



D-016 PN 64



WATER SUPPLY

COMBINATION AIR VALVE FOR HIGH PRESSURE

Description

The combination air valve has the features of both an Air-release valve and an Air/vacuum valve. The air-release component was designed to automatically release to the atmosphere small pockets of air as they accumulate at local high points along a pipeline when the pipeline or piping system is full and operating under pressure. The air/vacuum component was designed to automatically discharge or admit large volumes of air during the filling or draining of a pipeline or piping system. This valve will open to relieve negative pressures whenever water column separation occurs.

Operation

The air & vacuum component, with the large orifice, exhausts air at high flow rates during the filling of the system and admits air at high flow rates during its drainage.

High velocity air, or even air mixed with a mist of water spray, cannot blow the float shut. Water entry 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 Air Release 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.

- Inaccuracies in flow metering.

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

1. Entrapped air is released by the valve.
2. Liquid enters the valve lifting the floats and sealing
3. Entrapped air, which accumulates at peaks along the system (where combination air valves should be installed), rises to the top of the valve, which in turn displaces the liquid in the valve's body.
4. The float descends, peeling the rolling seal, the orifice opens and the accumulated air is released.
5. Liquid penetrates into the valve, the float rises, rolling the rolling seal to its sealing position.

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

1. The float will immediately drop away from the orifice.
2. Air is admitted to the system.

Main Features

- Working pressure range: 0.2-64 bar.
- Test pressure for the air valve is 1.5 times its working pressure.
- Working Temperature: 60°C.
- Maximum short-term temperature: 90°C.
- Reliable operation reduces water hammer incidents. Dynamic design allows high velocity air discharge; Preventing premature closing.
- Lightweight, small dimensions, simple and reliable structure.
- Special orifice seat design: combination of bronze and E.P.D.M rubber, assures long-term maintenance free operation.
- The drainage outlet enables removal of excess fluids.

Automatic component

- Large orifice:

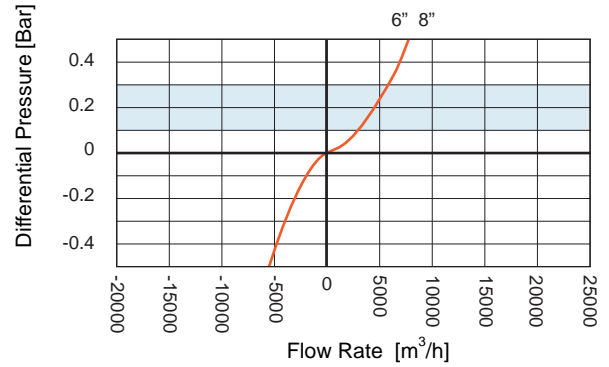
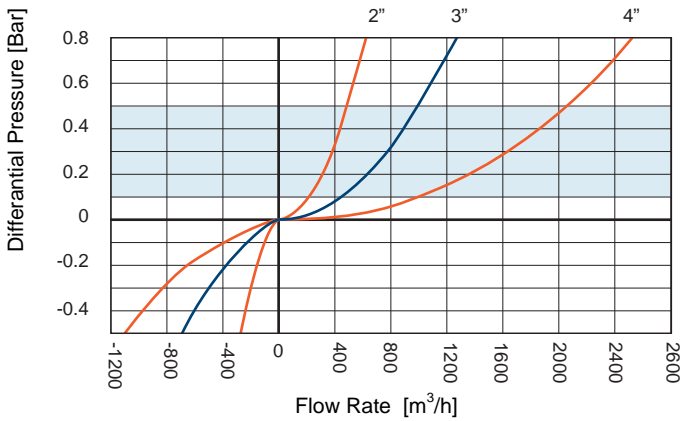
Dramatically reduces the possibility of obstruction by debris. Discharges high air flow rates.

One size orifice for a wide pressure range (up to 64 bar).

Achieved by: A.R.I patent, Rolling Seal Mechanism.

- Body made of high strength materials.
- All operating parts are made of specially selected corrosion resistant polymer materials.

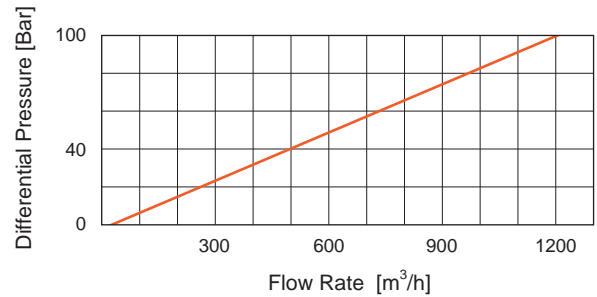
AIR AND VACUUM FLOW RATE reccomended range



DIMENSIONS AND WEIGHT

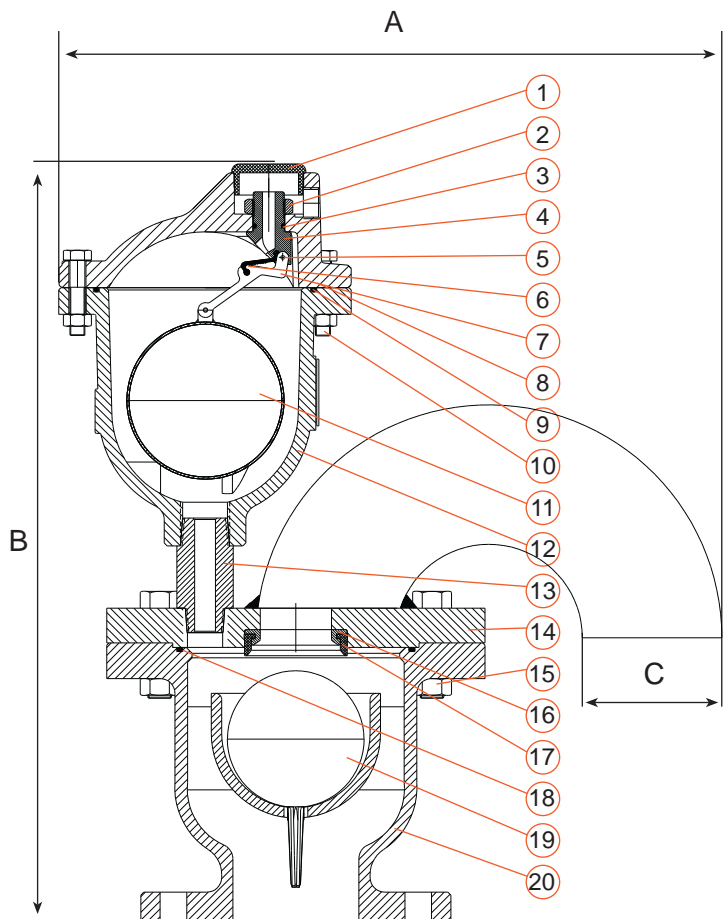
Nominal Size	Dimensions mm				Orifice Area mm ²	
	A	B	internal	C	Kin.	Auto.
2" (50mm)	330	478	54	60	794	15
3" (80mm)	447	513	81	89	1809	15
4" (100mm)	468	595	81	89	2463	15

AUTOMATIC AIR DISCHARGE



PARTS LIST AND SPECIFICATION 2"-4"

No.	Part	Material
1.	Plastic Cover	Polypropylene
2.	Nut	Brass ASTM B-124
3.	O-Ring	BUNA-N
4.	Nozzel	Acetal
5.	Pin	Stainless Steel SAE 316
6.	Rolling Seal	Rubber E.P.D.M.
7.	Lever Seal	Acetal
8.	Cover	Cast Steel ASTM A216 WCB
9.	O-Ring	BUNA-N
10.	Bolt and Nut	Steel Zinc Cobalt Plated
11.	Float	Stainless Steel SAE 316
12.	Body	Cast Steel ASTM A216 WCB
13.	Adapter	Brass ASTM B124
14.	Cover	Steel DIN-ST37
15.	Bolt and Nut	Steel Zinc Cobalt Plated
16.	Nozzel Seat	Bronze ASTM B62 B271 C83600
17.	Nozzel Seat	Natural and Synthetic Rubber
18.	O-Ring	BUNA-N
19.	Float	Polycarbonate
20.	Body	Cast Steel ASTM A216 WCB



PARTS LIST AND SPECIFICATION 6", 8"

DIMENSIONS AND WEIGHT

No.	Part	Material
1.	Plastic Cover	Plastic
2.	Nut	Brass ASTM B-124
3.	O-Ring	BUNA-N
4.	Nozzel	Reinforced Nylon
5.	Pin	Stainless Steel SAE 316
6.	Rolling Seal	Rubber E.P.D.M.
7.	Lever Seal	Reinforced Nylon
8.	O-Ring	BUNA-N
9.	Cover	Cast Steel ASTM A216 WCB
10.	Bolt and Nut	Steel Zinc Cobalt Coated
11.	Float	Polycarbonate
12.	Body	Cast Steel ASTM A216 WCB
13.	Adapter	Brass ASTM B124
14.	Cover	Cast Steel ASTM A216 WCB
15.	O-Ring	BUNA-N
16.	Nozzel Seat	Stainless Steel SAE 304
17.	Nozzel Seal	Rubber E.P.D.M.
18.	Body	Cast Steel ASTM A216 WCB
19.	Float	Stainless Steel SAE 316
20.	Bolt and Nut	Steel Zinc Cobalt Plated
21.	Protective Cover	Cast Iron ASTM A48 CL.35B
22.	O-Ring	BUNA-N

Nominal Size	Dimensions mm				Orifice Area mm ²	
	A	B	C		Kin.	Auto.
			internal	externa		
6" (150mm)	577	727	108	124	17662	15
8" (200mm)	577	727	108	124	17662	15

