

Figure 993-D

Combination Vacuum Breaking and Air Release Valve for Sewage/Wastewater

Description

VAG/GA Industries Figure 993-D Vacuum Breaking and Air Release Valves are typically installed at locations along the forcemain where column separations are predicted to occur. They consist of a Figure 991-D Vacuum Breaking Valve and a Figure 929 Sewage Air Release Valve, factory assembled and tested as a unit.

The Figure 993-D's large orifice is held closed by the counterweight and system pressure. The position and amount of counterweight determines the negative pressure at which the valve opens to rapidly admit air to limit the negative pressure. The large orifice closes when the pipeline pressure recovers above the opening pressure. Air that was drawn into the pipeline is then slowly released through the Figure 929 air release valve's small orifice as the system re-pressurizes, minimizing the consequences of column separation.

The Figure 993-D is especially designed for use with sewage and fluids containing debris. It has no internal spokes, stems or springs that could collect stringy and/or floatable solids.

Product Features

- Especially designed for use on sewage
- Full port orifice for maximum air inflow during negative pressure, small orifice controls air release rate
- Rugged iron body with 316SS trim
- Tight sealing and easily replaceable rubber seat
- Screened hood to minimize entry of foreign matter

Standard Materials – Figure 991-D

- Body Cast Iron, ASTM A126 Class B
- Body Seat Type 316 Stainless Steel
- Replaceable Seat Buna-N
- External Fasteners Steel, A307, Zinc Plated
- Coating Internal and External NSF-61 Certified Epoxy

Standard Materials – Figure 929

- Body Cast Iron, ASTM A126 Class B
- Float Type 316 Stainless Steel
- Internal Linkage Type 316 Stainless Steel
- Replaceable Seat Buna-N
- External Fasteners Steel, A307, Zinc Plated
- Coating Internal and External NSF-61 Certified Epoxy

Data Sheet 993.01E



Options/Accessories

- Option BA Build America/Buy America (BABA) Compliant
- Option FA: Backflush Attachments – inlet isolating valve, 1/2" flushing valve, 1" blow off valve, quick connect couplings and 5 ft. rubber hose
- Option IV Inlet Isolating Valve – lever (3" to 6") or wormgear operated AWWA butterfly valve. Note: inlet isolating valve included with backflush attachments.
- Option SE 316 stainless steel external fasteners
- Option US American Iron and Steel (AIS) Compliant

Ordering Information

- Figure Number (993-D, 993-DL)
- Size
- Options

Non-Shock Working Water Pressure at up to 150F (66C)		
Figure No.	993-DL	993-D
Pipeline Connection	ANSI Class 125	
Size*	3" to 8"	
Air Inlet	Screened Cowl	
Air Release Orifice	0.313" Diameter	0.188" Diameter
Working Pressure	10 - 75 PSI	10 - 150 PSI
Pressure Rating	200 PSI	
Hydro Test	300 PSI	

* Larger sizes available

Data Sheet 993.01E

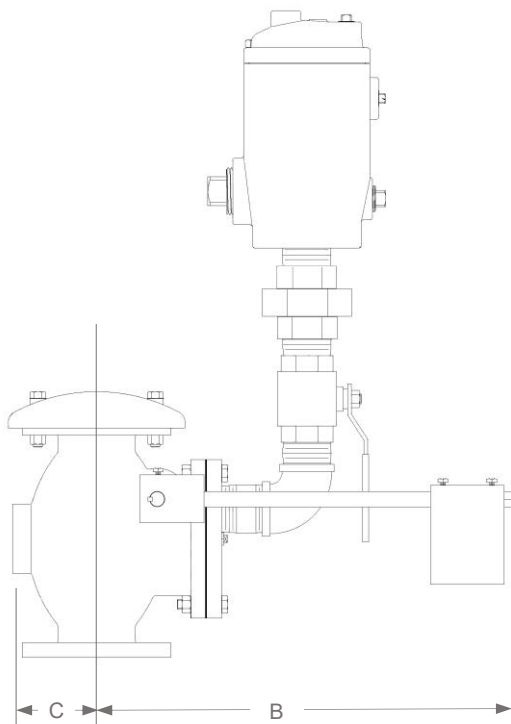
Pressure Inside Valve	Air Inflow Rate, Standard Cubic Feet/Min (SCFM)			
	3"	4"	6"	8"
-1 PSIG	699	1244	2799	4977
-2 PSIG	989	1759	3959	7039
-3 PSIG	1212	2155	4849	8621
-4 PSIG	1399	2488	5599	9955
-5 PSIG	1565	2782	6260	11130

Value is rate at which air is drawn into the valve at negative pipeline/system pressure shown. Multiply SCFM air inflow rate x 7.48 to convert to equivalent pipeline/system liquid draining rate in USGPM.

Installation Dimensions

SIZE	3"	4"	6"	8"
A	31	32	36	37
B	16½	17½	20½	22½
C	4¼	5	6	7⅞
D	5	6	7½	8
E	11½	11¾	13¼	15
Weight	160	205	285	405

Dimensions in inches, weight in pounds and are approximate. Request certified drawings if critical.
Larger size valves available, consult factory



Pressure At Valve Inlet	Air Release Rate, Standard Cubic Feet/Min (SCFM)	
	Figure 993-DL	Figure 993-D
10 PSI	24.3	8.7
15 PSI	29.4	10.6
25 PSI	39.3	14.1
50 PSI	64.0	23.1
75 PSI	88.8	32.0
100 PSI	---	40.9
150 PSI	---	58.7

Value is rate at which air is released through small orifice at pressure indicated as system re-pressurizes.

