

# COMBINATION AIR VALVES

## D-01 SERIES

### DESCRIPTION

The D-01 Series Combination Air Valve has the features of both a continuous acting air release valve and an air and vacuum valve.

The air release component is designed to continuously 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 and 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.

It is specially designed to operate under pressures ranging up to up to 580 psi.

### MAIN FEATURES

#### AIR AND VACUUM COMPONENT

- Dynamic design allows for high velocity air discharge while preventing premature closure.
- Special orifice seat design: combination of stainless steel seat and an E.P.D.M. or Viton rubber seal assures long-term maintenance-free operation.

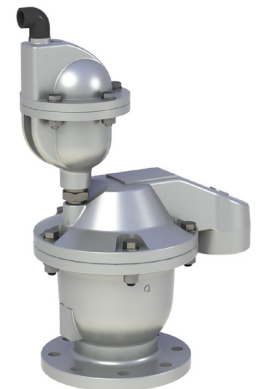
#### AIR RELEASE COMPONENT

- Body made of high strength materials.
- All operating parts are made of specially selected corrosion-resistant polymer materials.
- Large orifice:
  - Dramatically reduces the possibility of obstruction by debris.
  - Releases air at high flow rates.
  - One size orifice for a wide pressure range (up to 580 psi) achieved by a patented rolling real mechanism.
- Stainless steel float and inner parts made of corrosion-resistant materials.



**Combination Air Valve for High Pressure**

D-01



**Combination Air Valve for High Pressure**

D-01 STST

### PRODUCT SELECTION

- Available in 2" - 6".
- The air release component and the air and vacuum component are available as separate units.
- These valves are manufactured with flanged ends to meet any requested standard.
- Valves may be adapted to various types of liquid upon request.
- For installation, please refer to Recommendations for Air Valves.

### SPECIFICATIONS

- Working pressure range:
  - D-010: 3 - 250 psi (ASA 150 + 2" NPT)
  - D-012: 3 - 360 psi (ASA 300)
  - D-010STST: 3 - 285 psi (ASA 150 + 2" NPT)
  - D-015 and D-015STST: 3 - 580 psi (ASA 300 + 2" NPT 3 - 360 psi)
- Testing pressure: 1.5 times maximum working pressure
- Maximum working temperature: 140° F
- Maximum intermittent temperature: 194° F
- Valve coating: Fusion-bonded epoxy in accordance with standard DIN 30677-2

## D-01 SERIES

### OPERATION

The air and vacuum component, with the large orifice, discharges air at high flow rates during the filling of the system and admits air into the system at high flow rates during drainage and at water column separation.

High velocity air will not blow the float shut. Water will lift the float which seals the valve.

At any time during system operation, should internal pressure of the system fall below atmospheric pressure, air will enter the system.

The smooth discharge of air reduces pressure surges and other hydraulic disturbances.

The intake of air in response to negative pressure protects the system from destructive vacuum conditions and prevents damage caused by water column separation. Air entry is essential to efficiently drain the system.

The air release component continuously releases entrapped air in pressurized systems.

Without air valves, pockets of accumulated air may cause the following hydraulic disturbances:

- Restriction of effective flow due to a reduction of the flow area. In extreme cases this will cause complete flow stoppage.
- Obstruction of efficient hydraulic transmission due to air flow disturbances.
- Accelerate cavitation damages.
- Pressure transients and surges.
- Corrosion in pipes, fittings and accessories.
- Danger of a high-energy burst of compressed air.
- Inaccuracies in flow metering.

As the system starts to fill, the valve functions according to the following stages:

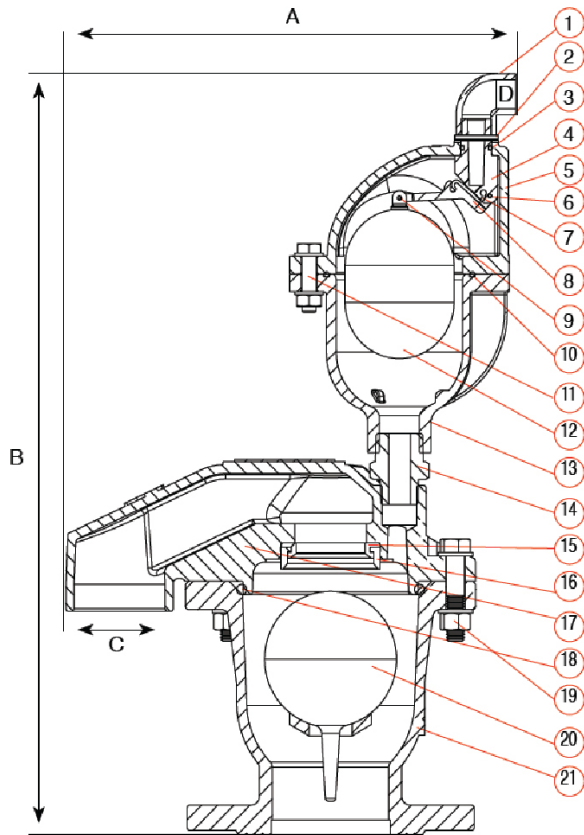
1. Air in the pipeline is discharged by the valve.
2. Liquid enters the valve, lifting the float to its sealing position.
3. Entrapped air, which accumulates at peaks and along the system, rises to the top of the valve, which in turn displaces the liquid in the valve's body.
4. The float drops down, unsealing the rolling seal. The air release orifice opens and the accumulated air is released.
5. Liquid enters the air release and the float rises, pushing the rolling seal back to its sealing position.

When internal pressure falls below atmospheric pressure (negative pressure):

1. The floats will immediately drop down, opening the air and vacuum and air release orifices.
2. Air will enter the system.

### MODEL NUMBER AND FLANGE TYPE

MODEL NUMBER	SIZE	CONNECTION	PSI
65D0102	2"	150 lb. Flg.	250
65D0103	3"	150 lb. Flg.	250
65D0104	4"	150 lb. Flg.	250
65D0106	6"	150 lb. Flg.	250
65D0122	2"	300 lb. Flg.	360
65D0123	3"	300 lb. Flg.	360
65D0124	4"	300 lb. Flg.	360
65D0126	6"	300 lb. Flg.	360
65D0152	2"	300 lb. Flg.	580
65D0153	3"	300 lb. Flg.	580
65D0154	4"	300 lb. Flg.	580
65D0156	6"	300 lb. Flg.	580
65D0102STST	2"	150 lb. Flg.	285
65D0103STST	3"	150 lb. Flg.	285
65D0104STST	4"	150 lb. Flg.	285
65D0106STST	6"	150 lb. Flg.	285
65D0152STST	2"	300 lb. Flg.	580
65D0153STST	3"	300 lb. Flg.	580
65D0154STST	4"	300 lb. Flg.	580
65D015STST	6"	300 lb. Flg.	580



**MATERIAL SPECIFICATIONS**

NO.	PART	MATERIAL
1	Discharge Outlet	PVC
2	Pin	Stainless Steel SAE 304
3	O-Ring	Buna-N*, Viton**
4	Orifice	Reinforced Nylon*, Polypropylene**
5	Cover	Ductile Iron ASTM A536 60-40-18* Stainless Steel SAE 316**
6	Pin	Stainless Steel SAE 304
7	Rolling Seal	EPDM*, Viton**
8	Lever	Reinforced Nylon*, Polypropylene**
9	Pin	Stainless Steel SAE 304
10	O-Ring	Buna-N*, Viton**
11	Bolt, Nut and Washer	Steel, Zinc Cobalt Plated*, Stainless Steel SAE 316**
12	Float	Stainless Steel SAE 316
13	Body	Ductile Iron ASTM A536 60-40-18* Stainless Steel SAE 316**
14	Adapter	Brass ASTM B124*, Stainless Steel SAE 316**
15	Orifice Seat	Bronze ASTM B-62 B271 C83600*, Stainless Steel SAE 316**
16	Orifice Seal	EPDM*, Viton**
17	Cover	Ductile Iron ASTM A536 60-40-18* Stainless Steel SAE 316**
18	O-Ring	Buna-N*, Viton**
19	Bolt, Nut and Washer	Steel, Zinc Cobalt Plated*, Stainless Steel SAE 316**
20	Float	Stainless Steel SAE316
21	Body	Ductile Iron ASTM A536 60-40-18* Stainless Steel SAE 316**

\* D-015

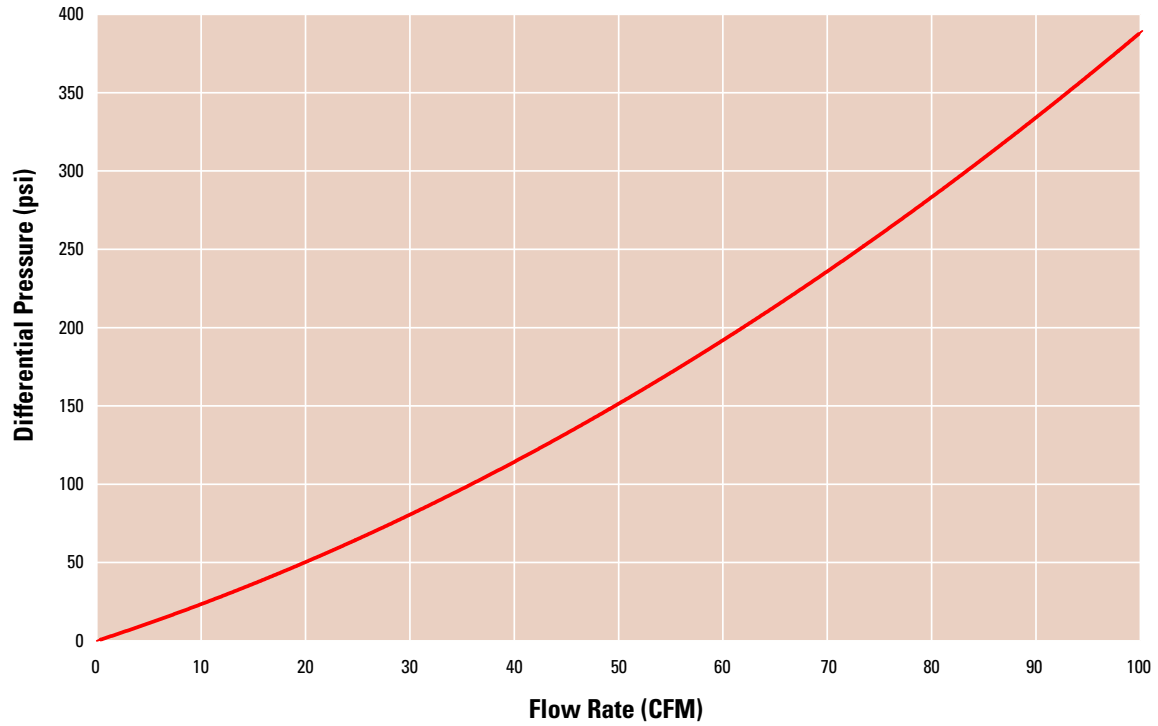
\*\* D-015STST, D010STST

**DIMENSIONS AND WEIGHTS**

SIZE	DIMENSIONS (IN)		WEIGHT (LBS.)		ORIFICE AREA (IN <sup>2</sup> )	DRAINAGE OUTLET (IN)	
	A	B	150 LB FLG	300 LB FLG		INTERNAL (C)	EXTERNAL (D)
2"	13	17.9	37	53.8	1.23	1.5	-
3"	13	19.8	42.6	84.7	2.80	2.5	2.9
4"	15.1	20.2	60.4	117.7	5.10	3.1	3.8
6"	22.7	28.7	174	215	27.4	4.9	5.5

# D-01 SERIES

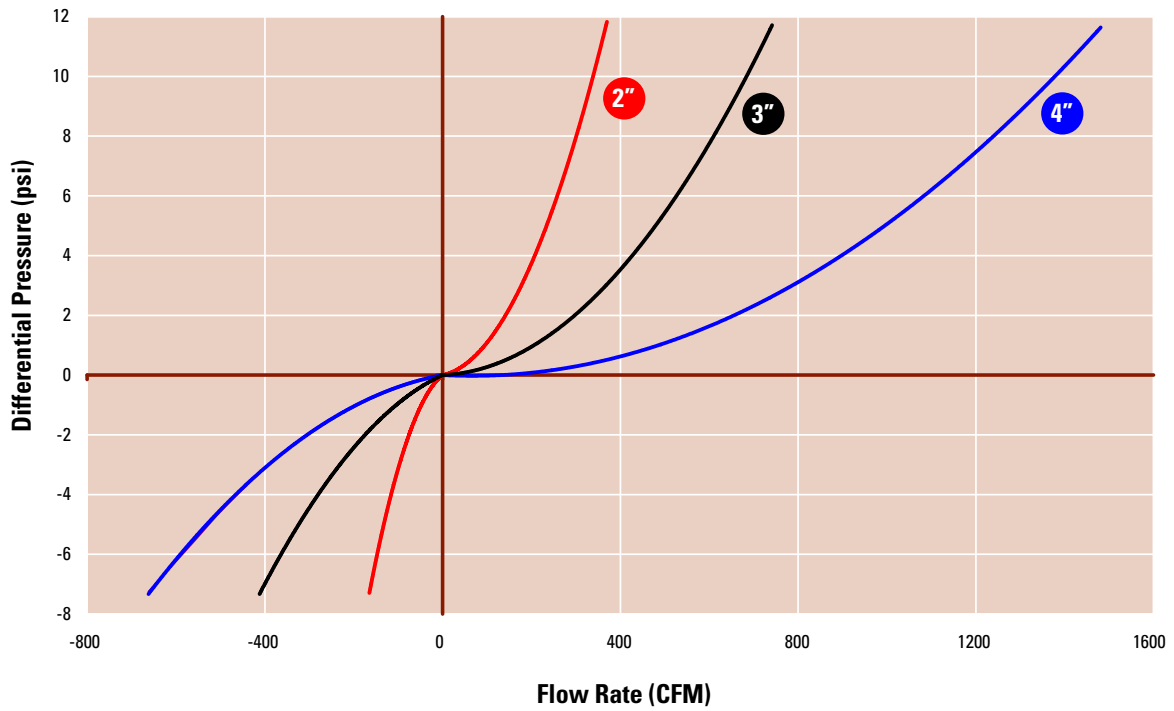
## D-01 SERIES AIR RELEASE FLOW RATE



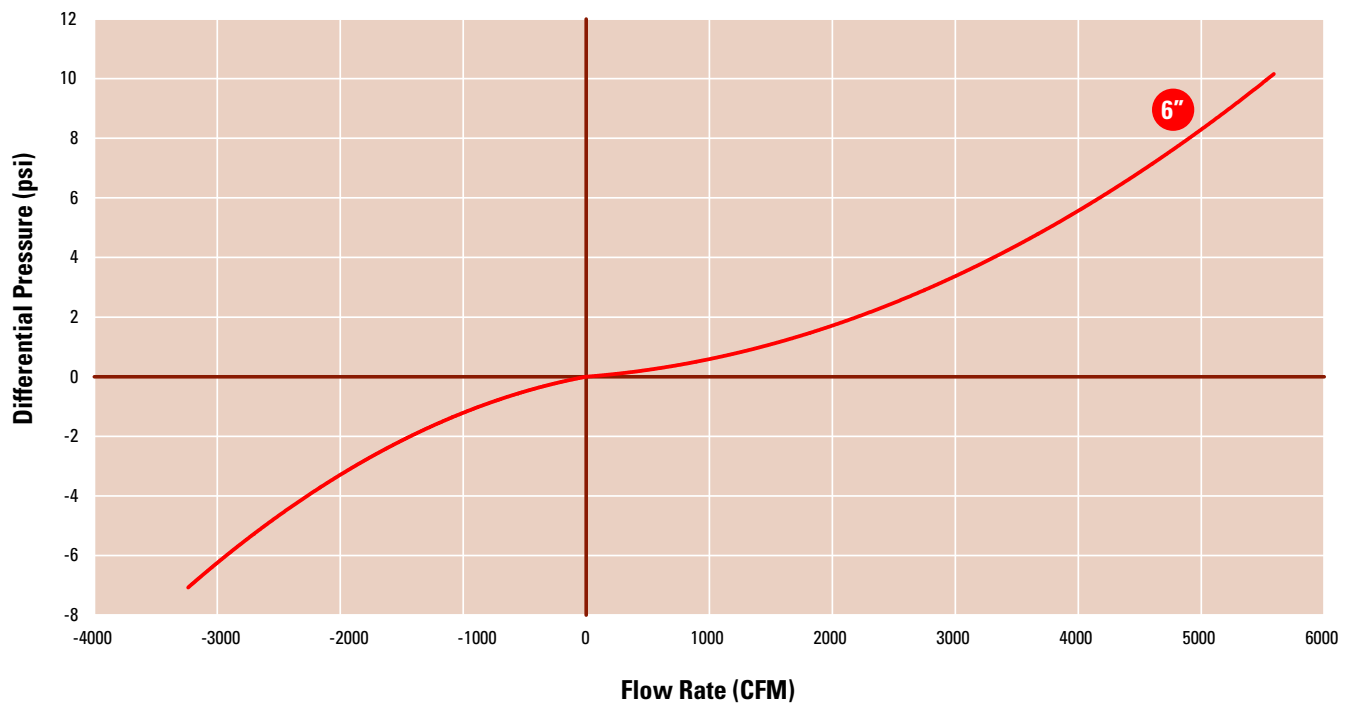
## AIR RELEASE FLOW RATE

FLOW RATE (CFM)	DIFFERENTIAL PRESSURE (psi)								
	0	50	100	150	200	250	300	350	375
FLOW RATE (CFM)	0	20	36	49.7	62	73.1	83.4	93.1	97.7

D-01 SERIES AIR & VACUUM FLOW RATE



D-01 SERIES 6" AIR & VACUUM FLOW RATE



## D-01 SERIES

### DISCHARGE FLOW RATE (CFM)

SIZE	DIFFERENTIAL PRESSURE (PSI)						
	0	2	4	6	8	10	12
2"	0	140	205	255	297.5	335	335
3"	0	334	465	565.5	650	725	725
4"	0	650	886	1,069	1,223	1,360	1,360
6"	0	2,290	3,365	4,182	4,900	5,530	5,530

### INTAKE FLOW RATE (CFM)

SIZE	DIFFERENTIAL PRESSURE (PSI)						
	-7.5	-6	-5	-4	-3	-2	0
2"	-171	-150.2	-135	-118.2	-99.2	-77	0
3"	-400	-348	-310	-269	-223	-169	0
4"	-689	-600	-535	-465	-383	-290	0
6"	-3,280	-2,655	-2,655	-2,300	-1,900	-1,435	0



**NETAFIM USA**  
5470 E. HOME AVE.  
FRESNO, CA 93727  
CS 888 638 2346  
[www.netafimusa.com](http://www.netafimusa.com)