D-025 PN 10

sawege

COMBINATION AIR VALVE FOR SEWAGE “SAAR” SHORT VERSION

Description

The Combination Air Valve combines an Air & vacuum large orifice and an Automatic small orifice in a single body.
The valve is specially designed to operate with liquids carrying solid particles such as sewage and effluent.
The combination air valve discharges air (gases) during the filling or charging of the system, admits air to the system while it is being emptied of liquid and discharges accumulated air (gases) from the system while it is under pressure and operating.
The valve's unique design guarantees complete separation of the liquid from the sealing mechanism and provides optimum work conditions.

Operation

The air & vacuum component, discharges air at high flow rates during the filling of the system and admits air into the system at high flow rates during its drainage.
High velocity air cannot blow the float shut. Water entry to the lower portion of the valve will cause the sealing of the valve.
At any time during system operation, should internal pressure of the system fall below atmospheric pressure, air will re-enter the system.
The smooth release of air prevents pressure surges and other destructive phenomena.
Admitting air in response to negative pressure protects the system from destructive vacuum conditions and prevents damage caused by water column separation. Air re-entry is essential to efficiently drain the system.
The automatic component, releases entrapped air from peaks of pressurized systems where the valve should be installed. Pockets of accumulated air may cause the following destructive phenomena:

- Impediment of effective flow and hydraulic conductivity of the system along with a throttling effect as would a partially closed valve.

In extreme cases this will cause complete flow stoppage.

- Accelerate cavitation damages.
- High-pressure surges.
- Accelerate corrosion of metal parts.
- Danger of a high-energy burst of compressed air.

As the system starts to fill, the valve functions according to the following stages:

1. Entrapped air is released by the valve
2. When the sewage level reaches the valve's lower portion, the lower float rises, and draws the "seal plug" to its sealing position.
3. The entrapped air is confined in a pocket between the sewageand and the sealing mechanism. The air pressure is the system pressure.
4. Increases in system pressure compress the trapped air in the upper section of the cone shaped chamber. The conical shape guarantees the height of the air gap. This assures complete separation of the liquid from the sealing mechanism.
5. Entrapped air (gas) accumulating at peaks (where air valves should be installed) along the system rises to the top of the valve, which in turn displaces the liquid in the valve's body.
6. When the liquid level is lowered to a point where the float is no longer buoyant, the float will descend, peeling the rolling seal. This action opens the valve's orifice and allows part of the air that accumulated in the upper portion of the valve to be released to the atmosphere.
7. Liquid enters the valve. The float rises, rolling the rubber-sealing band to its sealing position. The remaining air gap prevents the sewage from fouling the mechanism.

When internal pressure falls below atmospheric pressure (negative pressure):

1. Both orifices will be immediately unplugged as the floats drop away.
2. Air is admitted to the system.

Main Features

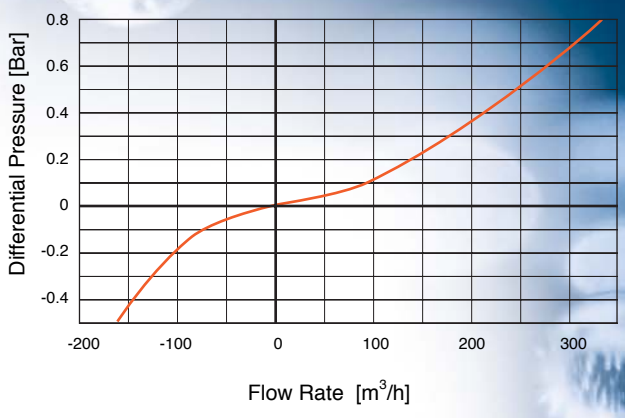
- Working pressure range: 0.2-10 bar.
- The valve's unique design prevents any contact between sewage and the sealing mechanism by creating an air gap at the top of the valve. This air gap is guaranteed even under extreme conditions. Those features are achieved by:
- The conical body shape designed to: maintain the maximum distance between the liquid and the Sealing Mechanism; so as to obtain minimum body length.
- Spring loaded joint between the stem and the upper float. Vibrations of the lower float will not unseal the automatic valve. Release of air will occur only after enough air accumulates.
- The valve design, Rolling Seal Mechanism: is less sensitive to pressure differentials than a direct float seal. It accomplishes this by having a comparably large orifice for a wide pressure range (up to 10 bar).
- Funnel-shaped lower body is designed to ensure that residue sewage matter will sink to the system and be carried away and will not remain in the valve.
- All inner metal parts made of stainless steel. Float made of plastic materials.
- 1 1/2" threaded drainage outlet enables removal of excess fluids.
- Preventing premature closing the valve discharges air at high velocity.
- Working Temperature 60^0 C.

Maximum instantaneous working temperature 90^0 C.

Valve Selection

- These valves are available with 2", 3" male BSP connections, or flanged, ANSI standard.
- These valves are available with body made of reinforced nylon or stainless steel SAE 316 or ductile iron
- With a Vacuum Guarding, Out-only attachment, which only allows air discharge, not allowing air intake.
- With a Vacuum Breaking, In-only attachment, which only allows air intake, not allowing air discharge.
- With a Non-Slam, discharge-throttling attachment, which allows free air intake, but throttles air discharge.
- For best adjustment. it is recommended to send the flouids chemical propertiest along with the requirment.

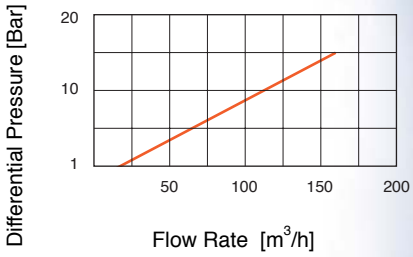
AIR AND VACUUM FLOW RATE



DIMENSIONS AND WEIGHTS

Nominal Size	Dim. mm A	B	C	Weight Kg. Nylon	St.St.	Orifice Area mm² Auto.	Kin.
2" (50mm) Treaded	370	455	1.5	3.8	14.4	12	804
2" (50mm) Flanged	370	460	1.5	4.2	16.2	12	804
3" (80mm) Treaded	370	455	1.5	3.8	-	12	804
3" (80mm) Flanged	370	460	1.5	5.4	16.5	12	804
4" (100mm) Treaded	370	455	1.5	3.9	-	12	804
4" (100mm) Flanged	370	460	1.5	6.0	18.4	12	804

AUTOMATIC AIR DISCHARGE



PARTS LIST AND SPECIFICATION

No.	Part	Material
1.	Drainage Outlet	Polypropylene
2.	Seal Plug Assembly	R.N. + E.P.D.M. + St. St.
3.	Float	Foamed Polypropylene
4.	Clamping Stem	Reinforced Nylon
5.	Body	Reinforced Nylon / St. St.
6.	Crown Nut	Stainless Steel SAE 316
7.	O-Ring	Viton / BUNA-N
8.	Stopper	Acetal
9.	Spring	Stainless Steel SAE 316
10.	Washer	Stainless Steel SAE 316
11.	Stem	Stainless Steel SAE 316
12.	Body	R.N. / St.St./ Ductile Iron
13.	Clamp	Stainless Steel SAE 316
14.	O-Ring	BUNA-N
15.	Float	Foamed Polypropylene
16.	Tap	Brass ASTN A124
17.	Washer	Stainless Steel SAE 316
18.	Base	R.N. / St.St./ Ductile Iron