especially necessary on pipe with linings and when valves are used. Check manufacture's recommendations for minimum pipe ID required for clearance.
8. Buried valves installed with valve boxes shall be installed so that the valve box does not transmit shock or stress to the valve actuator as a result of shifting soil or traffic load.

9. When valves are installed in vaults, the vault design shall provide space for removal of the valve-actuator assembly for purposes of repair. Consideration should be given to the possible entry of groundwater or surface water and to the need to provide for disposal thereof. The valve operating nut should be accessible from the top opening of the vault with a tee wrench.

TESTING

When rubber-seated butterfly valves are used to isolate sections of a line for testing, it is important to realize that these valves are designed or factory adjusted to hold rated pressure only. Test pressures above valve rated pressure may cause leakage past the rubber seat and damage to the valve.

1. In order to prevent time lost searching for leaks, where feasible, it is recommended that excavations for buried valves not be backfilled until after pressure tests have been made.
2. Seat leakage can occur from foreign material in the line. If this occurs, open the valve 5°–10° to obtain high-velocity flushing action, then close. Repeat several times to clear seats for tight shutoff.
3. Seat leakage can result from a rotational shift in the position of the disc with relation to the body seat. Readjust the closing stop in the valve-actuator assembly.

RECORDS

On completion of installation, the valve location, size make, type, date of installation, number of turns to open, direction of opening, and any other information deemed pertinent should be entered on the owner's permanent records.

OPERATION

1. Do not permit the use or operation of any valve at pressures above the rated pressure of the valve.
2. Stop the actuator before the valve is fully opened or closed against stops, and complete the operation manually. Be sure to check the actuator directional switch against the direction indicated on wrench nut, handwheel.
3. If a valve is stuck in some intermediate position between open and closed, check first for jamming in the actuator. If nothing is found, the interference is inside the valve. In this case, do not attempt to force the disc open or closed, because excessive torque in this position can severely damage internal parts.

MAINTENANCE

Maintenance of rubber-seated butterfly valves by the owner is generally limited to actuators and shaft seals. In some instances, valve design permits field adjustment when leakage occurs past the disc. Unless the owner has skilled personnel and proper equipment, any major internal problem will probably require the removal of the valve from the line and its return to the manufacturer for repair.

1. Normal maintenance is in the area of shaft seals and actuators. Seal leakage, broken parts, hard operation, and in some cases, seat leakage should be corrected by a repair crew as soon as possible after a defect is reported.
2. If repairs are to be made in the field, repair crews should take a full complement of spare parts to the jobsite. Be sure to review the valve-manufacturer's drawings prior to any repair work.
3. Provisions should be made to shop line flow and isolate the valve from line pressure prior to performing any corrective maintenance.
4. After completing repairs, cycle the valve through one complete operating cycle and, after line pressure has been restored, inspect for leakage.
5. If major repairs require the removal of the valve for repair, be sure to notify all interested parties in the water department and fire department that the valve and line are out of service, On completion of repair and reinstallation, notify the same personnel of the return of the valve and line to service.