

INSTALLATION, OPERATION AND MAINTENANCE MANUAL

Series 800 Butterfly Valve 3” to 24” with Non-replaceable Rubber Seat Flanged or Mechanical Joint Ends

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INSTALLATION, OPERATION and MAINTENANCE

Series 800 Butterfly Valve 3" to 24" with Non-replaceable Rubber Seat

INTRODUCTION

This manual will provide the information to properly install, operate and maintain the valve to ensure a long service life. The Series 800 Butterfly Valve is ruggedly constructed to provide years of trouble-free operation with minimal maintenance.

CAUTION: The valve is NOT suitable for use with toxic or highly corrosive fluids, fuels or fluids containing hazardous gases

DESCRIPTION OF OPERATION

The Series 800 Butterfly Valve is a quarter-turn valve that provides tight shutoff on water or air. The valve can also be used to control flow rate by positioning the valve partially open.

ACTUATION

Exposed manually operated Series 800 butterfly valves are opened and closed by a lever operator or a gear actuator and buried service valves are operated by a traveling nut actuator. The lever operator is directly connected to the valve shaft and rotates 90-degrees which rotates the disc 90 degrees. Gear and traveling nut actuators convert multiple turns of a handwheel, chainwheel or 2" nut into the quarter turn movement of the valve disc. The full open and full closed position of the valve disc is limited by adjustable travel stops in the actuator.

CAUTION: Forcing the handwheel, chainwheel or nut to effect tighter shutoff may damage the actuator. Adjust the actuator travel stops if necessary.

Electric motor actuated valves may be directly operated by the actuator or by a gear actuator operated by an electric motor. The full open and full closed position of the valve disc is controlled by limit switches in the electric motor actuator. Refer to the electric motor actuator operating instructions if the switch settings require adjustment.

CAUTION: Incorrectly set limit switches may damage the electric motor and/or gear actuator.

RECEIVING AND STORAGE

Inspect the valve upon receipt for damage during shipment. Carefully unload all valves to the ground without dropping.

DO NOT lift valves with slings or chains around the actuator or through the waterway. Lift heavy valves with eyebolts or rods through the flange bolt holes.

The valves should remain in a clean, dry and weather protected area, preferably indoors, until installed. The valve should be stored with the disc in a slightly open position. Do not expose the rubber parts to sunlight or ozone.

If the valve is supplied with an electric motor actuator and controls, energize the electric motor or otherwise protect the equipment from corrosion of electrical contacts due to condensation due to temperature changes.

PRE-INSTALLATION

- Check to be sure the flange faces or mechanical joint sealing surfaces, body and disc seats are clean, and the valve is free of debris.
- Make sure the actuator attachment fasteners have not loosened during transit. Tighten if necessary.
- Open and close the valve to verify it operates properly and the disc rotates in the correct direction.
- Close the valve before installation

CAUTION: When valves are installed without a mounted actuator the valve disc may open or close at any time potentially injuring persons or damaging the valve or other equipment. DO NOT subject the valve to pressure or flow until the actuator is mounted and the actuated valve is properly functioning.

INSTALLATION

- American Water Works Association (AWWA) Manual of Practice M-11 provides additional guidance on the proper installation of rubber seated butterfly valves.
- The Series 800 butterfly valve in sizes 3-inch to 24-inch can be installed with the shaft horizontal

or vertical with flow from either direction. Consult the engineering drawings to verify the valve and actuator installation orientation.

- Ensure the valve and adjacent piping are free of debris to prevent damage to the valve's rubber seat.
- Gently place the valve into position without contacting the structure or other equipment.
- Series 800 butterfly valves should be mated with flat-faced flanges and full-face gaskets. If ring gaskets are used the bolt material shall be ASTM A307 Grade B (or equivalent). Higher strength bolting should only be used with full-face gaskets.
- Lubricate the bolts or studs and insert around flange. Lightly tighten bolts until gaps are eliminated. Torque bolts in an alternating pattern in graduated steps. If leakage occurs wait 24 hours and re-torque the bolts but do not compress the gasket more than 50% or exceed bolt maximum torque rating.
- Ensure no pipe loads are imposed on the valve. Mating pipe flange must be plumb and square with valve flange. DO NOT jack or pull pipe into alignment.
- Valves with mechanical joint ends require the plain end of the pipe to be concentric with the valve's bell and properly restrained.
- Verify the fully open valve disc does not contact the inside of the mating pipe, especially when used with lined pipe or heavy wall pipe such as HDPE.

TESTING AFTER INSTALLATION

GA Industries Series 800 Rubber Seated Butterfly Valves are designed and tested to seal tightly up to the rated pressure of the valve in accordance with AWWA Standard C504. Using the valve to isolate pipe sections for testing at pressures higher than the valve's rated pressure may result in leakage or valve damage.

Excavations for buried service butterfly valves should not be backfilled until hydrostatic pipeline pressure testing is completed.

Butterfly valve seat leakage can occur if debris is trapped between the closed valve disc and the rubber seat. Opening the valve slightly with pressure on one side of the disc will create high velocity flushing. Close the valve and repeat if needed to wash out the debris and obtain tight shutoff.

OPERATION

Manually operated butterfly valves are opened and closed by turning the lever 90-degrees or the handwheel, chainwheel or 2" nut multiple times to effect a 90-degree rotation of the valve disc. The standard valve is "open left" so turning the handwheel, chainwheel or nut counterclockwise opens the valve and clockwise closes the valve.

Buried service Series 800 butterfly valves can be supplied "open right." In that case, turning the 2" nut clockwise opens the valve and counterclockwise closed the valve. "Open right" valves have the actuator's 2" operating nut painted red.

Standard manual actuators are sized to operate the valve with no more than 80 lbs. of "rim pull" on the handwheel or chainwheel or 150 ft-lbs. of input torque on the 2" nut.

⚠ CAUTION: Do not exceed 200 lbs. of rim pull on handwheels or chainwheels or 300 ft-lbs. of input torque on 2" nuts of exposed valves with gear actuators or 450 ft-lbs. of input torque on 2" nuts of buried service valves with traveling nut actuators. Exceeding these limits may damage the actuator or valve.

Opening or closing a manually actuated butterfly valve with a portable power-assisted (electric, hydraulic, etc.) device can input excessive torque against the travel stops and damage the manual actuator or valve. Select a portable actuator that cannot output more than the allowable torque or use a torque limiting device.

If using a portable actuator with no ability prevent excessive torque, stop the actuator before the valve is fully open or closed and rotate the valve the rest of the way manually.

Before engaging the valve's manual actuator make sure the portable actuator is rotating in the proper direction to open or close the valve.

Seat leakage can occur if the disc is not closing to the same position as it was at the factory due to a change in the fully closed travel stop or limit switch. Readjust the travel stop or limit switch to allow the disc to rotate farther into the seat according to the actuator manufacturer's instructions.

If the valve sticks mid-position first check to see if something is damaged inside the valve's manual actuator. If not, then something inside the valve is interfering with its operation. DO NOT force the disc open or closed as damage to internal valve components can result. See Troubleshooting.

MANUAL ACTUATOR OPERATION

Series 800 exposed service butterfly valves sizes 3" to 8" can be operated using a lever. Rotating the lever 90-degrees rotates the disc 90-degrees. The lever operator incorporates "indents" so the valve can be positioned from fully open to fully closed in 9-degree increments.

When looking down on the valve shaft, rotate the lever counterclockwise to open the valve, clockwise to close

the valve. DO NOT remove the lever operator as it locks the valve disc in position.

Series 800 butterfly valves equipped with gear or traveling nut operators are opened and closed by turning the handwheel, chainwheel or 2" nut multiple times. These actuators provide a "mechanical advantage" so the effort required to open and close the valve is much less than would be needed without the actuator.


There are mechanical stops inside the actuator that limits how far the disc rotates from fully open to fully closed. These are factory set and rarely need adjustment (see Troubleshooting). Once the end of travel stop is reached, applying additional force to the handwheel or chainwheel or 2" nut will not shut the valve off tighter and could damage the actuator.

Electric motor actuators automatically rotate the valve through 90-degrees upon open and close electrical signals. They can be directly coupled to the butterfly valve shaft or have a gearbox between the electric motor and the valve shaft.

The valve's opening and closing speed is determined by the actuator output RPM, and gearbox if supplied. Electrical controls are usually supplied with the actuator so the installer only needs to provide power and control signals.

The typical electric motor actuator with gearbox can rotate through about 100 degrees of rotation, limited by travel stops in the gearbox. These are pre-set at the factory and rarely need adjustment. The actual rotation of the valve is controlled by limit switches within the electric motor actuator. The disc stops rotating open when the full open limit switch is engaged and stops rotating closed when the full closed limit switch is engaged. These are factory set to ensure a tight sealing valve but may require adjustment, especially if the electric motor actuator is installed on a floor stand or extended bonnet.

Refer to the Electric Motor Actuator instructions for detailed information specific to the actuator supplied with the valve.


 **WARNING:** Follow all applicable safety regulations and codes and read and understand all instructions before undertaking disassembly.


MAINTENANCE

GA Industries Series 800 rubber seated butterfly valves require no scheduled lubrication, adjustment or service.

Routine maintenance is usually limited to visual inspection and lubrication of the actuator, as required by that equipment's instructions.

- Inspect flange connections for leakage and tighten bolts as necessary.
- Unless the valve is operated regularly, it should be cycled open/closed or vice versa annually to ensure proper operation.
- Close the valve and check for audible evidence of water leaking through the valve. If so, verify valve is fully closed, adjust stop to rotate the disc farther.

 **WARNING:** Do not attempt any corrective maintenance while there is pressure in the line. Isolate the valve and relieve the pressure before removing or disassembling the valve or adjacent piping.

 **WARNING:** Removing the actuator and/or actuator mounting bolts from the valve may result in inadvertent disc rotation and possible injury to persons or valve damage. Block the disc in position before removing the actuator or its mounting bolts.

- If leakage continues, remove valve or adjacent piping to visually inspect seat. The rubber seats in 3" to 24" Series 800 butterfly valves are not replaceable.
- Check for leakage past shaft packing. Replace if necessary (see Replacing Shaft Packing)

SHAFT PACKING REPLACEMENT

The GA Industries Series 800 butterfly valve is furnished with U-cup shaft packing that seals the shaft where it protrudes through the valve body. While the shaft packing is non-adjustable it is designed for a long service life and to seal tightly at both low and high pressure.

There are dual U-cups at the top of the valve (under the actuator) and a single U-Cup at the bottom.

To replace the top shaft packing, first isolate the valve and relieve the pressure. Ensure the valve is in the CLOSED position and remove the actuator. Remove the shaft key (13). Using snap ring pliers, remove the packing retainer (12) and using a pick remove the washer (11). The two packing rings can then be pulled out using the pick. Clean the shaft and the inside of the packing bore of any debris and lubricate the surfaces with an NSF-61 certified lubricant. Install the packing rings one at a time with the flared end pointing toward the center of the valve being careful not to damage or cut the ring. Reinstall the washer and push the packing down until the retainer can be reinstalled. Replace the actuator and test for leaks.

The bottom shaft packing is removed and replaced in a similar manner but first the bottom cover must be

removed to access the packing. There is no retainer but there is a packing washer.

REPLACEMENT PARTS

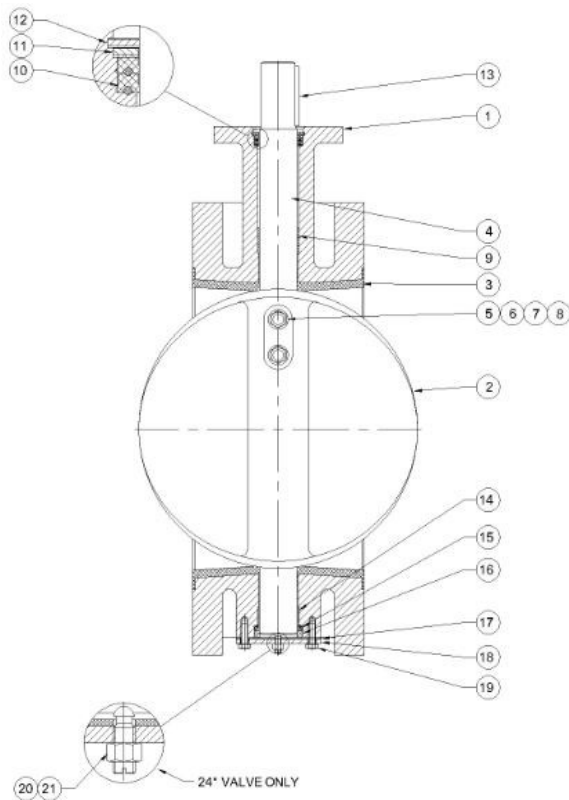
Genuine replacement parts are available from your local VAG/GA Industries representative or from the factory:

VAG USA, LLC
 234 Clay Avenue
 Mars, PA 16046 USA
 Telephone: 724-776-1020

Fax: 724-776-1254

E-mail: quotes-ga@vag-group.com

Please have the nameplate data available when ordering parts. Identify needed part(s) by Shop Order (SO) Number, Figure Number, valve size and individual part number.



PARTS LIST

Item	Name	Material
1	Body	Ductile Iron
2	Disc	Ductile Iron with 316SS Seat Edge or Bronze
3	Body Seat	Buna-N or EPDM Rubber Permanently Bonded to Body
4	Shaft	Stainless Steel
5	Disc Pin(s)	Stainless Steel
6	Disc Nut(s)	Stainless Steel
7	Disc Washer(s)	Stainless Steel
8	Disc Pin Seal(s)	Buna-N or EPDM
9	Upper Bearing	316SS PTFE Lined
10	Upper Shaft Packing	Buna-N or EPDM
11	Upper Packing Washer	Stainless Steel
12	Retainer	Steel
13	Key	Steel
14	Lower Bearing	316SS PTFE Lined
15	Lower Shaft Packing	Buna-N or EPDM
16	Lower Packing Washer	Nylon
17	Gasket	Buna-N or EPDM
18	Bottom Cover	Ductile Iron
19	Cover Screws	Stainless Steel
20	Thrust Bearing	Stainless Steel
21	Thrust Bearing Nut	Stainless Steel

WARRANTY

For a period of one year from the date of shipment, and provided payments for the Products have been made by Buyer to Seller, Seller warrants to Buyer that its Products: (i) substantially conform to Seller's published specifications and (ii) are free from defects in material or workmanship. Specific products may have a warranty period greater than one year. Any Services provided by Seller are warranted to be performed in a good and workmanlike manner. Should a warranted Product or any Services fail to conform to these warranties, Buyer must promptly notify Seller in writing. Seller will, at its discretion and at no charge to the Buyer: (i) repair the Product or Services; (ii) replace the Product or any Services; or (iii) offer a full refund of that portion of the purchase price allocable to the non-conforming Product or Services. Warranty repair or replacement by Seller shall not extend or renew the applicable warranty period. Buyer shall obtain Seller's agreement on the specifications of any tests it plans to conduct to determine whether a non-conformance exists. Buyer shall bear the costs of access for Seller's remedial warranty efforts (including removal and replacement of systems, structures or other parts of Buyer's facility), de-installation, decontamination and re-installation. THE FOREGOING WARRANTIES ARE IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. This warranty allocates the risks of Product failure between Seller and Buyer. This allocation is recognized by both parties and is reflected in the price of the goods. Buyer acknowledges that it has read VAG USA, LLC's Terms and Conditions of Sale, understands it, and agrees to and is bound by its terms.

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