

S-020 PN 16

S-022 PN 25



Automatic Air Release Valve for Wastewater

Description

The S-020 and S-022 Automatic Air Release Valves are specifically designed to operate with liquids carrying solid particles such as wastewater and effluent.

The valve releases accumulated air (gas) from the system while under pressure and operating.

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 wastewater system can reduce the effective cross sectional flow area, resulting in increased head loss and decreased flow.

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

Applications

- Pump stations for sewage, wastewater & water treatment plants.
- Wastewater and effluent water transmission lines.

Operation

A.R.I. models S-020, S-022 are air release valves for wastewater 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 sealing 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: Automatic air release valves are designed to release air as it accumulates at peaks in pressurized systems. They are not normally recommended for vacuum protection or for discharging large volumes of air, because of their inherently small orifices. For this purpose, air & vacuum valves are recommended as they have much larger orifices.

However, air release valves will permit air to enter the system under vacuum conditions. If this is not desirable, specify the one-way out check valve.

Main Features

- Working pressure range: S-020 0.2 - 16 bar, S-022 0.2 - 25 bar
- Testing pressure: S-020 25 bar, S-022 40 bar
- Maximum working temperature: 60° C.
- Maximum intermittent temperature: 90° C.
- 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.
 - **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 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.
- Internal metal parts: made of corrosion resistant stainless steel.
- Threaded outlet enables connection of a vent pipe.
- 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: 2"– 4".
- These valves are manufactured with flanged ends to meet any requested standard
- The 2" valve is also available with a BSP or NPT male threaded connection.
- Standard welded/cast steel body, also available in stainless steel.
- Valve body coating: fusion bonded epoxy coating according to the standard DIN 30677-2.
- Other coatings are available upon request.
- Available in S-020 - PN16, S-022 - PN25.

Note

- The S-020, S-022 air valves are intended for use with raw wastewater. For use with aggressive liquids, 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.

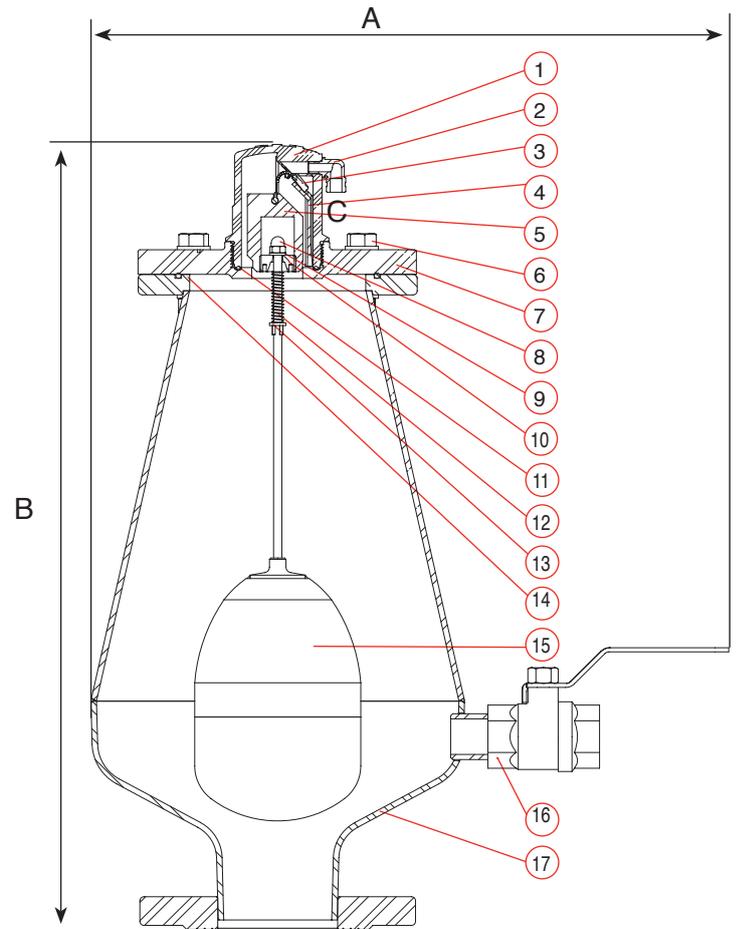
DIMENSIONS AND WEIGHT

Nominal Size	Dimensions mm		Connection C	Weight Kg.	Orifice Area mm ²
	A	B			
2" (50 mm) Threaded	463	575	1/8" BSP Female	16	12
2" (50 mm) Flanged	463	575	1/8" BSP Female	17	12
3" (80 mm) Threaded	463	575	1/8" BSP Female	17	12
3" (80 mm) Flanged	463	575	1/8" BSP Female	18	12
4" (100 mm)	463	575	1/8" BSP Female	19	12

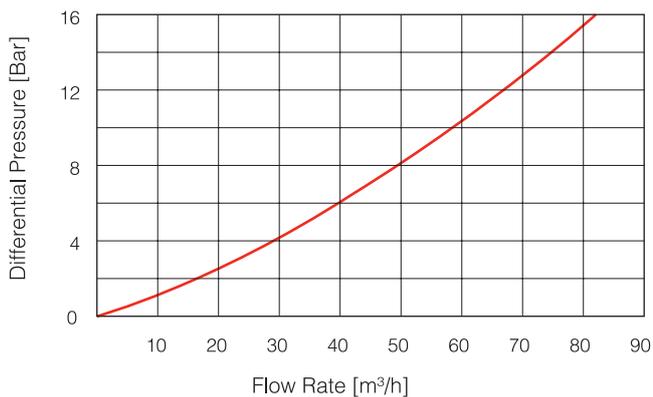


PARTS LIST AND SPECIFICATION

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. Bolt, Nut & Washer	Stainless Steel 316
7. Cover	Reinforced Nylon
8. Domed Nut	Stainless Steel 304
9. Washer	Stainless Steel 316
10. Stopper	Polypropylene
11. O-ring	BUNA-N
12. Spring	Stainless Steel 316
13. Washer	Stainless Steel 316
14. O-ring	BUNA-N
15. Float Assembly	Polypropylene / Stainless Steel 316
16. Ball Valve 1"	Brass, Chrome Coated / Stainless Steel 316
17. Body 2", 4" - 8"	Carbon Steel / Stainless Steel 316
3"	Carbon Steel / Stainless Steel 316 / Cast Steel / Cast Stainless Steel



AUTOMATIC AIR RELEASE FLOW RATE



DIMENSIONS AND WEIGHT

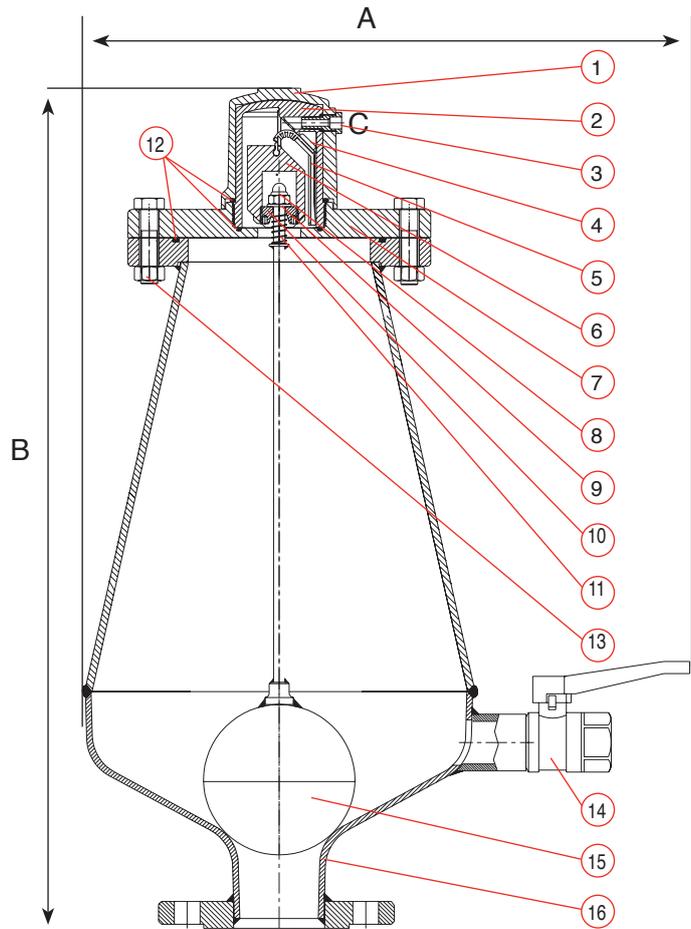
Nominal Size	Dimensions mm		Connection C	Weight Kg.	Orifice Area mm ²
	A	B			
2" (50 mm) Threaded	463	593	1/8" BSP Female	17	9
2" (50 mm) Flanged	463	593	1/8" BSP Female	18	9
3" (80 mm) Threaded	463	593	1/8" BSP Female	18	9
3" (80 mm) Flanged	463	593	1/8" BSP Female	19	9
4" (100 mm)	463	593	1/8" BSP Female	20	9



PARTS LIST AND SPECIFICATION

No. Part	Material
1. Shell	Ductile Iron
2. Body	Reinforced Nylon
3. Air Release Outlet	Brass
4. Rolling Seal	EPDM
5. Clamping Stem	Reinforced Nylon
6. Float	Foamed Polypropylene
7. Cover	Carbon Steel / Stainless Steel 316
12. O-Ring	BUNA-N
8. Domed Nut	Stainless Steel 304
9. Washer	Stainless Steel 316
10. Stopper	Polypropylene
11. Spring	Stainless Steel 316
13. Bolt, Nut & Washer	Stainless Steel 316
14. Ball Valve 1"	Brass Chrome Coated / Stainless Steel 316 / 317
15. Float Assembly	Polypropylene / Stainless steel 316
16. Body 4" - 8"	Carbon Steel / Stainless Steel 316
2" 3"	Carbon Steel / Stainless Steel 316 / Cast Steel / Cast Stainless Steel

* The float in the drawing is made of St.St.



AUTOMATIC AIR RELEASE FLOW RATE

