

PVB-VB 500 175 psi



A.R.I. PVB model VB 500 Specification

Application Designed for installation on irrigation water lines to protect against Backsiphonage of contaminated water into the potable water supply.

Assembly shall provide protection where a potential health hazard exists. Standards Compliance (in process).

Features Sizes: 1/2", 3/4", 1"

Maximum working water pressure - 175 PSI / 12.5 BAR

Maximum working water temperature - 140°F / 60° C

Hydrostatic test pressure - 300 PSI / 21 BAR

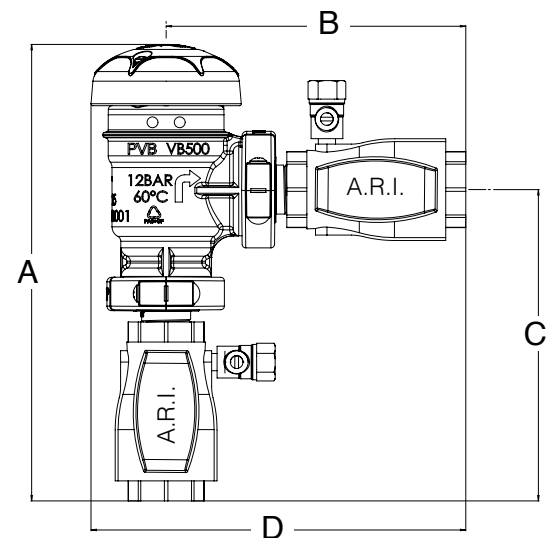
End connections threaded NPT -ANSI B1.20.1

Size with Nylon valves

Size	Dimensions [in.]				Weight [LB]
	A	B	C	D	
0.75"	9.92	6.50	6.77	8.11	2.12
1"	10.59	7.56	7.44	8.82	2.43

Size with Brass valves

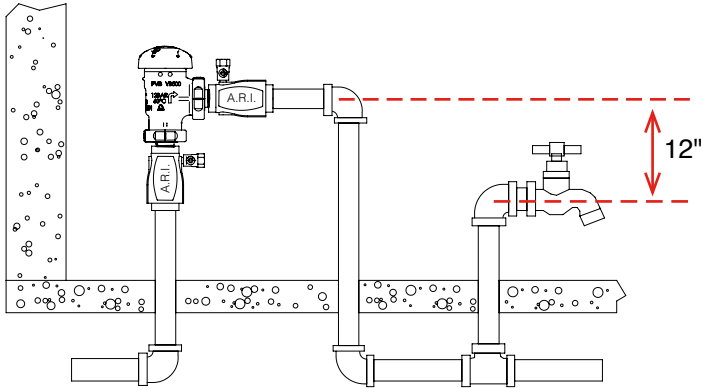
Size	Dimensions [in.]				Weight [LB]
	A	B	C	D	
0.5"	7.99	4.61	4.84	6.22	3.52
0.75"	8.27	4.72	4.92	6.42	3.75
1"	9.21	5.79	6.02	7.44	3.97



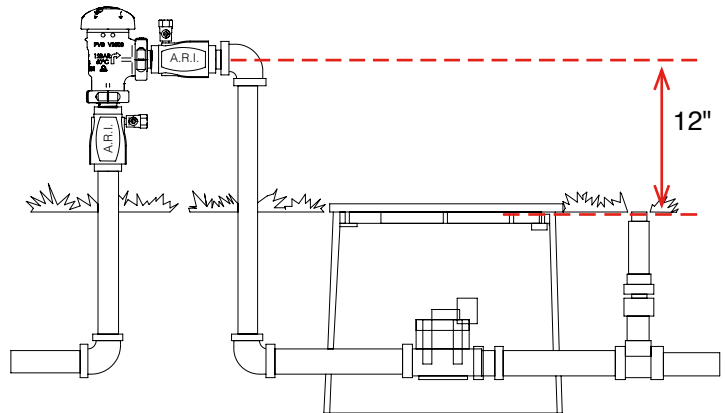
Typical Installation

Local codes shall govern installation requirements. Unless otherwise specified, the assembly shall be mounted at a minimum of 12" (305mm) above the highest piping or outlet downstream of the device. Install with adequate drain and sufficient side clearance for testing and maintenance. The installation shall be made so that no part of the unit can be submerged. A pressure vacuum breaker cannot be installed where back-pressure could occur or where spillage of water from vent could cause damage.

Indoor insulation



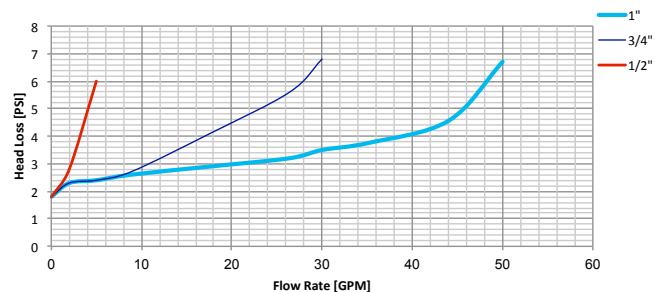
Outdoor insulation



Capacity Thru Scheduling 40 Pipe

Pipe Size	5 ft/sec	7.5 ft/sec	10 ft/sec	15 ft/sec
1/2"	5	5	9	14
3/4"	8	8	17	25
1"	13	20	27	40

Head loss Curve



Specifications

The Pressure Vacuum Breaker is ASSE 1020 approved, and supplied with full port ball valves. The main body and bonnet are Reinforce Nylon. The entire assembly is accessible for maintenance and testing without removing the device from the line.

The Pressure Vacuum Breaker is a A.R.I – VB500.

* Always consult local codes for installation methods, approvals and guidance. A.R.I recommends an annual test for any Backflow Preventer

PVB-VB 500 175 psi

INSTALLATION INSTRUCTIONS

Installation of Pressure Vacuum breakers must be performed by qualified, licensed personnel. Faulty installation could result in an improperly functioning device. The installer should be sure the proper device has been selected for the particular installation. A.R.I. model VB500 Pressure Vacuum Breakers are for use on irrigation, industrial, and other non-potable services where a health hazard could exist if a Backsiphonage situation were to occur. They must not be installed where backpressure may occur. Proper performance depends upon following these installation instructions and prevailing governmental and industry standards and codes. Failure to do so releases A.R.I. of any liability that it might otherwise have with respect to that device. Such failure could also result in an improperly functioning device.

1. Before installing the A.R.I. model VB500 Pressure Vacuum Breaker, flush the lines thoroughly to remove all debris, chips and other foreign matter.
2. The A.R.I. model VB500 must be installed in a vertical position (see Fig.1) to provide proper operation of the air inlet valve.
3. Provide adequate space around the installed unit so that the test cocks will be accessible for testing and servicing.
4. CAUTION: If installation of a PVB model VB500 unit is in a building, provide a suitable drain arrangement to drain off spillage from the air vent.
5. Install valve at least 12 inches (305 mm) above the highest piping or water outlet downstream of the PVB model VB500.
6. Always consult local codes for installation methods, approvals and guidance. A.R.I. recommends an annual test for any Backflow Preventer.

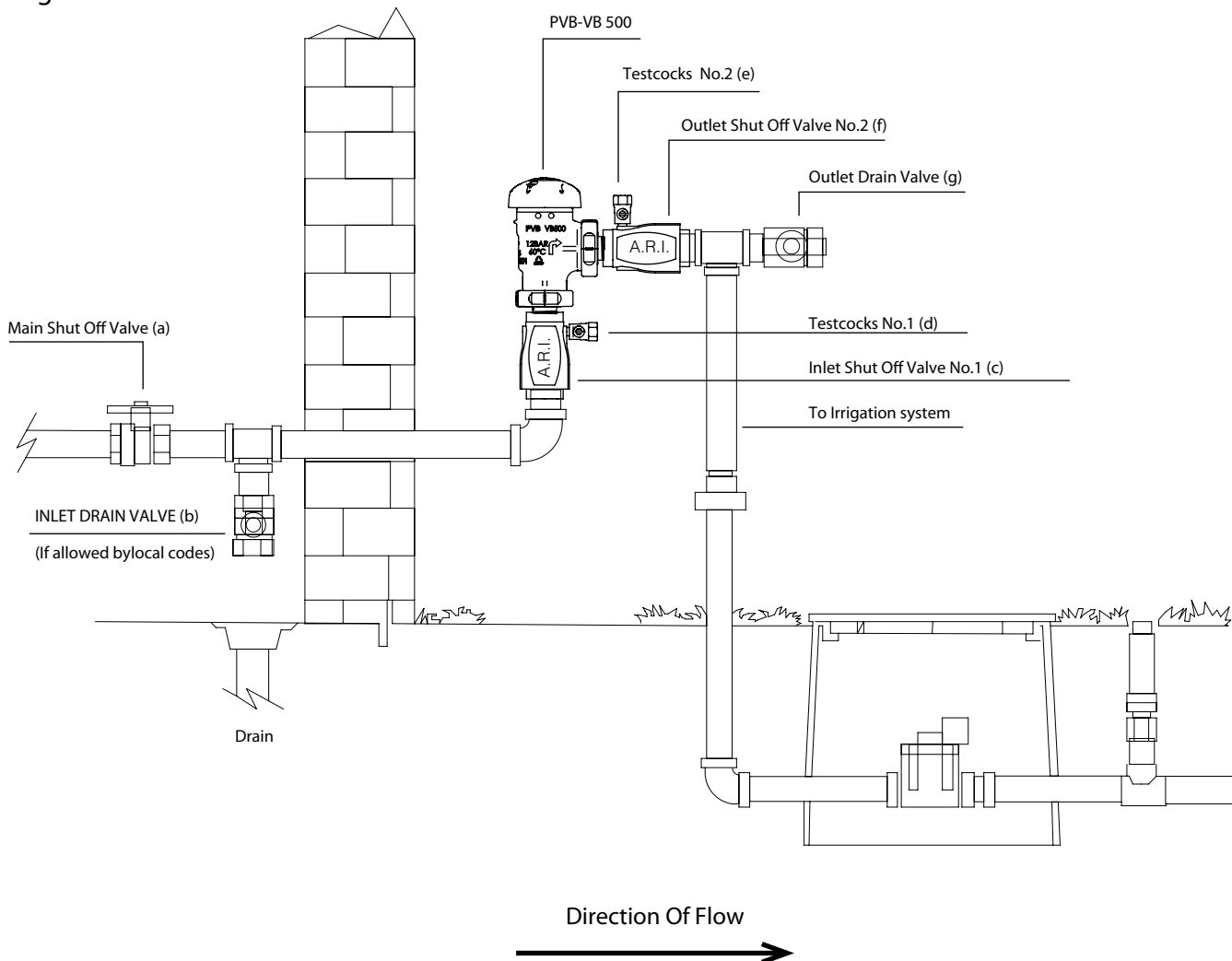


Placing the Device in Service

After the installation of a PVB model VB500 has been completed; place the unit in service as follows:

1. Start with both shut-off valves and test cocks closed. Open the inlet shut-off valve No.1 until the Pressure Vacuum Breaker is completely pressurized.
2. A brief discharge from the air vent may occur while the device is pressurizing. The discharge should cease by the time the shut-off valve is in the full open position.
3. If the discharge does not stop. Then repressurize device as in Step 1. The device should function properly.
4. Slowly open the No.2 shut-off valve. The PVB model VB500 is now in service.
5. After the PVB model VB500 has been properly installed, test the device. If the device fails the test, refer to "MAINTENANCE INSTRUCTIONS"

Fig.1



Drain Procedure for Freeze Protection

1. Turn off main shut-off (a) that supplies water to the system.
2. Open both inlet and outlet drain valves in the system (b&g). Open inlet and outlet shut-off valves on the pressure vacuum breaker (c&f) and all of the test cocks. Leave all valves and test cocks in the half open/half closed (45°) position to allow full drainage of the ball valves and test cocks.
3. If you "blow out" the system downstream of the pressure vacuum breaker, make sure the outlet drain valve (g) is open and the pressure vacuum breaker shut-off valve (f) is closed.
4. Connect an air hose to the outlet drain valve (g) and inject an adequate volume of air to remove all water from the downstream portion of the system.
5. CAUTION: Open outlet shut-off valve to the pressure vacuum breaker (f) and outlet drain valve (g) to the half open/half closed (45°) position after "blow out" process is completed.
6. If drain valves (b&g) are not part of the system, and if air pressure is not used to "blow out" the system, the internal components of the pressure vacuum breaker should be removed for the duration of the winter.
7. Leave all drain valves (b&g), shut-off valves (c&f) and test cocks in the half open/half closed position (45°) for the duration of the winter to prevent freezing. Caution: Be certain that main shut-off (a) remains tightly closed to prevent refilling of the system. Also, the main shut-off valve must be resilient seated to insure no leakage of water into the system.

Maintenance

1. Close inlet No.1 and outlet No.2 shut-off valves before disassembling device.
2. Remove cover screws counterclockwise and remove cover.
3. Bleed off pressure by opening the No.2 test cock.
4. Unscrew the Vent Assembly from the body by turning counterclockwise.
5. Clean all parts with clean water only.
6. After completing inspection, replace necessary parts and reassemble. Repair kits are available from your supplier.
7. Retest according to "TEST PROCEDURES".

Field Test Procedure

Test No.1 : Air Inlet Valve Opening Point

Purpose: To determine the pressure in the body, when the air inlet valve opens

Requirement: The air inlet Valve No.1 shall open when the pressure in the body is at list 1 psi above the atmospheric pressure. And the air inlet valve No.1 shall be fully open when the water drains from the body.

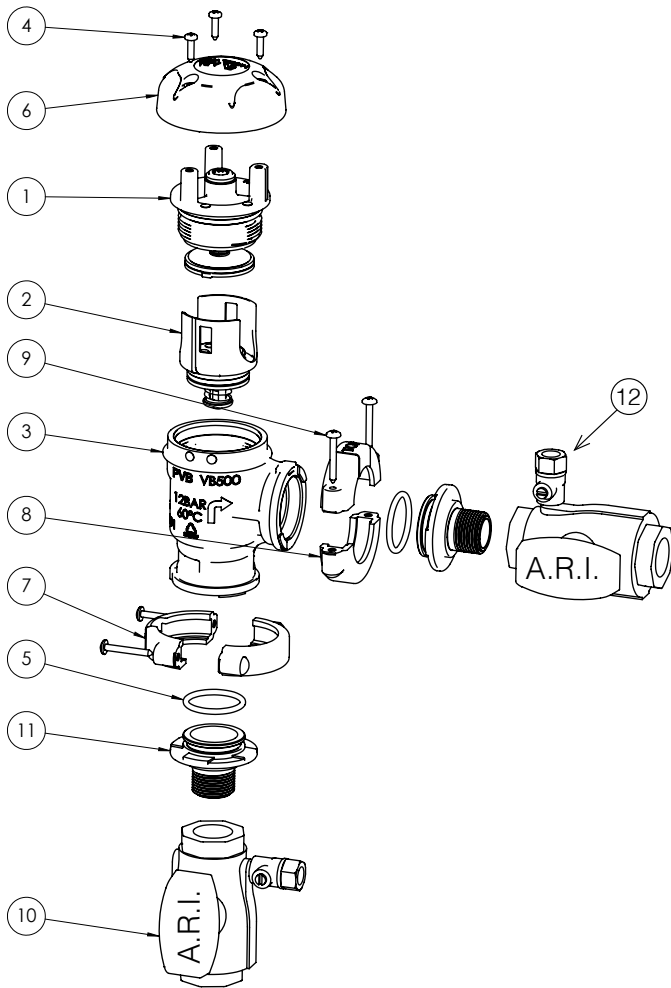
STEPS:

1. Bleed water through both test cocks to eliminate foreign material.
2. Install appropriate fittings for test kit hoses.
3. Remove air inlet valve cover.
4. Install the high side hose of the differential pressure gauge to test cock No.2.
Open test cock No.2 and bleed air from hose and gauge.
5. Close No.2 shut-off valve then close No.1 shut-off valve.
6. Slowly open the high side bleed needle valve being especially careful not to drop the pressure differential too fast.
Record the pressure differential at which the air inlet valve opens.

TEST No.2

Purpose: To test the check valve for tightness in the direction of flow. Requirement: The check valve shall be drip tight in the normal direction of flow when the inlet pressure is 1 psi and the outlet pressure is atmospheric.

- STEPS:
1. Attach high side hose of differential gauge to test cock No.1. Open test cock No.1 and bleed all air from the hose and the gauge by opening high side bleed needle valve. Close high side bleed needle valve.
 2. Close No.1 shut-off valve.
 3. Open test cock No.2. The air inlet valve will open and the water in the body will drain out through test cock No.2. When this flow of water stops, the differential pressure indicated by the gauge after it has settled will be the pressure drop across the check valve. This value must be 1.0 psi or greater. Record this value. If water continues to flow out of test cock No.2, then the No.1 shut-off valve is leaking.
 4. Close test cocks No.1 and No.2 and remove equipment.
 5. Replace Check Valve Assembly.
 6. Open No.1 shut-off valve, then No.2 shutoff valve.



ITEM	PART	Material	QTY.
1	Vent Assembly		1
2	Check Valve Assembly		1
3	Body VB500	Reinforced PA	1
4	Cover Bolts	SS304	3
5	O Rings 2-219	NBR	2
6	Cover VB500	PP	1
7	Band up RP500	Reinforced PA	2
8	Band down RP500	Reinforced PA	2
9	Band bolts	SS304	4
10 *	Ball Valve	Reinforced PA	2
11	Nipple Adaptor	Reinforced PA	2
12	Test cox	Brass	2

* Ball Valves can come in brass

1. Vent Assembly			
1.1	Vent Seat	Reinforced PA	1
1.2	Vent piston	Acetal	1
1.3	Vent seal	EPDM	1
1.4	Sleeve	Reinforced PA	1
1.5	PLUG VB500	Acetal	2
1.6	VENT Spring	St.St.	1

2. Check Valve Assembly			
2.1	Check valve Seat	Acetal	1
2.2	Check valve seal	EPDM	1
2.3	O-ring 2-219	NBR	3
2.4	Check Valve Spring	St.St.	1
2.5	Check valve piston	Acetal	1