CLA-VAL

— Model — 584

# Flex-Check Valve

## INTRODUCTION

The Model 584 Flex-Check Valve™ has been designed to give years of trouble-free operation. This manual will provide you with the information needed to properly install and maintain the valve and to ensure a long service life. The valve is opened by the fluid flow in one direction and closes automatically to prevent flow in the reverse direction. An optional return flow actuator may be mounted on the bottom of the valve to allow manual backflow through the valve in the reverse direction.

The valve is of the flex check type utilizing an angled seat and fully encapsulated, resilient disc. It is capable of handling a wide range of fluids including flows containing suspended solids. The size, flow direction, maximum working pressure, and Model No. are stamped on the nameplate for reference.

**CAUTION: Do not use valve for line testing at pressures higher than nameplate rating or damage to valve may occur.**

The "maximum working pressure" is the non-shock pressure rating of the valve at 150˚F. The valve is not intended as an isolation valve for line testing above the valve rating.

## RECEIVING AND STORAGE

Inspect valves upon receipt for damage in shipment. Unload all valves carefully to the ground without dropping. Do not allow lifting slings or chains to come in contact with the seat area; use eyebolts or rods through the flange holes on large valves.

**WARNING: Do not use threaded holes in cover for lifting the valve. Serious injury may result.**

Valves should remain crated, clean and dry until installed to prevent weather related damage. For long term storage greater than six months, the rubber surfaces of the disc should be coated with a thin film of FDA approved grease such as Lubriko #CW-606. Do not expose disc to sunlight or ozone for any extended period.

## INSTALLATION

Correct installation of the Model 584 Flex-Check Valve™ is important for proper operation. It may be installed in horizontal or vertical flow-up applications. When horizontal, however the valve must be installed with the nameplate facing up and the cover level. In all installations, the flow arrow cast in the valve cover must be pointed in the direction of flow during normal system operation.

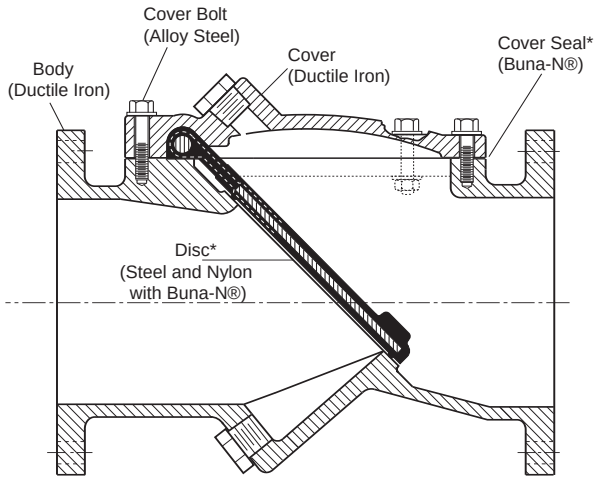
**WARNING: Do not use threaded holes in cover for lifting the valve. Serious injury may result.**

Flanged valves should only be mated with flat-faced pipe flanges equipped with full-face resilient gaskets. 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 **crossover tightening** method. Recommended lubricated torque values for use with resilient gaskets (75 durometer) are given in Table 1. If leakage occurs, allow gaskets to absorb fluid and check torque and leakage after 24 hours. Do not exceed bolt rating or extrude gasket.

**CAUTION: The use of ring gaskets or excessive bolt torque may damage valve flanges.**

**TABLE 1. FLANGE BOLT TORQUES**

| Valve Size (in) | Bolt Dia (in) | Recommended Torque (ft-lbs.) | Max. Torque (ft-lbs) |
|---|---|---|---|
| 3 | 5/8 | 25 | 90 |
| 4 | 5/8 | 25 | 90 |
| 6 | 3/4 | 30 | 150 |
| 8 | 3/4 | 40 | 150 |
| 10 | 7/8 | 45 | 205 |
| 12 | 7/8 | 65 | 205 |
| 14 | 1 | 80 | 300 |
| 16 | 1 | 80 | 300 |
| 18 | 1 1/8 | 100 | 425 |
| 20 | 1 1/8 | 100 | 425 |
| 24 | 1 1/4 | 150 | 600 |




*Recommended Spare Parts

## MAINTENANCE

The Model 584 Flex-Check Valve™ requires no scheduled lubrication or maintenance. For service or inspection, the valve can be serviced without removal from line.

**VALVE INSPECTION:** If inspection of the valve is required, follow the Disassembly Instructions.

**TROUBLESHOOTING**

Several problems and solutions are presented below to assist you in troubleshooting the valve.

- Leakage at Bottom Actuator: Remove line pressure and exercise actuator. If leak persists, replace seals in actuator; see the Return Flow Actuator Seal Replacement Procedure
- Leakage at Cover or Flanges: Tighten bolts, replace cover seal.
- Valve Leaks when Closed: Inspect disc for damage and replace. Inspect body seating surface and clean if necessary.
- Valve Does not Open: Check for obstruction in valve or pipeline. Operating pressure may be less than cracking pressure. If less than 0.5 psig, review application with factory.

**DISASSEMBLY**

The valve can be disassembled without removing it from the pipeline. Alternately, for convenience, the valve can be removed from the line. All work on the valve should be performed by a skilled mechanic with proper tools and a power hoist for larger valves. Disassembly may be required to inspect the disc for wear or the valve for deposits.

**WARNING: The line must be drained before removing the cover or pressure may be released causing bodily harm.**

1 Relieve pressure and drain the pipeline. Remove the cover bolts on the top cover.
2 Carefully pry cover loose and lift off. 12" and larger valves have tapped holes in cover for lifting eyebolts. Avoid damage to epoxy coating.
3 Remove disc and inspect for cracks, tears or damage in rubber sealing surface.
4 Clean and inspect parts. Replace worn Disc or Cover Seal as necessary and lubricate with thin film of FDA grease, such as Lubriko #CW-606. Epoxy Coating can be cleaned with wet rag.

**RE-ASSEMBLY**

All parts must be cleaned. Worn, gaskets and seals should be replaced during reassembly.

1 Lay new disc over seat with beaded seating surface directed down and hinge at valve body top near inlet.
2 Lay cover gasket over sea,l and then place cover over bolt holes and disc hinge.
3 Insert lubricated bolts. Be certain that long bolts are used in the hinge area.
4 Cover bolts should be tightened in a cross over pattern to following specifications.
5 Return valve to service by slowly repressurizing system.

**TABLE 2. VALVE COVER BOLT TORQUES**

| Valve Size (inches) | Cover Bolt Size | Torque (ft-lbs.) |
|---|---|---|
| 2 - 2.5 | 1/2 | 75 |
| 3" | 7/16 | 50 |
| 4 | 1/2 | 75 |
| 6 | 7/16 | 50 |
| 8 | 9/16 | 100 |
| 10 | 3/8 | 200 |
| 12 - 20 | 7/8 | 250 |
| 24 | 1 | 300 |

**TIGHTEN BOLTS IN A "STAR" OR "CROSS-OVER" PATTERN**

**RETURN FLOW ACTUATOR OPERATION:**

**WARNING: Relieve line pressure before using backflow actuator or damage may occur.**

An optional return flow actuator assembly is available which can be easily installed in the field. The actuator is not designed to operate at the valve's maximum working pressure rating, therefore, prior to using the actuator, close all isolation valves and bleed off line pressure. To operate, turn the handle clockwise. This will open the valve disc allowing backflow through the valve. The handle should turn easily. When resistance is felt, the disc has reached its body stop and is in the full open position. Upon completion of the back flushing operation, turn the handle counter-clockwise and the valve will automatically return to the closed position. Lock the actuator in the closed position with the jam nut provided. The system is again ready for normal operation.

**RETURN FLOW ACTUATOR FIELD INSTALLATION:**

**WARNING: Removal of the bottom plug while under pressure may cause bodily harm.**

1 Depressurize and drain pipeline on both sides of valve.
2 Remove pipe plug in bottom boss of valve.
3 Inspect return flow rod and place in non-extended position. (The rod should extend about 1" past end of brass bushing.) Apply Teflon™ thread sealant to brass threads.
4 Insert threaded end of assembly into valve boss. Slowly turn assembly into valve boss, taking care not to cross-thread bushing. Continue turning assembly into valve for a tight fit.

**RETURN FLOW ACTUATOR SEAL REPLACEMENT:**

There are two parts (Rod Wiper and O-ring) on Return Flow Actuator that are subject to wear. To replace seals, valve and pipeline must first be depressurized and drained. Next, remove the return flow assembly from the valve by turning brass bushing counter-clockwise. Disassemble Return Flow Actuator as follows:

1 Remove one vinyl caps.
2 Remove T-Handle and jam nut from rod.
3 Remove rod from bushing by screwing in rod fully clockwise and pull rod through valve end of bushing.
4 Lubricate two new seals with FDA approved grease such as Lubriko #CW-606 and install in bushing end grooves. Note part location on Fig. 3.
5 Clean, lubricate, and reinstall rod in bushing.
6 Re-install jam nut and T-Handle.
7 Place vinyl cap on handle.
8 Apply Teflon™ thread sealant to bushing and carefully thread into valve taking care not to cross-thread bushing.

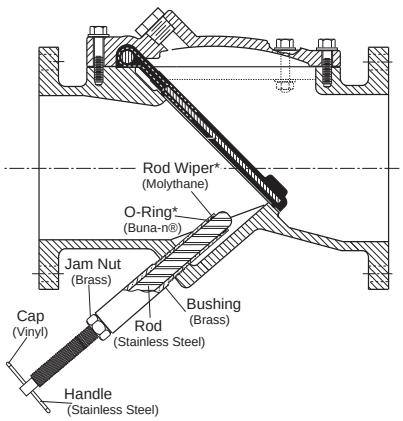



**FIG. 3. BACKFLOW ACTUATOR ASSEMBLY**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