

COMBINATION AIR VALVE

Cast Steel (WCB)

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.

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), Singapore.
- 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 1/4"; DN6 plug for pressure gauge connection, check point or test drain for air valve function.
- Drainage Valve (code Z).
- Insect Screen (code S).



C70-S Threaded



C70-S Flanged



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: 230 psi, 360 psi, 580 psi
- Minimum operating pressure: 1.5 psi
- Maximum operating pressure: 230 psi, 360 psi, 580 psi
- Media and operating temperature: 33-140°F

Materials

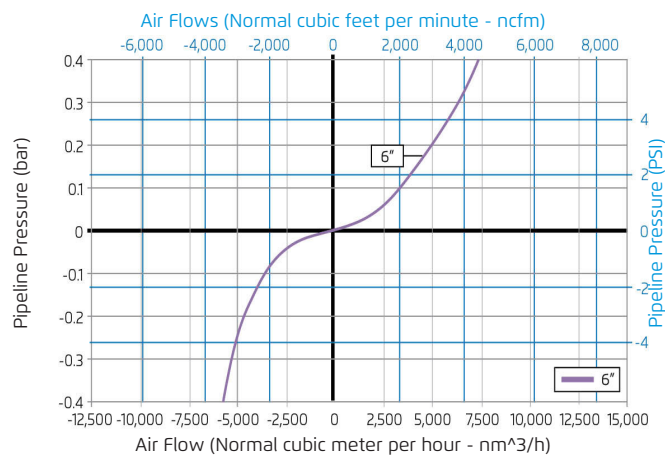
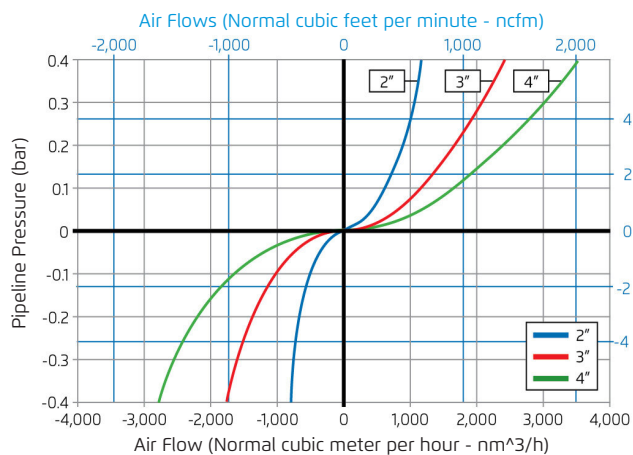
- Body: Cast Steel (WCB)
- Kinetic Orifice (Top plate): Stainless Steel
- Automatic Orifice: Stainless Steel
- Float: Polypropylene, Glass-reinforced Nylon
- Elastomers: EPDM
- Coating: Fusion Bonded Epoxy

Orifice Specifications

Inlet Sizes	Automatic Orifice Area			Kinetic Orifice		Surge Protection		
	230 psi	360 psi	580 psi	Diameter	Area	Number of holes	Hole Diameter	Total Area
Inch; mm	Sq inch	Sq inch	Sq inch	inch	Sq inch	--	inch	Sq inch
2"; DN50	0.002	0.001	0.001	2.0	3.142	4	0.197	0.122
3"; DN80	0.004	0.002	0.002	3.0	7.069	4	0.315	0.312
4"; DN100	0.005	0.003	0.002	4.0	12.566	4	0.394	0.487
6"; DN150	0.014	0.009	0.005	6.0	28.274	4	0.591	1.096

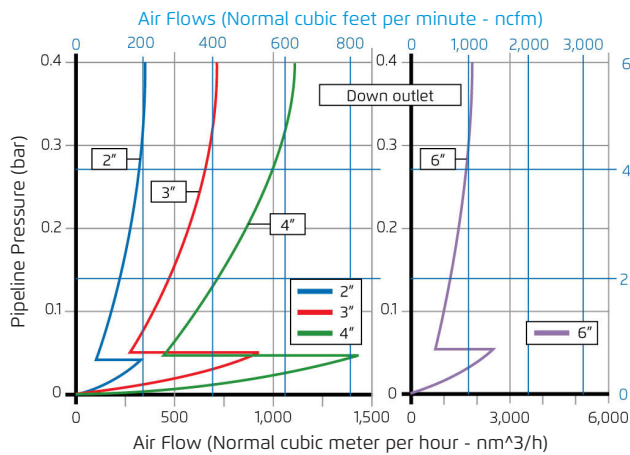
Air Flow Performance Charts

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

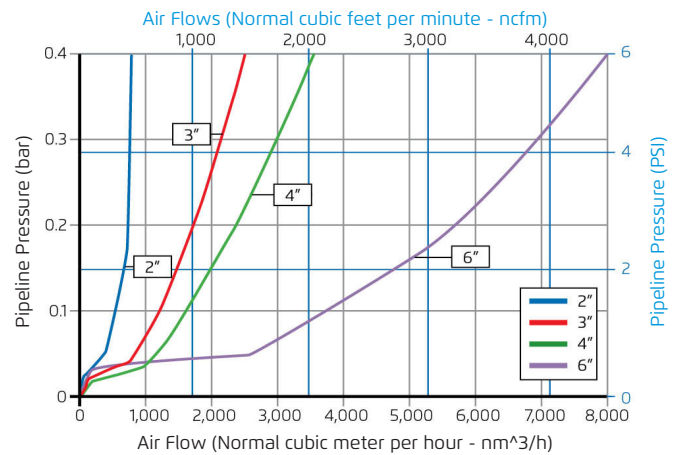




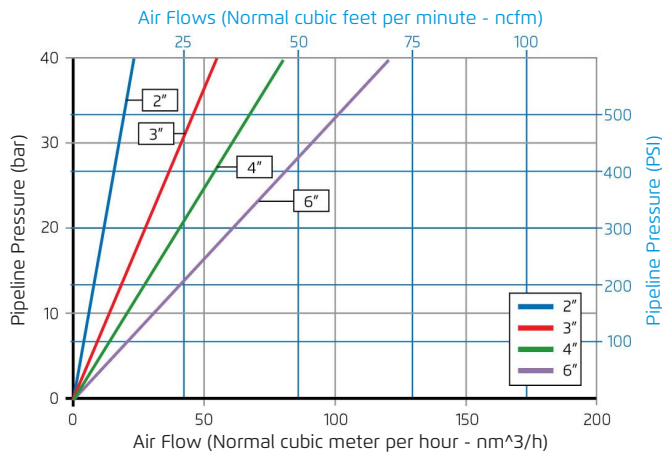
Air Relief with Surge Protection - Side outlet (Pipeline Filling)



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



Air Release (Pressurized Operation)



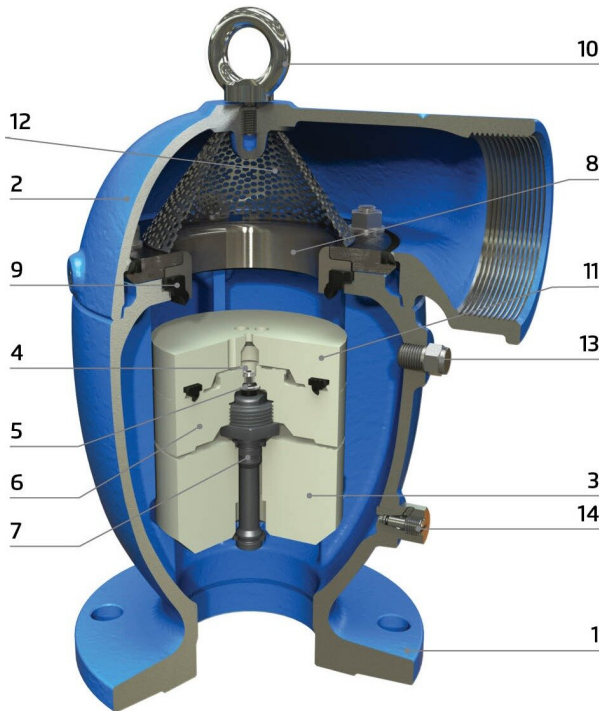
- For higher automatic air release capacity, Please consult with BERMAD.
- Air relief and intake charts for inlet sizes 2-8" are based on actual measurements, measured during 2014-2015 in Bermad Air Flow test bench, according to EN-1074/4 standard and recognized by AS-4598 (2008) standard. For Side outlet 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

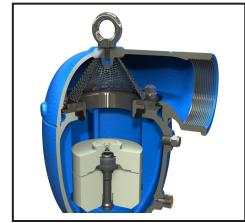
Inlet Sizes	C70-SP Switching Value			C70-SP-AC Air relief at 6 psi		
	Mushroom	Side	Down	Mushroom	Side	Down
Inch; mm	psi	psi	psi	ncfm	ncfm	ncfm
2"; DN50	0.29	0.57	0.68	239	200	200
3"; DN80	0.44	0.78	0.88	450	399	399
4"; DN100	0.29	0.71	0.80	730	627	627
6"; DN150	0.29	0.64	0.83	1,402	958	958



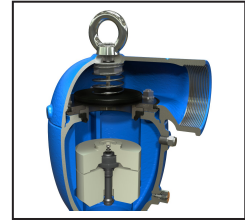
Cutaway



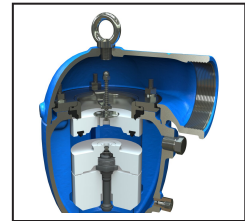
- [1] Body
- [2] Cover
- [3] Float
- [4] Auto Orifice
- [5] Auto Orifice Seal
- [6] Auto Orifice Disc
- [7] Auto Orifice Rod
- [8] Kinetic Orifice
- [9] Kinetic Orifice Seal
- [10] Eye Bolt
- [11] Surge Protection Disc (SP, Optional)
- [12] Insect Screen (Optional)
- [13] Service Port (Optional)
- [14]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



Without Surge Protection (C70)

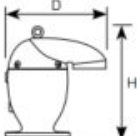


With Inflow Prevention (C70-IP)



With Assisted Closing (C70-AC)

Dimensions & Weights

							
		C70-S Threaded Connection			C70-S Flanged Connection		
Inlet Sizes	Connection	Width (D)	Height (H)	Weight	Width (D)	Height (H)	Weight
in; mm		in	in	lbs	in	in	lbs
2"; DN50	Threaded	7.4	11.6	19.0	---	---	---
2"; DN50	Flanged	---	---	---	7.4	12.2	26.3
3"; DN80	Flanged	---	---	---	9.8	14.0	48.2
4"; DN100	Flanged	---	---	---	11.3	16.3	68.9
6"; DN150	Flanged	---	---	---	15.5	22.4	147.8

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