

LUG & WAFER BUTTERFLY VALVE

SERIES 2300 & SERIES 2500

OPERATION AND MAINTENANCE MANUAL

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.

OPERATING PRESSURES AND TEMPERATURES

Pressure Rating	Seat	Temperature Range
250 psi	EPDM	From 25°F to 250°F
250 psi	NBR	From 25°F to 250°F

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.

1. Handle valves carefully when positioning, avoiding contact or impact with other equipment, vault walls, or trench walls.

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2. Valves are to be installed in accordance with the manufacturer's instructions.
 3. These valves can be fitted in either horizontal or vertical pipework. When installed in a horizontal pipeline, the valve stem should be preferably horizontal. This enables the butterfly valve to be self-cleaning and also enables the weight of the disk to be equally borne by the bearings.
 4. It should be considered at the design stage where valves will be located to give access for operation, adjustment, maintenance and repair.
 5. 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.
 6. 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.
 7. Concentrically center the valve disc between the mating flanges.
 8. This butterfly valve has integral rubber sealing faces and gaskets must not be used.
 9. 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.
 10. Flanged joints depend on compressive deformation of the integral rubber sealing faces between the flange surfaces until metal to metal contact is achieved.

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 back filled 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.

OPERATING

1. Do not permit the use or operation of any valve at pressures above the rated pressure of the valve.

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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.
 4. When an enclosed worm gear reduction operator (gearbox) is mounted on the valve body with the gear quadrant intimately connected with the valve shaft. The full open and full closed position travel stops are set at the factory and require no further adjustment.

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. The valve should be at zero pressure and ambient temperature prior to any maintenance inspection.
2. 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.
3. 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.
4. After completing repairs, cycle the valve through one complete operating cycle and, after line pressure has been restored, inspect for leakage.