



MILWAUKEE VALVE

Milwaukee Valve®'s High Performance Butterfly Valve is designed to fit between standard ANSI flanges, Class 150 lb. and 300 lb., meeting ANSI B16.5 flange specifications. Gaskets suitable for line media 1/16" or less thickness sheet gasket meeting the dimensional requirements of ANSI B16.21. Do not use thick elastomeric gaskets. Flexitallic gaskets are specifically not recommended for 5" and smaller valves.

Pre-installation

Inspect the valve to be certain the waterway is free from dirt and foreign matter such as dust, pipe-scale, welding slag, etc.

On handle operated valves, note the valve's open and closed positions to assure that necessary clearance is available when installed.

Mount actuator on the valve prior to installation in the pipeline to facilitate proper alignment of the disc in the valve seat. Rotate the valve disc, making sure of the open and closed positions.

Valves are shipped from the factory with gear operator stops set. If adding a gear operator, these stops will require adjustment. Loosen all jam nuts / set screws on gear operator. Open valve to full open position. Tighten set screw until contact is made. Typically this will be the set screw furthest from the handwheel. Tighten jam nut. Close valve until disc contacts the internal valve stop. Tighten remaining set screw until contact is made. Back set screw 1/2 turn and tighten jam nut. Check the valve identification tag for valve class materials and operating pressure to be sure they are correct for the application.

WARNING: Personal injury or property damage may result if the valve is installed where service conditions could exceed the valve ratings.

Check the flange bolts or studs for proper size, threading and length.

Installation

The Milwaukee Valve®'s High Performance Butterfly Valve can be installed in the pipeline with the shaft in the vertical, horizontal or other intermediate diagonal position, based on the application. However, in mediums with concentrations of solid or abrasive particles or media subject to solidification buildup, valve performance and service life will be enhanced by mounting the valve with the shaft in the horizontal position. When installing flange bolts, initially tighten bolts in a star pattern. Apply final target torque to bolts in a sequential pattern. Bolts should be tightened to the appropriate torque as specified by SAE for the bolting material used.

WARNING: As is the case with most valves, stem seals may require periodic adjustment, therefore, installation that do not allow access to the valve stem should be avoided.

Valve Operation

All Milwaukee Valve® Butterfly Valves are 1/4 turn operation. Turning the valve handle 90° clockwise will fully close the valve. The valve handle also serves as a disc position indicator. When the valve handle is parallel to the pipe, the valve is open, when perpendicular to the pipe, the valve is closed.

All Milwaukee Valve® soft seated butterfly valves provide bubble-tight shut-off.

Under certain conditions, throttling flow in the near-closed position can destroy the valve seats. Consult factory for throttling service.

Actuator must be selected for maximum break-away torque for line pressure and media. (Certain highly viscous or abrasive services could cause an increase in torque requirements.)

Maintenance

Milwaukee Valve®'s Butterfly Valves are low maintenance valves during normal service. Periodic stem

packing adjustment may be required if necessary. Tighten packing nuts equally until leakage stops. **DO NOT OVER TIGHTEN AS PREMATURE WEAR COULD RESULT.** Stem Leaks should not go unattended. Lack of maintenance of stem leakage could cause a premature need to replace stem seals.

If operating temperature of system is substantially higher or lower than 80°F, initial stem seal adjustment may be required.

Removal of Valve

In all cases relieve line pressure. Most High Performance Butterfly Valves can trap fluid in the valve cavities when closed (regardless of manufacturer). If the valve has been used to control a hazardous media, the following steps must be taken prior to removal from line and disassembly.

Place valve in its half-open position and flush the line to remove the hazardous material from the valve cavities.

CAUTION: Always fully close valve before removing from line to avoid damage to disc.

NOTE: Always advise maintenance personnel when they are maintaining or rebuilding a valve that has been in contact with hazardous material. Proper protective clothing and eye protection should always be utilized.

Seat and Packing Repair

Having assured that the valve is flushed and hazardous material is removed from valve cavity, remove valve from the pipeline.

To repair seat open valve slightly to disengage disc from the seat. Remove all seat retainer socket head cap screws; lift seat retainer to remove from valve. Follow seat assembly instruction outlined in re-assembly section.

To repair packing remove (2) packing nuts, packing flange, gland follower, anti-blowout clip and top packing washer. Use packing removal tool to

removal tool to puncture packing rings and remove. Follow packing installation instruction outlined in re-assembly section.

Total Disassembly of the Valve

Remove seat and seat retainer. Remove valve handle by loosening socket head set screws and sliding handle off the shaft. Remove hex head cap screws, lock washers and positioning plate from top mounting flange. Remove self-locking gland retainer hex nuts and gland retainer. Remove hex head cap screws and bottom cap of the valve. Remove two taper pins from disc and shaft assembly. (To remove taper pin, grind away seal welds and punch out taper pin.) Slide shaft from valve body, lift out disc and spacers located at the top and bottom of the disc. Remove stem packing and split bearing from the valve body.

Re-Assembly (Fully Disassembled Valve)

Having assured that all critical surfaces have been inspected, cleaned and/or replaced, reassembly can begin.

New bearings, "V" packing and seat or any damaged part must be replaced when full rebuilding of the valve is performed.

Carefully press new bearings into the shaft bore of the valve body until bearings are flush with shoulder inside body bore.

While holding the spacers against the counter bores of the body, insert the disc into the valve and align the disc shaft bore with the body bore. Insert the shaft through the shaft bore and disc, ensuring proper alignment of the pin holes of the disc. Drive the taper pins in place and spot-weld small end to secure the pins.

Place seat spring around seat. Insert the seat/spring into seat retainer ensuring the flat back of the seat is flush with the top edge of the retainer.

With the valve in the closed position and laying flat on a safe working surface, place the seat retainer assembly into the valve body such that the seat sits on the disc sealing

edge and is not pinched or damaged by the disc/seat retainer.

Fasten the seat retainer to the valve body, using a star pattern. To install stem packing, first insert metal packing washer. Insert packing base ring over shaft and drive to bottom of packing bore. Proceed with individual packing rings. Place top metal packing washer over "V" packing. Install anti-blowout retainer clip into shaft groove.

Install gland and secure finger tight with self-locking retainer nuts.

Tighten as required when installed into service.

Install o-ring and end cap onto the bottom of the valve and secure with hex head cap screws.

To mount handle and 10 positions notchplate, first close the valve and choose desired position for handle. It is recommended that the handle be perpendicular to pipeline when closed. Place 10 position plate onto mounting flange and secure finger-tight with lock washers and hex head cap screws. Slide handle onto shaft with locking knob resting on stand-off roll pin. Position handle such that knob has 1/16" to 1/8" clearance from plate. Tighten set screw and jam set screw. Engage locking knob in closed position and snug fasteners. Open valve and repeat operation in the open position. Adjust plate as necessary. Tighten hex head cap screws to secure notchplate. Test valve before reinstalling.

Common Problems / Troubleshooting

Shaft Leakage

- - Tighten gland retainer nuts, just enough so leakage stops.
- - Replace gland packing if leakage does not stop.

Leakage between flange and valve

- - Tighten flange bolts.
- - Replace flange gasket.

Leakage through valve seat

- - Clean seat and retainer groove
- - Replace seat
- - Reposition seat on disc if evidence of minor damage is visible.
- - Replace disc and shaft assembly.