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.
- 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 ¼"; 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 2-10"; DN50-250
- Outlets:
  - Downwards, complies with additional feature of SP and AC.
  - 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), 2-10"; DN50-250, complies with additional feature of SP. PE Mushroom (C70-J) 2-4"; DN50-100 cover complies with AC.

Materials

- Body and Cover:
  - Cast Ductile Iron (C70-C), for 2-10"; DN50-250
  - Stainless Steel (C70-N), for 2-6"; DN50-150
  - Cast Steel / WCB (C70-S), for 2-6"; DN50-150
  - Polyethylene Mushroom Cover (C70-J) for 2-8"; DN50-200
- Coating: Fusion Bonded Epoxy, Blue
- Top Plate: Stainless Steel, Ductile Iron
- Float Assembly: Polypropylene, Glass-reinforced Nylon
- Automaic 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

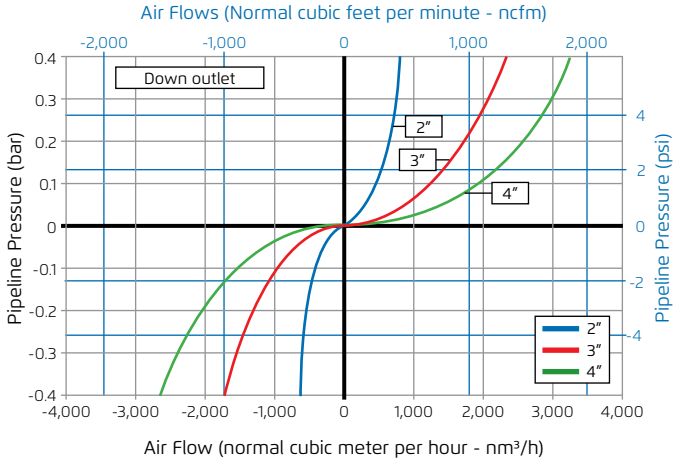
All images in this catalog are for illustration only

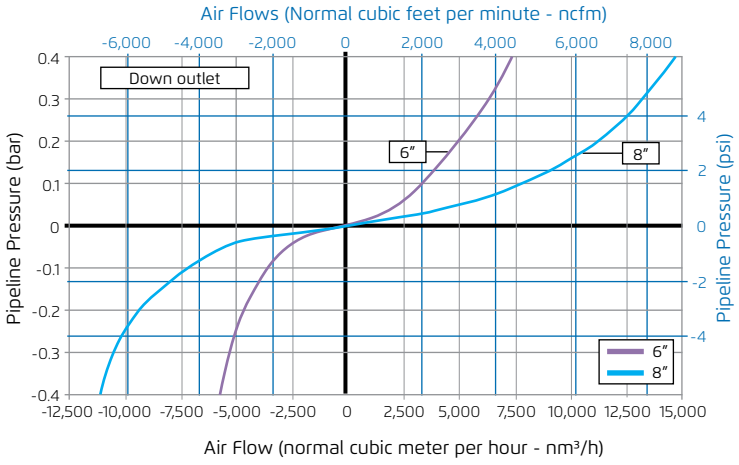
Orifice Specifications

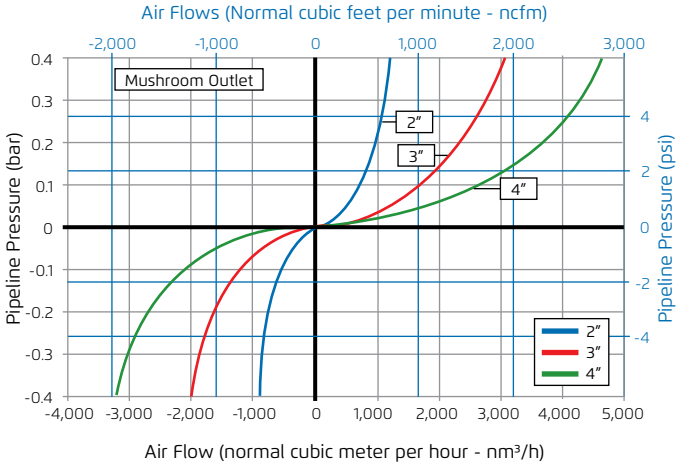
Inlet Size	Automatic Orifice Area			Kinetic Orifice		Surge Protection		
	230 psi PN16	360 psi PN25	580 psi PN40	Diameter	Area	Number of holes	Hole Diameter	Total Area
Inch	Sq inch	Sq inch	Sq inch	inch	Sq inch	---	inch	Sq inch
mm	Sq mm	Sq mm	Sq mm	mm	Sq mm		mm	Sq mm
2"	0.002	0.001	0.001	2.0	3.142	4	0.197	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
10"	0.044	0.030	-	10.0	78.540	4	0.866	2.357
DN250	28.2	19.6	-	250	49,087		22	1,521

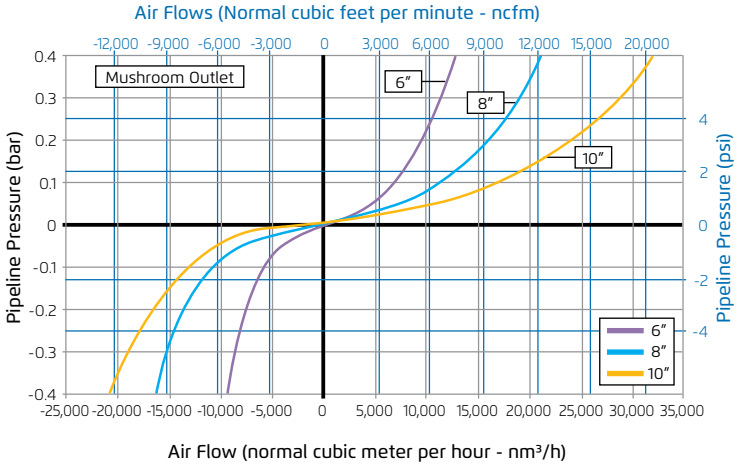
Air Flow Performance Charts

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

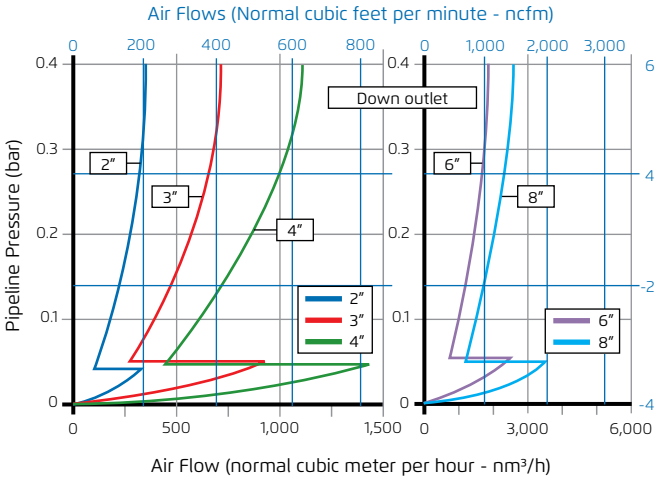


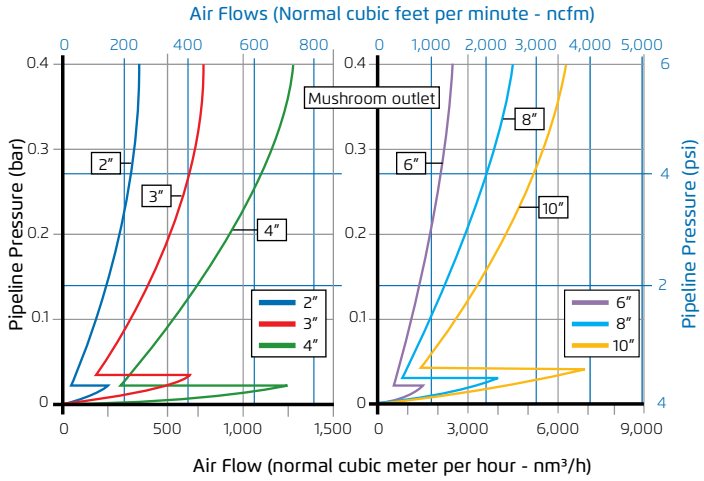




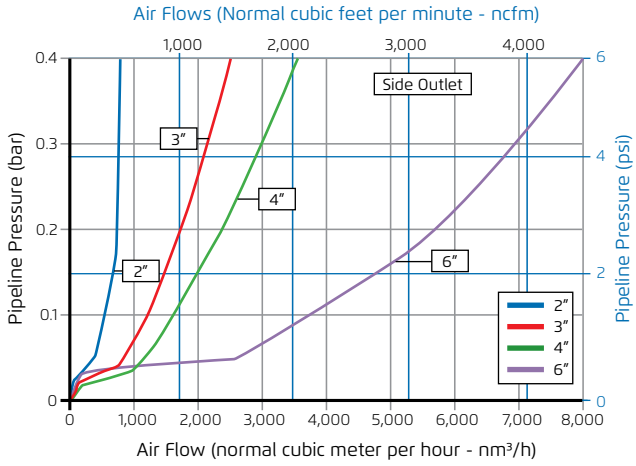


Air Relief with Surge Protection (Pipeline Filling)

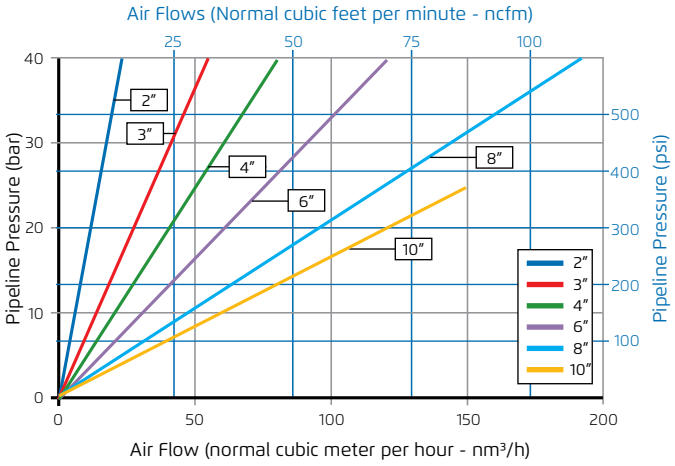




Air Relief with Inflow Prevention (Pipeline Filling)



Air Release (Pressurized Operation)



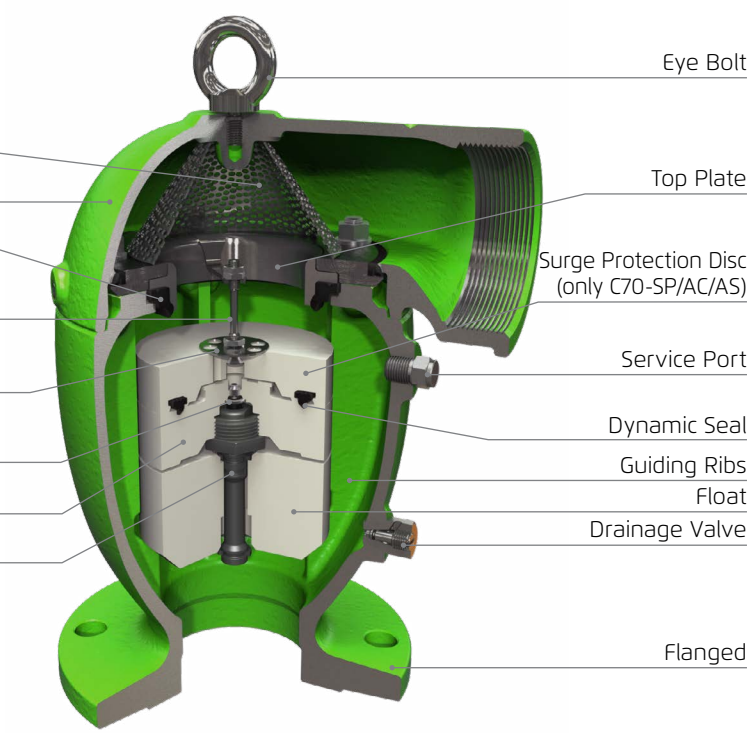
For higher automatic air release capacity, Please consult with BERMAD.

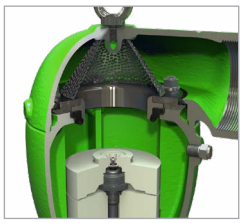
Data for C70 with Surge Protection Feautres

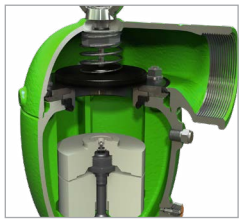
Inlet Size	C70-SP Switching Value			C70-SP/AC/AS Air relief at 6 psi; 0.4 bar		
	Mushroom	Side	Down	Mushroom	Side	Down
inch	psi	psi	psi	ncfm	ncfm	ncfm
mm	bar	bar	bar	nm³/h	nm³/h	nm³/h
2"	0.29	0.57	0.68	239	200	200
DN50	0.02	0.04	0.05	420	350	350
3"	0.44	0.78	0.88	450	399	399
DN80	0.03	0.05	0.06	790	700	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
10"	0.41	-	-	3,578	-	-
DN250	0.03	-	-	6,278	-	-

Air relief and intake charts for inlet sizes 2-8"; DN50-200 are based on actual measurements, measured during 2014-2015 in Bermad Air Flow test bench, according to EN-1074/4 standard and recongnized 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

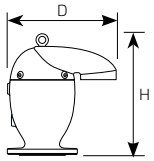
Cutaway




Without Surge Protection (C70)


With Inflow Prevention (C70-IP)

C70 - Dimensions & Weights






		Side Ductile Outlet			Down Ductile Outlet			Mushroom Ductile Outlet			Mushroom PE outlet		
Inlet Size	Connection	Width (D)	Height (H)	Weight	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	inch	inch	lbs
mm		mm	mm	Kg	mm	mm	Kg	mm	mm	Kg	mm	mm	Kg
2"	Threaded	7.362	11.575	17.2	9.134	11.575	17.632	6.890	10.945	17.6	7.480	9.252	13.7
DN50		187	294	7.8	232	294	8	175	278	8.0	190	235	6.2
2"	Flanged	7.362	12.205	22.0	9.134	12.205	23.142	6.890	11.535	22.0	7.480	9.843	19.2
DN50		187	310	10.0	232	310	11	175	293	10.0	190	250	8.7
3"	Flanged	9.843	14.016	37.0	12.402	14.016	38.129	8.661	13.228	35.3	9.252	12.008	30.1
DN80		250	356	16.8	315	356	17	220	336	16.0	235	305	13.7
4"	Flanged	11.339	16.260	49.1	14.882	16.260	50.912	10.236	14.961	48.5	10.827	13.780	40.9
DN100		288	413	22.3	378	413	23	260	380	22.0	275	350	18.6
6"	Flanged	15.512	22.441	110.2	20.315	22.441	116.812	14.173	20.551	112.4	14.961	18.504	94.6
DN150		394	570	50.0	516	570	53	360	522	51.0	380	470	42.9
8"	Flanged	20.394	30.315	266.7	26.378	30.315	275.500	18.583	28.189	264.5	20.000	25.591	213.1
DN200		518	770	121.0	670	770	125	472	716	120.0	508	650	96.7
10"	Flanged	---	---	---	---	---	---	22.441	32.480	407.7	---	---	---
DN250		---	---	---	---	---	---	570	825	185.0	---	---	---