

## Combination Air Valve

### Model C30

BERMAD C30 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, this double orifice valve provides excellent protection against air accumulation and prevents vacuum formation, while reducing undesirable leakage.



1"-C30

2"-C30

### Typical Applications

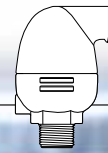
- Pipelines – Protection against air accumulation and vacuum formation at elevations, slope change points and road/river crossings.
- Water networks – Protection against air accumulation and vacuum formation.
- In proximity to control valves and water meters – Prevention of biased readings and inaccurate pressure regulation due to air flow through devices.
- Industrial and residential networks - Protection against air accumulation.

### Features & 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 - Reduces leakage during operation even under low pressure conditions (0.1 bar).
- Compact, simple and reliable structure with fully corrosion-resistant parts; lower maintenance and increased life span.
- Designed in compliance with EN-1074/4 standard 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

- Surge Protection (anti-slam) - Smoother operation, preventing damage to the valve and the system (**C30-SP**).
- 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 (**C30-IP**).



## 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 upward 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 pressure surge, it partially closes the valve's outlet. The approaching water column becelerates due to the resistance of the rising air pressure in the valve.

### Inflow Prevention:

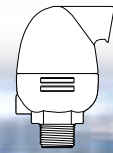
The inflow prevention is a Normally Closed check device fitted on the valve's outlet and preventing flow of atmospheric air into the valve.

## Valve Selection

- Body Material – Glass-reinforced plastic
- Inlet sizes - DN20, DN25, DN50 (¾", 1", 2")
- Connections - Threaded Male BSPT
- Outlets – Sideway, downwards (only for DN50 / 2")
- Additional features (only for DN50 / 2"):
  - Surge Protection **(C30-SP)**
  - Inflow Prevention **(C30-IP)**

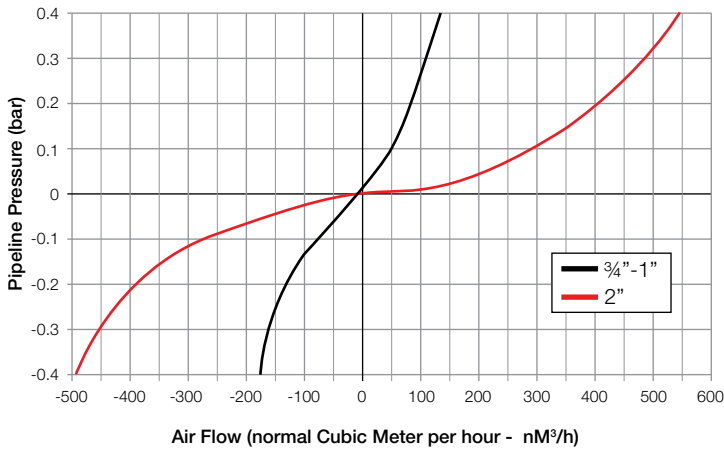
## Operational Data

- Pressure rating - ISO PN16
- Operating pressure range: 0.1 - 16 bar
- Operating temperature: Water up to 60°C

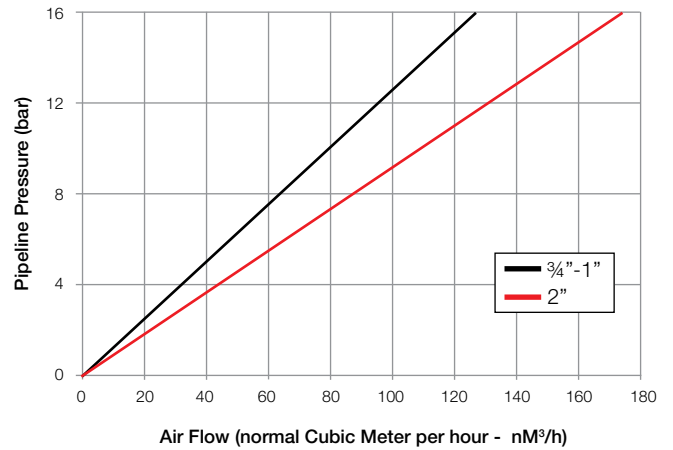


## Air Flow Performance Charts

### Air Relief and Intake (Pipeline filling and draining, Vacuum conditions)



### Air Release (Pressurized operation)

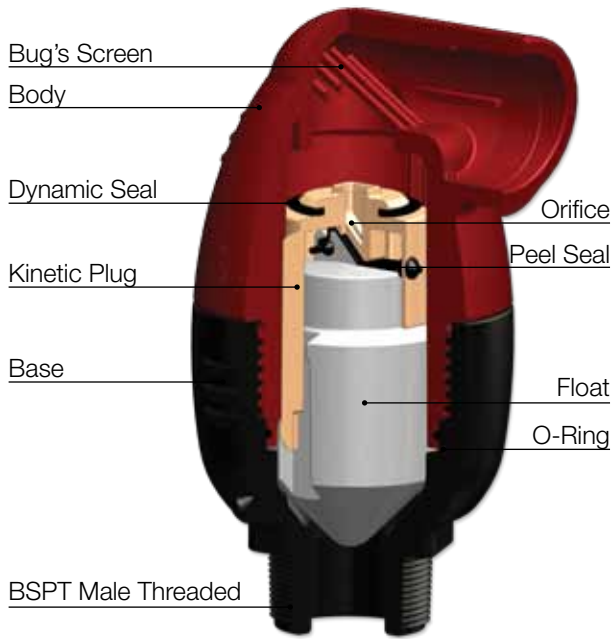
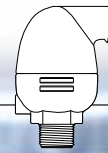


## Orifices Specification

Size		Kinetic		Automatic
DN	Inch	d[mm]	Ad[mm <sup>2</sup> ]	Ad[mm <sup>2</sup> ]
20	3/4"	20.0	314	7.3
25	1"	20.0	314	7.3
50	2"	32.9	850	12.2

## Dimensions & Weights

Size		Connection	Side Outlet		
DN	Inch		D (mm)	H (mm)	Weight (Kg)
20	3/4"	Threaded	97	160	0.44
25	1"	Threaded	97	160	0.44
50	2"	Threaded	143	227	1.20



## Parts List and Materials

	Description	Material
1	Base BSP / NPT (for Drinking Water)	Glass Reinforced Polyamide
2	Body (for Drinking Water)	Glass Reinforced Polyamide
3	Float (for Drinking Water)	PP
4	Kinetic Plug (for Drinking Water)	Glass Reinforced Polyamide
5	Seal (for Drinking Water)	EPDM
6	Peel Seal (for Drinking Water)	EPDM
7	O-Ring (for Drinking Water)	EPDM