



Sewage and Wastewater Combination Air Valve

Model C50

BERMAD C50 is a high quality combination air valve for a variety of sewage and wastewater networks and operating conditions. It evacuates air during pipeline filling, allows efficient release of air and gas pockets from pressurized pipes, and enables large volume air intake in the event of network draining.

With its advanced aerodynamic design and double orifice, this valve provides excellent protection against air and gas accumulation and vacuum formation with improved sealing under low pressure conditions.



Typical Applications

- Sewage and wastewater pumping stations – Air relief and vacuum prevention.
- Sewage and wastewater pipelines – Protection against air and gas accumulation and vacuum formation at elevations, slope change points and at road/river crossings.
- Municipal and industrial wastewater treatment plants – Protection against air and gas accumulation and vacuum formation.

Features and Benefits

- Straight flow body with large diameter automatic orifice – 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).
- Elongated body design – Prevents solids from making contact with valve's operating parts.
- Compact, simple and reliable structure with fully corrosion-resistant parts – Lower maintenance and increased life span.
- Two inlets – Enabling back flushing and drainage.
- Factory approval and Quality Control – Performance and specification tested and measured with specialized test bench for air valves.

Additional Features

- Surge Protection (anti-slam) – Smoother operation, preventing damage to the valve and the system (C50-SP).
- Inflow Prevention – Prevents intake of atmospheric air in cases where this could lead to damaged pumps, required re-priming, or disruption of siphons (C50-IP).
- Drainage Valve.



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. This in turn causes the automatic orifice to open, releasing the accumulated air.

Once the air is discharged, the water level and float rise, causing the automatic orifice to close.

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.

Surge Protection (anti-slam):

The anti-slam device is fitted to the air valve outlet. In the event of a pressure surge it partially closes the valve's outlet.

The approaching water column decelerates due to the resistance of the rising air pressure in the valve.

Inflow Prevention:

The inflow prevention mechanism is a Normally Closed check device fitted on the valve's outlet and preventing flow of atmospheric air into the valve.

Valve Selection

- Body Material – Glass-reinforced Nylon
- Inlet sizes – 2", 3", 4"
- Connections:
 - 2" Threaded Male & Female NPT
 - 2-3" Flanged ANSI/ASME150
- Outlets – Sideways (2" NPT threaded), downwards (1 1/2" NPT threaded)
- Additional features:
 - Surge Protection (C50-SP)
 - Inflow Prevention (C50-IP)

Operational Data

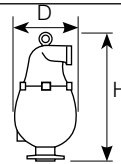
- Pressure rating: ANSI/ASME150
- Operating pressure range: 1.5 - 150 PSI
- Operating temperature: Up to 140°F

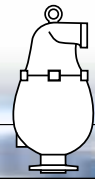
Orifice Specifications

Size	Kinetic		Automatic
Inch	D (Inch)	Ad (Sq Inch)	Ad (Sq Inch)
2	1 3/4	2 1/2	0.0189
3	1 3/4	2 1/2	0.0189
4	1 3/4	2 1/2	0.0189

Dimensions and Weights

Size		Side Outlet		
Inch	Connection	D (Inch)	H (Inch)	Weight (lb)
2	Threaded	9 1/16	18 1/16	12.1
2	Flanged	9 1/16	18 13/16	14.3
3	Flanged	9 1/16	18 13/16	15
4	Flanged	9 1/16	18 13/16	15.5

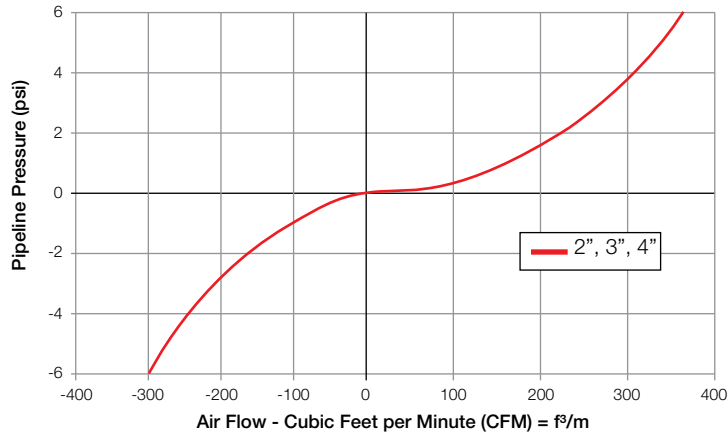




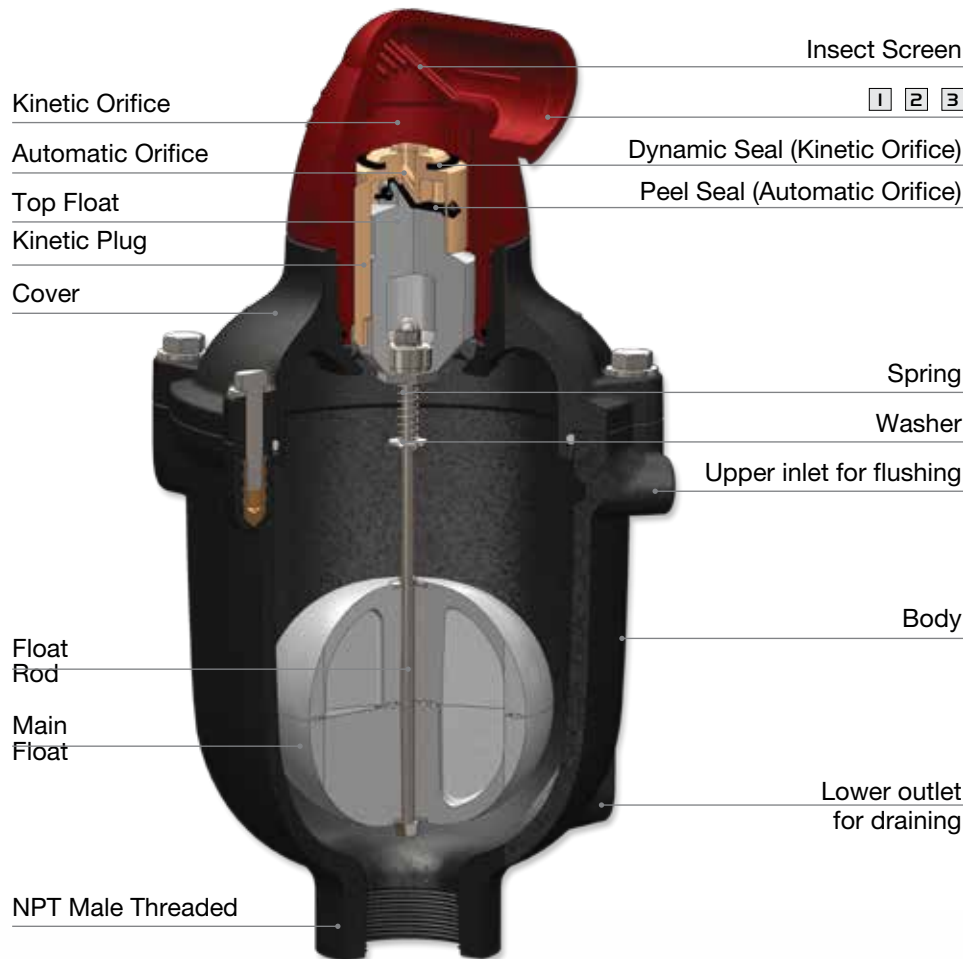
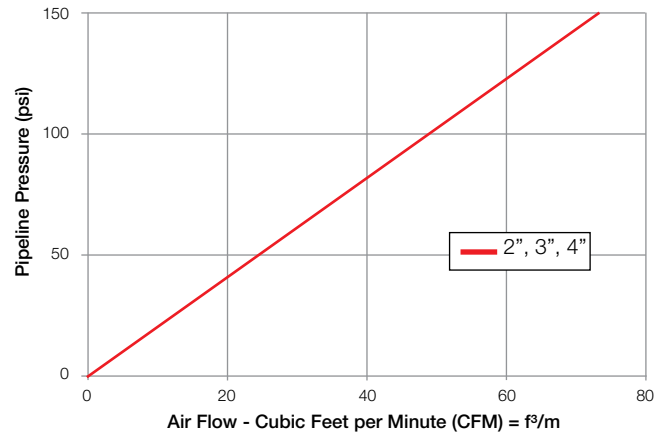
Air Flow Performance Charts

Air Relief and Intake

(Pipeline Filling, Draining and Vacuum Conditions)



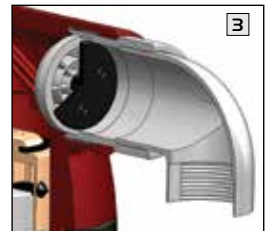
Air Release (Pressurized Operation)



Down outlet and 1 1/2" connection to drainage pipe



Surge Protection (anti slam) - (C50-SP)



Inflow Prevention (C50-IP)



Parts List and Materials

	Description	Material	Standards/Remarks
1	Body BSP/NPT Female	Glass Reinforced Nylon	
1a	Body BSP/NPT Male	Glass Reinforced Nylon	
2	Cover-2"-Sewage	Glass Reinforced Nylon	
3	Down Outlet	Polypropylene	
4	2-C-Body	Glass Reinforced Nylon	
5	Top Float	Polypropylene	
6	Main Float	Polypropylene	
7	Kinetic Plug	Polyamide	
8	Peel Seal	EPDM	
9	Kinetic Seal	EPDM	
10	Hex domed Nut	Stainless Steel	AISI/SAE S30400 DIN1587 A2
11	Washer	Stainless Steel	AISI/SAE S30400 DIN1587 A2
12	Float Rod	Stainless Steel	AISI/SAE S30400 DIN1587 A2
13	Top Float Nut	Polyamide	
14	Spring	Stainless Steel	AISI/SAE S30300
15	Washer	Stainless Steel	AISI/SAE S30400 DIN9021 A2
16	Nut	Stainless Steel	AISI/SAE S30400 DIN934 A2
17	O-Ring	EPDM	
18	Bolt	Stainless Steel	AISI/SAE S30400 DIN933 A2
19	Washer	Stainless Steel	AISI/SAE S30400 DIN125A A2
20	Washer	EPDM	
21	O-Ring	EPDM	
22	Exit	Polypropylene	Only C50-SP, C50-IP
23	Grid	Glass Reinforced Nylon	Only C50-SP, C50-IP
24	Surge Protection Seal	EPDM	Only C50-SP
25	Flow Prevention Seal	EPDM	Only C50-IP
26	O-Ring	EPDM	Only C50-SP, C50-IP