

# O&M Manual

## Flo-Flex® Swing Check Valve Model 745

### Operation, Maintenance and Installation Manual



**! FAILURE TO FOLLOW THESE INSTRUCTION WILL VOID ANY WARRANTY**

**Note:** Keep this O&M Manual in a safe place for future reference for service and parts.

Model: \_\_\_\_\_ Size: \_\_\_\_\_ Type: \_\_\_\_\_

Working Pressure: \_\_\_\_\_ Installation Date: \_\_\_\_\_

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# FLOMATIC® FLO-FLEX®

## Swing Check Valve

### Operation, Maintenance and Installation Manual



#### INTRODUCTION

The Flomatic® Flo-Flex® Model 745 Swing Check Valve has been designed to give years of trouble-free operation during normal operation. This O&M owners' manual will provide you with the information you need to properly install and maintain the valve and to ensure a long service life. The Flo-Flex® check valve is opened automatically by the fluid flow in one direction and closes automatically to prevent back-flow in the reverse direction (see flow arrow cast into the valve body for flow direction). The Flo-Flex® Model 745 swing check is design to meet the flange to flange laying length according to AWWA C508. The valve angled valve seat and fully encapsulated, resilient disc, is capable of handling a wide range of fluids including flows containing suspended solids.

Flomatic® can provide an optional manual back-flush device that can be installed on the bottom of the valve to allow manual backflow through the valve in the reverse direction (Option Model 745 "BF"). Optional Position Indicators (Option Model 745 "PI") PI and Limit Switches (Option Model 745 "LS") may also be mounted on the valve access cover to provide position indication.



The Valve Size, Flow Direction, Maximum Working Pressure are cast on to the side of the valve body surface for reference. The "Maximum Working Pressure" is the non-shock pressure rating of the valve at "Max Temperature" of 140°F (60°C). The valve shall not be subjected to any higher pressure or temperature above the valve maximum standard rating.

#### RECEIVING AND STORAGE

Inspect valves upon receipt for damage in shipment. Unload valve carefully to the ground without dropping. Do not allow lifting slings or chains to come in contact with the seat or flange sealing surface area; use eyebolts or rods through the flange holes on large valves. 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 "Super Lube". Do not expose disc to sunlight or ozone for any extended period as elastomer will get damaged and degraded.

#### DESCRIPTION OF VALVE OPERATION

The valve is designed to prevent reverse flow automatically. During system flow conditions, the movement of the fluid forces the disc to the open position allowing 100% flow area through the valve. The valves rubber coated steel disc automatically returns to the closed position to prevent reverse flow. Several optional features are a Backflush device, (Model 745 BF), Position Indicator (Model 745PI), Limit Switch (Model 745LS). These valve product options are described in more details below.

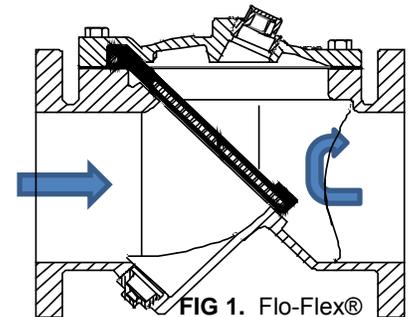


FIG 1. Flo-Flex®  
Swing Check Valve

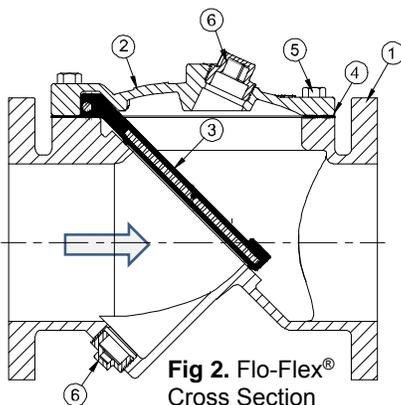


Fig 2. Flo-Flex®  
Cross Section

#### VALVE CONSTRUCTION

The Flomatic® Flo-Flex® Swing Check Valve is constructed of rugged Ductile Iron with a rubber encapsulated valve disc. The rubber coated valve disc is the only moving part assuring long life with minimal maintenance. The general details of construction are illustrated in Fig. 2. The body (1) is flanged for connection to the pipeline with an access cover (2). The disc (3) is retained by the cover.

Item #	Qty.	Description	Material	ASTM
1	1	Body	Ductile Iron	A536
2	1	Cover	Ductile Iron	A536
3	1	Disc*	Buna coated Steel	-----
4	1	Gasket	Buna	-----
5	A/R	Cover Bolt	Steel	SAE Grade 5
6	1	Plug	Malleable Iron	-----

\*Optional EPRM or Viton Coated Steel

## INSTALLATION

Correct installation of the Flomatic® Flo-Flex® is important for proper operation. It may be installed in either horizontal or vertical flow-up applications. Horizontal installation, with the access port facing up is recommended for waste water application as it will prevent material in the fluid to collect on the valve disc. In all installations, the flow arrow cast in the valve and cover must be pointed in the direction of flow.

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

Dimensions for 150# Class Valves				Max Torque	
Valve Size	Flange Outside Diameter	Number of Bolt Holes	Bolt Diameter	150#	300#
(inches)	(inches)		(inches)	(ft.-lbs.)	(ft.-lbs.)
2	6	4	5/8"	90	90
2-1/2	7	4	5/8"	90	150
3	7-1/2	4	5/8"	90	150
4	9	8	5/8"	90	150
6	11	8	3/4"	150	150
8	13-1/2	8	3/4"	150	240
10	16	12	7/8"	240	368
12	19	12	7/8"	240	533
14	21	12	1"	368	533
16	23-1/2	16	1"	368	750
18	25	16	1-1/8"	533	750
20	27-1/2	20	1-1/8"	533	750
24	32	20	1-1/4"	750	1200

Table 1 Bolt Torque Chart

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 the flange gasket can get damaged and extrude.

## TROUBLESHOOTING

Below are some potential problems with solutions to assist you in troubleshooting the valve assembly in a safe manner.

	Problem	Solution
1	Valve disc leaks-back when closed	Inspect valve seat area for foreign material. Also, inspect disc for damage and replace. Inspect metal seating surface and clean if necessary
2	Leakage at bottom Back-flush device	Remove line pressure and exercise Back-flush device. If leak persists, replace seals in Back-flush device; see the Back-flush device "Seal Replacement Procedure" on page 4.
3	Leakage at Cover or Flanges	Tighten bolts, replace cover seal.
4	Valve does not fully open:	Check for obstruction in valve seat area and/or pipeline; see Disassembly procedure on page 4. Operating pressure may be less than cracking pressure. If less than 0.5 psig, review application with factory.

Also, visit Flomatic® web page [www.flomatic.com](http://www.flomatic.com) for technical product references and parts lists or call customer service 1-800-833-2040.

## MAINTENANCE

The Flomatic® Flo-Flex® Swing Check Valve requires no scheduled lubrication or maintenance. For service or inspection, the valves internal parts can be accessed and serviced without removal from the line.



**WARNING: The line must be drained and de-pressurized before removing the cover or the bottom plug if not this may cause bodily harm.**

## VALVE INSPECTION: DISASSEMBLY & RE-ASSEMBLY

The valves internal parts can be disassembled and serviced without removing it from the pipeline. All service and repair work performed on the valve shall be performed by a skilled mechanic with proper tools and a power hoist for larger valves. It is recommended that when disassemble the valve to inspect the rubber valve disc for wear or the valve seat for deposits.

DISASSEMBLY	RE-ASSEMBLY
<ol style="list-style-type: none"> <li>Relieve pressure and drain the pipeline. Refer to Figure 2 on page 2. Remove the cover bolts (5) on the top cover.</li> <li>Pry cover (2) loose and lift off valve body. 12" and larger valves have tapped holes in cover for lifting eyes.</li> <li>Remove disc (3) and inspect for cracks, tears or damage in rubber sealing surface.</li> <li>Clean and inspect parts. Replace worn parts as necessary and lubricate parts with FDA/NSF grease such as "Super Lube".</li> </ol>	<p>All parts must be cleaned. Gasket surfaces should be cleaned with a stiff wire brush in the direction of the serrations or machine marks. Worn parts, gaskets and seals should be replaced during reassembly.</p> <ol style="list-style-type: none"> <li>Lay disc (3) over seat with beaded seating surface directed down.</li> <li>Lay cover gasket (4) and cover (2) over bolt holes and disc hinge.</li> <li>Insert lubricated bolts (5) noting that the bolts in the hinge area are longer than the other cover bolts.</li> <li>Cover bolts should be tightened to the specifications shown in <b>Table 2</b> (next page) during re-assembly.</li> </ol>

Note: The Valve Cover bolts should be tightened to the specifications shown in **Table 2** below during re-assembly.



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



### PARTS AND SERVICE

Flomatic® Flo-Flex® Model 745 Swing Check Valve parts and service are available from your local Flomatic® representative or the factory. Please, make note on the front page of this O&M of the valve Model No, Size, Type and Working Pressure located on the valve. Also the installation date and contact:

Valve Cover Bolt Max Torque		
Valve Size (inches)	Bolt Diameter (inches)	Torque (ft.-lbs.)
2	1/2"	75
2-1/2	1/2"	75
3	1/2"	75
4	1/2"	75
6	1/2"	75
8	1/2"	75
10	5/8"	100
12	5/8"	150
14	5/8"	150
16	3/4"	250
18	3/4"	250
20	3/4"	250
24	1"	500

Table 2

### Flomatic Corporation

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Fax: (518) 761-9798

[www.flomatic.com](http://www.flomatic.com)

A Flomatic sales representative will quote prices for parts or arrange for service as needed.

## FLOMATIC® LIMITED WARRANTY

**LIMITED ONE-YEAR WARRANTY** (Flo-Flex® Model 745 Swing Check Valves) Flomatic® Corporation warrants that its products are free from defects in materials and workmanship. Flomatic® Corporation will replace any valve covered by this warranty that is found to be defective within one year, unless otherwise stated below, from the time of sale. This warranty will be void if the product has been modified in any way by the purchaser, or is subjected to unreasonable use.

### EXCLUSION OF WARRANTIES

Flomatic® Corporation makes no warranties, expressed or implied, with respect to its valves, other than the expressed limited warranties described herein. The implied warranties of merchantability and fitness for a particular purpose are hereby disclaimed by Flomatic® Corporation. There are no warranties that extend beyond the description on the face hereof.

**WARNING-NOT DESIGNED, INTENDED OR PERMITTED IN NUCLEAR FACILITY APPLICATIONS. FLOMATIC VALVES ARE NOT DESIGNED OR ENGINEERED FOR USE IN ANY NUCLEAR FACILITY OR IN CONJUNCTION WITH ANY NUCLEAR FACILITY OR SUPPORT FACILITY. USE OF ANY OF FLOMATIC'S PRODUCTS IN ANY SUCH APPLICATION IS MISUSE OF THESE PRODUCTS AND VOIDS ALL WARRANTIES CONTAINED HEREIN, EXPRESSED AND IMPLIED, OF MERCHANTABILITY AND FITNESS FOR PARTICULAR PURPOSE.**

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