

# COMBINATION AIR VALVE FOR NON-CLEAN, SEWAGE & WASTEWATER WITH SURGE PROTECTION

**Stainless Steel (code 447)**

## Model VEC-313-SP-N

BERMAD VEC-313-N is a 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 the intake of large volumes of air 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.



### Features & Benefits

- Straight flow body with nominal (equal) inlet and outlet size.
- Elongated body design: Prevents solids from making contact with valve's operating parts.
- Surge Protection: the kinetic orifice is partially closed during the second stage of the air relief, preventing damage to the air valve and the system and increasing the operational time without maintenance.
- Drainage Valve: 1"; DN25 female threaded BSP.
- Simple, robust structure with fully corrosion-resistant parts: Lower maintenance and increased life span.

### Typical Applications

- Pumping stations and deep well pumps: Air relief, surge protection and vacuum prevention.
- Non clean water pipelines: Protection against air and gas accumulation and vacuum formation at elevations, slope change points and at road/river crossings.
- Wastewater treatment plants: Air relief, protection against air and gas accumulation and vacuum formation.

### Inlet and Outlet Connections

- Inlets: Flanged 2-8"; DN50-200
- Outlets: Mushroom

### Operational Data

- Pressure Rating: 230 psi (all inlet sizes), 360 psi (up to 4"; DN100)
- Minimum operating pressure: 3 psi
- Maximum operating pressure: 230 psi or 360 psi
- Media and operating temperature: 33-140°F

### Materials

- Lower and Top Flanges: Stainless Steel
- Body (Barrel): Stainless Steel 316
- Cover: Stainless Steel 316
- Screen: Stainless Steel 316
- Automatic Orifice: Stainless Steel 316
- Float: High density Polyethylene (HDPE)
- Elastomers: Viton
- Bolts & Nuts: Stainless Steel 316
- Drainage ball valve: Stainless Steel 316

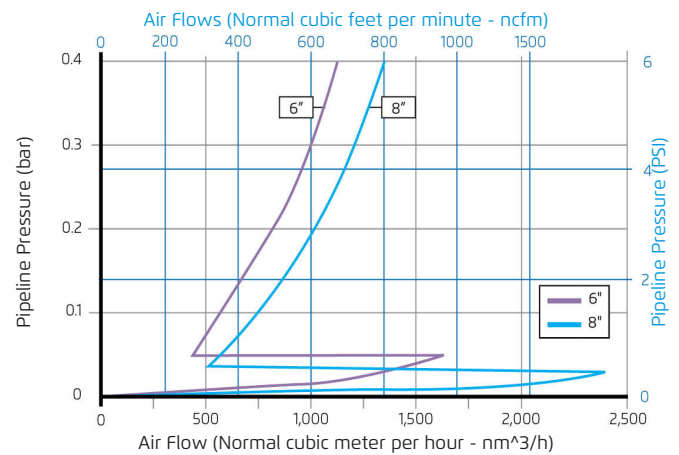
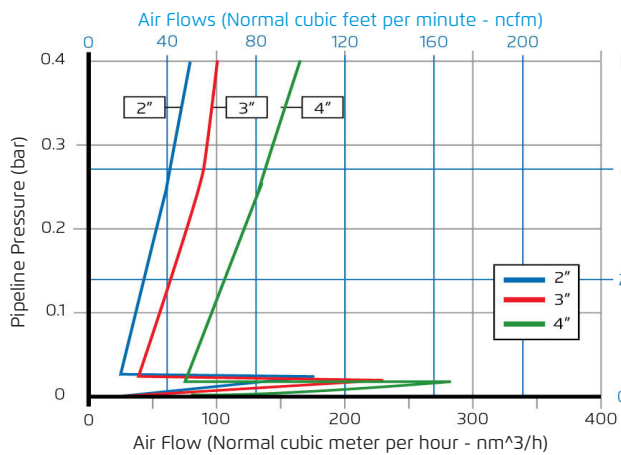


## Orifice Specifications

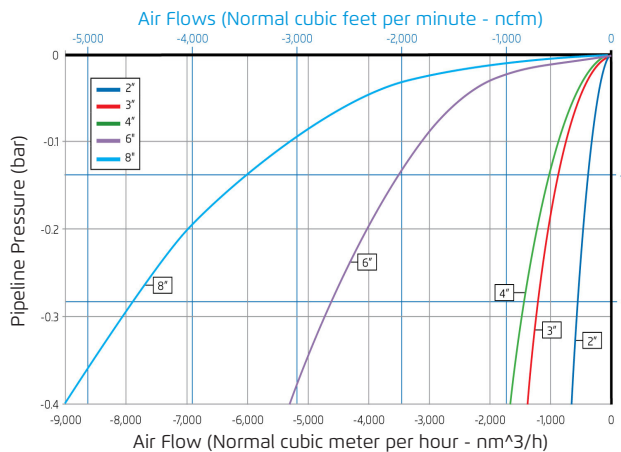
| Inlet Sizes | Automatic Orifice Area |         | Kinetic Orifice |         | Automatic Orifice |         |
|-------------|------------------------|---------|-----------------|---------|-------------------|---------|
|             | 230 psi                | 360 psi | Diameter        | Area    | Diameter          | Area    |
| Inch; mm    | Sq inch                | Sq inch | inch            | Sq inch | inch              | Sq inch |
| 2"; DN50    | 0.005                  | 0.005   | 2.0             | 3.142   | 0.354             | 0.394   |
| 3"; DN80    | 0.005                  | 0.005   | 3.0             | 7.069   | 0.472             | 0.701   |
| 4"; DN100   | 0.005                  | 0.005   | 4.0             | 12.566  | 0.669             | 1.407   |
| 6"; DN150   | 0.044                  | ---     | 6.0             | 28.274  | 0.984             | 3.043   |
| 8"; DN200   | 0.044                  | ---     | 8.0             | 50.265  | 1.339             | 5.629   |

## Air Flow Performance Charts

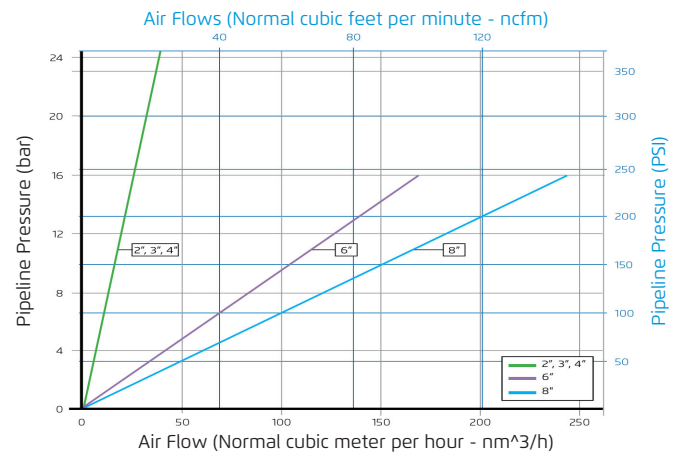
### Air Relief with Surge Protection (Pipeline Filling)



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



### Air Release (Pressurized Operation)



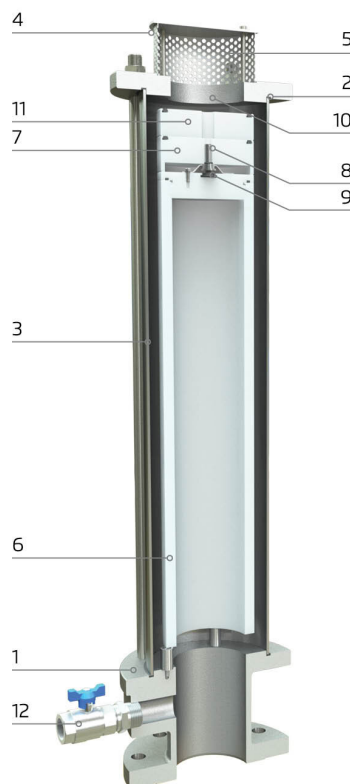
- For higher automatic air release capacity, Please consult with BERMAD.
- Air relief and intake charts for inlet connections 2-4", DN50-100 are based on actual measurements, measured in Bermad Air Flow test bench, according to EN-1074-4 standard. Use Bermad Air software for optimized Sizing & Positioning of Air Valves.



### Data for VEC-313-SP-N with Surge Protection Feature

| Inlet Sizes | VEC-313-SP<br>Switching<br>Value | VEC-313-SP<br>Air relief at 6<br>psi; 0.4 bar |
|-------------|----------------------------------|-----------------------------------------------|
|             | Mushroom<br>Outlet               | Mushroom<br>Outlet                            |
| Inch; mm    | psi                              | ncfm                                          |
| 2"; DN50    | 0.43                             | 47                                            |
| 3"; DN80    | 0.29                             | 59                                            |
| 4"; DN100   | 0.29                             | 102                                           |
| 6"; DN150   | 0.72                             | 342                                           |
| 8"; DN200   | 0.36                             | 456                                           |

### Cutaway



- [1] Lower Flange
- [2] Upper Flange
- [3] Body (Barrel)
- [4] Cover
- [5] Screen
- [6] Float
- [7] Auto Orifice Disc
- [8] Auto Orifice
- [9] Auto Orifice Seal
- [10] Kinetic Orifice
- [11] Surge Protection Disc
- [12] Drainage Valve (Optional)



## Dimensions & Weights

|             |            | Stainless Steel |            |        |
|-------------|------------|-----------------|------------|--------|
| Inlet Sizes | Connection | Width (D)       | Height (H) | Weight |
| in; mm      |            | in              | in         | lbs    |
| 2"; DN50    | Flanged    | 6.496           | 33.071     | 46.3   |
| 3"; DN80    | Flanged    | 7.874           | 35.433     | 59.5   |
| 4"; DN100   | Flanged    | 9.252           | 36.220     | 77.1   |
| 6"; DN150   | Flanged    | 13.976          | 45.276     | 180.7  |
| 8"; DN200   | Flanged    | 16.339          | 48.819     | 332.9  |

Dimension does not include the drainage ball valve, see assembly drawing.