COMBINATION AIR VALVE

Model C70-S

BERMAD C70 is a high quality combination air valve for a variety of water networks and operating conditions. It evacuates air during pipeline filling, allows efficient release of air pockets from pressurized pipes, and enables large volume air intake in the event of network draining.
With its advanced aerodynamic design, double orifice and Surge Protection (Anti-slam / slow closing) device, this valve provides excellent protection against air accumulation, vacuum formation and pressure surges, with improved sealing in low pressure conditions. The valve minimizes water spraying during air release.



C70-S Threaded



C70-S Flanged

Features & Benefits

- Straight flow body with nominal (equal) inlet and outlet size: Higher than usual flow rates.
- Dynamic Sealing: Prevents leakage under low pressure conditions (1.5 psi; 0.1 bar).
- Minimizes water spraying during air release: Innovative 2-step function, automatic orifice (Patented).
- Compact, simple and robust structure with fully corrosion resistant internal parts: Lower maintenance and increased life span.
- Certified to functional standards: WRAS (UK), EN-1074/4 (Europe), AENOR (Spain), SAI AS4956 (Australia), WSAA (Australia).
- Designed in compliance with AWWA C512 (USA).
- Certified to drinking water standards: WRAS (UK), ACS (France), NSF-ANSI-CAN 61 and NSF-ANSI 372 (USA), SAI AS4020 (Australia), PUB SS 375 and SS 270 (Singapore).
- Factory approval and Quality Control: Performance and specification tested and measured with specialized test bench, including vacuum pressure conditions.

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 road / river crossings.
- Water networks: Protection against vacuum formation, surge and water hammers at points likely to experience water column separation.

Additional Features & Accessories

- Surge Protection (code SP): the kinetic orifice is partially closed during the second stage of the air relief, preventing damage to the air valve and the system.
- Assisted Closing (code AC): the kinetic orifice is set to be partially closed during air relief.
- Inflow Prevention (code IP): prevents intake of atmospheric air, when this could lead to damaged pumps, required re-priming, or disruption of siphons; prevents intake of flood water or contaminated water into potable water networks.
- Service ports (codes P, U) fitted with ¼"; DN6 plug for pressure gauge connection, check point or test drain for air valve function.
- Drainage Valve (code Z).
- Insect Screen (code S).

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Inlet and Outlet Connections

- Inlets: Female threaded 2"; DN50, flanged 2-6"; DN50-150
- Outlets: Sideways, female threaded 2-3"; DN50-80, grooved 4-6", DN100-150. Optional addition of extension with 90 degrees for 2-3"; DN50-80

Operational Data

- Pressure Rating: ISO PN16, ISO PN25, ISO PN40
- Minimum operating pressure: 0.1 bar
- Maximum operating pressure: 16 bar, 25 bar, 40 bar
- Media and operating temperature: 1-60°C

Materials

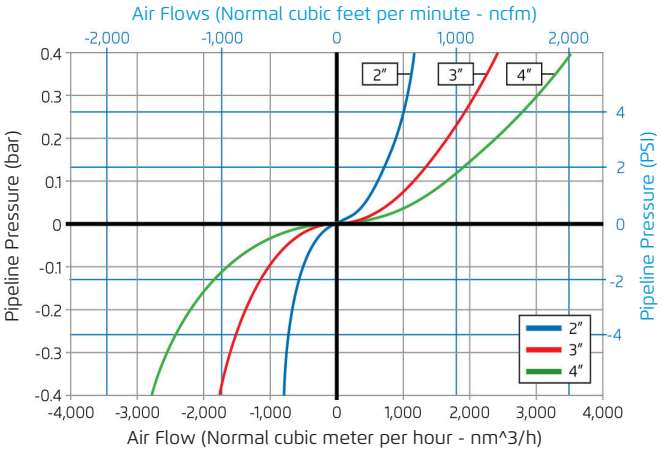
- Body: Cast Steel (WCB)
- Kinetic Orifice (Top plate): Stainless Steel
- Automatic Orifice: Stainless Steel
- Float: Polypropylene, Glass-reinforced Nylon
- Elastomers: EPDM
- Coating: Fusion Bonded Epoxy

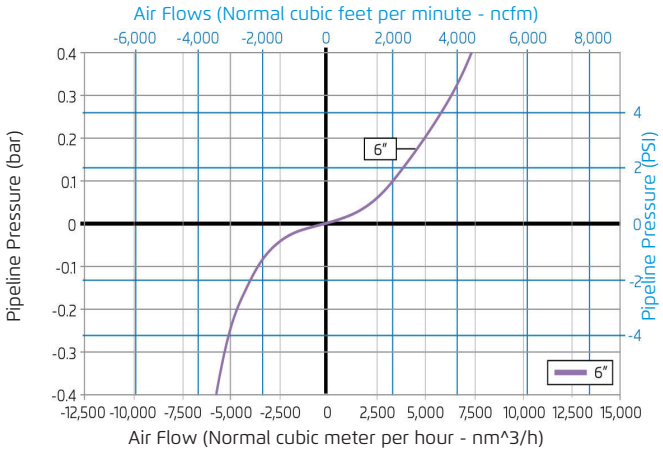
Orifice Specifications

Inlet Sizes	Automatic Orifice Area			Kinetic Orifice		Surge Protection		
	PN16	PN25	PN40	Diameter	Area	Number of holes	Hole Diameter	Total Area
Inch; mm	Sq mm	Sq mm	Sq mm	mm	Sq mm	--	mm	Sq mm
2"; DN50	1.1	0.6	0.4	50	1,936	4	5	79
3"; DN80	2.5	1.5	1	80	5,027	4	8	201
4"; DN100	3.1	2	1.3	100	7,854	4	10	314
6"; DN150	9.1	5.7	3.5	150	17,671	4	15	707

Air Flow Performance Charts

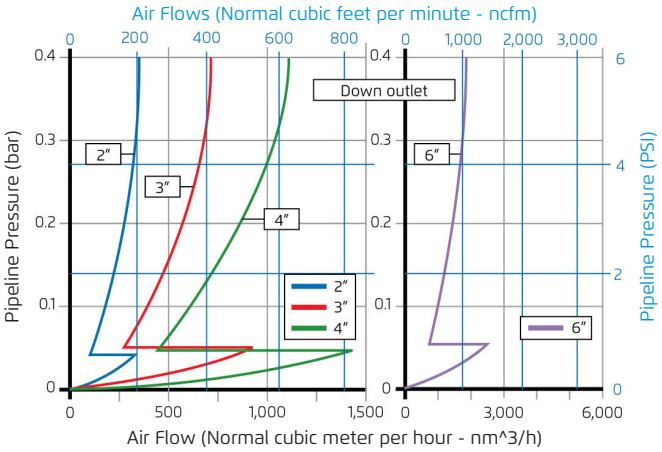
Air Relief and Intake - Side outlet (Pipeline Filling, Draining and Vacuum Conditions)



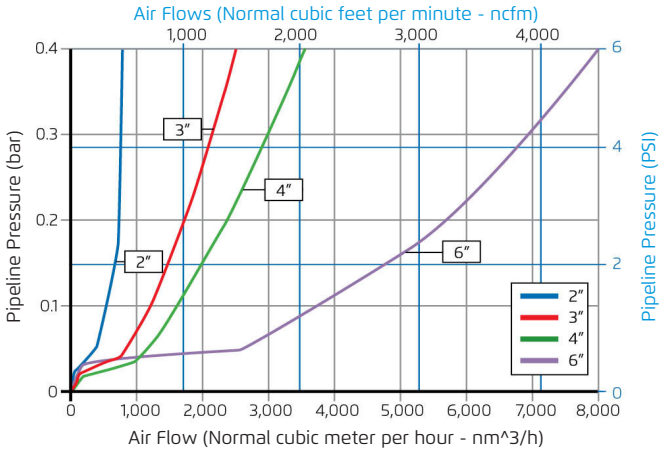


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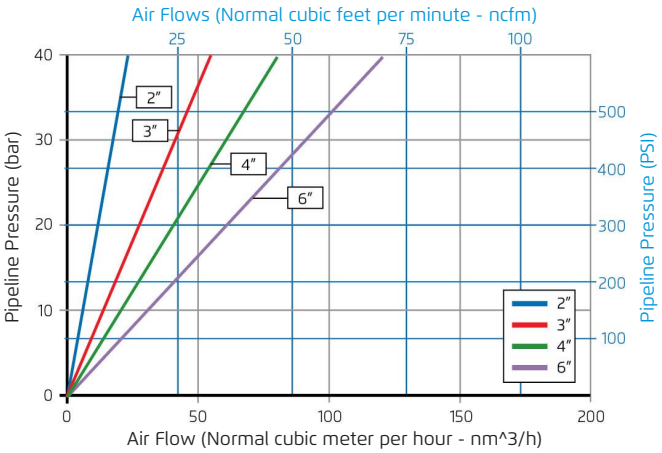
Air Relief with Surge Protection - Side outlet (Pipeline Filling)



Air Relief with Inflow Prevention - Side outlet (Pipeline Filling)



Air Release (Pressurized Operation)



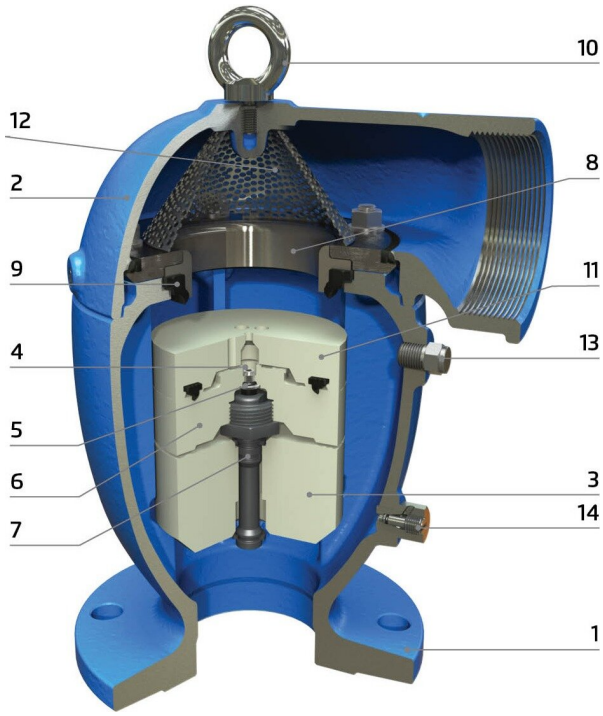
- For higher automatic air release capacity, Please consult with BERMAD.
- Air relief and intake charts for inlet sizes DN50-200 are based on actual measurements, measured during 2014-2015 in Bermad Air Flow test bench, according to EN-1074/4 standard and recognized by AS-4598 (2008) standard. For Side outlet air flow performance, please consult with BERMAD. Use Bermad Air software for optimized Sizing & Positioning of Air Valves.

Data for C70-S with Surge Protection Feature

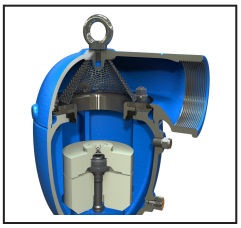
Inlet Sizes	C70-SP Switching Value			C70-SP-AC Air relief at 0.4 bar		
	Mushroom	Side	Down	Mushroom	Side	Down
Inch; mm	bar	bar	bar	nm^3/h	nm^3/h	nm^3/h
2"; DN50	0.02	0.04	0.05	420	350	350
3"; DN80	0.03	0.05	0.06	790	700	700
4"; DN100	0.02	0.05	0.06	1,280	1,100	1,100
6"; DN150	0.02	0.04	0.06	2,460	1,680	1,680

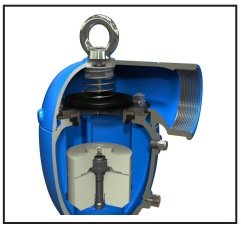
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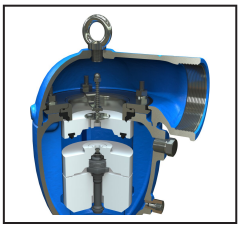
Cutaway



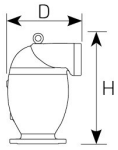
[1] Body
[2] Cover
[3] Float
[4] Auto Orifice
[5] Auto Orifice Seal
[6] Auto Orifice Disc
[7] Auto Orifice Rod
[8] Kinetic Orifice
[9] Kinetic Orifice Seal
[10] Eye Bolt
[11] Surge Protection Disc (SP, Optional)
[12] Insect Screen (Optional)
[13] Service Port (Optional)
[14] Drainage Valve (Optional)


Without Surge Protection (C70)


With Inflow Prevention (C70-IP)


With Assisted Closing (C70-AC)

Dimensions & Weights







Inlet Sizes	Connection	C70-S Threaded Connection			C70-S Flanged Connection		
		Width (D)	Height (H)	Weight	Width (D)	Height (H)	Weight
in; mm		mm	mm	Kg	mm	mm	Kg
2"; DN50	Threaded	187	294	8.6	---	---	---
2"; DN50	Flanged	---	---	---	187	310	11.9
3"; DN80	Flanged	---	---	---	250	356	21.9
4"; DN100	Flanged	---	---	---	288	413	31.3
6"; DN150	Flanged	---	---	---	394	570	67.1

Weights refer to air valves with flanges for high pressure (ANSI 300, ISO-40, AS35)

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