

# D-065 HF NS 580 psi



## Combination Air Valve for High Flow - Non Slam

### Description

The D-065 HF NS series Combination Air Valve has the features of both an air release valve and an air & vacuum valve.

The air release component is designed to automatically release small pockets of air to the atmosphere as they accumulate along a pipeline or piping system when it is full and operating under pressure.

The air & vacuum component is designed to automatically discharge or admit large volumes of air during the filling or draining of a pipeline or piping system. This valve will open to relieve negative pressures whenever water column separation occurs.

### Applications

- Water pipelines with anticipated conditions of surge and water hammer.
- On the peaks of water pipelines with steep slopes.
- At the points of water pipelines where water column separation occurs.
- Water pipelines vulnerable to vandalism and/or water theft.
- Water systems found in remote areas.
- Water systems with pressure demands of high pressure demands.

### Operation

The series Combination Non Slam Air Valve is a surge-dampening, slam-preventing, 3-stage combination air valve. The air valve provides high capacity vacuum protection and, at the same time, efficient surge suppression. At sudden drainage and/or water column separation (sudden pump trips or valve closure, for instance), the air & vacuum orifice admits air at high flow rates, thus preventing vacuum. As the water column and/or pressure wave returns, large volumes of air are discharged at high velocities, raising the non-slam disc, partially closing the air & vacuum orifice and allowing air to exhaust slowly through the smaller orifice of the non-slam disc. This slowly exhausting air pocket dampens the slam of the returning water column, thus suppressing the pressure surge. As the water flow arrives at a much slower rate, dampened by the slower air discharge, it buoys up the main float, gently closing the air & vacuum component of the air valve.

The S-015 air release component continues releasing air while the pipeline and the air valve are pressurized

### Main Features

- Working pressure range: 3 - 580 psi.
- Testing pressure for the air valve is 1.5 times its working pressure.
- Maximum working temperature: 140° F.
- Maximum intermittent temperature: 194° F.
- All main flow cross-sections are equal or greater than the nominal port area.
- Aerodynamic design enables high flow rates of air both at intake and at discharge.
- Reliable operation reduces water hammer incidents.
- Dynamic design allows for high velocity air discharge while preventing premature closure.
- Special orifice seat design: Stainless Steel and E.P.D.M. rubber, assures long-term maintenance-free operation.
- Screen protected outlet.
- The upper screen is protected with a protective cover.

### Air Release Component

- Body made of high strength materials.
- All operating parts are made of specially selected corrosion-resistant polymer materials.
- Large sized air release orifice:
  - Dramatically reduces the possibility of obstruction by debris.
  - Discharges high air flow rates.
  - One size orifice for a wide pressure range (up to 580 psi), achieved by: A.R.I patented rolling seal mechanism.

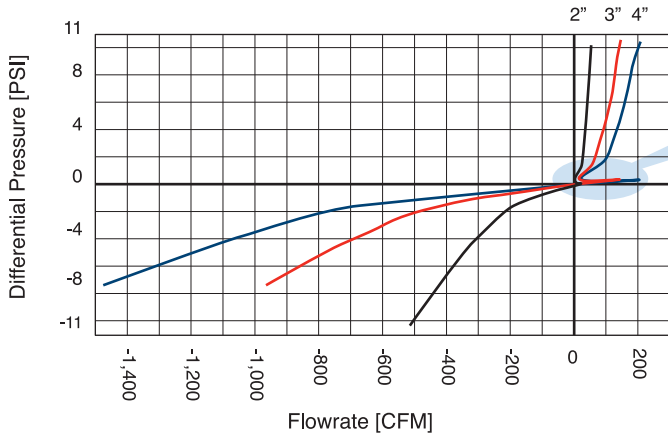
### Valve Selection

- Size Range: 2"-8" for all models in the series.
- These valves are manufactured with flanged ends to meet ASA standard or any requested standard.
- The 2" valve is also available with a threaded male NPT connection.
- **Valve coating:** FBE coating in accordance with the international standard DIN 30677-2.
- Other coatings are available upon request.
- For best suitability, it is recommended to send the fluid chemical properties along with the valve request.

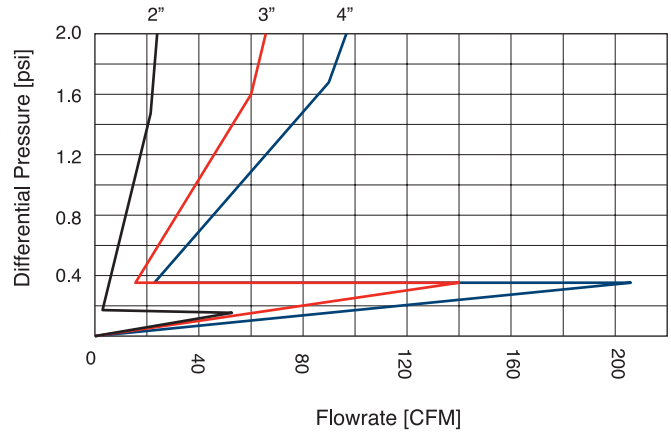
### Note

For best suitability, it is recommended to send the fluid chemical properties along with the valve request. Upon ordering, please specify: model, size, working pressure, thread and flange standard and type of liquid.

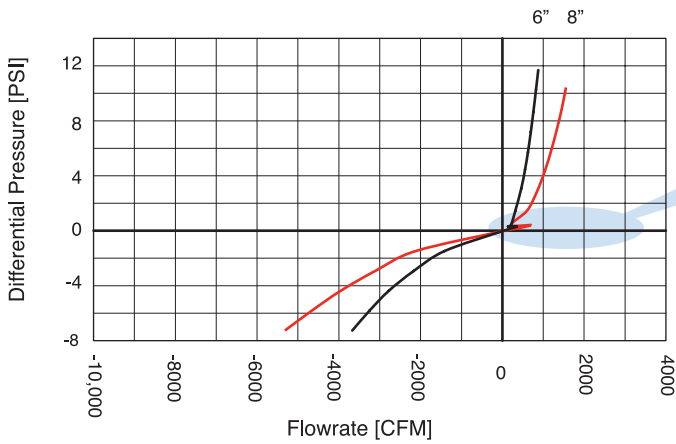
**AIR & VACUUM FLOWRATE**



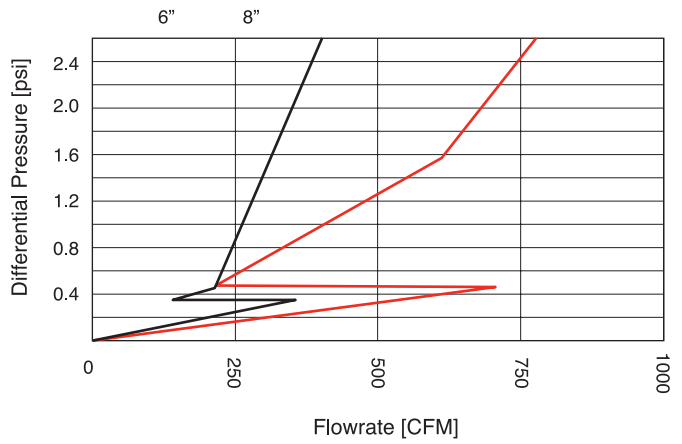
**AIR DISCHARGE SWITCHING REGION**



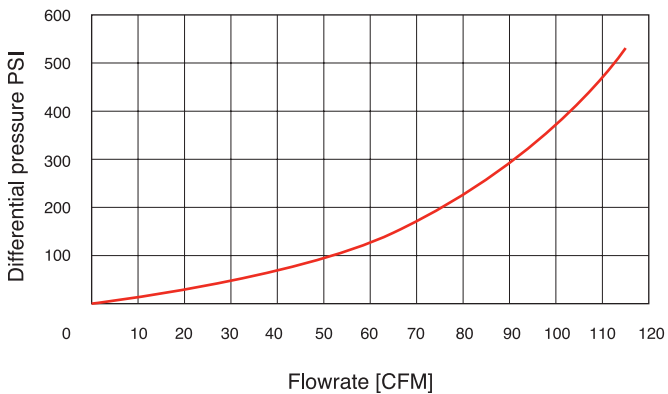
**AIR & VACUUM FLOWRATE**



**AIR DISCHARGE SWITCHING REGION**



**AIR RELEASE FLOWRATE**

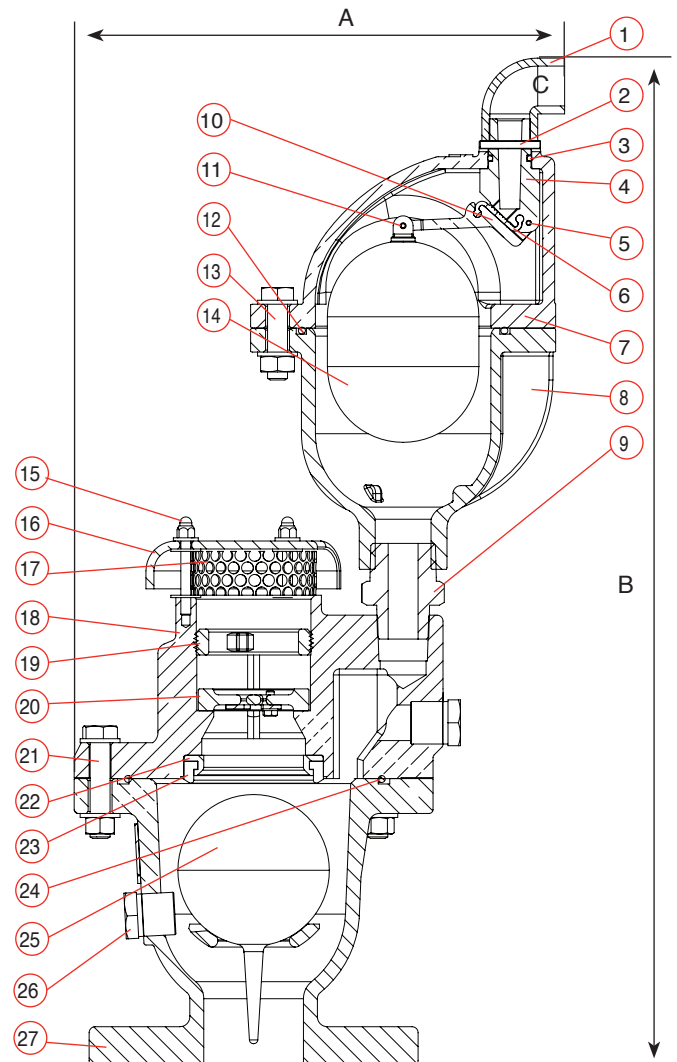


## DIMENSIONS AND WEIGHT

Size	Dimensions Inch		Connection C	Weight Lbs.	Orifice Area Sq.In.	
	A	B			A / V	Air Rel.
2" Flanged	9.7	19.9	1/2" NPT	39.7	3.04	0.023

## PARTS LIST AND SPECIFICATION FOR 2"

No.	Part	Material
1.	Discharge Outlet	PVC
2.	Rollpin	Stainless Steel SAE 304
3.	O-RING	BUNA-N
4.	Orifice	Reinforced Nylon
5.	Rollpin	Stainless Steel SAE 304
6.	Rolling Seal	E.P.D.M.
7.	Cover	Ductile Iron ASTM A536 60-40-18
8.	Body	Ductile Iron ASTM A536 60-40-18
9.	Adapter	Stainless Steel SAE 316
10.	Lever	Reinforced Nylon
11.	Rollpin	Stainless Steel SAE 304
12.	O-RING	BUNA-N
13.	Bolt, Nut & Washer	Stainless Steel SAE 316 / UNS 31600
14.	Float	Polypropylene / Stainless Steel SAE 316
15.	Domed Nut & Washer	NSF 61 Certified STST UNS 30400
16.	Screen Cover	Ductile Iron ASTM A-536 60-40-18 / Resicoat RT R4
17.	Screen	NSF 61 Certified STST UNS 30400
18.	Cover	Ductile Iron ASTM A536 60-40-18 / Resicoat RT R4
19.	Ring	NSF 61 Certified STST UNS 31600
20.	Non-Slam Disc	NSF 61 Certified STST UNS 31600
21.	Bolt, Nut & Washer	NSF 61 Certified STST UNS 30400
22.	Orifice Seat	Stainless Steel SAE 316 / UNS 31600
23.	Orifice Seal	NSF 61 Certified E.P.D.M
24.	O - Ring	NSF 61 Certified NBR 70
25.	Float	NSF 61 Certified STST UNS 31600 /NSF 61 Certified polycarbonate
26.	Plug	Stainless Steel SAE 316 / UNS 31600
27.	Body	Ductile Iron ASTM A536 60-40-18 / Resicoat RT R4

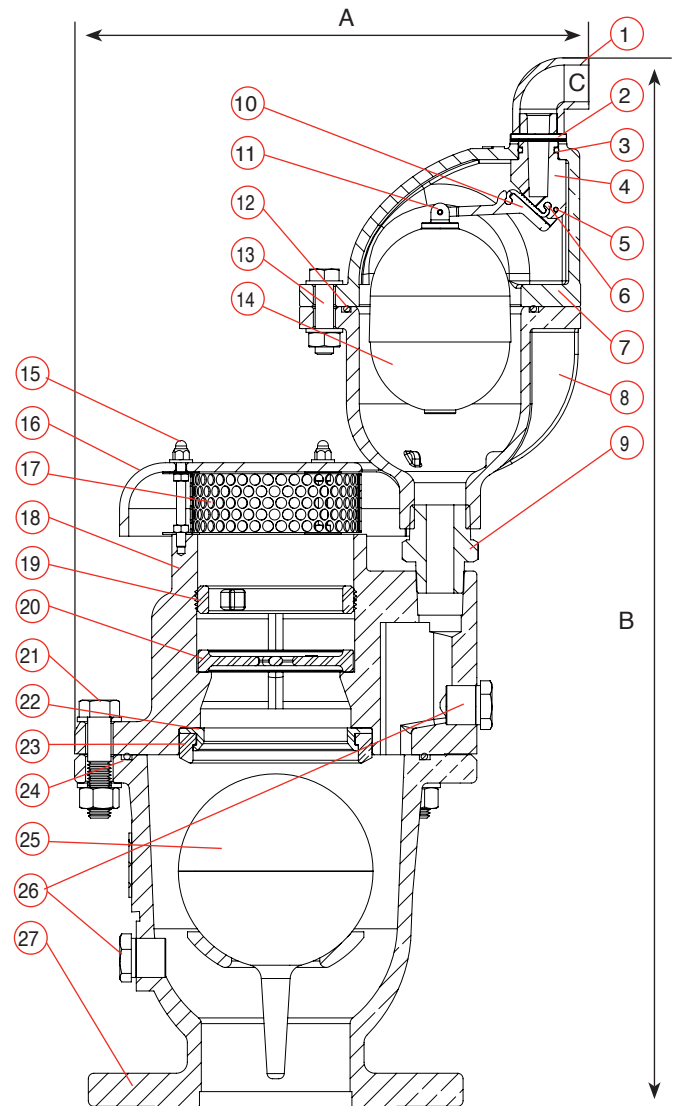


## DIMENSIONS AND WEIGHTS

Size	Dimensions Inch		Connections	Weight Lbs.	Orifice Area Sq. In.	
	A	B			C	A / V
3" Flanged	11.02	22.6	1/2" NPT	57.3	12.17	0.023

## PARTS LIST AND SPECIFICATION FOR 2"

No.	Part	Material
1.	Discharge Outlet	PVC
2.	Rollpin	Stainless Steel SAE 304
3.	O-RING	BUNA-N
4.	Orifice	Reinforced Nylon
5.	Rollpin	Stainless Steel SAE 304
6.	Rolling Seal	E.P.D.M.
7.	Cover	Ductile Iron ASTM A536 60-40-18
8.	Body	Ductile Iron ASTM A536 60-40-18
9.	Adapter	Stainless Steel SAE 316
10.	Lever	Reinforced Nylon
11.	Rollpin	Stainless Steel SAE 304
12.	O-RING	BUNA-N
13.	Bolt, Nut & Washer	Stainless Steel SAE 316 / UNS 31600
14.	Float	Polypropylene / Stainless Steel SAE 316
15.	Domed Nut & Washer	NSF 61 Certified STST UNS 30400
16.	Screen Cover	Ductile Iron ASTM A-536 60-40-18 / Resicoat RT R4
17.	Screen	NSF 61 Certified STST UNS 30400
18.	Cover	Ductile Iron ASTM A536 60-40-18 / Resicoat RT R4
19.	Ring	NSF 61 Certified STST UNS 31600
20.	Non-Slam Disc	NSF 61 Certified STST UNS 31600
21.	Bolt, Nut & Washer	NSF 61 Certified STST UNS 30400
22.	Orifice Seat	Stainless Steel SAE 316 / UNS 31600
23.	Orifice Seal	NSF 61 Certified E.P.D.M
24.	O - Ring	Stainless Steel SAE 316
25.	Float	NSF 61 Certified STST UNS 31600 / NSF 61 Certified polycarbonate
26.	Plug	Stainless Steel SAE 316 / UNS 31600
27.	Body	Ductile Iron ASTM A536 60-40-18 / Resicoat RT R4

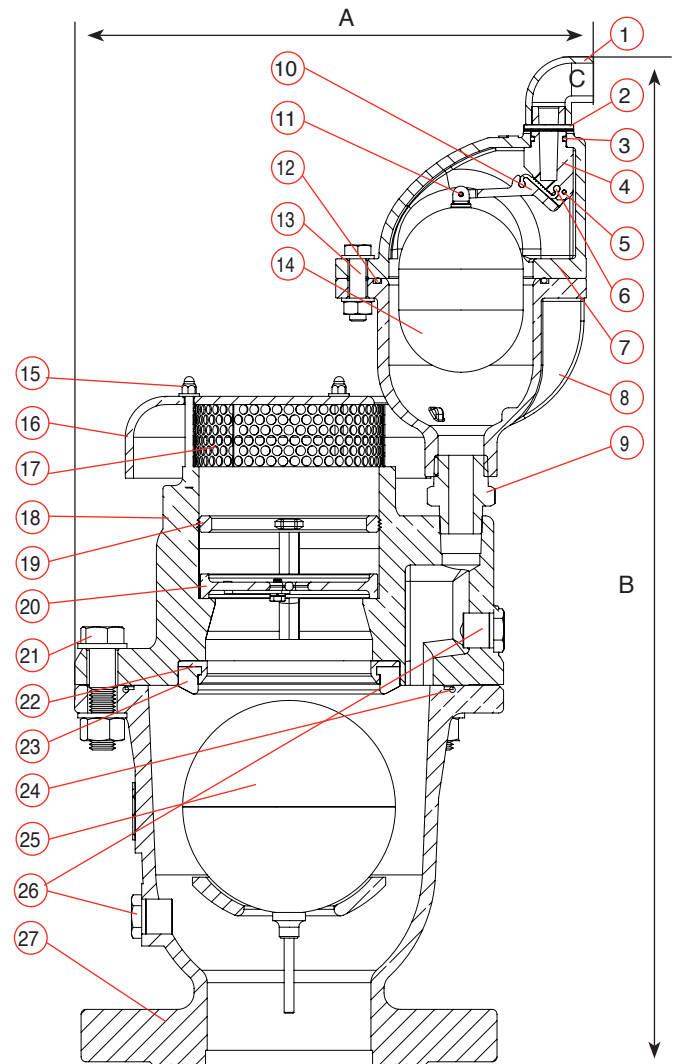


## DIMENSIONS AND WEIGHTS

Size	Dimensions Inch		Connections	Weight Lbs.	Orifice Area Sq. In.	
	A	B			C	A / V
4" Flanged	12.5	24.3	1/2" NPT	90.9	12.17	0.023

## PARTS LIST AND SPECIFICATION FOR 4"

No.	Part	Material
1.	Discharge Outlet	PVC
2.	Rollpin	Stainless Steel SAE 304
3.	O-RING	BUNA-N
4.	Orifice	Reinforced Nylon
5.	Rollpin	Stainless Steel SAE 304
6.	Rolling Seal	E.P.D.M.
7.	Cover	Ductile Iron ASTM A536 60-40-18
8.	Body	Ductile Iron ASTM A536 60-40-18
9.	Adapter	Stainless Steel SAE 316 / UNS 31600
10.	Lever	Reinforced Nylon
11.	Rollpin	Stainless Steel SAE 304
12.	O-RING	BUNA-N
13.	Bolt, Nut & Washer	Stainless Steel SAE 316 / UNS 31600
14.	Float	Polypropylene / Stainless Steel SAE 316
15.	Domed Nut & Washer	NSF 61 Certified STST UNS 30400
16.	Screen Cover	Ductile Iron ASTM A-536 60-40-18 / Resicoat RT R4
17.	Screen	NSF 61 Certified STST UNS 30400
18.	Cover	Ductile Iron ASTM A536 60-40-18 / Resicoat RT R4
19.	Ring	NSF 61 Certified STST UNS 31600
20.	Non-Slam Disc	NSF 61 Certified STST UNS 31600
21.	Bolt, Nut & Washer	NSF 61 Certified STST UNS 30400
22.	Orifice Seat	Stainless Steel SAE 316 / UNS 31600
23.	Orifice Seal	NSF 61 Certified E.P.D.M
24.	O - Ring	NSF 61 Certified NBR 70
25.	Float	NSF 61 Certified STST UNS 31600 / NSF 61 Certified polycarbonate
26.	Plug	Stainless Steel SAE 316 / UNS 31600
27.	Body	Ductile Iron ASTM A536 60-40-18 / Resicoat RT R4

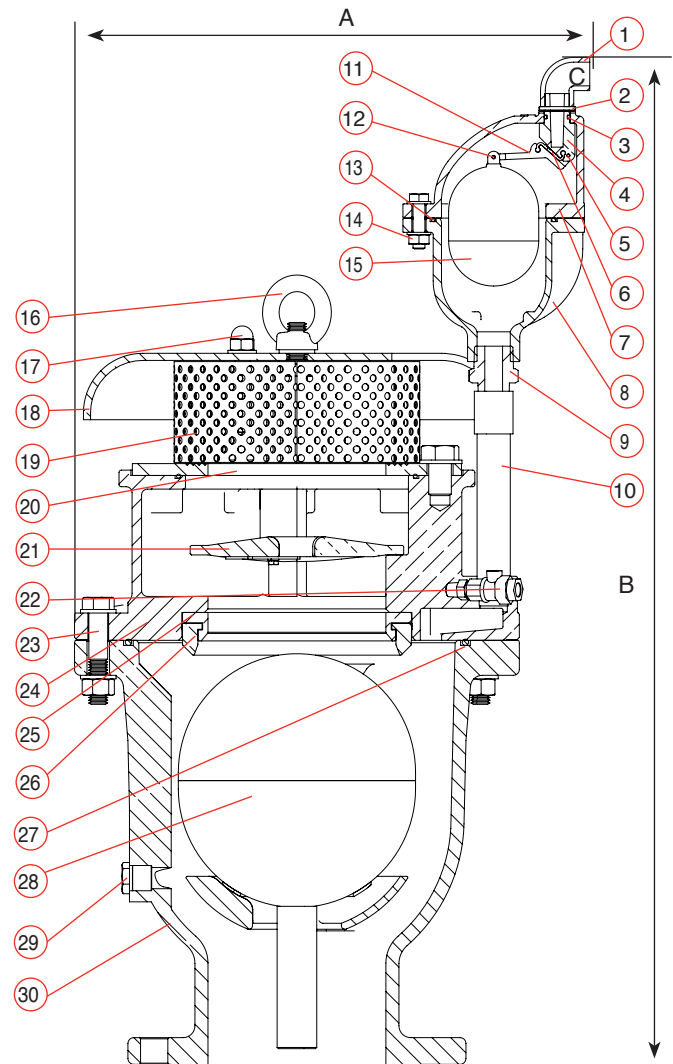


## DIMENSIONS AND WEIGHTS

Size	Dimensions Inch		Connections	Weight Lbs.	Orifice Area Sq. In.	
	A	B			C	A / V
6" Flanged	17.08	33.5	1/2" NPT	182.9	27.38	0.023

## PARTS LIST AND SPECIFICATION FOR 6"

No.	Part	Material
1.	Discharge Outlet	PVC
2.	Rollpin	Stainless Steel SAE 304
3.	O-RING	BUNA-N
4.	Orifice	Reinforced Nylon
5.	Rollpin	Stainless Steel SAE 304
6.	Rolling Seal	E.P.D.M.
7.	Cover	Ductile Iron ASTM A536 60-40-18
8.	Body	Ductile Iron ASTM A536 60-40-18
9.	Adapter	Stainless Steel SAE 316
10.	Lever	Reinforced Nylon
11.	Rollpin	Stainless Steel SAE 304
12.	O-RING	BUNA-N
13.	Bolt, Nut & Washer	Stainless Steel SAE 316 / UNS 31600
14.	Float	Polypropylene / Stainless Steel SAE 316
15.	Nipple & Coupling	NSF 61 Certified STST UNS 30400
16.	Lifting Ring	NSF 61 Certified STST UNS 31600
17.	Domed Nut & Washer	NSF 61 Certified STST UNS 30400
18.	Screen Cover	Ductile Iron ASTM A-536 60-40-18 / Resicoat RT R4
19.	Screen	NSF 61 Certified STST UNS 30400
20.	Ring	Steel Din St.37
21.	Non-Slam Disc	Ductile Iron ASTM A-536 60-40-18 / Resicoat RT R4
22.	Test Cock + Adaptor	Stainless Steel SAE 316 / UNS 31600
23.	Bolt, Nut & Washer	NSF 61 Certified STST UNS 30400
24.	Cover	Ductile Iron ASTM A536 60-40-18 / Resicoat RT R4
25.	Orifice Seat	Stainless Steel SAE 316 / UNS 31600
26.	Orifice Seal	NSF 61 Certified E.P.D.M
27.	O - Ring	NSF 61 Certified NBR 70
28.	Float	NSF 61 Certified STST UNS 31600 / NSF 61 Certified Polycarbonate
29.	Body	Ductile Iron ASTM A536 60-40-18 / Resicoat RT R4
30.	Plug	Stainless Steel SAE 316 / UNS 31600



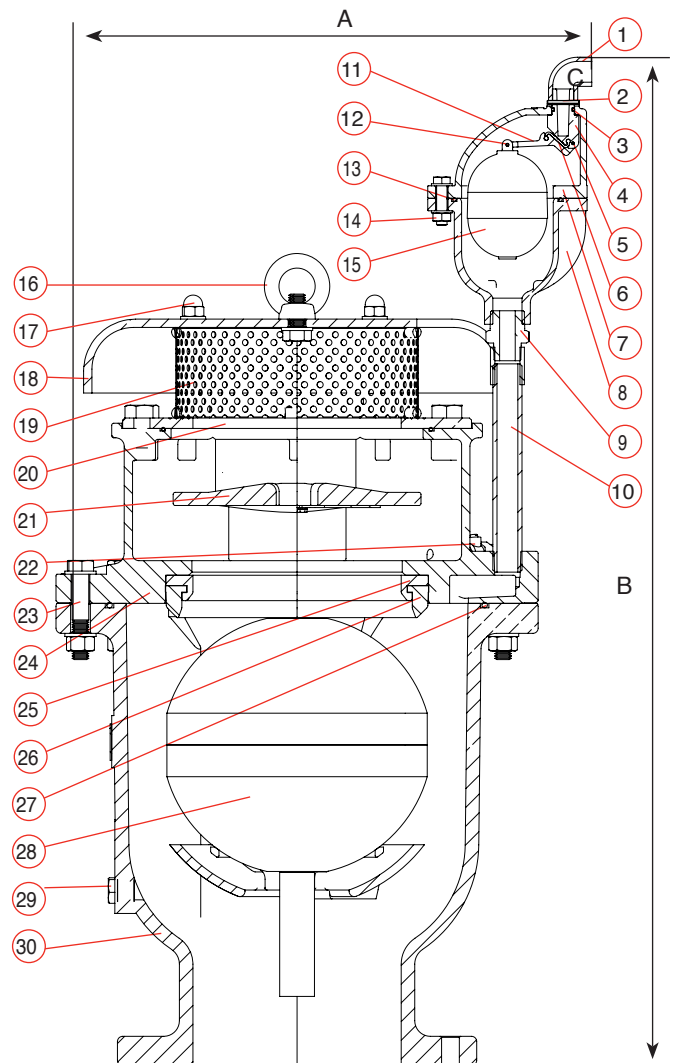


## DIMENSIONS AND WEIGHTS

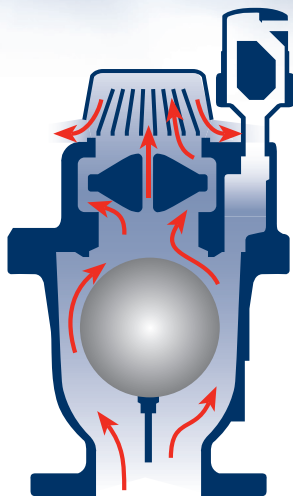
Size	Dimensions Inch		Connections	Weight Lbs.	Orifice Area Sq. In.	
	A	B			C	A / V
8" Flanged	20.3	38.2	1/2" NPT	323.2	48.67	0.023

## PARTS LIST AND SPECIFICATION FOR 8"

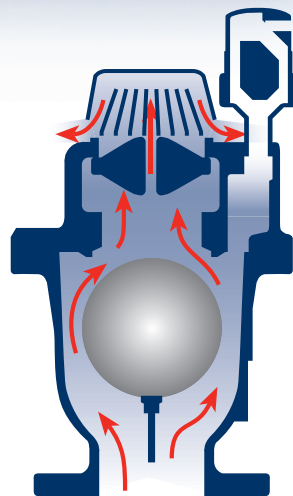
No.	Part	Material
1.	Discharge Outlet	PVC
2.	Rollpin	Stainless Steel SAE 304
3.	O-RING	BUNA-N
4.	Orifice	Reinforced Nylon
5.	Rollpin	Stainless Steel SAE 304
6.	Rolling Seal	E.P.D.M.
7.	Cover	Ductile Iron ASTM A536 60-40-18
8.	Body	Ductile Iron ASTM A536 60-40-18
9.	Adapter	Stainless Steel SAE 316
10.	Lever	Reinforced Nylon
11.	Rollpin	Stainless Steel SAE 304
12.	O-RING	BUNA-N
13.	Bolt, Nut & Washer	Stainless Steel SAE 316 / UNS 31600
14.	Float	Polypropylene / Stainless Steel SAE 316
15.	Nipple & Coupling	NSF 61 Certified STST UNS 30400
16.	Lifting Ring	NSF 61 Certified STST UNS 31600
17.	Domed Nut & Washer	NSF 61 Certified STST UNS 30400
18.	Screen Cover	Ductile Iron ASTM A536 60-40-18 / Resicoat RT R4
19.	Screen	NSF 61 Certified STST UNS 30400
20.	Ring	Steel Din St.37
21.	Non-Slam Disc	Ductile Iron ASTM A-536 60-40-18 / Resicoat RT R4
22.	Test Cock + Adaptor	Stainless Steel SAE 316 / UNS 31600
23.	Bolt, Nut & Washer	NSF 61 Certified STST UNS 30400
24.	Cover	Ductile Iron ASTM A536 60-40-18 / Resicoat RT R4
25.	Orifice Seat	Stainless Steel SAE 316 / UNS 31600
26.	Orifice Seal	NSF 61 Certified E.P.D.M
27.	O - Ring	NSF 61 Certified NBR 70
28.	Float	NSF 61 Certified STST UNS 31600 /NSF 61 Certified Polycarbonate
29.	Plug	Stainless Steel SAE 316 / UNS 31600
30.	Body	Ductile Iron ASTM A536 60-40-18 / Resicoat RT R4



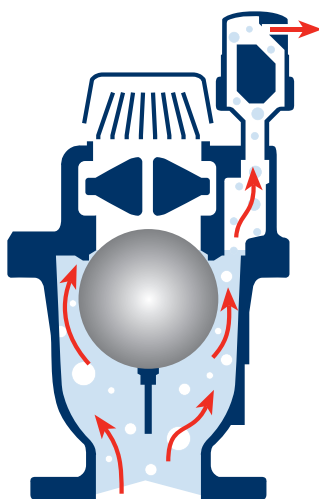
## Operation in Rapid Filling of the Pipeline:



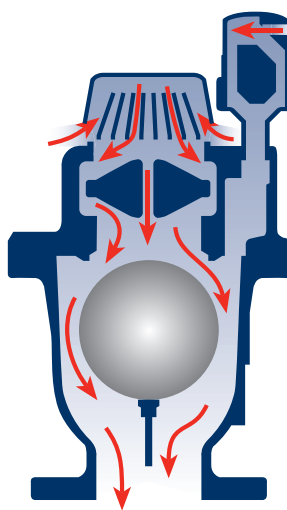
1. When water, rapidly filling the pipe line, pushes the air out through the Air Valve, a differential air pressure is created across the valve orifice.



2. When this differential pressure reaches a prefixed level (usually it will be prefixed at 0.02 - 0.03 bar) the orifice disc will close.  
3. Air will continue to come out through the small orifice disc - until all the air will be exhausted and water will reach the kinetic float. This double stage kinetic air discharge prevents the slam effect and therefore suppresses water hammer.



4. When water reaches the kinetic float, it lifts it up, closing the kinetic orifice and completing the kinetic cycle.  
5. The «vented Check Valve Orifice Disc» will come back to its normal open position.



6. When water is drained out of the pipe line, the resulting pressure drop lets the kinetic float fall down, opening the orifice fully for intake of high volume of air into the line.