

COMBINATION AIR VALVE FOR SEAWATER AND CORROSIVE FLUIDS

Super Duplex

Model FP-VAC-312-SP-D

BERMAD VAC-312 is a quality combination air valve for a variety of seawater and corrosive fluids applications 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.

Features & Benefits

- Straight flow body with nominal (equal) inlet and outlet size.
- 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.
- Compact and simple structure with fully corrosion resistant internal parts: Lower maintenance and increased life span.
- Factory approval and Quality Control: Performance and specification tested and measured with specialized test bench, including vacuum pressure conditions.

Typical Applications

- Vertical turbine pumps - Air relief, surge protection and vacuum prevention.
- Pipelines: Protection against air accumulation and vacuum formation at elevations and high points.

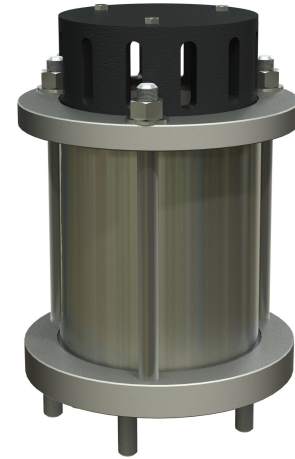
Additional Features & Accessories

- Drainage Valve.

System Installation

Air Management After Vertical Pump

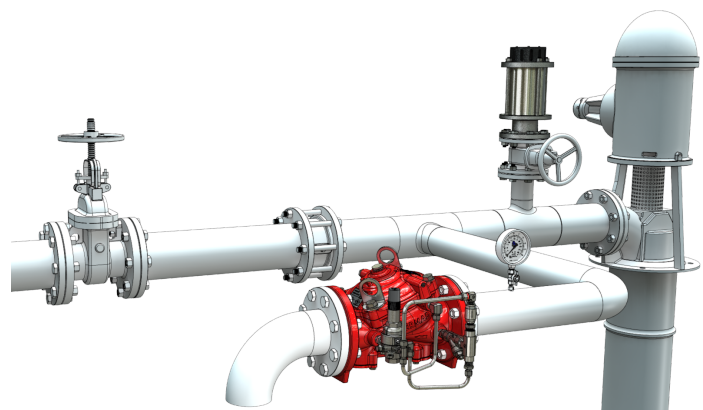
- Air release
- Air relief and intake



VAC-312-SP-D Stud bolts (code 400, 501)



VAC-312-SP-D Flanged (code 401, 505)





Inlet and Outlet Connections

- Inlets: Stud bolts 2-4"; DN50-100, Flanged 2-8"; DN50-200
- Outlets: Mushroom

Operational Data

- Pressure Rating: 230 psi, 360 psi
- Minimum operating pressure: 4.5 psi
- Maximum operating pressure: 230 psi, 360 psi
- Media and operating temperature: 33-140°F

Materials

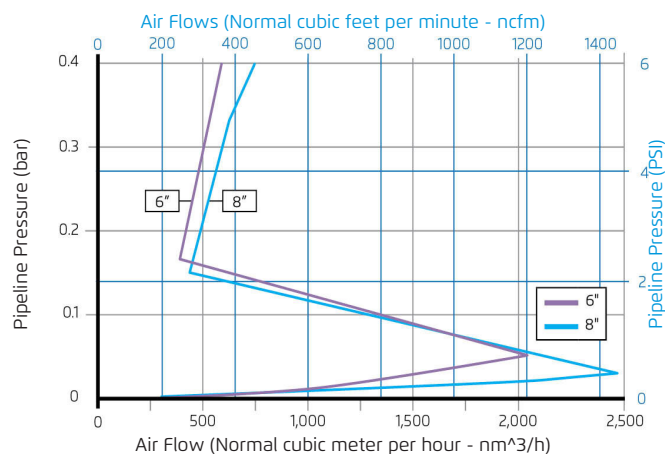
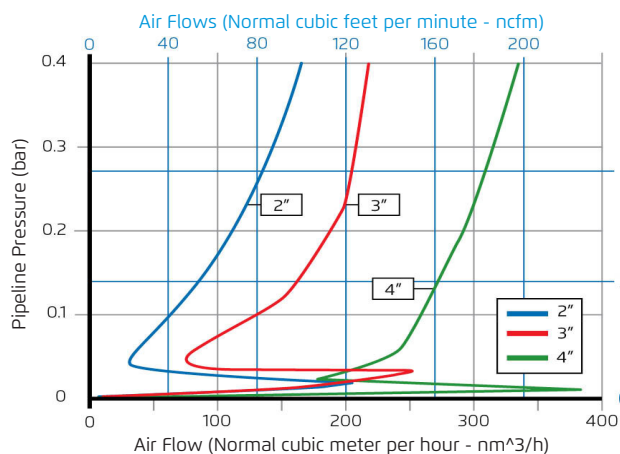
- Body (Barrel): Super Duplex
- Lower and Top Flanges: Super Duplex
- Cover: Polypropylene
- Screen: Polypropylene
- Automatic Orifice: Super Duplex
- Float: Polypropylene
- Elastomers: Viton
- Bolts & Nuts: Stainless Steel 316 or Super Duplex

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	0.002	0.002	2.0	3.142	0.354	0.394
3"; DN80	0.002	0.002	3.0	7.069	0.472	0.701
4"; DN100	0.003	0.003	4.0	12.566	0.669	1.407
6"; DN150	0.011	0.011	6.0	28.274	0.984	3.043
8"; DN200	0.011	0.011	8.0	50.265	1.339	5.629

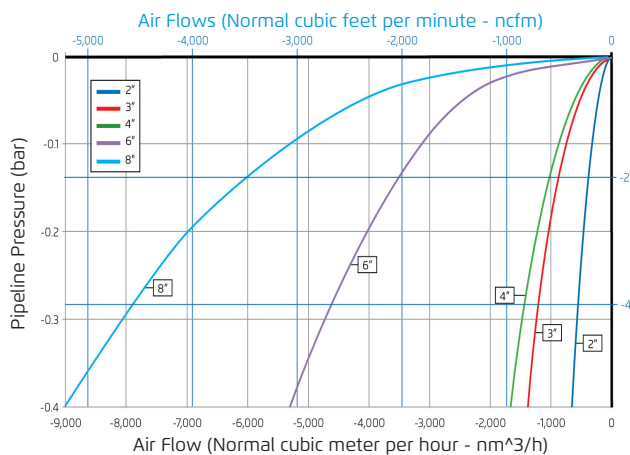
Air Flow Performance Charts

Air Relief with Surge Protection (Pipeline Filling)

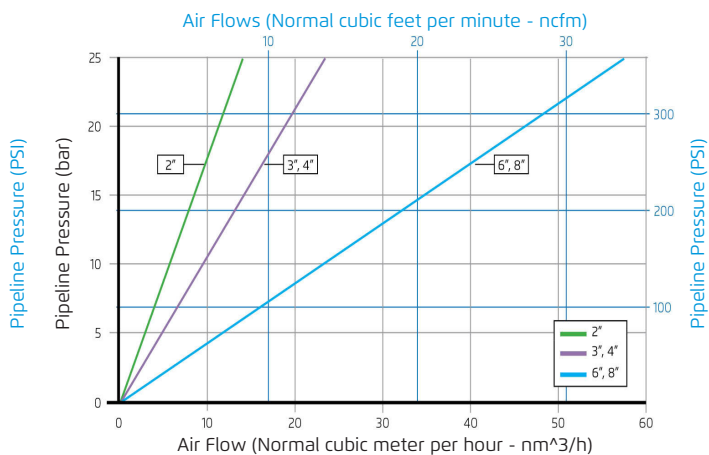




Air Relief and Intake (Pipeline Filling, Draining and Vacuum Conditions)



Air Release (Pressurized Operation)



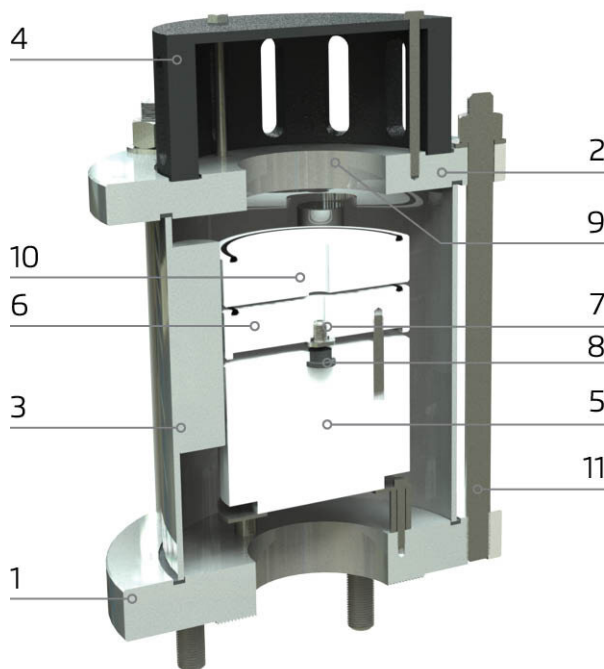
- For higher automatic air release capacity, Please consult with BERMAD.
- Air relief and intake charts for inlet connections 2-8", DN50-200 are based on actual measurements, measured in Bermad Air Flow test bench, according to EN-1074-4 standard. Use Bermad Air software for optimized Sizing & Positioning of Air Valves.

Data for FP-VAC-312-SP-D with Surge Protection Feature

Inlet Sizes	VAC-312-SP Switching Value	VAC-312-SP Air relief at 6 psi; 0.4 bar
	Mushroom Outlet	Mushroom Outlet
Inch; mm	psi	ncfm
2"; DN50	0.43	37
3"; DN80	0.29	153
4"; DN100	0.29	412
6"; DN150	0.51	442
8"; DN200	0.73	471

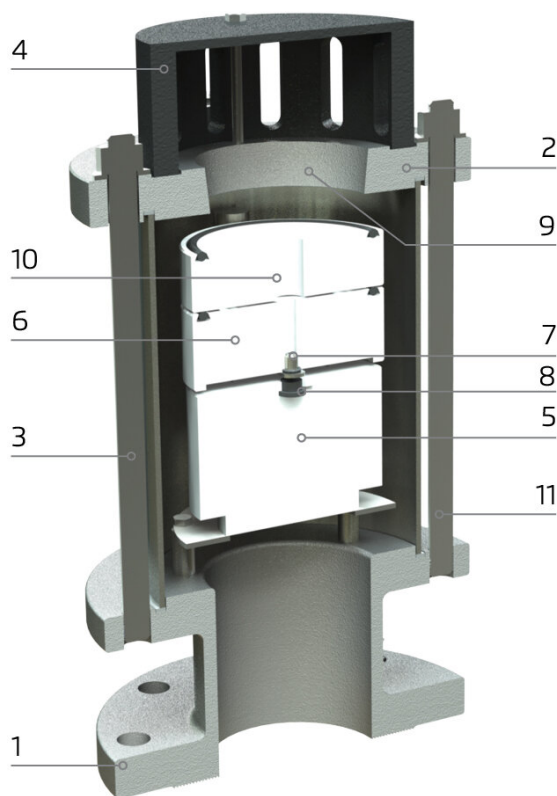


Cutaway - stud bolts connection



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

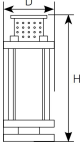


Cutaway - flanged connection



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



Dimensions & Weights

							
Inlet Sizes	Connection	Stud bolts (code 400, 501)			Flanged (code 401, 505)		
		Width (D)	Height (H)	Weight	Width (D)	Height (H)	Weight
in; mm		in	in	lbs	in	in	lbs
2"; DN50	Stud bolts	6.89	11.34	24.47	---	---	---
3"; DN80	Stud bolts	8.27	12.4	36.38	---	---	---
4"; DN100	Stud bolts	9.06	13.5	52.02	---	---	---
2"; DN50	Flanged	---	---	---	6.89	14.17	26.46
3"; DN80	Flanged	---	---	---	8.46	16.34	44.09
4"; DN100	Flanged	---	---	---	9.65	16.93	55.12
6"; DN150	Flanged	---	---	---	13.98	24.80	165.35
8"; DN200	Flanged	---	---	---	16.34	27.17	264.55