

# 1-16 in. FloodSafe® Inflow Preventer

## Operation, Maintenance and Installation Manual

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# 1-16 in. FloodSafe® Inflow Preventer OPERATION, MAINTENANCE AND INSTALLATION

## INTRODUCTION

This manual will provide you with the information to properly install, maintain and ensure a long service life for the FloodSafe® inflow preventer. The FloodSafe® is to be installed on the outlet of an air release or air/vacuum valve to prevent cross contamination of the potable water system due to flooding and malicious tampering as described in ASSE Standard 1063. The FloodSafe® is designed with two float checks that are open during normal pipeline operation to allow full airflow in both directions. The float check(s) will rise and seal when the surrounding atmosphere is filled with water.

## RECEIVING AND STORAGE

Inspect the FloodSafe® upon receipt for damage in shipment. Unload all devices carefully to the ground without dropping. Remove all blocking material inside of the metal basket.

The devices should remain boxed, clean and dry until installed to prevent weather related damage. For long term storage greater than six months, the rubber seat should be coated with a thin film of FDA approved grease. Do not expose rubber seat to sunlight or ozone for any extended period.

## DESCRIPTION OF OPERATION

The FloodSafe® inflow preventer is designed with a lower chamber and upper, redundant chamber. Both chambers contain identical float checks that are open during normal pipeline operation and allow full airflow in both directions. If flooding occurs the lower float check will rise, preventing floodwater from reaching the outlet of the air valve and subsequently the pipeline. If the lower float check fails the upper, redundant float check will close preventing floodwater from reaching the air valve. The basket screen prevents debris from interfering with the operation of the FloodSafe®.

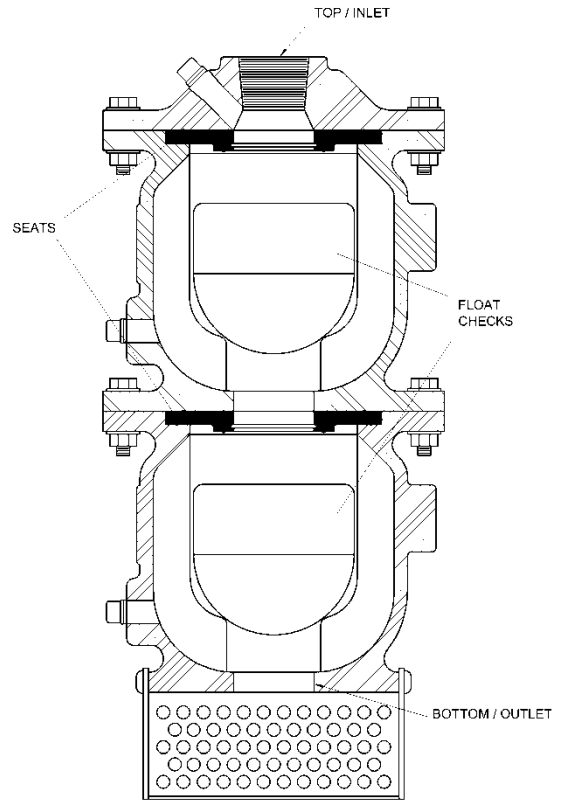


Figure 1. FloodSafe® Inflow Preventer

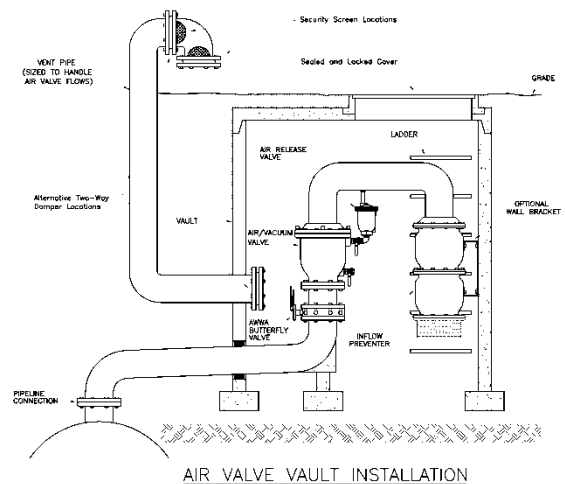


Figure 2. Typical Installation

## INSTALLATION

Remove the packing from the top and bottom of the FloodSafe<sup>®</sup> that is used to protect the floats during shipping. Install the basket per step 6 in the REASSEMBLY section on page 3. The installation of the FloodSafe<sup>®</sup> is important for its proper operation. The FloodSafe<sup>®</sup> should be installed plumb in the vertical position with the basket facing downward. Thread or bolt the FloodSafe<sup>®</sup> to the outlet of an air valve using standard connection practices. The bolting for 6" and larger devices conforms to ANSI B16.1 for class 125# flanges. An optional mounting bracket (80) may be used to mount the device to wall supports.

Flanged connections should only be mated with flat-faced pipe flanges equipped with full-face or ring type resilient gaskets. The bolts should be tightened in gradual steps using the crossover method. Recommended torque values are given in Table 1.

### CAUTION:

The use of excessive bolt torque may damage the device.

Table 1. Flange Bolt Torques

Mounting Flange Bolts (ANSI B16.1 Class 125)			
Device Size	Bolt Size	Recommended Torque (ft-lbs)	Maximum Torque (ft-lbs)
6	3/4"	30	150
8	3/4"	40	150
12	7/8"	45	200
16	1"	90	300

## FLOODSAFE<sup>®</sup> CONSTRUCTION

The standard FloodSafe<sup>®</sup> is constructed of ductile iron. Stainless steel type 316 float checks are the only moving elements and seal against a low hardness resilient seat. The general details of construction are illustrated in Figure 3 and identified in Table 2.

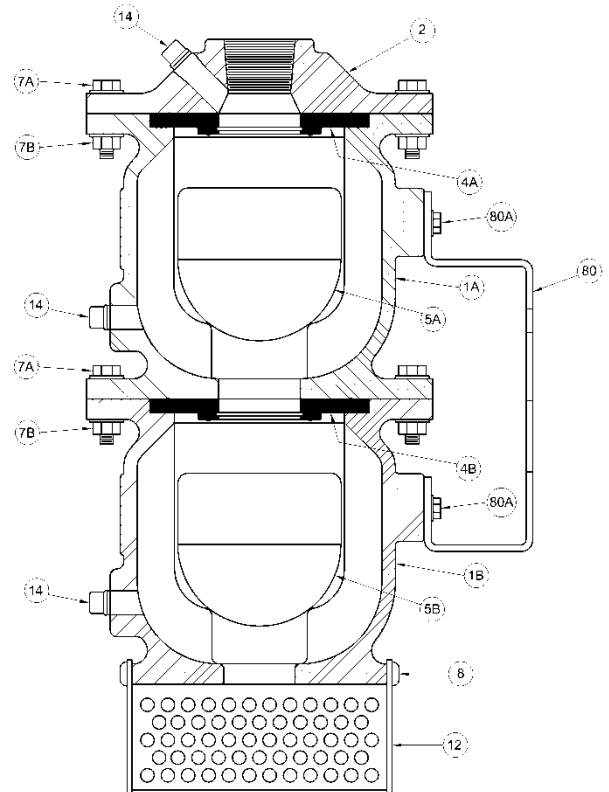


Figure 3. FloodSafe<sup>®</sup> Components

Table 2. FloodSafe Parts List

Item	Description	Material
1A, 1B	Chamber	Ductile Iron
2	Cover	Ductile Iron
4A, 4B	Seat	Resilient
5A, 5B	Float Check	T316 Stainless Steel
7A, 7B	Bolts, Nuts	T316 Stainless Steel
8	Basket Retainer	T316 Stainless Steel
12	Basket	T304 Stainless Steel
14	Pipe Plug	Carbon Steel
80*	Mounting Bracket	Carbon Steel
80A*	Mounting Bolt	T316 Stainless Steel

## MAINTENANCE

The FloodSafe® requires no scheduled lubrication or maintenance.

**INSPECTION:** The FloodSafe® may be checked for debris by following the disassembly and reassembly instructions. The seat may be checked for cracks or tears. The float check may be inspected for indentations or deep scratches on the top sealing portion.

## TROUBLESHOOTING

Several problems and solutions are presented below to assist you in troubleshooting the FloodSafe® in an efficient manner.

- **Air valve water discharge:** It is normal for air valves to discharge some water before closing. Continuous leakage requires maintenance of the adjacent air valve.
- **Leaks during field test:** Clean and inspect the resilient seats and the float checks.

## DISASSEMBLY

### **WARNING**

**Close the isolation valve underneath the adjacent air valve. Failure to close the isolation valve may allow discharge of air into the FloodSafe® and cause bodily injury.**

Note: If the FloodSafe is connected to the optional mounting bracket (80), the FloodSafe™ will need to be removed from the bracket.

1. Remove the basket (12).
  - a) On sizes with side taps, use an allen wrench to loosen the screws holding the basket to the lower chamber (1B). Rotate the basket counterclockwise and pull the basket down and away from the chamber.
  - b) On sizes without the side taps, use an open-end wrench to remove the bolts holding the basket to the lower chamber flange.
2. Remove the lower chamber (1B) by removing the bolts (7A) and nuts (7B) joining the two chamber halves.

### **CAUTION**

**The FloodSafe® chambers may be heavy. Support the chambers when removing the bolts in order to prevent bodily injury.**

3. Remove the seat (4) by pulling it upward and out of the chamber. Tilt the chamber to remove the float check (5).
4. The upper chamber is removed in the same manner as the lower chamber. Remove the bolts joining the chamber and cover using care to support the chamber. The seat and float check can be removed in the same manner as before.

## REASSEMBLY

All parts must be clean. Worn or damaged parts should be replaced during reassembly.

1. Install the float check (5A) into the chamber (1A).
2. Insert the seat (4A) with the raised circular surface facing down into the chamber (1A).
3. Connect the upper chamber (1A) to the cover (2) with the bolts (7A) and nuts (7B) using the cross over method. One washer is installed under the head of the bolt and one underneath the nut.
4. Install the float check and seat into the lower chamber per steps 1 and 2.
5. Connect the lower chamber (1B) to the upper chamber (1A) by using the bolts (7A) and (7B). One washer is installed under the head of the bolt and one underneath the nut.
6. **Install the basket (12) to the lower chamber (1B).**
  - a) On sizes with the side taps, start the socket head cap screws into the lower chamber flange. Install the basket by pushing upward and turning clockwise. Tighten the socket head cap screws to secure the basket.
  - b) On sizes without the side bolts, install the bolts through the bottom flange and into the tapped holes on the basket screen. One washer is used underneath the head of the bolt.

## FIELD TESTING THE FLOODSAFE

The FloodSafe® inflow preventer should be tested after installation, and periodically thereafter as recommended by the local authority having jurisdiction, but at least annually.

For field testing, a testing kit available from the manufacturer is required consisting of test cocks and a test pipe that can be used for multiple installations.

### ISOLATE DEVICE

1. Close the isolation valve under the adjacent air valve with which the FloodSafe® is connected.
2. Remove the three pipe plugs on the side of the FloodSafe® and install the test cocks provided with the test kit. Open the three test cocks A, B, and C.
3. Remove the basket screen by loosening the screws and twisting the screen. Clean the basket if needed.
4. Install test plate to close off the bottom outlet.

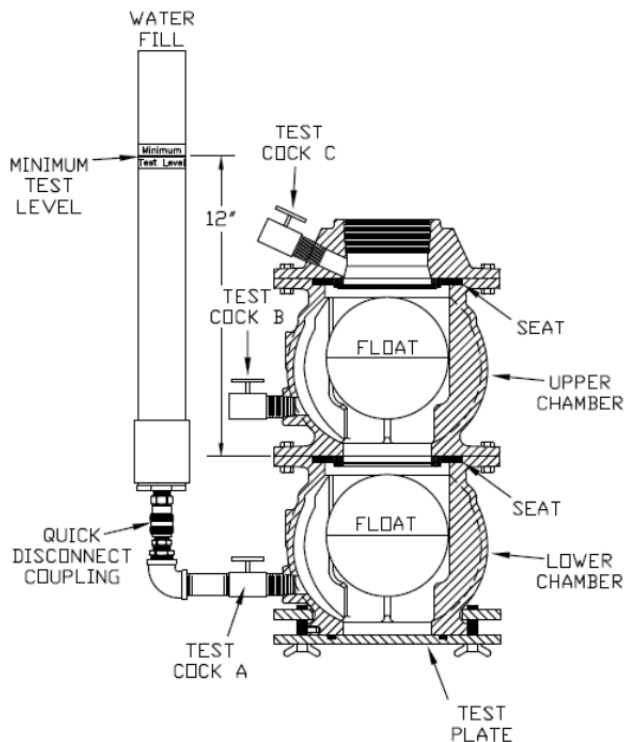


Figure 4: Field Test Piping

### TEST LOWER CHAMBER

5. Connect the test pipe to test cock A in the lower chamber as shown in Figure 4. A quick-disconnect coupling is provided to facilitate the assembly.
6. Fill the clear test pipe and lower chamber with clean water by pouring water into the test pipe and maintain the water level above the "Minimum Test Level" for 5 minutes while observing test cock B for leakage. The water level in the tube may drop due to leakage in the fittings, bottom plug, or as air escapes between the float and the seat (acceptable). The device shall be rejected and repaired if water is observed from test cock B during the 5 minute test period.

### TEST UPPER CHAMBER

7. Close test cock A. Move the test pipe up to the upper chamber test cock B. A quick-disconnect fitting under the clear pipe will aid in its removal.
8. Fill the clear test pipe and upper chamber with clean water by pouring water into the test tube and maintain the water level above the "Minimum Test Level" for 5 minutes while observing test cock C for leakage. The device shall be rejected and repaired if water is observed from test cock C during the 5 minute test period.
9. If one of the initial tests fail and repairs are made, a "Final Test" shall be conducted and recorded. Repairs typically consist of removing the chamber bolts and cleaning the float and cleaning or replacing the rubber seat.

### RETURN TO SERVICE

10. When the tests are complete, open test cock A and drain the water and remove the test piping and bottom test plate. The test cocks may be left in the device, but all three must be closed.
11. Re-assemble the basket screen to the lower chamber. Tighten the screen bolts.
12. **IMPORTANT:** Open the isolation valve underneath the air valve that was closed in step 1.

# FloodSafe<sup>®</sup> Inflow Preventer

## TEST AND MAINTENANCE REPORT

OWNER: \_\_\_\_\_

ADDRESS: \_\_\_\_\_

LOCATION OF ASSEMBLY: \_\_\_\_\_

MANUFACTURER: \_\_\_\_\_ MODEL NO: \_\_\_\_\_

YEAR OF MANUFACTURE: \_\_\_\_\_ SIZE: \_\_\_\_\_

PROCEDURE: See "FIELD TESTING THE FLOODSAFE" in the Instruction Manual.

1. Isolation Valve Under Air Valve		2. Inflow Preventer Test Lower Chamber	3. Inflow Preventer Test Upper Chamber
<input type="checkbox"/> leaked or <input type="checkbox"/> closed off tight		<input type="checkbox"/> test cocks OK or <input type="checkbox"/> test cocks replaced <input type="checkbox"/> open test cocks	<input type="checkbox"/> test cock OK or <input type="checkbox"/> test cock replaced
Record any maintenance performed:	<b>Initial Tests:</b>	<input type="checkbox"/> Connect test pipe assembly to test cock A. <input type="checkbox"/> Fill lower chamber and test pipe with clean water. <input type="checkbox"/> Maintain water level above "Minimum Test Level"	<input type="checkbox"/> Connect test pipe assembly to test cock B. <input type="checkbox"/> Fill upper chamber and test pipe with clean water. <input type="checkbox"/> Maintain water level above "Minimum Test Level"
Inflow Preventer Basket <input type="checkbox"/> removed and cleaned		<input type="checkbox"/> Observe test cock B for leakage for 5 minutes. Any sign of leakage from test cock is cause for rejection. <input type="checkbox"/> Pass <input type="checkbox"/> Fail	<input type="checkbox"/> Observe test cock C for leakage for 5 minutes. Any sign of leakage from test cock is cause for rejection. <input type="checkbox"/> Pass <input type="checkbox"/> Fail
Bottom Plug <input type="checkbox"/> installed	<b>Repairs:</b>	Record maintenance performed:	Record maintenance performed:
	<b>Final Tests (when needed):</b>	If initial test failed, repeat 5 minute test. Any sign of leakage from test cock B is cause for rejection. <input type="checkbox"/> Pass <input type="checkbox"/> Fail	If initial test failed, repeat 5 minute test. Any sign of leakage from test cock C is cause for rejection. <input type="checkbox"/> Pass <input type="checkbox"/> Fail
<b>IMPORTANT:</b>		<input type="checkbox"/> After testing, reopen the isolation valve under the air valve.	

NOTE: All repairs and final tests should be completed within five (5) working days.

COMMENTS: \_\_\_\_\_

I hereby certify that this data is accurate and reflects the proper maintenance of the assembly.

TESTER: \_\_\_\_\_ CERT No. \_\_\_\_\_ DATE: \_\_\_\_\_

TIME: \_\_\_\_\_

THIS ASSEMBLY:    Passed    Failed

## **PARTS AND SERVICE**

Parts and service are available from your local representative or the factory. Make note of the Valve Size and Model Number located on the valve nameplate and contact:

Val-Matic Valve and Manufacturing Corp.  
905 Riverside Drive  
Elmhurst, IL 60126  
Phone: (630) 941-7600  
Fax: (630) 941-8042  
[www.valmatic.com](http://www.valmatic.com)

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

### **LIMITED WARRANTY**

All products are warranted to be free of defects in material and workmanship for a period of one year from the date of shipment, subject to the limitations below.

If the purchaser believes a product is defective, the purchaser shall: (a) Notify the manufacturer, state the alleged defect and request permission to return the product; (b) if permission is given, return the product with transportation prepaid. If the product is accepted for return and found to be defective, the manufacturer will, at his discretion, either repair or replace the product, f.o.b. factory, within 60 days of receipt, or refund the purchase price. Other than to repair, replace or refund as described above, purchaser agrees that manufacturer shall not be liable for any loss, costs, expenses or damages of any kind arising out of the product, its use, installation or replacement, labeling, instructions, information or technical data of any kind, description of product use, sample or model, warnings or lack of any of the foregoing. NO OTHER WARRANTIES, WRITTEN OR ORAL, EXPRESS OR IMPLIED, INCLUDING THE WARRANTIES OF FITNESS FOR A PARTICULAR PURPOSE AND MERCHANTABILITY, ARE MADE OR AUTHORIZED. NO AFFIRMATION OF FACT, PROMISE, DESCRIPTION OF PRODUCT OF USE OR SAMPLE OR MODEL SHALL CREATE ANY WARRANTY FROM MANUFACTURER, UNLESS SIGNED BY THE PRESIDENT OF THE MANUFACTURER. These products are not manufactured, sold or intended for personal, family or household purposes.



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