



COMBINATION AIR VALVE

Model C70

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.
- 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; 0.1 bar).
- 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 functional standards and water service standards.
- Factory approval and Quality Control: Performance and specification tested and measured with specialized test bench, including vacuum pressure conditions.

Additional Features & Accessories

- 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-SP, C70-AC, C70-AS).
- Inflow Prevention: Prevents intake of atmospheric air in cases where 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 (C70-IP).
- Service Port fitted with 1/4"; DN6 plug (codes P, U)
- Drainage Valve (code Z)
- Insect Screen (code S)

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.

Inlet and Outlet Connections

- Inlets: female threaded 2"; DN50, Flanged 2-8"; DN50-200
- Outlets:
 - Downwards, complies with additional feature of SP.
 - Sideways 2-3"; DN50-80 female threaded, 4-8"; DN100-200 Grooved. Complies with additional features of SP, AS, AC and IP.
 - Mushroom (circular surround), complies with additional feature of SP.

Materials

- Body: Cast ductile iron, Optional – Stainless Steel, WCB (Cast Steel)
- Coating: Fusion Bonded Epoxy, Blue
- Top Plate: Stainless Steel, Ductile Iron
- Float Assembly: Polypropylene, Glass-reinforced Nylon
- Automatic Orifice: Stainless Steel
- Elastomers: EPDM

Operational Data

- Pressure Rating: 230 psi; ISO PN16, 360 psi; ISO PN25, 580 psi; ISO PN40
- Minimum operating pressure: 1.5 psi; 0.1 bar
- Maximum operating pressure: 230 psi; 16 bar, 360 psi; 25 bar, 580 psi; 40 bar
- Media and operating temperature: Water, 33-140°F; 1-60°C

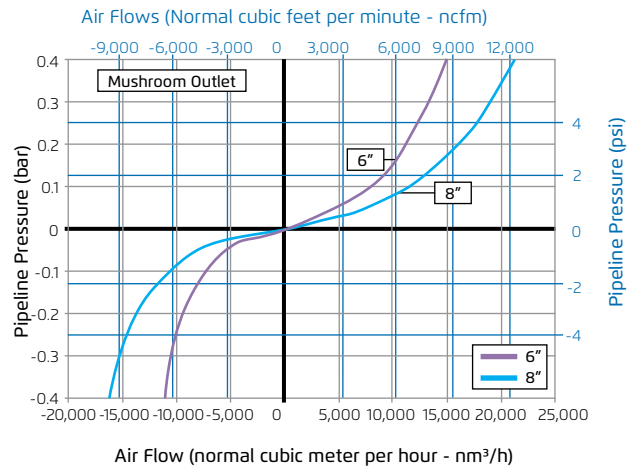
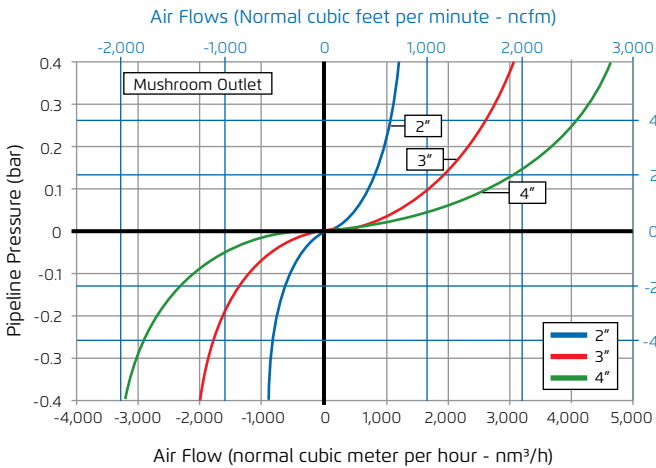
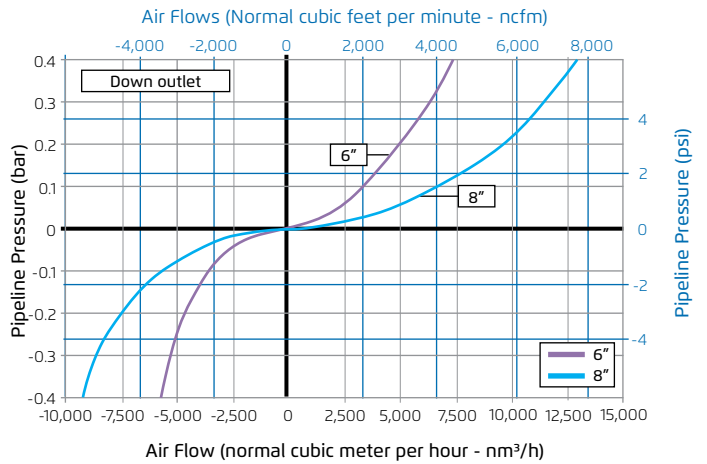
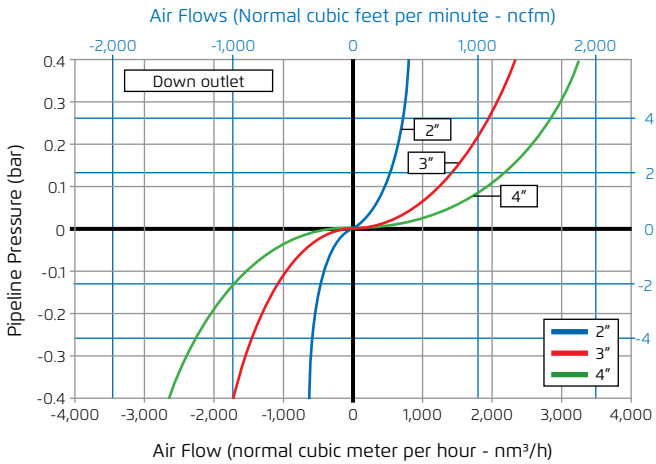


Orifice Specifications

Inlet Size	Automatic Orifice Area			Kinetic Orifice		Surge Protection		
	230 psi PN16	360 psi PN25	580 psi PN40	Diameter	Area	Number of holes	Hole Diameter	Total Area
	Sq inch	Sq inch	Sq inch	inch	Sq inch		inch	Sq inch
mm	Sq mm	Sq mm	Sq mm	mm	Sq mm	---	mm	Sq mm
2"	0.002	0.001	0.001	2.0	3.142	4	0.197	0.122
DN50	1.1	0.6	0.4	50	1,963		5	79
3"	0.004	0.002	0.002	3.0	7.069	4	0.315	0.312
DN80	2.5	1.5	1	80	5,027		8	201
4"	0.005	0.003	0.002	4.0	12.566	4	0.394	0.487
DN100	3.1	2	1.3	100	7,854		10	314
6"	0.014	0.009	0.005	6.0	28.274	4	0.591	1.096
DN150	9.1	5.7	3.5	150	17,671		15	707
8"	0.034	0.022	0.012	8.0	50.265	4	0.787	1.948
DN200	22.1	14.5	8	200	31,416		20	1,257

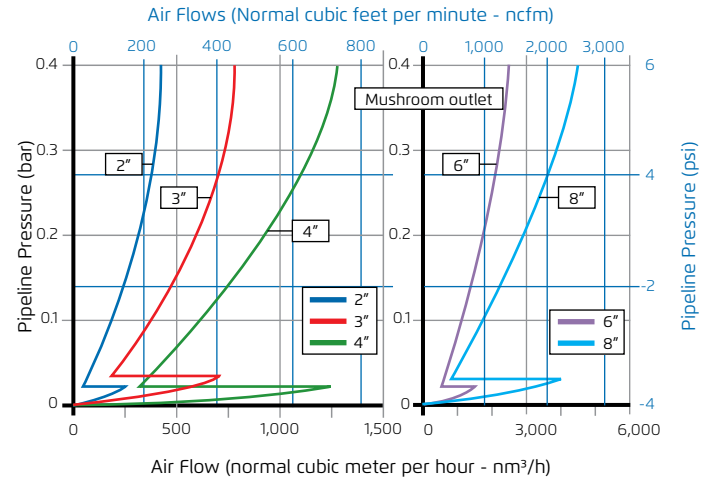
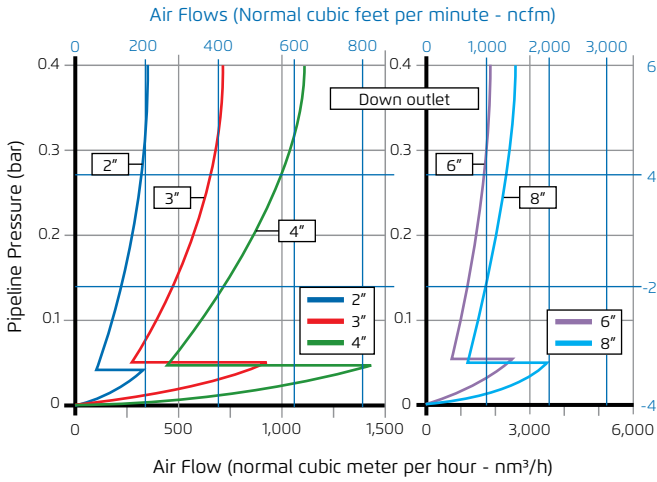
Air Flow Performance Charts

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

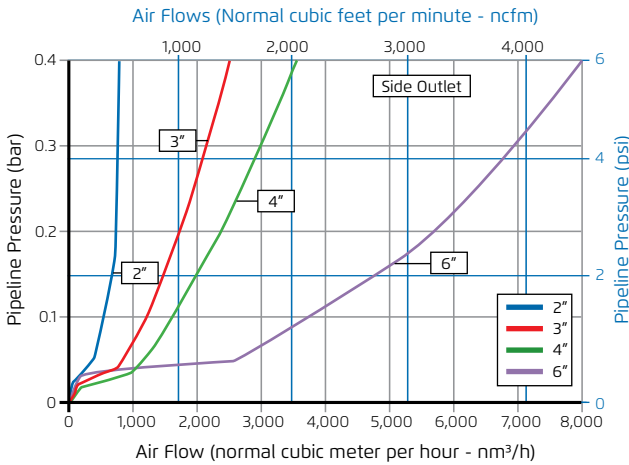




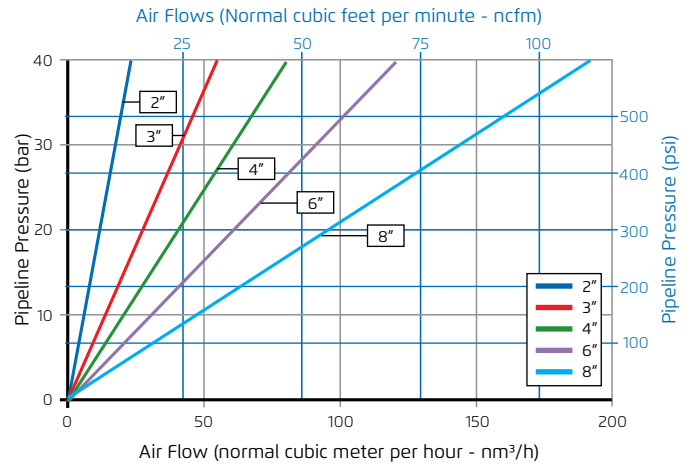
Air Relief with Surge Protection (Pipeline Filling)



Air Relief with Inflow Prevention (Pipeline Filling)



Air Release (Pressurized Operation)



For higher automatic air release capacity, Please consult with BERMAD.

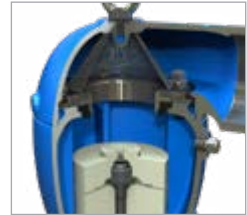
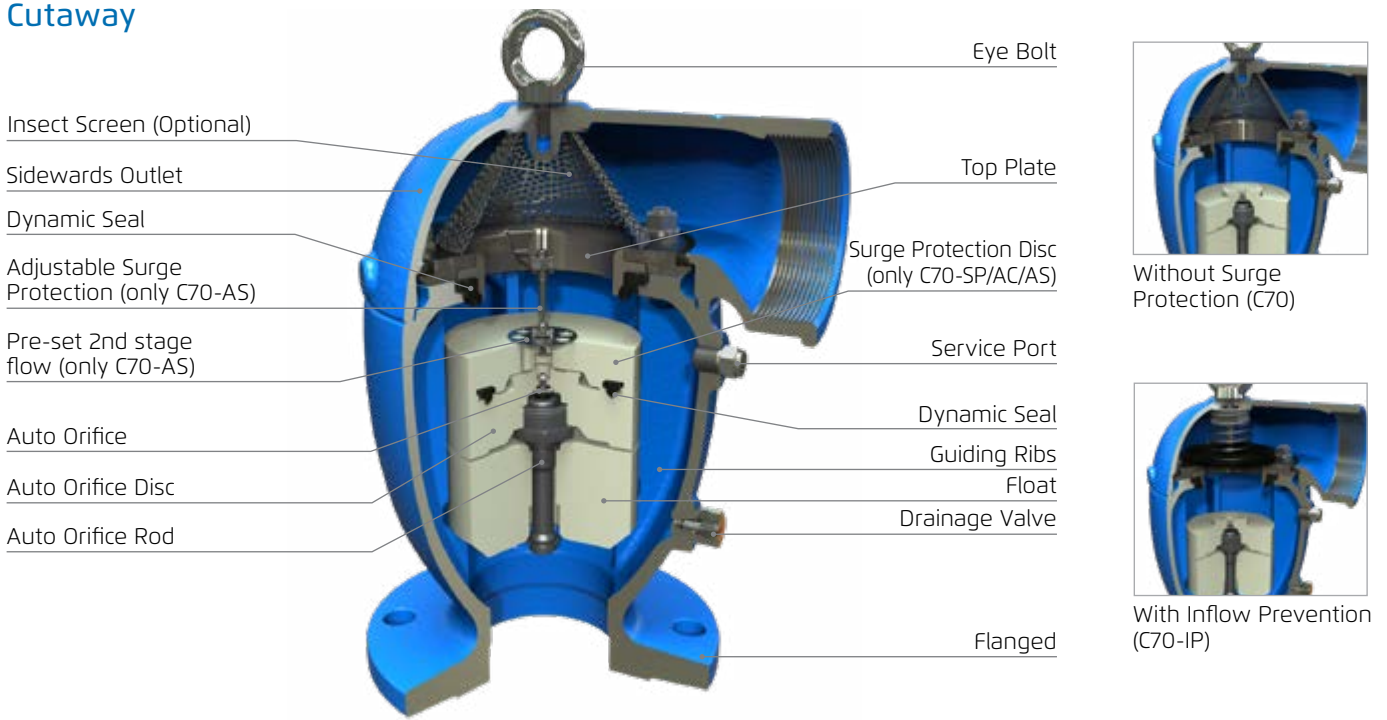
Data for C70 with Surge Protection Features

Inlet Size	C70-SP Switching Value			C70-SP/AC/AS Air relief at 6 psi; 0.4 bar		
	Mushroom	Side	Down	Mushroom	Side	Down
inch	psi	psi	psi	ncfm	ncfm	ncfm
mm	bar	bar	bar	nm³/h	nm³/h	nm³/h
2"	0.29	0.57	0.68	239	200	200
DN50	0.02	0.04	0.05	420	350	350
3"	0.44	0.78	0.88	450	399	399
DN80	0.03	0.05	0.06	790	700	700
4"	0.29	0.71	0.80	730	627	627
DN100	0.02	0.05	0.06	1,280	1,100	1,100
6"	0.29	0.64	0.83	1,402	958	958
DN150	0.02	0.04	0.06	2,460	1,680	1,680
8"	0.36	0.73	0.73	2,565	1,471	1,471
DN200	0.03	0.05	0.05	4,500	2,580	2,580

Air relief and intake charts 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



Cutaway



Without Surge Protection (C70)



With Inflow Prevention (C70-IP)

C70 - Dimensions & Weights

		 Side outlet			 Down outlet			 Mushroom outlet		
Inlet Size	Connection	Width (D)	Height (H)	Weight	Width (D)	Height (H)	Weight	Width (D)	Height (H)	Weight
Inch	---	inch	inch	lbs	inch	inch	lbs	inch	inch	lbs
mm		mm	mm	Kg	mm	mm	Kg	mm	mm	Kg
2" DN50	Threaded	7.126	11.181	17.2	8.858	11.102	17.632	6.890	11.260	17.6
		181	284	7.8	225	282	8	175	286	8.0
2" DN50	Flanged	7.362	11.890	22.0	9.134	11.811	23.142	6.890	11.260	22.0
		187	302	10.0	232	300	11	175	286	10.0
3" DN80	Flanged	9.646	14.016	37.0	12.244	14.016	38.129	9.016	12.874	35.3
		245	356	16.8	311	356	17	229	327	16.0
4" DN100	Flanged	11.142	16.142	49.1	14.606	16.142	50.912	10.709	14.961	48.5
		283	410	22.3	371	410	23	272	380	22.0
6" DN150	Flanged	14.488	22.480	110.2	19.409	22.402	116.812	15.000	22.520	112.4
		368	571	50.0	493	569	53	381	572	51.0
8" DN200	Flanged	18.701	30.315	266.7	26.024	30.315	275.500	19.921	27.913	264.5
		475	770	121.0	661	770	125	506	709	120.0