



S-021 PN 10



WASTEWATER

Automatic Air Release Valve for Reclaimed and Non-Potable Water

Description

The S-021 Automatic Air Release Valve is specially designed to operate with liquids carrying solid particles.

The automatic air release valve releases accumulated air from the system while it is under pressure.

The valve's unique design enables the separation of the liquid from the sealing mechanism and assures optimum working conditions.

The presence of air in a reclaimed and non-potable water system can reduce the effective cross sectional flow area, resulting in increased pressure loss and decreased flow.

Unwanted air may also cause water hammer and metering inaccuracies, while hastening corrosion.

Applications

- Reclaimed water
- Raw water
- Effluent water
- Water with suspended solids
- Coolant water

Operation

The S-021 is an air release valve for reclaimed and non-potable water systems.

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

1. When the liquid level reaches the valve's lower portion, the lower float is lifted, pushing the sealing mechanism to its sealing position.
2. The entrapped air is confined in a pocket between the liquid and the sealing mechanism. The air pressure is equal to the system pressure.
3. Increases in system pressure compress the trapped air in the upper section of the conical chamber. The conical shape assures the height of the air gap. This enables separation of the liquid from the sealing mechanism.
4. Entrapped air (gas), accumulating at peaks along the system, rises to the top of the valve, and displaces the liquid in the valve's body.
5. When the liquid level is lowered to a point where the float is no longer buoyant, the float drops, unsealing the rolling seal. The air release orifice opens and allows part of the air that accumulated in the upper portion of the valve to be released to the atmosphere.
6. Liquid re-enters the valve. The float rises, pushing the rolling seal to its sealing position. The remaining air gap prevents the wastewater from fouling the mechanism.

Note: the automatic air valves are specifically designed to release air as it accumulates at the high points of a pressurized, operating

system. Because of their inherently small orifice size, they are not recommended for vacuum protection or for discharging large quantities of air or gas, although they will admit some air into the system under vacuum conditions.

Main Features

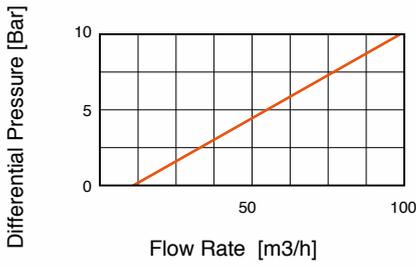
- Working pressure range: 0.2-10 bar
- Testing pressure: 16 bar
- Maximum working temperature: 60° C.
- Maximum intermittent temperature: 90° C.
- Body made of composite plastic material, resistant to corrosion.
- Internal metal parts are made of corrosion-resistant stainless steel.
- Floats are made of composite materials.
- Flexible rolling seal provides smooth positive opening, closing, and leak-free sealing over a wide range of pressure differentials.
- 1/8" threaded discharge outlet enables removal of excess fluids.
- Drainage tap with ball valve is provided.
- The unique design of the valve prevents contact between the wastewater and the sealing mechanism by creating an air gap at the top of the valve. These features are achieved by:
 - **The conical body shape:** designed to maintain the maximum distance between the liquid and the sealing mechanism and still obtain minimum body length.
 - **Funnel-shaped lower body:** designed to ensure that residue wastewater matter will fall back into the system and be carried away by the main pipe.
 - **Rolling seal:** provides smooth positive opening, closing, and leak free sealing over a wide range of pressure differentials.

Valve Selection

- Size Range: 1" & 2" with a BSP/NPT male threaded connection or flanged, standard upon request.
- Flange is manufactured of composite materials.
- These valves are available with a 1", 2" BSP or NPT male threaded connection, or flanged ends to meet any requested standard.
- Additional one-way out check valve attachment allows air discharge, not allowing air intake.
- For best suitability, it is recommended to send the fluid chemical properties along with the valve request.

Upon ordering, please specify: model, size, working pressure, threads standard and type of liquid.

AUTOMATIC AIR DISCHARGE



DIMENSIONS AND WEIGHTS

Model	Dimensions mm			Weight Kg.	Orifice Area mm ²
	A	B	C		
1" 2"	216	324	3/8" BSP	1.78	12

PARTS LIST AND SPECIFICATION

No. Part	Material
1. Body	Reinforced Nylon
2. Discharge Outlet	Polypropylene
3. Rolling Seal	E.P.D.M.
4. Clamping Stem	Reinforced Nylon
5. Float	Foamed Polypropylene
6. O-Ring	BUNA-N
7. Body	Reinforced Nylon
8. Float Stem	Stainless Steel SAE 316
9. Clamp	Reinforced Nylon
10. O-Ring	BUNA-N
11. Bolt & Nut	Stainless Steel SAE 316
12. Float	Foamed Polypropylene
13. Base	Reinforced Nylon
14. Ball Valve	Brass

