D-26 Series

Our New Series of Wastewater Combination Air Valves

After years of research & development, A.R.I. is proud to unveil a new series of wastewater air valves, the D-26 line of full flow combination air valves.

This new series maintains the unique qualities that already exist today in our recognized and reliable wastewater valves, but adds features that give it an edge over comparable valves in the market: reliable performance, large air pocket, easy maintenance.

The D-26 series was developed to comply with numerous standards, provide field solutions for designer and planner requirements and integrate seamlessly with our ARIavCad software design program.
The valves provide optimal working conditions in wastewater, sewage, brine, sea water and effluents and in pump stations for raw sewage, industry and refinery plants.

A.R.I. USA Inc. *OPTIMAL FLOW SOLUTIONS*

A.R.I.

D-26

Wastewater

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: 2", 4", 6", 8": 1.5 - 250 psi
  3": 3 - 360 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 unseal 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.

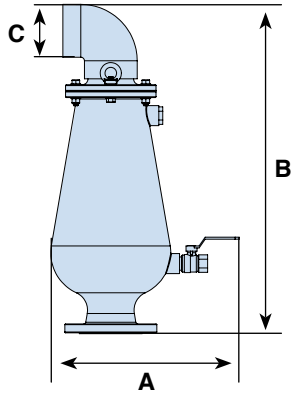
- All inner metal parts made of stainless steel.
- Discharge outlet enables connection of a vent pipe.
- The ball valve can be opened to release trapped pressure and drain the valve body prior to maintenance and for back-flushing during maintenance.

Valve Selection

- Size availability: 2" - 8".
- Valve manufactured with flanged ends to meet any requested standard.
- Optional Covers (for air discharge direction and for add-on components):
2" models - 2-directional cover is standard
3" models - optional 1-directional and 2-directional cover
4" models - 1-directional elbow for horizontal discharge can be removed to allow for vertical discharge
- Optional Add-on Components (2", 3", 4" sizes only)
• With a **One-way**, Out-only attachment, allows for air discharge only, prevents air intake.
• With a **Vacuum Breaker**, In-only attachment, allows for air intake only, prevents air discharge.
• With a **Non-Slam** discharge-throttling attachment, allows for free air intake, throttles air discharge.
- Standard stainless steel body, also available with a csat ductile body and polyethylene cover.
2" - Stainless steel or reinforced nylon body with stainless steel cove
- Valve body (made of cast ductile) coating: fusion bonded epoxy coating in compliance with the standard DIN 30677-2.
- Other coatings are available upon request.

Note

- The D-26 air valve is intended for use with raw wastewater. For use with aggressive liquids, please consult with our application engineers or with the marketing dept.
- 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.

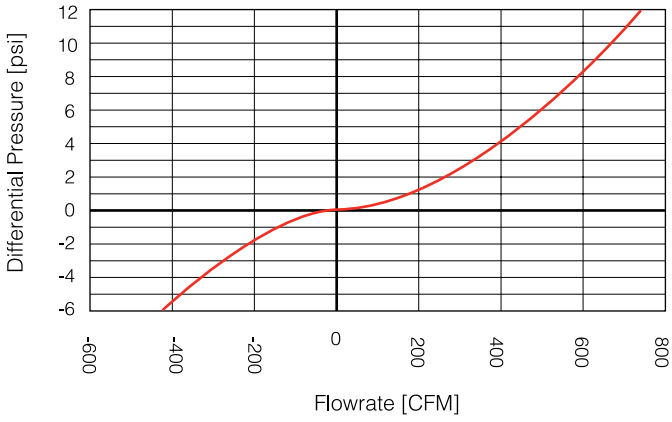


DIMENSIONS AND WEIGHTS

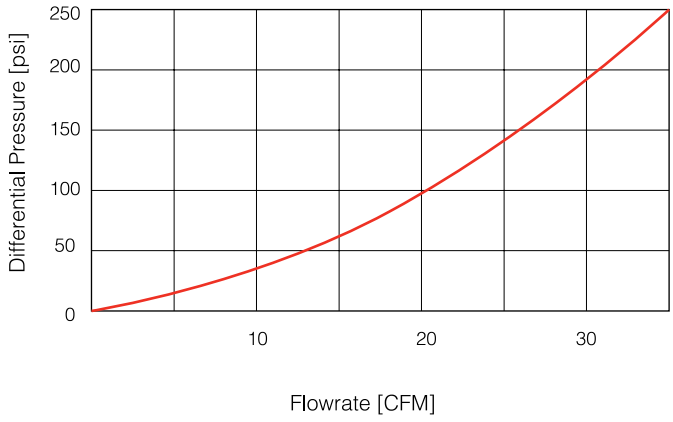
Model	Dimensions Inch		Connection	Weight Lbs.		Orifice Area Sq.In.	
	A	B	C	RN	ST ST	A / V	Auto.
D-26 2" (50 mm) Threaded	10.1	21.8	2" NPSM Female	17.9	29.1	3.04	0.0133
D-26 2" (50 mm) Flanged	10.1	21.8	2" NPSM Female	18.7	35.5	3.04	0.0133
D-26 NS 2" (50 mm) Threaded	13.0	21.8	2" NPSM Male	18.3	30.0	3.04	0.0133
D-26 NS 2" (50 mm) Flanged	13.0	21.8	2" NPSM Male	19.2	36.4	3.04	0.0133
				DI	ST ST		
D-26 3" Threaded	16.2	24.4	3" NPSM Female	48.9	49.6	7.787	0.024
D-26 3" Flanged	16.2	24.4	3" NPSM Female	55.3	55.1	7.787	0.024
D-26 NS 3" Threaded	16.2	24.4	3" NPSM Male	50.6	51.8	7.787	0.024
D-26 NS 3" Flanged	16.2	24.4	3" NPSM Male	56.9	56.0	7.787	0.024
D-26 4" Flanged	17.3	34.5	4" Flange Multi Std.	98.3	101.4	12.17	0.048
D-26 NS 4" Flanged	21.9	34.5	4" Flange Multi Std.	109.1	112.4	12.17	0.048
D-26 6" Flanged	19.4	35.0	6" Flange Multi Std.	190.2	196.2	27.39	0.048
D-26 NS 6" Flanged	19.4	39.4	6" Flange Multi Std.	201.0	207.2	27.39	0.048
D-26 8" Flanged	20.5	47.1	8" Flange Multi Std.	283.7	312	48.67	0.048
D-26 NS 8" Flanged	20.5	52.6	8" Flange Multi Std.	305.1	333.3	48.67	0.048

D-26 2”

AIR & VACUUM FLOWRATE

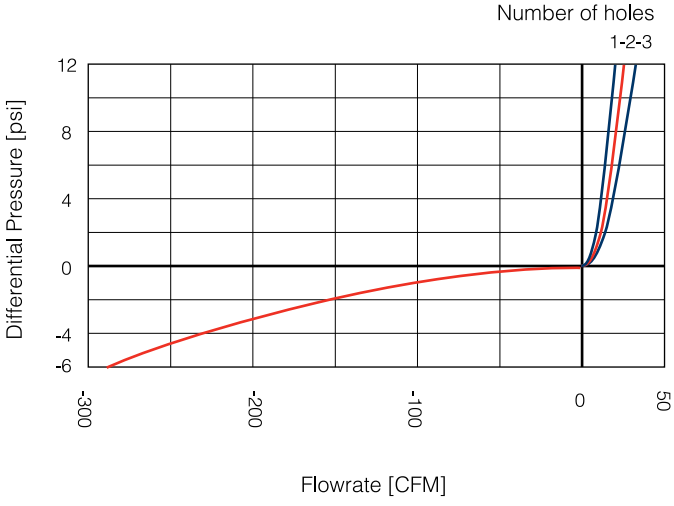


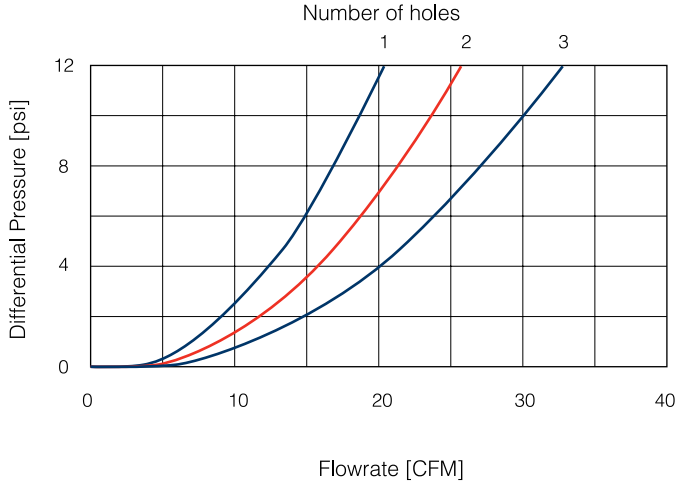
AIR RELEASE FLOWRATE



D-26 NS 2”

2" WITH ADJUSTABLE NS CHECK VALVE



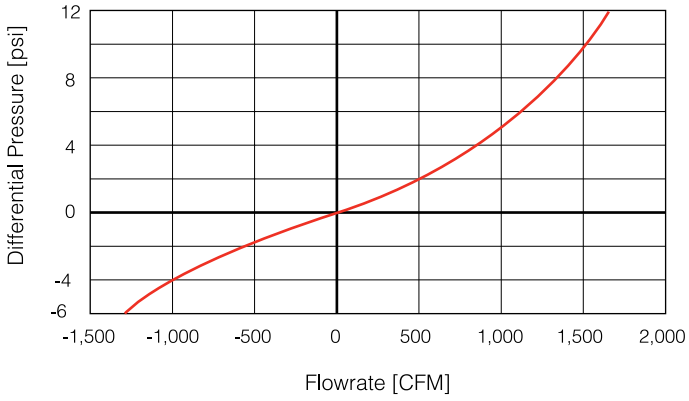


NS Non-Slam Add-on Component Data Table for Variable Orifices

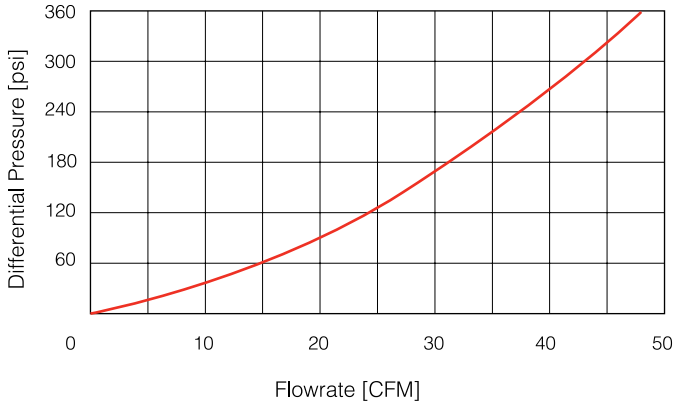
Model	Discharge Orifice Inch	Total NS area Sq.In.	NS orifice Inch	Switching point	Flow at 5.8 psi
1 orifice	2	0.024	0.177	Spring loaded normally closed	14.1 CFM
2 orifice	2	0.047	0.244		18.6 CFM
3 orifice	2	0.074	0.307		23.5 CFM

D-26 3” (D-023)

AIR & VACUUM FLOWRATE

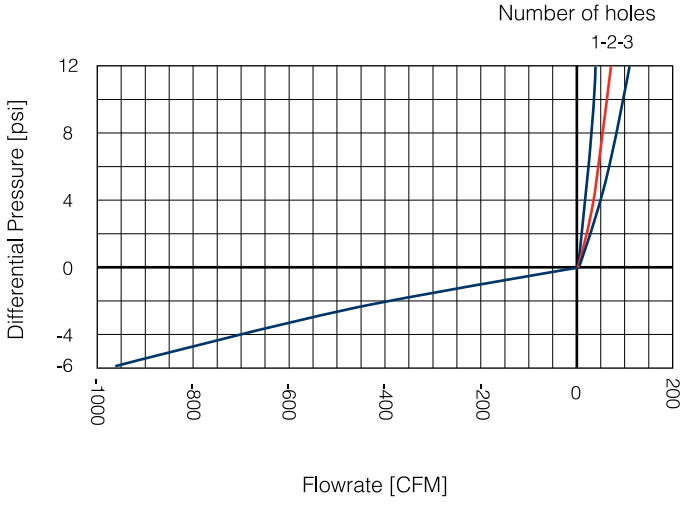


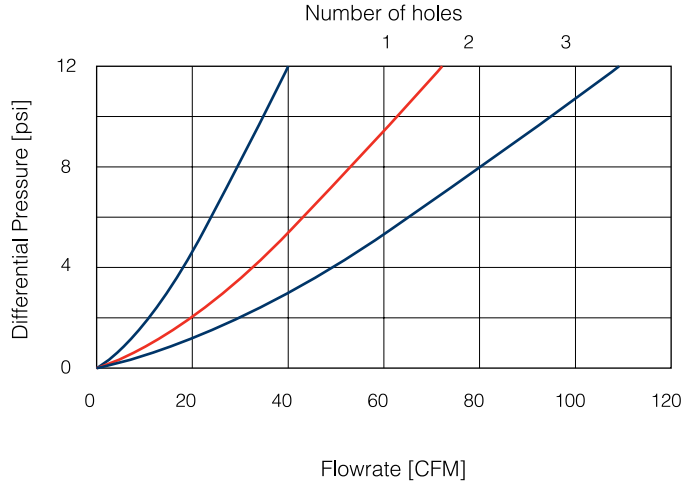
AIR RELEASE FLOWRATE



D-26 NS 3” (D-023)

3" WITH ADJUSTABLE NS CHECK VALVE



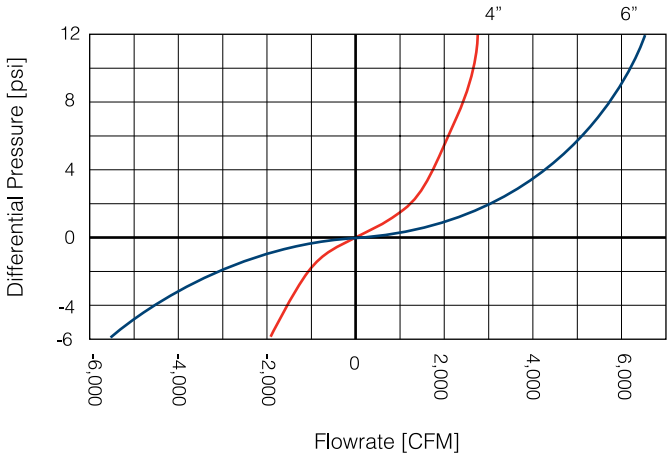


NS Non-Slam Add-on Component Data Table for Variable Orifices

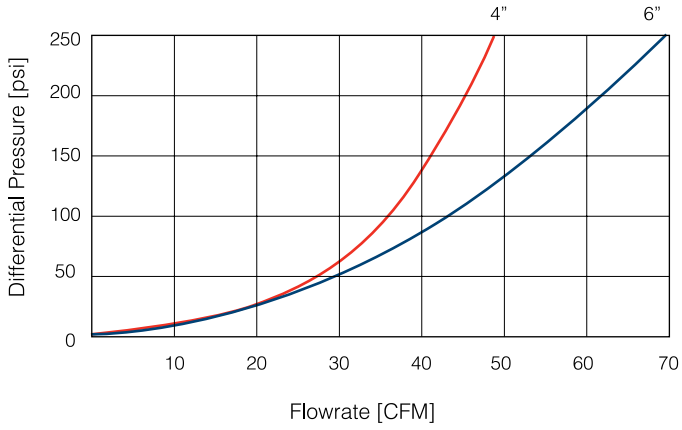
Model	Discharge Orifice Inch	Total NS area Sq.In.	NS orifice Inch	Switching point	Flow at 5.8 psi
1 orifice	3	0.078	0.314	Spring loaded Normally closed	22.64 CFM
2 orifices	3	0.15	0.445		42.67 CFM
3 orifices	3	0.23	0.547		65.54 CFM

D-26 4” 6”

AIR & VACUUM FLOWRATE

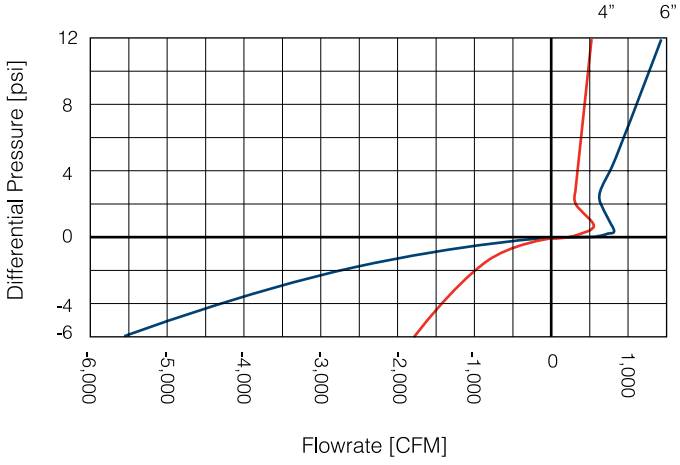


AIR RELEASE FLOWRATE

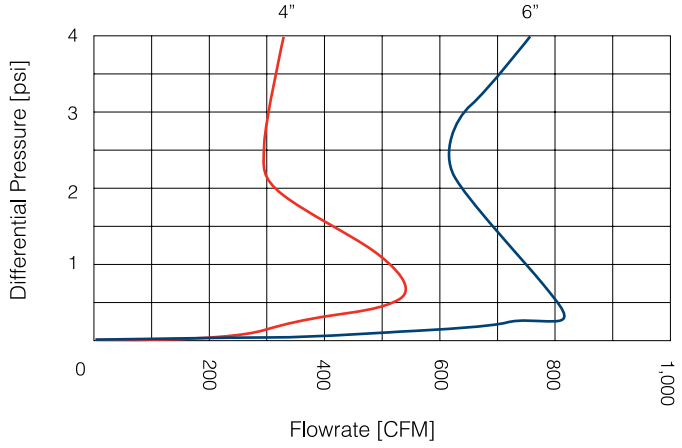


D-26 NS 4” 6”

AIR & VACUUM FLOWRATE



AIR DISCHARGE SWITCHING REGION

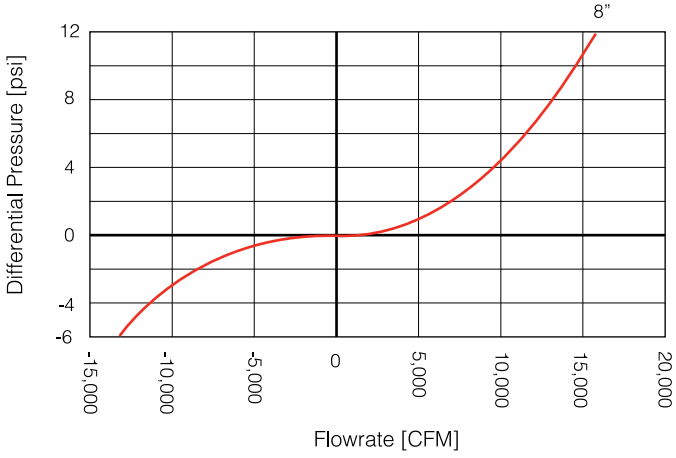


Non-Slam Single Orifice Add-on Component Data Table

Nominal Size	Discharge Orifice Inch	Total NS area Sq.In.	NS orifice Inch	Switching point psi	Flow at 5.8 psi
4”	4”	0.486	0.787	0.29	365 CFM
6”	6”	1.095	1.181	0.29	930 CFM

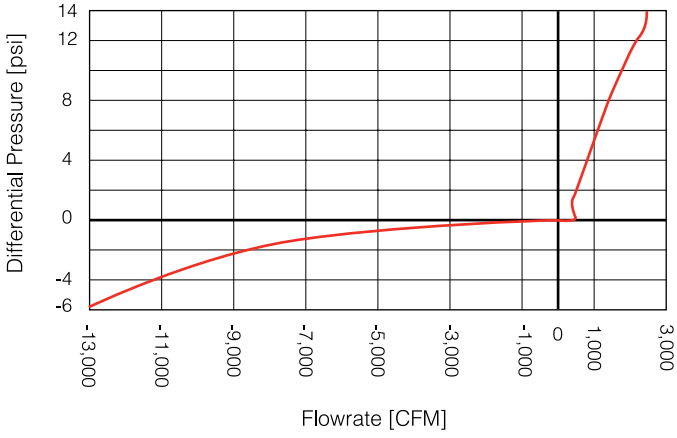
D-26 8”

AIR & VACUUM FLOWRATE

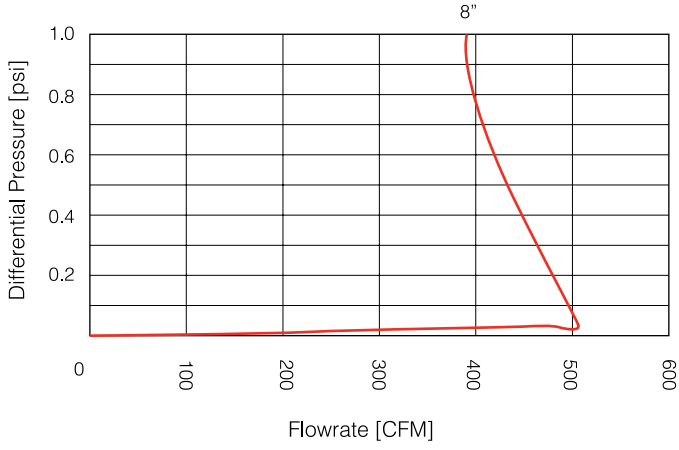


D-26 NS 8”

AIR & VACUUM FLOWRATE



AIR DISCHARGE SWITCHING REGION

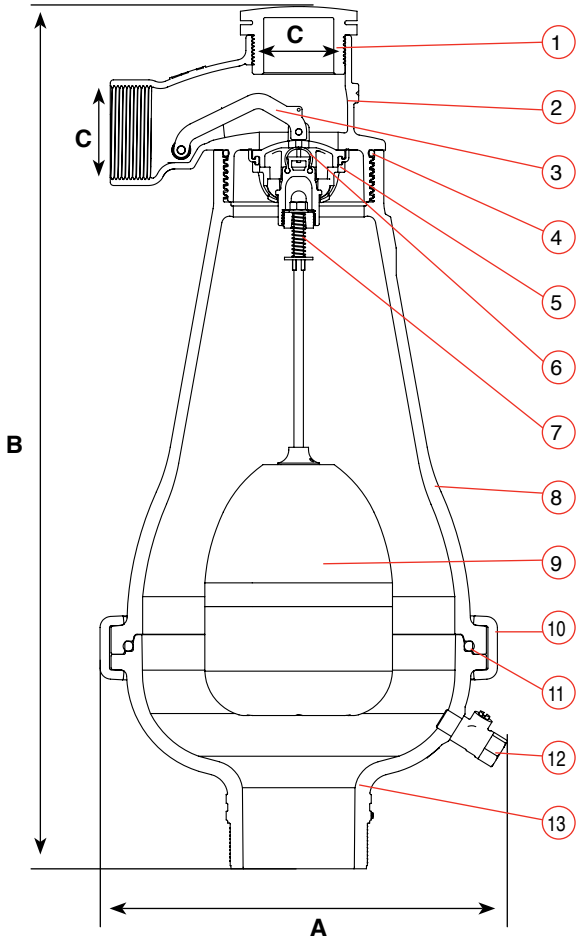


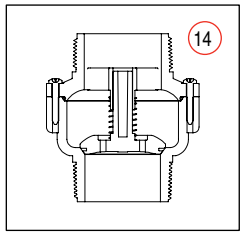
Non-Slam Single Orifice Add-on Component Data Table

Nominal Size	Discharge Orifice Inch	Total NS area Sq.In.	NS orifice Inch	Switching point psi	Flow at 5.8 psi
8”	8”	2.544	1.8	00.3029	1300 CFM

D-26 2" PARTS LIST AND SPECIFICATION

No.	Part	Material
1.	Threaded Plug	Polypropylene
2.	Cover	Stainless Steel 316
3.	Disk Arm Assy.	Stainless Steel 316 + EPDM
4.	O-ring	EPDM
5.	Air & Vacuum Seal	EPDM
6.	Air Release Seal	EPDM
7.	Spring	Stainless Steel 316
8.	Body	Reinforced Nylon / Stainless Steel 316
9.	Float	Polypropylene
10.	Clamp	Cast Stainless Steel
11.	O-ring	BUNA-N
12.	Tap	Stainless Steel
13.	Base	Reinforced Nylon / Stainless Steel 316
14.	NS Component	





D-26 2"

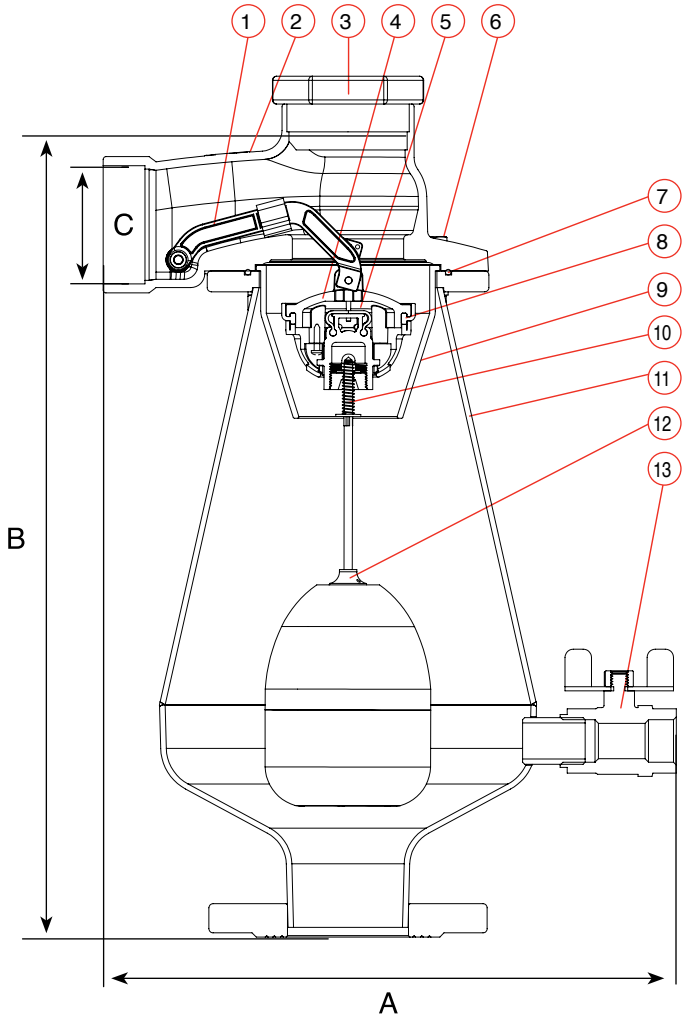
D-26 NS 2"

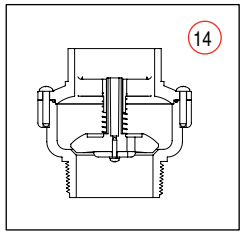
D-26 2"

D-26 NS 2"

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

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





D-26 3"

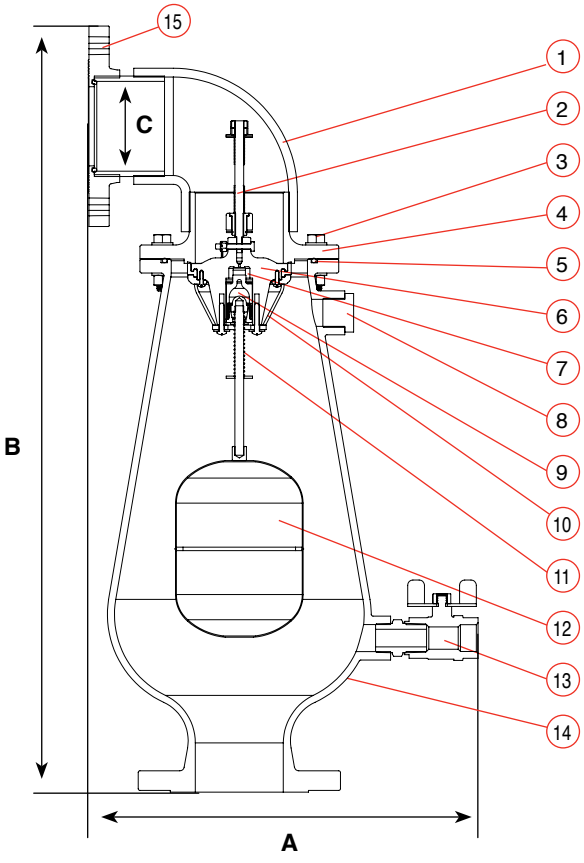
D-26 NS 3"

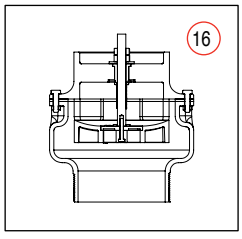
D-26 3"

D-26 NS 3"

D-26 4" PARTS LIST AND SPECIFICATION

No.	Part	Material
1.	Discharge Outlet Elbow	PVC
2.	Guide Rod Assembly	Stainless Steel 316
3.	Bolt Nut & Washer	Stainless Steel 316
4.	Cover	Stainless Steel 316 / Ductile Iron
5.	O-ring	EPDM
6.	Air & Vacuum Seal Assy.	EPDM + RN + ST. ST. 304 + Acetal
7.	Air Release Seal	EPDM
8.	Plug	Stainless Steel 316
9.	Domed Nut	Stainless Steel 316
10.	Flow Enhancer	ABS
11.	Spring	Stainless Steel 316
12.	Float Assembly	Stainless Steel 316
13.	Ball Valve	Stainless Steel 316
14.	Body	Stainless Steel 316 / Ductile Iron
15.	Flange	Reinforced Nylon
16.	NS Component	





D-26 4"

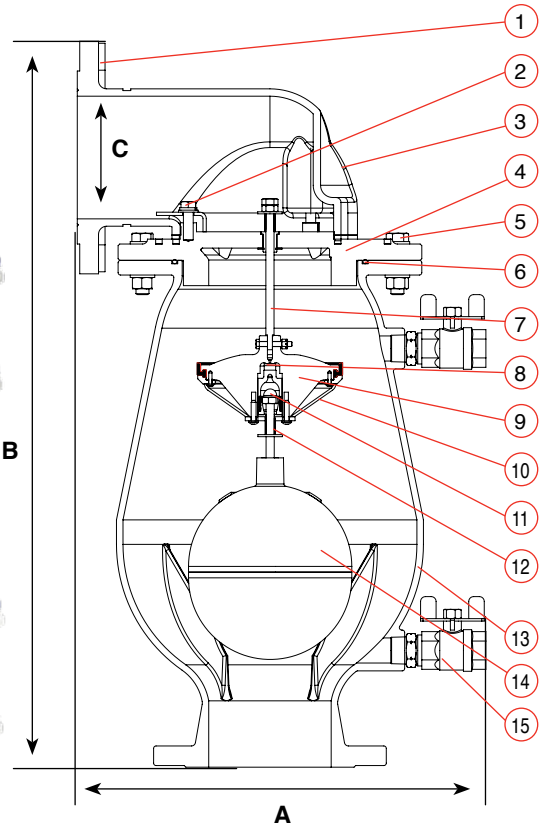
D-26 NS 4"

D-26 4"

D-26 NS 4"

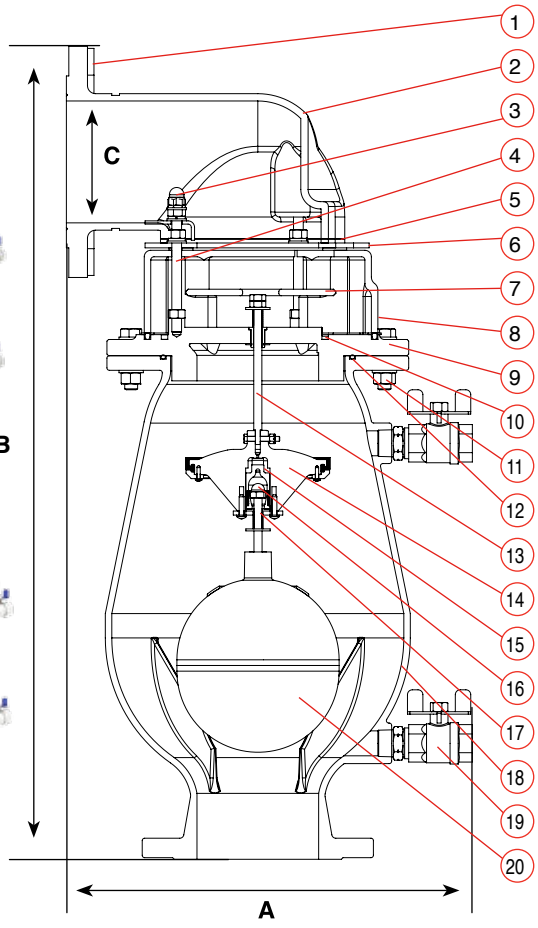
D-26 NS 6" PARTS LIST AND SPECIFICATION

No.	Part	Material
1.	Flange Supports	Stainless Steel SAE 316
2.	Bolt and Washers	Stainless Steel SAE 316
3.	Discharge Outlet Elbow	Polyethylene
4.	Cover	Stainless Steel SAE 316 / Ductile Iron
5.	Bolt, Nut and Washer	Stainless Steel SAE 316
6.	O-Ring	BUNA-N
7.	Guide Rod Assy.	Stainless Steel SAE 316
8.	Air Release Seal	EPDM
9.	Air & Vacuum Seal Assy.	RN / EPDM / ST. ST. SAE 316
10.	Flow Enhancer	ABS
11.	Domed Nut	Stainless Steel SAE 316
12.	Spring	Stainless Steel SAE 316
13.	Body	Stainless Steel SAE 316 / Ductile Iron
14.	Float Assembly	Stainless Steel SAE 316
15.	Ball Valve	Stainless Steel SAE 316



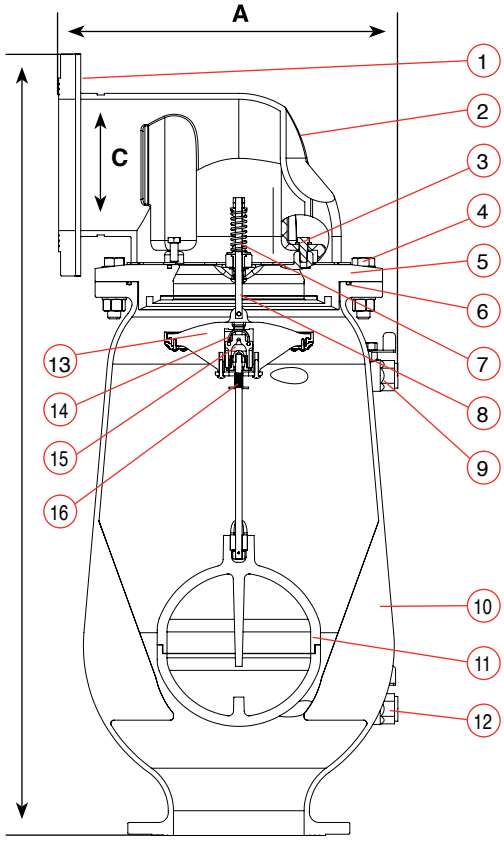
D-26 NS 6" PARTS LIST AND SPECIFICATION

No.	Part	Material
1.	Flange Supports	Stainless Steel SAE 316
2.	Discharge Outlet Elbow	Polyethylene
3.	Bolt and Washers	Stainless Steel SAE 316
4.	Threaded Rod	Stainless Steel SAE 304
5.	Ring	Stainless Steel SAE 316
6.	Ring Seal	EPDM
7.	Non Slam Disc	Stainless Steel SAE 316
8.	Disc Housing	Polyethylene
9.	Cover	Stainless Steel SAE 316 / Ductile Iron
10.	O-Ring	BUNA-N
11.	Bolt, Nut and Washer	Stainless Steel SAE 316
12.	O-Ring	BUNA-N
13.	Guide Rod Assy.	Stainless Steel SAE 316
14.	Air & Vacuum Seal Assy.	RN / EPDM / ST. ST. SAE 316
15.	Air Release Seal	EPDM
16.	Domed Nut	Stainless Steel SAE 316
17.	Spring	Stainless Steel SAE 316
18.	Body	Stainless Steel SAE 316 / Ductile Iron
19.	Ball Valve	Stainless Steel SAE 316
20.	Float Assembly	Stainless Steel SAE 316



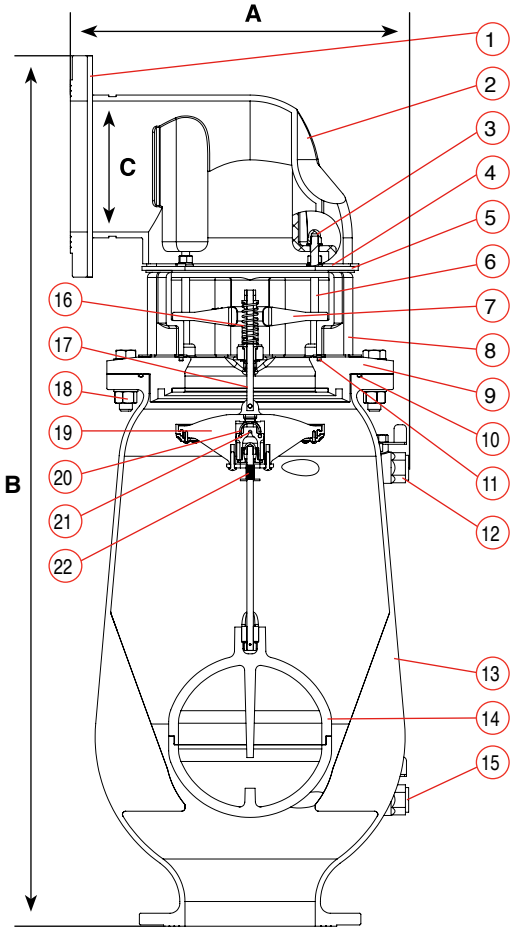
D-26 NS 8" PARTS LIST AND SPECIFICATION

No.	Part	Material
1.	Flange Supports	Stainless Steel SAE 316
2.	Discharge Outlet Elbow	Polyethylene
3.	Nuts and Washers	Stainless Steel SAE 316
4.	Bolt, Nut and Washer	Stainless Steel SAE 316
5.	Cover	Stainless Steel SAE 316 / Ductile
6.	O-Ring	BUNA-N
7.	Spring	Stainless Steel SAE 316
8.	Guide Rod Assy.	Stainless Steel SAE 316
9.	Ball Valve	Stainless Steel SAE 316
10	Body	Stainless Steel SAE 316 / Ductile Iron
11.	Float Assembly	Stainless Steel SAE 316 / Polycarbonate
12.	Ball Valve	Stainless Steel SAE 316
13.	Air & Vacuum Seal Assy.	RN / EPDM / ST. ST. SAE 316
14.	Air Release Seal	EPDM
15.	Domed Nut	Stainless Steel SAE 316
16.	Spring	Stainless Steel SAE 316



D-26 NS 8" PARTS LIST AND SPECIFICATION

No.	Part	Material
1.	Flange Supports	Stainless Steel SAE 316
2.	Discharge Outlet Elbow	Polyethylene
3.	Nuts and Washers	Stainless Steel SAE 316
4.	Ring	Stainless Steel SAE 316
5.	Ring Seal	EPDM
6.	Threaded Rod	Stainless Steel SAE 304
7.	Non Slam Disc	Stainless Steel SAE 316
8.	Disc Housing	Polyethylene
9.	Cover	Stainless Steel SAE 316 / Ductile
10.	O-Ring	BUNA-N
11.	Seal	BUNA-N
12.	Ball Valve	Stainless Steel SAE 316
13.	Body	Stainless Steel SAE 316 / Ductile Iron
14.	Float Assembly	Stainless Steel SAE 316 / Polycarbonate
15.	Ball Valve	Stainless Steel SAE 316
16.	Spring	Stainless Steel SAE 316
17.	Guide Rod Assy.	Stainless Steel SAE 316
18.	Bolt, Nut and Washer	Stainless Steel SAE 316
19.	Air & Vacuum Seal Assy.	RN / EPDM / ST. ST. SAE 316
20.	Air Release Seal	EPDM
21.	Domed Nut	Stainless Steel SAE 316
22.	Spring	Stainless Steel SAE 316



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