Model 33ATD

COMBINATION AIR AND VACUUM VALVE WITH THROTTLING DEVICE

- Large Orifice for Start Up Air Exhaust
- Small Orifice for Air Exhaust during Operation
- Large Orifice for Vacuum Break
- Easily Serviced without removal from Pipeline
- Simple and Effective Patented Design
- Corrosion Resistant Internal Parts

The Cla-Val Model 33ATD is designed to protect fire systems from air entrapment and vacuum collapse.

The 33ATD Combination Air Release and Vacuum Breaker Valve has a large orifice and smaller orifice that work together to relieve air accumulation during operation.

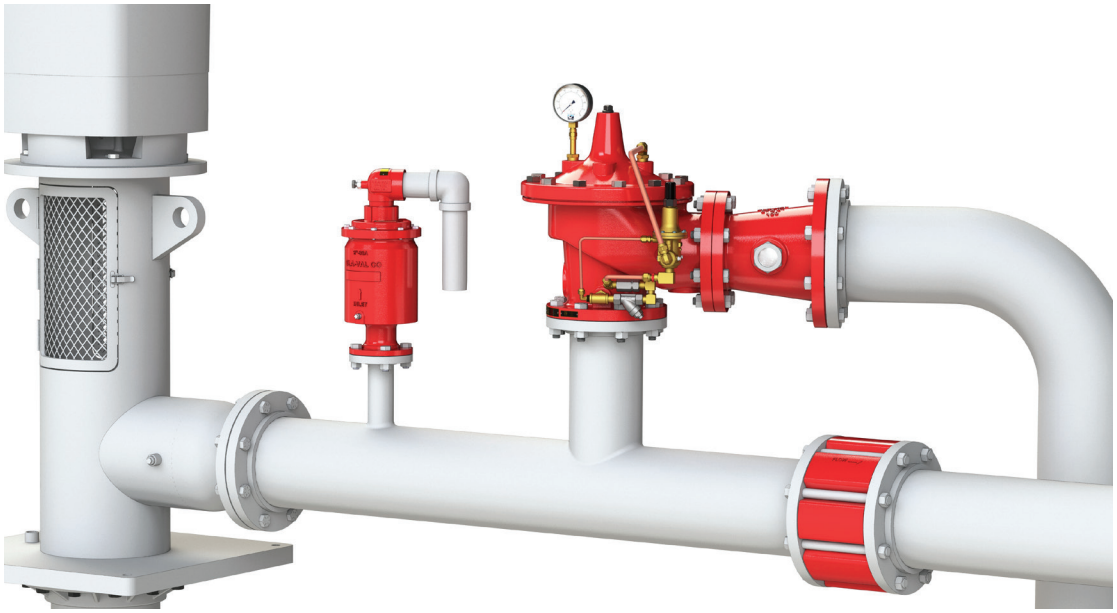
The large orifice eliminates air during start up and allows full vacuum break during shut down.

The smaller orifice eliminates air as it accumulates during operation. 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.

Typical Applications

- Vertical Turbine Pumps
- Split Case Pumps
- High Points of Piping Design

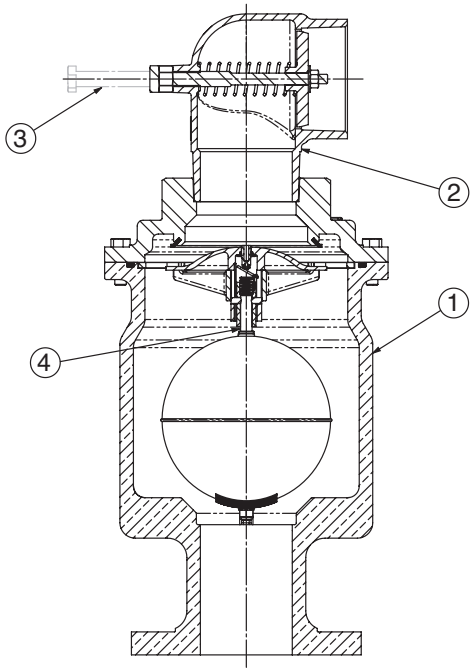


Operation

Air Release: When line is filled or pump started, air is throttled through the throttling device (Item 2). The float assembly (Item 4) rises as liquid fills the valve (Item 1) and forms a drip-tight closure with the large orifice. During operation, additional air is exhausted through the small orifice contained within the float assembly (Item 4).

Vacuum Break: When line pressure drops below positive pressure and the liquid level lowers, the float assembly (Item 4) is separated from the large orifice, allowing air into the line, thus preventing a vacuum. The TD throttling device (Item 2) is spring loaded to allow air intake and shifts to allow full vacuum intake during shut down.

Throttling Device: The TD (Item 2) contains a spring loaded adjustment screw (Item 3) that allows users to throttle air exhaust and get full vacuum break prevention.



Item No.	Description
1	33A Body
2	TD Throttling Device
3	TD Adjustment Screw
4	Float Assembly

Specifications

UL Approved Sizes
1”, 2”, 3”, 4”, 6”

Inlet: NPT or Flanged

Outlet: NPT

Pressure Ratings
150 class, 250 psi maximum (Ductile Iron)
150 class, 285 psi maximum (All other materials)
300 class, 300 psi maximum (All materials)

Temperature Range
Water: to 180° F. Max

Fluids
Water

Materials

Body & Cover: Standard Epoxy Coated Ductile Iron ASTM A-536

Float: Standard 316 Stainless Steel Monel Super Duplex

Rubber Parts: Buna-N® Synthetic Rubber

Optional Listed Materials for Seawater and Severe Service Applications:

- **Nickel Aluminum Bronze (NAB)** ASTM B148 Alloy C95800
- **Monel - QQ-N-288 Comp B** ASTM A494 Grade M30H
- **Cast Steel** ASTM A216 Grade WCB
- **316 Stainless Steel** ASTM A743 Grades CF3M and CF8M
- **Super Austenitic Stainless Steel** ASTM A351 Grade CK3MCuN (SMO 254)
- **Super Duplex Stainless Steel** ASTM A890 Grade 5A (CE3MN)

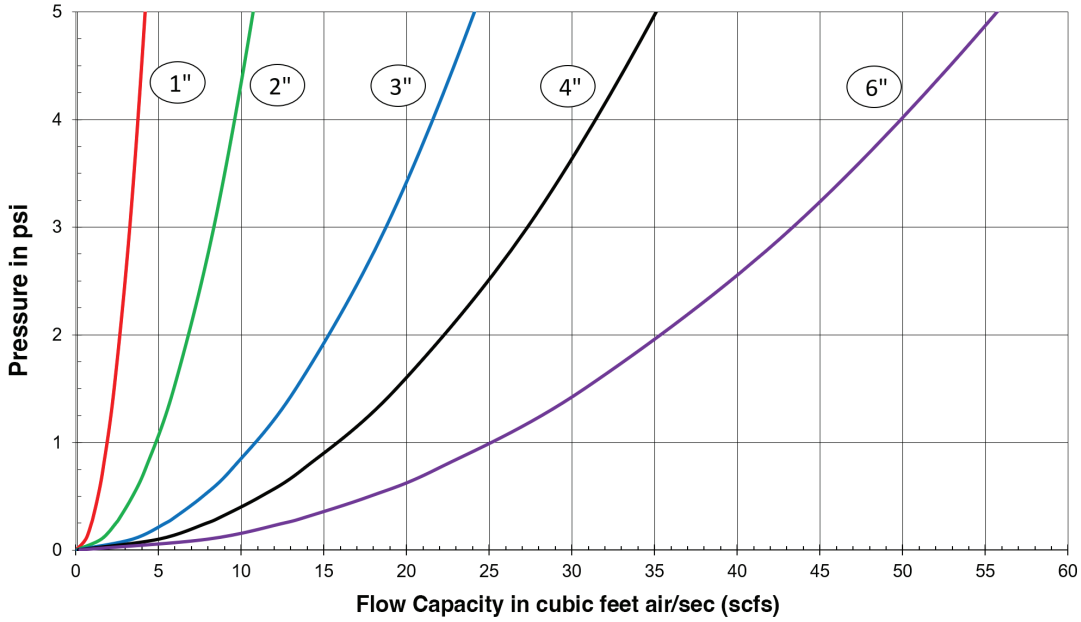
Pressure Ratings

Valve Size	Orifice Diameter	Standard Maximum Pressure
1”	0.076”	300 psi
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

Valve Sizing Selection

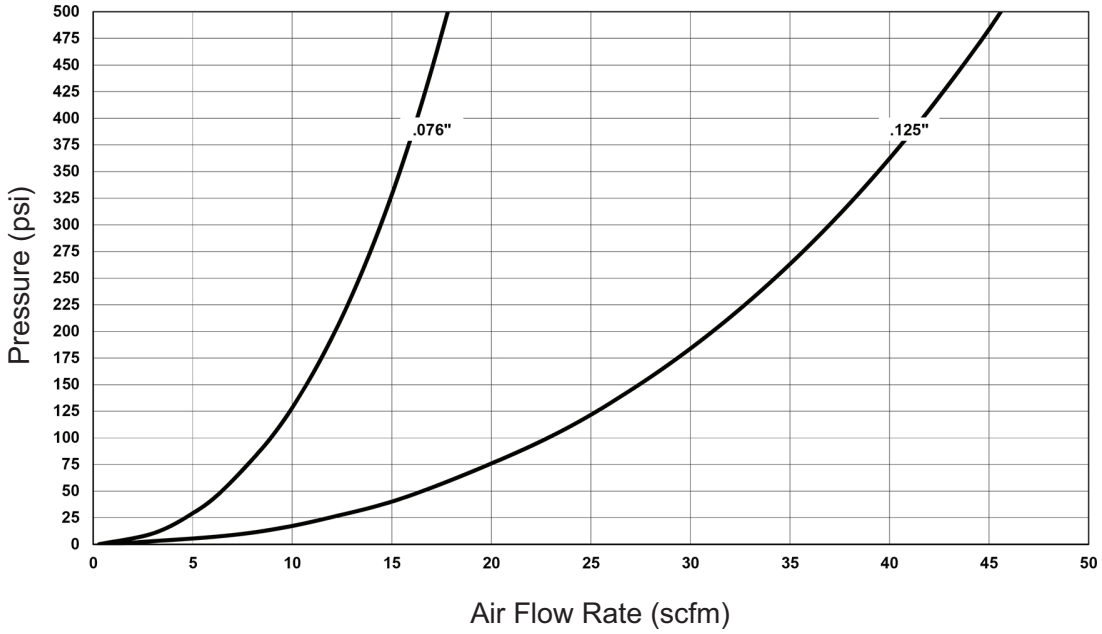
Air-Vacuum Flow Capacity

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 33ATD's may be installed in parallel.



Air Release Capacity

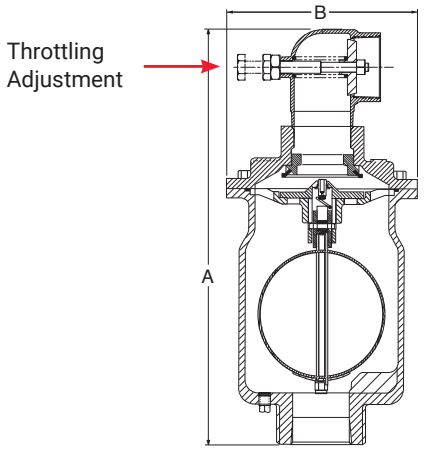
During pressurized pipeline operation, small pockets of entrapped air will be released through the float actuated 0.076 or 0.125 inch orifice. Use chart to determine discharge capacity.



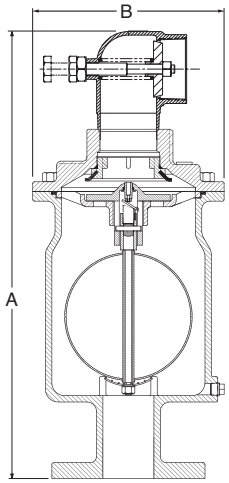
Dimensions (In Inches)

Model 33ATD - 1", 2", 3", 4" and 6" Sizes

	33A Pressure Class 300 Lb Threaded				33A Pressure Class 150 LB Flanged (INLET)					33A Pressure Class 300 LB Flanged (INLET)				
Valve Size	1"	2"	3"	4"	1"	2"	3"	4"	6"	1"	2"	3"	4"	6"
A	12.50	16.50	18.50	20.00	13.00	17.75	21.75	23.50	26.75	15.00	18.00	22.00	23.75	27.25
B	6.25	7.50	9.25	9.25	6.25	7.50	9.25	9.25	11.50	6.25	7.50	9.25	9.25	11.50
Inlet (ANSI)	1" NPT	2" NPT	3" NPT	4" NPT	1"	2"	3"	4"	6"	1"	2"	3"	4"	6"
Outlet (NPT)	1" NPT	2" NPT	3" NPT	4" NPT	1" NPT	2" NPT	3" NPT	4" NPT	6" NPT	1" NPT	2" NPT	3" NPT	4" NPT	6" NPT
Number of Holes	-	-	-	-	4	4	4	8	8	4	4	4	8	12
Diameter of Bolts	-	-	-	-	0.50	0.63	0.63	0.63	0.75	0.50	0.63	0.63	0.63	0.75
Approximate calculated shipping weight (lb.)	25	29	38	40	30	39	48	50	126	34	41	55	58	140

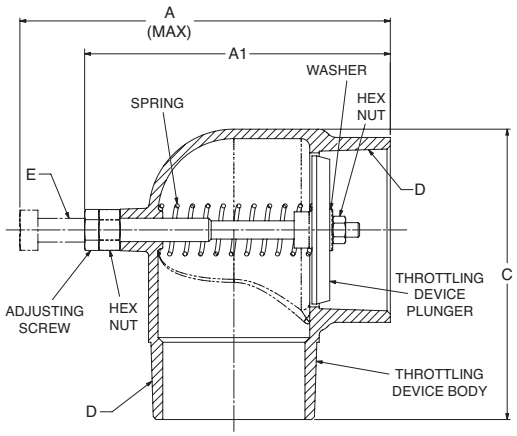


Threaded



Flanged

Throttling Device Dimensions (In Inches)



TD Assembly Size	A (MAX)	A1	ØB	C	D (NPT)	E
1"	4.25	3.00	1.61	3.00	1" - 11-1/2	M10x1.00
2"	5.50	4.81	2.67	3.82	2" - 11-1/2	M12x1.75
3"	9.00	6.45	4.06	6.20	3" - 8	1/2-13 UNC
4"	9.05	7.33	5.20	7.72	4" - 8	M12x1.75
6"	12.75	9.75	7.63	11.38	6" - 8	5/8-11 UNC

Model Number Codes

Size
1"
2"
3"
4"
6"

Main Valve
33ATD

Body	
D	Ductile Iron
C	Cast Steel
T	316 SS
N	N.A.B.
U	Super Duplex
X	Other

Float	
T	316 SS (F)
M	Monel
U	Super Duplex
X	Other

Elastomer	
B	Buna

Inlet
NPT
ANSI 150#
ANSI 300#

Face	
	RF
	FF
X	Other