



D-015 PN 40



Combination Air Valve for High Pressure

Description

The D-015 Combination Air Valve has the features of both an air release valve and an air & vacuum valve.

The air release component is designed to automatically release small pockets of air to the atmosphere as they accumulate along a pipeline or piping system when it is full and operating under pressure.

The air & vacuum component is 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.

Applications

Municipal and industrial high pressure water conveyance systems.

Operation

The air & vacuum component, with the large orifice, discharges air at high flow rates during the filling of the system and admits air into the system at high flow rates during its drainage and at water column separation.

High velocity air should not blow the float shut. Water will lift the float which seals 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 discharge of air prevents pressure surges and other destructive phenomena.

The intake of 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 air release component releases entrapped air in pressurized systems.

Without air valves, pockets of accumulated air may cause the following destructive phenomena:

- Obstruction 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.
- Acceleration of cavitation damages.
- High-pressure surges.
- Acceleration of corrosion to metal parts.
- Danger of a high-energy burst of compressed air.
- Inaccuracies in flow metering.

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

1. Entrapped air in the pipeline is discharged by the valve.

2. Liquid enters the valve, lifting the float which pushes the sealing mechanism to its sealing position.
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, unsealing the rolling seal. The air release orifice opens and the accumulated air is released.
5. Liquid penetrates into the valve and the float rises, pushing the rolling seal back to its sealing position.

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

1. The floats will immediately drop down, opening the air & vacuum and air release orifices.
2. Air will reenter the system.

Main Features

- Working pressure range: 0.2-40 bar.
- Testing Pressure: 64 bar.
- Maximum working temperature: 60° C.
- Maximum intermittent temperature: 90° C.
- Reliable operation reduces water hammer incidents.
- Dynamic design allows for high velocity air discharge while preventing premature closure.
- 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.

Air Release Component

- Body made of high strength materials.
- All operating parts are made of specially selected corrosion-resistant polymer materials.
- **Large sized air release orifice:**
 - Dramatically reduces the possibility of obstruction by debris.
 - Discharges high air flow rates.
 - One size orifice for a wide pressure range (up to 40 bar), achieved by: A.R.I patented rolling seal mechanism.

Valve Selection

- The D-015 combination air valve is available in sizes 2", 3" 4", 6", 8", 10".
- These valves are manufactured with flanged ends to meet any requested standard.
- Valve coating: baked epoxy coating according to the international

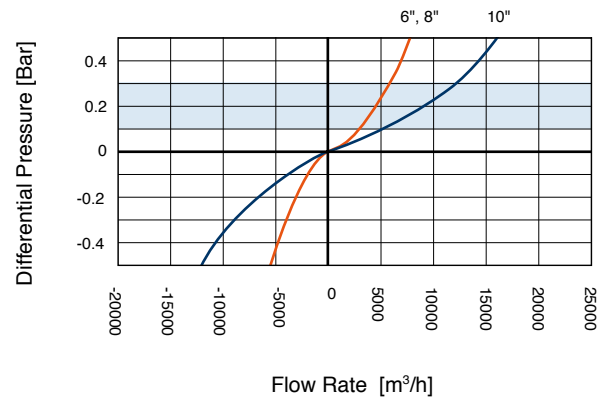
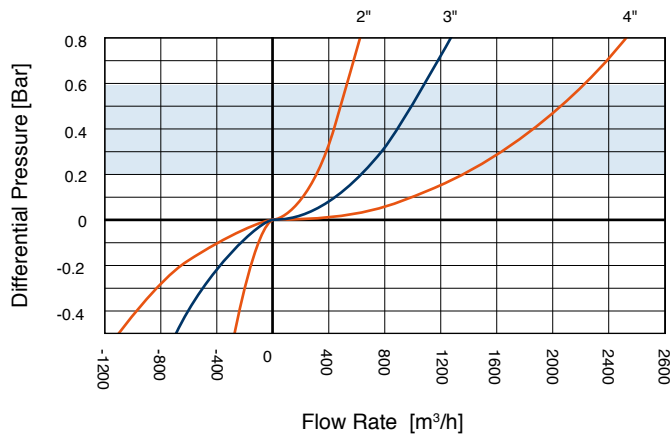
standard DIN 30677-2.

- Other coatings are available upon request.
- The automatic air release component and the air & vacuum component are available as separate units.
- For best suitability, it is recommended to send the fluid chemical properties along with the valve request.

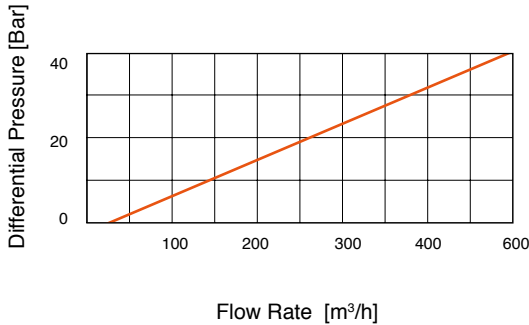
Upon ordering, please specify: model, size, working pressure, threads standard and type of liquid.

AIR AND VACUUM FLOW RATE

recommended range



AUTOMATIC AIR DISCHARGE



DIMENSIONS AND WEIGHT

Nominal Size	Dimensions mm					Weight Kg.	Orifice Area mm ²	
	A	B	internal	C external	D		Kin.	Auto.
2" (50mm) Threaded	213	482	1.5 BSP Threaded	-	1/2	24.4	794	15
2" (50mm) Flanged	213	487	1.5 BSP Threaded	-	1/2	24.4	794	15
3" (80mm)	313	515	63.5	74.6	1/2	38.4	1809	15
4" (100mm)	369	535	80.0	96.0	1/2	53.4	3317	15
6" (150mm)	559	679	124.0	140.0	1/2	97.4	17671	15
8" (200 mm)	559	679	124.0	140.0	1/2	133.4	17671	15
10" (250mm)	463	866	outlet with screen protection		1/2	156.4	31415	15

PARTS LIST AND SPECIFICATION

No. Part	Material
1. Discharge outlet	PVC
2. Rollpin	Stainless Steel SAE 304
3. O-RING	BUNA-N
4. Orifice	Reinforced Nylon
5. Cover	Sphero Nodular ASTM A536 60-40-18
6. Rollpin	Stainless Steel SAE 304
7. Rolling Seal	E.P.D.M.
8. Lever Rolling Seal	Reinforced Nylon
9. Rollpin	Stainless Steel SAE 304
10. O-RING	BUNA-N
11. Bolt, Nut & Washer	Steel, Zinc Cobalt Coated
12. Float	Polycarbonate
13. Body	Sphero Nodular ASTM A536 60-40-18
14. Adaptor	Brass
15. Cover	Sphero Nodular ASTM A536-60-40-18
16. Orifice Seat	Bronze
17. Orifice Seal	E.P.D.M.
18. Washer	Steel, Zinc Cobalt coated
19. O-Ring	BUNA-N
20. Nut	Steel, Zinc Cobalt coated
21. Bolt	Steel, Zinc Cobalt coated
22. Float	Polycarbonate
23. Plug 1/2" BSP	Galvanized Steel
24. Body	Sphero Nodular ASTM A536-60-40-18

