

AVK SERIES 816 BUTTERFLY VALVE FIELD MAINTENANCE AND INSTRUCTION MANUAL FOR BUTTERFLY VALVES 3" - 24" EQUIPPED WITH S767 TRAVELING NUT ACTUATOR OR HAND OPERATED LEVER

TABLE OF CONTENTS

EXPLODED ASSEMBLY / PARTS LIST

INTRODUCTION / DESCRIPTION

RECEIVING AND STORAGE

INSTALLATION

- FLANGED AND WAFER VALVES
- MECHANICAL JOINT VALVES
- MECHANICAL JOINT BY FLANGE VALVES

MAINTENANCE

- VALVE DISC POSITION ADJUSTMENT
- STEM SEAL REPLACEMENT

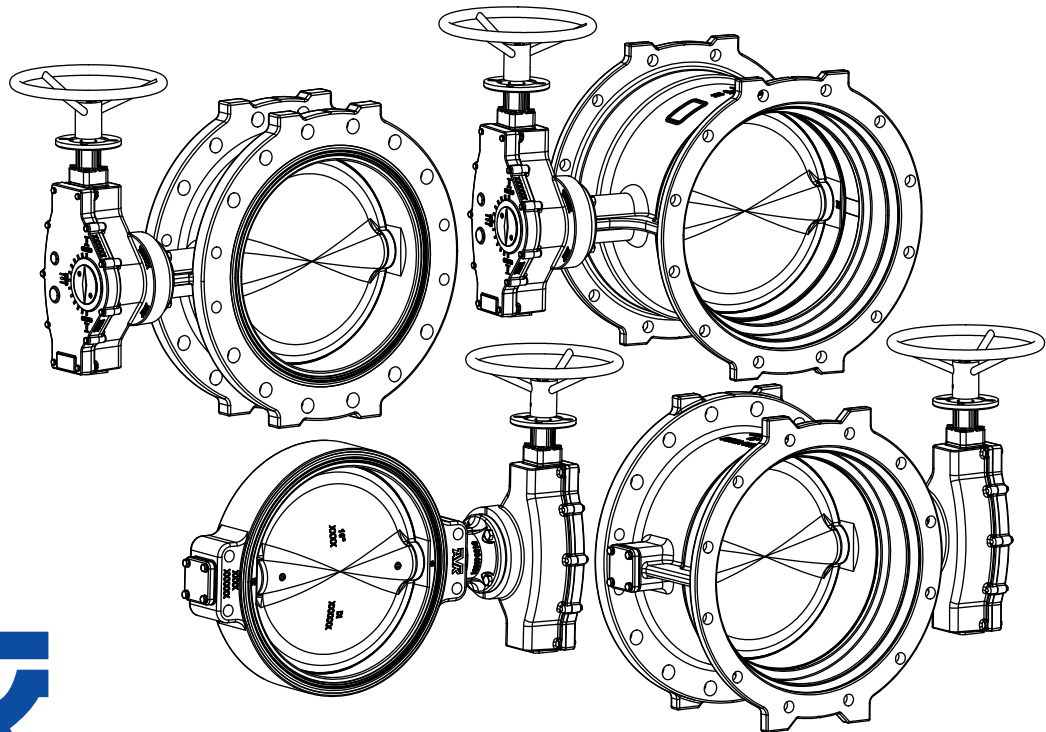
TROUBLESHOOTING

REPAIR PROCEDURES

- STEM SEAL REPLACEMENT
- DISC POSITION ADJUSTMENT

PARTS AND SERVICE

WARRANTY



Item No.	Description	Material
801	Body	Ductile iron, ASTM A536 with EPDM, NSF61 Liner
804	Shaft O-ring	NBR
805	Drive Shaft	304 Stainless steel - Class 150, 17-4PH Stainless steel - Class 250
806	Stub Shaft	304 Stainless steel - Class 150, 17-4PH Stainless steel - Class 250
807	Disc	Epoxy coated ductile iron with NiCu-7 welded edge
810*	Key	304 Stainless steel
811	Gearbox	N/A
812	Hand Wheel	Mild Steel
814	Gearbox Bolt	304 Stainless steel
815	Gearbox Washer	304 Stainless steel
816	Hand Wheel Set Screw	304 Stainless steel
817	Stem Plate Screws	304 Stainless steel
818	Stem Plate	304 Stainless steel
819	O-ring Bushing	Acetal
820	Stem-Disc Screws	304 Stainless steel
821	Axial Bearing	Aluminum Bronze
822	Bearing Adjustment Screws	304 Stainless steel
823	Bearing Retaining Screws	304 Stainless steel
824	End Plate O-ring	NBR
825	End Plate	Ductile iron, ASTM A536
826	End Plate Washers	304 Stainless steel
827	End Plate Bolts	304 Stainless steel
828	Stem Plug O-ring	NBR
829	Stem Plug	304 Stainless steel
830	Lever Assembly	N/A
831	Lever Plate	Ductile iron, ASTM A536
832	Lever Plate Screw	304 Stainless steel
833	Lever Plate Washer	304 Stainless steel
834	Lever Plate Nut	304 Stainless steel
835	Wrench Nut	Ductile iron, ASTM A536
836	Wrench Nut Set Screw	304 Stainless steel

*Key (810) not used on 3"-12" sizes.

INTRODUCTION / DESCRIPTION

The AVK Series 816 Butterfly Valve is a heavy duty valve designed to provide many years of service. The valve body is lined with rubber to provide a resilient seat. The rubber seat is bonded to the valve body and cannot be replaced in the field. The valve is designed for treated water, untreated water, and other neutral clean fluids. This manual will provide you with the information needed to properly install and maintain the valve and to ensure a long service life.

RECEIVING AND STORAGE

Inspect valves upon receipt for damage in shipment. Unload all valves carefully without dropping. Do not allow lifting slings, chains, fork lift forks, or other lifting devices to pass through the valve. Use eyebolts or rods through the flange holes on large valves. Never lift the valve by its actuator.

Valves should remain crated, clean and dry until installed to prevent weather related damage. The Valve should remain slightly open while in storage, approximately 10 degrees.

For long term storage the valves should be stored indoors. The resilient seat should not be exposed to sunlight or other possible harmful agents such as ozone for long periods.

Electric actuators should be stored indoors. Follow the electric actuator manufacturer instructions for storage. Electric actuators with internal heaters must have the heaters wired and operating if the temperature is below 60F and the relative humidity is greater than 50%. Seal the wire entrance points against moisture.

INSPECTION PRIOR TO INSTALLATION

Make sure all mounting surfaces and disc seats are clean and free of foreign materials. Check the Gearbox bolting to the valve for any loosening during transit. If loose, tighten the mounting hardware. Open and close the valve to verify operation and proper stop adjustments for both the open and closed positions. Check that the valve rotation direction is correct and close the valve prior to installation.

INSTALLATION

WARNING: The line must be isolated, depressurized, and drained before installing/removing the valve to/from the system line. Failure to do so may cause pressure to be released resulting in severe injury or death.

Correct installation of the Series 816 Butterfly Valve is important for proper operation..

FLANGED and WAFER Valves

The valve disc must be nearly closed before insertion between two opposing flanges. AVK S816 valves are bidirectional. They may be inserted with flow in either direction.

Flanged and wafer style valves should only be mated with flat-faced pipe flanges. The valve is equipped with an integral flange gasket, so the use of a gasket in the flanged joint is not required. The valve and adjacent piping must be supported and aligned to prevent cantilevered stress on the valve. Once the flange bolts or studs are lubricated and inserted around the flange, tighten them uniformly hand tight. The tightening of the bolts should then be done in graduated steps using the star tightening method. The appropriate torques are listed in table 1. If leakage occurs, allow gaskets to absorb fluid and check torque and leakage after 24 hours. Do not exceed bolt rating. Tighten bolts until flange faces touch. When torque values are specified in this manual, AVK advises the use of torque wrenches.

Valve Diameter (Inches)	Bolt Diameter (Inches)	Recommended Torque (ft-lb)
3	5/8	25-35
4	5/8	25-35
6	3/4	30-50
8	3/4	40-60
10	7/8	50-70
12	7/8	75-100
14	1	100-125
16	1	100-125
18	1 1/8	100-125
20	1 1/8	125-150
24	1 1/4	175-200

Table 1

MECHANICAL JOINT VALVES

Clean the socket end of the valve and the plain end of the pipe. To assemble the joint use soapy water or an approved pipe lubricant. Slip the gland and then the gasket onto the plain end of the pipe. Make sure the gasket is oriented properly. If using HDPE make sure there is a pipe stiffener inserted into the pipe. Insert the pipe into the bell of the valve and then press the gasket into the socket formed by the pipe and the valve. Insert the bolts and hand tighten the nuts. Evenly tighten the bolts to the torque in table 2 while ensuring the gap between the gland and valve is even around the socket. Use a star pattern when tightening the bolts. See AWWA C111 for further information.

Valve Diameter (Inches)	Bolt Diameter (Inches)	Recommended Torque (ft-lb)
3	5/8	45-60
4-24	3/4	75-90

Table 2

MECHANICAL JOINT by FLANGE VALVES

See the instructions above for flanged and mechanical joint installation.

MAINTENANCE

SERIES 816 BUTTERFLY VALVE MAINTENANCE

The AVK S816 butterfly valve requires no scheduled maintenance. The valve should be exercised regularly. To exercise the valve, open and close through one complete cycle.

S767 ACTUATOR MAINTENANCE

The S767 actuator is shown in Figure 1. The actuator is factory lubricated with Mobilux EP1 grease. The unit is factory adjusted, lubricated, and sealed. No adjustment or lubrication should be necessary. If the gear box operates roughly, remove the cover and inspect for wear. All moving parts should be coated with grease. If necessary coat all moving parts with Mobilux EP1. Buried gear boxes should be packed 90% with grease.

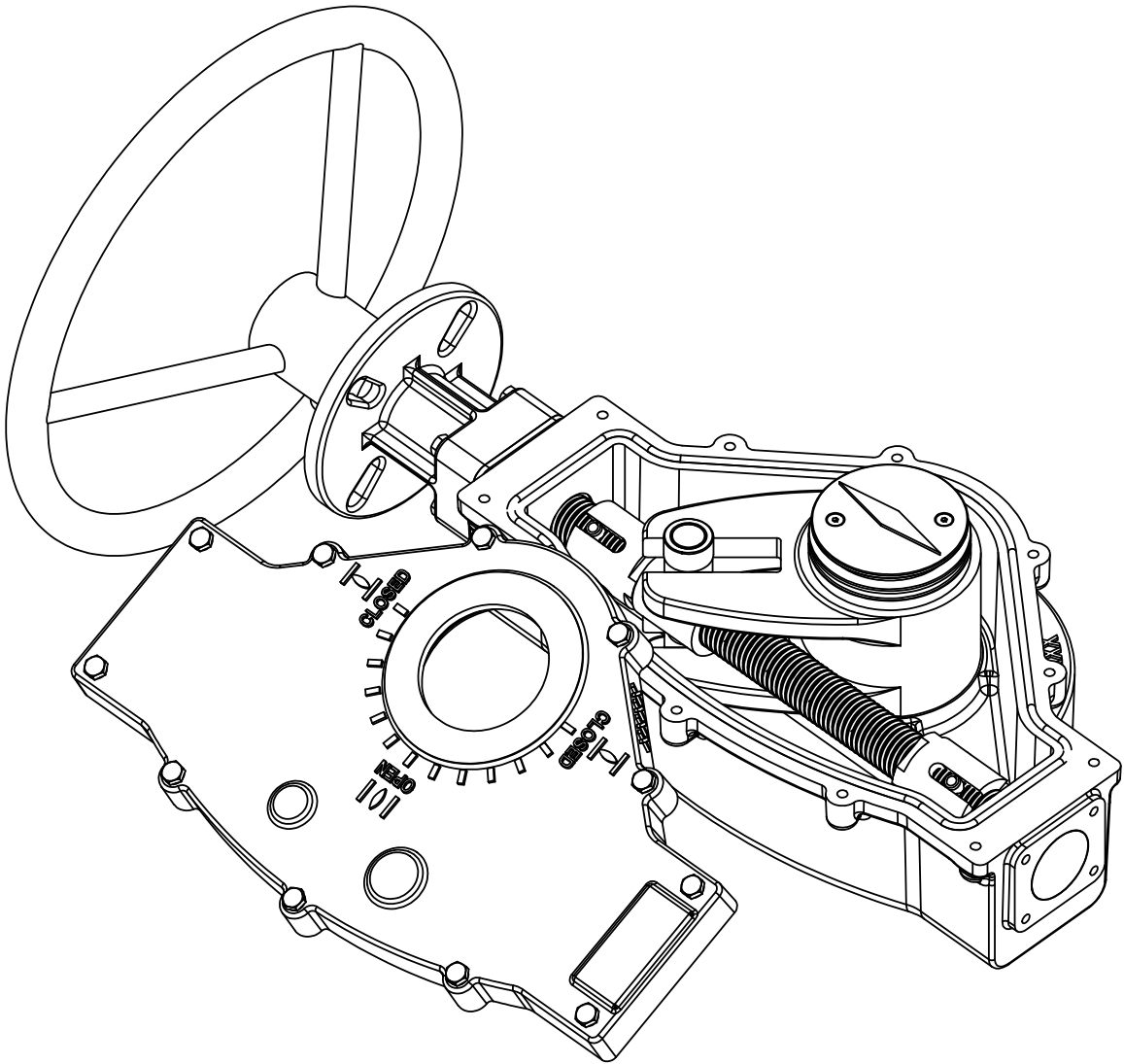


Fig. 1

TROUBLESHOOTING

Leakage between valve and actuator: Replace O-rings

Bottom Trunnion is Leaking: Remove plug and replace O-ring

Leakage at flanges: Tighten Flange Bolts

Valve leaks when closed:

Verify the valve is within its pressure range.

Open and close the valve a few times to flush away any debris that may be in the seating area.

Check that the actuator bolts are tight and the actuator is not rotating back and forth when the valve is operated.

Check that the disc is centered in the valve body. Adjust actuator if necessary. See Stop Nut Adjustment below.

Check that the metal disc edge is free of scale and scratches. If damaged the valve must be returned for repair

Check that the rubber seat is not damaged. The rubber seat is bonded to the valve body and cannot be replaced.

If a new rubber seat is required contact Customer Service for authorization and instructions.

REPAIR PROCEDURES

Stem Seal Replacement.

WARNING: Depressurize the line before performing this operation.

1. Remove the actuator
 - a. Open the valve halfway
 - b. Remove the actuator mounting bolts
 - c. Carefully slide the actuator from the valve stem. Do not lose the actuator plate pins or stem keys.
2. Remove the stem cover plate.
3. Using a small tool pull the upper o-ring packing ring off the valve stem
4. Using the same tool remove the o-ring
5. Insert a new o-ring
6. Replace the packing ring
7. Replace the stem cover plate
8. Reinstall the actuator
 - a. Place the actuator on the stem. Use the keys for round stems
 - b. Reinstall the actuator mounting bolts and tighten loosely.
 - c. Reinsert the plate pins.
 - d. Tighten the actuator bolts to 90 ft-lbs

Stop Nut Adjustment

Valves equipped with traveling nut manual actuators are set in the factory and rarely need to be adjusted. To adjust the stop nuts.

1. Remove the cover plate
2. Remove the stop nut adjustment pin
3. Loosen the stop nut.
4. Rotate the valve disc until the valve has quit leaking
5. Rotate the stop nut against the slider nut.
6. Rotate the slider nut to the nearest slot that aligns with the adjustment hole.
7. Reinsert the adjustment pin
8. Re-grease if necessary. Mobilux EP1.
9. Reinstall the cover plate. Make sure the slider nut pin is in the guide groove.

Hard to open: Flush the valve by cycling open and closed a few times. Check grease in actuator to make all parts are adequately lubricated.

PARTS AND SERVICE

For information on parts and service for your area contact AVK. Make a note of the valve model number and size located on the valve and contact:

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AVK COMPANY WARRANTY SERIES 816 BUTTERFLY VALVES

AVK Company warrants its Series 816 Butterfly Valves to be free from defects in workmanship and materials for a period of one (1) year from the date of shipment from AVK Company except as noted. AVK Company shall have no obligation under this warranty unless it is notified of claims hereunder promptly and in writing upon discovery thereof and within the warranty period, and unless the product is delivered to AVK Company within thirty (30) days of such notice.

AVK shall have the right to inspect said product before it is removed from installation. If the product is removed from installation prior to approval from AVK this warranty shall be void.

As to motors, gearing or accessory equipment purchased by AVK Company from other manufacturers, and used or incorporated into AVK Company's products, those manufacturers' warranties shall apply.

AVK Company's sole responsibility shall be, in its sole discretion, to replace the product with the same or a similar product, repair the product, or refund the price paid for the product provided the product has been properly applied and used under normal service and under conditions for which it is designed. AVK Company shall not be liable for indirect, special, incidental, or consequential damage or penalties and does not assume any liability of purchase to others or to anyone for injury to persons or property.

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