

# SERIES 39 INLINE CHECK VALVE

## Installation, Operation, and Maintenance Manual



The revolutionary design of the Series 39 In-Line Check Valve provides absolute backflow protection. This unique “duck bill” design eliminates costly backflow from oceans, rivers or storm water and is the ideal valve for effluent diffuser systems.

The Series 39 Check Valve is available in a wide variety of elastomers and is designed to meet your exact flow specifications.

Series 39 valves are constructed with 125# ANSI flanges, which have the same drilling pattern as ANSI 150# for ease of installation.

- Simple design
- Cost effective
- No cavities or dead spots to bind valve operation
- Low maintenance

### **IMPORTANT**

Please take a moment to **review this manual. Before performing any maintenance on the valve be sure that the pipeline has been depressurized.** The improper installation or use of this product may result in personal injury, product failure, or reduced product life. Tideflex<sup>®</sup> Technologies 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 hotline at (412) 279-0044. We appreciate your comments. Thank you for choosing Tideflex<sup>®</sup> Technologies.

## INSTALLATION

### 1. 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 Tideflex® Technologies. If PVC flanges are used, metal back up rings should be placed behind the PVC flanges in order to prevent yielding. Typically, PVC flanges will yield before the valve will seal. Tideflex® Technologies recommends that pipeline flanges are serrated approximately 1/16" at 90°, in order to prevent the "creep" of the rubber flange of the valve sleeve. **Flanges with an oversized I.D. can cut the sleeve flange, and are not recommended with the Series 39 Valve.** Grind or file any sharp edges of pipeline flange to prevent damage to the sleeve.

### 2. GASKETS:

The Series 39 Valve contains (2) gaskets between the cast halves of the valve. As the gasket extrudes from the body, it may push the rubber flange away slightly from the cast body. **DO NOT TRIM** any excess gasket material; it will seat itself after bolting the valve into the pipeline, thus providing a positive seal.

**CAUTION:** Do not use any sharp tools such as a crowbar or screwdriver on the rubber during installation. Sharp instruments can damage the flange face and cause possible leakage.

### 3. INSTALLING FLANGE BOLTS:

**CAUTION:** Only use flange bolts of the correct length so that the bolts do not bottom out in tapped holes.

The use of bolts which are too long and bottom out can crack or distort the body, causing permanent valve damage. Tighten all bolts uniformly on both sides of the valve, so as to distribute pressure evenly around the sleeve flange. (For complete information on bolting dimensions refer to the back cover of this IOM ).

### 4. VALVE ORIENTATION:

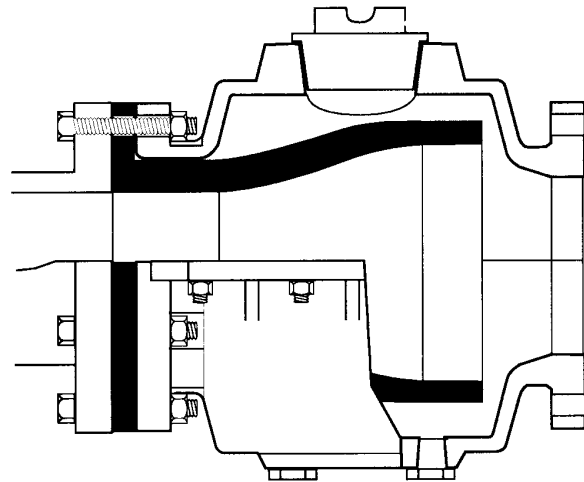
The valve shall be installed with the bill in the vertical position. The valve end with the rubber flange face should be installed on the pressure side of the system. The bill area of the rubber check valve inside the body must be in the maximum body width to allow the valve to close fully. The bill area should be installed facing downstream.

The casting flanges should be installed with a rubber full face gasket between it and the downstream flange. The inlet flange makes use of the rubber check valve flange as the gasket (additional rubber gaskets are not required on the inlet flange). The installation bolt torque on the end flange bolts are listed in the table on the back page of this IOM.

## OPERATION

The Series 39 Check Valve is a self-contained check valve for use on low back pressure systems. All check valves are built for each specific application. Back pressures in excess of the maximum rated back pressure may invert the sleeve and cause valve failure.

Tideflex® Technologies 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, and/or prevent the valve from draining completely. Valves made to withstand high back pressure may not self-drain completely.



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**NEVER...**  
Cut excess gasket.

**NEVER...**  
Use sharp tools  
on rubber sleeve.

**NEVER...**  
Exceed design  
working pressure.

**NEVER...**  
Install the valve  
backwards.

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## 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 any valve parts or bolting with pressure in the line. It is easy to inspect the valve for obvious problems.

## ELASTOMER SLEEVE REPLACEMENT:

1. A spare replacement check sleeve and gaskets should be placed on order when this valve is placed in service.
2. When replacing the check sleeve in the valve body, carefully inspect the gaskets – if they are damaged, order new ones. Do not trim the gaskets; they should extrude a minimum of 1/8" after rejoining the body halves.
3. Do not clean the body end flange surfaces with rough abrasive wheels; the serrations will be removed and flange leakage may result. Do not use Permatex or RTV silicone on the metal flange surface. These compounds will fill in the serrations and flange leakage may result.
4. Series 39 Check Valves ship from the factory with flushing port connections drilled, tapped, and plugged. In those applications where check valves and piping are manifolded together, or if the percent of solids in the process may build up and pack around the outside of the check valve bill, it is recommended that the flush connections be used to regularly purge the valve body free of build-up or packing.

## STORAGE

If your Series 39 Check 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. Grease flange threads of body to inhibit rust or corrosion.
3. Store valve to prevent other items from contacting check sleeve or flanges to prevent possible damage.
4. Store this manual with valve, so that it is readily available at time of installation.

## TROUBLESHOOTING GUIDE

### SYMPTOM: LEAKAGE AT BODY FLANGE

- Tighten body bolts beginning in center and working outward to both ends in order to extrude gasket material.
- Retighten all flange bolts.
- Gasket cut too short, allowing leakage.

### SYMPTOM: SLEEVE RUPTURE (At juncture of flange and body)

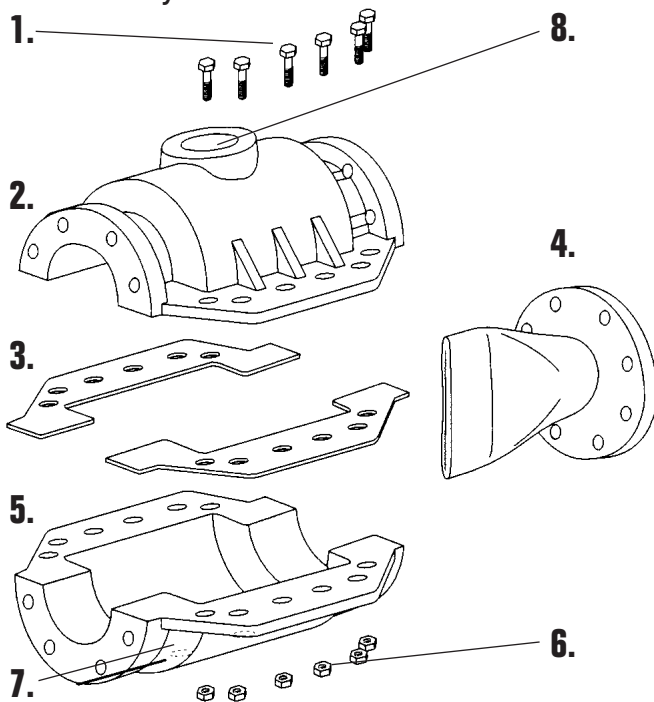
- Excess back pressure – Water hammer or pressure surge.
- High velocity of abrasive media with valve cracked open.

### SYMPTOM: CUTS ON FLANGE SURFACE

- Sharp I.D. of mating flange.
- Oversized I.D. of mating flange.

## PARTS – Series 39 Inline Check Valve

- |                       |                    |
|-----------------------|--------------------|
| 1. Body Bolts         | 6. Hex Nuts        |
| 2. Cast Body (top)    | 7. Purge Plugs (2) |
| 3. Body Gaskets (2)   | 8. Clean Out Plug  |
| 4. Check Sleeve       |                    |
| 5. Cast Body (bottom) |                    |



## Tideflex® Technologies Warranty

### WARRANTIES - REMEDIES - DISCLAIMERS - LIMITATION OF LIABILITY

Unless otherwise agreed to in writing signed by Tideflex® Technologies, all Products supplied by Tideflex® Technologies 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).

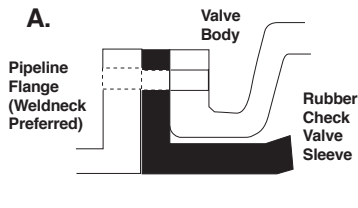
Tideflex® Technologies Products are guaranteed for a period of one year from date of shipment, against defective workmanship and material only, when properly installed, operated and serviced in accordance with Tideflex® Technologies' recommendations. Replacement for items of Tideflex® Technologies' manufacture 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. Tideflex® Technologies 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. Tideflex® Technologies does not guarantee resistance to corrosion erosion, abrasion or other sources of failure, nor does Tideflex® Technologies 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 Tideflex® Technologies, 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 Tideflex® Technologies, anything on the contrary contained in purchaser's order, or represented by any agent or employee of Tideflex® Technologies in writing or otherwise, notwithstanding implied warranties. TIDEFLEX® TECHNOLOGIES MAKES NO WARRANTY THAT THE PRODUCTS, AUXILIARIES AND PARTS ARE MERCHANTABILITY OR FIT FOR ANY PARTICULAR PURPOSE.

# SERIES 39 CHECK VALVE WORKING PRESSURES AND FLANGE BOLTING

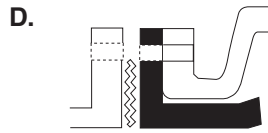
VALVE SIZE	WORKING PRESSURE (psi)	CLEAN OUT PLUG DIAMETER (in)	NO. OF PURGE PLUGS	PURGE PLUG DIAMETER (in)	NO. OF BOLTS	BOLT CIRCLE DIAMETER	THREAD SIZE	BOLT TORQUE (ft. lbs)
3"	150	2"	2	1"	4	6"	5/8" - 11 NC	55
4"	150	2"	2	1"	8	7-1/2"	5/8" - 11 NC	40
5"	150	4"	2	1"	8	8-1/2"	3/4" - 10 NC	50
6"	150	4"	2	1"	8	9-1/2"	3/4" - 10 NC	60
8"	150	4"	2	1"	8	11-3/4"	3/4" - 10 NC	80
10"	150	4"	2	1"	12	14-1/4"	7/8" - 9 NC	80
12"	150	4"	2	1"	12	17"	7/8" - 9 NC	120
14"	150	4"	2	1"	12	18-3/4"	1" - 8 NC	150
16"	150	4"	2	1"	16	21-1/4"	1" - 8 NC	130
18"	50	6"	2	1"	16	22-3/4"	1-1/8" - 7 NC	60
20"	50	6"	2	1"	20	25"	1-1/8" - 7 NC	60
24"	50	6"	2	1"	20	29-1/2"	1-1/4" - 7 NC	70

- Torque values are suggested minimum values.
- Torque all flange bolts in a star pattern. First to 50% of tabulated values, then re-torque to 100% of tabulated values. If greater torque is required, continue re-torquing in increments of 50% of tabulated values.
- Variables such as surface finish on bolt threads, type of anti-sieze compound used, and surface finish of the mating flanges all have an effect on the minimum torque required to obtain a leak tight flange seal.
- Use of a high quality anti-sieze compound on all bolt threads is recommended.

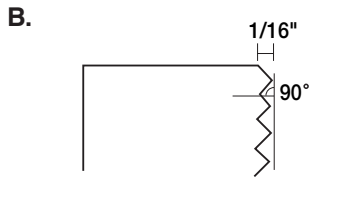
## INSTALLATION NOTES FOR SERIES 39 CHECK VALVES



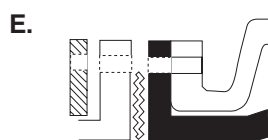
**A.** Standard check valves are built to schedule 40 pipe I.D. and to ANSI Class 125/150# flange and bolt circle specifications. It is recommended that the mating flanges are flat, full faced, and serrated.



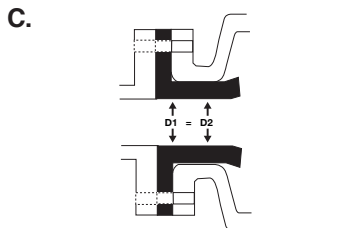
**D.** When installing a check valve to a rubber, PVC, or any "slick" mating flange, we recommend that you install a metal serrated gasket between the two flanges to assist in the seal.



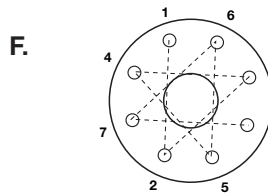
**B.** It is recommended that the mating flange be serrated to "grip" the rubber flange. The serrations should be cut 1/16" deep, with a 90° angle tool point. The pitch should be 8 (eight) cuts per inch.



**E.** When bolting a check valve to a PVC or Synthetic mating flange, use a split back-up retaining ring, since the mating flange will yield prior to generating enough force on the flange faces for a proper seal.



**C.** Mating flange ID must match the Check Valve sleeve ID.



**F.** Always use a "star" pattern when bolting a check valve.

**Tideflex**  
Technologies

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**Note:** If long, unsupported lengths of steel, plastic, or synthetic pipe are being used, the pipe may yield or sag due to the valve weight. This may cause an inadequate seal between the valve and flanges. Be certain sufficient pipe hangers are used and properly located to support the total weight of the valve and the process fluid.