CLA-VAL™

Air & Check Valves

for water and wastewater applications

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Air & Check Valve Catalog

Air Valves

Check Valves

www.cla-val.com • 800.942-6326 • info@cla-val.com

products manufactured per ANSI/AWWA C512-04 as applicable

Series 33A

Sizes 1" - 2" - 3" - 4" - 6"

High Performance Combination Air Release & Vacuum Breaker Valve

Threaded

Flanged

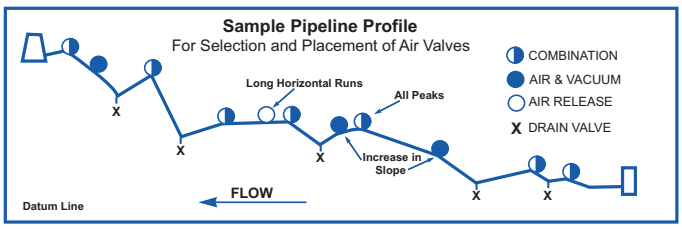
This product meets Federal Mandate for Lead Content Limit

- **Standard Maximum Operating Pressure 300 psi**
- **Standard Epoxy Coated Ductile Iron Body**
- **Automatically Eliminates Air Pockets**
- **Easily Serviced Without Removal from System**
- **Engineered For Lasting Service**

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. 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 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. 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.

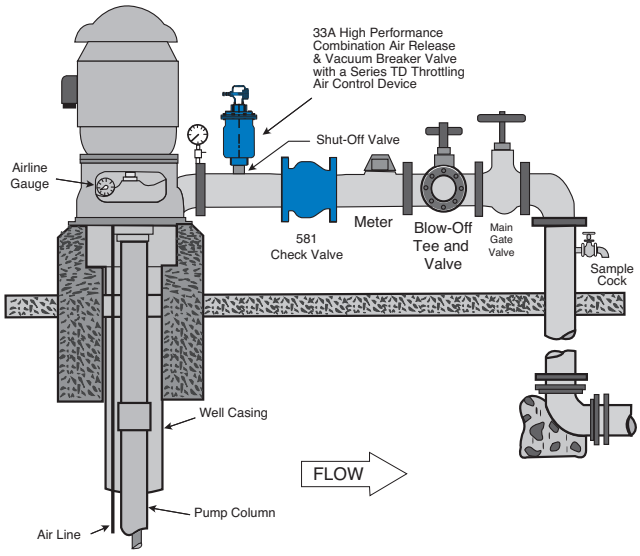
Series 33A is often installed upstream of check valves in pump discharges to vent air during start-up and to allow air reentry when the pump stops.

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



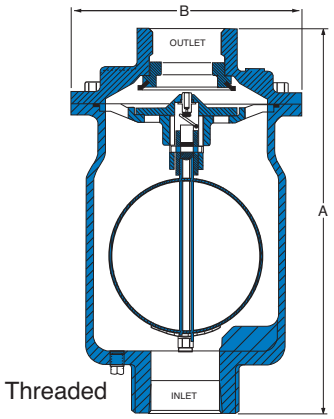
Dimensions (In Inches)

MODEL 33A - 1", 2", 3", 4" and 6" Sizes

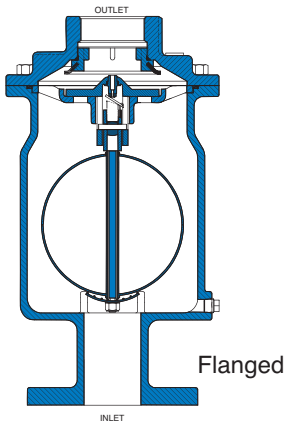
	33A Pressure Class 300 Lb Threaded					33A Pressure Class 150 Lb Flanged (INLET)			
Valve Size	1"	2"	3"	4"		2"	3"	4"	6"
A	9.10	12.44	12.75	12.75		13.88	15.56	15.75	16.38
B	6.25	7.50	9.00	9.00		7.50	9.25	9.25	11.00
E	—	—	—	—		.62	.75	.94	1.00
Inlet (ANSI)	1" NPT	2" NPT	3" NPT	4" NPT		2"	3"	4"	6"
Outlet (NPT)	1" NPT	2" NPT	3" NPT	4" NPT		2"	3"	4"	6"
Number of Holes	—	—	—	—		4	4	8	8
Diameter of Bolts	—	—	—	—		.63	.63	.75	.75
Shipping Wt. (Lb.)	25	29	38	40		39	48	50	70

Pressure Ratings

Valve Size	Orifice Dia.	Standard Maximum Pressure	Materials of Construction
1"	.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
2"	.076"	500 psi	
3" & 4"	.125"	300 psi	
3" & 4"	.076"	300 psi	
6"	.076"	300 psi	
Note: Higher Pressures Available upon Request for sizes 3" & 4"			



Threaded



Flanged

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 180° F

Optional:

1. Well Service Throttling Device - Model TD

When Ordering, Please Specify

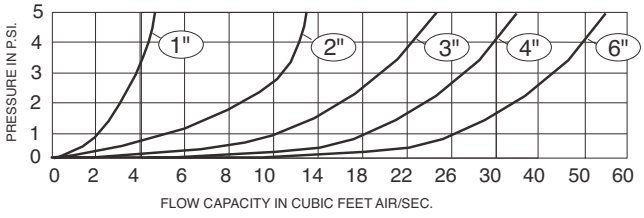
1. Catalog No.
2. Valve Size
3. Pressure Rating
4. Materials

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

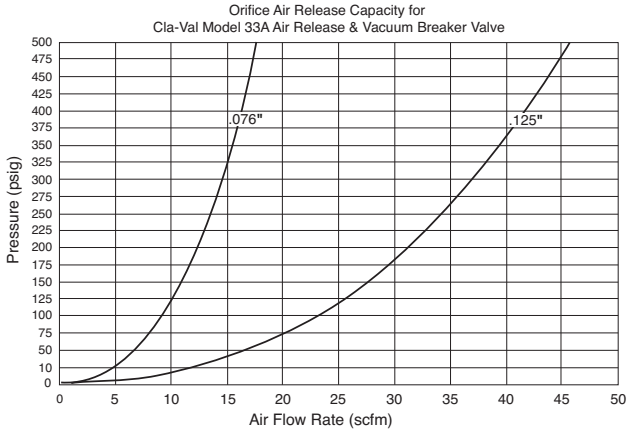
Large Orifice



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.



CLA-VAL 33ATD

Air Release & Vacuum Breaker Valve (Threaded & Flanged)
with Throttling Air Control Device Sizes 2" - 3" - 4"

Simple, Reliable and Accurate

Flanged Inlet shown

Threaded Inlet also available

- **Automatically eliminates air pockets**
- **Easily serviced without removal from pipeline**
- **Simple, effective patented design**
- **Corrosion resistant internal parts**
- **Engineered for lasting service**
- **Sizes 2", 3" and 4" UL Listed**

Designed to protect pipelines from air lock and vacuum collapse, the CLA-VAL Model 33ATD 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 floats 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 33ATD is often installed upstream of check valves in vertical pump discharges to throttle air out during start-up and to allow full air reentry when the pump stops.

Operation

Air Release Mode - Valve is normally open:

When line is filled or pump started, air is throttled through the air control device TD. As liquid fills the valve, float ball rises to form a drip-tight closure and remaining air is exhausted through small orifice. Air throttling can be adjusted by means of adjusting the screw.

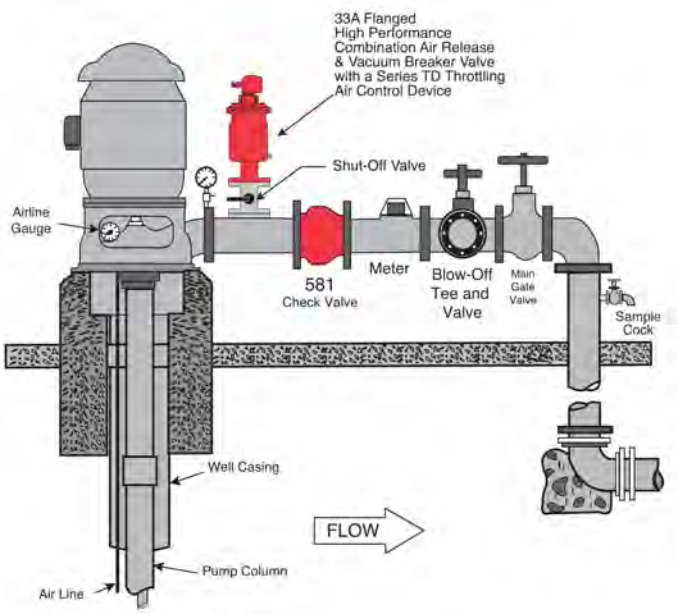
Vacuum Prevent Mode:

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. The spring loaded disc in the TD throttling air control device is moved to the air intake position due to the negative pressure.

visit www.cla-val.com to learn about our complete line of ÿre protection products.

Typical Application

- **Standard Max. D.W.P. 300 psi for UL Listed assemblies (For Higher Operating Pressure Consult Factory)**
- **Transmission pipeline high points**
- **Water treatment plant piping high points**
- **Offshore platforms**
- **Vertical turbine pump discharge**



Note: Available for Sea Water Service (see material specifications).

CLA-VAL 33ATD

Air Release & Vacuum Breaker Valve (Threaded & Flanged) with Throttling Air Control Device Sizes 2" - 3" - 4"

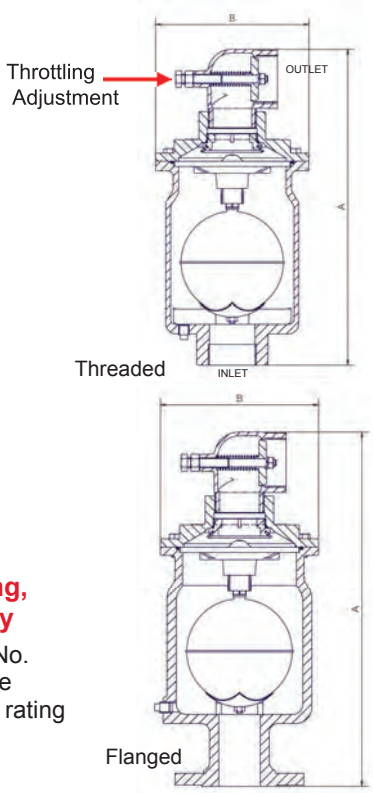
Dimensions

	33ATD Pressure Class 300 Lb Threaded				33ATD Pressure Class 150 Lb Flanged (INLET)			33ATD Pressure Class 300 Lb Flanged (INLET)		
Valve size (inches)	**1"** *	**2"**	**3"**	**4"**	**2"**	**3"**	**4"**	**2"**	**3"**	**4"**
A (inches)	11.81	16.50	18.50	20.00	17.75	21.75	23.50	18.00	22.00	23.75
B (inches)	4.13	7.50	9.25	9.25	7.50	9.25	9.25	7.50	9.25	9.25
Inlet (ANSI)*	1" NPT	2" NPT	3" NPT	4" NPT	2"	3"	4"	2"	3"	4"
Outlet (NPT)*	1" NPT	2" NPT	3" NPT	4" NPT	2" NPT	3" NPT	4" NPT	4" NPT	3" NPT	4" NPT
Number of Holes	-	-	-	-	4	4	8	8	8	8
Diameter of Bolts	-	-	-	-	.625	.625	.625	0.75	0.75	0.75
Approximate calculated shipping weight (lb.)	25	29	38	40	39	48	50	41	55	58

*** 1" size is not UL Listed. Consult Factory for other available end options.**

Pressure Ratings

Valve Size (inches)	Orifice Ø (inches)	Standard Max. Pressure	Materials of construction
1"	.076"	300 psi	• 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"	500 psi	
3" & 4"	.125"	300 psi	
3" & 4"	.076"	450 psi	
Note: Maximum Pressure Rating for UL Listed 33ATD = 300 psi			



Specifications

Standard Internals:
Float: Stainless Steel 304SS standard, T316 or Monel optional (@ extra cost)
Balance internals parts Stainless Steel and Delrin

Seals: Nitrile, Rubber, EPDM or Fluorocarbon & Viton (@extra cost)
Note: Fluorocarbon is not a UL Listed Seal Material

Temperature Range: Water up to 180°F

Optional:

Fusion epoxy lined and coated

For well service throttling device on the outlet specify model TD

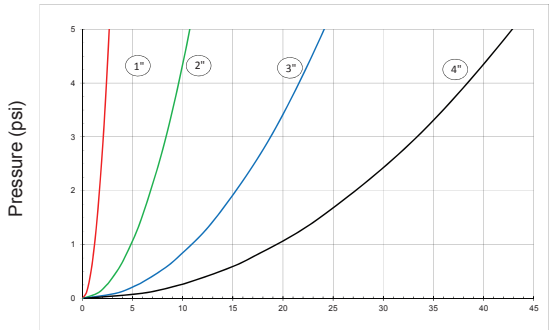
When Ordering, Please Specify

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

Valve Sizing Selection

Air-Vacuum Flow Capacity

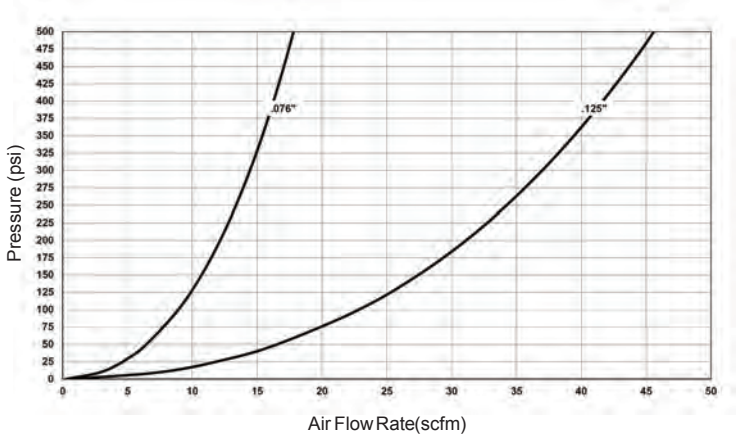
Determine anticipated water flow and allowable pressure differential for the pipeline application. Select valve from chart to exhaust or admit air at the same rate as water filling or draining (in CFS). For larger flows, two or more Model 33ATD's may be installed in parallel.



Flow Capacity in Cubic Feet Air/Sec.

Air Release 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.



Series 34
Air Release Valve

- **Ductile Iron Body**
- **Stainless Steel Trim and Float**
- **Easily serviced without removal from pipeline**
- **Working pressures to 800 psi**
- **Engineered for drip tight seal at low pressures**

Cla-Val Series 34 Air Release Valves are designed to vent entrained air that collects at high points in a pipeline. This valve continuously eliminates air from a system by releasing small quantities of air before large air pockets can occur. In many installations, continuing accumulations of air in the pipeline (lacking air release valves); cause flow capacity to slowly decrease; power consumption slowly increases; un-noticeable at first, until flow drops dramatically, even stopping due to air blocks in the piping. Another problem resulting from excessive air accumulation is unexplained pipeline rupture. These ruptures are passed off as the result of ground settling or defective pipe, Where as in reality its large air pockets that greatly increase pressure surges (normally occurring) when flow stops and starts causing the rupture. During normal pipeline operation, air accumulation at the high point will displace the liquid within the air valve and lower the water level in relation to the float. As level of the liquid lowers, where the float is no longer buoyant, the float drops and opens the valve orifice seat and permitting accumulated air to be exhausted to atmosphere. After air is released, the liquid level in the air valve rises and closes the valve orifice seat. This cycle automatically repeats as air accumulates inside the air release valve, thereby preventing the formation of air pockets.

Installation

Series 34 Air Release Valves are typically installed at high-points in pipelines and at regular intervals, of approximate 1/2 mile, along uniform grade line pipe.

Mount the unit in the vertical position on top of the pipeline with an isolation valve installed below each valve in the event servicing is required. A vault with adequate air venting and drainage is recommended.

Note:

Vacuum check valves can be supplied on the discharge of all size air release valves to prevent air re-entering the system; during negative pressure conditions

Purchase Specifications

The air release valve shall be of the float operated, simple lever or compound lever design, and capable of automatically releasing accumulated air from a fluid system while the system is pressurized and operating.

An adjustable designed orifice button shall be used to seal the valve discharge port with drip-tight shut-off. The orifice diameter must be sized for use within a given operating pressure range to insure maximum air venting capacity.

The float shall be of all stainless steel construction and guaranteed to withstand the designed system surge pressure without failure. The body and the cover shall be ductile iron and valve internal parts shall be stainless steel and Viton™ or Buna-N® (standard)for water tight shut-off.

The air release valve shall be manufactured per ANSI/AWWA C512-04 Series 34 from Cla-Val in Newport Beach, CA, USA.

Product Specifications

Sizes
1/2", 3/4", 1", 2", 3" NPT

Pressure Ratings (see note)
150 psi
175 psi
300 psi
800 psi

Temperature Range
Water to 180°F

Note: Specify when operating pressure below 10 PSI

Materials
Body and Cover:
Ductile Iron ASTM 536 65-45-12

Float:
Stainless Steel

Internal Parts:
Stainless Steel

Seal:
Viton™ or Buna-N® (Standard)

visit www.cla-val.com to see our complete line of air and check valves.

Series 34
Air Release Valve

Air Release Valve Sizing

Air release valve sizing requires determining the volume of air that must be released from pipeline high points during normal operation and the diameter of the pipeline. Series 34 Air Release Valves are primarily used to continuously release pockets of air (as they develop) from high point, hence it is not critical to determine exact volume of air to be released.

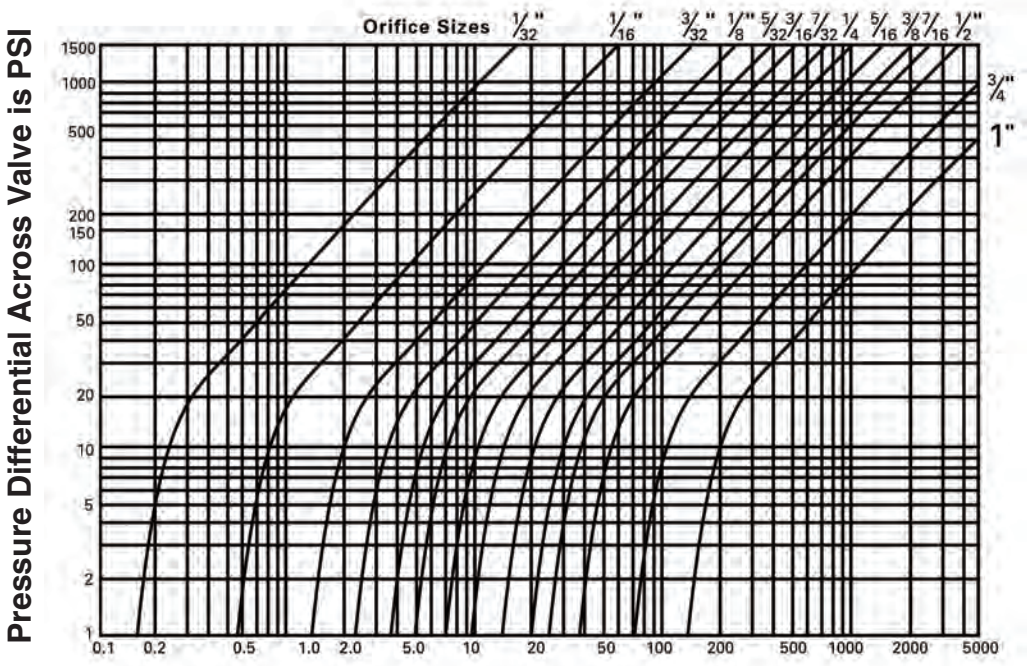
See chart on page 3 for sizing based on venting capacity.

Air Release Valve Sizing Chart For Water Pipelines

Figure A	Model No.	Inlet Size	Outlet Size	Orifice Size	GPM	MWP	Height	Width	Wt. (lbs.)
	**UL Listed • FM Approved** 3450-AR332 3475-AR332 3410-AR332	1/2", 3/4", 1"	1/2"	3/32"	200 - 2200	175	5-7/8"	3-3/4"	6
	FM Approved 3450-AR116.3 3475-AR116.3 3410-AR116.3	1/2", 3/4", 1"	1/2"	1/16"	200 - 2200	300	5-7/8"	3-3/4"	6
Figure B	**Model No.**	**Inlet Size**	**Outlet Size**	**Orifice Size**	**GPM**	**MWP**	**Height**	**Width**	**Weight**
	3410-AR316C 3420-AR316C	1", 2"	1/2"	3/16"	2200 - 15000	150	10"	7"	20
	3410-AR532.3C 3420-AR532.3C	1", 2"	1/2"	5/32"	2200 - 15000	300	10"	7"	20
Figure C	**Model No.**	**Inlet Size**	**Outlet Size**	**Orifice Size**	**GPM**	**MWP**	**Height**	**Width**	**Weight**
	3420-AR038C 3430-AR038C	2", 3"	1"	3/8"	15000 - 50000	150	12-1/2"	9-1/2"	45
	3420-AR732C 3430-AR732C	2", 3"	1"	7/32"	15000 - 50000	300	12-1/2"	9-1/2"	45
Figure D	**Model No.**	**Inlet Size**	**Outlet Size**	**Orifice Size**	**GPM**	**MWP**	**Height**	**Width**	**Weight**
	3420-AR-HP500	2"	1"	7/32"	2200 - 50000	500	132"	12"	75
	3420-AR-HP800	2"	1"	1/8"	2200 - 50000	800	132"	12"	75

Series 34
Air Release Valve

Venting Capacity Graph for Air Release Valves



Venting Capacity in Cubic Feet of Free Air Per Minute

Valve Selection Based on Venting Capacity

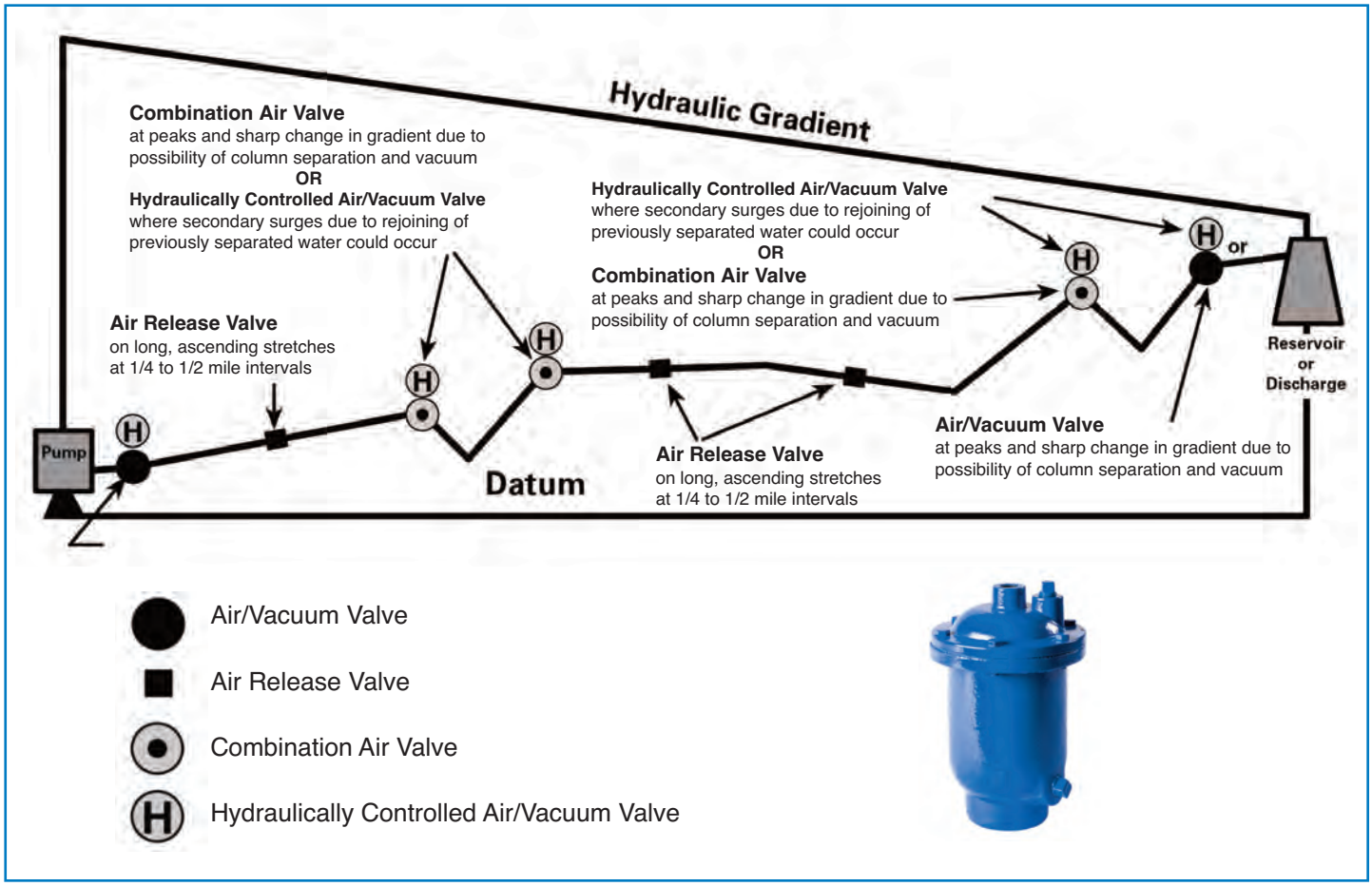
Follow these steps to select and size an air release valves when a specific venting capacity is required:

A) Enter graph with required system pressure and venting capacity

B) Read off nearest orifice diameter to intersection of pressure and capacity lines on graph

C) Enter table above with orifice diameter and select valve that can use this orifice diameter with the corresponding pressure

Series 34 Technical Data



Installation Tips

1. The effectiveness of Series 34 Air Release Valve is dependent upon it being located at appropriate high points in a pipeline and at uniform intervals of approximately 2500 feet on horizontal pipelines.

2. There are four variables that can cause an air pocket to form slightly downstream of the true high point in a piping system:

    1. Severity of the slope adjacent to the high point or change of gradient
    2. Velocity of the liquid
    3. Texture of the inside surface of the pipe being used
    4. Viscosity of the fluid

    It is recommended where an air pocket can form slightly downstream of the high point, to install additional Series 34 Air Release Valve at this point.

3. Cla-Val has available, upon request, a Slide Rule Air Valve Calculator. It will greatly reduce the amount of time to size valves for pipeline service.

Other typical applications include:

1. Centrifugal pumps
2. Hydropneumatic tanks
3. Enclosed systems
4. Sewage lines

When Ordering, Please Specify:

1. Model Number
2. Inlet Size (NPT)
3. Inlet Pressure Rating
4. Orifice Size

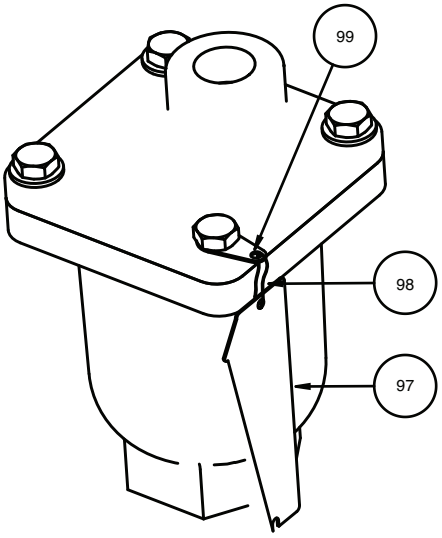
Model 34AR
Air Release Valve

INLET ORIFICE-SELECTION CHART			ORIFICE			
			3/32"	2.38 mm	1/16"	1.59 mm
INLET SIZE	1/2" NPT	12.7 mm*	STANDARD			
	3/4" NPT	19.05 mm*				
	1" NPT	25.4 mm*				
VENTING CAPACITY OPERATING PRESSURE	50 PSI	3.45 BAR	5 CFM	8.5 CMH	2.5 CFM	4.25 CMH
	100 PSI	6.89 BAR	9.5 CFM	16.14 CMH	4 CFM	6.8 CMH
	150 PSI	10.34 BAR	12.5 CFM	21.24 CMH	6 CFM	10.19 CMH
	175 PSI	12.07 BAR	15 CFM	25.49 CMH	7 CFM	11.89 CMH
	300 PSI	20.68 BAR			11.6 CFM	19.71 CMH
TEST PRESSURE			300 PSI	20.68 BAR	450 PSI	31.03 BAR

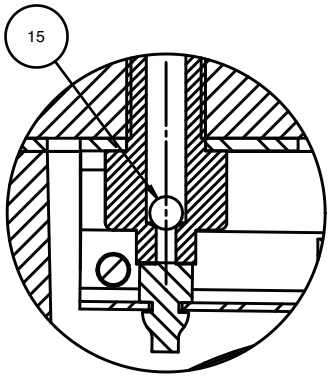
SHIPPING WEIGHT 6 LBS. (2.7 KG)
*THREADS ARE NPT AS DEFINED BY ANSI/ASME STANDARD B1.20.1

ITEM NO.	DESCRIPTION	QTY.
1	BODY	1
2	COVER	1
3	COVER GASKET	1
4	COVER BOLTS	4
5	LEVER FRAME	1
6	SEAT	1
7	NEEDLE	1
8	LEVER PIN	2
9	FLOAT LEVER	1
10	FLOAT	1
11	PIN RETAINER	4
12	WASHER (FBE COATING ONLY)	3
15	VACUUM BALL (VB OPTION ONLY)	1
97	DATA PLATE	1
98	WIRE	1
99	TAG WASHER	1

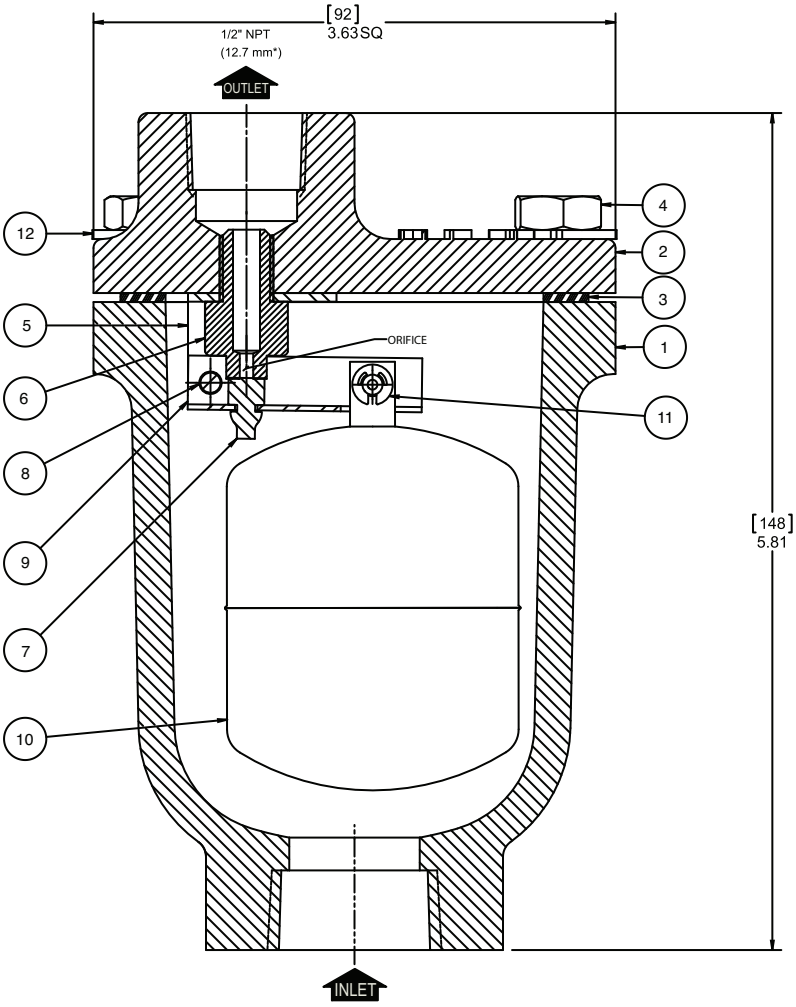
NOTE:
1. RECOMMENDED SPARE PARTS ARE ITEMS NUMBER R3, R6, R7, R8, AND R11.



PLEASE SPECIFY WHEN OPERATING PRESSURE BELOW 8 PSI (0.55 BAR) IS REQUIRED.



VACUUM BALL (VB) DETAIL
(VB OPTION ONLY)

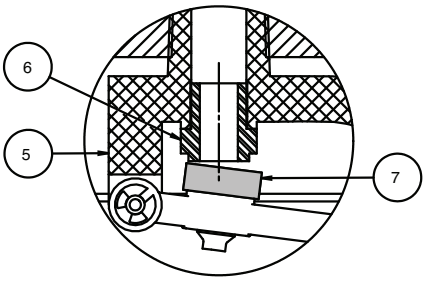


Model 34AR316
Air Release Valve

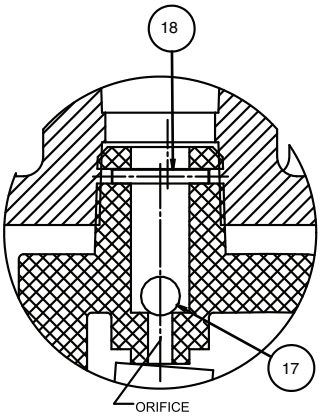
ORIFICE SELECTION CHART		
DIAMETER	OPERATING PRESSURE (psi)	
5/16	1 - 15	
5/16	11 - 50	
1/4	11 - 75	
3/16	11 - 150	STANDARD
5/32	11 - 300	
3/32	11 - 600	

WEIGHT: 20 LBS (9 KG)

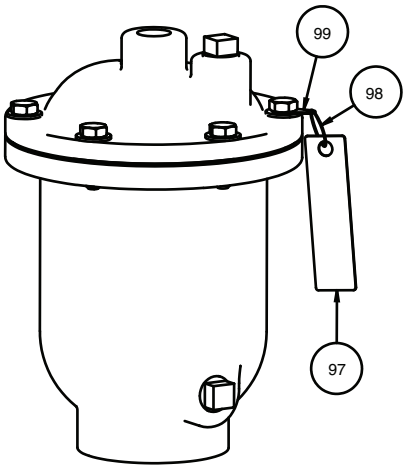
ITEM NO.	DESCRIPTION	QTY.
1	BODY	1
2	COVER	1
3	COVER GASKET	1
4	COVER BOLTS	6
5	LEVERAGE FRAME	1
6	SEAT (5/16 ORIFICE ONLY)	1
7	NEEDLE	1
9	NEEDLE LEVER	1
10	LEVER PIN	5
11	PIN RETAINER	10
12	CONNECTING LINK	2
13	FLOAT LEVER	1
14	FLOAT[1]	1
15	1/2" NPT PIPE PLUG	2
16	WASHER (FBE COATING ONLY)	5
17	VACUUM BALL (VB OPTION ONLY)	1
18	PIN SPRING (VB OPTION ONLY)	1
38	FLOAT SPUD (3/32 ORIFICE ONLY, NOT SHOWN)	1
97	DATA PLATE	1
98	WIRE	1
99	TAG WASHER	1

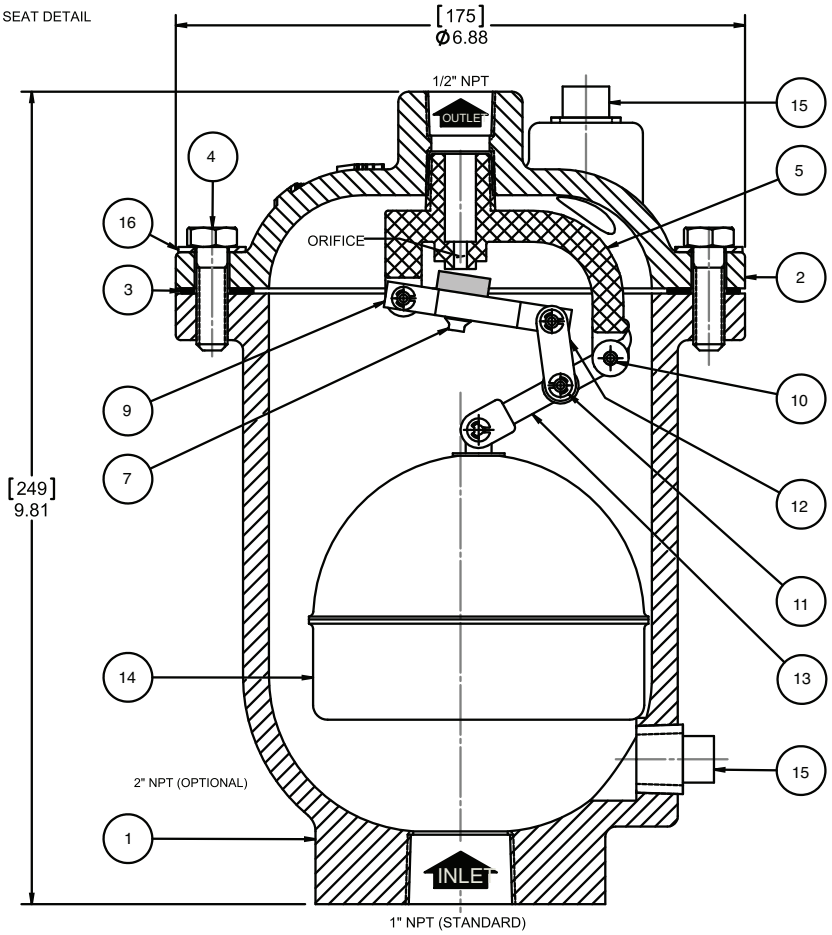


5/16 ORIFICE SEAT DETAIL



VACUUM BALL (VB) DETAIL
(VB OPTION)





NOTICE
THIS DRAWING DOES NOT SHOW ACCESSORIES.
IF ACCESSORIES ARE REQUIRED, REFER TO THE APPROPRIATE ACCESSORY DRAWING FOR DIMENSIONS AND OTHER RELATED INFORMATION.

Model 34AR60
Air Release Valve

DIMENSIONS				
A	B	C	D	E
11.00	1.00	9.50	8	0.88
12.50	1.44	10.63	12	0.88

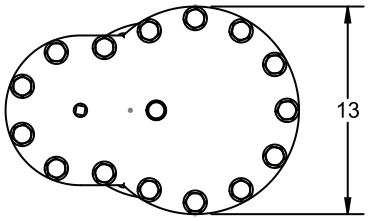
WEIGHT 200 LBS. (90.7 KG)

OPERATING PRESSURE P.S.I.	ORIFICE DIA.	VENTING CAPACITY CFFAM
0-150	1"	1500
0-300	3/4"	350

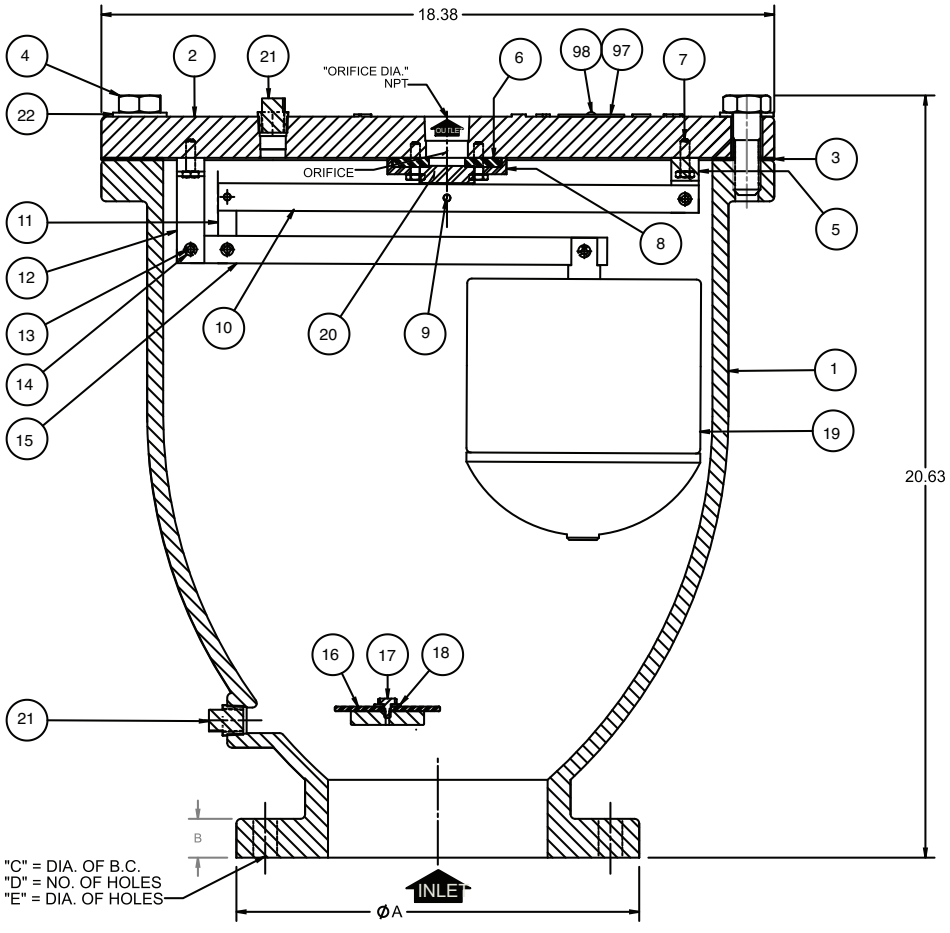
ITEM NO.	DESCRIPTION	QTY.
1	BODY	1
2	COVER	1
3	COVER GASKET	1
4	COVER BOLTS	15
5	BRACKET (SHORT)	1
6	SEAT	1
7	SCREW	8
8	SEAT RETAINER	1
9	NEEDLE PIN	1
10	NEEDLE LEVER	1
11	LINK	2
12	BRACKET (LONG)	1
13	LEVER PIN	5
14	PIN RETAINER	12
15	FLOAT LEVER	1
16	BUMPER	1
17	BUMPER SCREW	1
18	BUMPER WASHER	1
19	FLOAT	2
20	NEEDLE	1
21	PIPE PLUG	1
22	WASHER (FBE COATING ONLY)	15
97	DATA PLATE	1
98	DRIVE SCREW	2

NOTE:

1. RECOMMENDED SPARE PARTS ARE ITEM NUMBERS 3, 6, 9,13, 14 AND 20.



TOP VIEW



NOTICE

APPROPRIATE ACCESSORY DRAWING FOR DIMENSIONS IF ACCESSORIES ARE REQUIRED, REFER TO THE THIS DRAWING DOES NOT SHOW ACCESSORIES. AND OTHER RELATED INFORMATION.

Model 34ARHP

High Performance Air Release Valve

ORIFICE SELECTION CHART		
OPERATING PRESSURE (PSI)	ORIFICE DIA.	VENTING CAPACITY (CFM)
2 TO 15	1/2"	60
11 TO 75	1/2"	215
51 TO 150	3/8"	201
51 TO 300	7/32"	130

STANDARD

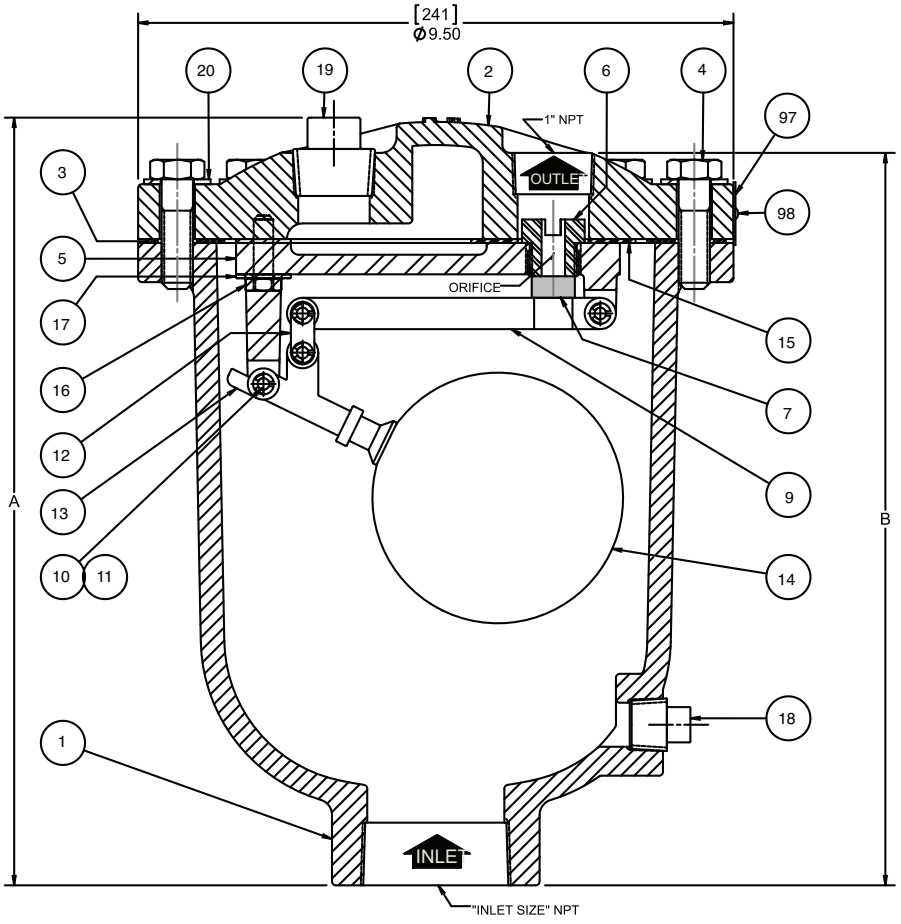
DIMENSIONS ARE IN IN / MM

INLET SIZE	A	B
2" NPT	12.63 / 321	11.81 / 300
3" NPT	13.75 / 349	12.93 / 328

STANDARD

WEIGHT 50 LBS (22.7 KG)

ITEM NO.	DESCRIPTION	QTY.
1	BODY	1
2	COVER	1
3	COVER GASKET	1
4	COVER BOLTS	8
5	LEVERAGE FRAME	1
6	SEAT	1
7	NEEDLE	1
9	NEEDLE LEVER	1
10	LEVER PIN	4
11	RETAINING RING/COTTER PIN	8
12	CONNECTING LINK	2
13	FLOAT LEVER	1
14	FLOAT	1
15	LEVERAGE FRAME GASKET	1
16	LEVERAGE FRAME SCREW	4
17	LEVERAGE FRAME WASHER (STANDARD MATERIALS ONLY)	2
18	1/2" NPT DRAIN PIPE PLUG	1
19	1" NPT PIPE PLUG	1
20	WASHER (FBE COATING ONLY)	8
97	DATA PLATE	1
98	DRIVE SCREW	2



NOTICE
THIS DRAWING DOES NOT SHOW ACCESSORIES.
IF ACCESSORIES ARE REQUIRED, REFER TO THE APPROPRIATE ACCESSORY DRAWING FOR DIMENSIONS AND OTHER RELATED INFORMATION.

Series 35
Air and Vacuum Valve

This product meets Federal Mandate for Lead Content Limit

- **Provides High Capacity Air Venting and Air Intake**
- **Stainless Steel Trim Standard**
- **Stainless Steel Floats Guaranteed**
- **Fully Ported Valves - No Restrictions**
- **Designed For Drip Tight Seal At Low Pressures**

The Cla-Val Series 35 Air and Vacuum Valve is designed to perform two separate functions. First, it will allow large quantities of air to be exhausted from the pipeline as it is being filled with water. When this air has been vented completely, water will enter the valve causing the float to seal tightly against the seat to prevent water flow. Secondly, if the line is being drained, either intentionally or as a result of pipeline breakage, the valve responds to the loss in pressure and opens. This allows air to re-enter the pipeline and prevents potentially damaging vacuum from developing.

Note: The Series 35 does not open under pressure to exhaust small quantities of air which may collect at high points during system normal operation. The Series 34 Air Release Valve is required for this function.

Installation

Series 35 Air and Vacuum Valves should be installed at high points or at grade changes within the pipeline. Mount the unit in the vertical on top of the pipeline with isolation valve below each valve in the event servicing is required. A vault with adequate venting and drainage should also be provided.

Purchase Specifications

The air and vacuum valve shall be able to automatically exhaust large quantities of air during filling of a pipeline and allows air to re-enter pipeline during the draining or when a negative pressure occurs.

The inlet and outlet of the air and vacuum valve shall have the same cross-section area as the pipe size. The float shall be guided by a stainless steel bottom guide shaft. The 4" and larger valve floats shall have top and bottom guide shafts of hexagonal cross section and have a protective steel discharge hood.

The float shall be of all stainless steel construction guaranteed to withstanding the design system surge pressure without failure. The body and cover shall be concentrically located and of ductile iron and the valve internal parts shall be of Stainless Steel with Buna-N® rubber seat.

The Air and Vacuum Valve shall be manufactured per ANSI/AWWA C512-04, Series 35 from Cla-Val, Newport Beach, CA USA.

Design Specifications

Sizes
1/2", 1", 2", 3" NPT
4" through 12"
125 lb. flanged ANSI Rated
250 lb. flanged ANSI Rated
14" through 24"

Pressure Ratings
175 psi
300 psi

Temperature Range
Water to 180°F

Note: Specify when operating pressure below 10 PSI

Materials
Body and Cover
(1/2″ - 12″ 125 & 250 lb.)
- Ductile Iron

Body and Cover 14″- 24″
- Cast Iron A126

Float:
Stainless Steel

Internal Parts:
Stainless Steel

Seal:
Buna-N® Rubber

When Ordering, Please Specify:

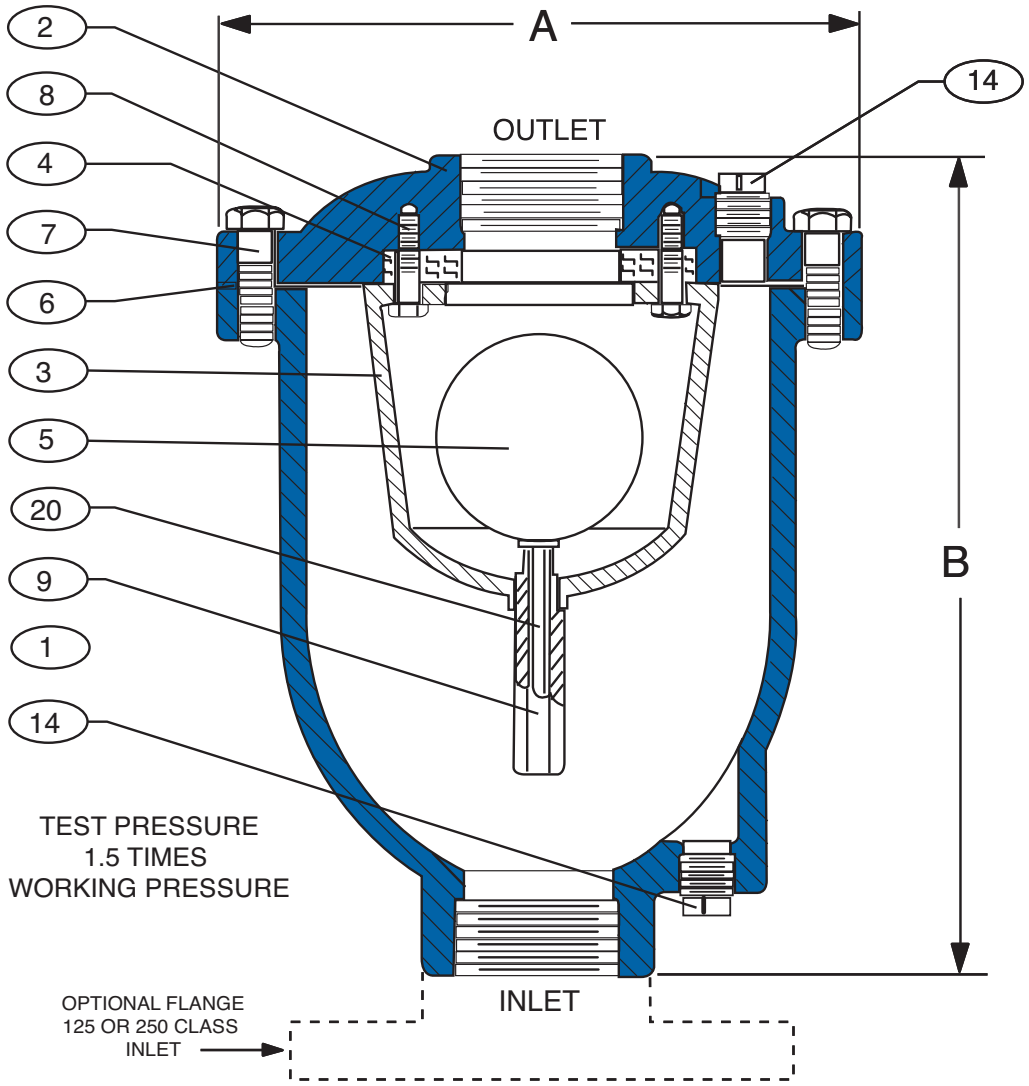
1. Model Number
2. Inlet Size - NPT or Flanged
3. Inlet Pressure Rating

Optional:
For anti-shock air valve shut-off order with arrestor check device (suffix “AC”).

CLA-VAL

Series 35

Air and Vacuum Valve



Detail No.	Part Name	Material
1	Body	Ductile Iron
2	Cover	Ductile Iron
3	Baffle	Ductile Iron ASTM A536-51T
4	Seat	Buna-N®
5	Float	Stainless Steel T316, ASTM A276
6	Gasket	Garlock #3000 (Non-Asbestos)

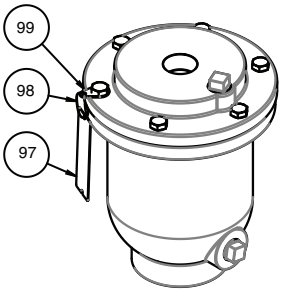
Detail No.	Part Name	Material
7	Cover Bolt	Stainless Steel ASTM A449 Grade5
8	Retaining Screw	Stainless Steel T316, ASTM A276
9	Guide Bushing	Stainless Steel T316, ASTM A276
14	Pipe Plug	Malleable Iron
20	Guide Shaft	Stainless Steel T316, ASTM A276

Note: Manufactured to meet ANSI/AWWA C512-04

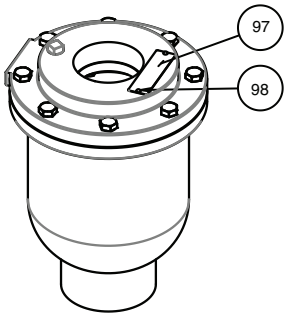
Valve Size	Model No	A	B	Inlet Size	Outlet Size	Wt. Lbs.
0.5"	350-AV.3HP	5.125"	7"	0.5" N.P.T.	0.5" N.P.T.	15
1"	351-AV.3HP	7"	9"	1" N.P.T.	1" N.P.T.	26
2"	352-AV.3HP	9"	12"	2" N.P.T.	2" N.P.T.	48
3"	353-AV.3HP	9"	13.6"	3" N.P.T.	3" N.P.T.	50

Note: Manufactured to meet ANSI/AWWA C512-04

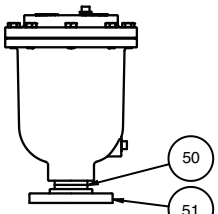
Model 35AV - 1/2″ - 3″
Air Release / Vacuum Valve



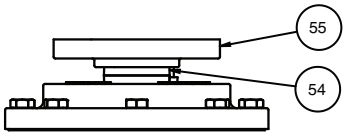
1/2" - 1" DATA PLATE DETAIL



2" - 3" DATA PLATE DETAIL



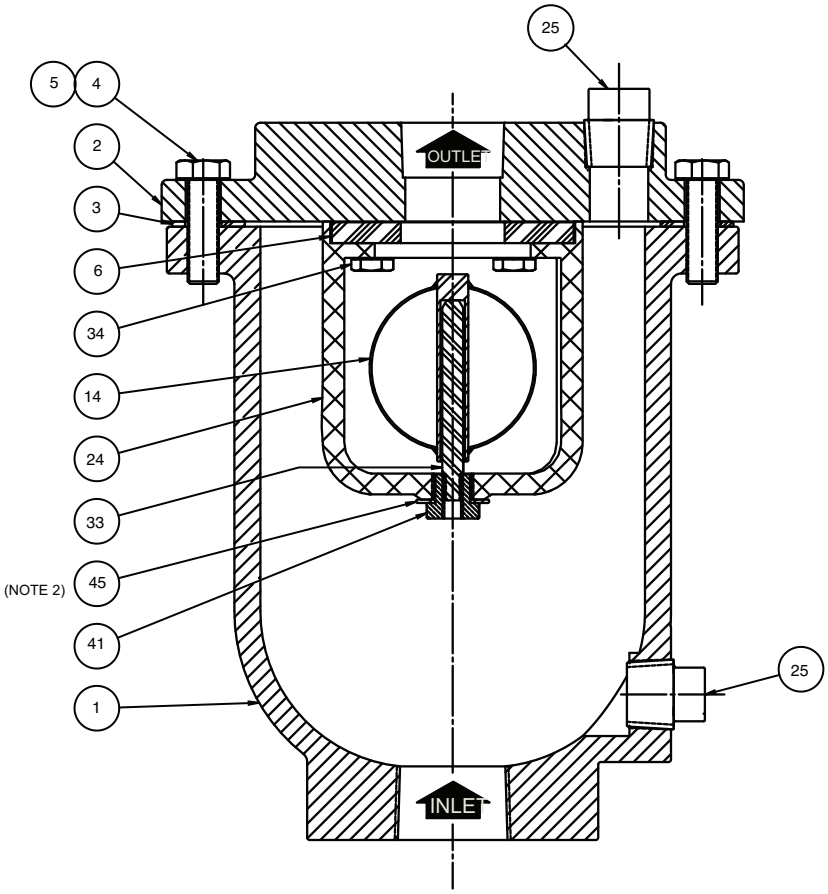
OPTIONAL NIPPLE & FLANGE
INLET (F1N OR F2N)

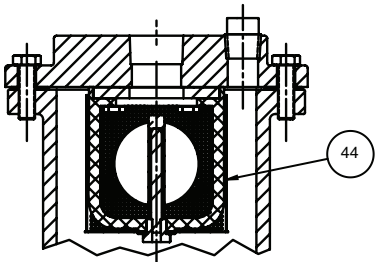


OPTIONAL FLANGED OUTLET
(FL)

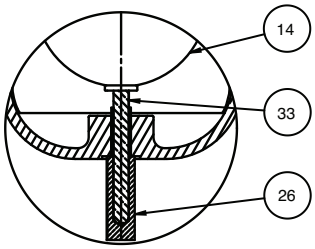
ITEM NO.	DESCRIPTION	QTY.
1	BODY	1
2	COVER	1
3	COVER GASKET	1
4	COVER BOLTS	-
5	WASHER (FBE COATING ONLY)	-
6	SEAT	1
14	FLOAT	1
24	BAFFLE	1
25	PIPE PLUG (NOTE 1)	2
26	FLOAT BUSHING (3" ONLY)	1
33	FLOAT GUIDE	1
34	BAFFLE SCREWS	-
41	BAFFLE PLUG (1/2" - 2" ONLY)	1
44	WATER DIFFUSER (WD OPTION)	1
45	LOCK WASHER (NOTE 2)	1
50	INLET NIPPLE (F1N/F2N ONLY)	1
51	INLET FLANGE (F1N/F2N ONLY)	1
54	OUTLET NIPPLE (FL ONLY)	1
55	OUTLET FLANGE (FL ONLY)	1
97	DATA PLATE	1
98	WIRE (1/2" - 1")	1
	DRIVE SCREW (2" - 3")	2
99	TAG WASHER (1/2" - 1" ONLY)	1

NOTES:
1. 1/2" VALVE DOES NOT HAVE A DRAIN PLUG OR COVER PIPE PLUG (A25).
2. LOCKWASHER IS ONLY USED WITH POLYMER BAFFLE



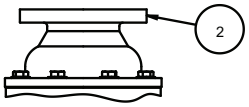


WATER DIFFUSER OPTION DETAIL
(WD ORDER CODE)

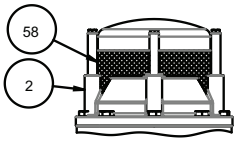


3" 146 DETAIL

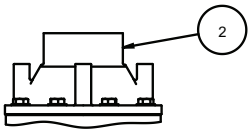
Model 35AV
Air Release / Vacuum Valve



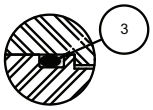
FL - FLANGED OUTLET OPTION
(CONSULT FACTORY FOR INSTALLATION DIMENSIONS)



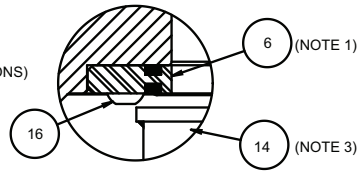
HSB, HSR - BUG & ROCK SCREEN OPTION



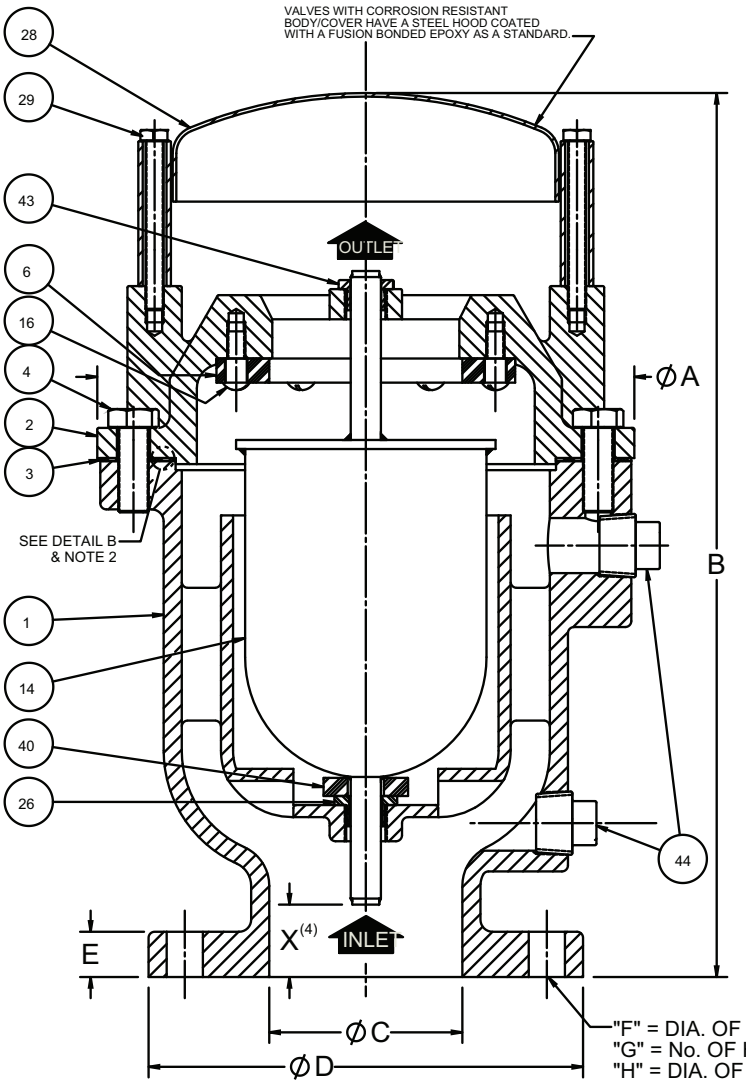
TH - THREADED OUTLET OPTION (4" - 8")
(CONSULT FACTORY FOR INSTALLATION DIMENSIONS)



DETAIL B
(COVER SEAL DETAIL)
(NOTE 2)



DETAIL A
(SEAT DETAIL)
(NOTE 1)



ITEM NO.	DESCRIPTION	QTY.
1	BODY	1
2	COVER	1
3	COVER GASKET/O-RING	1
4	COVER BOLTS	-
6	SEAT	1
14	FLOAT	1
16	SEAT SCREWS	-
△C 26	LOWER FLOAT GUIDE BUSHING	1
28	HOOD	1
29	HOOD SCREWS	4
40	BUMPER	1
43	UPPER FLOAT GUIDE BUSHING	1
44	PIPE PLUG	2
58	BUG/ROCK SCREEN (OPTIONAL)	1

NOTES:

1. THE FOLLOWING CONFIGURATIONS USE THE METAL RING W/ MOLDED ELASTOMER:

   ASME B16.1 CLASS 125: VALVE SIZES 14" & LARGER
   ASME B16.5 & B16.42 CLASS 150: VALVE SIZES 8" & LARGER
   ASME B16.1 CLASS 250: ALL SIZES
   ASME B16.5 & B16.42 CLASS 300: ALL SIZES

2. STANDARD SEAL CONFIGURATIONS:

   △C DUCTILE/CAST IRON BODIED VALVES:
   GASKET: CLASS 125/150/250 4"-16"
   O-RING: CLASS 125/150/250 18"-20" & CLASS 300: ALL SIZES

   STEEL & STAINLESS BODIED VALVES:
   O-RING ON ALL SIZES & PRESSURE CLASSES

3. ALL SIZES AND PRESSURE CLASSES USE A FLAT TOPPED FLOAT EXCEPT THE 4" CLASS 125/150.

4. SPOOL/SPACER MAY BE REQUIRED WHEN USING A BUTTERFLY VALVE ON INLET.

354AV - 3520AV ASME CLASS 125/150 (F1) DIMENSIONS

Valve Size		A	B	C	D	E	F	G	H	X(4)
4"		11.13	18.38	4.00	9.00	0.94	7.50	8	0.75	1.00
6"		13.63	21.06	6.00	11.00	1.00	9.50	8	0.88	1.63
8"		17.25	24.69	8.00	13.50	1.13	11.75	8	0.88	1.06
10"		20.00	26.75	10.00	16.00	1.19	14.25	12	1.00	1.56
12"		25.00	30.69	12.13	19.00	1.25	17.00	12	1.00	0.94
14"		29.00	31.00	14.13	21.00	1.38	18.75	12	1.13	-0.06
16"		32.00	31.56	16.00	23.50	1.44	21.25	16	1.13	2.31
18"		33.00	56.56	18.00	25.00	1.56	22.75	16	1.25	12.88
20"		40.75	66.06	20.00	27.50	1.69	25.00	20	1.25	13.06

354AV.3 - 3520AV.3 ASME CLASS 250/300 (F2) DIMENSIONS

Valve Size		A	B	C	D	E	F	G	H	X(4)
4"		11.13	18.69	4.00	10.00	1.25	7.88	8	0.88	2.13
6"		13.63	21.56	6.00	12.50	1.44	10.63	12	0.88	3.25
8"		17.25	25.19	8.00	15.00	1.63	13.00	12	1.00	1.56
10"		20.00	27.44	10.00	17.50	1.88	15.25	16	1.13	2.19
12"		25.00	30.69	12.13	20.50	2.00	17.75	16	1.25	0.94
14"		29.00	31.00	14.13	23.00	2.13	20.25	20	1.25	1.06
16"		32.00	31.56	16.00	25.50	2.25	22.50	20	1.38	2.31
18"		33.00	56.56	18.00	28.00	2.38	24.75	24	1.38	12.88
20"		40.75	66.06	20.00	30.50	2.50	27.00	24	1.38	13.06

Series 36
Combination Air Release and Vacuum Valve

This product meets Federal Mandate for Lead Content Limit

- **Fully Ported Valves - No Restrictions**
- **Easily Serviced Without Removal From Pipeline**
- **Engineered For Drip Tight Seal At Low Pressures**

The Cla-Val Series 36 Air and Vacuum Valve is a multipurpose valve that combines the operation of both the Model 34 Air Release Valve and Model 35 Air and Vacuum Valve. It functions to exhaust large quantities of air in the pipeline during the filling cycle and to admit air, as necessary, to prevent potentially dangerous vacuum from forming when being emptied either intentionally or as a result of pipeline breakage.

Note: Cla-Val Air Valves are manufactured to meet ANSI-AWWA C512-92 Standards.

Installation

The Series 36 Combination Air Valve should be installed at high points at grade changes within the pipeline.

Mount the unit in the vertical position on top of the pipeline with an isolation valve installed below each valve in the event servicing is required. A vault with adequate venting and drainage should also be provided.

Design / Purchase Specifications

The combination air valve shall combine the operating features of both an air and vacuum valve and an air release valve in one housing. The air and vacuum valve portion shall automatically exhaust large quantities of air during the filling of the pipeline and automatically allow air to reenter the pipeline when the internal pressure of the pipeline approaches a negative value due to column separation, draining of the pipeline, or other emergency. The air release valve portion shall automatically release small amounts of air from the pipeline while it is under pressure.

The inlet and outlet of the valve shall have the same cross-section area. The float shall be guided by a stainless steel guide shaft and seat drip tight against a synthetic rubber seal. 4" and larger valves shall have dual guided shafts of hexagonal cross section and a protective discharge hood.

The float shall be of all stainless steel construction and capable of withstanding maximum system surge pressure without failure. The body and cover shall be concentrically located and of ductile iron and the valve internal parts shall be stainless steel or Buna-N® rubber.

The Combination Air Release and Vacuum Valve shall be manufactured per ANSI/AWWA C512-04 Series 36 from Cla-Val., Newport Beach, CA, U.S.A.

Design Specifications

Size Inlet/Outlet
1", 2", 3", 4" NPT or Flanged
3" through 8"
125 lb. flange & ANSI
300 lb. flange & ANSI

Pressure Ratings (see note)
150 psi
300 psi

Temperature Range
Water to 180°F

Note: Specify when operating pressure is below 10 PSI

Materials
Body and Cover:
Ductile Iron ASTM A536 65-45-12

Float:
Stainless Steel

Plug:
Stainless Steel

Internal Parts:
Stainless Steel

Seal: Buna-N® Rubber

Note: Manufactured to meet ANSI/AWWA C512-04

When Ordering, Please Specify

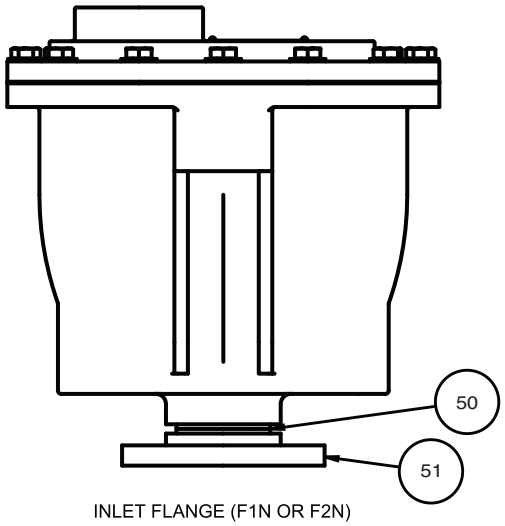
1. Model Number
2. Inlet/Outlet Size
3. Inlet Pressure Rating
4. Orifice Size

Optional:
For Anti-Shock Air Valve shut-off, order with arrestor check device (suffix “AC”).

Model 36CAV

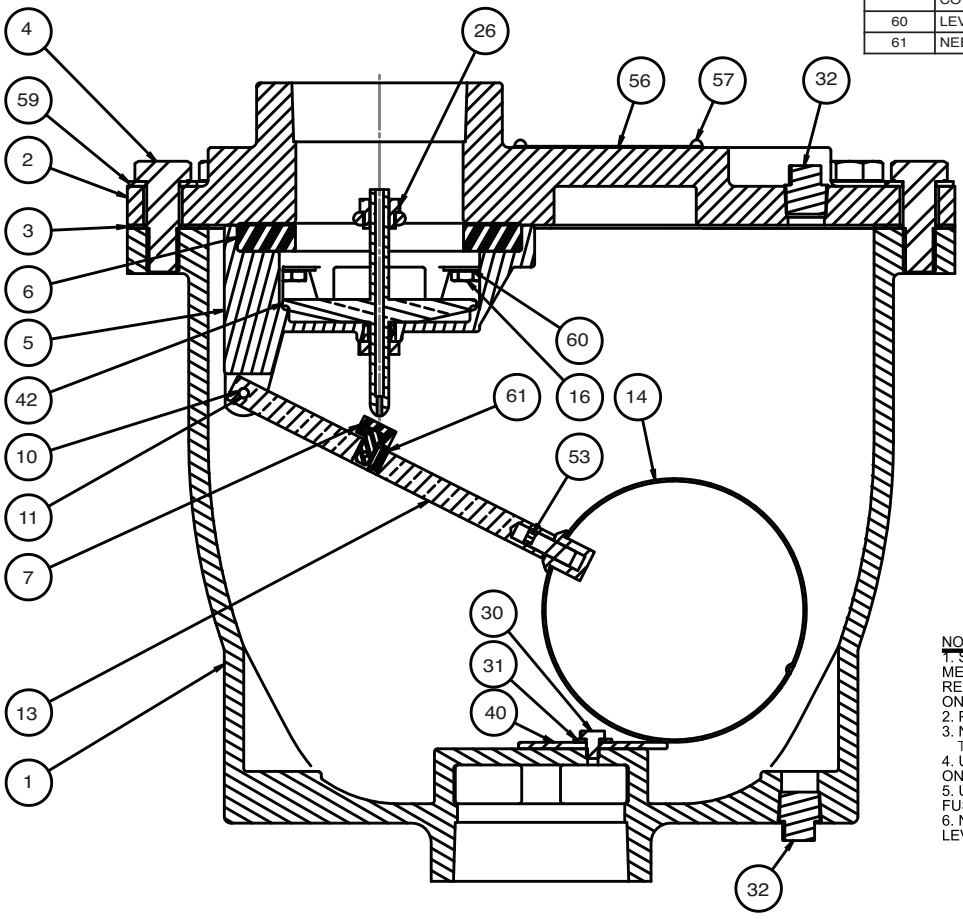
Combination Air Valve - 1″ through 4″

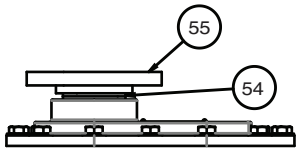
1" = 25.4 mm
2" = 50.8 mm
3" = 76.2 mm
4" = 101.6 mm



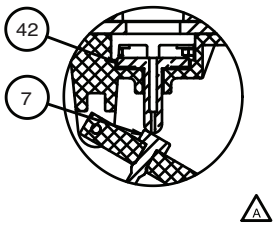
INLET FLANGE (F1N OR F2N)

ITEM NO.	DESCRIPTION		QTY
1	BODY		1
2	COVER		1
3	COVER GASKET		1
4	COVER BOLT	1"	10
	COVER BOLT	2" - 3"	12
	COVER BOLT	4"	14
5	LEVERAGE FRAME		1
6	SEAT		1
7	NEEDLE		1
8	NEEDLE PIN (NOT SHOWN)	3" - 4"	1
10	LEVER PIN		1
11	RETAINING RING/COTTER PIN		1
13	FLAOT LEVER		1
14	FLOAT		1
16	LEVERAGE FRAME SCREW		4
26	**GUIDE BUSHING:**		
	WITH POM LEVERAGE FRAME (NOT REQ'D)[2]	1"	-
	WITH OTHER LEVERAGE FRAME MATERIAL[2]	1"	1
	WITH POM LEVERAGE FRAME	2" - 4"	1
	WITH OTHER LEVERAGE FRAME MATERIAL	2" - 4"	2
30	BUMPER SCREW		1
31	BUMPER WASHER		1
32	PIPEPLUG		2
40	BUMPER		1
42	PLUG[2]		1
50	PIPE NIPPLE		2
51	INLET FLANGE		1
53	FLOAT RETAINING SCREW[3]		1
54	PIPE NIPPLE		1
55	OUTLET FLANGE		1
56	DATA PLATE		1
57	DRIVE SCREWS		1
59	COVER BOLT WASHER[4]	1"	10
	COVER BOLT WASHER[4]	2" - 3"	12
	COVER BOLT WASHER[4]	4"	14
60	LEVERAGE FRAME WASHER[5]		4
61	NEEDLE SUPPORT PIN[6]	(3"ONLY	1





OUTLET FLANGE

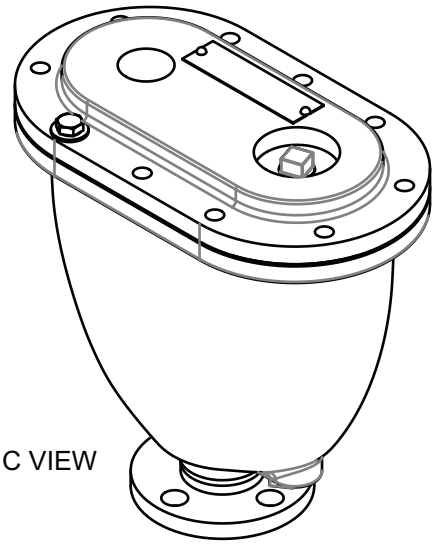


NOTE:
1. STANDARD MATERIAL ON SIZE 1" AND 2" IS POLYOXY-METHYLENE (POM) AND GUIDE BUSHING (26). IS NOT REQUIRED
ON THE FRAME.
2. PLUG IS ONLY GUIDED ON THE BOTTOM FOR 1" SIZE.
3. NOT PROVIDED W/ POM FLOAT LEVER (INTEGRAL TO 13).
4. USED WITH EXTERIOR FUSION BONDED EPOXY COATING ONLY.
5. USED EXCLUSIVELY WITH DI LEVERAGE FRAME & INTERIOR FUSION BONDED EPOXY COATING COMBINATION.
6. NEEDLE SUPPORT PIN NOT REQUIRED WITH POM FLOAT LEVER.

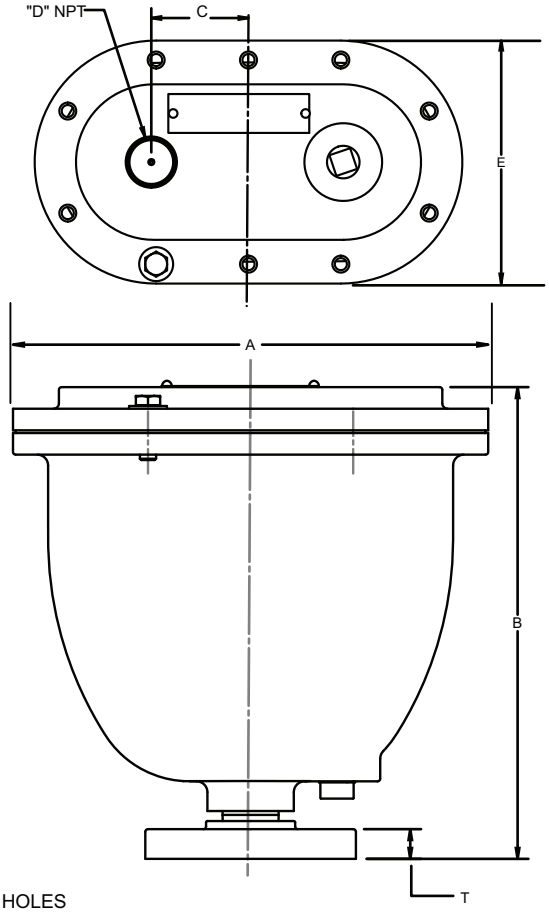
Model 36CAV

Combination Air Valve - 1″ through 4″

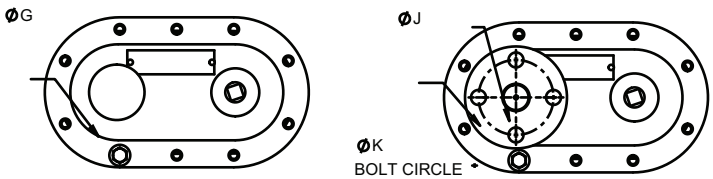
DIMENSIONS INCHES / MM																		
VALVE SIZE	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	T
1	11.00 279.4	11.58 294.1	2.50 63.5	1	6.25 158.8	13.53 343.7	2.31 58.7	12.96 329.2	4.25 108.0	3.13 79.4	0.63 16.0	4	0.44 11.1	4.88 123.8	3.50 88.9	0.75 19.1	4	0.75 19.1
2	14.00 355.6	14.60 370.8	2.88 73.2	2	8.00 203.2	17.47 443.7	3.94 100.0	16.72 424.7	6.00 152.4	4.75 120.7	0.75 19.1	4	0.63 15.9	6.50 165.1	5.00 127.0	0.75 19.1	8	1.06 27.0
3	16.00 406.4	18.22 462.8	3.13 79.4	3	9.75 247.7	22.31 566.7	6.00 152.4	20.50 520.7	7.50 190.5	6.00 152.4	0.75 19.1	4	0.75 19.1	8.25 209.6	6.63 168.3	0.88 22.2	8	1.25 31.8
4	18.50 469.9	20.12 511.0	3.75 95.25	4	11.00 279.4	24.31 617.5	6.31 160.3	22.62 574.5	9.00 228.6	7.50 152.4	0.75 19.1	8	0.94 23.8	10.00 254.0	7.88 200.0	0.88 22.2	8	1.38 34.9

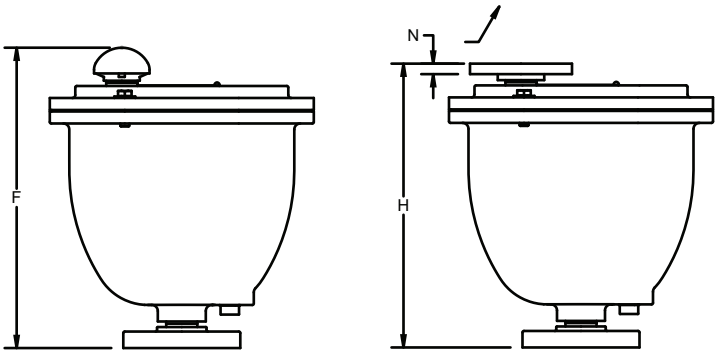


ISOMETRIC VIEW

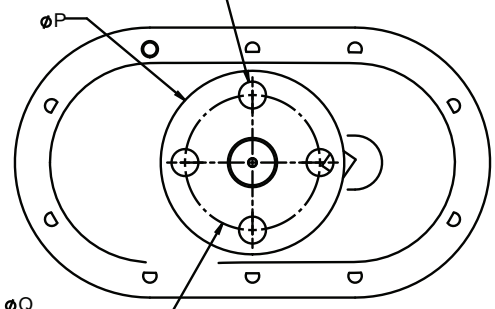


"L" Ø OF HOLES
"M" QTY OF HOLES PER FLANGE



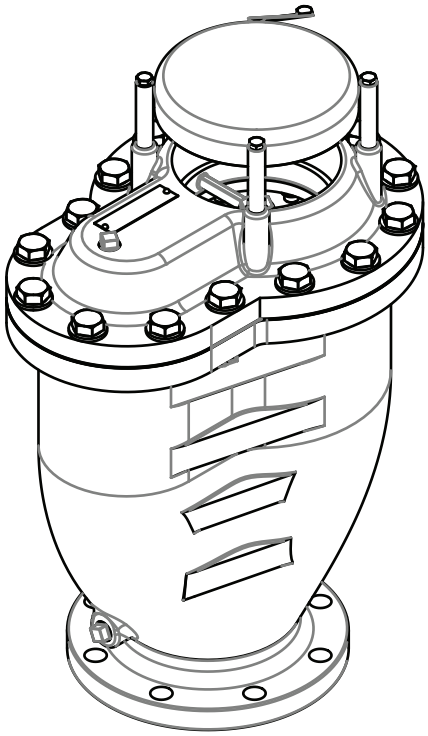


"R"Ø OF HOLES
"S" QTY OF HOLES PER FLANGE

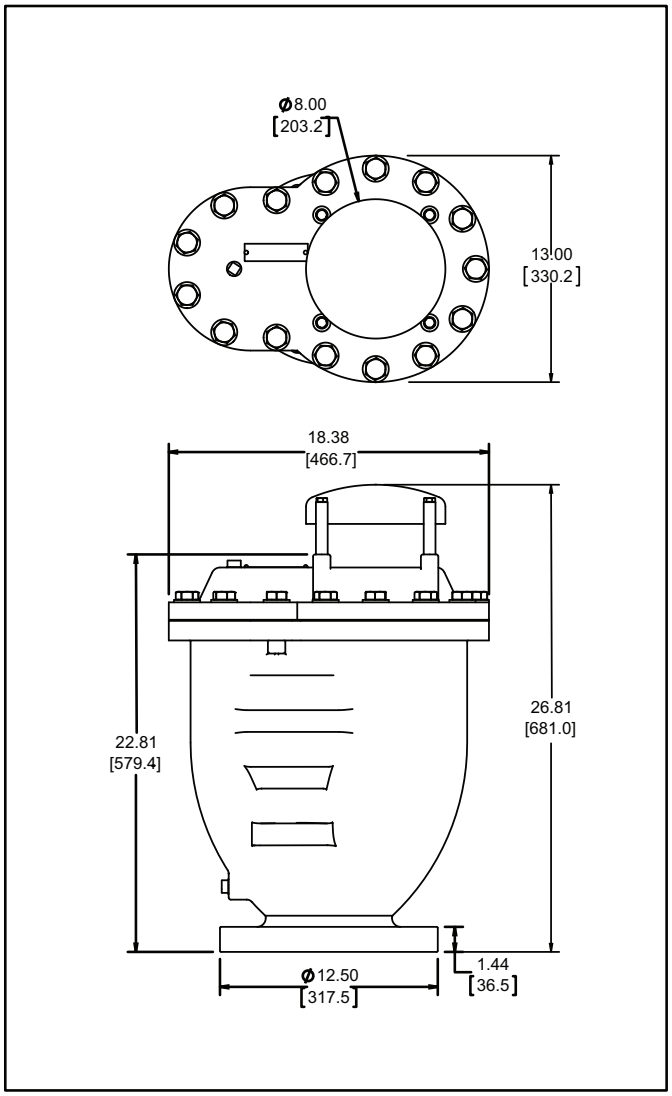


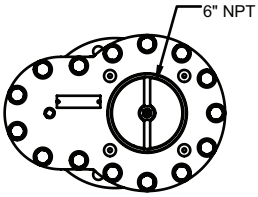
OUTLET FLANGE - BOTTOM VIEW

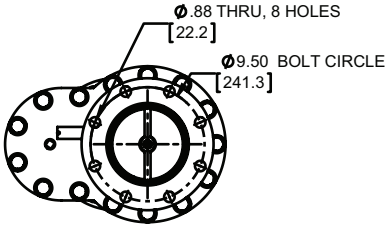
Series 366CAV- 6"
Single Body Combination Air Valve

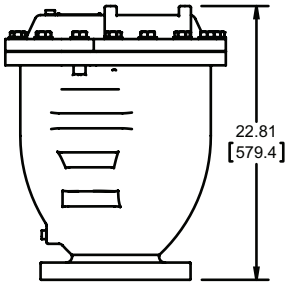


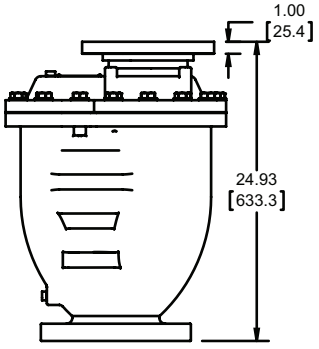
ISOMETRIC VIEW

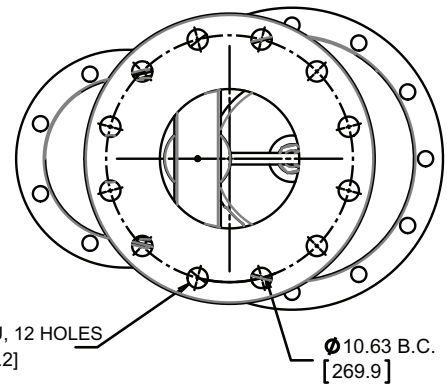




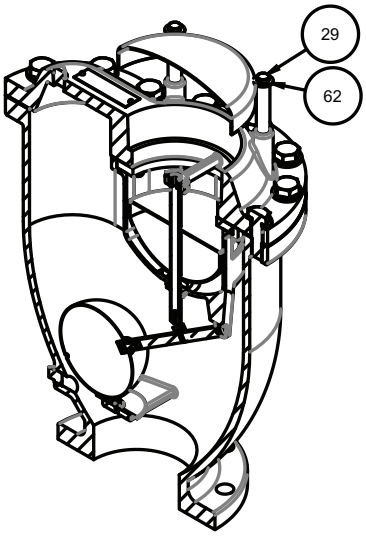




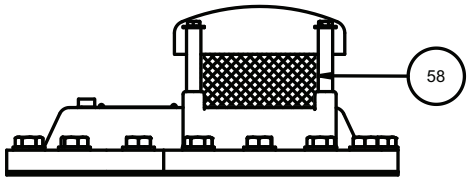




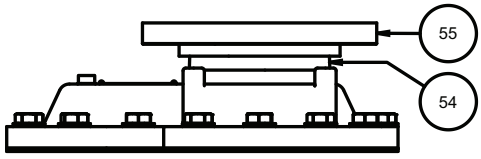
Series 366CAV- 6″
Single Body Combination Air Valve



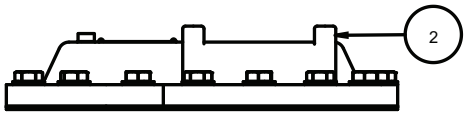
ISOMETRIC SECTION VIEW



HOODED OPTION

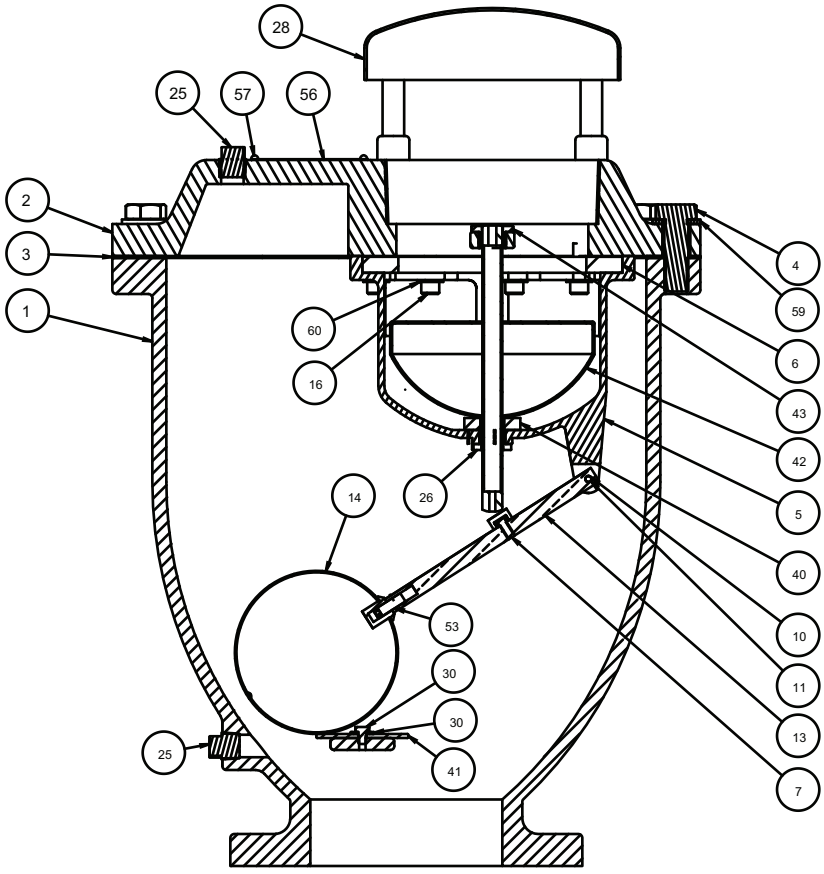


FLANGED OPTION



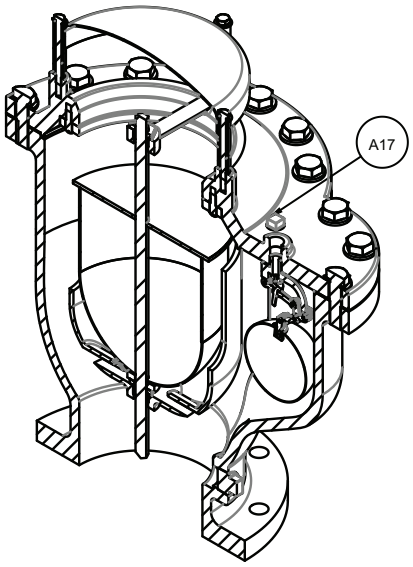
THREADED OPTION

ITEM NO.	DESCRIPTION	QTY.
1	BODY	1
2	COVER[1]	1
3	COVER GASKET	1
4	COVER BOLTS	15
5	LEVERAGE FRAME	1
6	SEAT	1
7	NEEDLE	1
10	LEVER PIN	1
11	RETAINING RING/COTTER PIN[2]	2
13	FLOAT LEVER	1
14	FLOAT	1
16	FRAME SCREW	8
25	PIPE PLUG	2
26	LOWER GUIDE BUSHING	1
28	HOOD	1
29	HOOD SCREWS	4
30	BUMPER SCREW	1
31	BUMPER WASHER	1
40	BUMPER	1
41	BUMPER	1
42	PLUG	1
43	UPPER GUIDE BUSHING	1
53	FLOAT RETAINING SCREW	1
54	PIPE NIPPLE (FL ONLY)	1
55	OUTLET FLANGE (FL ONLY)	1
56	DATA PLATE	1
57	DRIVE SCREW	2
58	BUG SCREEN	1
58	ROCK SCREEN	1
59	COVER BOLT WASHER[3]	15
60	LEVERAGE FRAME WASHER[4]	8
62	HOOD WASHER[3]	4

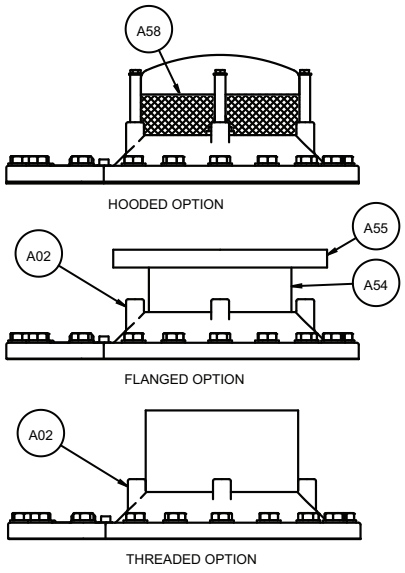


NOTE:
1. OUTLET THREADS FURNISHED WITH TH OPTION.
2. WHEN 316 SS LEVERAGE FRAME IS REQUIRED, COTTER PINS ARE USED.
3. USED WITH EXTERIOR FUSION BONDED EPOXY COATING ONLY.
4. USED EXCLUSIVELY WITH DI LEVERAGE FRAME & INTERIOR FUSION BONDED EPOXY COATING COMBINATION.

Series 368CAV- 8"
Single Body Combination Air Valve

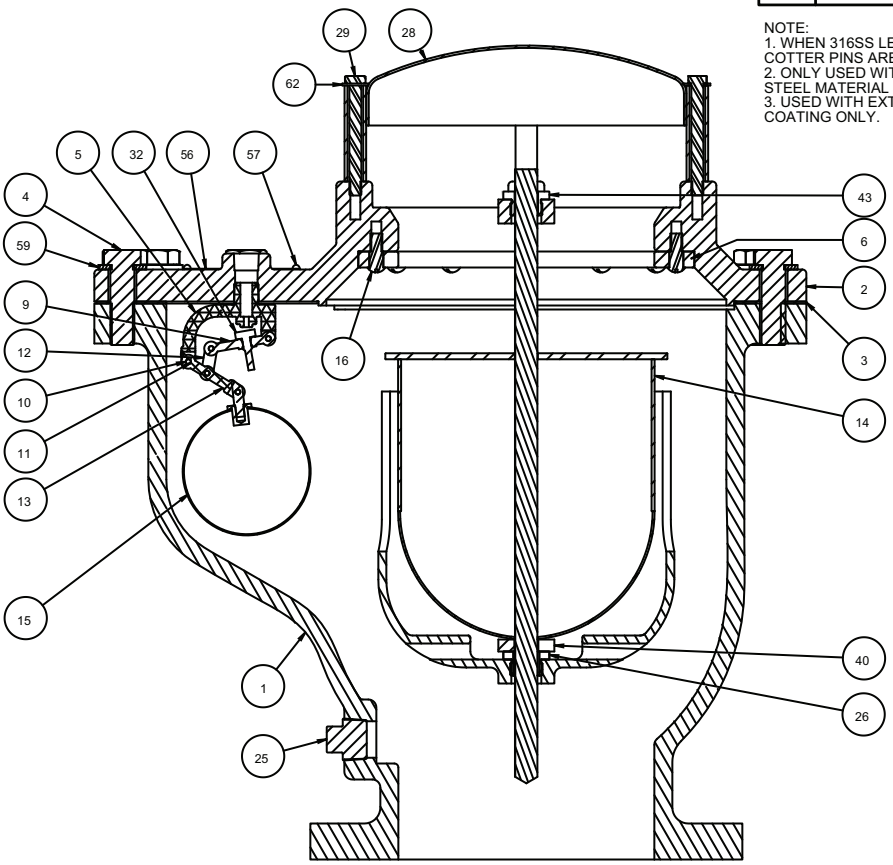


ISOMETRIC SECTION VIEW
(ROTATED 180° FROM PARENT VIEW)

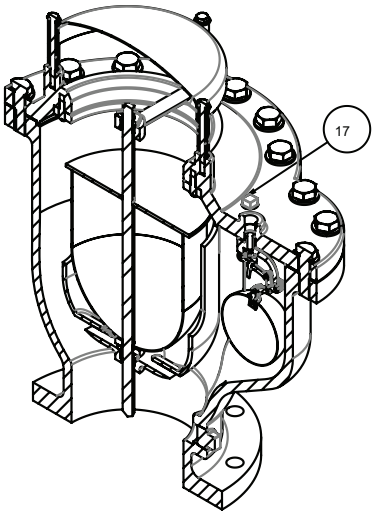


ITEM NO.	DESCRIPTION	QTY
1	BODY	1
2	COVER	1
3	COVER GASKET	1
4	COVER BOLT	18
5	LEVERAGE FRAME	1
6	SEAT	1
9	NEEDLE LEVER	1
10	LEVER PIN	5
11	RETAINING RING/COTTER PIN[1]	10
12	CONNECTING LINK	2
13	FLOAT LEVER	1
14	LARGE FLOAT	1
15	SMALL FLOAT	1
16	SEAT SCREW	12
17	PIPE PLUG	1
25	DRAIN PLUG	1
26	LOWER GUIDE BUSHING	1
28	HOOD	1
29	HOOD SCREWS	4
38	FLOAT SPUD ADAPTOR	1
40	BUMPER	1
43	UPPER GUIDE BUSHING	1
54	PIPE NIPPLE[2] (FL ONLY)	1
55	OUTLET FLANGE[2] (FL ONLY)	1
56	DATA PLATE	1
57	DRIVE SCREW	2
58	BUG SCREEN	1
58	ROCK SCREEN	1
59	COVER BOLT WASHER[3]	18
32	NEEDLE	1
33	3/8 SAE FLAT WASHER	4
62	HOOD WASHER[3]	4

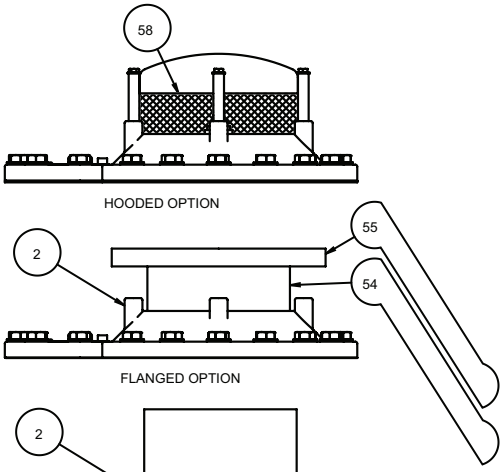
NOTE:
1. WHEN 316SS LEVERAGE FRAME IS REQUIRED, COTTER PINS ARE USED.
2. ONLY USED WITH CARBON STEEL & 316 STAINLESS STEEL MATERIAL VERSIONS.
3. USED WITH EXTERIOR FUSION BONDED EPOXY COATING ONLY.

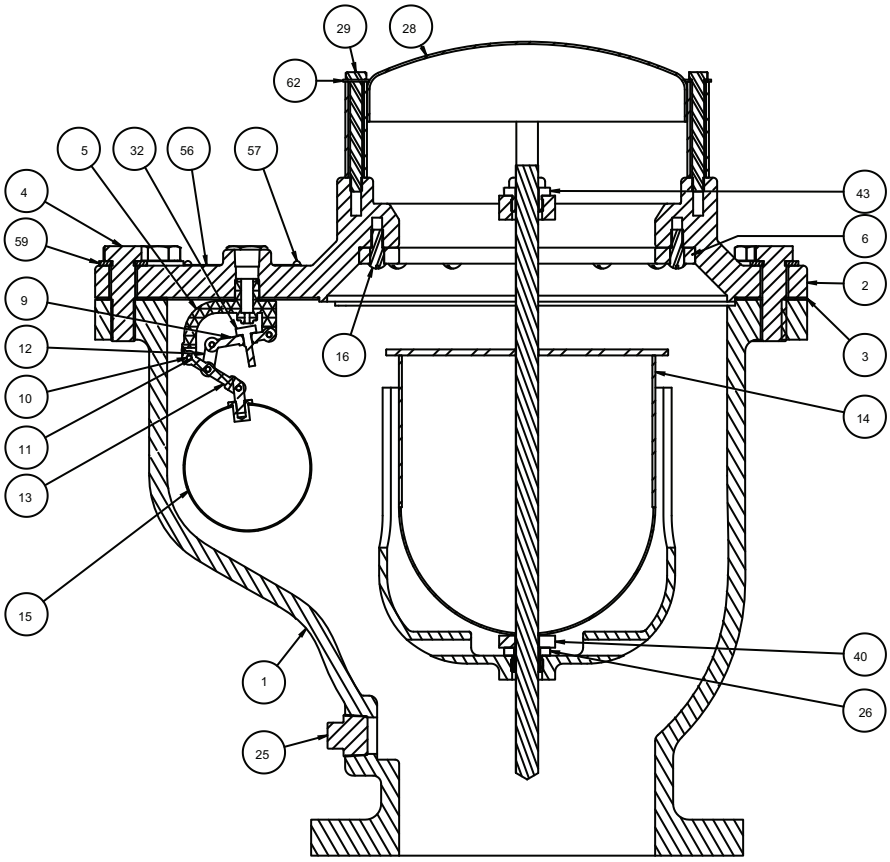


Series 368CAV- 8″
Single Body Combination Air Valve



ISOMETRIC SECTION VIEW
(ROTATED 180 DEGREES FROM PARENT VIEW)





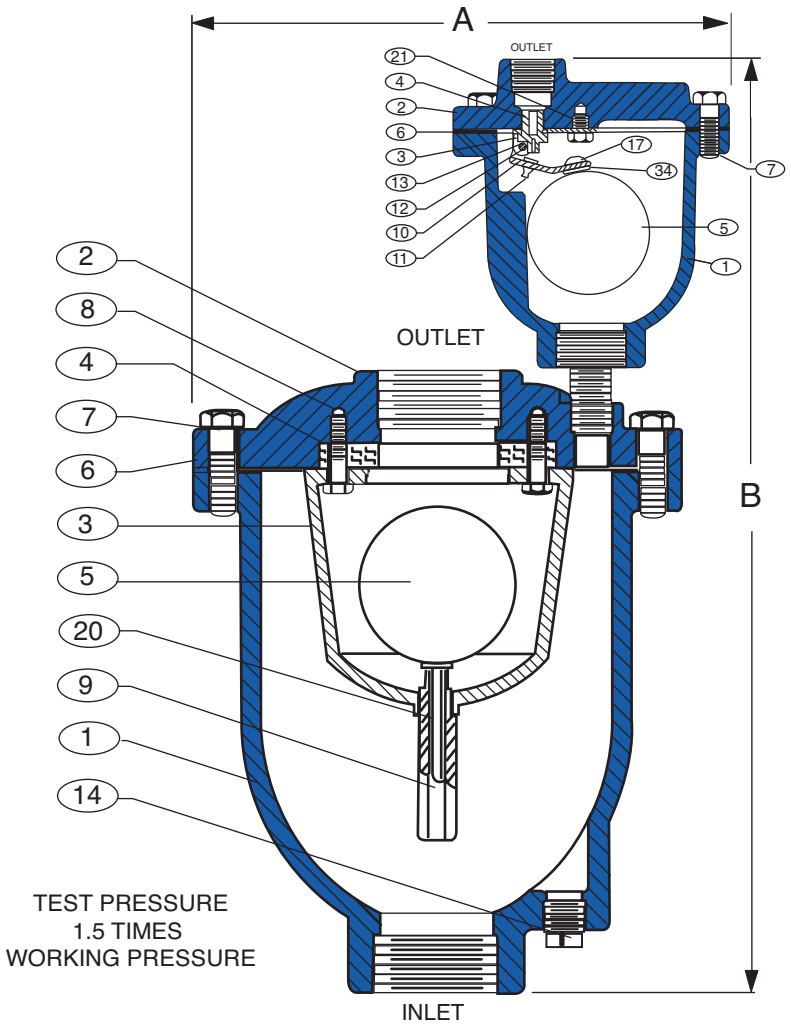
ITEM NO.	DESCRIPTION	QTY
1	BODY	1
2	COVER	1
3	COVER GASKET	1
4	COVER BOLT	18
5	LEVERAGE FRAME	1
6	SEAT	1
9	NEEDLE LEVER	1
10	LEVER PIN	5
11	RETAINING RING/COTTER PIN[1]	10
12	CONNECTING LINK	2
13	FLOAT LEVER	1
14	LARGE FLOAT	1
15	SMALL FLOAT	1
16	SEAT SCREW	12
17	PIPE PLUG	1
25	DRAIN PLUG	1
26	LOWER GUIDE BUSHING	1
28	HOOD	1
29	HOOD SCREWS	4
38	FLOAT SPUD ADAPTOR	1
40	BUMPER	1
43	UPPER GUIDE BUSHING	1
54	PIPE NIPPLE[2] (FL ONLY)	1
55	OUTLET FLANGE[2] (FL ONLY)	1
56	DATA PLATE	1
57	DRIVE SCREW	2
58	BUG SCREEN	1
58	ROCK SCREEN	1
59	COVER BOLT WASHER[3]	18
32	NEEDLE	1
33	3/8 SAE FLAT WASHER	4
62	HOOD WASHER[3]	4

NOTE:
1. WHEN 316SS LEVERAGE FRAME IS REQUIRED, COTTER PINS ARE USED.
2. ONLY USED WITH CARBON STEEL & 316 STAINLESS STEEL MATERIAL VERSIONS.
3. USED WITH EXTERIOR FUSION BONDED EPOXY COATING ONLY.

CLA-VAL

Series MTP36

Combination Air Valves – Dual Body Style



Series 34 Air Release Valve

Detail No.	Part Name	Material
1	Body	Ductile Iron ASTM 536 65-45-12
2	Cover	Ductile Iron ASTM 536 65-45-12
3	Lever Frame	Ductile Iron ASTM 536 65-45-12
4	Seat	Stainless Steel T316 ASTM A276
5	Float	Stainless Steel T316, ASTM A276
6	Gasket	Garlock #3000 (Non-Asbestos)
7	Cover Bolt	Alloy Steel SAE Grade 5
10	Float Arm	Ductile Iron ASTM 536 65-45-12
11	Orifice Button	Viton™
12	Pivot Pin	Ductile Iron ASTM 536 65-45-12
13	Pin Retainer	Ductile Iron ASTM 536 65-45-12
17	Float Retainer	Ductile Iron ASTM 536 65-45-12
21	Locator	Ductile Iron ASTM 536 65-45-12
34	Lock Washer	Ductile Iron ASTM 536 65-45-12

Series 35 Air Vacuum Valve

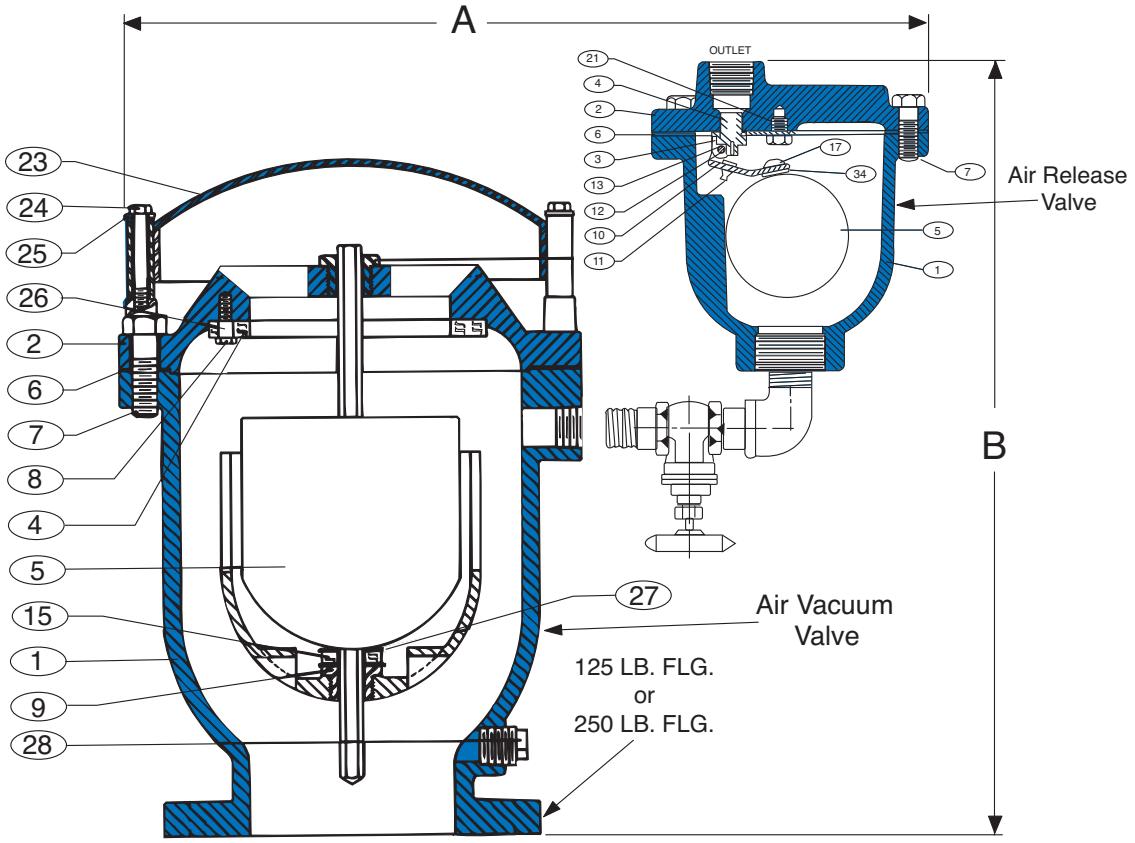
Detail No.	Part Name	Material
1	Body	Ductile Iron ASTM 536 65-45-12
2	Cover	Ductile Iron ASTM 536 65-45-12
3	Baffle	Ductile Iron ASTM A536-51T
4	Seat	Buna -N®
5	Float	Stainless Steel T316, ASTM A276
6	Gasket	Garlock #3000 (Non-Asbestos)
7	Cover Bolt	Stainless Steel ASTM A449 Grade5
8	Retaining Screw	Stainless Steel T316, ASTM A276
9	Guide Bushing	Stainless Steel T316, ASTM A276
14	Pipe Plug	Malleable
20	Guide Shaft	Stainless Steel T316, ASTM A276

Note: Manufactured to meet ANSI/AWWA C512-04

Model No.		Large Orifice Inlet/Outlet Inches	Small Orifice (inches)	Inches		Weight Lbs.
150 PSI	300 PSI			Height	Width	
MTP361-CAV116	MTP361-CAV116.3	1 x 1	1/16	16	8	35
MTP362-CAV116	MTP362-CAV116.3	2 x 2	1/16	18	10-1/2	55
MTP363-CAV116	MTP363-CAV116.3	3 x 3	1/16	18	10-1/2	58

Series MTP36-CAV

Combination Air Valves – Dual Body Style



Air & Vacuum Valve (Large Orifice)

Note: Manufactured to meet ANSI/AWWA C512-04

Detail No.	Part Name	Material
1	Body	Ductile Iron ASTM 536 65-45-12
2	Cover	Ductile Iron ASTM 536 65-45-12
4	Seat	Buna -N®
5	Float	Stainless Steel T316, ASTM A276
6	Gasket	Lexide Nk-511 (Non-Asbestos)
7	Cover Bolt	Alloy Steel ASTM A449, Grade 5
8	Retaining Screw	Stainless Steel T316, ASTM A276
9	Guide Bushing	Stainless Steel T316, ASTM A276
15	Cushion	Buna-N®
23	Hood	Steel - #1020
24	Hood Retaining Screw	Steel (Cadmium Plated)
25	Washer - External	Steel (Cadmium Plated)
26	Seat Retaining Sleeve	Stainless Steel T316, ASTM A276
27	Washer - Internal	Stainless Steel T316, ASTM A276
28	Pipe Plug	Malleable Iron

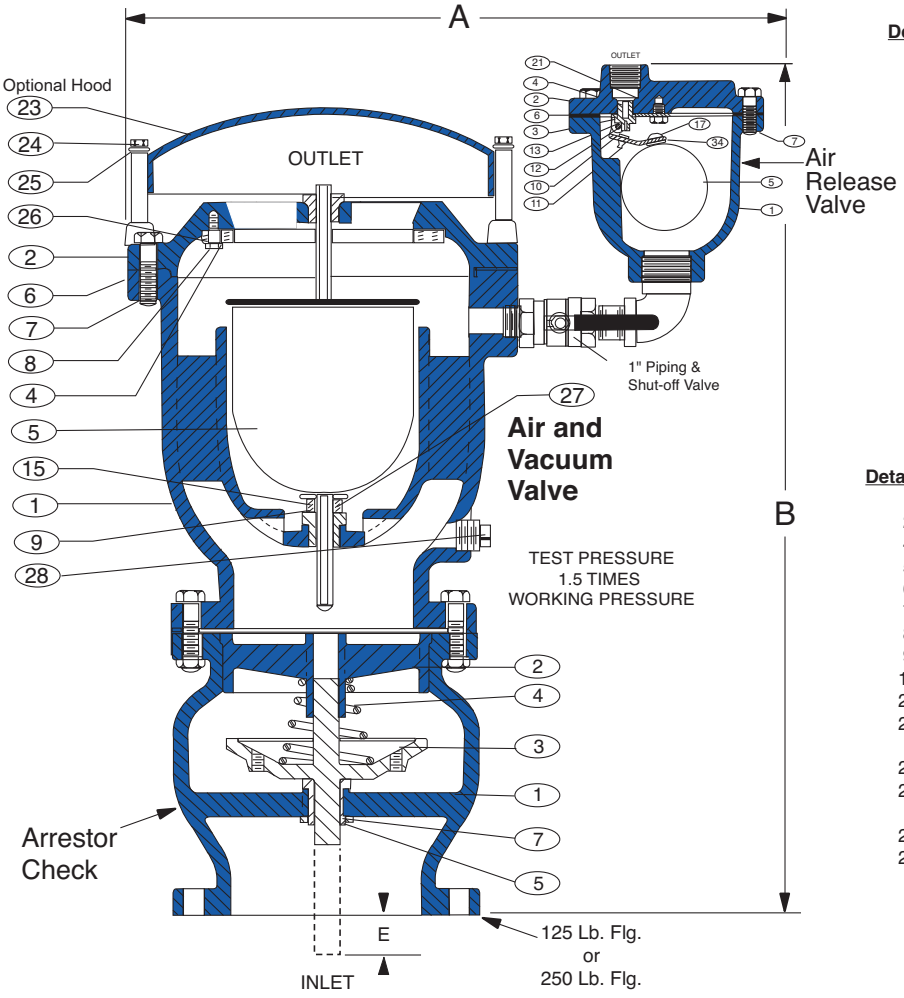
Air Release Valve (Small Orifice)

Detail No.	Part Name	Material
1	Body	Ductile Iron ASTM 536 65-45-12
2	Cover	Ductile Iron ASTM 536 65-45-12
3	Lever Frame	Stainless Steel T316, ASTM A276
4	Seat	Stainless Steel T316, ASTM A276
5	Float	Stainless Steel T316, ASTM A276
6	Gasket	Garlock #3000 (Non-Asbestos)
7	Cover Bolt	Alloy Steel SAE Grade 5
10	Float Arm	Stainless Steel T316, ASTM A276
11	Orifice Button	Viton™
12	Pivot Pin	Stainless Steel T316, ASTM A276
13	Pin Retainer	Stainless Steel PH 15-7 Mo
17	Float Retainer	Stainless Steel T316, ASTM A276
21	Locator	Stainless Steel T316, ASTM A276
34	Lock Washer	Stainless Steel T316, ASTM A210

Model No.		Large Orifice Inlet/Outlet	Small Orifice Inches		Inches		Weight Lbs.	
125 Lb.	250 Lb.				A	B		
175 MWP	300 MWP	Inches	125 Lbs.	250 Lbs.	Width	Height	125 Lbs.	250 Lbs.
MTP364-CAV116	MTP364-CAV116.3	4x4	3/32	1/16	20-1/4	20	125	132
MTP366-CAV116	MTP366-CAV116.3	6x6	3/32	1/16	22-3/4	23	175	195
MTP368-CAV116	MTP368-CAV116.3	8x8	3/32	1/16	24-3/4	26	226	255
MTP3610-CAV116	MTP3610-CAV116.3	10x10	3/32	1/16	26-3/4	28	385	425
MTP3612-CAV116	MTP3612-CAV116.3	12x12	3/32	1/16	31-1/4	33	580	625
MTP3614-CAV116	MTP3614-CAV116.3	14x14	3/32	1/16	30-3/4	42	685	750
MTP3616-CAV116	MTP3616-CAV116.3	16x16	3/32	1/16	32	45	875	985

Series MTP36-CAV-AC

125 lb. & 250 lb. Class Combination Air Valve with Arrestor Check (For Slow Closing Action)



Air Release Valve

Detail No.	Part Name	Material
1	Body	Ductile Iron ASTM 536 65-45-12
2	Cover	Ductile Iron ASTM 536 65-45-12
3	Lever Frame	Stainless Steel T316 ASTM A276
4	Seat	Stainless Steel T316 ASTM A276
5	Float	Stainless Steel T316 ASTM A2760
6	Gasket	Garlock #3000 (Non-Asbestos)
7	Cover Bolt	Alloy Steel SAE Grade 5
10	Float Arm	Stainless Steel T316 ASTM A276
11	Orifice Button	Viton™
12	Pivot Pin	Stainless Steel T316 ASTM A276
13	Pin Retainer	Stainless Steel PH 15-7 Mo
17	Float Retainer	Stainless Steel T316 ASTM A276
21	Locator	Stainless Steel T316 ASTM A276
34	Lock Washer	Stainless Steel T316 ASTM A204

Air & Vacuum Valve

Detail No.	Part Name	Material
1	Body	Ductile Iron ASTM 536 65-45-12
2	Cover	Ductile Iron ASTM 536 65-45-12
4	Seat	Buna -N®
5	Float	Stainless Steel T316 ASTM A276
6	Gasket	Lexide Nk-511 (Non-Asbestos)
7	Cover Bolt	Alloy Steel ASTM A449, Grade 5
8	Retaining Screw	Stainless Steel T316, ASTM A276
9	Guide Bushing	Stainless Steel T316, ASTM A276
15	Cushion	Buna-N®
23	Hood (Optional)	Steel - #1020
24	Hood Retaining Screw	Steel (Cadmium Plated)
25	Washer - External	Steel (Cadmium Plated)
26	Seat Retaining Sleeve	Stainless Steel T316, ASTM A276
27	Washer - Internal	Stainless Steel T316, ASTM A276
28	Pipe Plug	Malleable Iron

Arrestor Check

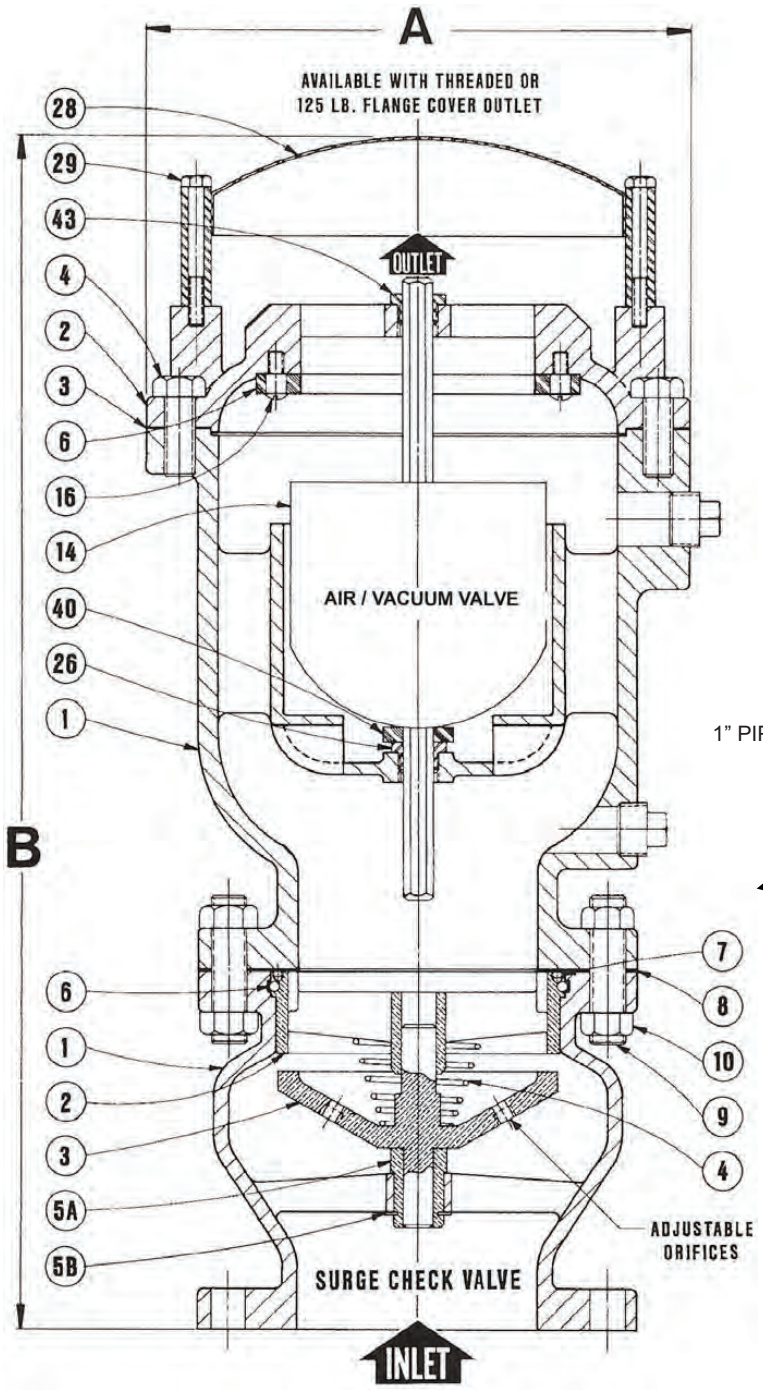
Detail No.	Part Name	Material
1	Body	Ductile Iron ASTM 536 65-45-12
2	Seat	Bronze ASTM B584
3	Plug	Bronze ASTM B584
4	Spring	Stainless Steel T302
5	Bushing	Bronze ASTM B584
7	Retainer	Stainless Steel T316

Valve Size	Model No. 125 LB. / 175 MWP	Model No. 250 LB. / 300 MWP	Large Orifice	Dimensions (inches) A	Dimensions (inches) B	Wt. Lbs. 125	Wt. Lbs. 250
4"	MTP364-CAV/AC	MTP364-CAV/AC.3	4"	19-1/2	27-1/2	175	192
6"	MTP366-CAV/AC	MTP366-CAV/AC.3	6"	22-1/2	32	260	280
8"	MTP368-CAV/AC	MTP368-CAV/AC.3	8"	25-1/2	34-1/2	365	390
10"	MTP3610-CAV/AC	MTP3610-CAV/AC.3	10"	28	39	600	680
12"	MTP3612-CAV/AC	MTP3612-CAV/AC.3	12"	33	45-1/2	900	1026
14"	MTP3614-CAV/AC	MTP3614-CAV/AC.3	14"	42	46-1/2	1165	1230
16"	MTP3616-CAV/AC	MTP3616-CAV/AC.3	16"	45-1/2	50	1376	1685

Note: Manufactured to meet ANSI/AWWA C512-04

Model 37WS

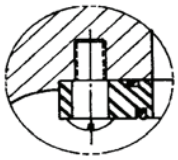
Pipeline and Well Service Valve with Arrestor Check



AIR AND VACUUM VALVE		
DET.	DESCRIPTION	MATERIAL
1	BODY	DUCTILE IRON ASTM 536 65-45-12
2	COVER	DUCTILE IRON ASTM 536 65-45-12
3	GASKET	LEXIDE (NON-ASBESTOS)
4	COVER BOLT	STEEL ASTM A307 Gr. B
6	SEAT [1]	BUNA-N
14	FLOAT	STAINLESS STEEL ASTM A240 T304
16	SEAT SCREW	STAINLESS STEEL ASTM A582 T303
26	GUIDE BUSHING	STAINLESS STEEL ASTM A582 T303
28	HOOD	H. R. S.
29	HOOD SCREW	STEEL ASTM A307 Gr. B
40	BUMPER	BUNA-N
43	GUIDE BUSHING	STAINLESS STEEL ASTM A582 T303

[1] STAINLESS STEEL W/ BUNA-N SEAL FOR 14" & LARGER ON 125LB AND FOR ALL SIZES ON 250LB CLASS

SURGE CHECK VALVE		
DET.	DESCRIPTION	MATERIAL
1	BODY	DUCTILE IRON ASTM 536 65-45-12
2	SEAT	BRONZE ASTM B584 C83600
3	PLUG	BRONZE ASTM B584 C83600
4	SPRING	STAINLESS STEEL ASTM A276 T316
5A	BUSHING	BRASS ASTM B16 C36000
5B	RETAINING RING	STAINLESS STEEL 15-7Mo
6	RETAINING BALL	STAINLESS STEEL ASTM A276 T440
7	RETAINING SCREW	STAINLESS STEEL 18-8
8	GASKET	LEXIDE (NON-ASBESTOS)
9	STUD	STEEL AISI 1018
10	NUT	STEEL ASTM A307 Gr. B



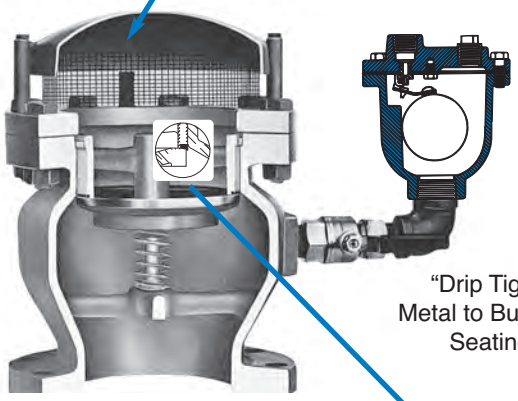
SEAT DETAIL FOR
AIR AND VACUUM VALVE
FOR 125 LB: 14" & LARGER
FOR 250 LB: ALL SIZES

Valve Size (inches)	Model No.	A (inches)	B (inches)	
			125 lb.	250 lb.
4	374WS	11-3/8	25-3/4	25-3/4
6	376WS	13-5/8	30-1/4	30-1/2
8	378WS	17-1/4	34-7/8	35-3/8
10	3710WS	20	38-7/8	39-1/2
12	3712WS	25	45-1/8	45-1/8
14	3714WS	29	46-7/8	46-7/8
16	3716WS	32	49-1/4	49-1/4
18	3718WS	33	61	64-3/8
20	3720WS	40	68-3/4	68-3/4
24	3724WS	44	80-3/4	80-3/4

Series 38VB/AR

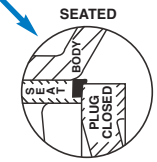
Vacuum Breaker / Air Release Valves for Water Applications

Hooded
Screened Outlet
Standard



This product meets Federal Mandate for Lead Content Limit

"Drip Tight"
Metal to Buna-N®
Seating



Flanged Style
125 Lb & 250 Lb. Class
4" Thru 36" Size

Vacuum Prevention And Slow Air Release For Pressure Surge Control

Cla-Val Vacuum Breakers are reliable and economical pipeline surge control components, requiring no regular maintenance.

Standard valves are designed to open with minimal (1/4 psi) pressure differential across the orifice. Higher or lower relief settings are available.

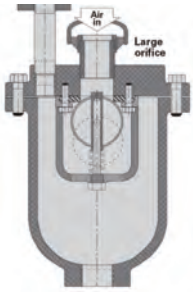
The Vacuum Breaker Valve (Large orifice combined with Air Release Valve (small orifice) are normally closed. But when installed at points where water column separation can occur, both orifices open admitting air into pipeline, then instantly close to trap air and thereby cushioning rejoining of the water column. In this manner severe pressure surge/water hammer is prevented as the system returns to normal operation.

Simultaneously the small orifice Air Release Valve opened due to vacuum and stays open venting the discharge of trapped air from pipeline slowly until gradual normal pipeline pressure is achieved. Various small orifice are available. See small orifice chart.

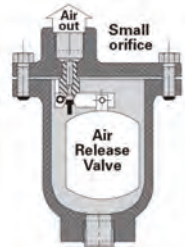
Water column separation in a pipeline may create high levels of vacuum only momentarily, but severe damage, such as a pipeline rupture can occur when the water column rejoins. Also momentarily vacuum conditions can easily cause a thin wall pipeline or sealed water tank to collapse due to vacuum when draining fluid. Metal to Buna-N® insures "drop tight" seal at any pressure. For these reasons it is sound engineering practice to use Cla-Val Vacuum Breaker Air Release Valves to prevent water column separation in pipelines and collapse of tanks.

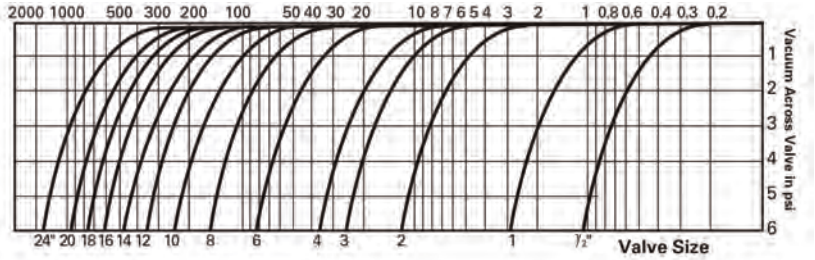
Air Inflow through Valve in Standard Cubic Feet of Free Air/Second (scfs)

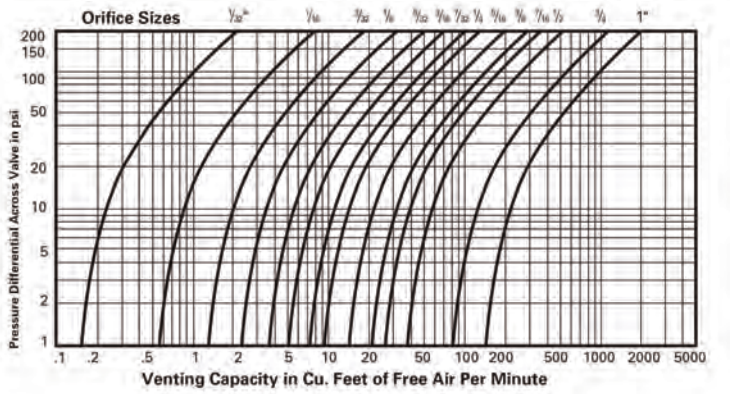
Inflow: Large Orifice Air Inlet/Vacuum Valves



Outflow: Small Orifice Air Release Valves



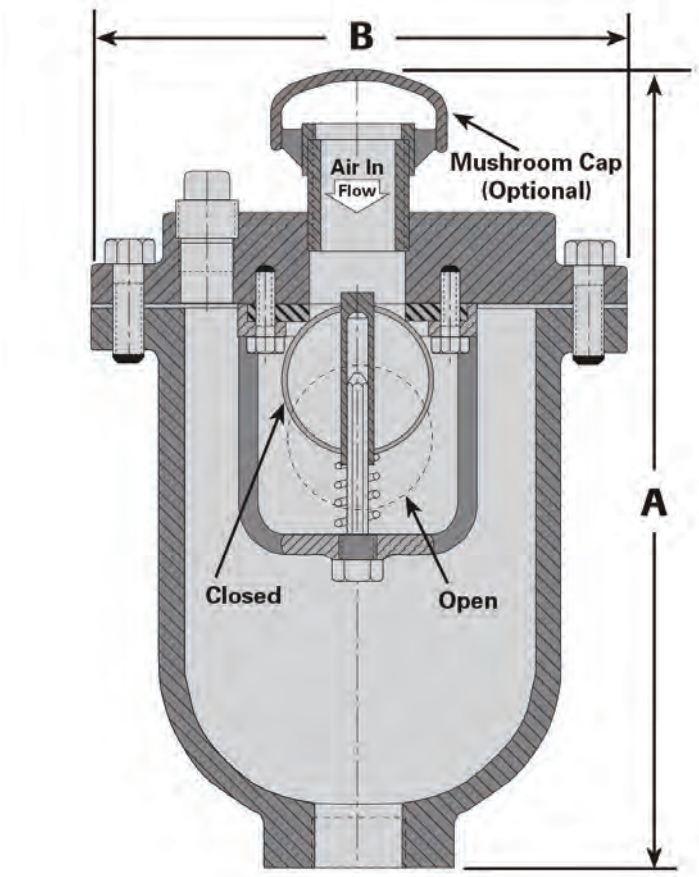


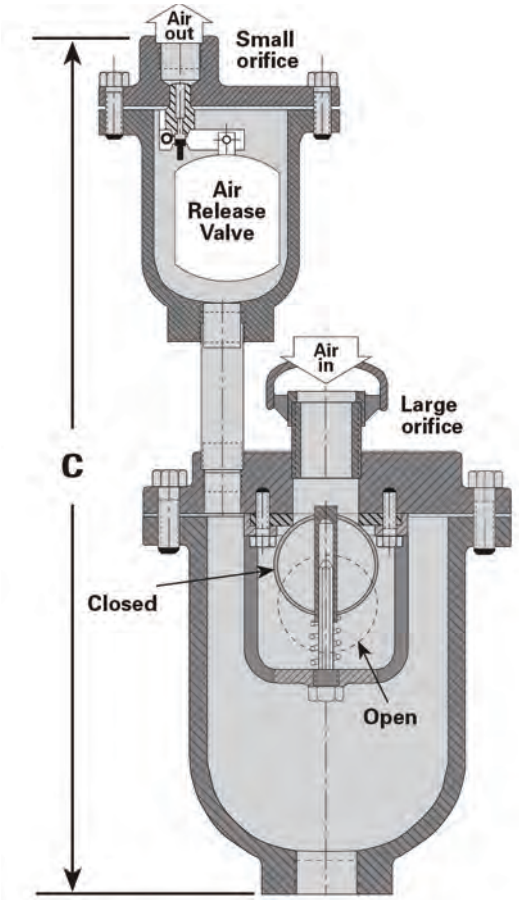


Series 38VB/AR

Vacuum Breaker / Air Release Valves for Water Applications

Sizing





Dimensions

Valve Size and Orifice (inches)	Model	A	B	C
0.5	380VBT	12.5"	5"	--
1	381VBT	14"	7"	20"
2	382VBT	17"	9.5"	23"
3	383VBT	20"	9.5"	26"

Orifice Selection Chart

Pressure Range (psi)		Air Release Valve
0 - 150	0 - 300	
.094"	.063"	34AR116

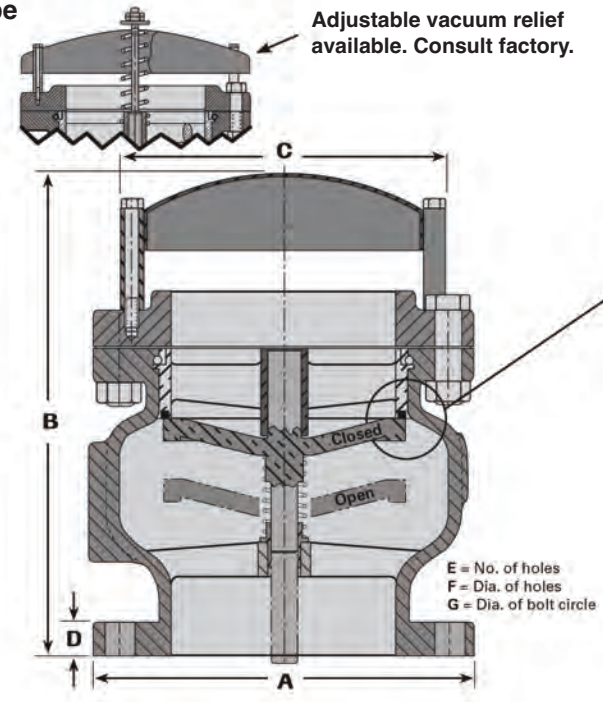
visit www.cla-val.com to see our complete line of air and check valves.

Series 38VB/AR

Vacuum Breaker / Air Release Valves for Water Applications

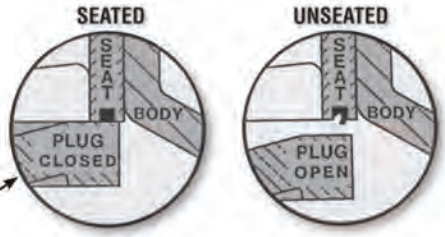
Size		3"	4"	5"	6"	8"	10"	12"	14"	16"	18"	20"	24"	30"	36"
Model Number		383VB	384VB	385VB	386VB	388VB	3810VB	3812BV	3814VB	3816VB	3818VB	3820VB	3824VB	3830VB	3836VB
		383VB/AR	384VB/AR	385VB/AR	386VB/AR	388VB/AR	3810VB/AR	3812BV/AR	3814VB/AR	3816VB/AR	3818VB/AR	3820VB/AR	3824VB/AR	3830VB/AR	3836VB/AR
125# Class	A	7.5"	9"	10"	11"	13.5"	16"	19"	21"	23.5"	25"	27.5"	32"	38.75"	46"
	B	11"	12.5"	13.5"	14"	15.75"	18"	20.75"	23"	27.5"	28.5"	30.5"	36"	43.3135"	57"
	C	6"	7"	10"	10"	12"	16"	18"	18"	18"	24"	28"	32"	38"	44"
	D	1.313"	1.313"	1.313"	1"	1.125"	1.188"	1.25"	1.375"	1.438"	1.563"	1.688"	1.875"	2.125"	2.375"
	E	4"	8"	8"	8"	8"	12"	12"	12"	16"	16"	20"	20"	28"	32"
	F	.75"	.75"	.875"	.875"	.875"	1"	1"	1.125"	1.125"	1.25"	1.25"	1.375"	1.375"	1.625"
	G	6"	7.5"	8.5"	9.5"	11.75"	14.25"	17"	18.75"	21.25"	22.75"	25"	29.5"	36	42.75"
K	34AR	12.25"	14.25"	15"	15.25"	17.25"	19.25"	20.75"	22"	23.75"	24.5"	26.25"	29"	32.75"	37"
L	34AR	14.75"	15.5"	16"	16.25"	16.25"	17.75"	19"	19.5"	20.75"	21.25"	22.25"	23.75"	26.5"	34.25"

38BV Flanged Type

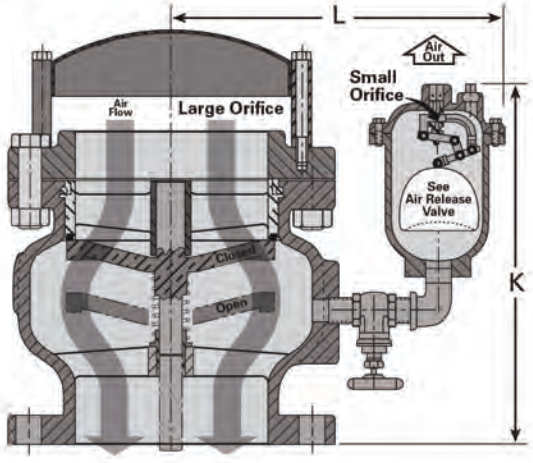


Adjustable vacuum relief available. Consult factory.

Compression molded seat seal is guaranteed not to come out for the life of the valve. The unique shape of the molded seat will not be damaged from extrusion when seated.



38BV/AR Vacuum Breaker with Air Release



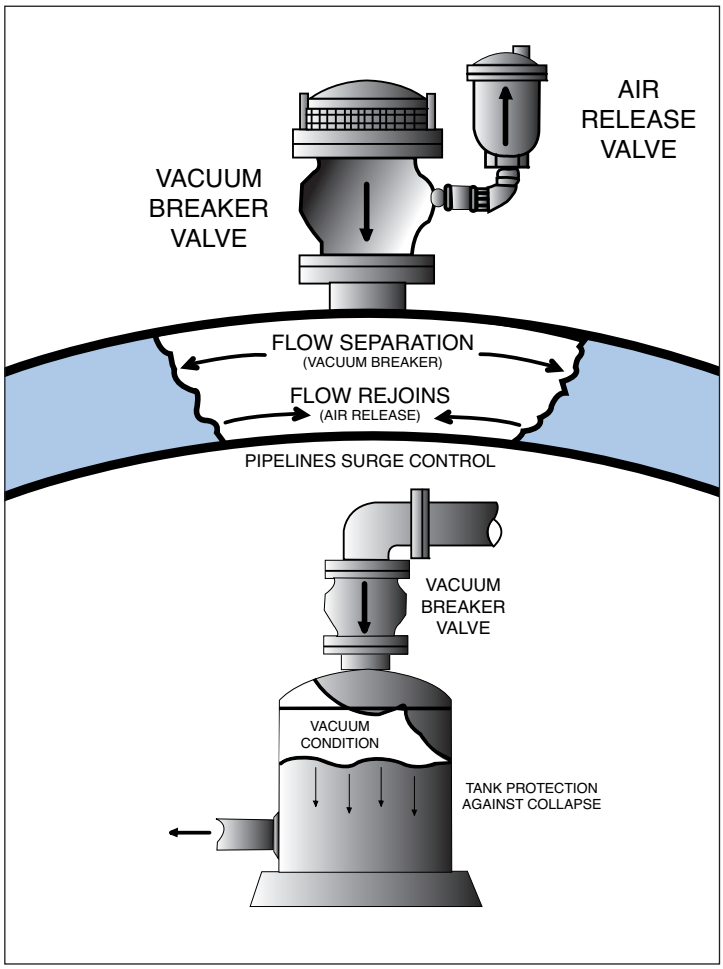
Orifice Selection Chart

Pressure Range (psi)		Air Release Valve
0 - 150	0 - 300	
.094"	.063"	34AR116
.188"	.156"	34AR316
.375"	.219"	34AR316

Series 38VB/AR

Vacuum Breaker / Air Release Valves for Water Applications

Typical Applications



Other typical applications include:

1. Centrifugal pumps
2. Hydropneumatic tanks
3. Enclosed systems
4. Sewage lines

When Ordering, Please Specify:

1. Model Number
2. Inlet Size (NPT)
3. Inlet Pressure Rating
4. Orifice Size

This product meets the Federal Mandate for Lead Content Limits

Materials of Construction

Description	Material	Specification
Body and Cover	Ductile Iron	ASTM A 536 GR 65-45-12
Baffle 1/2", 1"and 2"	Delrin	ASTM D4181
Baffle 3"	Cast Iron	ASTM A48 Cl. 30
Plug and Seat	Lead-Compliant Bronze	ASTM B584
Plug - 30" and 36"	Ductile Iron	ASTM A536 65-45-12
Exterior Paint	Universal Metal Primer	FDA Approved for Potable Water
Float	Stainless Steel	ASTM A240
Seat Needle	Buna-N	Nitrile rubber
Spring	Stainless Steel	ASTM A276
Hood	Galvanized Iron or Steel	Commercial Grade
Lever Mechanism	Stainless Steel	ASTM A351 T316

Series 34-WW
Wastewater Service Air Release Valves

This product meets Federal Mandate for Lead Content Limit

- **Stainless Steel Trim Standard**
- **Stainless Steel Floats Guaranteed**
- **Easily Serviced Without Removal From Pipeline**
- **Engineered For Drip Tight Seal At Low Pressures**
- **Optional Backwash Kit Available**

The Cla-Val Series 34WW Air Release Valve is specially designed for sewage service. It will protect pipelines from entrained air or gases that collect at high points in sewage pipelines. This valve effectively eliminates air from a system by releasing small amounts of air before large air pockets can occur. In extreme cases, the continued accumulation of air without release valves can actually stop flow completely. Increased power consumption and associated power costs can be anticipated if systems are not properly designed to release accumulated air.

During normal operation, air and gas accumulation will displace the liquid within the valve and lower the liquid level in relation to the float. When the level of the liquid lowers to where the float is no longer buoyant, the float will lower and using a mechanical lever will open the valve seat to permit the accumulated air to be exhausted to atmosphere. As air is released, liquid level in the valve raises the float and closes the valve seat. This cycle is automatically repeated as often as necessary.

Installation

Series 34WW Air Release Valves are typically installed at high points in pipelines and at regular intervals of approximately 1/2 mile, along horizontal pipelines.

Mount the unit in the vertical position on top of the pipeline with an isolation valve installed below each valve in the event servicing is required. A vault with adequate venting and drainage should also be provided.

For regular cleaning to keep sewage equipment in good working condition use the optional customer installed BWKT Backwash Kit with back flushing hose and quick disconnect couplings.

General Specifications

Sizes
2", 3", 4" NPT

Pressure Ratings
150 psi with 1/4" Orifice
300 psi with 5/32" Orifice

Note: Specify when operating pressure below 10 psi

Materials
Body and Cover:
Ductile Iron
ASTM A536 65-45-12

Float:
Stainless Steel

Internal Parts:
Stainless Steel

Seal:
Buna N® Rubber

Purchase Specifications

The air release valve shall be of the float operated, compound lever design, and capable of automatically releasing accumulated air, gas or vapor from a pressurized fluid system while it is in operation.

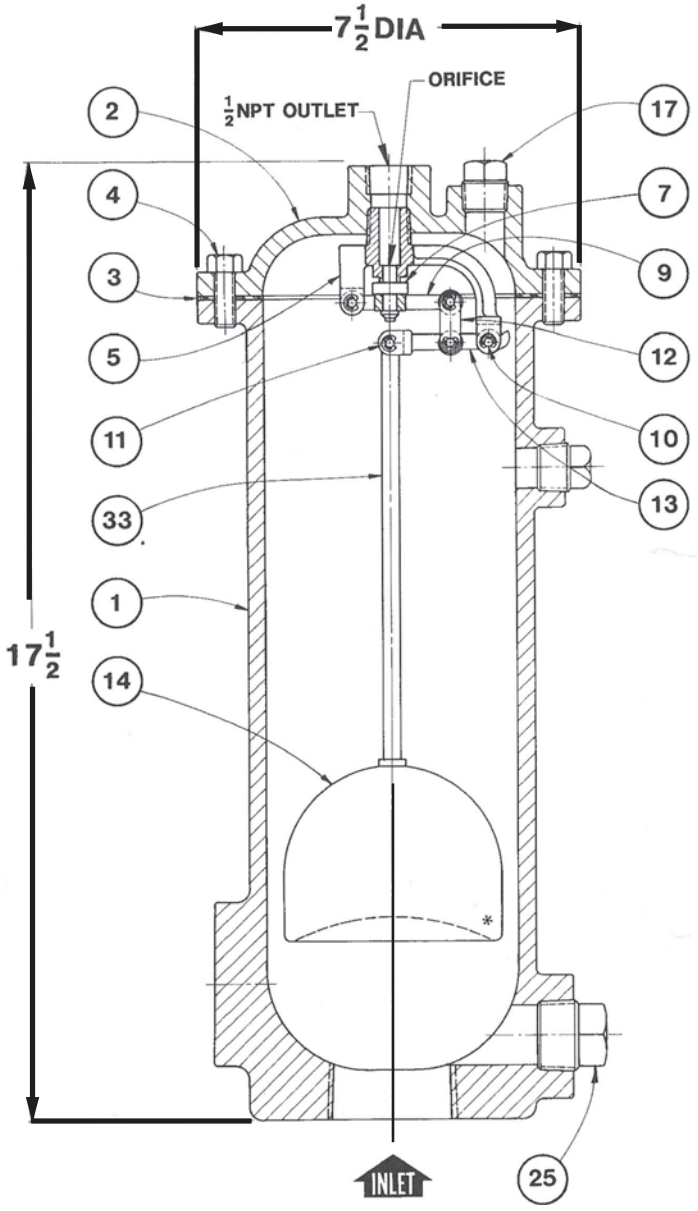
An adjustable featured orifice shall be used to seal the valve discharge port with drip-tight shut-off. The orifice diameter must be sized for use within a given operating pressure range to insure maximum discharge capacity.

The float shall be of all stainless steel construction and capable of withstanding maximum system surge pressure without failure. The body and the cover shall be of ductile iron and the valve internal parts shall be of stainless steel with a Buna-N® rubber seat.

The air release valve shall be Series 34WW from Cla-Val, Newport Beach, CA, U.S.A.

CLA-VAL 1701 Placentia Ave • Costa Mesa CA 92627 • Phone: 949-722-4800 • Fax: 949-548-5441 • E-mail: info@cla-val.com • www.cla-val.com

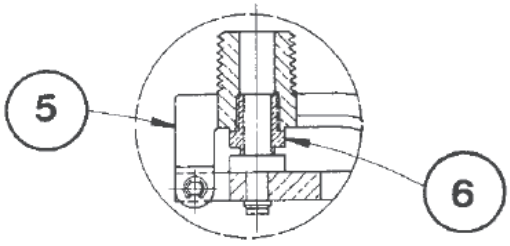
Series 34WW
Sewage Air Release Valve



#	ITEM
1	BODY
2	COVER
3	COVER GASKET
4	COVER BOLT
5	LEVERAGE FRAME
6	SEAT (5/16 orifice only)
7	NEEDLE
9	NEEDLE LEVER
10	LEVER PIN
11	RETAINING RING
12	CONNECTING LINK
13	FLOAT LEVER
14	FLOAT *
17	1/2" NPT PIPE PLUG
25	1" NPT DRAIN PLUG
33	FLOAT STEM

*CONCAVE FLOAT PATENTED

INLET-ORIFICE SELECTION CHART				
OPERATING PRESSURE PSI	ORIFICE DIA	INLET SIZE		
		2" NPT	3" NPT	4" NPT
0-50	5/16"			
51-150	1/4"	STD		
151-300	5/32"			



SEAT DETAIL
FOR 5/16 ORIFICE

Series 35-WW
Wastewater Service
Air and Vacuum Valves

This product meets Federal Mandate for Lead Content Limit

- **Stainless Steel Trim Standard**
- **Stainless Steel Floats Guaranteed**
- **Fully Ported Valves - No Restrictions**
- **Designed For Drip Tight Seal At Low Pressures**
- **Optional Backwash Kit Available**

The Cla-Val Series 35WW Air and Vacuum Valve is designed to perform two separate functions in a sewage or wastewater system. First, it will allow large quantities of air to be exhausted from the pipeline as it is being filled. When this air has been vented completely, liquid will enter the valve causing the float to seal tightly against the seat. Secondly, if the line is being drained, the valve responds to the loss in pressure and opens. This allows air to re-enter the pipeline and prevents potentially damaging vacuum from developing.

The Series 35WW does not open under pressure to exhaust small quantities of air which may collect at high points during normal system operation. Model 34WW Air Release Valve is required for this function. For both functions, select Model 36WW Combination Air Release and Vacuum Valve.

Installation

Series 35WW Air and Vacuum Valves should be installed at high points or at grade changes within the pipeline. Mount the unit in the vertical position on top of the pipeline with isolation valve below each valve in the event servicing is required. A vault with adequate venting and drainage should also be provided.
For regular cleaning to keep sewage equipment in good working condition use the optional customer installed BWKT Backwash Kit with back flushing hose and quick disconnect couplings.

Purchase Specifications

The air and vacuum valve shall be able to automatically exhaust large quantities of air during filling of a pipeline and allows air to re-enter pipeline during the draining or when a negative pressure occurs.

The inlet and outlet of the valve shall have the same cross-section area. The float shall be guided by a synthetic rubber seal.

The float shall be of all stainless steel construction and capable of withstanding maximum system surge pressure without failure. The body and cover shall be concentrically located and of ductile iron and the valve internal parts shall be of stainless steel with Buna-N® rubber seat.

The Air and Vacuum Valve shall be manufactured per ANSI/AWWA C512-04 Series 35WW from Cla-Val Newport Beach, CA, U.S.A.

Specifications

Sizes
2", 3", 4" NPT
4", 6" 8" flanged ANSI
Class 125 lb.
Class 250 lb.

Pressure Rating
150 psi & 300 psi ratings

NOTE: SPECIFY WHEN OPERATING PRESSURE BELOW 10 PSI

Materials
Body and Cover:
Ductile Iron ASTM A536 65-45-12

Float:
Stainless Steel

Internal Parts:
Stainless Steel

Seal:
Buna-N® Rubber

When Ordering, Please Specify:

1. Model Number
2. Inlet Size
3. Optional Backwash Kit

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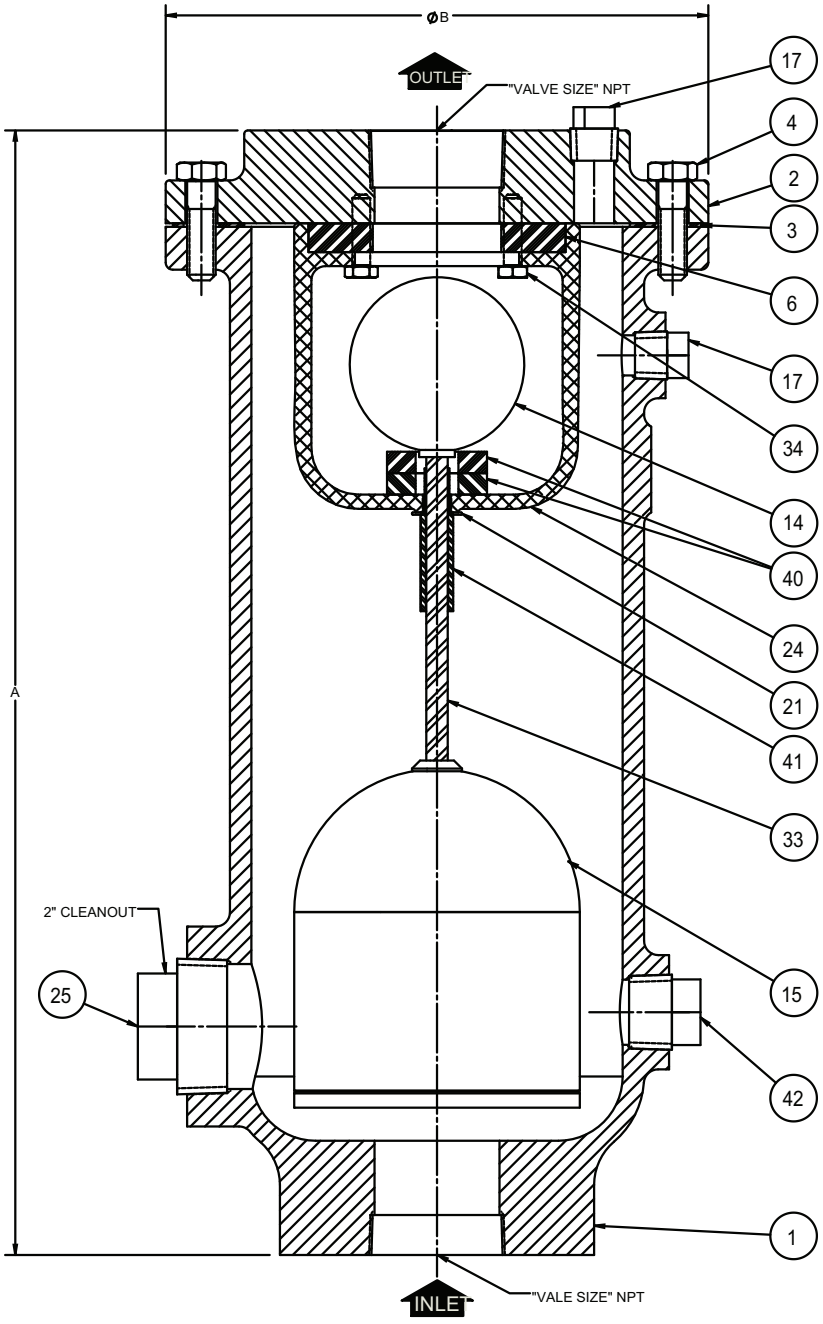
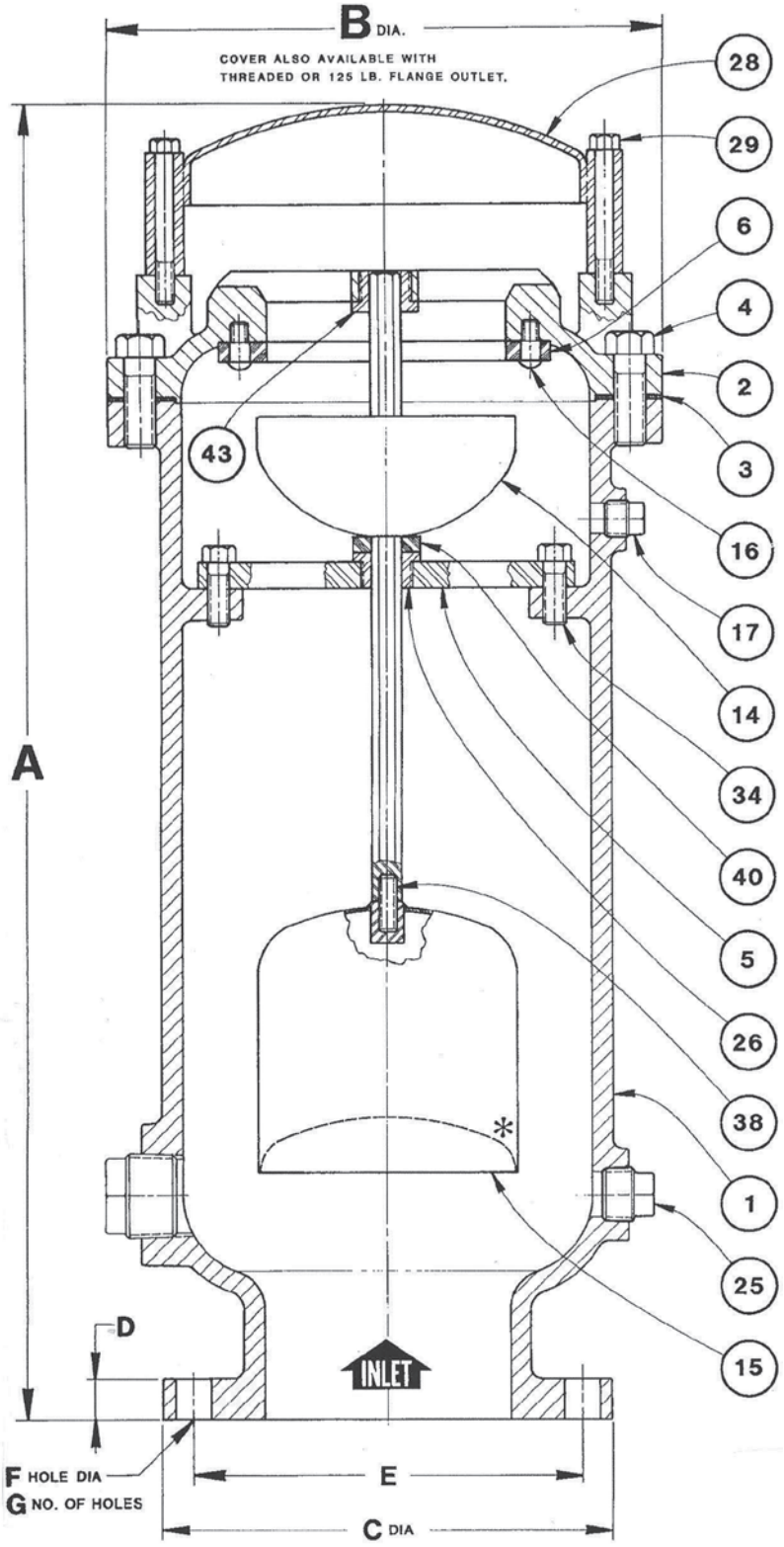
Series 35WW -1″ - 3″
Sewage Combination Air Valve

VALVE SIZE	INLET	OUTLET	A	B
1"	2" NPT	1" NPT	16.25	7.00
2"	2" NPT	2" NPT	19.75	9.50
3"	3" NPT	3" NPT	19.75	9.50



DET	DESCRIPTION	QTY
1	BODY	1
2	COVER	1
3	COVER GASKET	1
4	COVER BOLT	-
6	SEAT	1
14	UPPER FLOAT	1
15	LOWER FLOAT	1
17	1/2" NPT PIPE PLUG	2
21	LOCK WASHER	1
24	BAFFLE	1
25	2" NPT PIPE PLUG	1
33	FLOAT STEM	1
34	BAFFLE SCREW	4
40	BUMPER	2
41	FLOAT GUIDE	1
42	1" NPT PIPE PLUG	1

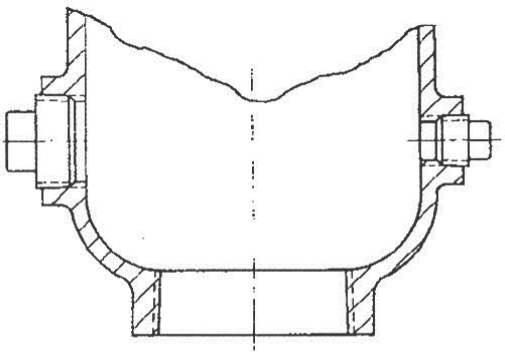
Series 35WW- 4″ & Larger
Sewage Combination Air Valve



DET	DESCRIPTION
1	BODY
2	COVER
3	COVER GASKET
4	COVER BOLT
5	GUIDE PLATE
6	SEAT
14	UPPER FLOAT
15	LOWER FLOAT *
16	SEAT RETAINING SCREW
17	½ N.P.T. PIPE PLUG
25	1" N.P.T. DRAIN PLUG
26	BOTTOM GUIDE BUSHING
28	HOOD
29	HOOD SCREW
34	GUIDE PLATE SCREW
38	FLOAT SET SCREW
40	BUMPER
43	TOP GUIDE BUSHING

F1 (125/150) F2 (250/300)

NOTE: VALVE SIZE 4", MODEL 404 IS AVAILABLE W/ A NIPPLE & FLANGE INLET



4" INLET DETAIL

Series 36-WW
Wastewater Service
Combination Air Valves

This product meets Federal Mandate for Lead Content Limit

- **Stainless Steel Trim Standard**
- **Stainless Steel Floats Guaranteed**
- **Fully Ported Valves - No Restrictions**
- **Engineered For Drip Tight Seal At Low Pressures**
- **Optional Backwash Kit Available**

The Cla-Val Series 36WW Combination Air and Vacuum Valve is a multipurpose valve that combines the operation of both the Series 34WW Air Release Valve and Series 35WW Air and Vacuum Valve, especially for sewage and wastewater applications. It functions to exhaust large quantities of air in the pipeline during the filling cycle and to admit air, as necessary, to prevent a potentially dangerous vacuum from forming when being emptied either intentionally or as a result of pipeline breakage.

Note: Cla-Val Air Valves are manufactured to meet ANSI-AWWA C512-92 Standards.

Installation

The Series 36WW Combination Air Valve should be installed at high points and grade changes within the pipeline.

Mount the unit in the vertical position on top of the pipeline with an isolation valve installed below each valve in the event servicing is required. A vault with adequate venting and drainage should also be provided.

For regular cleaning to keep sewage equipment in good working condition use the optional customer installed BWKT Backwash Kit with back flushing hose and quick disconnect couplings.

Purchase Specification

The combination air valve shall combine the operating features of both an air and vacuum valve and an air release valve in one housing. The air and vacuum valve portion shall automatically exhaust large quantities of air during the filling of the pipeline and automatically allow air to reenter the pipeline when the internal pressure of the pipeline approaches a negative value due to column separation, draining of the pipeline, or other emergency. The air release valve portion shall automatically release small amounts of air from the pipeline while it is under pressure.

The inlet and outlet of the valve shall have the same cross-section area. The float shall be guided by a stainless steel guide shaft and seat drip-tight against a synthetic rubber seal.

The float shall be of all stainless steel construction and capable of withstanding maximum system surge pressure without failure. The body and cover shall be concentrically located and of ductile iron and all valve internal parts shall be stainless steel with Buna-N® rubber seat. Must be Manufactured per ANSI/AWWA C512-04

The Combination Air Release and Vacuum Valve shall be Model 36WW from Cla-Val., Newport Beach, CA, U.S.A.

Specifications

Sizes - Inlet & Outlet
2", 3", 4" NPT

Working Pressure Ratings
175 psi & 300 psi ratings

Standard Pressure
Air Release Orifice
1/8" Diameter

NOTE: SPECIFY WHEN OPERATING PRESSURE BELOW 10 PSI

Materials
Body and Cover:
Ductile Iron ASTM 536 65-45-12

Float:
Stainless Steel

Internal Parts:
Stainless Steel

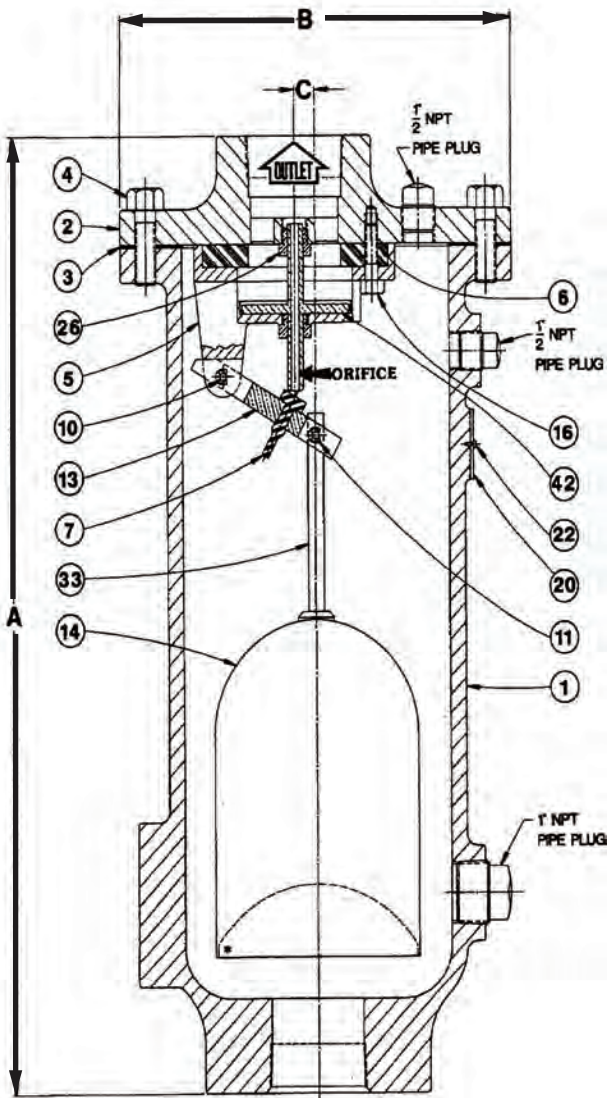
Seal:
Buna-N® Rubber

When Ordering, Please Specify

1. Model Number
2. Inlet Size (minimum is 2" NPT)
3. Inlet Pressure Rating
4. Orifice Size (175 psi 1/8") (300 psi 3/32")
5. Optional Backwash Kit (see page 70)

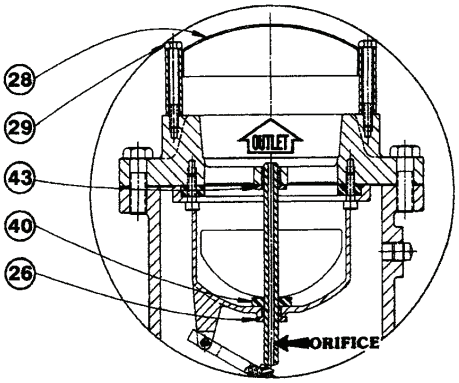
CLA-VAL 1701 Placentia Ave • Costa Mesa CA 92627 • Phone: 949-722-4800 • Fax: 949-548-5441 • E-mail: info@cla-val.com • www.cla-val.com

Series 36WW
Sewage Combination Air Valve



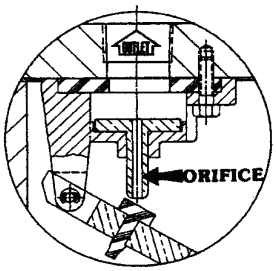
DET	DESCRIPTION
1	BODY
2	COVER
3	COVER GASKET
4	COVER BOLTS
5	LEVERAGE FRAME
6	SEAT
7	NEEDLE
10	LEVER PIN
11	RETAINING RING
13	FLOAT LEVER
14	CONCAVE FLOAT *
16	FRAME SCREW
20	IDENTIFICATION PLATE
22	PLATE RETAINER
26	GUIDE BUSHING
28	HOOD [2]
29	HOOD SCREW [2]
33	FLOAT STEM
40	BUMPER [2]
42	PLUG [1]
43	TOP GUIDE BUSHING [2]

[1] STANDARD MATERIAL FOR PLUG FOR SIZE 6"IS STAINLESS STEEL ASTM A240
[2] AVAILABLE ONLY ON SIZE 6"- OPTIONAL ON SMALLER SIZES



Orifice Detail

DIMENSIONS							PRESSURE - ORIFICE SELECTION CHART		
							OPERATING PRESSURE (psi)	0 to 150	151 to 300
VALVE SIZE	MODEL NO.	INLET	OUTLET	A	B	C	ORIFICE DIAMETER (inches)	7/32	5/32
1	36WW21	2" NPT	1" NPT	19-1/2"	9-1/2"	1-1/2"			
2	36WW22	2' NPT	2" NPT	20-1/2"	9-1/2"	1/2"			
3	36WW33	3"NPT	3" NPT	23-1/2"	11"	0			
4	36WW44	4"NPT	4" NPT	23-1/2"	11"	0			
6	36WW66	6" 125 Lb. Flange	6"	35"	13-3/4"	0			



Orifice Detail

Series 501A

Wafer Swing Check Valve

Standard Style
2”-12”

- **Low Head Loss**
- **Watertight Nitrile Seat**
- **Spring Assisted, Fast Closure**
- **Extremely Light Weight**

Cla-Val Series 501A Wafer Swing Check Valve has a quick, spring-assisted closure that minimizes the possibility of water hammer. The swing check design offers low head loss and a full-flow passageway making it ideal for water or waste-water applications. The short lay length of the valve allows for a space-saving design. It is available in sizes 2” to 30”, with either a 125 lb. or 150 lb. pressure class rating.

Available in a variety of materials, including all 316 stainless steel, the Cla-Val Wafer Swing Check Valve uses a standard soft seat to ensure a drip-tight seal. For ease of installation, valves 6” and larger are supplied with a tapped hole to mount an eye bolt for lifting. All materials conform to ASTM specifications, ensuring performance reliability.

SPECIFICATIONS

The wafer swing check valve shall have torsional a spring-assisted fast closure to minimize possibility of water hammer. The valve shall be constructed of either cast iron or steel body.

The body shall have a machined dovetail groove to retain a field replaceable Nitrile (Buna-N®) Seal that provides water-tite shut-off at low/high pressure

The valve disc/arm assembly shall be one piece design utilizing an integral disc arm for connection to the shalt for positive shut-off and no disc flutter.

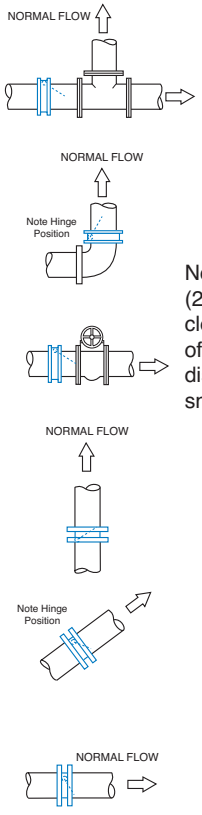
For corrosion resistance the valve shall be Electroless Nickel Plated

Valve Body:
2" -12" Cast Iron ASTM A48
Electroless-Nickel Plated
14" - 30" Carbon Steel ASTM A216 WCB
Electroless-Nickel Plated

Valve Trim:
2" - 12" 316 Stainless Steel ASTM A23,
14" - 30" Carbon Steel ASTM A216 WCB
Electroless-Nickel Plated
Seat O-ring: Nitrile, Other Seat Materials Available

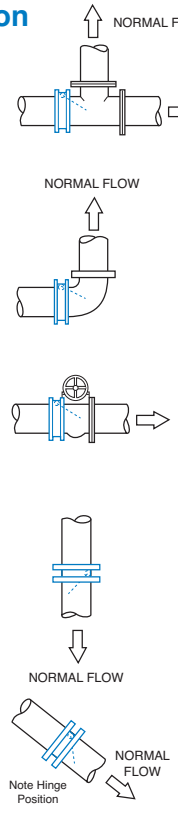
All materials conform to ASTM specifications, The valve shall be a Cla-Val Series 501A Wafer Swing Check Valve, Newport Beach, CA 92659-0325

Typical Applications with Correct Valve Location



Note: Allow minimum (2) pipe diameters clearance downstream of check valve with disc open to promote smooth flow

Avoid These Applications with Incorrect Valve Location

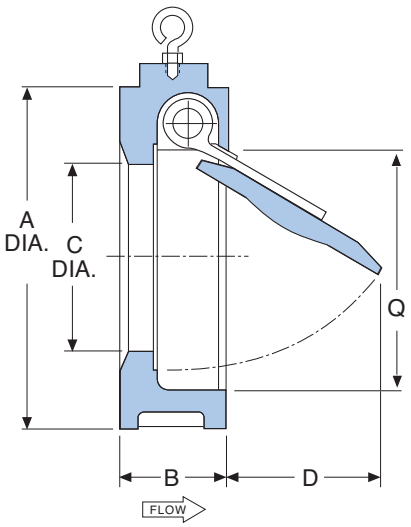


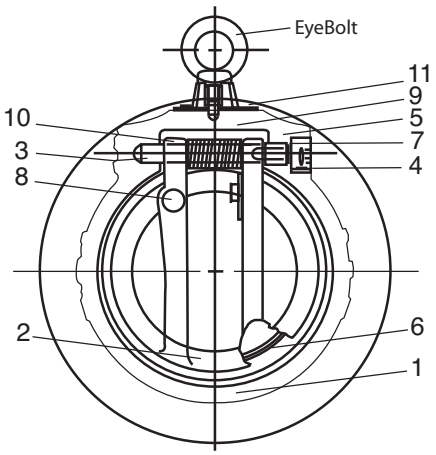
Recommendations for Installation Position
1. Install the valve in horizontal or upward flow for proper valve closure.
Caution: Do not use with reciprocating compressors, or in other pulsating services.

Series 501A - Wafer Swing Check Valves (Standard) 2" - 12"

Dimensions (In Inches)

Size	A	B	C	D	E (Deg.)	Q	Wt.Lbs.
2	4 1/8	1 11/16	1 3/8	13/16	59	2	3.1
2 1/2	4 7/8	1 13/16	1 3/4	1 1/16	60	2 7/8	4.2
3	5 3/8	2 1/2	2 3/8	1 1/8	62	3	6.6
4	6 3/4	2 1/2	3 1/8	1 5/8	60	4	8.1
5	7 3/4	2 3/4	3 7/8	2 1/2	61	5	12.3
6	8 3/4	3	4 1/2	3 3/4	72	6	18
8	11	3 1/2	6 1/4	4 3/4	70	7 3/4	27.3
10	13 3/8	4 1/2	7 5/8	5 3/4	66	9 3/4	51.3
12	16 1/8	4 1/2	9 1/2	7 3/8	65	11 3/4	72.6





No.	Description	Material	Specifications
1	Body	Cast Iron or Steel	ASTM A48 / ASTM A216
2	Disc	316 Stainless Steel	ASTM A473 / A743M - CF8M
3	Shaft	316 Stainless Steel	ASTM A276
4	Plug	304 Stainless Steel	ASTM A276
5	Seat (Shaft)	PTFE	-
6	Seat (Body)	Nitrile or Viton™	Commercial
7	Bushing	316 Stainless Steel	ASTM A276
8	Travel Stop	316 Stainless Steel	ASTM A276
9	Tag	Aluminum	-
10	Spring	304 Stainless Steel	-

Technical Data

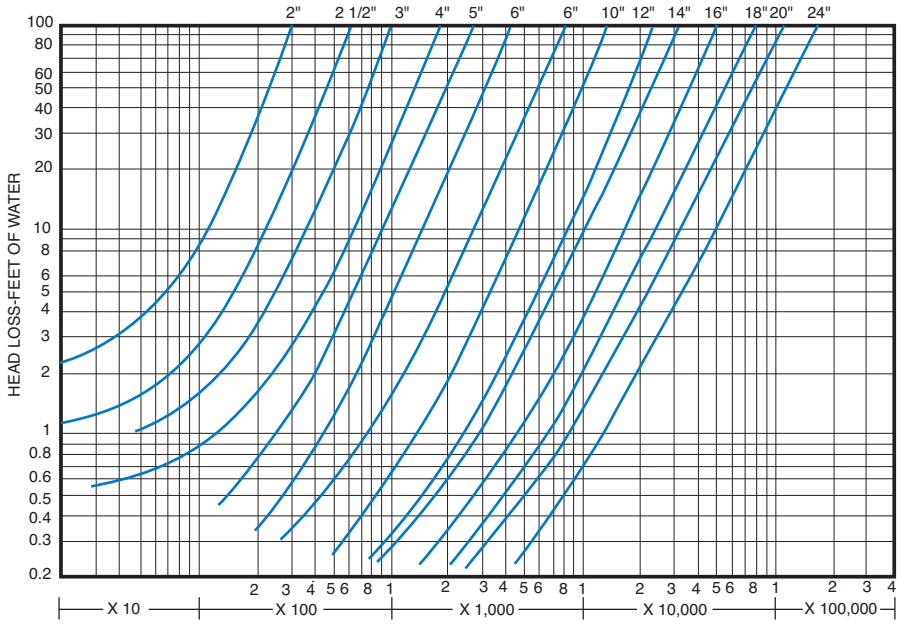
Pressure Rating: 235 Max psi

Temperature Range:- 5° to 210° F

Disc Cracking Pressure: All Valves equal approximately 0.5 psi

Fluids: Water, Wastewater, Chemicals and Petroleum

Series 501A Pressure Loss Curve



FLOW U.S. GALLONS PER MINUTE
MAXIMUM RECOMMENDED VELOCITY: 25 FEET PER SECOND

Be Informed:

Check valves are vital components of many systems. Their purpose is simple: to prevent the reversal of flow rather than stopping, starting, or throttling flow. Reverse flow may be merely a nuisance, or it can cause severe damage to equipment contamination of potable water supplies, or hazardous conditions resulting from the uncontrolled mixing of various fluids in pipelines.

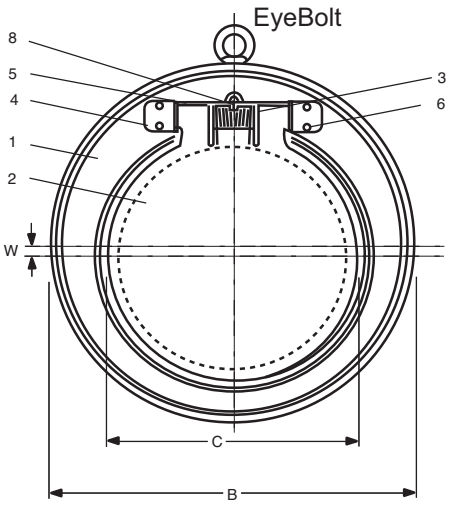
When Ordering, Please Specify

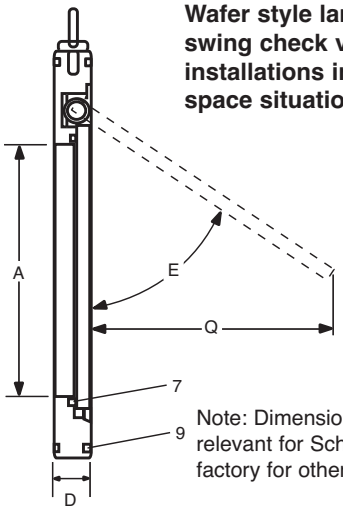
1. Catalog No. 501A
2. Valve Size
3. Seat O-Ring Material
4. Body & Trim Material

** 30" Consult Factory

Valve Size	Inches	2	2 1/2	3	4	5	6	8	10	12	14	16	18	20	24	30
	mm	50	65	80	100	125	150	200	250	300	350	400	450	500	610	750
Cv Factor	Gal/Min	61	116	208	325	551	843	1640	2702	3996	5732	8548	11846	14327	22132	**
	Liters/Sec	3.85	7.32	13.12	20.5	34.76	53.18	103.47	170.47	252.11	361.63	539.29	747.36	903.89	1396.31	**

Series 501A - Wafer Swing Check Valves (Compact) 14" - 30"





Wafer style large diameter swing check valves for installations in minimum space situations.

Note: Dimensions E & Q are only relevant for Sch. 40 pipe. Consult factory for other pipe I.D.

Features

- The compact wafer thin body provides extreme low weight.
- Minimum width of body allows installation between various flange standards.
- Seating O-Ring placed in groove on body and is easily replaceable.
- Low pressure shut-off, even at very low differential pressure; due to disc rotational axis location; which fully closes the valve.

Dimensions (Inches)

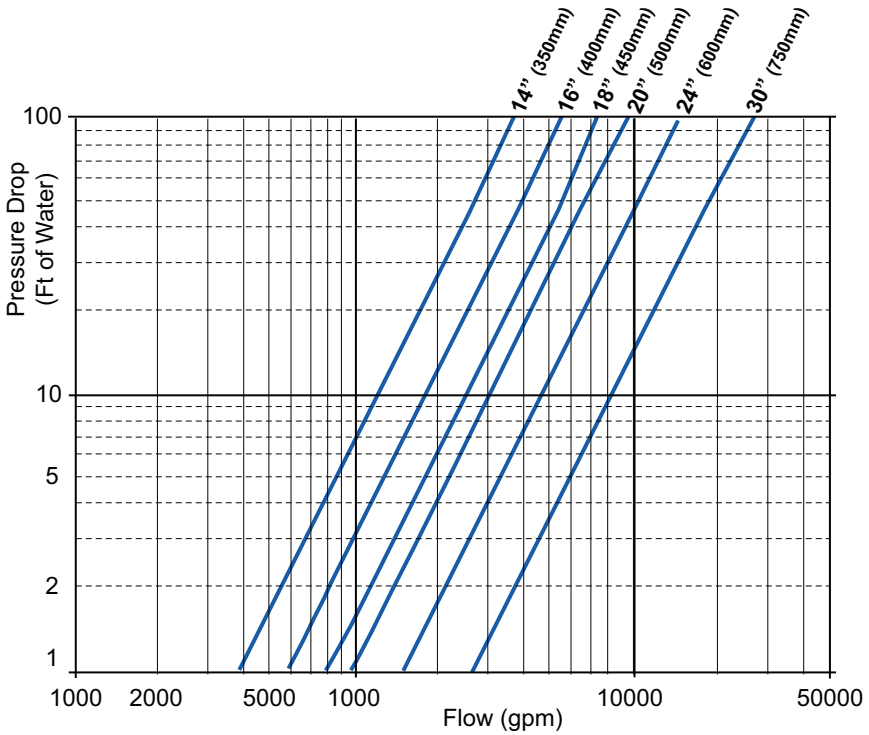
Size	A	B	C	D	E (Deg.)	Q	W	Wt.Lbs.
14	10 ½	17 ½	11 ½	1 ½	56	10	⅝	40
16	12	20 ½	13 ¼	2	56	11 ½	13/32	58
18	14	21 ½	15	2	52	12 ½	13/32	69
20	16	23 ¾	17	2 ⅓	49	13 ½	11/16	110
24	19	28 ½	20 ½	3	47	15 ¾	11/16	162
30	25	35	26 ½	3	44	19 ½	11/16	290

Note: Q = Is the maximum dimension the disc extends from the face of the valve
K_V = The flow rate of water in gpm that passes through a valve with a pressure drop of 1 bar (14.5 psi) @68° F.
$K_V = C_V / 1.168$
Dimensions are moninal in
W = Is the offset between the disc centerline and the valve centerline. $\pm \frac{1}{64}$"

No.	Description	Material	Specifications
1	Body*	Carbon Steel (Electro-Galvanished Plated)	AS1204 Grade 250
2	Disc*	Carbon Steel (Electro-Galvanished Plated)	AS1204 Grade 250
3	Shaft	316 Stainless Steel	ASTM A276 UNS S31600
4	Pivot Block	304 Stainless Steel	ASTM A276 UNS S31600
5	Washer	316 Stainless Steel	AISI 316 Stainless Steel
6	Cap screws	316 Stainless Steel	AISI 316 Stainless Steel
7	Seat O-Ring	Buna-N® (Standard)	Viton™ (Optional)
8	Spring	316 Stainless Steel	ASTM A316
9	Flange O-Ring #	Buna-N® (Standard)	Viton™ (Optional)

Note: * Other Materials Available.
# Denotes flange O-Ring material is matched to Seat O-Ring

501A Pressure Drop vs Flow Rate



Technical Data

Sizes: 14" - 30"
Pressure Rating: 235 psi
Temperature Range:
5° to 210° F
Buna-N®: -18°C - 100°C
Viton™: -20°C - 190°C
Flange Type: ANSI 150 (flat faced)

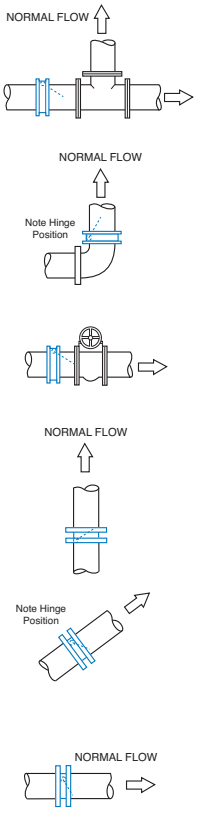
Note: Valves 14" - 30" have integral O-Ring flange Seals, Gaskets are not required for installation and should not be used.

General Application
A valve for wastewater, fire protection systems, municipal water systems, natural gas systems and HVAC Systems.

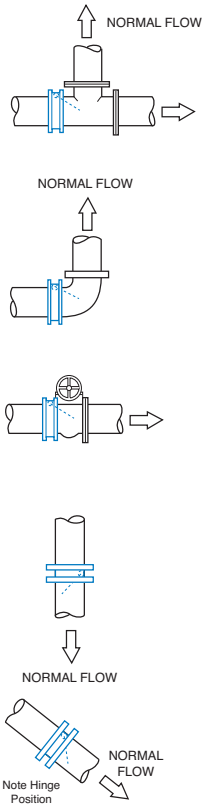
501A Wafer Swing Check Valve

	Feature	
●	1.	Lowest initial cost
●	2.	Shortest lay length
●	3.	Lowest head loss (see head loss curves
●	4.	Resilient seat (standard)
●	5.	For waste and raw sewage
●	6.	For Clean water
●	7.	Buried service
●	8.	Vertical installation flow up only
●	9.	Flow Velocities up to 25 FPS

Typical Applications with Correct Valve Location



Avoid These Applications with Incorrect Valve Location



Recommendations for Installation Position

1. Install the valve in horizontal or upward flow for proper valve closure. Caution: Do not use with reciprocating compressors, or in other pulsating services.

Note: Allow minimum (2) pipe diameters clearance downstream of check valve with disc open to promote smooth flow.

INSTALLATION

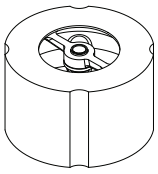
Wafer style check valves are designed to fit between ANSI Class 125 and Class 150 flat faced flanges. Two standard flange gaskets are recommended when installing 2" - 12" 501A valves. 14" and larger 501A valves do not require gaskets. Determine minimum bolt or stud length by adding check valve length to ANSI bolt or stud length.

Check Valve Length is Dimension B for 2" - 12" and Dimension D for 14" - 30" valves. ANSI bolt or stud length can be found in the following standards: For Class 125 use AWWA/ANSI standard B16.1. For Class 150 use AWWA/ANSI standard B 16.5.

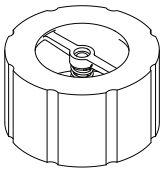
Series 580

Silent Wafer Check Valve

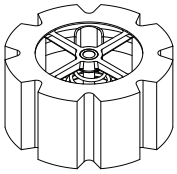
FM APPROVED



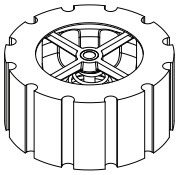
580 Basic Silent Wafer



150# & 300# - 1-6 inches



150# - 8-10 inches



300# - 8-10 inches

Approvals & Certifications

- 125/150 Class Valves 4 - 10-inches - FM Approved
- 125/150 & 250/300 Class Valves 1 - 10-inches meet Federal Mandate for Lead Content Limits

Product Advantages

- **Operates Horizontally or Vertically**
- **Watertight Metal-to-Metal Seating**
- **Field Replaceable Parts**
- **Factory Mutual Approved – 4 through 10-inches**
- **Optional Resilient Seat**

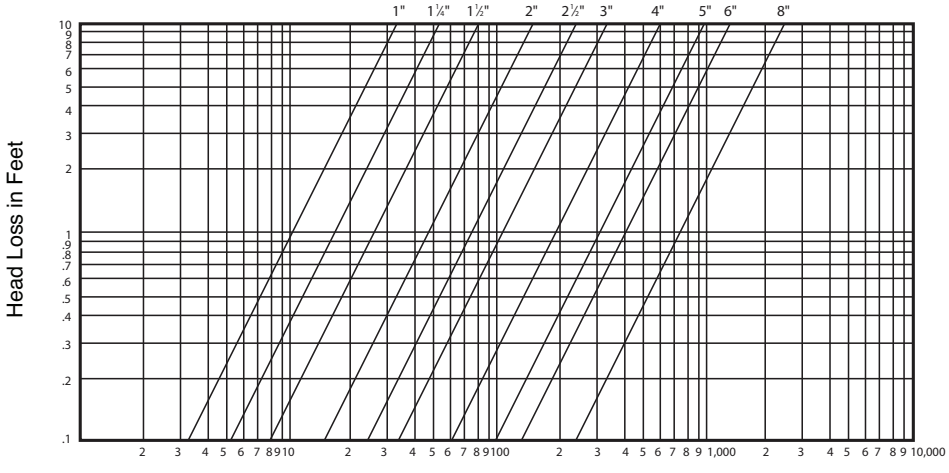
The Cla-Val Series 580 Silent Wafer Check Valve has a spring-loaded poppet that allows the valve to close before flow reversal occurs, resulting in a silent, non-slam closure. It is a truly silent check valve. For ease of installation, the valve can be installed in vertical or horizontal positions with flow up or flow down. The short lay length of the valve allows for a space-saving design. Silent Wafer Check Valves are available in sizes 1" to 10", with either a 125/150# or 250/300# pressure class rating.

Constructed of an epoxy coated ductile iron body with stainless steel trim, the Cla-Val Silent Wafer Check Valve offers watertight shutoff with metal-to-metal seating. For special applications, Buna-N® resilient seats are available as options. All materials conform to ASTM specifications, ensuring long lasting reliable performance. As a confirmation of Cla-Val's commitment to quality, all Series 580 125/250# class valves are Factory Mutual approved except those supplied with Buna-N® resilient seats.

Pressure Ratings

- 125/150 (Rated to 250 psi)
- 250/300 (Rated to 4000 psi)

Head Loss Characteristics for 580 Series
Wafer Style Silent Check Valves



Flow in Gallons per Minute

Materials

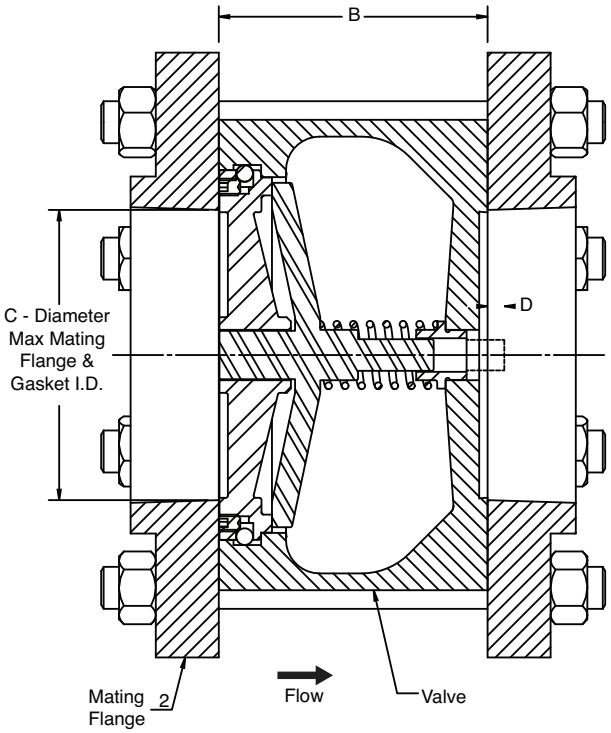
Valve Body:
Ductile Iron - ASTM 536 65-45-12

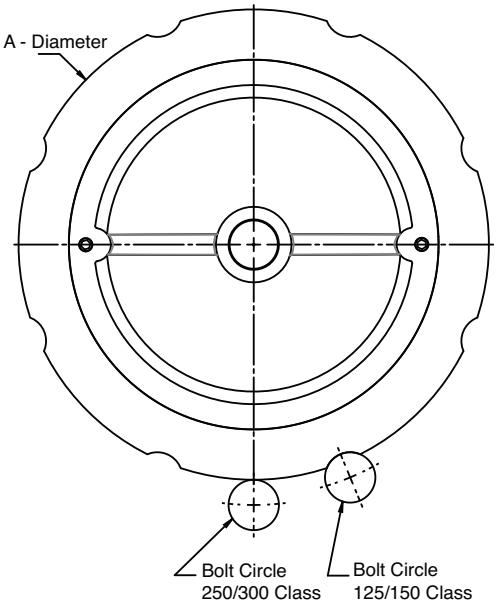
Disc & Seat:
304 Stainless Steel - SS ASTM A276 T304

Spring:
316 Stainless Steel; Stone Tumbled and Stress Relieved - SS ASTM A276 T16

Note:
Standard offering is two-part epoxy coating interior and exterior

125/150 & 250/300 Class Silent Wafer Check Valve: 1 thru 6-inches





Valve Size (inches)	A	B	C	D
1	2.75	2.06	1.25	0.06
1.25	3.13	2.06	1.50	0
1.50	3.63	2.38	1.81	0.09
2	4.25	2.63	2.38	0
2.50	5.00	2.88	2.88	0
3	5.75	3.13	3.38	0.06
4	7.00	4.00	4.75	0.06
5	8.38	4.63	5.50	0.50
6	9.75	5.50	6.50	0.88

Valve Size (mm)	A	B	C	D
25	69.9	52.4	31.8	1.6
32	79.4	52.4	38.1	0
40	92.1	60.3	46.0	2.4
50	108.0	66.7	60.3	0
65	127.0	73.0	73.0	0
80	146.1	79.4	85.7	1.6
100	177.8	101.6	120.7	1.6
125	212.7	117.5	139.7	12.7
150	247.7	139.7	165.1	22.2

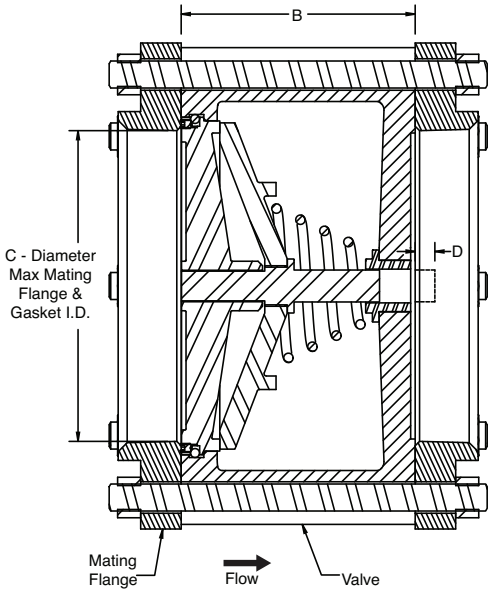
Note: Dimensions are the same for both 125/150 and 250/300 Class Valves.

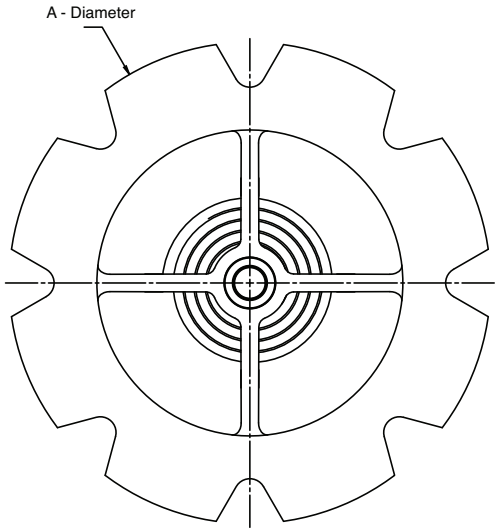
Specifications

The silent wafer check valve shall consist of a heavy ductile iron body, stainless steel seat, disc, and steel spring. The valve disc shall be center guided at both ends with an integral shaft and shall be spring loaded for silent operation. The spring shall be helical or conical and stone tumbled to achieve a micro-finish to resist mineral deposits. For ease of maintenance, the seat and disc shall be replaceable in the field.

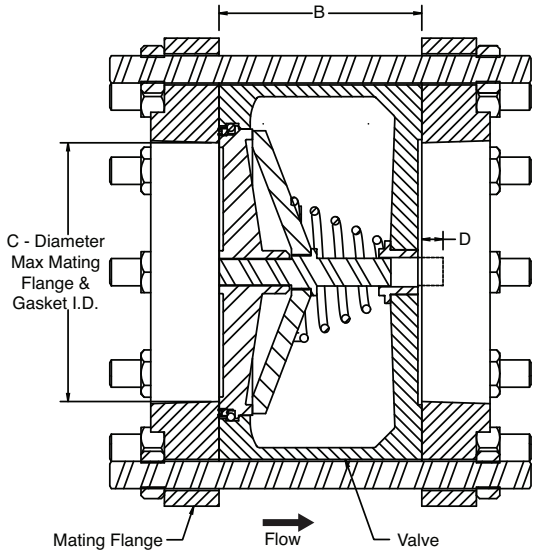
Check valve shall be capable of silent operation when installed in vertical or horizontal positions with either flow up or flow down. The flow area through the body shall be equal to or greater than the cross-section area of the equivalent pipe size.

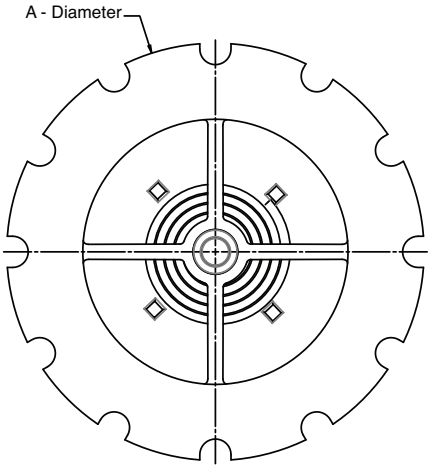
125/150Class Silent Wafer Check Valve: 8 & 10-inches





250/300 Class Silent Wafer Check Valve: 8 & 10-inches



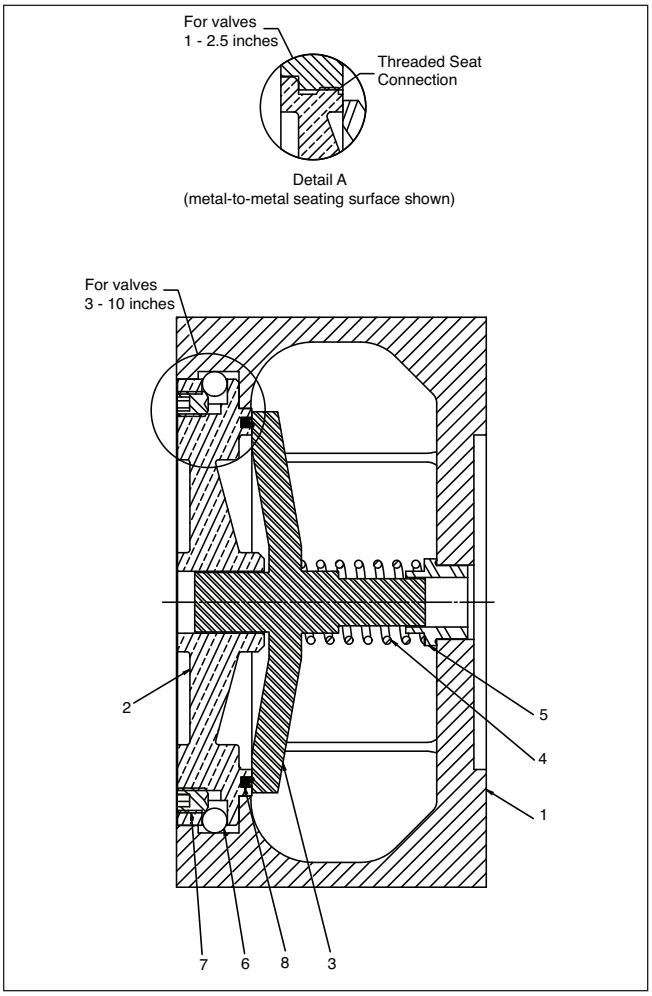


Valve Size (inches)	A	B	C	D
8	13.38	6.50	8.50	1.88
10	16.00	8.25	10.50	1.19

Valve Size (mm)	A	B	C	D
200	339.7	165.1	215.9	47.6
250	406.4	209.6	266.7	30.2

Note: Dimensions are the same for both 125/150 and 250/300 Class Valves.

580 Series Silent Wafer Check Valve Technical Data



Item	Description	Qty	Material Description
1	Body	1	Ductile Iron 536 65-45-12
2	Seat	1	SS ASTM A276 T304
3	Plug	1	SS ASTM A276 T304
4	Spring	1	SS ASTM A276 T316
5	Bushing	1	SS ASTM A276 T304
6	Seat Retaining Ball (3″-10″)	2	SS ASTM A276 T304
7	Seat Retaining Screw (3″-10″)	2	SS ASTM A276 T304
8	Optional Resilient Seat	1	Buna-N®

Typical Applications

Cla-Val 580 Series Silent Wafer Check Valves are used anywhere a quick, quiet closure is desired and in the majority of pump applications, including the following;

- Fire Pump Applications
- Vertical Turbine Pumps
- Booster Pump Stations in High Rise Buildings
- House Pump Applications

Maximum Non-Shock Service Pressure, PSI/kPa

Temp °F / °C	Cast Iron ASTM A126 GR.B						Ductile Iron ASTM A536		Bronze ASTM B62		Carbon Steel ASTM A216 GR WCB				Stainless Steel ASTM A351 CF 8M			
	Class 125#			Class 250#			Pressure Class		Pressure Class		Pressure Class				Pressure Class			
	1-12" 25-300	14-24"" 350-600	30" ≥ 750 ≥	1-12" 25-300	14-24"" 350-600	30" ≥ 750 ≥	150	300	150	300	150	300	400	600	150	300	400	600
0-150 -18-66	—	—	—	—	—	—	—	—	225 1551	500 3447	—	—	—	—	—	—	—	—
-20-100 -29-38	—	—	—	—	—	—	250 1724	640 4413	—	—	285 1965	740 5102	990 6826	1480 10204	275 1896	720 4964	960 6619	1440 9928
-20-150 -29-66	200 1379	150 1034	150 1034	500 3447	300 2068	300 2068	242 1669	620 4275	—	—	272 1875	707 4875	945 6516	1415 9756	257 1772	670 4619	892 6150	1340 9239
200 93	190 1310	135 931	115 793	460 3172	280 1931	250 1724	235 1620	600 4137	210 1448	465 3206	260 1793	675 4654	900 6205	1350 9308	240 1655	620 4275	825 5688	1240 8549
250 121	175 1207	125 862	85 586	415 2861	260 1793	200 1379	235 1620	582 4013	195 1344	425 2930	245 1689	665 4585	887 6116	1332 9184	227 1565	590 4068	785 5412	1180 8136
300 149	165 1138	110 758	50 345	375 2586	240 1655	150 1034	215 1482	565 3896	180 1241	390 2689	230 1586	655 4516	875 6033	1315 9067	215 1482	560 3861	745 5137	1120 7722
Seat Test PSI kPa	200 1379	150 1034	150 1034	500 3447	300 2068	300 2068	275 1896	720 4964	300 2068	1000 6895	315 2172	815 5619	1090 7515	1630 11238	305 2103	795 5481	1060 7308	1585 10928
Shell Test PSI kPa	300 2068	230 1586	230 1586	750 5171	450 3103	450 3103	400 2758	975 6722	450 3103	1500 10342	450 3103	1125 7757	1500 10342	2225 15341	425 2930	1100 7584	1450 9997	2175 14996

F° PSI Inch
C° kPa Millimeter

Series 581

Silent Globe Check Valve

Product Advantages

- **Operates Horizontally or Vertically**
- **Watertight Metal-to-Metal Seating**
- **Field Replaceable Parts**
- **Factory Mutual Approved – 4 through 12-inches**
- **Optional Resilient Seat**

The Cla-Val Series 581 Silent Globe Check Valve has a spring-loaded poppet that allows the valve to close at 1/4 psi before flow reversal occurs, resulting in a silent, non-slam closure.

Constructed of a ductile iron body with stainless steel trim, the Cla-Val Silent Globe Check Valve offers watertight shutoff with metal-to-metal seating. Buna-N® resilient seats are available as an option for special applications,

Specifications

The silent globe check valve shall consist of an epoxy-coated ductile iron body, stainless steel seat, disc and spring. The valve disc shall be center guided at both ends with an integral shaft and shall be spring loaded for silent operation. The spring shall be helical or conical and stone tumbled to achieve a micro-finish to resist mineral deposits. For ease of maintenance, the seat and disc shall be replaceable in the field.

Check valve shall be capable of silent operation when installed in vertical or horizontal positions with either flow up or flow down. The flow area through the body shall be equal to or greater than the cross-section area of the equivalent pipe size. Sizes 2 1/2" to 10" shall allow bolting a wafer style butterfly valve directly to the outlet flange without a spool piece.

Approvals & Certifications

- 125/150 and 250/300 Class Valves 4 through 12-inches - FM Approved
- 125/250 & 250/300 Class valves 3 through 42-inches meet Federal Mandate for Lead Content Limits

FM APPROVED

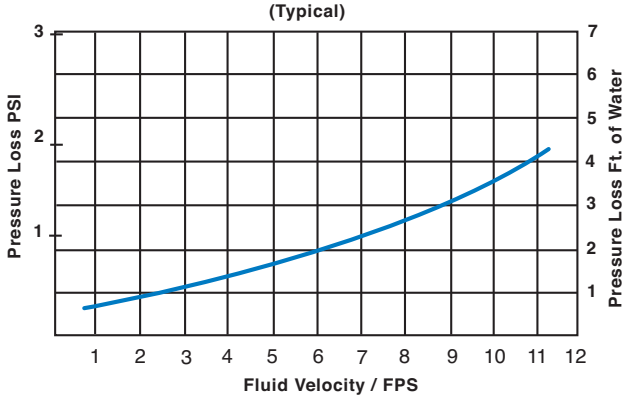
4 through 12-inches

Pressure Ratings

- 125/150 (Rated to 250 psi)
- 250/300 (Rated to 640 psi)

Series 581P Pressure Loss Curve

(Typical)



Materials

Valve Body:
Ductile Iron - ASTM 536 65-45-12

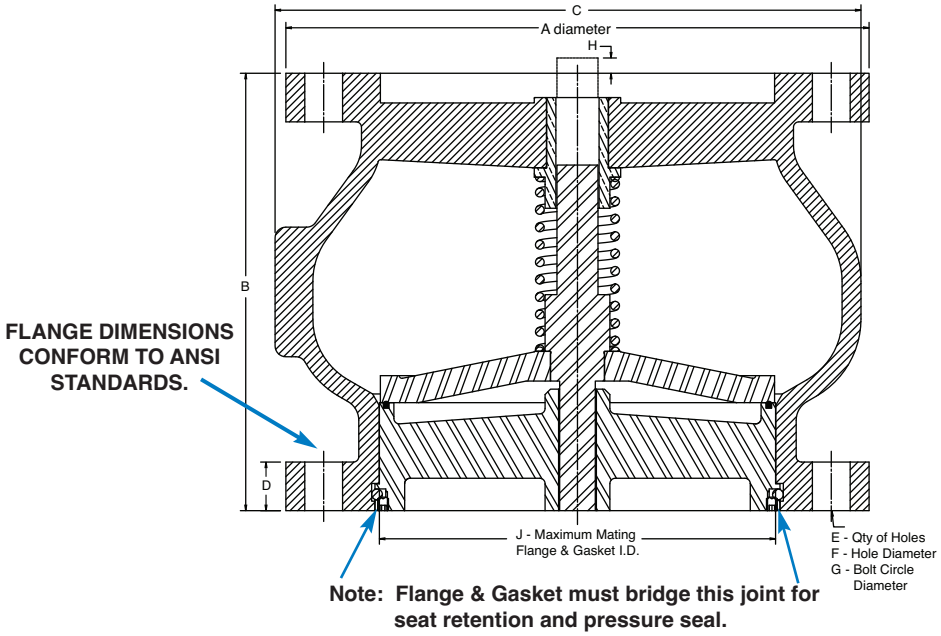
Disc & Seat:
304 Stainless Steel - SS ASTM A276 T304

Spring:
316 Stainless Steel; Stone Tumbled and Stress Relieved - SS ASTM A276 T16

ASTM INTERNATIONAL Standards Worldwide

Note:
Standard offering is two-part epoxy coating interior and exterior

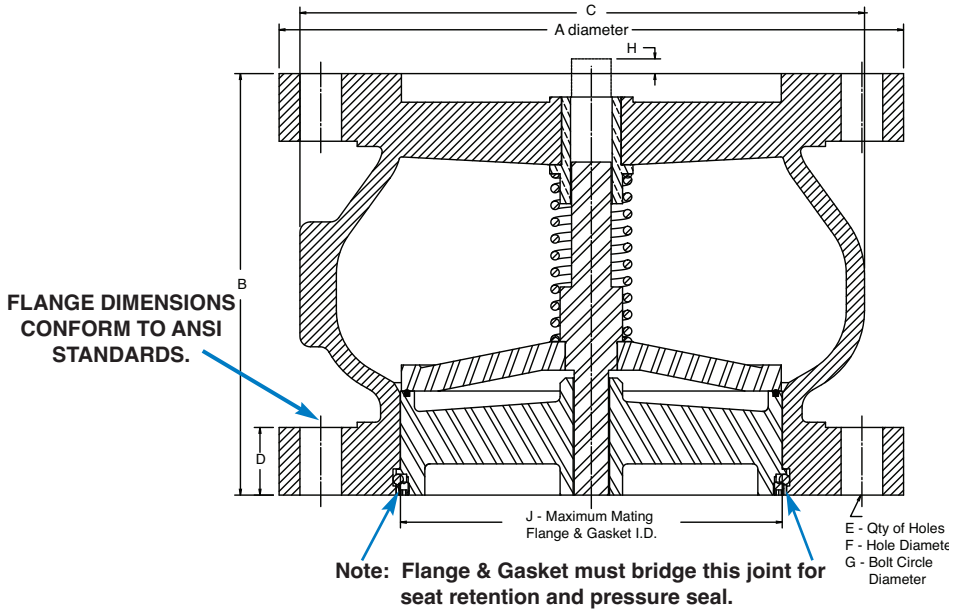
581 Series - 125/150 Class Silent Globe Check Valve



Valve Size (inches)	A	B	C	D	E	F	G	H	J
3	7.50	6.00	6.06	0.94	4	0.75	6.00	0	3.38
4	9.00	7.25	7.63	0.94	8	0.75	7.50	0	4.75
5	10.00	8.50	9.38	0.94	8	0.88	8.50	0	5.50
6	11.00	9.00	10.88	1.00	8	0.88	9.50	0	6.50
8	13.50	10.125	13.69	1.13	8	0.88	11.75	0	8.50
10	16.00	12.00	17.50	1.19	12	1.00	14.25	0.16	10.75
12	19.00	14.25	20.56	1.25	12	1.00	17.00	0.31	12.88
14	21.00	15.75	22.56	1.38	12	1.13	18.75	0	14.75
16	23.50	17.625	25.50	1.44	16	1.13	21.25	0.69	16.50
18	25.00	18.75	27.25	1.56	16	1.25	22.75	1.38	18.75
20	27.50	20.625	31.25	1.69	20	1.25	25.00	1.13	20.63
24	32.00	24.00	37.19	1.88	20	1.38	29.50	2.25	24.75
30	38.75	29.25	45.13	2.13	28	1.38	36.00	3.56	29.50
36	46.00	45.00	53.38	2.38	32	1.63	42.75	0	36.00
42	53.00	50.00	60.00	2.63	36	1.63	49.50	0	42.00

Valve Size (mm)	A	B	C	D	E	F	G	H	J
80	190.5	152.4	154.0	23.8	4	19.1	152.4	0	85.7
100	228.6	184.2	193.7	23.8	8	19.1	190.5	0	120.7
125	254.0	215.9	238.1	23.8	8	22.2	215.9	0	139.7
150	279.4	228.6	276.2	25.4	8	22.2	241.3	0	165.1
200	342.9	257.2	347.7	28.6	8	22.2	298.5	0	215.9
250	406.4	304.8	444.5	30.2	12	25.4	362.0	4.0	273.1
300	482.6	365.1	522.3	31.8	12	25.4	431.8	7.9	327.0
350	533.4	400.1	573.1	34.9	12	28.6	476.3	0	374.7
400	596.9	447.7	647.7	36.5	16	28.6	539.8	17.5	419.1
450	635.0	476.3	692.2	39.7	16	31.8	577.9	34.9	476.3
500	698.5	523.9	793.8	42.9	20	31.8	635.0	28.6	523.9
600	812.8	609.6	944.6	47.6	20	34.9	749.3	57.2	628.7
750	984.3	743.0	1146.2	54.0	28	34.9	914.9	90.5	749.3
900	1168.4	1143.0	1355.7	60.3	32	41.3	1085.9	0	914.4
1000	1346.2	1270.	1524.0	66.7	36	41.3	1257.3	0	1066.8

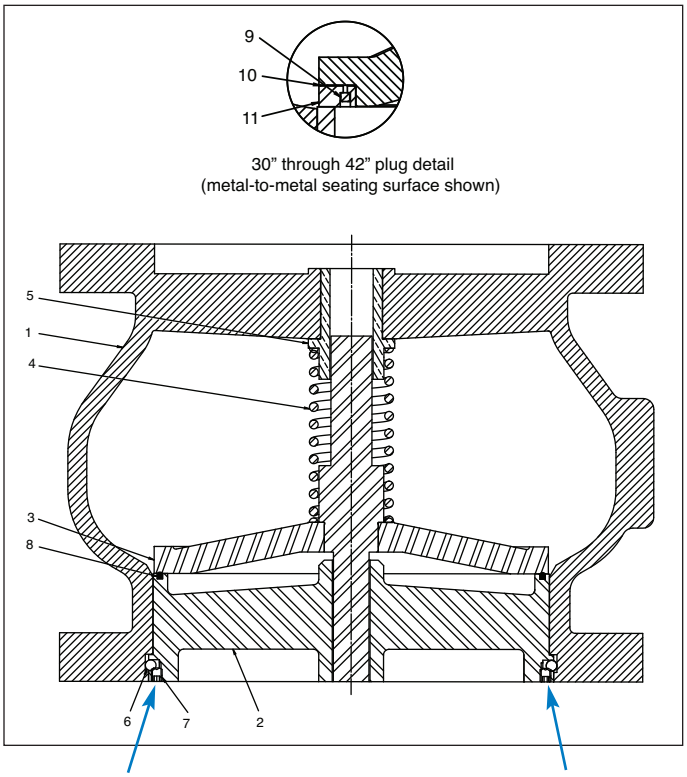
581 Series - 250/300 Class Silent Globe Check Valve



Valve Size (inches)	A	B	C	D	E	F	G	H	J
3	8.25	6.00	6.06	1.13	8	0.88	6.63	0	3.38
4	10.00	7.25	7.63	1.25	8	0.88	8.25	0	4.75
5	11.00	8.50	9.38	1.38	8	0.88	9.25	0	5.50
6	12.50	9.00	10.88	1.44	12	1.00	10.56	0	6.50
8	15.00	10.125	13.69	1.63	12	1.00	13.00	0	8.50
10	17.50	12.00	17.50	1.88	16	1.13	15.25	0.16	10.75
12	20.50	14.25	20.56	2.00	16	1.25	17.75	0.31	12.88
14	23.00	15.75	22.56	2.13	20	1.25	20.25	0	14.75
16	25.50	17.625	25.50	2.25	20	1.38	22.50	0.69	16.50
18	28.00	18.75	27.25	2.38	24	1.38	24.75	1.38	18.75
20	30.50	20.625	31.25	2.50	24	1.38	27.00	1.13	20.63
24	36.00	24.00	37.19	2.75	24	1.63	32.00	2.25	24.75
30	43.00	29.25	45.13	3.00	28	1.88	39.25	3.56	29.50
36	50.00	45.00	53.38	3.38	32	2.25	46.00	0	36.00
42	57.00	50.00	60.00	3.69	36	2.25	52.75	0	42.00

Valve Size (mm)	A	B	C	D	E	F	G	H	J
80	209.6	152.4	154.0	28.6	8	0.88	6.63	0	3.38
100	254.0	184.2	193.7	31.8	8	22.2	200.0	0	120.7
125	254.0	215.9	238.1	34.9	8	22.2	235.0	0	139.7
150	317.5	228.6	276.2	36.5	12	22.2	268.1	0	165.1
200	381.0	257.2	347.7	41.3	12	25.4	330.2	0	215.9
250	444.5	304.8	444.5	47.6	16	28.6	387.4	4.0	273.1
300	520.7	365.1	522.3	50.8	16	31.8	450.9	7.9	327.0
350	584.2	400.1	573.1	54.0	20	31.8	514.4	0	374.7
400	647.7	447.7	647.7	57.2	20	34.9	571.5	17.5	419.1
450	711.2	476.3	692.2	60.3	24	34.9	628.7	34.9	476.3
500	774.7	523.9	793.8	63.5	24	34.9	685.8	28.6	523.9
600	914.4	609.6	944.6	69.9	24	41.3	812.8	57.2	628.7
750	1092.2	743.0	1146.2	76.2	28	47.6	997.0	90.5	749.3
900	1270.0	1143.0	1355.7	85.7	32	57.2	1168.4	0	914.4
1000	1447.8	1270.0	1524.0	93.7	36	57.2	1339.9	0	1066.8

581 Series Silent Globe Check Valve Technical Data

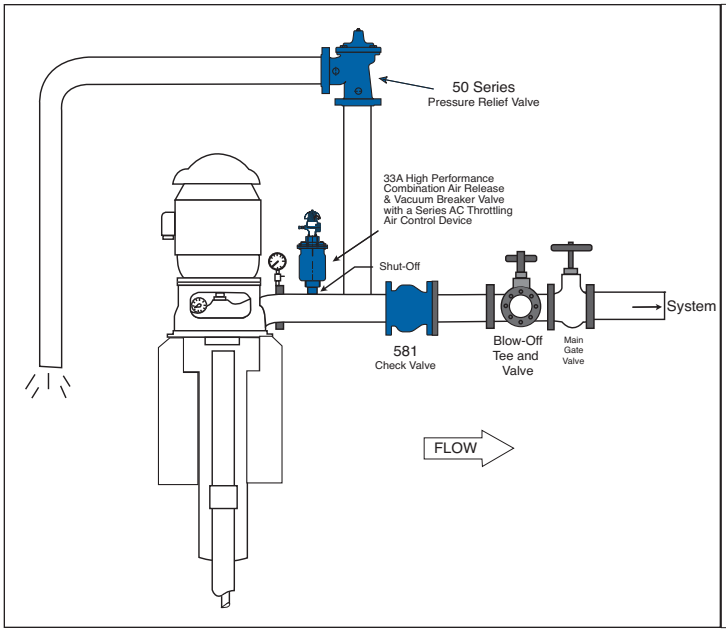


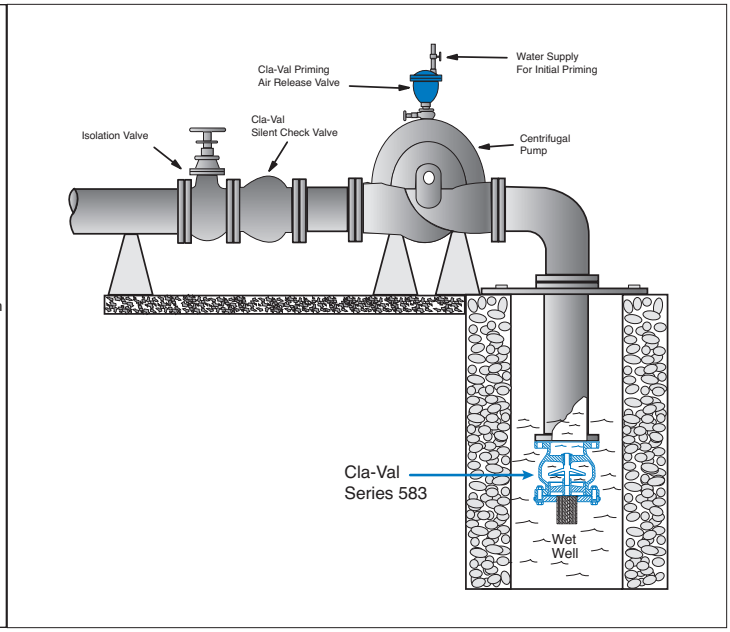
Item	Description	Qty	Material Description
1	Body	1	Ductile Iron 536 65-45-12
2	Seat	1	SS ASTM A276 T304
3	Plug	1	SS ASTM A276 T304
4	Spring	1	SS ASTM A276 T316
5	Bushing	1	SS ASTM A276 T304
6	Seat Retaining Ball	2	SS ASTM A276 T304
7	Seat Retaining Screw	2	SS ASTM A276 T304
8	Optional Resilient Seat	1	Buna-N®
9	Plug Ring (30″- 42″)	1	Buna-N®
10	Gasket (30″- 42″)	1	Buna-N®
11	Plug Ring Screw (30″- 42″)	1	SS ASTM A276 T304

FLANGE DIMENSIONS CONFORM TO ANSI STANDARDS.

Note: Flange & Gasket must bridge this joint for seat retention and pressure seal.

Typical Applications





Cla-Val 581 Series Silent Globe Check Valves are used anywhere a quick, quiet closure is desired and in the majority of pump applications, including the following;

- Fire Pump Applications
- Vertical Turbine Pumps
- Booster Pump Stations in High Rise Buildings
- House Pump Applications

Series 582

Two-Door Wafer Check Valve

- **Low Head Loss**
- **Resilient Seat**
- **Non-Slam Closure**
- **Stabilizer Spheres Prevent Vibration Wear**

The Cla-Val Series 582 Two-Door Wafer Check Valve has torsion springs that force the two doors to shut before flow reversal, reducing the water hammer potential that normally occurs with single-door swing check valves. To help reduce water hammer, the two-door design also reduces the travel distance from open to shutoff for a quicker response. Extremely short in lay length, the valve is both a compact and economical solution. Two-Door Wafer Check Valves are available in sizes 2" to 36". Valve sizes 2"- 6" are dual rated to 150 and 300 pressure classes. Valve sizes 8" - 36" are rated to 150 pressure class.

Although lighter in weight than globe style swing check valves, Cla-Val Two-Door Wafer Check Valves are designed for heavy-duty applications. For ease of installation, valves 10" and larger are supplied with a tapped hole for installing a lifting eye bolt.

SPECIFICATIONS

The two-door wafer check valve shall be compact wafer design to fit between ANSI flanges. The check valve doors shall be spring -loaded closed, by means of one or more heavy-duty stainless steel torsion springs. Flow shall cause the doors to open and upon pump shut down, the torsion spring will shut the doors, before reverse flow starts, for non-slam closure.

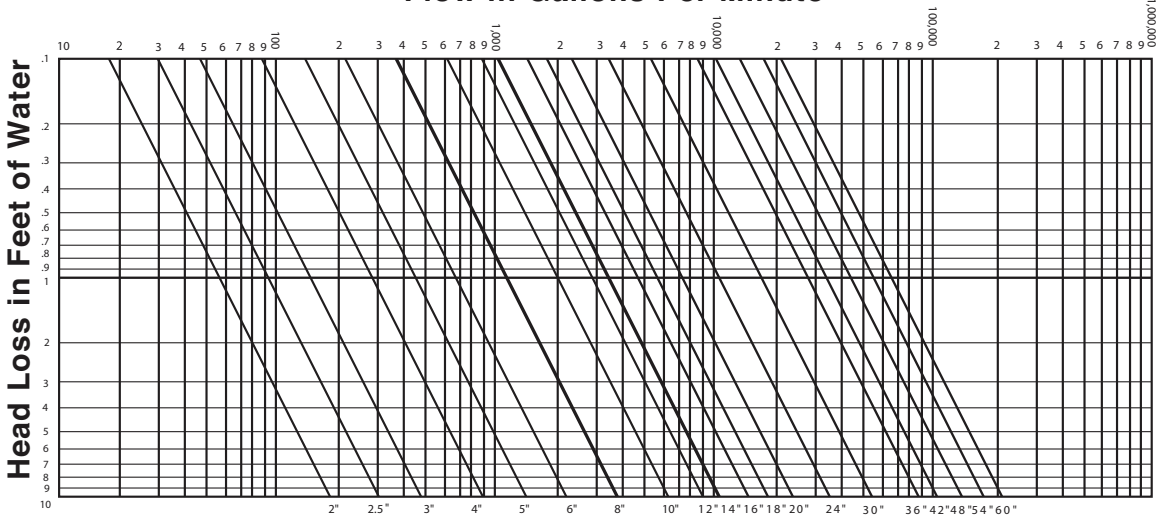
Seating shall be resilient Buna-N®, watertight and molded to the body. Valves 10" and larger shall be supplied with an eye bolt for lifting. The valve shall be a Cla-Val Series 582 Valves sizes 2" - 6" with alignment grooves for mounting between 150 or 300 lb. flanges. Valves sizes 8' - 36" inches will be wafer style to be mounted between 150 lb. flanges.

Materials

Valve Body:
Ductile Iron - ASTM 536 65-45-12
Doors:
Aluminum Bronze ASTM B148
Disc & Seat:
Stainless Steel
Spring:
Stainless Steel
Note: Standard offering is two-part epoxy coating interior and exterior

Lug pattern available - consult factory

Flow in Gallons Per Minute



FM APPROVED

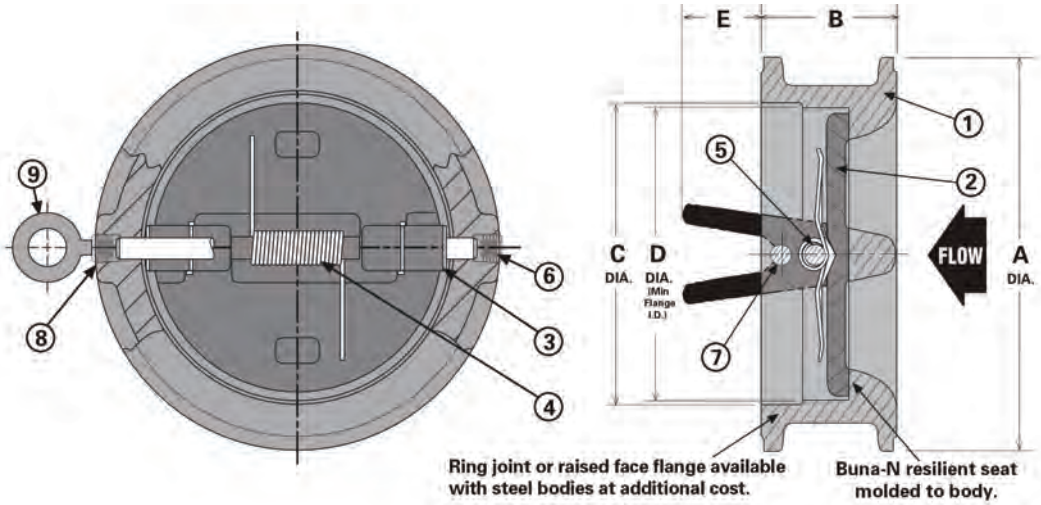
4 through 12-inches

c UL us

8 through 12-inches

ASTM INTERNATIONAL Standards Worldwide

582 Series - Two-Door Wafer Check Valve



Size	Class	A	B	C	D	E	Wt.
2" 50	125	4" 102	2.125" 54	2.563" 65	1.875" 48	.188" 5	5 2
	150	4" 102	2.375" 60	2.563" 65	1" 25	—	6 3
	250	4.25" 108	2.125" 54	2.563" 65	1.875" 48	.188" 5	8 4
	300	4.25" 108	2.375" 60	2.563" 65	1" 25	—	8 4
2.5" 65	125	4.75" 121	2.375" 60	3.125" 79	2.375" 60	.375" 10	8 4
	150	4.75" 121	2.625" 67	3.125" 79	2" 51	.25" 6	8 4
	250	5" 127	2.375" 60	3.125" 79	2.375" 60	.375" 10	11 5
	300	5" 127	2.625" 67	3.125" 79	2" 51	.25" 6	12 5
3" 80	125	5.25" 133	2.625" 67	3.5" 89	3" 76	.5" 13	10 5
	150	5.25" 133	2.875" 73	3.5" 89	2.75" 70	.25" 6	11 5
	250	5.75" 146	2.625" 67	3.5" 89	3" 76	.5" 13	15 7
	300	5.75" 146	2.875" 73	3.5" 89	2.75" 70	.25" 6	16 7
* 4" 100	125	6.75" 171	2.625" 67	4.5" 114	4.375" 111	1.125" 29	12 5
	150	6.75" 171	2.875" 73	4.5" 114	4" 102	.875" 22	14 6
	250	7" 178	2.625" 67	4.5" 114	4.375" 111	1.125" 29	20 9
	300	7" 178	2.875" 73	4.5" 114	4" 102	.875" 22	22 10
5" 125	125-150	6.75" 171	2.625" 67	4.5" 114	4.375" 111	1.125" 29	30 14
	250-300	8.375" 213	3.25" 83	5.563" 141	5" 127	1.25" 32	33 15
* 6" 150	125	8.625" 219	3.75" 95	6.625" 168	6" 152	1.5" 38	30 14
	150	8.625" 219	3.875" 98	6.625" 168	5.875" 149	1.375" 35	32 15
	250	9.75" 248	3.75" 95	6.625" 168	6" 152	1.5" 38	40 18
	300	9.75" 248	3.875" 98	6.625" 168	5.875" 149	1.375" 35	44 20
* † 8" 200	125-150	10.875" 276	5" 127	8.75" 222	7.75" 197	1.5" 38	52 24
	250-300	12" 305	5" 127	8.75" 222	7.75" 197	1.5" 38	70 32
* † 10" 250	125	13.25" 337	5.5" 140	10.75" 273	10" 254	2.625" 67	63 29
	150	13.25" 337	5.75" 146	10.75" 273	9.75" 248	2.375" 60	100 45
	250	14.125" 359	5.5" 140	10.75" 273	10" 254	2.625" 67	110 50
	300	14.125" 359	5.75" 46	10.75" 273	9.75" 248	2.375" 60	115 52

Inch
Millimeter

lbs
kg

Size	Class	A	B	C	D	E	Wt.
* † 12" 300	125-150	16" 406	7.125" 181	12.75" 324	10.875" 276	2.625" 67	150 68
	250-300	16.5" 419	7.125" 181	12.75" 324	10.875" 276	2.625" 67	220 100
14" 350	125-150	17.625" 448	7.25" 184	14" 356	13" 330	3.5" 89	220 100
	250-300	19" 483	8.75" 222	14" 356	12" 305	2" 51	440 200
16" 400	125-150	20.125" 511	7.5" 191	16" 406	15" 381	4.25" 108	275 125
	250-300	21.5" 546	9.125" 232	16" 406	14" 356	2.625" 67	550 249
18" 450	125-150	21.5" 546	8" 203	18" 457	17" 432	4.875" 124	300 136
	250-300	23.375" 594	10.375" 264	18" 457	16" 406	2.5" 64	665 302
20" 500	125	23.25" 591	8.375" 213	20" 508	18" 457	6.75" 171	325 147
	150	23.75" 603	8.625" 219	20" 508	18" 457	6.5" 165	490 222
	250	25.625" 651	11.5" 292	20" 508	17" 432	3.625" 92	450 204
	300	25.625" 651	11.5" 292	20" 508	17" 432	3.625" 92	800 363
24" 600	125-150	28.125" 714	8.75" 222	24" 610	22.625" 575	8.875" 225	700 318
	250-300	30.375" 772	12.5" 318	24" 610	21" 533	5.125" 130	1135 515
30" 750	125-150	34.625" 879	12" 305	30" 762	28.625" 727	11.125" 283	1100 499
	250-300	37.25" 946	14.5" 368	30" 762	27.375" 695	8.625" 219	1400 635
36" 900	125-150	41.125" 1045	14.5" 368	36" 914	34" 864	12.375" 314	1520 689
	250-300	43.75" 1111	18.875" 479	36" 914	33" 838	8" 203	1900 862
42" 1100	125-150	47.875" 1216	17" 432	42" 1067	40.375" 1026	15.125" 384	3000 1361
	250-300	50.625" 1286	22.375" 568	42" 1067	39" 991	9.75" 248	3500 1588
48" 1200	125-150	54.375" 1381	20.625" 524	48" 1219	46.625" 1184	16.875" 429	4500 2041
	250-300	58.625" 1489	24.75" 629	48" 1219	45.625" 1159	12.75" 324	5500 2495
54" 1400	125-150	60.875" 1546	21.25" 540	54" 1372	52.875" 1343	19.625" 498	6700 3039
60" 1500	125	67.25" 1708	25" 635	59.5" 1511	50" 1270	16" 406	7500 3402

Inch
Millimeter

* FM - valves are factory mutual approved (125 & 250 lb.).
† This size valve Underwriters Laboratories listed (125 lb.).

Note: Two or more springs used on sizes 14" (350mm) & larger.

Notes

Install the Cla-Val Series 582 Two-Door Wafer Check Valve between two standard flanges in the horizontal or vertical, flow up position.

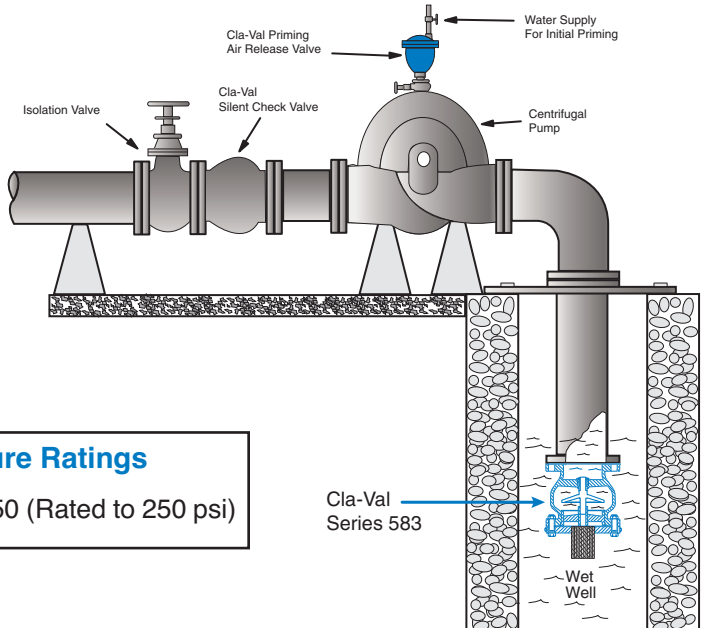
For horizontal flow, this valve must be installed with disc hinge pin in the vertical position to ensure proper operation.

Series 583
3 through 36-inches
"Tite Seal" Foot Valve

- **Full Pipe Size Flow Area**
- **Lowest Head Loss**
- **360° Stainless Steel Strainer**
- **Buna-N® "Tite Seal" Zero Leakage Means No Loss of Prime**

Cla-Val "Tite Seal" foot valves provide years of trouble free operation at low or high pressures. The special Buna-N® seal allows initial contact to the metal plug, for zero leakage, then as pressure builds, the Buna-N® seal is compressed only slightly until the plug fully contacts the metal seat preventing further compression of the Buna-N® seal. In this manner the seal cannot be damaged from compression and pump prime is always assured. A 360 degree stainless steel strainer (not plated steel) is provided standard with at least, three times flow-thru area of the foot valve size. This greatly enlarged flow thru area strainer means full flow can be maintained even should some small particles collect against the strainer. Cla-Val "Tite Seal" Foot Valves provide non-shock and silent shut-off.

Series 583 Valves meet Federal Mandate for Lead Content Limits



Cla-Val "Tite Seal" Foot Valve Specifications

The foot valve shall be globe style, flanged with resilient seal against metal; provide full flow equal to valve size and shut-off silently. Foot valve internals shall include a plug, double guided that allows full pipe flow when open. A guide bushing and all internals shall be field replaceable. The metal seat with Buna-N® seal shall provide zero leakage at low and high pressures without seal damage.
A heavy gauge 360 degree, stainless steel strainer (not plated steel) having a flow-thru area of at least three times that of the foot valve flow area shall be connected to the outside diameter of the inlet flange.

Pressure Ratings

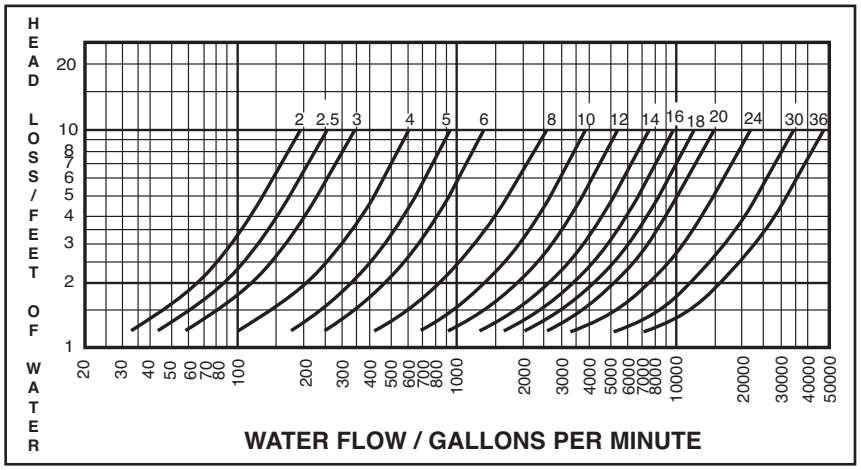
• 125/150 (Rated to 250 psi)

Materials:

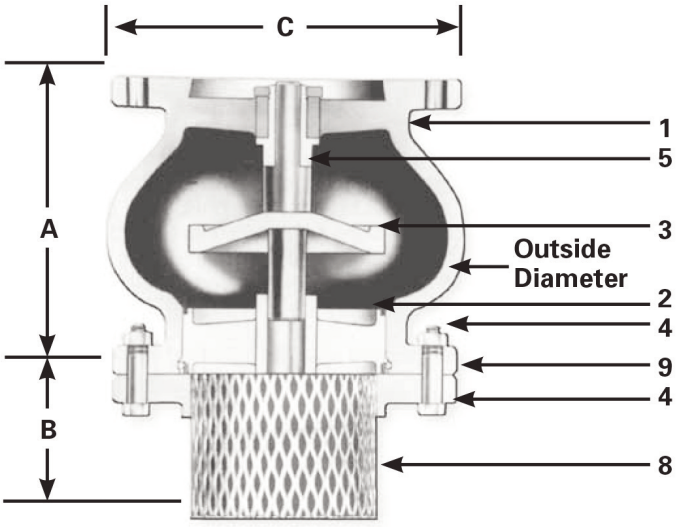
Valve Body: Ductile Iron ASTM 586 GR 65-45-12
Seat and Plug: Bronze ASTM B584 Alloy C83600
Strainer Heavy Gauge 1/16": Thick Stainless Steel

Test Certificate, Drawings, Parts List and O&M Manual Provided upon Request.

"Tite Seal" Foot Valves as provided by Cla-Val Newport Beach, CA U.S.A.



Series 583 “Tite Seal” Foot Valves

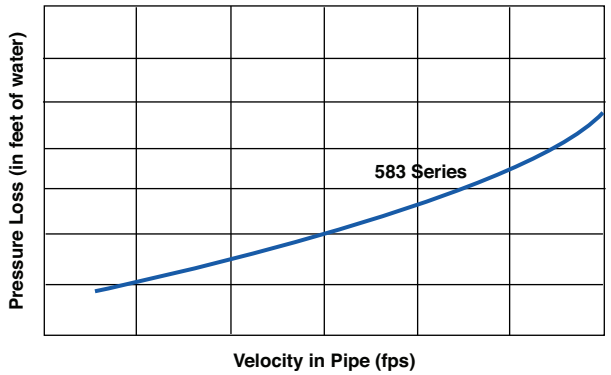


Series 583 Valves meet Federal Mandate for Lead Content Limits

125 # Class					
Size	**A**	**B**	**C**	**O.D.**	**WEIGHT**
3”	6	4.875	7.5	5.625	38 lb
80 mm	152	124	191	143	17 kg
4”	7.25	4.875	9	7.375	51 lb
100 mm	184	124	229	187	23 kg
5”	8.5	5	10	9.25	72 lb
125 mm	216	127	254	235	33 kg
6”	9	5	11	10	95 lb
150 mm	229	127	279	254	43 kg
8”	10.125	5.125	13.5	13.125	146 lb
200 mm	257	130	343	333	66 kg
10”	12	5.125	16	16.75	218 lb
250 mm	305	130	406	425	99 kg
12”	14.375	5	19	20.125	335 lb
300 mm	365	127	483	511	152 kg
14”	15.75	5.375	21	22.375	450 lb
350 mm	400	137	533	568	204 kg
16”	17.625	5.375	23.5	25.375	570 lb
400 mm	448	137	597	645	259 kg
18”	18.75	5	25	27.75	700 lb
450 mm	476	127	635	705	318 kg
20”	20.625	5.5	27.5	31.125	845 lb
500 mm	524	140	699	791	383 kg
24”	24	7	32	37	1595 lb
600 mm	610	178	813	940	723 kg
30”	29.25	7	38.75	45.25	2020 lb
750 mm	743	178	984	1149	916 kg
36”	45	8	40	53.25	4185 lb
900 mm	1143	203	1016	1353	1898 kg

Item	Description	Material
1	Body	Ductile Iron ASTM 536 65-45-12
2	Seat	Bronze ASTM B584 with BUNA-N Seal
3	Plug	Bronze ASTM B584
4	Bolts & Nuts	Steel ASTM A307 GR. B
5	Bushing	Bronze ASTM B584
8	Strainer	Stainless Steel T302
9	Gasket	Lexida

Typical Friction Loss Chart



Series 584

Flex-Check Valve

- **Full Pipe Size Flow Area**
- **Drip Tight Seating**
- **Non-Slam Closure**
- **Fusion Bonded Epoxy NSF-61**
- **Available with Integral Surge Protector, Position Indicator and Backflushing features**
- **Sizes 1 through 24 inches available**
- **Meets Federal Mandate for Lead Content Limits**

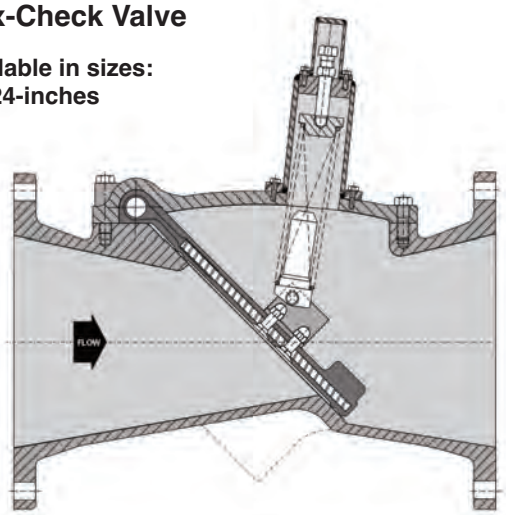
The Cla-Val Seriesl 584 Flex-Check Valve has a full-flow area body with integral seat at 45° angle to reduce head loss. This minimizes disc travel to 35° degrees for improved non-slam check action and for reliable vertical up flow operation even on slurry applications. Body and Cover are fusion bonded NSF-61 epoxy coated for long service life on potable and non-potable systems. Unique one-piece steel and nylon reinforced BUNA-N rubber flapper flexes to eliminate traditional metal hinge problems. During system flowing conditions the flapper flexes up to the open position allowing unrestricted flow through the valve. When system reverse flow conditions occur the flapper flexes down to the closed position for drop-tight seal preventing reverse flow. The flapper reliability is test-proven to over one million cycles. The optional Return Flow Actuator offers manual opening for pump priming, back flushing, draining lines, or system testing needs and is easy to field install.

Typical Applications

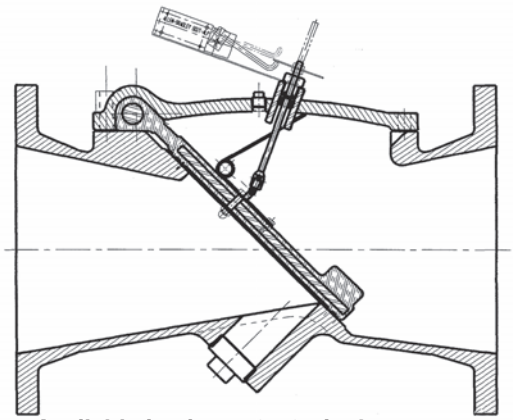
- Water Systems
- Industrial Waste
- Erosive Services
- Acid Lines
- Light Slurries
- Leaching Lines
- Brine & Salt Water Systems
- Raw Sewage
- Chemical Lines
- Ash Service
- Tailings Systems
- Corrosive Services
- Scrubbers

Model 584SP Surge Protector Flex-Check Valve

Available in sizes:
3 - 24-inches



Model 584SA Flex-Check with Optional Position Indicator



Available in sizes: 3 - 24-inches

Model 584BF Backflushing Flex-Check Valve

Sizes
3 - 24 inches

Optional Return Flow Actuator
3-inches and larger

Series 584 Flex-Check Valve Technical Data

Size (inches)	A	B	C	D	# of Bolts	Hole Size	Weight (lbs.)
2	8.0	6.0	4.75	.625	4	.625	19
2.5	8.5	7.0	5.5	.688	4	.625	20
3	9.5	7.5	6.0	.75	4	.625	21
4	11.5	9.0	7.5	.938	8	.625	38
4+	13.75	9.0	7.5	.938	8	.625	70
5	13.75	10.0	8.5	.938	8	.75	74
6	15.0	11.0	9.5	1.0	8	.75	100
8	19.5	13.5	11.75	1.125	8	.75	185
10	24.5	16.0	14.25	1.188	12	.875	335
12	27.5	19.0	17.0	1.25	12	.875	475
14	31.0	21.0	18.75	1.375	12	1	640
16	32.0	23.5	21.25	1.438	16	1	950
18	36.0	25.0	22.75	1.563	16	1.125	1250
20	40.0	27.5	25	1.688	20	1.125	1550
24	48.0	32.0	29.5	1.875	20	1.25	2000

Specifications

The Check Valve shall have a heavily constructed ductile iron body and cover. The body shall be long pattern design (not wafer) with integrally cast-on flanges. The flapper shall be BUNA-N, having an O-ring seating edge and be internally reinforced with steel.

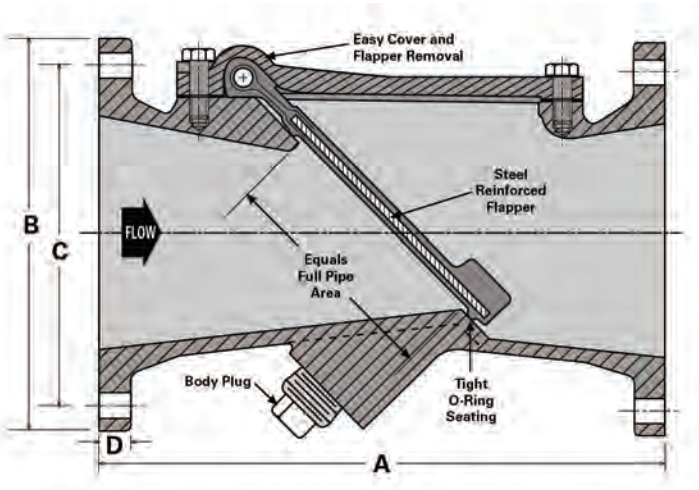
Flapper to be captured between the body and the body cover in a manner to permit the flapper to flex from closed to fully open position. Flapper shall be easily removed without the need to remove the valve from the pipeline. Check Valves shall have a full pipe flow area. Seating surface shall be on a 45° angle requiring the flapper to travel 35° from closed to fully open position for minimum head loss and non-slam closure.

BUNA-N flapper, which creates an elastic spring effect to assist the flapper to close against a slight head, shall prevent or minimize slamming.

Valve shall be designed for 175 psi differential pressure for water, sewage, oil or gas (higher pressure available). The valve shall be suitable for buried service, in which case, stainless steel cover bolts must be furnished.

When necessary to prime or backflush a clogged pump, an external backflow device can be furnished (sizes 3-inch & larger).

Exterior epoxy must be NSF-61 Approved for water contact. Valve components must meet current lead-free requirements and be in compliance with ANSI/ AWWA C-508. Valve must meet US content requirements. Valve shall be as provided by Cla-Val Co. Newport Beach, CA.

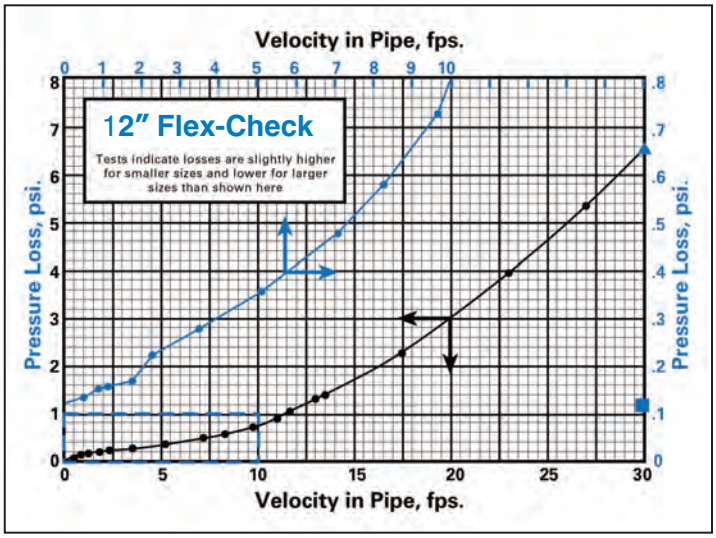


Valve Materials of Construction

Valve Body & Cover: Ductile Iron - ASTM 536 65-45-12
Flapper Options: BUNA-N, Neoprene, Hypalon & Viton™
Lining Options: Natural Rubber, Neoprene & Hypalon *

* Operating Temperatures for Liner & Flapper Materials	
Material	°F
BUNA-N	- 70 to 250
Rubber	- 40 to 180
Neoprene	- 20 to 250
Hypalon	- 40 to 195
Viton™	- 40 to 450
Other Liner & Flapper materials available	

Standard Rubber Hardness Durometer of Flapper to be Determined by Operating Pressure		
Valve Size	Operating Pressure, PSI	
	10 to 80	81 to 175
2-inches to 8-inches	45 Durometer	70 Durometer
10-inches to 24-inches	70 Durometer	



Series 585

Swing Check Valve

Lever and Weight

Air Cushion

Lever and Spring

- **Full Pipe Size Flow Area - Unrestricted flow**
- **Heavy Duty Disc Connections**
- **Non-Clog Design**
- **Fusion Bonded Epoxy Coating NSF-61**
- **Designed, Manufactured and Tested in Accordance with ANSI/AWWA C508 Standard**
- **Resilient Seat - Drip Tight Seating**
- **Three field adjustable closure options:**
  - **Lever and Weight (LW)**
  - **Air Cushion (AC)**
  - **Lever and Spring (LS)**

The Cla-Val 585 Swing Check Valve is designed for long service life and maintenance free operation. It has a full-flow area body and is equipped with a disc arm with dual precision pins for optimum disc connection and protection against damage due to vibration. The body is fitted with a raised 300 Series Stainless Steel seat as well as a resilient seat to help ensure drip tight seating, even in applications with high solids. The seats are replaceable in the field without removing the valve from the pipeline.

The valve is constructed of Ductile Iron to provide greater durability and protection in applications with high stresses and shock loads. The body and cover are fusion bonded NSF-61 epoxy coated in accordance with AWWA C550 for long service life in potable and non-potable systems.

During system flowing conditions the disc swings up to the open position allowing unrestricted flow through the valve. When system reverse flow conditions occur, the disc swings down to the closed position, preventing reverse flow.

Pressure Ratings (Ambient Temperature)

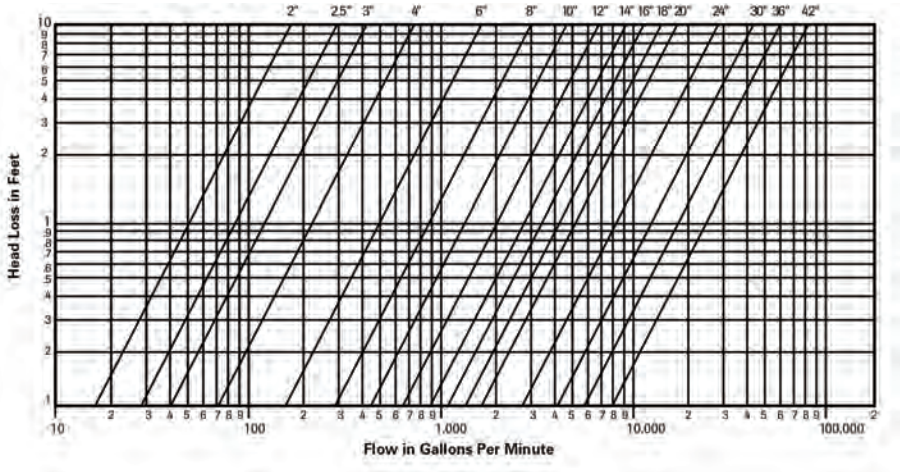
For Valve Sizes 2 through 42-inches:
250 psi CWP
For Valve Sizes 20 through 1100mm:
1724 kPA CWP

This product meets Federal Mandate for Lead Content Limit

Material Specifications

Component	Standard
Body and Cover 2-24" C508-09 Compliant	Ductile Iron ASTM A536 GR 65-45-12
Body and Cover 30-42"	Ductile Iron ASTM A536 GR 65-45-12
Disc and Disc Arm	Ductile Iron ASTM A536 GR 65-45-12
Shaft	304 Stainless Steel
Seat	316 Stainless Steel
Disc Seat	NBR

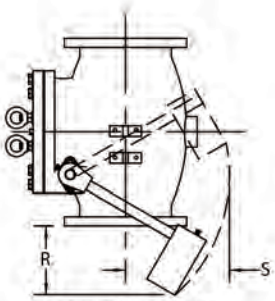
Head Loss Characteristics for Swing Check Valves



585LW Lever and Weight Check Valve

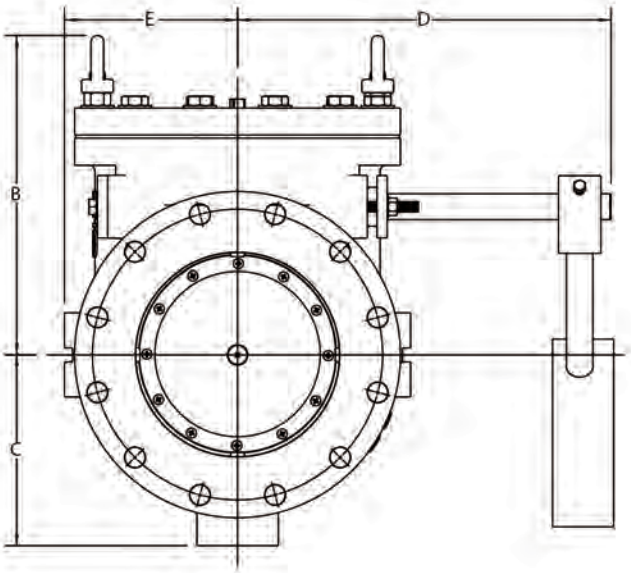
Valve Size	A	B	C	D	E	F	H	Q	R	S
2" 50mm	8.00 203	9.25 235	3.50 89	10.92 277	4.12 105	6.00 152	0.63 16	10.00 254	6.00 152	9.38 238
2.5" 65mm	8.50 216	9.72 247	3.50 89	10.92 277	4.12 105	7.00 178	0.88 22	9.88 251	6.13 156	9.38 238
3" 80mm	9.50 241	10.00 254	4.50 114	11.00 279	4.00 102	7.50 191	0.75 19	10.13 257	5.50 140	9.25 235
4" 100mm	11.50 292	10.75 273	5.00 127	11.75 299	5.00 127	9.00 229	0.94 24	10.75 273	4.88 124	8.75 222
6" 150mm	14.00 356	11.75 299	5.75 146	13.50 343	6.50 165	11.00 279	1.00 25	11.63 295	4.63 118	7.88 200
8" 200mm	19.50 495	13.75 349	7.25 184	17.00 432	7.50 191	13.50 343	1.13 29	15.50 394	5.88 149	10.38 264
10" 250mm	24.50 622	15.00 381	9.38 238	16.25 413	9.00 229	16.00 406	1.19 30	18.38 467	9.00 229	13.63 346
12" 300mm	27.50 699	19.00 483	11.00 279	18.25 464	11.00 279	19.00 483	1.25 32	21.13 537	9.00 229	14.25 362
14" 350mm	31.00 787	22.50 572	13.50 343	26.00 660	14.00 356	21.00 533	1.38 35	25.88 657	11.75 299	18.75 476
16" 400mm	36.00 914	24.50 622	14.25 362	29.50 749	15.00 381	23.50 597	1.44 37	32.00 813	7.25 184	15.88 403
18" 450mm	40.00 1016	26.50 673	17.38 441	31.00 787	18.63 473	25.00 635	1.56 40	36.00 914	9.25 235	21.25 540
20" 500mm	40.00 1016	28.75 730	17.63 448	32.38 822	18.63 473	27.50 699	1.69 43	41.00 1041	—	—
24" 600mm	48.00 1219	32.50 826	20.13 511	34.00 864	21.00 533	32.00 813	1.88 48	38.00 965	8.75 222	19.25 489
30" 750mm	56.00 1422	44.13 1121	29.75 756	39.00 991	24.00 610	38.75 984	2.13 54	53.13 1349	15.50 394	24.00 610
36" 900mm	63.00 1600	50.50 1283	33.50 851	42.00 1067	27.00 686	46.00 1168	2.38 60	57.50 1461	15.00 381	21.00 533
42" 1100mm										

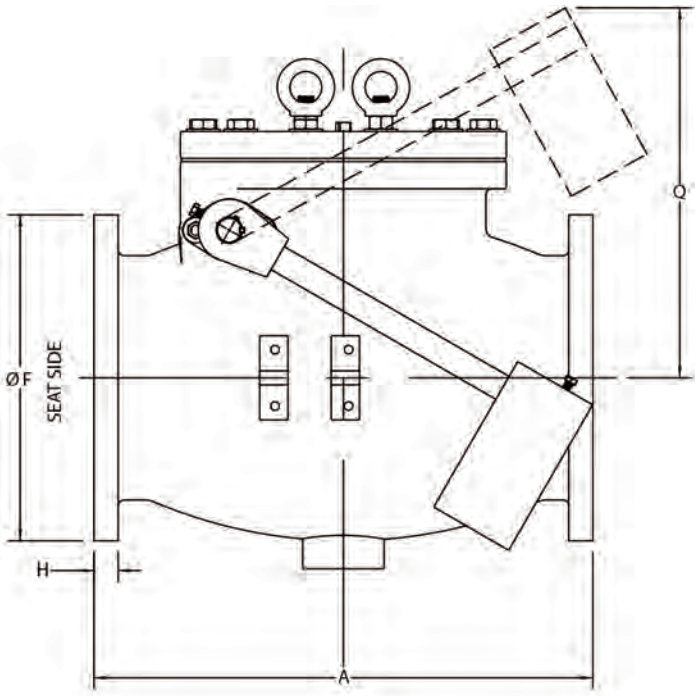
Inches
Millimeters



VP, VERTICAL FLOW UP POSITION INSTALLATION LEVER ARM SWING

Series 585 Swing Check Valves meet the Federal Mandate for Lead Content Limits



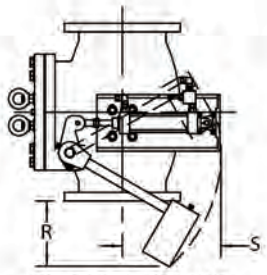


585AC Air Cushioned Check Valve

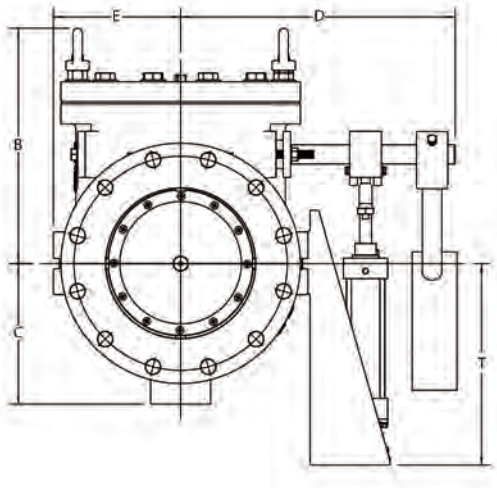
Valve Size	A	B	C	D	E	F	H	Q	R	S	T
2" 50mm	8.00 203	9.25 235	3.50 89	10.92 277	3.83 97	6.00 152	0.63 16	10.00 254	6.00 152	9.38 238	11.25 286
2.5" 65mm	8.50 216	9.72 247	3.50 89	10.92 277	3.83 97	7.00 178	0.88 22	9.88 251	6.13 156	9.38 238	11.13 283
3" 80mm	9.50 241	10.00 254	4.50 114	11.00 279	4.00 102	7.50 191	0.75 19	10.13 257	5.50 140	9.25 235	12.00 305
4" 100mm	11.50 292	10.75 273	5.00 127	11.75 299	5.00 127	9.00 229	0.94 24	10.75 273	4.88 124	8.75 222	10.88 276
6" 150mm	14.00 356	11.75 299	5.75 146	13.50 343	6.50 165	11.00 279	1.00 25	11.63 295	4.63 118	7.88 200	10.88 276
8" 200mm	19.50 495	13.75 349	7.25 184	17.00 432	7.50 191	13.50 343	1.13 29	15.50 394	5.88 149	10.38 264	13.50 343
10" 250mm	24.50 622	15.00 381	9.38 238	16.25 413	9.00 229	16.00 406	1.19 30	18.38 467	9.00 229	13.63 346	13.50 343
12" 300mm	27.50 699	19.00 483	11.00 279	18.25 464	11.00 279	19.00 483	1.25 32	21.13 537	9.00 229	14.25 362	13.50 343
14" 350mm	31.00 787	22.50 572	13.50 343	26.00 660	14.00 356	21.00 533	1.38 35	25.88 657	11.75 299	18.75 476	13.50 343
16" 400mm	36.00 914	24.50 622	14.25 362	29.50 749	15.00 381	23.50 597	1.44 37	32.00 813	7.25 184	15.88 403	14.50 368
18" 450mm	40.00 1016	26.50 673	17.38 441	31.00 787	18.63 473	25.00 635	1.56 40	36.00 914	9.25 235	21.25 540	13.00 330
20" 500mm	40.00 1016	28.75 730	17.63 448	32.38 822	18.63 473	27.50 699	1.69 43	41.00 1041	—	—	14.50 368
24" 600mm	48.00 1219	32.50 826	20.13 511	34.00 864	21.00 533	32.00 813	1.88 48	38.00 965	8.75 222	19.25 489	11.75 299
30" 750mm	56.00 1422	44.13 1121	29.75 756	39.00 991	24.00 610	38.75 984	2.13 54	53.13 1349	15.50 394	24.00 610	17.25 438
36" 900mm	63.00 1600	50.50 1283	33.50 851	42.00 1067	27.00 686	46.00 1168	2.38 60	57.50 1461	15.00 381	21.00 533	13.00 330
42" 1100mm											

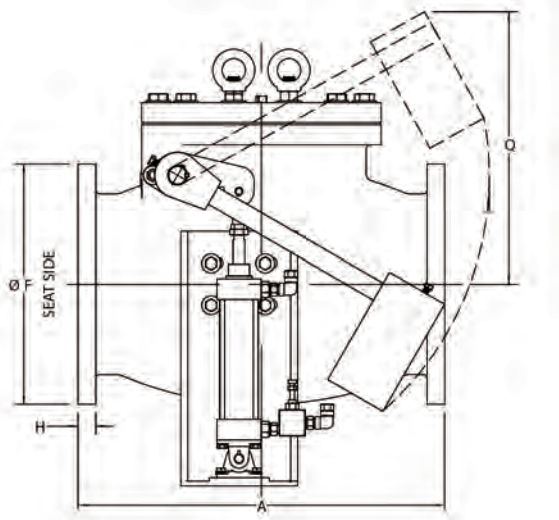
Inches
Millimeters

Valve Size	Weight lbs/kg
3" 80mm	110 50
4" 100mm	145 66
6" 150mm	205 93
8" 200mm	330 150
10" 250mm	500 227
12" 300mm	800 363
14" 350mm	1260 672
16" 400mm	1600 726
18" 450mm	2100 963
20" 500mm	2500 1134
24" 600mm	3700 1678
30" 750mm	6000 2722
36" 900mm	9100 4128
42" 1100mm	Consult Factory



VP, VERTICAL FLOW UP
POSITION INSTALLATION
LEVER ARM SWING

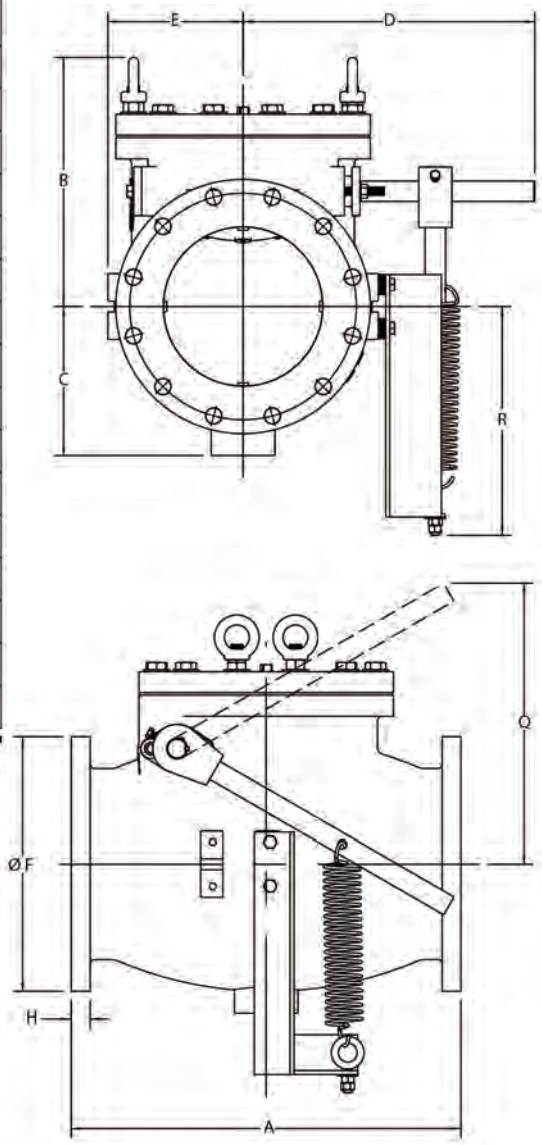




585LS Lever and Spring Check Valve

Valve Size	A	B	C	D	E	F	H	Q	R
2" 50mm	8.00 203	9.25 235	3.50 89	10.92 277	3.83 97	6.00 152	0.63 16	9.25 235	9.83 250
2.5" 65mm	8.50 216	9.72 247	3.50 89	10.92 277	3.83 97	7.00 178	0.88 22	9.25 235	9.83 250
3" 80mm	9.50 241	10.00 254	4.50 114	11.00 279	4.00 102	7.00 178	0.75 19	9.39 239	10.64 270
4" 100mm	11.50 292	10.75 273	5.00 127	11.75 299	5.00 127	9.00 229	0.94 24	10.00 254	9.50 241
6" 150mm	14.00 356	11.75 299	5.75 146	13.50 343	6.50 165	11.00 279	1.00 25	10.90 277	9.50 241
8" 200mm	19.50 495	13.75 349	7.25 184	17.00 432	7.50 191	13.50 343	1.13 29	14.84 377	6.50 165
10" 250mm	24.50 622	15.00 381	9.38 238	16.25 413	9.00 229	16.00 406	1.19 30	17.63 448	13.24 336
12" 300mm	27.50 699	19.00 483	11.00 279	18.25 464	11.00 279	19.00 483	1.25 32	20.40 518	13.25 336
14" 350mm	31.00 787	22.50 572	13.50 343	26.00 660	14.00 356	21.00 533	1.38 35	25.22 641	18.75 476
16" 400mm	36.00 914	24.50 622	14.25 362	29.50 749	15.00 381	23.50 597	1.44 37	32.00 813	15.50 394
18" 450mm	40.00 1016	26.50 673	17.38 441	31.00 787	18.63 473	25.00 635	1.56 40	36.00 914	19.45 494
20" 500mm	40.00 1016	28.75 730	17.63 448	32.38 822	18.63 473	27.50 699	1.69 43	41.00 1041	14.50 368
24" 600mm	48.00 1219	32.50 826	20.13 511	34.00 864	21.00 533	32.00 813	1.88 48	38.00 965	20.83 529
30" 750mm	56.00 1422	44.13 1121	29.75 756	39.00 991	24.00 610	38.75 984	2.13 54	53.13 1349	17.71 450
36" 900mm	63.00 1600	50.50 1283	33.50 851	42.00 1067	27.00 686	46.00 1168	2.38 60	57.50 1461	13.45 342
42" 1100mm									

Inches
Millimeters



Cla-Val 585 Series Swing Check Valve Specifications

The check valve shall be of the Swing Check Valve full body flanged type, with a domed access cover and only one moving part - the swing check valve disc.

The valve body shall have full flow equal to nominal pipe diameter at any point through the valve. The top access port of the body shall be full size, allowing removal of the disc without removal of the valve from the pipeline. The cover shall be domed to create a flushing action around the disc when valve is open. The valve body and cover shall be ASTM A536 Grade 65-45-12, Class B Ductile Iron coated and lined with an ANSI/NSF61 approved fusion bonded epoxy coating. The 585 Series Swing Check shall be designed, manufactured, and tested in accordance with ANSI/AWWA Standard C508-09.

The disc shall be raised one-piece Stainless Steel construction and equipped with a molded resilient seat mounted on the disc with an integral)-Ring for drip tight sealing. Both seats shall be secured with stainless steel fasteners and must be field replaceable without removing the valve from the pipeline.

The valve shall be available with a choice of three closure options:

1) Lever and Weight 2) Air Cushion 3) Lever and Spring

This valve shall be a Cla-Val 585 Swing Check Valve as supplied by Cla-Val, Newport Beach, CA 92659-0325.

Series 586

Pivoting Disc Check Valve

Series 586CT Pivoting Disc Check Valve with Top Mounted Control

Series 586CB Pivoting Disc Check Valve with Bottom Mounted Control

Approvals & Certifications

- 125/150 & 250/300 Class Valves, 3 through 14-inches meet Federal Mandate for Lead Content Limits
- Meets AWWA standards for metal-to-metal seating

Product Advantages

- **Two accessory openings - one in each body half**
- **Double o-ring seals - each side of body seat**
- **Field replaceable seat and disc rings**
- **Metal-to-metal seating**
- **Precise pivot clearance for easy centering, no sticking**
- **Available in standard sizes 3 through 14-inches - For larger sizes, consult factory**

The Cla-Val Series 586 Pivoting Disc Check Valve provides superior flow characteristics with lower head loss than any other comparable hinged disc check valve. The two-piece body design allows for a 40% expanded cross sectional flow area, compensating for the disc mass. The valve is available with top mounted or bottom mounted closing control features to meet a variety of applications. The Model 586CT features a top mounted control for slow opening and controlled closing. The Model 586CB features a bottom mounted control for unrestricted opening and controlled closing.

The unique disc design offers minimal resistance to flow when pivoting and stabilizing in the full open position. The longer laying length minimizes turbulence and cavitation. The off-center pivoting disc provides the least possible flow resistance while minimizing water column reversal and slamming during shutdown due to the short travel distance to the shut-off position.

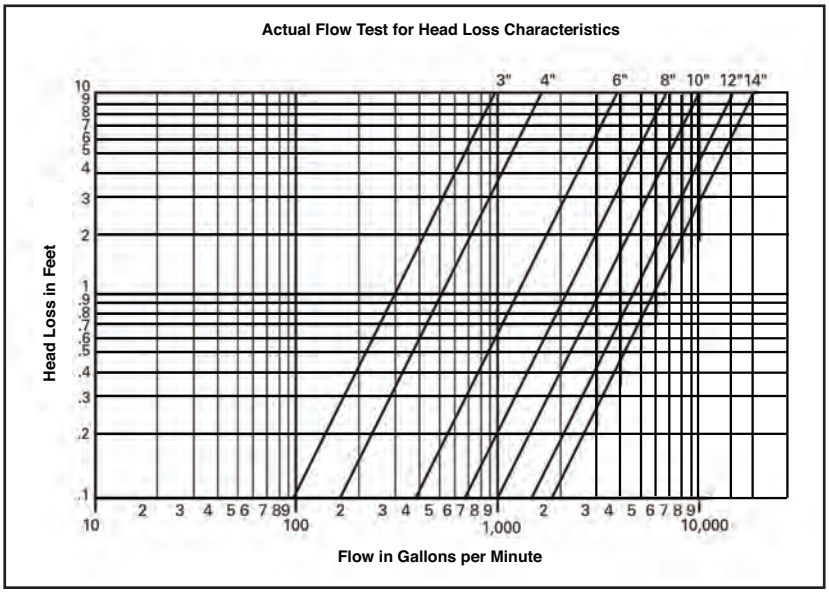
The weight distribution of the pivoting disc enables it to fall into unrestricted into shut-off position, while a slight pressure differential will cause the disc to open. Because of the very low head loss, the Cla-Val Pivoting Disc Check Valve reduces power consumption and improves pumping efficiency.

Note:
Standard offering is two-part epoxy coating interior and exterior.

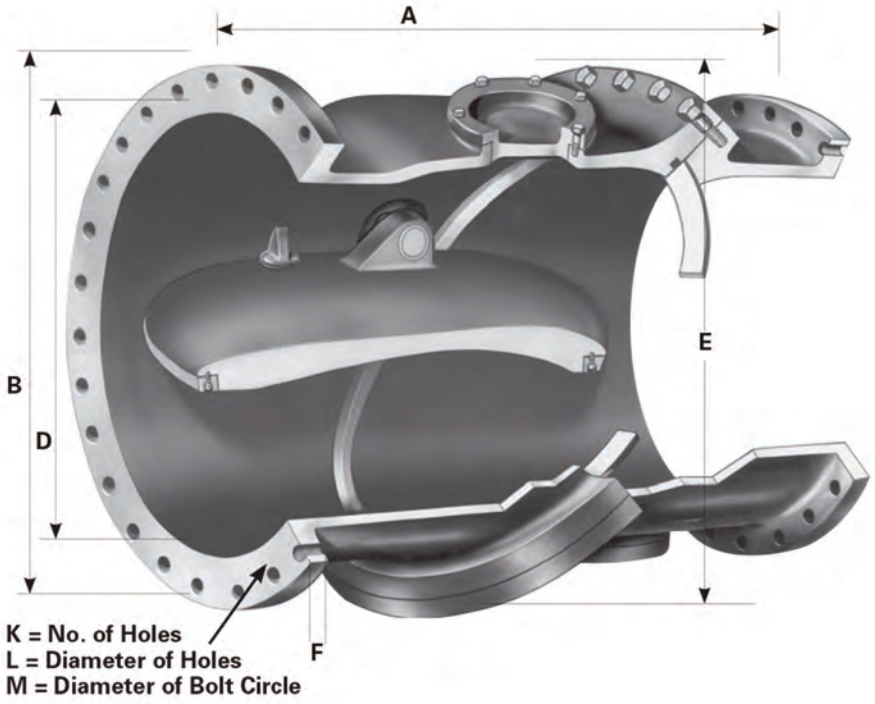
Certified Independent Laboratory Testing

- Certified flow test conducted at independent test research Laboratory
- Figure shown is based on certified tests on valves sizes 8 and 14-inches. Actual field conditions may vary

Note: When comparing similar published data, it is recommended that only certified flow test data be used



Series 586 Pivoting Disc Check Valve Dimensions



Series 586: 125/150# Flange Main Valve Dimensions

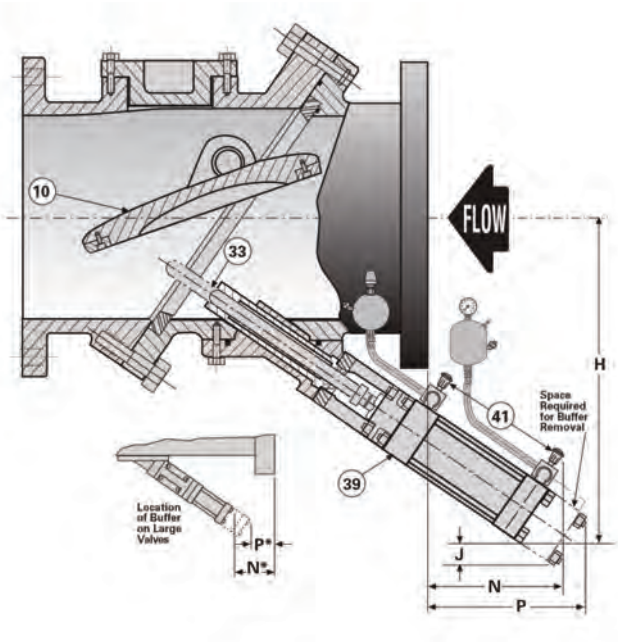
Size (inches)	A	B	D	E	F	G	K	L	M	Weight (lbs.)
3	9.5	7.5	3.0	8.5	.75	9.0	4	.75	6.0	55
4	11.5	9.0	4.0	9.75	.938	11.0	8	.75	7.5	82
6	15.0	11.0	6.0	13.75	1.0	17.5	8	.875	9.5	164
8	19.5	13.5	8.0	15.5	1.125	22.0	8	.875	11.75	265
10	24.5	16.0	10.0	18.0	1.188	25.5	12	1.0	14.25	510
12	24.0	19.0	12.0	21.0	1.25	27.0	12	1.0	17.0	650
14	30.0	21.0	14.0	25.0	1.375	33.0	12	1.125	18.75	1044

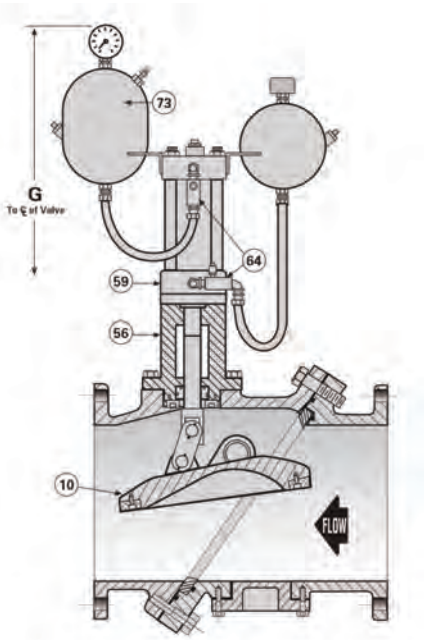
Series 586: 250/300# Flange Main Valve Dimensions

Size (inches)	A	B	D	E	F	G	K	L	M	Weight (lbs.)
3	12.5	8.25	3.0	8.5	1.125	9.0	8	.875	5.625	65
4	11.5	10.0	4.0	9.75	1.25	11.0	8	.875	7.875	93
6	15.0	12.5	6.0	13.75	1.438	17.5	12	.875	10.625	199
8	19.5	15.0	8.0	15.5	1.625	22.0	12	1.0	13.0	357
10	24.5	17.5	10.0	18.0	1.875	25.5	16	1.125	15.25	573
12	24.0	20.5	12.0	21.0	2.0	27.0	16	1.25	17.75	693
14	30.0	23.0	14.0	25.0	2.125	33.0	20	1.25	20.25	1179

Available in standard sizes 3 through 14-inches. For larger sizes, consult factory.

125/150 & 250/300 Pivoting Disc Check Valve: 3 thru 14-inches





Top and Bottom Control Dimensions

Valve Size (inches)	G	H	N	J	P
3	consult factory	consult factory	consult factory	consult factory	consult factory
4	consult factory	consult factory	consult factory	consult factory	consult factory
6	21.375	13.375	8.625	2.75	11.5
8	28.625	14.75	7.75	3.625	11.0
10	30.625	16.5	5.0	4.125	9.0
12	31.875	17.875	7.125	5.125	11.0
14	35.875	19.75	4.75	5.376	9.0

Note: Dimensions are the same for both 125/150 and 250/300 Class Valves and for 586CB and 586CT configurations.

Operating Principles

Model 586CT
This valve is highly recommended when slow open and full control closure of the disc (10) is essential. Slow gradual opening and control closing of the valve disc will prevent or greatly reduce surge pressures (water hammer) that can cause damage to the pipeline each time the pump starts and stops or during power failure.

Slow Gradual Opening
Slow gradual opening is accomplished as the piston inside the cylinder (59) moves upwards pushing oil through the upper control valve (64).

Fully Controlled Closing
1st Stage: Closing control occurs as the piston moves downward pushing oil through the lower control valve (64). **2nd Stage:** Final control stage occurs as the piston approaches the bottom of the cylinder and enters the internal cushion chamber, built into the cap of the cylinder.

By simply regulating each flow control valve (64), a slow gradual opening of the disc (10) can be achieved as well as variable control closing of the disc. Closing time adjustments can be made in the field to best suit your installation. This is a desirable feature because times for opening and closing computed during design of a pump station and pipeline may not coincide with actual field conditions.

Model 586CB
This unique bottom mounted control component arrangement allows the valve disc (10) to open fully without interference and to close freely for approximately 90% of its stroke. After the disc is 90% closed, it comes in contact with the buffer rod (33), at this point final control speed of the last 10% (adjustable) of closing is established.

The flow control valve (41) on the cylinder (39) is easily adjusted to allow slow closure to suit pipeline flow conditions. This prevents or minimizes slamming which greatly reduces pressure surges.

This valve is recommended where rapid flow reversal (caused by a hydropneumatic surge tank or a critical slope of discharge pipeline) is so fast that a free closing check valve cannot shut prior to reverse flow and therefore slams. The bottom mounted control component will stop the disc at approximately 90% (adjustable) of closure and control close the disc to shut-off without slamming. This is accomplished with minimal pressure rise. The control component is self contained. Auxillary equipment is not required.

Such control strategies have been used successfully for decades to eliminate slamming of the valve disc and resultant water hammer.

Series 586 Pivoting Disc Check Valve Technical Data

Materials

Valve Body:
Ductile Iron - ASTM GR 536 65-45-12

Disc:
3 - 10-inches Bronze Alloy C90700
12 - 14-inches Ductile Iron - ASTM GR 536 65-45-12

Seat Ring and Disc Ring:
Bronze ASTM B16 C360000

Pivot Pins:
Stainless Steel ASTM A582 T303

Pivot Pin Bushing:
11 - 14-inches Stainless Steel A269 T304

Exterior Paint:
Universal Metal Primer - FDA Approved for Potable Water Contact

Typical Applications

Cla-Val 586 Pivoting Disc Check Valves are used anywhere a quick, responsive and quiet closure is desired and in the majority of pump applications, including the following;

- Vertical Turbine Pumps
- Booster Pump Stations in High Rise Buildings
- House Pump Applications

Purchase Specifications

The valve body shall be two-piece ductile iron unit. The two body halves and body seat shall be o-ring sealed and bolted together in a manner to sandwich the body seat on a 55° angle. Each body half must have an access covered hole for internal inspection and each body half and disc fully machined to accept future attachments of a bottom control device or a top mounted control device. The seat ring and disc ring must be of the design that permits replaceability in the field without need for special tools or machining. The pivot pins in the body and the bushings in the disc lugs must be stainless steel of different hardness to prevent galling. The bushings shall be press-fit to prevent wear. An indicator shall be provided to show the position of the disc. The area throughout the valve body must be equal to full pipe area. The area through the seat section shall be 40% larger than the inlet and outlet of the valve to achieve low head loss.

The valve must be available in two configurations:

(A) The first with a bottom device for unrestricted opening and controlled closing;
(B) The second with a top mounted device for slow opening and controlled closing.

586CB

Configuration (A) Model 586CB: For unrestricted opening and positive non-slam closing, the valve must have a bottom mounted control component. The control component shall be designed to contact the disc during the last 10% (adjustable) of closure and control the final closing of the valve to prevent water hammer. The rate of closure to be externally adjustable and variable.

586CT

Configuration (B) Model 586CT: For slow open and non-slam closing, a top mounted control component must be provided with slow opening and full control closing features to prevent surge and water hammer. Control component must have (2) control closing flow rates. (1) 90% primary adjustable rate (2) 10% adjustable slow rate during final disc closure. The control component must be a self contained oil system, separate and independent from the water line media. The oil reservoir for closing cycle shall be open to atmosphere with an air breather cap to prevent dust and other media from contaminating the oil. The oil reservoir for opening cycle must be hermetically sealed to contain pressure if necessary (air over oil) and be equipped with a pressure gauge and pneumatic air valve.

The pivoting disc check valve shall be as provided by Cla-Val, Newport Beach, CA.

CLA-VAL™

MODEL 81-12

Check Valve

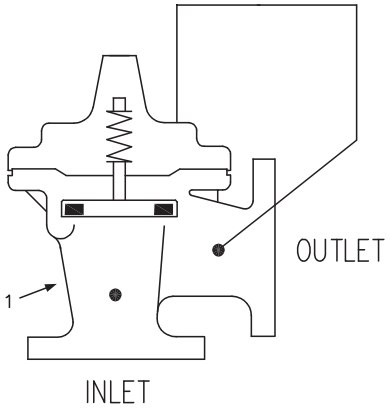
- **Simple Proven Design**
- **No-Slam Operation**
- **Drip-Tight Shut-Off**
- **Recommended for Variable Speed Pumps**
- **No Packing Glands or Stuffing Boxes**
- **Easy to Install & Maintain**

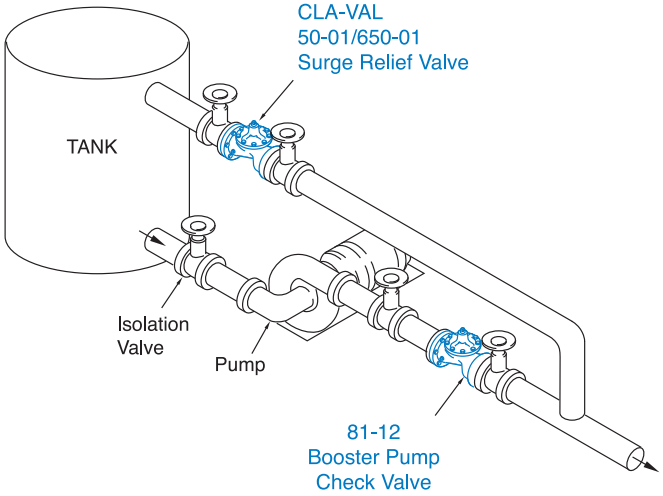
The Cla-Val Model 81-12 Check Valve is a hydraulically operated No-Slam Check Valve. This valve opens when the pressure at the inlet exceeds the discharge psudden opening surges. When a pressure reversal occurs the higher downstream pressure is applied to the cover chamber through the control tube lines, and the valve closes drip tight.

This valve is ideally suited for use where a positive shutoff is required. The rubber disc assures tight sealing even if the fluid contains grit or other small-size particles. The simple packless design insures reliable operation and freedom from leaks.

Schematic Diagram

Item	Description
1	Hytrol (Main Valve)





Typical Applications

Install on the discharge of booster pumps to prevent return flow when pump is off. Relief valve as shown is good practice to minimize surges when pump stops.

For valve sizes larger than 4", use Model 81-02.

81-12 Valve Selection	100-01 Pattern: Globe (G), Angle (A), End Connections: Threaded (T), Grooved (GR), Flanged (F) Indicate Available Sizes							
	Inches	1	1¼	1½	2	2½	3	4
	mm	25	32	40	50	65	80	100
Basic Valve 100-01	Pattern	G, A	G, A	G, A	G, A	G, A	G, A	G, A
	End Detail	T	T	T, F, GR	T, F, GR	T, F, GR*	T, F, GR	T, F, GR
Suggested Flow (gpm)	Maximum	55	93	125	210	300	460	240
Suggested Flow (Liters/Sec)	Maximum	3.5	6	8	13	19	29	15.1

100-01 Series is the full internal port Hytrol. *Globe Grooved Only

Pilot System Specifications

Temperature Rating

Water: to 180°F. Max.

Speed Controls

For valves with opening and closing speed controls order Model 81-02

Materials

Standard Pilot System Materials

Fittings: Brass
Tubing: Copper

Optional Pilot System Materials

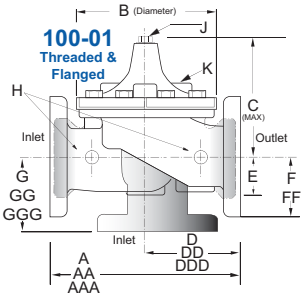
Pilot Systems are available with optional stainless steel or Monel materials.

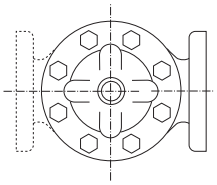
When ordering please specify:

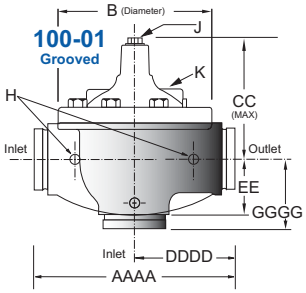
1. Catalog No. 81-12
2. Valve Size
3. Pattern: Globe or Angle
4. Pressure Class
5. Threaded or Flanged
6. Desired Options
7. When Vertically Installed

Model 81-01 Dimensions (In Inches)

Valve Size (Inches)	1	1¼	1½	2	2½	3	4
A Threaded	7.25	7.25	7.25	9.38	11.00	12.50	—
AA 150 ANSI	—	—	8.50	9.38	11.00	12.00	15.00
AAA 300 ANSI	—	—	9.00	10.00	11.62	13.25	15.62
AAAA Grooved End	—	—	8.50	9.00	11.00	12.50	15.00
B Dia.	5.62	5.62	5.62	6.62	8.00	9.12	11.50
C Max.	5.50	5.50	5.50	6.50	7.56	8.19	10.62
CC Max. Grooved End	—	—	4.75	5.75	6.88	7.25	9.31
D Threaded	3.25	3.25	3.25	4.75	5.50	6.00	—
DD 150 ANSI	—	—	4.00	4.75	5.50	6.00	7.50
DDD 300 ANSI	—	—	4.25	5.00	5.88	6.38	7.88
DDDD Grooved End	—	—	—	4.75	—	6.00	7.50
E	1.12	1.12	1.12	1.50	2.69	2.06	3.19
EE Grooved End	—	—	2.00	2.50	2.88	3.12	4.25
F 150 ANSI	—	—	2.50	3.00	3.50	3.75	4.50
FF 300 ANSI	—	—	3.06	3.25	3.75	4.13	5.00
G Threaded	1.88	1.88	1.88	3.25	4.00	4.50	—
GG 150 ANSI	—	—	4.00	3.25	4.00	4.00	5.00
GGG 300 ANSI	—	—	4.25	3.50	4.31	4.38	5.31
GGGG Grooved End	—	—	—	3.25	—	4.25	5.00
H NPT Body Tapping	0.375	0.375	0.375	0.375	0.50	0.50	0.75
J NPT Cover Center Plug	0.25	0.25	0.25	0.50	0.50	0.50	0.75
K NPT Cover Tapping	0.375	0.375	0.375	0.375	0.50	0.50	0.75
Stem Travel	0.40	0.40	0.40	0.60	0.70	0.80	1.10
Approx. Ship Wt. Lbs.	15.00	15.00	15.00	35.00	50.00	70.00	140.00
X Pilot System	11.00	11.00	11.00	13.00	14.00	15.00	17.00
Y Pilot System	9.00	9.00	9.00	9.00	10.00	11.00	12.00
Z Pilot System	9.00	9.00	9.00	9.00	10.00	11.00	12.00







Pressure Ratings (Recommended Maximum Pressure - psi)

Valve Body & Cover		Pressure Class			
		Flanged			Threaded
Grade	Material	ANSI Standards*	150 Class	300 Class	300 Class
ASTM A536	Ductile Iron	B16.42	250	400	400
ASTM A216-WCB	Cast Steel	B16.5	285	400	400
ASTM B62	Bronze	B16.24	225	400	400

Note: * ANSI standards are for flange dimensions only.
Flanged valves are available faced but not drilled.
‡ End Details machined to ANSI B2.1 specifications.
Valves for higher pressure are available; consult factory for details

Materials

Component	Standard Material Combinations		
Body & Cover	Ductile Iron	Cast Steel	Bronze
Available Sizes	1" - 4"	1" - 4"	1" - 4"
Disc Retainer & Diaphragm Washer	Cast Iron	Cast Steel	Bronze
Trim: Disc Guide, Seat & Cover Bearing	Bronze is Standard Stainless Steel is Optional		
Disc	Buna-N® Rubber		
Diaphragm	Nylon Reinforced Buna-N® Rubber		
Stem, Nut & Spring	Stainless Steel		

For material options not listed, consult factory.
Cla-Val manufactures valves in more than 50 different alloys.

Air Valve Model Number Comparison
(Based on Manufacturers Published Information)
AIR RELEASE VALVES Threaded N.P.T. Inlet and Outlet

Materials of Construction: Cast Iron Body, Stainless or Bronze Trim with Buna-N®

Size	MWP	CLA-VAL	APCO	CRISPIN	EMPIRE/GA	VAL-MATIC
0.5	175	3450-AR116	50	M5	905	15A
0.75	175	3475-AR116	50	M8	905	15A.2
1	175	3410-AR116	50	M10	905	15A.3
0.5	175	3450-AR332	55	AR5	910	22.4
0.75	175	3475-AR332	55	AR8	910	22.4
1	175	3410-AR332	55	AR10	910	22.3
0.5	300	3450-AR332.3	55	N/A	910	22.9
0.75	300	3475-AR332.3	55	NM	910	22.9
1	300	3410-AR332.3	55	N/A	910	22.9
0.75	150	3475-AR018	65	N/A	912	25.5
1	150	3410-AR018	200A	N/A	912	25.5
0.5	300	3450-AR116.3	200A	NM	920	25.6
0.75	300	3475-AR116.3	200A	NM	920	25.6
1	150	3410-AR316C	200A	PL10	920	38
2	150	3420-AR316C	200A	PL10A	920	38.2
1	300	3410-AR316.3C	200A	PL10	920	38.5
2	300	3420-AR316.3C	200A	PL10A	920	38.6
2	150	3420-AR038C	200	PL20	922	45
3	150	3430-AR038C	200	P30	922	45.2
2	300	3420-AR732.3C	200	PL20	922	45.5
3	300	3430-AR732.3C	200	P30	922	45.6
2	500	3420-AR-HP500	205	HP20A	NM	50
2	800	3420-AR-HP800	206	HP20C	NM	50HP

AIR / VACUUM VALVES THREADED N.P.T. INLET AND OUTLET

Materials of Construction: Cast Iron Body, Stainless or Bronze Trim with Buna-N®

Size	MWP	CLA-VAL	APCO	CRISPIN	EMPIRE/GA	VAL-MATIC
0.5	300	350-AV.3	141	A5	930	150
1	300	351-AV.3	142	A10	930	151
2	300	352-AV.3	144	A20	930	152
3	300	353-AV.3	146	A30	930	153

AIR / VACUUM VALVES
ANSI CLASS 125 FLANGED INLET WITH PLAIN HOOD OUTLET

Materials of Construction: Cast Iron Body, Stainless Trim with Buna-N®

Size	MWP	CLA-VAL	APCO	CRISPIN	EMPIRE/GA	VAL-MATIC
4	150	354-AV	152	AL41	930	104
6	150	356-AV	153	AL61	930	106
8	150	358-AV	154	AL81	930	108
10	150	3510-AV	155	AL101	930	110
12	150	3612-AV	156	AL121	930	112
14	150	3S14-AV	157	AL141	930	114
16	150	3516-AV	158	AL161	930	116

ANSI CLASS 250 FLANGED INLET WITH PLAIN HOOD OUTLET

Materials of Construction: Cast Iron Body, Stainless Trim with Buna-N®

Size	MWP	CLA-VAL	APCO	CRISPIN	EMPIRE/GA	VAL-MATIC
4	300	354-AV.3	152	AL42	930	154
6	300	356-AV.3	153	AL62	930	156
8	300	358-AV.3	154	AL82	930	158
10	300	3510-AV.3	155	AL102	930	160
12	300	3512-AV.3	156	AL122	930	162
14	300	3514-AV.3	157	AL142	930	164
16	300	3516-AV.3	158	AL162	930	166

COMBINATION AIR VALVES - SINGLE BODY TYPE
THREADED N.P.T. INLET AND OUTLET

ANSI CLASS 250 FLANGED INLET WITH THREADED OUTLET

Materials of Construction: Cast Iron Body, Stainless Trim with Buna-N

Size	MWP	CLA-VAL	APCO	CRISPIN	EMPIRE/GA	VAL-MATIC
3	300	363-CAV332.3F	147C	UL32	945J	203C.15
4	300	364-CAV332.3F	149C	UL42	945J	204C.15

ANSI CLASS 250 FLANGED INLET WITH THREADED OUTLET

Materials of Construction: Cast Iron Body, Bronze Trim with Buna-N®

Size	MWP	CLA-VAL	APCO	CRISPIN	EMPIRE/GA	VAL-MATIC
3	300	363-CAV32.3F	147C.1	UL32.1	N/A	203C.5
4	300	364-CAV332.3F	149C.1	UL42.1	N/A	204C.5

ANSI CLASS 125 FLANGED INLET WITH PLAIN HOODED OUTLET

Materials of Construction: Cast Iron Body, Stainless Trim with Buna-N®

Size	MWP	CLA-VAL	APCO	CRISPIN	EMPIRE/GA	VAL-MATIC
6	150	366-CAV038	150C	C61	N/A	206C
8	150	368-CAV038	151C	C81	N/A	208C

ANSI CLASS 250 FLANGED INLET WITH PLAIN HOODED OUTLET

Materials of Construction: Cast Iron Body, Stainless Trim with Buna-N®

Size	MWP	CLA-VAL	APCO	CRISPIN	EMPIRE/GA	VAL-MATIC
6	300	366-CAV038.3	150C	C62	N/A	256C
8	300	368-CAV038.3	151C	C82	N/A	258C

Materials of Construction: Cast Iron Body, Stainless Trim with Buna-N®

Size	MWP	CLA-VAL	APCO	CRISPIN	EMPIRE/GA	VAL-MATIC
1	300	361-CAV564.3	143C.2	UL10	945	201C.2
2	300	362-CAV332.3	145C.2	UL20	945	202C.2
3	300	363-CAV332.3	147C.2	UL30	945	203C.2
4	300	364-CAV332.3	149C.2	UL40	945	204C.2

THREADED N.P.T. INLET AND OUTLET

Materials of Construction: Cast Iron Body, Bronze Trim with Buna-N®

Size	MWP	CLA-VAL	APCO	CRISPIN	EMPIRE/GA	VAL-MATIC
1	300	361-CAV564.3	143C.1	UL10.1	945	201C
2	300	362-CAV332.3	145C.1	UL20.1	945	202C
3	300	363-CAV332.3	147C.1	UL30.1	945	203C
4	300	364-CAV332.3	149C.1	UL40.1	945	204C

COMBINATION AIR VALVES - SINGLE BODY TYPE

ANSI CLASS 125 FLANGED INLET WITH THREADED OUTLET

Materials of Construction: Cast Iron Body, Stainless Trim with Buna-N®

Size	MWP	CLA-VAL	APCO	CRISPIN	EMPIRE/GA	VAL-MATIC
3	150	363-CAV332F	147C	UL31	945J	203C.14
4	150	364-CAV332F	149C	UL41	945J	204C.14

ANSI CLASS 125 FLANGED INLET WITH THREADED OUTLET

Materials of Construction: Cast Iron Body, Bronze Trim with Buna-N®

Size	MWP	CLA-VAL	APCO	CRISPIN	EMPIRE/GA	VAL-MATIC
3	150	363-CAV332F	147C.1	UL31.1	N/A	203C.13
4	150	364-CAV32F	149C.1	UL41.1	N/A	204C.13

COMBINATION AIR VALVES - DUAL BODY TYPE
THREADED N.P.T. INLET AND OUTLET

Materials of Construction: Cast Iron Body, Stainless or Bronze Trim with Buna-N®

Size	MWP	CLA-VAL	APCO	CRISPIN	EMPIRE/GA	VAL-MATIC
1	150	MTP361-CAV332	142/50	AL10/lU15	950	101/22
1	300	MTP361-CAV116.3	142/50	A41/AR10	950	151/22.9
2	150	MTP362-CAV332	144/50	AL20/M5	950	102122
2	300	MTP36i-CAV116.3	144/50	AL20/AR10	950	152/22.9
3	150	MTP363-CAV332	146/50	AL30/M5	950	103/22
3	300	MTP363-CAV116.3	146/50	130M/R10	950	153/22.9

ANSI CLASS 125 FLANGED INLET WITH PLAIN HOODED OUTLET

Materials of Construction: Cast Iron Body, Stainless or Bronze Trim with Buna-N®

Size	MWP	CLA-VAL	APCO	CRISPIN	EMPIRE/GA	VAL-MATIC
4	150	MTP364-CAV316	152/200A	AL41/PL10	950	104/38
6	150	MTP366-CAV316	153/200A	AL61/PL10	950	106/38
8	150	MTP368-CAV316	154/200A	AL81/PL10	950	108/38
8	150	MTP368-CAV038	154/200	AL81/PL20	951	108/45
10	150	MTP3610-CAV316	155/200A	AL101/PL10	950	110/38
10	150	MTP3610-CAV038	155/200	AL101/PL20	951	110/45
12	150	MTP3612-CAV316	156/200A	AL121/PL10	950	112/38
12	150	MTP3612-CAV038	156/200	AL121/PL20	951	112/45
14	150	MTP3614-CAV316	157/200A	AL141/PL10	950	114/38
14	150	MTP3614-CAV038	157/200	AL141/PL20	951	114/45
16	150	MTP3616-CAV16	158/200A	AL161/PL10	950	116/38
16	150	MTP3616-CAV038	158/200	AL161/PL20	951	116/45

ANSI CLASS 250 FLANGED INLET WITH PLAIN HOODED OUTLET

Materials of Construction: Cast Iron Body, Stainless or Bronze Trim with Buna-N®

Size	MWP	CLA-VAL	APCO	CRISPIN	EMPIRE/GA	VAL-MATIC
4	300	MTP364-CAV316.3	152/200A	AL42/PL10	950	154/38.5
6	300	MTP366-CAV16.3	153/200A	AL62/PL10	950	156/38.5
8	300	MTP368-CAV16.3	154/200A	AL82/PL10	950	158/38.5
8	300	MTP368-CAV38.3	154/200	AL82/PL20	951	158/45.5
10	300	MTP3610-CAV316.3	155/200A	AL102/PL10	950	160/38.5
10	300	MTP3610-CAV038.3	155/200	AL102/PL20	951	160/45.5
12	300	MTP3612-CAV316.3	156/200A	AL122/PL10	950	162/38.5
12	300	MTP3612-CAV038.3	156/200	AL122/PL20	951	162/45.5
14	300	MTP3614-CAV16.3	157/200A	AL142/PL10	950	164/38.5
14	300	MTP3614-CAV038.3	157/200	AL142/PL20	951	164/45.5
16	300	MTP3616-CAV316.3	158/200A	AL162/PL10	950	166/38.5
16	300	MTP3616-CAV038.3	158/200	AL162/PL20	951	166/45.5

AIR & VACUUM VALVE WITH ARRESTOR CHECK
ANSI CLASS 150 FLANGED INLET

Materials of Construction: Cast Iron Body, Stainless or Bronze Trim with Buna-N®

Size	MWP	CLA-VAL 125 Lb.	CLA-VAL 250 LB	APCO 125 Lb	APCO 250 Lb	CRISPIN	EMPIRE/GA	VAL-MATIC
3	150/300	353AV/AC	353AV/AC.3	1903.1	1903.2	AL31/SCM5	983	12031103
4	150/300	354AV/AC	354AV/AC.3	1904.1	1904.2	AL411SCIPL10	983	120411041
6	150/300	356AV/AC	356AV/AC.3	1906.1	1906.2	AL611SC/PL10	983	1206/105
8	150/300	358AV/AC	358AV/AC.3	1908.1	1908.2	AL811SC/PL10	983	12081108
10	150/300	3510AV/AC	3510AV/AC.3	1910.1	1910.2	AL1011/SC/PL10	983	1210/110
12	150/300	3512AV/AC	3512AV/AC.3	1912.1	1912.2	AL1211/SC/PL10	983	1212/112
14	150/300	3514AV/AC	3514AV/AC.3	1914.1	1914.2	AL1411/SC/PL10	983	214/114
16	150/300	3516AV/AC	3516AV/AC.3	1916.1	1916.2	AL1611/SC/PL10	983	1216/116

WELL SERVICE VALVES WITH DOUBLE PORT THROTTLING DEVICE
THREADED INLET AND OUTLET

Materials of Construction: Cast Iron Body, Stainless or Bronze Trim with Buna-N®

Size	MWP	CLA-VAL	APCO	CRISPIN	EMPIRE/GA	VAL-MATIC
0.5	150	370-WS	141DAT	D5	933	100T
0.5	300	370-WS.3	141DAT	D5	933	150T
1	150	371-WS	142DAT	DL10	933	101T
1	300	371-WS.3	142DAT	DL10	933	151T
2	150	372-WS	144DAT	DL20	933	102T
2	300	372-WS.3	144DAT	DL20	933	152T
3	150	373-WS	146DAT	DL30	933	103T
3	300	373-WS.3	146DAT	DL30	933	153T

WELL SERVICE VALVE WITH WATER DIFFUSER ONLY
THREADED N.P.T. INLET AND OUTLET

Materials of Construction: Cast Iron Body, Stainless Trim with Buna-N®

Size	MWP	CLA-VAL	APCO	CRISPIN	EMPIRE/GA	VAL-MATIC
1/2	300	370WD	140WD			100WS
1	300	371WD	141WD			101WS
2	300	372WD	142WD			102WS
3	300	373WD	143WD			103WS

VACUUM BREAKER (ONLY)
ANSI CLASS 125 FLANGED INLET AND HOOD OUTLET

Materials of Construction: Cast Iron Body, Bronze/Stainless Steel Trim with Buna-N®

Size	MWP	CLA-VAL	APCO	CRISPIN	EMPIRE/GA	VAL-MATIC
4	150	384VB	1504			1804VB
6	150	386VB	1506			1806VB
8	150	388VB	1508			1808VB
10	150	3810VB	1510			1810VB
12	150	3812VB	1512			1812VB
14	150	3814VB	1514			1814VB
16	150	3816VB	1516			1816VB

VACUUM BREAKER/AIR RELEASE (DUAL BODY)
THREADED INLET AND OUTLET

Materials of Construction: Cast Iron Body, Stainless Trim with Buna-N®

Size	MWP	CLA-VAL	APCO	CRISPIN	EMPIRE/GA	VAL-MATIC
4	150	384VB/AR116	1504C			1804VB/38
6	150	386VB/AR116	1506C			1806VB/38
8	150	388VB/AR116	1508C			1808VB/38
10	150	3810VB/AR116	1510C			1810VB/38
12	150	3812VB/AR116	1512C			1812VB/38
14	150	3814VB/AR116	1514C			1814VB/38
16	150	3816VB/AR116	1516C			1816VB/38

SEWAGE AIR RELEASE VALVES
THREADED INLET AND OUTLET

Materials of Construction: Cast Iron Body, Stainless Trim with Buna-N®

Size	MWP	CLA-VAL	APCO	CRISPIN	EMPIRE/GA	VAL-MATIC
2	150	34-WW25-316	400/400S	SL20	925	48
3	150	34-WW35-316	400/400S	SL30	925	48.2
4	150	34-WW45 316	400/400S	SL40	925	48.3
2	150	34-WW21-716	450	S20	927	49
3	150	34-WW31-716	450	S30	927	49.2
4	150	34-WW41-716	450	S40	927	49.3

AIR & VACUUM VALVE WITH ARRESTOR CHECK
ANSI CLASS 150 FLANGED INLET

Materials of Construction: Cast Iron Body, Stainless or Bronze Trim with Buna-N®

Size	MWP	CLA-VAL	APCO	CRISPIN	EMPIRE/GA	VAL-MATIC
3	150	353-AV/AC	1603/146	AL31 SC	931	1203/103
4	150	35-AV/AC	1604/152	AL41SC	931	1204/104
6	150	356-AV/AC	1606/153	AL61SC	931	1206/105
8	150	368-AV/AC	1608/154	AL81SC	931	12081108
10	150	3510-AV/AC	1610/155	AL1011SC	931	12101110
12	150	3612-AV/AC	1612/156	AL1211SC	931	1212/112
14	150	3514-AV/AC	1614/157	AL1411SC	931	1214/114
16	150	3516-AV/AC	1616/158	AL1611SC	931	12161116

VALVES WITH BACKWASH ACCESSORIES
THREADED INLET AND OUTLET

Materials of Construction: Cast Iron Body, Stainless or Bronze Trim with Buna-N®

Size	MWP	CLA-VAL	APCO	CRISPIN	EMPIRE/GA	VAL-MATIC
2	150	34-WW25-316BW	400WA/400SWA	SL20B	925F	48BW
3	150	34-WW35-316BW	400WA/400SWA	SL30B	925F	48.2BW
4	150	34-WW45-316BW	400WA/400SWA	SL40B	925F	48.3BW
2	150	34-WW21-716BW	450WA	S20B	927F	49BW
3	150	34-WW31-716BW	450WA	S30B	927F	49.2BW
4	150	34-WW41-716BW	450WA	S40B	927F	49.3BW

SEWAGE AIR AND VACUUM VALVES
THREADED INLET AND OUTLET

Materials of Construction: Cast Iron Body, Stainless or Bronze Trim with Buna-N®

Size	MWP	CLA-VAL	APCO	CRISPIN	EMPIRE/GA	VAL-MATIC
2X1	150	35-WW21	401	SL20A	935	301
2X2	150	35-WW22	402	S20A	939	302
3X3	150	35-WW33	403	S30	935	303

SEWAGE AIR AND VACUUM VALVES
VALVES WITH BACKWASH ACCESSORIES
THREADED INLET AND OUTLET

Materials of Construction: Cast Iron Body, Stainless or Bronze Trim with Buna-N®

Size	MWP	CLA-VAL	APCO	CRISPIN	EMPIRE/GA	VAL-MATIC
2X1	150	35-WW21BW	401WA	SL20AB	935	301BW
2X1	150	35S-WW21 BW	401SWA	S1 OASB	939	301 SBW
2X2	150	35-WW22BW	402WA	S20AB	939	302BW
2X2	150	35S-WW22BW	402SWA	S20ASB	939	302SBW
3X3	150	35-WW33BW	403WA	S30B	935	303BW

ANSI 125 FLANGED WITH THREADED OUTLET

Materials of Construction: Cast Iron Body, Stainless or Bronze Trim with Buna-N®

Size	MWP	CLA-VAL	APCO	CRISPIN	EMPIRE/GA	VAL-MATIC
4X4	150	35-WW44	404	S41A	935	304
6X6	150	35-WW66	406	S61A	935	306
8X8	150	3S-WW88	408	S81A	935	308

VALVES WITH BACKWASH ACCESSORIES
ANSI 125 FLANGED WITH THREADED OUTLET

Materials of Construction: Cast Iron Body, Stainless or Bronze Trim with Buna-N®

Size	MWP	CLA-VAL	APCO	CRISPIN	EMPIRE/GA	VAL-MATIC
4X4	150	35-WW44BW	404WA	S41AB	935F	304BW
6X6	150	35-WW66BW	406WA	S61AB	935F	306BW
8X8	150	35-WW88BW	408WA	S81AB	935F	308BW

SEWAGE COMBINATION AIR VALVES
THREADED INLET AND OUTLET

Material of construction: Cast Iron Body, Stainless or Bronze Trim with Buna -N®

Size	MWP	CLA-VAL	APCO	CRISPIN	EMPIRE/GA	VAL-MATIC
2X1	150	36-WW21	443	USL20	942	801
2X1	150	36-WWL21	443	USL20	942	801 L
2X2	150	36-WW22	445	US20	942	802
3X3	150	36-WW33	447	US30	942	803
4X4	150	36-WW44	449	US40	942	804

VALVES WITH BACKWASH ACCESSORIES
THREADED INLET AND OUTLET

Materials of Construction: Cast Iron Body, Stainless or Bronze Trim with Buna-N®

Size	MWP	CLA-VAL	APCO	CRISPIN	EMPIRE/GA	VAL-MATIC
2X1	150	36-WW21BW	443WA	USL20B	942F	801BW
2X1	150	36-WWL21BW	443WA	USL20B	942F	801LBW
2X2	150	36-WW22BW	441WA	US20B	942F	802BW
3X3	150	36-WW33BW	447 WA	US30B	942F	803BW
4X4	150	36-WW44BW	449WA	US40B	942F	804BW

Silent Check Valve Model Number Comparisons

(Based on Manufacturers Published Information)

Materials of Construction: Ductile Iron Bodies - Bronze Trim - Stainless Steel Spring

Company Name	Wafer Style	Globe Style
Cla-Val	Series 580 2"-10" Size	Series 581 2-1/2" - 42" Size
APCO	Series 300 1"-10" Size	600 Series 3"-42" Size
Empire/GA (No Longer Offered)	Series 290 2"-10" Size	Series 280 3"-24" Size
Metraflex	Series 700 2"-10" Size	Series 900 3"-24" Size
Crispin	Series WC 2”-10” Size	Series GC 2 1/2"-24" Size
Flow-Matic	Series * #------- Size	Series 402 4"-12" Size
Hammond	Series 1R925A 2"-10" Size	Series 1R354A 3"-12" Size
Val-Matic	Series 1400 2"-10" Size	Series 1800 2-1/2" - 42" Size
NIBCO	Series W910 2"-10" Size	Series P910 3"-24" Size
ITT Grinnell	Series 400 2"-10" Size	Series 500 3"-16" Size
Miller	Series 153 2"-10" Size	Series 162 3"-24" Size
Muessco	Series 91AP 1"-10" Size	Series 105MAP 3"-24" Size
Durabla	Series * 2"-10" Size	Series * 3"-16" Size
Jenkins (No Longer Offered)	Series 777 2-1/2"-10" Size	Series 779 #------- Size
C.P.V.	Series G 2"-10" Size	Series GB 3"-24" Size
Smolenski (No Longer Offered)	Series 11 2"-10" Size	Series 900 3"-24" Size
Clow/William Hager	Series 329 1"-10" Size	Series 600 3"-42" Size

*** Series and sizes unknown**

WARRANTY

Limited Warranty

Air Valves as supplied by Cla-Val. are warranted for one year from date of shipment against manufacturing defects in material and workmanship that develop in the service for which they are designed, provided the products are installed and used in accordance with all applicable instructions and limitations issued by Cla-Val. Electronic components manufactured by Cla-Val are warranted for one year from the date of shipment.

We will repair or replace defective material, free of charge, which is returned to our factory, transportation charges prepaid, provided that, after inspection, the material is found to have been defective at time of shipment. This warranty is expressly conditioned on the purchaser's giving Cla-Val immediate written notice upon discovery of the defect.

Components used by Cla-Val but manufactured by others, are warranted only to the extent of that manufacturer's guarantee.

This warranty shall not apply if the product has been altered or repaired by others, and Cla-Val shall make no allowance or credit for such repairs or alterations unless authorized in writing by Cla-Val.

Disclaimer of Warranties and Limitations of Liability

The foregoing warranty is exclusive and in lieu of all other warranties and representations, whether expressed, implied, oral or written, including but not limited to any implied warranties or merchantability or fitness for a particular purpose. All such other warranties and representations are hereby cancelled.

Cla-Val shall not be liable for any incidental or consequential loss, damage or expense arising directly or indirectly from the use of the product. Cla-Val shall not be liable for any damages or charges for labor or expense in making repairs or adjustments to the product. Cla-Val shall not be liable for any damages or charges sustained in the adaptation or use of its engineering data and services. No representative of Cla-Val may change any of the foregoing or assume any additional liability or responsibility in connection with the product. The liability of Cla-Val is limited to material replacements F.O.B. Newport Beach, California.

TERMS OF SALE

Terms Of Sale

Acceptance Of Orders

All orders are subject to acceptance by our main office at Newport Beach, California.

Credit Terms

Credit terms are net thirty (30) days from date of invoice.

Purchase Order Forms

Orders submitted on customer's own purchase order forms will be accepted only with the express understanding that no statements, clauses, or conditions contained in said order form will be binding on the Seller if they in any way modify the Seller's own terms and conditions of sales.

Product Changes

The right is reserved to make changes in pattern, design or materials when deemed necessary, without prior notice.

Prices

All prices are F.O.B. Newport Beach, California unless expressly stated otherwise on our acknowledgement of the order. Prices are subject to change without notice. The prices at which any order is accepted are subject to adjustment to the Seller's price in effect at the time of shipment. Prices do not include sales, excise, municipal, state or any other Government taxes. Minimum order charge $100.00

Responsibility

We will not be responsible for delays resulting from strikes, accidents, negligence of carriers, or other causes beyond our control. Also, we will not be liable for any unauthorized product alterations or charges accruing therefrom.

Risk

All goods are shipped at the risk of the purchaser after they have been delivered by us to the carrier. Claims for error, shortages, etc., must be made upon receipt of goods.

Export Shipments

Export shipments are subject to an additional charge for export packing.

Returned Goods

1. Customers must obtain written approval from Cla-Val prior to returning any material.
2. Cla-Val reserves the right to refuse the return of any products.
3. Products more than six (6) months old cannot be returned for credit.
4. Specially produced, non-standard models cannot be returned for credit.
5. Rubber goods such as diaphragms, discs, o-rings, etc., cannot be returned for credit, unless as part of an unopened vacuum sealed repair kit which is less than six months old.
6. Goods authorized for return are subject to a 35% ($100 minimum) restocking charge and a service charge for inspection, reconditioning, replacement of rubber parts, retesting, repainting and repackaging as required.
7. Authorized returned goods must be packaged and shipped prepaid to Cla-Val,1701 Placentia Avenue, Costa Mesa, California 92627.

Air and Check Valves
for water and wastewater applications

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