

# 3" / D-26 250 PSI



## Combination Air Valve for Wastewater

### Description

The D-26 Combination Air Valve combines an air & vacuum component and an air release component in a single body. The valve is specifically designed to operate with liquids carrying solid particles such as wastewater and effluents. The combination air valve discharges air (gas) during the filling or charging of the system, admits air into the system during drainage and at water column separation and releases accumulated air (gas) from the system while it is operating under pressure. The valve's unique design enables the separation of the liquid from the sealing mechanism and assures optimum working conditions.

### Applications

- Wastewater and water treatment plants.
- Wastewater and effluent water transmission lines.

### Operation

The air & 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 its drainage and at water column separation.

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 destructive phenomena.

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 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.
- Acceleration of cavitation damages.
- Increase in pressure transients and surges.
- Internal corrosion of pipes, fittings and accessories.
- Dangerous high-energy bursts of compressed air.
- Inaccuracies in flow metering.

**As the system fills and is pressurized, the combination wastewater air valve functions in the following stages:**

1. Air (gas) is discharged by the valve
2. When the liquid level reaches the valve's lower portion, the 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 lowers to a point where the float is no longer buoyant, the float drops, unsealing the air release sealing assembly. 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 air release sealing assembly to its sealing position. The remaining air gap prevents the wastewater from fouling the mechanism.

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

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

### Main Features

Working pressure range: 3 - 250 psi

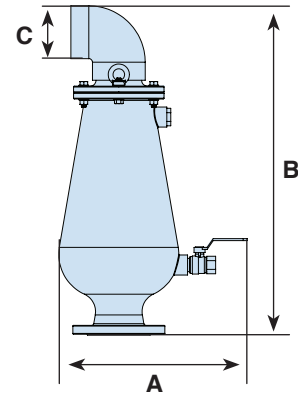
- Testing pressure: 1.5 times the max. working pressure.
- Maximum working temperature: 140° F.
- Maximum intermittent temperature: 194° F.
- The unique design of the valve prevents contact between the wastewater and the sealing mechanism by creating an air gap at the top of the valve. These features are achieved by:

- **The conical body shape and the external guide rod/disc arm:** designed to maintain the maximum distance between the liquid and the sealing mechanism and still obtain minimum body length.

- **Spring-guided linkage between the float/rod assembly and the sealing mechanism:** allows free movement of the float and rod. Vibrations and movement of the float due to turbulence will not unseat the sealing mechanism.

- **Funnel-shaped lower body:** designed to ensure that residue wastewater matter will fall back into the system and be carried away by the main pipe.

- All inner metal parts made of stainless steel.
- Discharge outlet enables connection of a vent pipe.
- The ball valve can be opened to release trapped pressure and drain the valve body prior to maintenance and for back-flushing during maintenance.

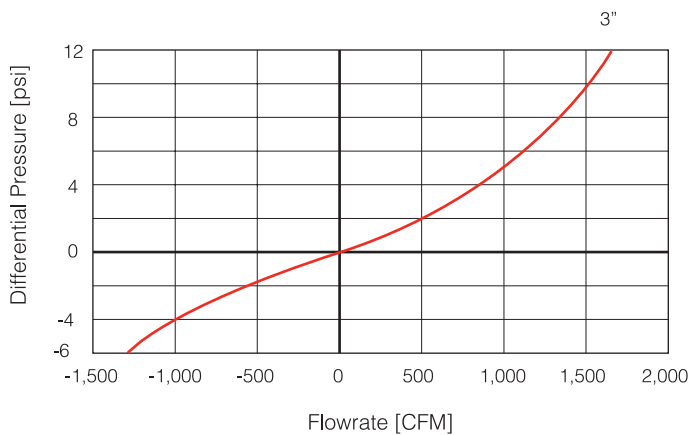


### DIMENSIONS AND WEIGHTS

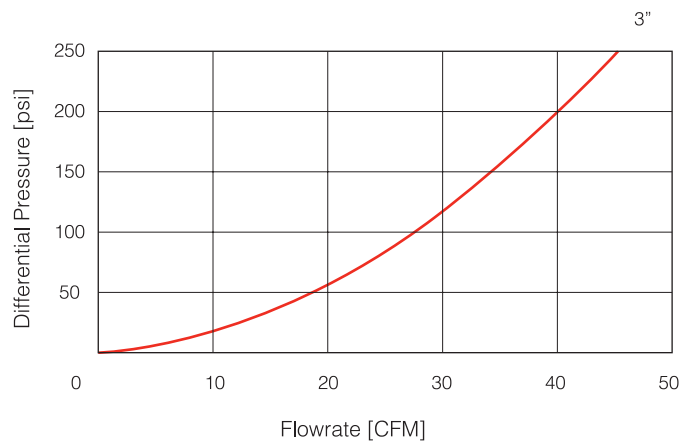
Model		Dimensions Inch		Connection	Weight Lbs.		Orifice Area Sq.In.	
		A	B		C	RN	ST ST	A / V
D-26 3"	Flanged	16.2	24.4	3" NPSM Female		55.1	7.787	0.024

### D-26 3" (D-023)

AIR & VACUUM FLOWRATE



AIR RELEASE FLOWRATE



**D-26 3" (D-023)  
PARTS LIST AND SPECIFICATION - STAINLESS BODY**

No.	Parts	Material
1.	Disk Arm Assembly	Stainless Steel SAE 316 + EPDM
2.	Cover	Stainless Steel SAE 316
3.	Plug	Polypropylene
4.	Air & Vacuum Disc	Reinforced Nylon / Cast ST ST
5.	Air Release Seal	EPDM
6.	Bolt, Nut & Washer	Stainless Steel SAE 316
7.	O-ring	BUNA-N
8.	Air & Vacuum Seal	EPDM
9.	Spray Guard®	Polypropylene
10.	Spring	Stainless Steel SAE 316
11.	Body	Stainless Steel SAE 316
12.	Float Assy.	Stainless Steel SAE 316 + Polypropylene
13.	Ball Valve	Stainless Steel SAE 316

