# COMBINATION AIR VALVE

## Model C72-C

BERMAD C72 is a high quality dual body 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 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.



C72 Side Outlet



C72 Down Outlet

### 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 (3.0 psi; 0.2 bar).
- Two optional outlets (sideways, downwards) that can swivel 360°: Easy to install in a variety of site conditions.
- Compact and simple structure with fully corrosion resistant internal 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.

### 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.
- Service port (code P) fitted with ¼"; DN6 plug for pressure gauge connection, check point or test drain for air valve function.
- Drainage Valve (code Z).
- Insect Screen (code S).

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## Inlet and Outlet Connections

- Inlets: Female threaded 2"; DN50, flanged 2-8"; DN50-200
- Outlets:
  - Downwards, 2-8", DN50-200 without a connection to drainage pipeline
  - Sideways, female threaded 2-3"; DN50-80, grooved 4-8", DN100-200. Optional addition of extension with 90 degrees for 2-3"; DN50-80

## Materials

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

## Operational Data

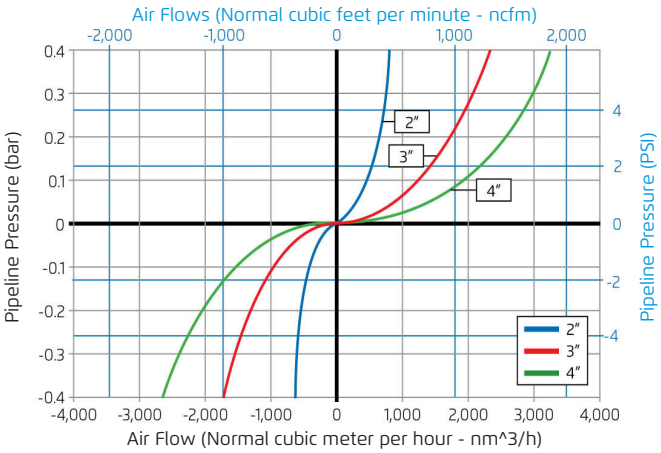
- Pressure Rating: ISO PN16, ISO PN25, ISO PN40
- Minimum operating pressure: 0.2 bar
- Maximum operating pressure: 16 bar, 25 bar, 40 bar
- Media and operating temperature: 1-60°C

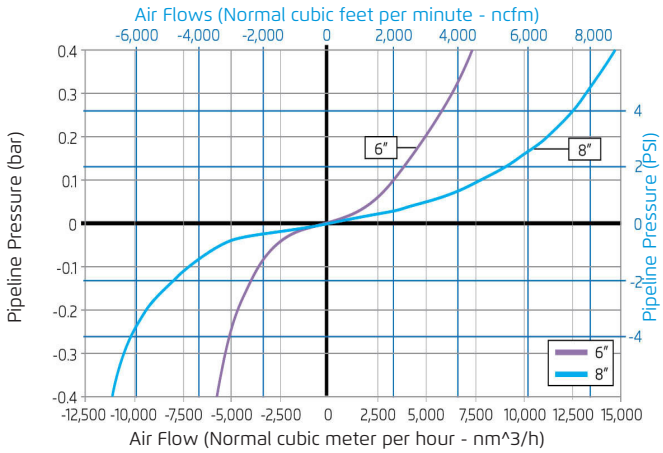
## Orifice Specifications

| Inlet Sizes | External Automatic Orifice Area (A72) | | | Internal Automatic Orifice Area (C70) | | | Kinetic Orifice | | Surge Protection | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | PN16 | PN25 | PN40 | PN16 | PN25 | PN40 | Diameter | Area | Number of holes | Hole Diameter | Total Area |
| Inch; mm | Sq mm | Sq mm | Sq mm | Sq mm | Sq mm | Sq mm | Diameter | Area | -- | mm | Sq mm |
| 2"; DN50 | 3.1 | 2.5 | 1.8 | 1.1 | 0.6 | 0.4 | 50 | 1,936 | 4 | 5 | 79 |
| 3"; DN80 | 3.1 | 2.5 | 1.8 | 2.5 | 1.5 | 1 | 80 | 5,027 | 4 | 8 | 201 |
| 4"; DN100 | 3.1 | 2.5 | 1.8 | 3.1 | 2.0 | 1.3 | 100 | 7,854 | 4 | 10 | 314 |
| 6"; DN150 | 3.1 | 2.5 | 1.8 | 9.1 | 5.7 | 3.5 | 150 | 17,671 | 4 | 15 | 707 |
| 8"; DN200 | 3.1 | 2.5 | 1.8 | 22.1 | 14.5 | 8.0 | 200 | 31,416 | 4 | 20 | 1,257 |

## Air Flow Performance Charts

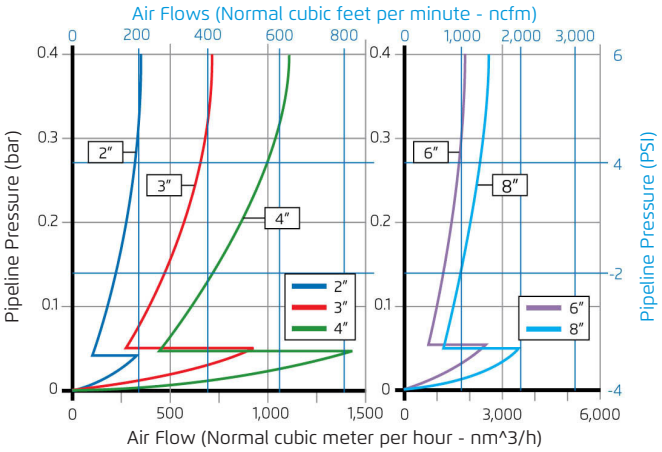
**Air Relief and Intake - Down or Side outlet** (Pipeline Filling, Draining and Vacuum Conditions)



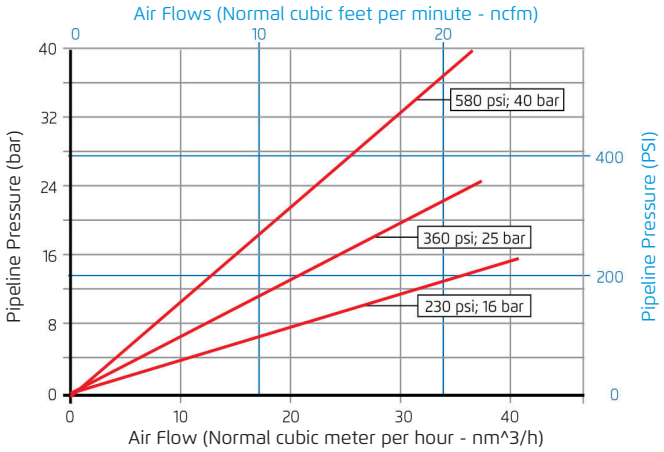




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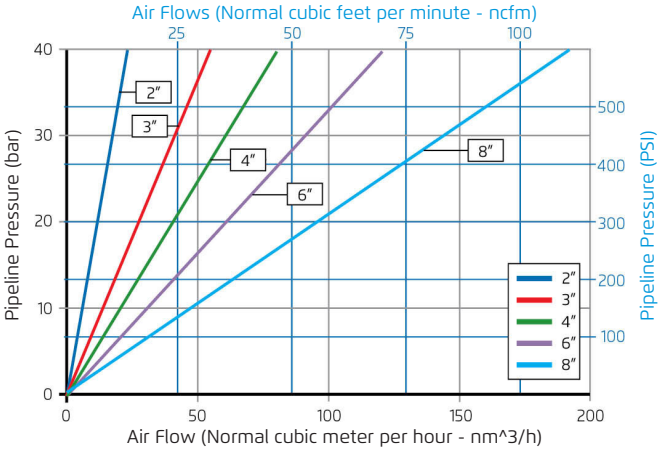
**Air Relief with Surge Protection - Down outlet** (Pipeline Filling)




**Air Release - External Orifice (A72)** (Pressurized Operation)




**Air Release - Internal Orifice (C70)** (Pressurized Operation)



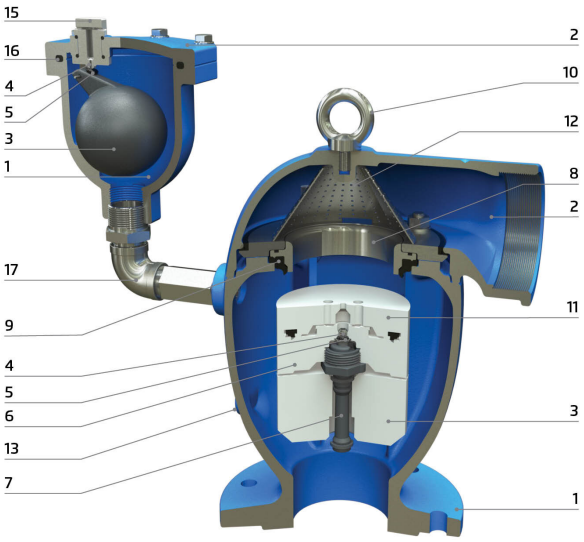

- For higher automatic air release capacity, Please consult with BERMAD.
- Air relief and intake charts are based on actual measurements, measured in Bermad Air Flow test bench, according to EN-1074/4 and AS4883 standard and refer to side outlet. Use Bermad Air software for optimized Sizing & Positioning of Air Valves.

## Data for C72-C with Surge Protection Feature

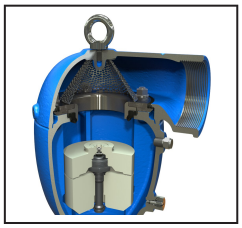
| Inlet Sizes | C72-SP Switching Value | | C72-SP/AC Air relief at 0.4 bar | |
|---|---|---|---|---|
| | Side | Down | Side | Down |
| Inch; mm | bar | bar | $nm^3/h$ | $nm^3/h$ |
| 2"; DN50 | 0.04 | 0.05 | 350 | 350 |
| 3"; DN80 | 0.05 | 0.06 | 700 | 700 |
| 4"; DN100 | 0.05 | 0.06 | 1,100 | 1,100 |
| 6"; DN150 | 0.04 | 0.06 | 1,680 | 1,680 |
| 8"; DN200 | 0.05 | 0.05 | 2,580 | 2,580 |

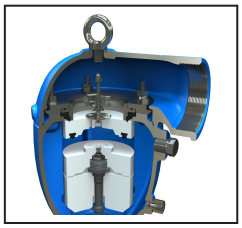
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## Cutaway

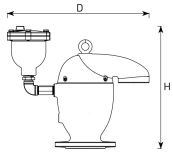



**[1]** Body
**[2]** Cover
**[3]** Float
**[4]** Auto Orifice
**[5]** Auto Orifice Seal
**[6]** Auto Orifice Disc
**[7]** Auto Orifice Rod
**[8]** Kinetic Orifice
**[9]** Kinetic Orifice Seal
**[10]** Eye Bolt
**[11]** Surge Protection Disc (SP, Optional)
**[12]** Insect Screen (Optional)
**[13]** Service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


Without Surge Protection (C72)


With Assisted Closing (C72-AC)

## Dimensions & Weights








| Inlet Sizes | Connection | Side Ductile Outlet | | | Down Ductile Outlet | | |
|---|---|---|---|---|---|---|---|
| | | Width (D) | Height (H) | Weight | Width (D) | Height (H) | Weight |
| in; mm | | mm | mm | Kg | mm | mm | Kg |
| 2"; DN50 | Threaded | 320 | 360 | 12.9 | 365 | 360 | 13.4 |
| 2"; DN50 | Flanged | 320 | 360 | 16.0 | 365 | 360 | 16.5 |
| 3"; DN80 | Flanged | 375 | 395 | 25.3 | 445 | 395 | 25.6 |
| 4"; DN100 | Flanged | 415 | 425 | 34.1 | 606 | 425 | 35.3 |
| 6"; DN150 | Flanged | 560 | 580 | 67.9 | 680 | 580 | 71.1 |
| 8"; DN200 | Flanged | 675 | 775 | 138.1 | 825 | 775 | 141.7 |


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