

AIR VENTS / VACUUM RELIEF VALVES



Air Vents / Vacuum Relief Selection:

This heading can be confusing, but is used to differentiate between allowing air to escape *from* a pipeline, to allowing air to enter *into* a pipeline.

As such, sometimes these valves are termed *Air Relief Valves/Vents* and *Vacuum Relief Valves/Vents*.

- *Air Relief* allows air to escape from the pipe line. With failure to provide *air relief*, the buildup of air pockets in a pipeline can cause such a restriction of the flow-path that flow is severely impacted and even stopped.
- *Vacuum Relief* allows air to enter the pipeline during valve closure or system shutdown. This minimizes the collapse of mainline and submain pipes due to vacuum, it reduces soil from siphoning back up into the drip emitters, and water hammer caused by a sudden reversal of flows which can occur if a negative pressure (vacuum) exists downstream of a valve that was just closed.

Inclusion of air and vacuum relief valves in systems is not only crucial but placement is critical. As a rule of thumb *air relief* should be supplied at all high points on a pipe line, at all gradient changes on a pipeline, in front of any valve on a spur from said pipeline or at the end, if the pipeline ends with a valve. In addition, if there is no high point or gradient change for long distances vents need to be installed every 500 ft on said pipe line.

Geoflow offers standard kinetic air release/vacuum relief valves and continuous acting air relief valves.

- *Standard Kinetic Air Vent / Vacuum Relief Valves* close once the line is under pressure. These are usually used in the drip zone at the high points, downstream of the zone valve. They will automatically exhaust large volumes of air from the system when it is being filled and also allow air to re-enter the pipe line when being emptied. When the system is filled, the fluid lifts the float until it closes the orifice. The orifice will remain closed until the system is emptied. Air may enter the valve and displace the fluid while the system is in operation, however, internal pressure will continue to hold the valve closed. The valve will not re-open until the system pressure drops to near atmospheric pressure and the float is no longer buoyed. Geoflow part numbers APVBK100M, APVBK100L, APVBK1.
- *Continuous Acting Air Vent / Vacuum Relief Valves* allow air which remains in the pipeline, or which enters the pipeline after startup, to escape. These are usually found upstream of zone valves or subzone valves. They automatically expel small amounts of air which collect at system high points once the system is filled up to pressure and fluid is flowing. At shut down they will allow air to enter the pipelines. Geoflow part numbers ARV100, ARV200.

With larger systems it is important to remember that the column of water moving in a big diameter pipe is like a ship or train moving vs. the column of water in a small diameter that can be more readily equated to that of a car moving. It takes a lot of energy to change direction or stop either the train or ship based on their sheer weight and momentum. Adequate placement of air vacuum relief will go a long way to avoid problems, but slow opening and closing valves carry equal weight in the avoidance of problems.

AIR VENTS / VACUUM RELIEF VALVES

Standard Kinetic Air/Vacuum Relief Valve - Elbow

Description

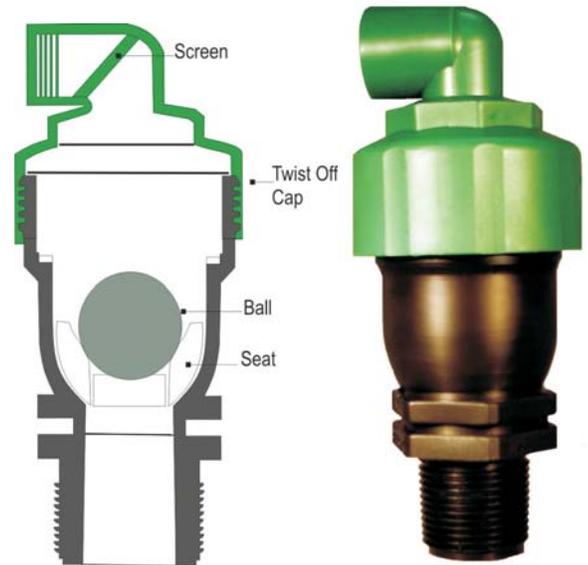
Air release occurs when air escape the system at startup and vacuum relief allows air to enter during shutdown. The air vent vacuum breakers are installed at the highest points in the drip field to keep soil from being sucked into the emitters due to back siphoning and back pressure. This is an absolute necessity with underground drip systems. They are also used for proper drainage of the supply and return manifolds. Use one on the high point of the supply manifold and one on the high point of the return manifold and any high points of the system.

Features

Geoflow's kinetic air vacuum breakers have a twist off cap that is easy to take apart for cleaning. The large clear passageway allows lots of air to flow in and out easily. The elbow cap design is ideal for directing wastewater spray, directing spray downward. With the ball removed, these airvents can easily be used as a flush port. These can be used in freezing climates to capture warmer air that can be found below ground, in a sump during vacuum.

Specification

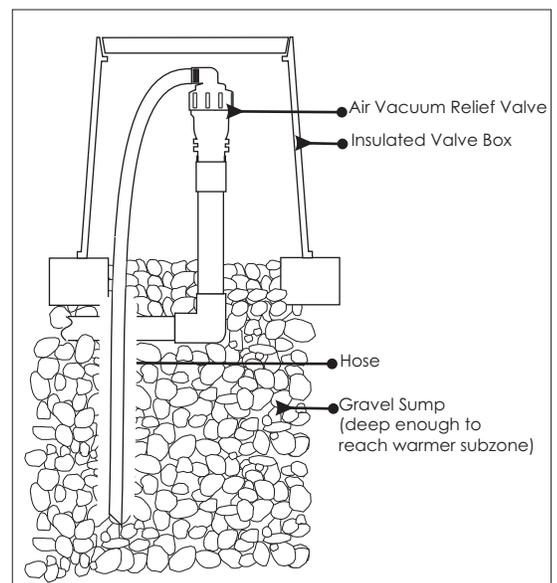
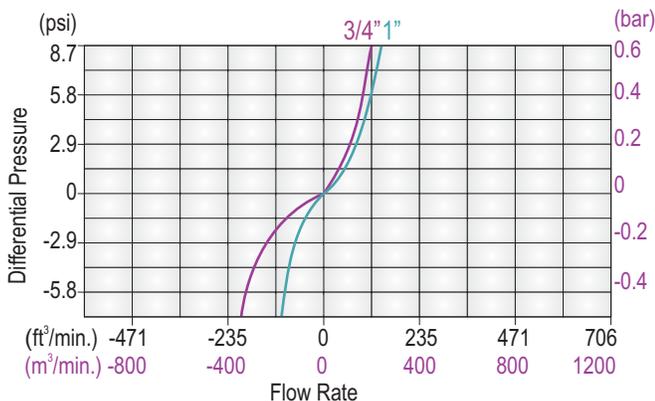
The Air Vacuum Breaker shall provide instant vacuum relief and air relief. Both the body and the ball shall be made of molded plastic. The ball shall be removable for easy cleaning. The air vacuum breaker shall be part number APVBK75L or APVBK100L as supplied by Geoflow, Inc.



APVBK100L

Part No.	APVBK75L	APVBK100L
Inlet	3/4"	1"
Max Pressure	80 psi/185 ft.	80 psi/185 ft.
Max Temp	140° F	140° F
Height	5"	5.5"
Weight	1 oz.	1.2 oz.

Air and Vacuum Flow Rate



APVBK100L - Plumbed for Freezing

AIR VENTS / VACUUM RELIEF VALVES

Standard Kinetic Air/Vacuum Relief Valve - Mushroom Top

Description

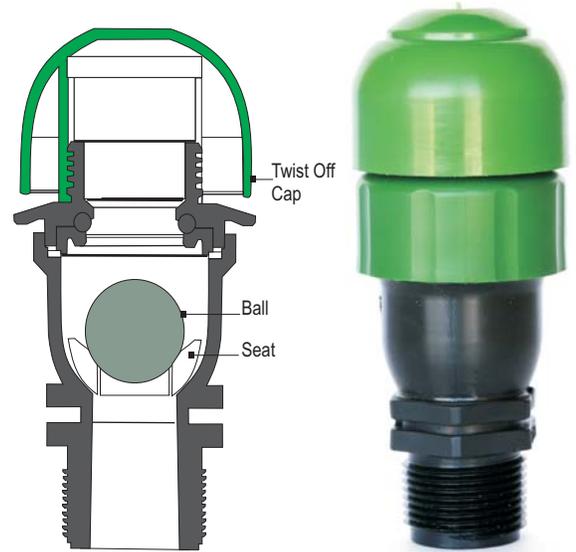
Air release occurs when air escape the system at startup and vacuum relief allows air to enter during shutdown. The air vent vacuum breakers are installed at the highest points in the drip field to keep soil from being sucked into the emitters due to back siphoning and back pressure. This is an absolute necessity with underground drip systems. They are also used for proper drainage of the supply and return manifolds. Use one on the high point of the supply manifold and one on the high point of the return manifold and any high points of the system.

Features

Geoflow's kinetic air vacuum breakers have a twist off cap that is easy to take apart for cleaning. The large clear passageway allows lots of air to flow in and out easily. The elbow cap design is ideal for directing wastewater spray, directing spray downward. With the ball removed, these airvents can easily be used as a flush port. These can be used in freezing climates to capture warmer air that can be found below ground, in a sump during vacuum.

Specification

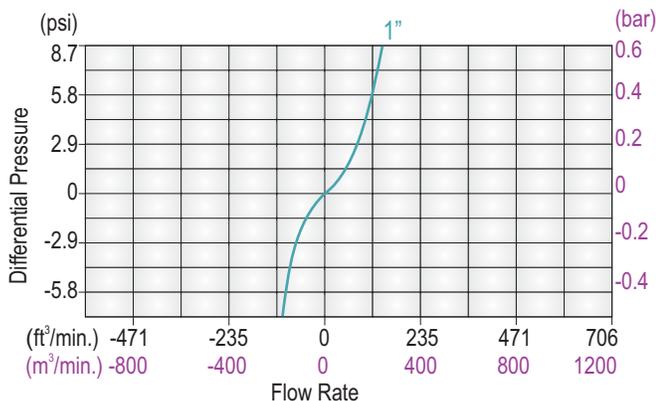
The Air Vacuum Breaker shall provide vacuum relief and non-continuous air relief. Both the body and the ball shall be made of molded plastic. The ball shall be removable for easy cleaning. The air vacuum breaker shall be part number APVBK100M as supplied by Geoflow, Inc.



APVBK100M

Part No.	APVBK100M
Inlet	1"
Max Pressure	80 psi/185 ft.
Max Temp	140° F
Height	5.5"
Weight	1.2 oz.

Air and Vacuum Flow Rate



AIR VENTS / VACUUM RELIEF VALVES

Continuous Air Vent / Vacuum Relief Valve

Description

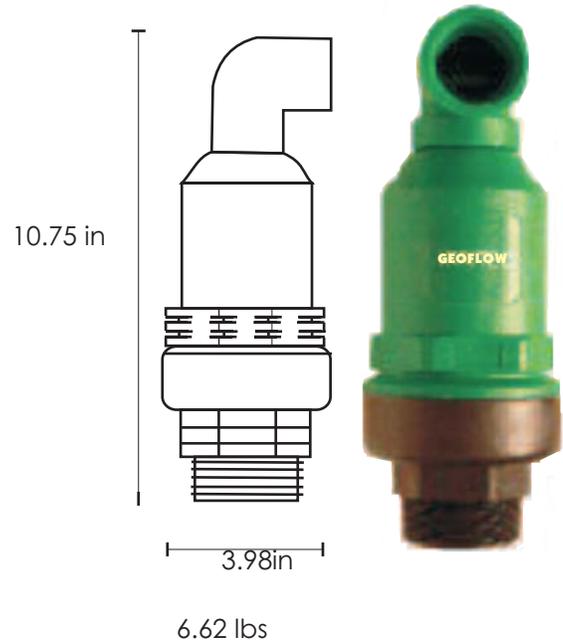
Continuous air vents allow air which remains in the pipeline, or which enters the pipeline after startup, to escape. These are usually found upstream of zone valves or subzone valves. They automatically expel small amounts of air which collect at system high points once the system is filled up to pressure and fluid is flowing. At shut down they will allow air to enter the pipelines. Geoflow part numbers ARV100, ARV200.

Features

Geoflow's continuous air vent / vacuum breakers have a twist off cap that is easy to take apart for cleaning. Tily. The elbow cap design is ideal for directing wastewater spray, directing spray downward. With the ball removed, these airvents can easily be used as a flush port. These can be used in freezing climates to capture warmer air that can be found below ground, in a sump during vacuum.

Specification

The Air Vacuum Breaker shall provide vacuum relief and continuous air relief. Both the body and the ball shall be made of molded plastic. The ball shall be removable for easy cleaning. The air vacuum breaker shall be part number ARV100 OR ARV200 as supplied by Geoflow, Inc.



- 200 psi working pressure
- Inlet @1in NPT
- Outlet 1.25socket PVC ell
- Seals at 1 psi
- Clear open diameter of 1.29"

