



Red Valve Company, Inc.®

WATERFLEX™ SERIES WF-3

INSTALLATION, OPERATION, AND MAINTENANCE MANUAL



The revolutionary design of the Series WF-3 InLine Check Valve provides reliable backflow prevention. The valve solely operates on differential pressure and has no moving mechanical parts. The valve exhibits low headloss, high backpressure ratings and a short face-to-face dimension. The valve is only intended for clean flow media or media with only fine particulates. The Series WF-3 is constructed with ANSI, DIN, BS or special flange drillings for easy installation.

IMPORTANT

Please take a moment to **review this manual. Before performing any maintenance on the valve be sure the pipeline has been de-pressurized.** The improper installation or use of this product may result in personal injury, product failure, or reduced product life. Red Valve Co., Inc. can accept NO liability resulting from the improper use or installation of this product. If you have any questions or problems, please call the customer service department at (412) 279-0044. We appreciate your comments. And thank you for choosing Red Valve.

GENERAL DESCRIPTION

Terms used in this I.O.M. to refer to various parts of the valve are described below. (See Figure 1.)

1. **Disc**
2. **Membrane**
3. **Mounting Rod**
4. **Rod Fasteners with Lock Nuts**
5. **Lifting Eye (sizes 10" and up)**

INSTALLATION

1. PIPE AND INSPECTION OF VALVE:

Check flange faces of pipe for rough/damaged areas. Pipeline flanges must be flat, properly spaced, and parallel to achieve proper seal. PVC flanges may not seal properly, and are not recommended by Red Valve. If PVC flanges are used, metal back up rings should be placed behind the PVC flanges in order to prevent yielding. Grind or file any sharp edges of pipe flanges to prevent damage to the gaskets.

2. GASKETS:

Two flange gaskets by others are required, one on each side of the disc. (See Figure 2.)

3. INSTALLING FLANGE BOLTS:

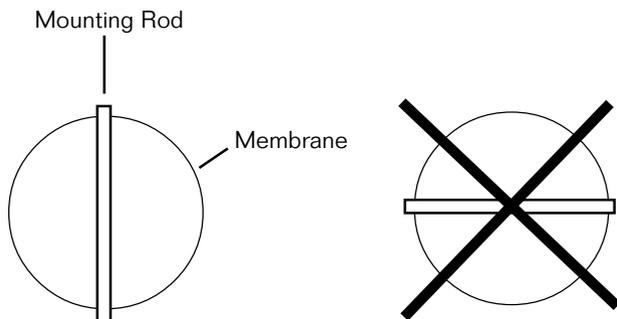
Tighten all bolts uniformly to distribute pressure evenly around the sleeve flange. (For bolting sequence refer to the back page of this IOM).

4. VALVE ORIENTATION:

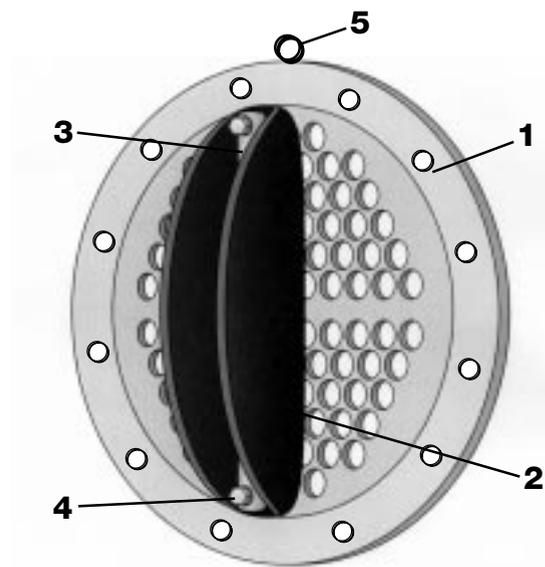
The membrane must be on the downstream side of the disc when properly installed in a pipe line. (See Figure 2.)

(See Figure 2.)

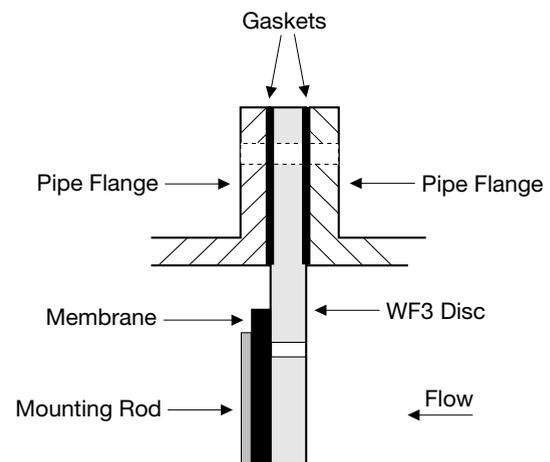
Make sure membrane is concentric with pipe I.D. When installed in a horizontal pipeline, the rod must be in the vertical position. (See Figure 3.)



(Figure 3)



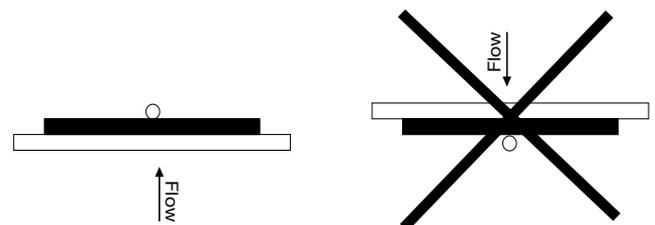
(Figure 1)



(Figure 2)

It is acceptable to install the valve in a vertical pipeline provided normal flow direction is bottom to top. (See Figure 4.)

It is not recommended to install the valve in a vertical pipeline where the flow direction is from top to bottom. The membrane may tend to come away from the disc and may not seal with minimal backpressure. (See Figure 4.)



(Figure 4)

OPERATION

The Series WF-3 operates solely on differential pressure. Positive differential opens the valve allowing flow, reverse differential closes the valve preventing backflow.

The Series WF-3 Check Valve is a self-containing Check Valve with backpressure ratings shown in the table on this page. Backpressures in excess of these ratings can damage the disc or membrane.

Red Valve check valves are custom-made products intended for a specific application and have been designed to respond to criteria unique to that purpose, such as line pressure, minimum and maximum backflow pressure, and chemical compatibility. Should the conditions for which the valve has been designed be altered or change in any way, it could affect the normal operation of the valve.

MAINTENANCE

1. INSPECTION:

Valves should occasionally be inspected for damage and wear. The inspection period should be determined by the severity of the service and environment. If valves are periodically inspected and preventive maintenance done, the valve will last longer and operate better.

CAUTION: Do not remove the bolting or valve parts with pressure in the line. Relieve pressure on both sides of the valve prior to servicing.

ELASTOMER MEMBRANE REPLACEMENT:

1. A spare replacement membrane should be placed on order when this valve is placed in service.
2. Remove the existing valve and install the replacement membrane by removing the rod fasteners and mounting rod. Place the new membrane on the disc while aligning mounting holes in membrane with holes in the disc. The membrane must be placed on the disc with the label facing you. Improper operation may result if the membrane is installed with the label facing the disc. Re-install rod, bolts and torque lock nuts just enough for compression of rod to membrane to disc. Do not over torque lock nuts as it may cause edge of membrane to lift off disc.

STORAGE

If your Waterflex™ Valve is to be stored for a period of time prior to installation, the following storage guidelines will help preserve your valve and assure a trouble-free installation.

1. Store valve in a clean, cool, dry location. Avoid exposure to light, electric motors, dirt or chemicals.
2. Store valve to prevent other items from contacting membrane or flanges to prevent possible damage.
3. Lay Waterflex™ flat with membrane up.
4. Store this manual with the valve, so that it is readily available at time of installation.

Backpressure Ratings Table

Nominal PIPE SIZE	ANSI FLANGE SIZE	OUTSIDE DIAMETER	BACK PRESSURE ANSI RATING psi
4"	4"	9"	150
6"	6"	11"	150
8"	8"	13.5"	125
10"	10"	16"	100
12"	12"	19"	75
14"	14"	21"	75
16"	16"	23.5"	75
18"	18"	25"	75
20"	20"	27.5"	75
24"	24"	32"	50
30"	30"	38.75"	50
36"	36"	46"	50
42"	42"	53"	50
48"	48"	59.50"	50

Consult factory for larger sizes and higher working pressure.

TROUBLESHOOTING

Symptom: Leaking Flange

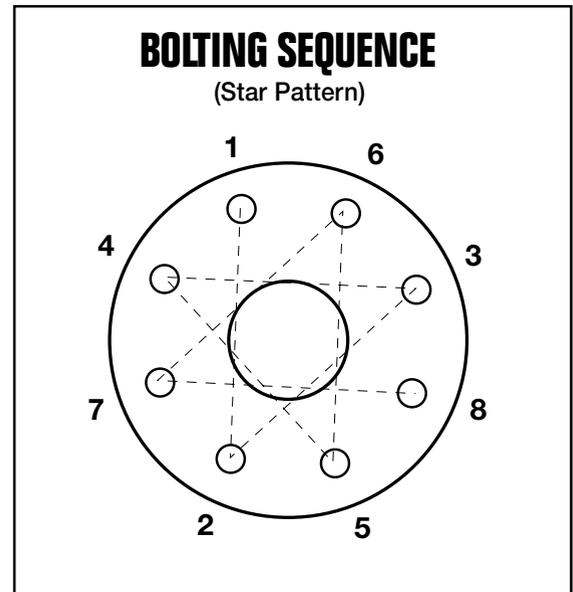
- Check gaskets
- Retighten all flange bolts uniformly in star pattern (See figure to right)

Symptom: Valve Allows Backflow

- Not enough pressure
- Membrane damaged
- Objects plugging perforations in disc
- Membrane installed backwards

Symptom: Valve won't open or too much headloss

- Check pipe I.D. and membrane O.D. to verify membrane was not clamped between disc and mating flange.
- Possible collection of solids or debris on disc.



RED VALVE WARRANTY

WARRANTIES - REMEDIES - DISCLAIMERS - LIMITATION OF LIABILITY

Unless otherwise agreed to in writing signed by Red Valve, all Products supplied by Red Valve will be described in the specifications set forth on the face hereof.

THE WARRANTIES SET FORTH IN THIS PROVISION ARE EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES WHETHER STATUTORY, EXPRESS OR IMPLIED (INCLUDING ALL WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE AND ALL WARRANTIES ARISING FROM COURSE OF DEALING OR USAGE OR TRADE).

Red Valve Products are guaranteed for a period of one year from date of shipment, against defective workmanship and material only, when properly installed, operated and serviced in accordance with Red Valve's recommendations. Replacement for items of Red Valve's manufacture will be made free of charge if proved to be defective within such year; but not claim for transportation, labor or consequential damages shall be allowed. We shall have the option of requiring the return of the defective product to our factory, with transportation charges prepaid, to establish the claim and our liability shall be limited to the repair or replacement of the defective product, F.O.B. our factory. Red Valve will not assume costs incurred to remove or install defective products nor shall we incur backcharges or liquidated damages as a result of warranty work. Red Valve does not guarantee resistance to corrosion erosion, abrasion or other sources of failure, nor does Red Valve guarantee a minimum length of service, or that the product shall be fit for any particular service. Failure of purchaser to give prompt written notice of any alleged defect under this guarantee forthwith upon its discovery, or use, and possession thereof after an attempt has been made and completed to remedy defects therein, or failure to return product or part for replacement as herein provided, or failure to install and operate said products and parts according to instructions furnished by Red Valve, or failure to pay entire contract price when due, shall be a waiver by purchaser of all rights under these representations. All orders accepted shall be deemed accepted subject to this warranty which shall be exclusive of any other or previous warranty, and shall be the only effective guarantee or warranty binding on Red Valve, anything on the contrary contained in purchaser's order, or represented by any agent or employee of Red Valve in writing or otherwise, notwithstanding implied warranties. RED VALVE MAKES NO WARRANTY THAT THE PRODUCTS, AUXILIARIES AND PARTS ARE MERCHANTABILITY OR FIT FOR ANY PARTICULAR PURPOSE.



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