

Combination Air Valve

Model C70

BERMAD C70 is a high quality combination air valve for a variety of water networks and operating conditions. It rapidly evacuates air during pipeline filling, allows efficient release of air pockets from pressurized pipes, and enables large air volume intake in the event of network draining.

With its advanced aerodynamic design, double orifice and anti-slam/slow closing device, this valve provides excellent protection against air accumulation, vacuum formation and surges with improved sealing in low pressure conditions. The valve minimizes water spraying during air release.



Typical Applications

- Pumping stations and deep well pumps – Air relief, surge protection and vacuum prevention.
- Pipelines – Protection against air accumulation and vacuum formation at elevations, slope change points and at road/river crossings.
- Water networks – Protection against vacuum formation, surge and water hammers at points likely to experience water column separation.

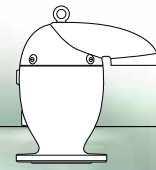
Features & Benefits

- Straight flow body with nominal (equal) inlet and outlet size – Higher than usual flow rates.
- Aerodynamic full-body kinetic shield – Prevents premature closing without disturbing air intake or discharge.
- Dynamic sealing – Prevents leakage under low pressure conditions (1.5 PSI).
- Minimizes water spraying during air release – Innovative 2-step function, automatic orifice (Patent Pending).
- Three optional outlets (sideways, downwards, circular-surround mushroom configuration) that can swivel 360° – Easy to install in a variety of site conditions.
- Compact, simple, robust and reliable structure with fully corrosion-resistant parts – Lower maintenance and increased life span.
- Designed in compliance with EN-1074/4, AWWA C-512 standards.
- Factory approval and Quality Control – Performance and specification tested and measured with specialized test bench, including vacuum pressure conditions.

Additional Features

- Built in Adjustable Surge Protection (anti-slam) – Smoother operation, preventing damage to the valve and the system. The conditions for partially closing the kinetic orifice (the “switching value”) can be adjusted according to the specific system requirements (C70-AS).
- Inflow Prevention – Prevents intake of atmospheric air when this could lead to pumps damage, required re-priming, or disruption of siphons; prevents intake of flood water or contaminated water into potable water networks (C70-IP).
- Two service ports for drainage and pressure gauge.
- Drainage valve.
- Insect Screen.

BERMAD Irrigation



Model C70

Air Valves Series

Principles of Operation

Pipeline Filling:

During the filling process of a pipeline, high air flow is forced out through the kinetic orifice of the air valve. Once water enters the valve's chamber, the float buoyed upwards causes the kinetic orifice to close. The unique aerodynamic structure of the valve body and float ensures that the float cannot be closed before water reaches the valve.

Pressurized Operation:

During pressurized operation of the pipeline, air accumulates in the upper part of the air valve chamber, causing the float to gravitate downwards. The automatic orifice opens in a two-step function, forming an air gap between the water level and the air release orifice and then releasing the accumulated air, while minimizing the spray effect. Once the air is discharged, the water level and float rise, causing the automatic orifice to close.

Surge Protection (anti-slam):

In the event of a pressure surge, the anti-slam float rises, partially closing the valve's orifice. The approaching water column decelerates due to the resistance of the rising air pressure in the valve.

Pipeline Draining:

When a pipeline is drained, a negative differential pressure is created causing atmospheric air to push the float down. The kinetic orifice stays open and air enters the valve chamber, preventing vacuum formation in the pipe.

Inflow Prevention:

The inflow prevention mechanism is a Normally Closed check disc mounted on the top of the valve's orifice preventing flow of atmospheric air into the valve.

Valve Selection

- Body Material:
 - Standard: Cast ductile iron
 - Optional: Stainless Steel, Bronze
- Coating: Baked Polyester, Green
- Inlet sizes:
 - 2", 3", 4", 6", 8"
- Connections:
 - Threaded Female NPT: (only for 2")
 - Flanged ANSI/ASME 150, ANSI/ASME 300
- Outlets: Sideways, downwards, mushroom configuration
- Additional features:
 - Surge Protection (C70-AS)
 - Inflow Prevention (C70-IP)

Orifice Specifications

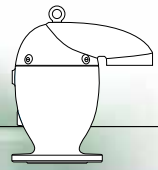
Inlet Size	Kinetic	Surge Protection	Automatic	
			Ad [Sq inch] 250psi	Ad [Sq inch] 350psi
Inch	D [Inch]	D [Inch]		
2"	2"	12/61" x 4	1/570"	1/1024"
3"	3"	17/54" x 4	2/507"	1/419"
4"	4"	37/94" x 4	3/616"	1/321"
6"	6"	13/22" x 4	5/713"	2/455"
8"	8"	37/47" x 4	7/297"	1/67"

Operational Data

- Pressure rating: ANSI/ASME 150, ANSI/ASME 300
- Operating pressure range: 1.5-250 PSI, 1.5-350 PSI
- Operating temperature: Water up to 140°F



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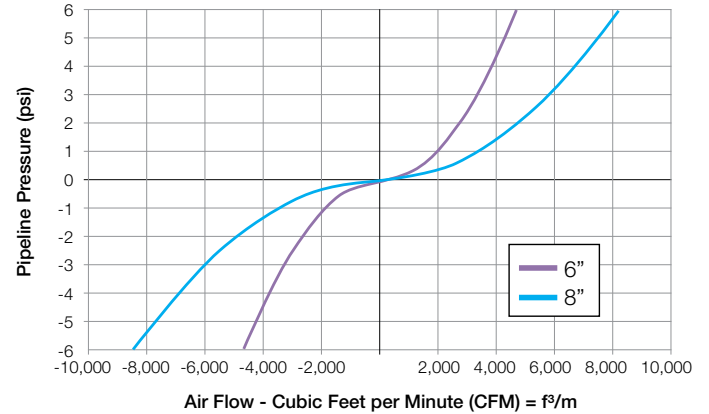
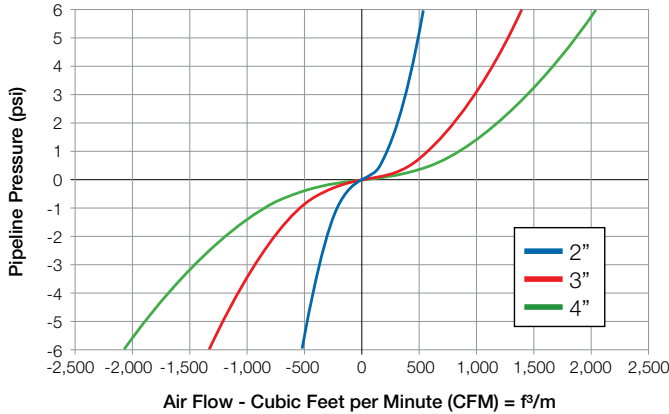


Model C70

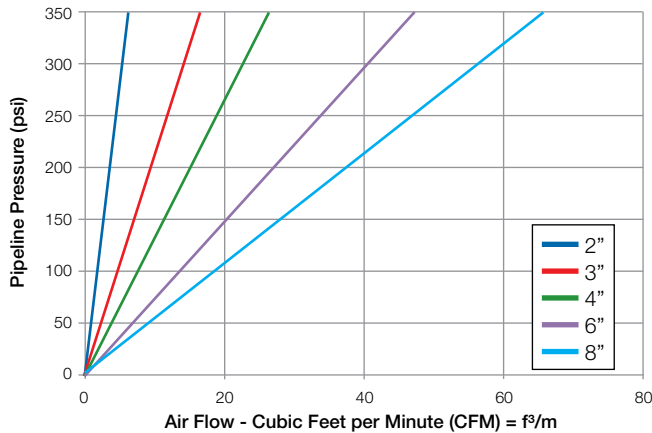
Air Valves Series

Air Flow Performance Charts

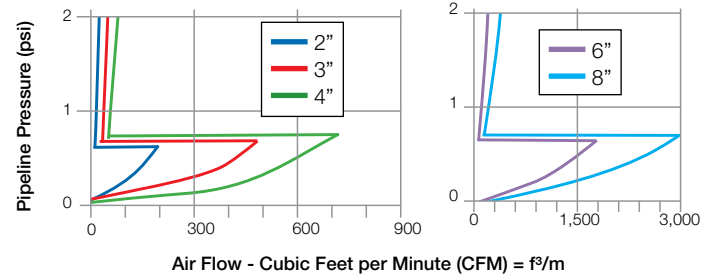
Air Relief and Intake (Pipeline Filling, Draining and Vacuum Conditions)



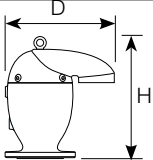
Air Release (Pressurized Operation)



Air Relief with Surge Protection (C70-AS)

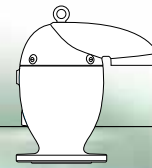


Dimensions & Weights



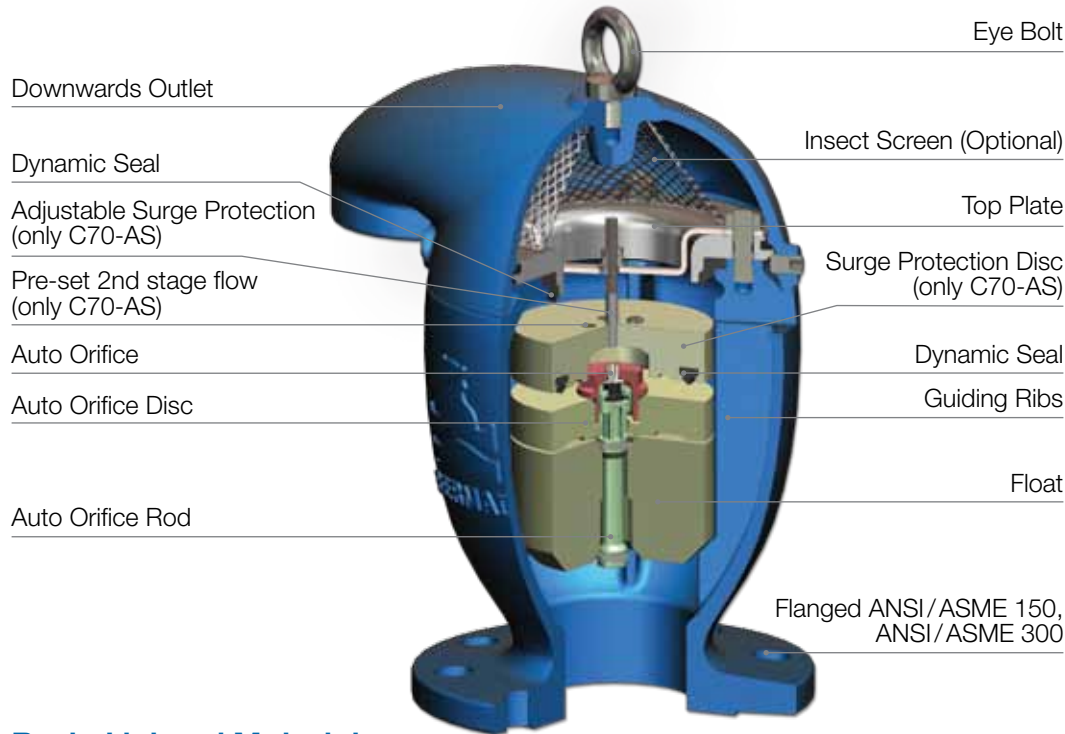
Size		Side Outlet			Down Outlet			Mushroom Outlet		
Inch	Connection	D (Inch)	H (Inch)	Weight (lb)	D (Inch)	H (Inch)	Weight (lb)	D (Inch)	H (Inch)	Weight (lb)
2"	Threaded	7 1/4	11 1/4	17.2	9	11	17.6	6	10	17.6
2"	Flanged	7 1/4	12	22.0	9 1/4	11 3/4	23.1	6 2/4	10 3/4	22.7
3"	Flanged	9 3/4	14	37.0	12 1/4	14	38.1	10 1/4	12 3/4	35.5
4"	Flanged	11 1/4	16 1/4	49.1	14 2/4	16 1/4	50.9	9 1/4	14 3/4	47.4
6"	Flanged	14 3/4	22 2/4	110.2	19 1/3	22 2/4	116.8	12 1/4	20 2/4	102.6
8"	Flanged	17	25 3/4	126.7	22 3/4	25 3/4	134.3	14	23 2/4	118

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Air Valves Series



Without Surge Protection (C70)



With Inflow Prevention (C70-IP)

Parts List and Materials

	Description	Material	Standards/Remarks
1	Body-Flange/Theaded	Casted, Ductile Iron	ASTM A536 GR. 65-45-12 (EN-GJS 450-10 DIN EN1563)
2	Outlet side, down, mushroom	Casted, Ductile Iron	ASTM A536 GR. 65-45-12 (EN-GJS 450-10 DIN EN1563)
3	Top Plate Seal	EPDM	
4	Surge Protection Disc	Polypropylene	Only C70-AS
5	Surge Protection Disc Seal	EPDM	Only C70-AS
6	Surge Protection Adjustable Shutter	Stainless Steel	AISI/SAE S30400 (only C70-AS)
7	Auto Orifice Disc	Polypropylene	
8	Float	Polypropylene	
9	Top Plate	Stainless Steel	ASTM A744 Gr. CF8M
10	Insect Screen	Stainless Steel	AISI/SAE S30300 (Optional)
11	Check Disk (Inflow Prevention)	Stainless Steel + EPDM	Only C70-IP
12	Cover O-Ring	EPDM	
13	Auto Orifice	Stainless Steel	AISI/SAE S30400
14	Auto Orifice O-Ring	EPDM	
15	Auto Orifice Plug	Glass Reinforced Nylon	
16	Auto Orifice Plug O-Ring	EPDM	
17	Auto Orifice Seal	EPDM	
18	Auto Orifice Rod	Glass Reinforced Nylon	
19	Snap Ring	Glass Reinforced Nylon	
20	Cover Screw	Stainless Steel	AISI/SAE S30400 DIN 913 A2
21	Stud	Stainless Steel	AISI/SAE S30400 DIN 939 A4
22	Nut	Stainless Steel	AISI/SAE S30400 DIN 939 A4
23	Washer	Stainless Steel	AISI/SAE S30400 DIN 125 A2
24	Eye Bolt	Stainless Steel	AISI/SAE S30400 DIN580 A4



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