Model 33A

SIZES 1", 2", 3", 4", 6" COMBINATION AIR RELEASE & VACUUM BREAKER VALVE

ENGINEERING DATA SHEET

- Automatically Eliminates Entrapped Air Pockets
- Internal and External Fusion Bonded
- Epoxy Coated Ductile Iron Body
- Easily Serviced
- Meets AWWA C512 Requirements

Threaded

Flanged

NSF/ANSI 61 & 372

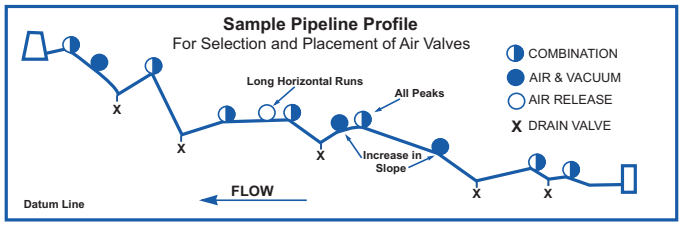
Designed to protect pipelines and vertical turbine pump applications from air lock and vacuum collapse, the Cla-Val Model 33A High Performance Combination Air Release and Vacuum Breaker Valve eliminates air and prevents vacuum formations in pipelines.

During normal pipeline operation, air accumulation and buoyancy cause the float ball to lower or lift. As the water level lowers inside the valve, small amounts of accumulated air are released through the small orifice. Once air is released, the float poppet system closes drip tight.

Valve servicing is simple because the entire float poppet system can be replaced without removal of the valve body from the pipeline.

Typical Applications

- Transmission Pipeline High Points
- Water Treatment Plant Piping High Points
- Vertical Turbine Pump Discharge



Installation

Series 33A Combination Air Release and Vacuum Breaker Valves are typically installed at high points in pipelines for air release, or at anticipated pipeline vacuum occurrence locations.

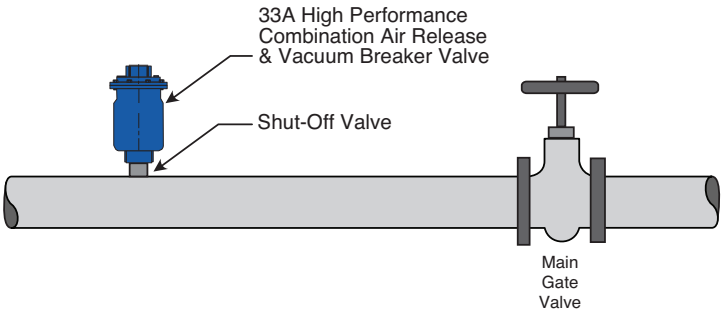
Series 33A is often installed upstream of check valves in pump discharges to vent air during start-up and to allow air reentry when the pump stops.

Operation

Air Release Mode—Valve is normally open.
When line is filled or pump started, air is exhausted through the large venting orifice within the valve.

Vacuum Prevent Mode
When line pressure drops below positive pressure and the liquid level lowers, the float drops, unseating the valve and allowing air into the line, thus preventing a vacuum.

Note: Available for Sea Water Service See Material Specifications.



Model 33A Sizes (1" - 2" - 3" - 4" - 6")

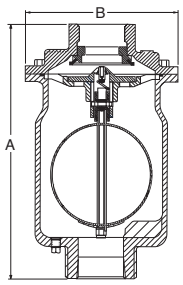
In Inches

Model 33A Dimensions

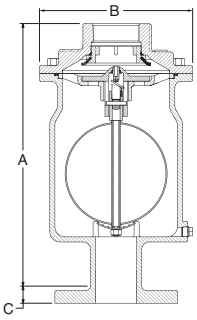
	33A Pressure Class 300 Lb Threaded X Threaded				33A Pressure Class 150 Lb Flanged X Threaded				33A Pressure Class 150 Lb Flanged X Flanged
Valve Size	**1"**	**2"**	**3"**	**4"**	**2"**	**3"**	**4"**	**6"**	**6"**
A	9.10	12.44	12.75	12.75	13.88	15.56	15.75	16.38	19.14
B	6.25	7.50	9.00	9.00	7.50	9.25	9.25	11.00	11.00
C (150 Lb)	–	–	–	–	0.62	0.75	0.94	1.00	1.06
C (300 Lb)	–	–	–	–	0.88	1.12	1.12	–	1.06
Inlet (ANSI)	1" NPT	2" NPT	3" NPT	4" NPT	2"	3"	4"	6"	6"
Outlet (NPT)	1" NPT	2" NPT	3" NPT	4" NPT	2"	3"	4"	6"	6"
Number of Holes	–	–	–	–	4	4	8	8	8"
Diameter of Bolts	–	–	–	–	0.63	0.63	0.75	0.75	0.75
Shipping Wt. (Lb.)	25	29	38	40	39	48	50	70	75

Pressure Ratings

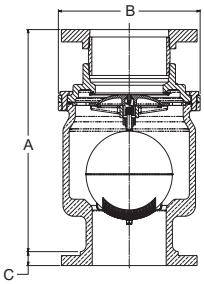
Valve Size	Orifice Dia.	Standard Maximum Pressure	Materials of Construction
1"	0.076"	300 psi	• Epoxy Coated Ductile Iron ASTM A536 65-45-12 • Epoxy Coated Cast Steel ASTM A 216WCB • ASTM B61 Naval Bronze • ASTM B 148 NI Aluminum Bronze • 316 Stainless Steel • Duplex Stainless Steel • Super Duplex Stainless Steel • Bronze
2"	0.076"	300 psi	
3" & 4"	0.076"	300 psi	
6"	0.076"	300 psi	
3" & 4"	Optional upon request 0.125"	300 psi	
Note: Higher Pressures Available upon Request for sizes 2", 3", & 4"			



Threaded X Threaded



Flanged X Threaded



Flanged X Flanged

Specifications

Standard Internals
Float Stainless Steel 304SS Standard, Optional T316 or Monel
Seals Nitrile Rubber or Viton® (extra cost)
Remainder of Internal Components:
Stainless Steel and Delrin
Temperature Range
Water to 180° F

Consult factory for additional materials

Optional
1. Hood / Screen Assembly
2. Throttling Device
3. Goose Neck available 1" - 4"
4. Arrestor Check 4" and 6"

See Model 33AWS

When Ordering, Please Specify

1. Catalog # 33A
2. Valve Size
3. Pressure Rating
4. Materials

Valve Sizing Selection

Large Orifice Air-Vacuum Capacity
Determine anticipated water flow and allowable pressure differential for the pipeline application. Select valve from chart to exhaust or admit air at the same rate as water filling or draining (in CFS). For larger flows, two or more Model 33A's may be installed in parallel

Small Orifice Capacity
During pressurized pipeline operation, small pockets of entrapped air will be released through the float actuated 0.076 or optional 0.125 inch orifice. Use chart to determine discharge capacity.