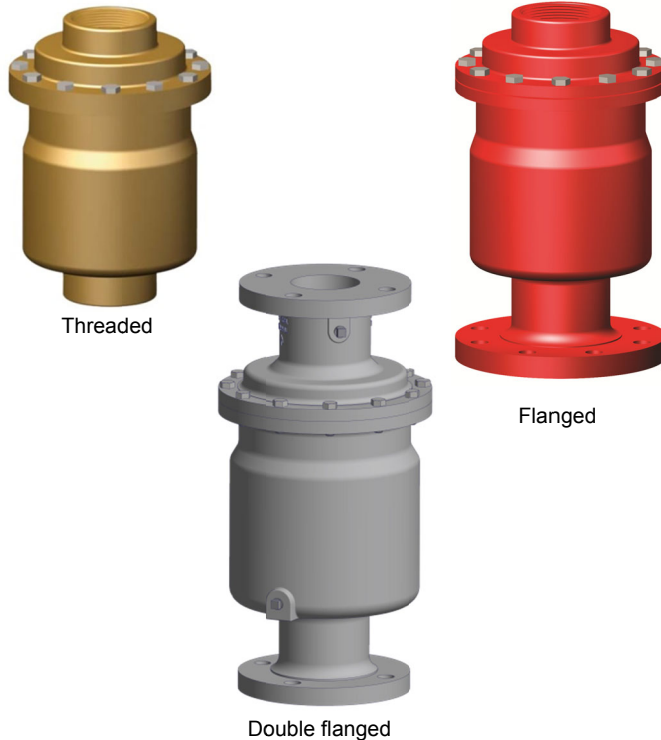




High Performance Combination Air Release & Vacuum Breaker Valve (Threaded & Flanged) Sizes 1"-2"-3"-4"-6"

► Simple, Reliable and Accurate



- Automatically Eliminates Air Pockets
- Easily Serviced without Removal from Pipeline
- Simple, Effective Patented Design
- Corrosion Resistant Materials of Construction
- Engineered for Lasting Service

Designed to protect pipelines and vertical turbine pump applications on offshore platforms 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. A large venting orifice and large float clearances freely exhaust or admits air during pipeline filling or draining.

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 patented 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.

► 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. Install Series 33A at regular intervals (approximately 1/2 mile) along uniform grade line pipe. Mount the unit in the vertical position on top of the pipeline, and include an isolation/shutoff valve.

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 normally open 33A valve. As liquid fills the valve, float ball rises to form a drip-tight closure and remaining air is exhausted through small orifice.

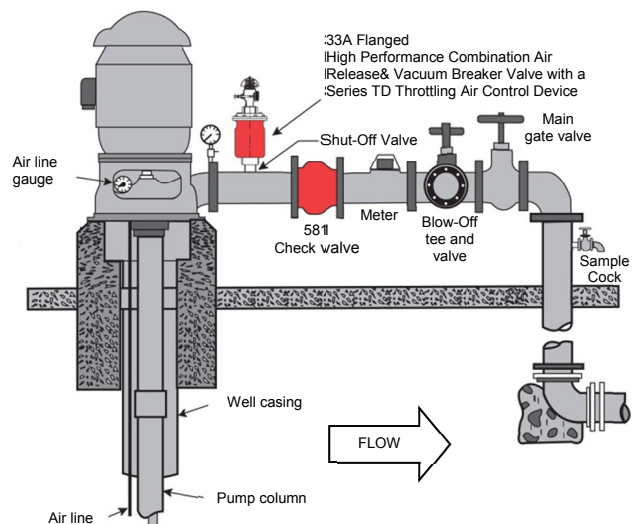
Vacuum Prevent Mode:

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).

► Typical Application

- Standard Max. D.W.P. 300 psi (For Higher Operating Pressure Consult Factory)
- Transmission Pipeline High Points
- Water Treatment Plant Piping High Points
- Offshore Platforms
- Vertical Turbine Pump Discharge





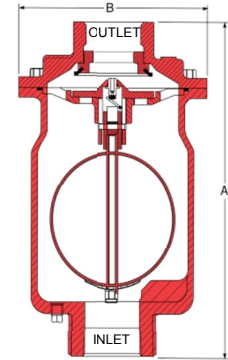
CLA-VAL 33A

High Performance Combination Air Release & Vacuum Breaker Valve (Threaded & Flanged) Sizes 1"-2"-3"-4"-6"

► Dimensions

	33A Pressure Class 300 Lb Threaded			
Valve size [inches]	1"	2"	3"	4"
A [mm]	231	316	324	324
B [mm]	159	191	229	229
Inlet [ANSI]*	1" NPT	2" NPT	3" NPT	4" NPT
Outlet [NPT]*	1" NPT	2" NPT	3" NPT	4" NPT
Number of Holes	-	-	-	-
Diameter of Bolts	-	-	-	-
Approximate calculated shipping weight [kg]	11	13	17	18

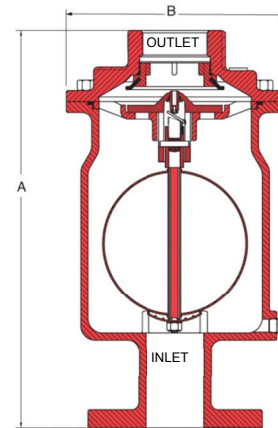
* For BSP: CLA-VAL



Threaded

	33A Pressure Class 150 Lb Flanged (INLET)				
Valve size [inches]	1"	2"	3"	4"	6"
A [mm]	256.5	352	395.5	400	416
B [mm]	159	191	235	235	279
Inlet [ANSI]*	1"	2"	3"	4"	6"
Outlet [NPT]*	1"	2"	4"	4"	6"
Number of Holes	4	4	4	8	8
Diameter of Bolts	12.5	16	16	16	19
Approximate calculated shipping weight [kg]	11	18	22	30	32

* For BSP: CLA-VAL



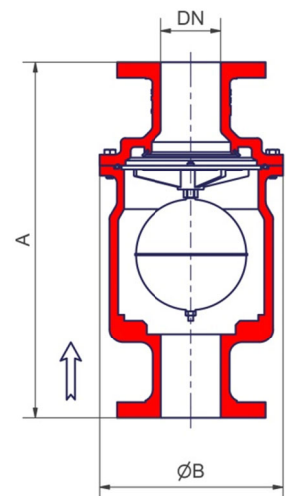
Flanged

	33A Pressure Class 300 Lb Flanged (INLET)			
Valve size [inches]	1"	2"	3"	4"
A [mm]	260	359	400	409
B [mm]	159	191	235	235
Inlet [ANSI]*	1"	2"	3"	4"
Outlet [NPT]*	1"	2"	4"	4"
Number of Holes	4	8	8	8
Diameter of Bolts	16	16	19	19
Approximate calculated shipping weight [kg]	12	19	23.5	33

* For BSP: CLA-VAL

	33A Pressure Class 150 Lb Double Flanged			
Valve size [inches]	1"	2"	3"	4"
H [mm]	266	392	457	465
B [mm]	159	191	235	235
Inlet [ANSI]	1"	2"	3"	4"
Outlet [ANSI]	1"	2"	3"	4"
Number of Holes	4	4	4	8
Diameter of Bolts	12.5	16	16	16
Approximate calculated shipping weight [kg]	12	18	22	30

	33A Pressure Class 300 Lb Double Flanged			
Valve size [inches]	1"	2"	3"	4"
H [mm]	273	405.5	469.5	482
B [mm]	159	191	235	235
Inlet [ANSI]	1"	2"	3"	4"
Outlet [ANSI]	1"	2"	3"	4"
Number of Holes	4	8	8	8
Diameter of Bolts	16	16	19	19
Approximate calculated shipping weight [kg]	13	19	23.5	33



Double Flanged



High Performance Combination Air Release & Vacuum Breaker Valve (Threaded & Flanged) Sizes 1"-2"-3"-4"-6"

► Pressure Ratings

Valve Size [inch]	Orifice Ø [inch]	Standard Max. Pressure	Materials of construction
1"	.076"	300 psi	<ul style="list-style-type: none"> 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
2"	.076"	300 psi	
3" & 4"	.125"	300 psi	
3" & 4"	.076"	300 psi	
6"	.076"	300 psi	

Note: Higher pressure available upon request

► Specifications

Standard Internals:

Float: Stainless Steel 304SS standard, T316 or Monel optional (extra cost)

Balance internals parts Stainless Steel and Delrin

Seals Nitrile Rubber or Viton™ (extra cost)

Temperature Range:

Water to 4 - 80°C

Optional:

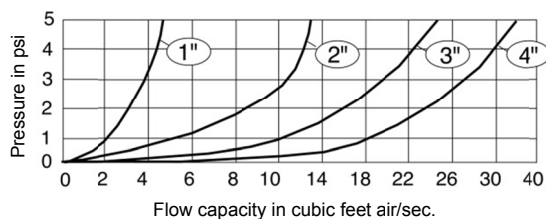
Fusion epoxy lined and coated

For well service throttling device on the outlet specify model TDe

► Valve Sizing Selection

Large Orifice Air-Vacuum Capacity

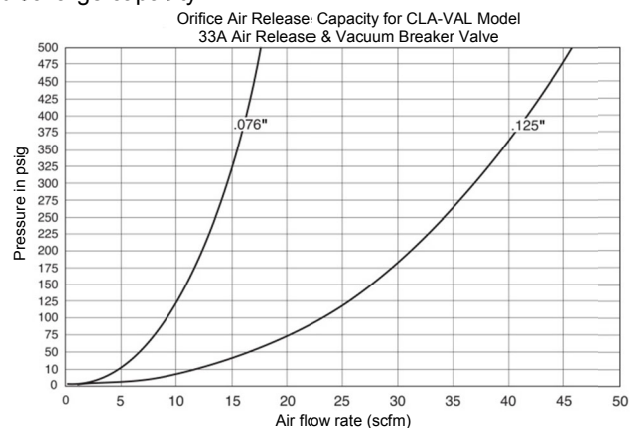
Determine anticipated water flow and allowable pressure differential for the pipeline application. Select valve from chart to exhaust or admit air at the same rate as water filling or draining (in CFS). For larger flows, two or more Model 33A's may be installed in parallel.



Note: For sizing made easy request: CLA-VAL selector slide rule

Small Orifice Capacity

During pressurized pipeline operation, small pockets of entrapped air will be released through the float actuated 0.076 or .125 inch orifice. Use chart to determine discharge capacity.



► When Ordering, Please Specify

1. Catalog No.
2. Valve size
3. Pressure rating
4. Materials