S-022 360 PSI

Wastewater

Automatic Air Release Valve for Wastewater

Description

The S-022 Automatic Air Release Valve is specially designed to operate with liquids carrying solid particles such as wastewater and effluent.
The valve releases accumulated air (gases) 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 flowarea, resulting in increased headloss and decreased flow.
Unwanted air may also cause water hammer and metering inaccuraries, while hastening corrosion.

Applications

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

Operation

A.R.I. model S-022 is an air release valve for wastewater 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: 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 re-enter the system under vacuum conditions. If this is not desirable, specify the one-way out check valve.

Main Features

- Working pressure range: 3 - 360 psi
- Testing pressure: 580 psi
- Maximum working temperature: 140° F.
- Maximum intermittent temperature: 194° F.
- 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.
• **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.
• **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.
- Includes a drainage port with ball valve.

Valve Selection

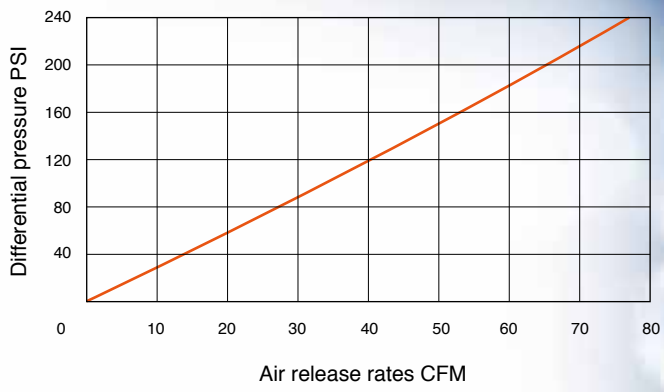
- Size range: 2" – 4".
- These valves are manufactured with flanged ends to meet ASA 300 standard or any requested standard
- The 2" valve is also available with a NPT male threaded connection.
-These valves are available with a Stainless Steel or Steel DIN ST.37 body.

- The Steel body coating: FBE coating according to the international standard DIN 30677-2.
- Other coatings are available upon request.

-For best suitability, it is recommended to send the fluid chemical properties along with the valve request.

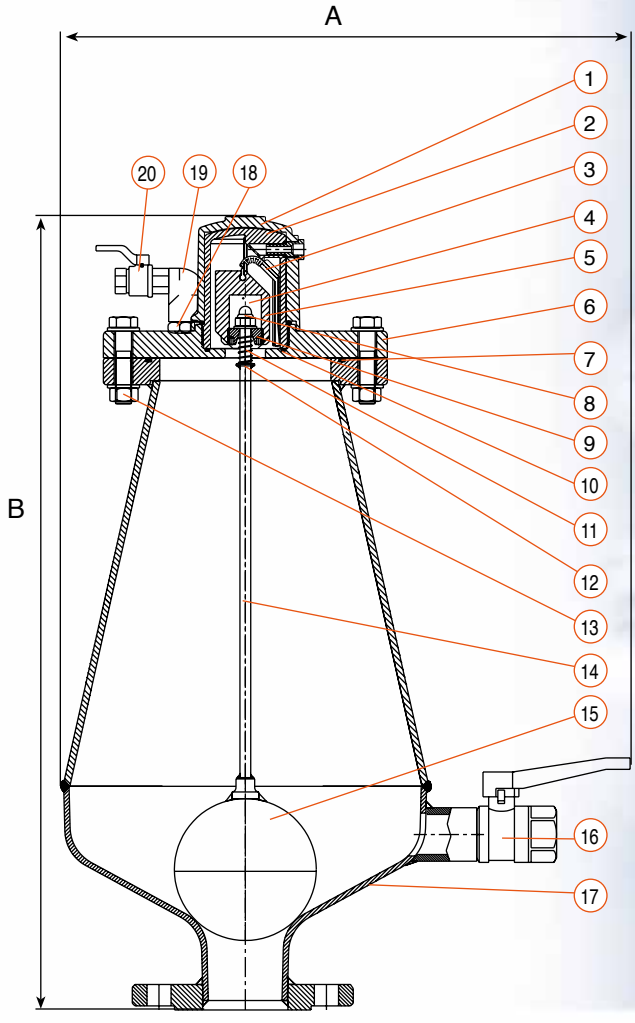
Upon ordering, please specify: model, size, working pressure, threads standard and type of liquid.

AUTOMATIC AIR RELEASE



DIMENSIONS AND WEIGHTS

Nominal Size	Dimensions inch A	B	Weight Lbs.	Orifice Area Sq.in
2" Threaded	16.8	22.65	37.5	0.014
2" Flanged	16.8	22.65	39.7	0.014
3"	16.8	22.65	41.9	0.014
4"	16.8	22.65	44.1	0.014



PARTS LIST AND SPECIFICATION

No.	Part	Material
1.	Body	Ductile Iron
2.	Sleeve	Reinforced Nylon
3.	Rolling Seal	Rubber E.P.D.M.
4.	Float	Foamed Polypropylene
5.	Clamping Stem	Reinforced Nylon
6.	Cover	St.St.SAE 316 / Steel DIN ST37
7.	O-Ring	BUNA-N
8.	Domed Nut	Stainless Steel SAE 316
9.	Stopper	Polypropylene
10.	O-Ring	BUNA-N
11.	Spring	Stainless Steel SAE 316
12.	Washer	Stainless Steel SAE 316
13.	Bolts and Nuts	Stainless Steel SAE 316
14.	Stem	Stainless Steel SAE 316
15.	Float	Stainless Steel SAE 316
16.	Ball Valve	Stainless Steel SAE 316
17.	Body	St.St.SAE 316 / Steel DIN ST37
18.	Nipple	Stainless Steel / Brass
19.	Angle	Stainless Steel /Brass
20.	Ball Valve	St.St. / Brass Chrome Plated