



# S-021 PN 10



## Automatic Air Release Valve for Reclaimed and Non-Potable Water

### Description

The S-021 Automatic Air Release Valve is specifically designed to operate with liquids carrying low concentrations of solid particles. The automatic air release valve releases accumulated air (gas) 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 head loss and decreased flow.

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

### Applications

Water with low concentrations of suspended solids:

- Reclaimed water
- Raw water
- Effluent water
- Coolant water

### Operation

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

**As the system fills and is pressurized, 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 rolling seal 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 and 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 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 connection of a vent pipe.
- Drainage tap with ball valve is provided.
- The unique design of the valve prevents contact between the reclaimed water 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.
  - **Independent spring-guided linkage between the lower float/rod assembly and the upper float sealing mechanism:** allows free movement of the float and rod. Vibrations and movement of the lower float due to turbulence will not unseal the upper float sealing mechanism.
  - **Funnel-shaped lower body:** designed to ensure that residue reclaimed water 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.
- The ball valve can be opened to release trapped pressure and drain the valve body prior to maintenance and for back-flushing during maintenance.

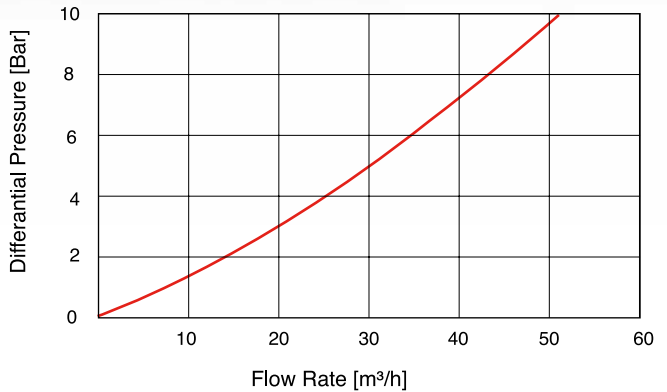
### Valve Selection

- Size Range: 1" & 2" BSP or NPT male threaded connection or flanged to meet any requested standard.
- Flanges are manufactured of composite materials.
- Additional one-way out check valve attachment allows air discharge, not allowing air intake.

## Note

- The S-021 air valve is intended for use with reclaimed and non-potable water. For use with aggressive liquids and liquids containing high concentrations of solid particles, please consult with our application engineers or with the marketing dept.
- 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, thread and flange standard and type of liquid.

## AUTOMATIC AIR RELEASE FLOW RATE



## DIMENSIONS AND WEIGHTS

Nominal Size	Dimensions mm		Connection C	Weight Kg.	Orifice Area mm²
	A	B			
1" (50mm)	216	324	1/8" BSP Female	1.78	12
2" (80mm)	216	324	1/8" BSP Female	1.78	12

## PARTS LIST AND SPECIFICATION

No. Part	Material
1. Body	Reinforced Nylon
2. Air Release Outlet	Polypropylene
3. Rolling Seal	EPDM
4. Clamping Stem	Reinforced Nylon
5. Float	Foamed Polypropylene
6. O-Ring	BUNA-N
7. Body	Reinforced Nylon
8. Float Stem	Stainless Steel 316
9. Clamp	Reinforced Nylon + Stainless Steel 316
10. O-Ring	BUNA-N
11. Float	Foamed Polypropylene
12. Base	Reinforced Nylon
13. Ball Valve 1/4"	Brass, Nickel Plated

