

FLOOD SAFE

October 24, 2005

Definitions

Product Type: Inflow Preventer

Inflow Prevention: The prevention of contaminated water entering a potable water pipeline or reservoir through an air valve or reservoir vent.

Inflow Preventer: An Inflow Preventer is a device that prevents the admittance of contaminated water or other fluids into a potable water pipeline or reservoir. Inflow Preventers are installed on the outlets of air valves and reservoir vents.

Backflow Preventer: A backflow preventer is a device which prevents the reverse flow of water due to atmospheric or higher pressure by means of positive check members in addition to atmospheric ports which provide back siphonage protection.

Where used: Vault or manhole installed air valves. Ground level air valves and reservoir vents

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Features & Benefits	
Standard Backflow Type Design Features	Benefit
Dual Chambers for added protection	Chambers constructed of ductile iron and coated with FBE on interior and exterior
Lower (primary) Chamber	Prevents contaminated water from continuing past its seat.
Upper Redundant Chamber	Provides protection against failure of lower chamber's ability to seal and stops flow of contaminated water into the air valve or vent outlet.
Field Inspection and Testing	Assures continued protection
Test Ports	Located on cover and on both chambers. Allows for independent testing of both chambers
Additional Product Features	Benefit
316 SS Float Checks	Proven material in water for long life and minimal maintenance
Heavy Duty, Type 304 SS Basket w/ Bayonet mounting	Keeps debris away from float check while providing 3X the rated flow area. SS construction assures long life. Bayonet mounting provides easy removal for ease of cleaning and inspection.
Low pressure shut off	When entering FloodSafe, floodwater will be at extremely low pressure. Resilient seat specially designed and formulated by leading rubber chemists to assure positive closure at low pressures.
Cover	FBE coated interior and exterior. Cover port sized to allow for full venting capacity of air valve or vent.
Venting Capacity	FloodSafe provides greater flow area than an equivalent sized air valve resulting in minimal flow restriction. Consult factory for venting capacities.
Optional Features	Benefit
Wall mounting Bracket	Allows FloodSafe to be mounted on wall of vault.
Field Test Kit	Allows FloodSafe to be tested in field to assure continuous operation.

FLOOD SAFE

FAQ

What is it?

Q: What is it?

A: It's an Inflow Preventer.

Q: What's an Inflow Preventer?

A: An Inflow Preventer is a device that prevents the admittance of contaminated water or other fluids into a potable water pipeline or reservoir. Inflow Preventers are installed on the outlets of air valves and reservoir vents.

Q: Why not call it a backflow preventer?

A: Backflow preventers are usually conceived of as inline devices that react to changes in pressure in a pipeline. Inflow preventers are attached to the outlet of an air valve or reservoir vent to prevent contaminated water from being drawn into the system.

Why do I need it?

Q: Why do I need one?

A: To protect your potable water system from contamination due to flooding or malicious tampering (pranksters, terrorism).

Q: Why is flooding a concern?

A: Valves in vaults and ground level reservoir vents are often left open to atmosphere or connected to "J" pipes. In flood conditions these can allow contaminated water to reach the air valve outlet or reservoir inlet.

Q: Why is terrorism a concern?

A: Distribution systems have been identified as the most vulnerable segment of the drinking water infrastructure. Air valve outlets are an inviting target for terrorists.

Q: What could they do?

A: "J" pipes are very easy targets. It's a simple matter to cut off the top with a hacksaw or drill a hole with a portable drill. Once compromised the prankster or terrorist is free to pour anything he wants down the pipe or use a hand pump to pump contaminates into the air valve outlet. When the valve opens the contaminant will be sucked in. Examples include corrosives that would destroy the valve leading to a flood and cross connection. A second would be a biotoxin such as ricin or botulinum, which would have devastating public health effects.

Where is it used?

Q: Where is it used?

A: The FloodSafe is used with air valves in vaults and in flood prone areas in conjunction with air valves.

Q: What types of air valves is it used with?

A: It should be used with all types of air valves located in vaults or flood prone areas.

Q: Any other applications?

A: Yes. The FloodSafe should also be used on ground level reservoir vents to prevent floodwater from entering the reservoir.

How does it work?

Q: How does it work?

A: The beauty of the FloodSafe is its simplicity. There are no mechanical parts such as springs, shafts, bearings, packing etc. There are only two moving parts, the float checks, and one of those is redundant and not expected to ever have to function.

The FloodSafe is piped to the outlet of an air valve. Unless a flood occurs and the FloodSafe closes, it allows the air valve, regardless of type, to function normally.

When a flood occurs the float check in the lower (primary) chamber closes preventing contaminated water from reaching the air valve outlet and subsequently the pipeline to which it is attached. In the event the lower float check fails the float check in the upper (redundant) chamber closes.

Standards

Q: Does the American Society of Sanitary Engineers have a standard for Inflow Preventers?

A: A Standard is in development.

Q: How about USC? Don't they certify backflow preventers also?

A: Yes they do. Discussions on ongoing regarding development of a standard by USC as well.

- Q: What about AWWA? Have they issued a standard?
A: No. However, it is anticipated that AWWA will develop one. AWWA Bylaws dictate that a product must be in use in the field for 5 years prior to the development of a standard.

Backflow Preventers vs. Inflow Preventers

- Q: What similarities exist between backflow preventers and inflow preventers?
A: Both have operational redundancy so that if the first check fails the second, redundant check will stop flow. Both also have the ability to be field tested as necessary to check for proper operation.

- Q: Why not call it a backflow preventer?
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Operation

- Q: Does it work?
A: The FloodSafe has been tested by an independent 3rd party to verify its performance. The testing was performed by Wiley Labs, one of the leading testing labs in the U.S. and an approved testing facility for backflow preventers by the American Society of Sanitary Engineers (ASSE).

- Q: Why is it rated for a maximum submergence pressure (msp) of 25 psi. Why not ANSI 125 lb like air valves?
A: The FloodSafe is not subjected to pipeline pressures therefore it is not necessary to rate it for pipeline service. At a msp of 25 psi, the FloodSafe will safely operate in over 60 feet of water, far more than it's ever likely to see.

- Q: You've always knocked unguided floats in air valves as being susceptible to damage. Yet, the FloodSafe float check is unguided. Seems like a contradiction!
A: The buoyant float in the FloodSafe is subjected to a max submergence pressure of 25 psi and is not subjected to the violent forces that air valve floats are exposed to. In addition, the only surface the float checks seating surface is exposed to is the resilient seat. Under these relatively low pressures and mild operating conditions we are confident that the Float checks will not be damaged the way unguided air valve floats are.

- Q: Why are there two float checks?
A: The second or upper chamber float check is redundant. If the lower float check fails the upper one closes preventing contaminated water from reaching the air valve outlet. This is similar to backflow preventers which also have redundant checks.

Q: Why are test ports provided?

A: The test ports provide a means to test each chamber and float check independently assuring ongoing protection. Again, this is similar to backflow preventers which must be tested once a year to maintain their certification.

Q: Why is low pressure shut off so important?

A: The pressures the FloodSafe will be exposed to will result from rising floodwater and thus will be very low. Therefore, the FloodSafe must seal at low pressures to prevent contamination from reaching the air valve outlet and subsequently the pipeline. The float check seals on buoyancy and is tested at 8 inches of water column.

Q: What happens if an air valve attempts to vent/exhaust air while the FloodSafe is closed?

A: The FloodSafe will allow air to vent while continuing to keep floodwater or contaminants safely away from the air valve outlet. It will not provide vacuum protection when closed.

Options

Q: Are there any options?

A: Yes, a wall bracket for mounting on the wall of the vault and a test kit for field testing.

FloodSafe Sizing

Q: How is FloodSafe sized?

A: FloodSafe provides greater flow area than an equivalent sized air valve resulting in minimal flow restriction. For all air release valves use a 1" FloodSafe. For Air/Vacuum valve sizing a FloodSafe of equal or larger size should be used. Check with Marketing or your regional sales manager for venting capacities.

Inventory

Q: What sizes is it available in?

A: 1" – 16". Initially sizes 1", 2" and 4" will be available. They will be followed by 3", 6" and 8". 3" and 6" will be available in January. 8" will be available in December

Q: What about stock?

A: The plan is to stock 1", 2", and 4". 8" will be an "O" item. 16" is designed but will not be built unless we receive an order. 6" will be available from stock once completed.

Q: What if I need a 3" now?

A: Until all sizes are available use the next size up. For a 3" use a 4". For a 6" use an 8".