

COMBINATION AIR VALVES

FOR LIQUIDS WITH
SUSPENDED SOLIDS
D-026 SERIES

DESCRIPTION

The D-026 Combination Air Valve combines an air and vacuum orifice and an continuous acting air release orifice in a single body. The valve is specially designed to operate with liquids carrying solid particles.

The combination air valve discharges air (gases) during the filling or charging of the system, admits air into the system while it is being drained and continuously releases accumulated air (gases) from the system while it is under pressure and operating. The valve's unique design enables the separation of the liquid from the sealing mechanism and assures optimum working conditions.

MAIN FEATURES

- The unique design of the valve prevents contact between the liquid and the sealing mechanism by creating an air gap at the top of the valve. These features are achieved by:
 - The conical body shape: Designed to maintain the maximum distance between the liquid and the sealing mechanism and still obtain minimum body length.
 - Independent spring-guided linkage between the lower float/rod assembly and the upper float sealing mechanism: Allows free movement of the float and rod. Vibrations and movement of the lower float due to turbulence will not unseal the upper float sealing mechanism.
 - Funnel-shaped lower body: Designed to ensure that residue matter will fall back into the system and be carried away by the main pipe.
- All inner metal parts made of stainless steel. Float made of foamed polypropylene.
- Unique design of external lever prevents contact between the liquid and the sealing mechanism, prevents clogging by floating solids and ensures drip-tight sealing.
- Discharge outlet enables connection to a vent hose/ pipe.



Combination Air Valve
Liquids with Suspended Solids
D-026



Combination Air Valve
Liquids with Suspended Solids
D-026STST

PRODUCT SELECTION

- Available size: 6" with flanged connection.
- Standard with Stainless Steel body, also available with a cast ductile body and polyethylene cover.
- An optional non-slam discharge-throttling attachment allows for free air intake, throttles air discharge.

SPECIFICATIONS

- Working pressure range: 3 - 250 psi
- Maximum working temperature: 140° F
- Maximum intermittent temperature: 194° F

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OPERATION

The air and vacuum component 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 prevents 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 combination wastewater valve functions according to the following stages:

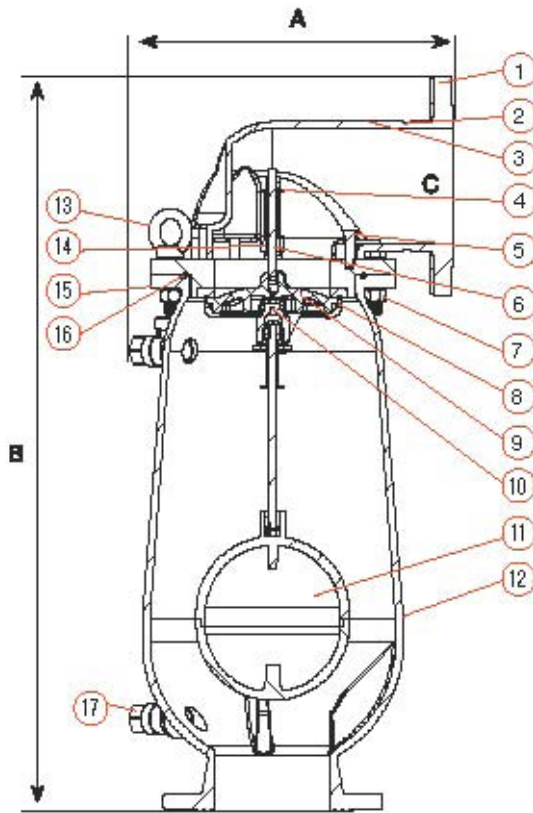
1. Air in the pipeline is discharged by the valve
2. When the liquid level reaches the valve's lower portion, the lower float is lifted, pushing the sealing mechanism to its sealing position.
3. The entrapped air is confined in a pocket between the liquid and the sealing mechanism. The air pressure is equal to the system pressure.
4. Increases in system pressure compress the trapped air in the upper section of the conical chamber. The conical shape assures the height of the air gap. This enables separation of the liquid from the sealing mechanism.
5. Entrapped air (gas), accumulating at peaks and along the system, rises to the top of the valve, and displaces the liquid in the valve's body.
6. When the liquid level is lowered to a point where the float is no longer buoyant, the float drops, unsealing the rolling seal. The air release orifice opens and allows part of the air that accumulated in the upper portion of the valve to be released to the atmosphere.
7. Liquid enters the valve. The float rises, pushing the rolling seal to its sealing position. The remaining air gap prevents the liquid from fouling the mechanism.

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.

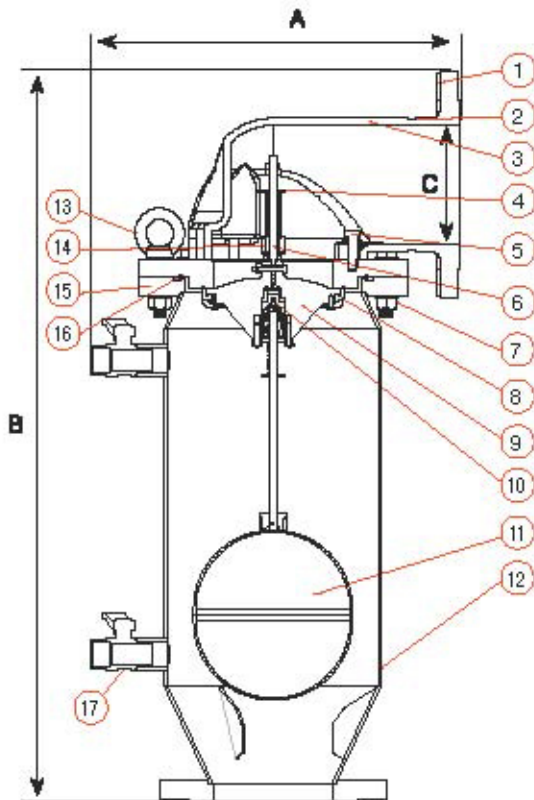
D-026 SERIES FOR LIQUIDS WITH SUSPENDED SOLIDS

MATERIAL SPECIFICATIONS - D026



NO.	PART	MATERIAL
1	Flange Supports	Stainless Steel SAE 304
2	Victaulic Connection	
3	Elbow Drainage Outlet	Polyethylene
4	Spring, Washer, Nut	Stainless Steel SAE 316 & 304
5	Nut, Spring Washer, and Washer	Stainless Steel SAE 316
6	Sealing Assembly	Stainless Steel SAE 316
7	Guide Rod	
8	Bolt, Washer, Nut	Stainless Steel SAE 316
9	Air & Vacuum Seat	Stainless Steel SAE 316
10	Air & Vacuum Sealing Assembly	RN, Stainless Steel SAE 316 and EPDM
11	Air Release Sealing Assembly	RN, Stainless Steel SAE 316 and EPDM
12	Float Assembly	Polycarbonate/Stainless Steel SAE 316 and Stainless Steel 316
13	Body	Ductile Iron ASTM A-536-60-40-18
14	Lifting Ring	Stainless Steel SAE 316
15	Bridge Assembly	Stainless Steel SAE 316, Aucolon
16	Cover	Ductile Iron ASTM A-536-60-40-18
17	O-Ring	BUNA-N
17	Ball Valve (1")	Stainless Steel SAE 316

MATERIAL SPECIFICATIONS - D026STST



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1	Flange Supports	Stainless Steel SAE 304
2	Victaulic Connection	
3	Elbow Drainage Outlet	Polyethylene
4	Spring, Washer, Nut	Stainless Steel SAE 316 & 304
5	Nut, Spring Washer, and Washer	Stainless Steel SAE 316
6	Sealing Assembly	Stainless Steel SAE 316
7	Guide Rod	
8	Bolt, Washer, Nut	Stainless Steel SAE 316
9	Air & Vacuum Seat	Stainless Steel SAE 316
10	Air & Vacuum Sealing Assembly	RN, Stainless Steel SAE 316 and EPDM/Viton
11	Air Release Sealing Assembly	RN, Stainless Steel SAE 316 and EPDM/Viton
12	Float Assembly	Polycarbonate/Stainless Steel SAE 316 and Stainless Steel 316
13	Body	Stainless Steel SAE 316
14	Lifting Ring	Stainless Steel SAE 316
15	Bridge Assembly	Stainless Steel SAE 316, Aucolon
16	Cover	Stainless Steel SAE 316
17	O-Ring	BUNA-N
17	Ball Valve (1")	Stainless Steel SAE 316

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DIMENSIONS AND WEIGHTS

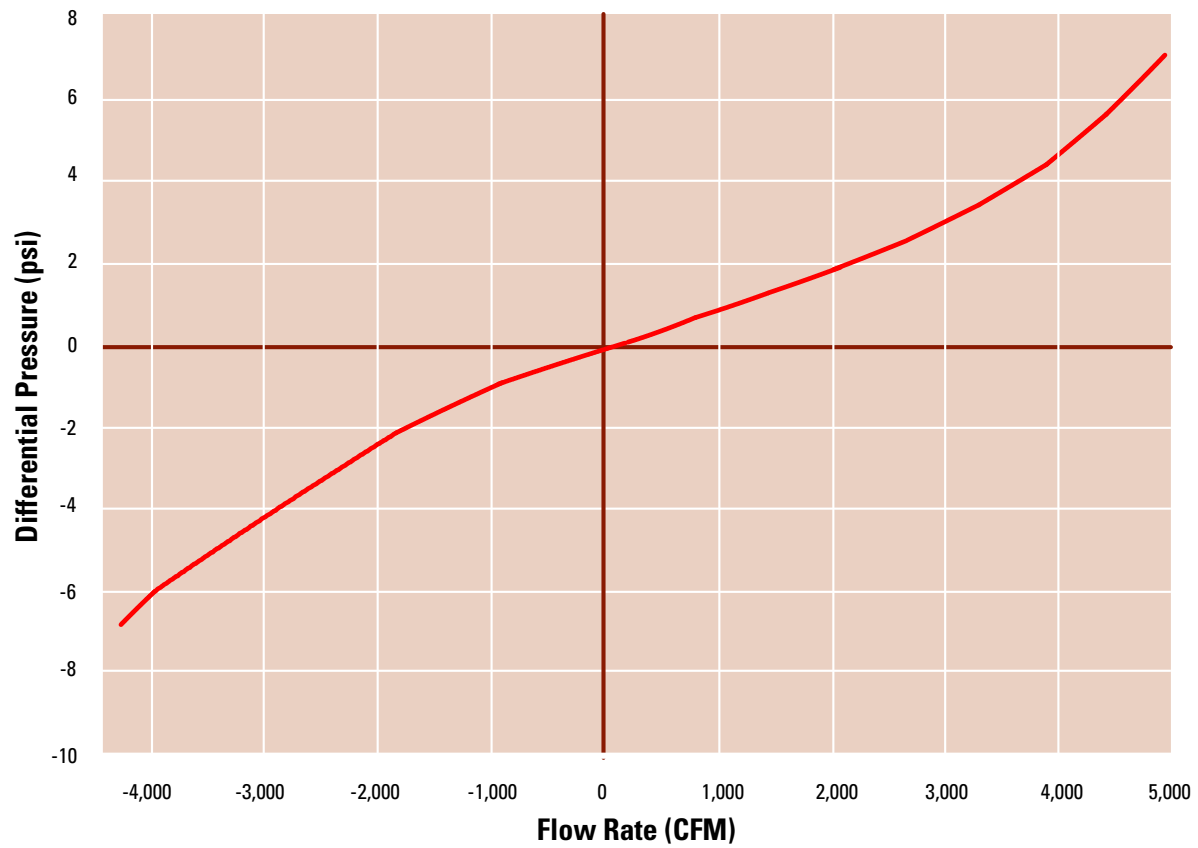
SIZE	DIMENSIONS (IN)		WEIGHT (LBS.)	ORIFICE AREA (IN ²)	
	A	B		AIR & VAC	AUTO
6" Flanged	17.6	37.7	184.3	0.0496	27.38

MODEL NUMBERS

MODEL NUMBER	SIZE	CONNECTION	PSI
65D0266	6"	150 lb. Flg.	250
65D026STST	6"	150 lb. Flg.	250

D-026 SERIES FOR LIQUIDS WITH SUSPENDED SOLIDS

D-026 SERIES AIR & VACUUM FLOW RATE



DISCHARGE FLOW RATES

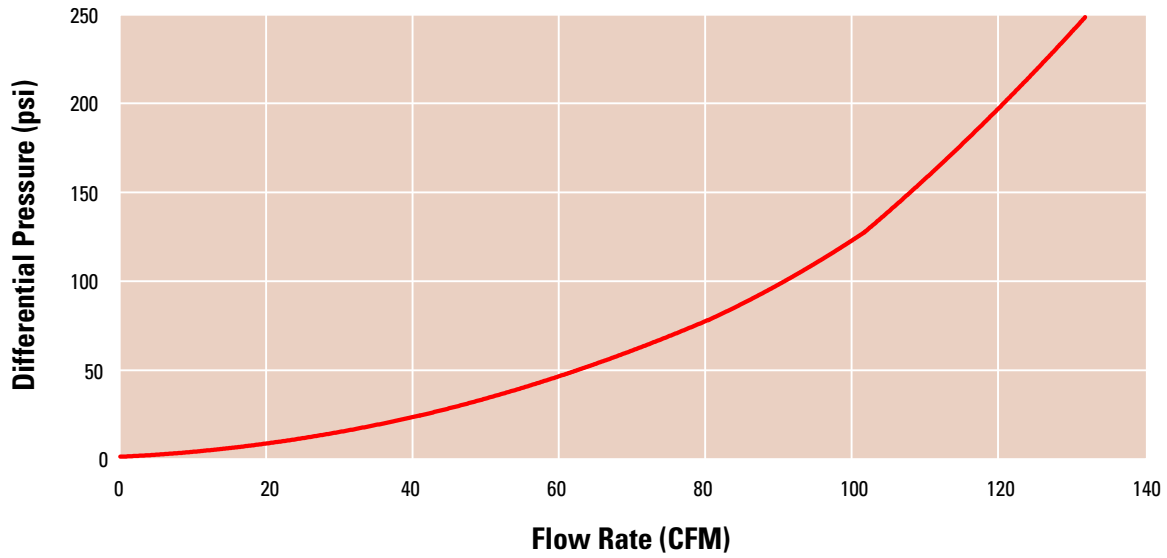
	DIFFERENTIAL PRESSURE (psi)				
	0	2	4	6	7
FLOW RATE (CFM)	0	2,200	3,675	4,740	4,915

INTAKE FLOW RATES

	DIFFERENTIAL PRESSURE (psi)				
	-7	-6	-4	-2	0
FLOW RATE (CFM)	-4,290	-3,975	-3,130	-1,920	0

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D-026 SERIES AIR RELEASE FLOW RATE



AIR RELEASE FLOW RATES

FLOW RATE (CFM)	DIFFERENTIAL PRESSURE (psi)										
	0	25	50	75	100	125	150	175	200	225	250
	0	37	63.5	79	91	100.8	108.4	121.8	127.2	132.9	



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