

VALMATIC®

Protection
airValve
Efficiency
Air Valves



www.valmatic.com

Meets AWWA C512
NSF/ANSI 61 & 372 Certified

Look to Val-Matic for Solutions

The wide range of air related concerns in pipeline and treatment plant design require a multitude of solutions. With the broadest line of air valves available coupled with Engineering expertise and Manufacturing experience, Val-Matic is the number one source for solutions to air related issues. The following are a few of the basic valve applications and the solutions Val-Matic can provide.

EFFICIENCY AND VACUUM PROTECTION

The primary purpose of air valves is to provide pipeline efficiency by continuous removal of air at pipeline highpoints and vacuum protection by admitting large quantities of air upon pump shut down or system failure.

SURGE CONTROL

Air valves play an important role in pipelines to control or reduce surges. Surges result from sudden changes in velocity of the pipeline fluid. These velocity changes occur regularly due to pipeline filling, pump operation, line breaks and power failure. The effects of surges can be devastating. Surges are typically 50 psi for every 1 ft/sec of rapid change in flow velocity. This is added to the pipeline static pressure. Through computer modeling and transient analysis, it has been shown that air valves can play a critical role in suppressing pipeline surges during column separation conditions.

PIPELINE SURGES

Power or system failures can often result in water column separation at high points in the line. If the water column is allowed to separate and form a vacuum pocket, a devastating surge can occur when the columns

rejoin. To prevent a vacuum from forming, a Surge-Suppression Air Valve or Vacuum Breaker is used to admit large quantities of air into the pipeline.

A Surge-Suppression Air Valve consists of a Combination Air Valve equipped with a Regulated-Exhaust Device that allows full airflow into the pipeline, but restricts the airflow out of the pipeline. Similarly, a Vacuum Breaker allows rapid entry of air into the pipeline, but prevents flow out of the pipeline. When equipped with an Air Release Valve, the Vacuum Breaker will provide controlled release of air through the small Air Release Valve orifice. Both methods dampen or suppress surges in the pipeline by temporarily trapping a pocket of air and cushioning the impact of the returning columns of water by regulating the exhaust of the air pocket.

VERTICAL PUMP COLUMN SURGES

High velocity rapidly develops in a pump column when a vertical turbine or deep well pump starts against an air-filled column and closed check valve. A power-actuated check valve must absorb the full force of the impending impact. A mechanical check valve will open, relieving a portion of the force but still sees extreme surges. The best way to prevent surges in the pump column and connecting piping is to regulate the exhaust of the air in the pump column during pump start-up (AWWA M-51, p. 24). A Well Service Air Valve equipped with either a Dual Port Throttling Device or a Regulated-Exhaust Device vent air from the pump column at a controlled rate so that all or most of the air escapes just before the check valve opens. (See Val-Matic technical paper AEG-302.)



Applications, Functions, Purpose & Features



Val-Matic Air Valves fully comply with ANSI/AWWA C512 and are NSF/ANSI 61 Certified for Water Quality.

Air Release Valve	Air/Vacuum Valve	Combination Air Valve	Surge-Suppression Air Valve	Vacuum Breaker Valve	Well Service Air Valve	Wastewater Air Valve	Wastewater Air Release Valve	Wastewater Air/Vacuum Valve	Vacuum Combination Valve	Vacuum Priming Valve
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PIPELINE APPLICATIONS										
Water distribution and transmission	x	x	x	x	x					
Municipal wastewater collection							x	x	x	
Force Main				x	x		x	x	x	
PUMP APPLICATIONS										
Centrifugal pump volute	x						x		x	x
Lift station							x	x	x	x
Pump station high points	x		x	x						
Turbine well pump discharge						x				
Booster pump station	x		x	x						
Fire pumps (FM Approved, UL Listed)	x					x				
WATER/WASTEWATER TREATMENT PLANT APPLICATIONS										
High Points	x		x	x			x		x	
Filter backwash piping	x		x	x			x			
Pressure filters	x		x	x						
Venturi meters	x									
TANK APPLICATIONS										
Storage tank valves			x	x						
Hydropneumatic tanks	x									
FUNCTION										
Venting of accumulated air during system operation	x		x	x			x		x	x
Admitting large volumes of air during shut down and draining operations (Power failure)		x	x	x	x	x		x	x	
Vacuum protection (pipe joints, gaskets, packing, etc.)		x	x	x	x	x		x	x	
Regulated-Exhaust of large volumes of air during start-up and filling operations				x		x				
PURPOSE										
Maintain pipeline efficiency	x		x	x			x		x	
Provide protection from pipeline collapse due to vacuum		x	x	x	x			x	x	
Air related surge protection		x	x	x	x	x	x	x	x	
Air related head loss protection (efficiency)	x		x	x			x		x	
Column separation vacuum protection				x	x	x		x	x	
Air bound pump protection	x									x
Extend air valve life				x						
Maintain pump prime										x
Reduce Air/Vacuum valve size requirement				x						
FEATURES										
Conforms to AWWA standard	x	x	x	x		x				x
Certified to NSF/ANSI 61	x	x	x	x	x	x				
Adjustable seating	x		x	x			x		x	x
Full flow area equal to nominal valve size		x	x	x	x	x		x	x	
Inlets and Outlets equal to or greater than the nominal valve size		x	x	x	x	x		x	x	
Single and dual body designs			x	x					x	
Bell bottom body (anti-clog)							x	x	x	
Regulated-Exhaust Device (Slow-Closing Device)				x		x				

Features & Benefits

From the float material to the shape of the body, Val-Matic Air Valves are designed for optimum performance. All valves meet AWWA C512 requirements.

EXPERIENCE

Val-Matic offers over 40 years of experience in providing a full line of air valves up to 20 inch and vacuum breakers up to 42 inch in size. The Val-Matic Air Release, Air/Vacuum and Combination Air Valves are manufactured in accordance to the rigorous industry requirements given in American Waterworks Association (AWWA) Standard C512. The standard was developed and based on decades of successful application of air valves in our industry. Val-Matic's AWWA Air Valves feature 316 stainless steel trim, full size ports, ANSI threaded or flanged connections and stringent testing. Val-Matic manufactures air valves in a wide range of materials and pressure ratings with many accessories including Regulated-Exhaust Devices, Dual Port Throttling Devices, Isolation Valves, Screened Hoods and Backwash Accessories. Val-Matic also provides Windows-Based software to locate, select and size air valves for pipelines and force mains.

NSF/ANSI 61 CERTIFICATION

Val-Matic Air Valves for water service are independently NSF/ANSI 61 certified and marked for use in drinking water applications.

TYPE 316 STAINLESS STEEL TRIM

Type 316 stainless steel is the standard for all internal components in Val-Matic Air Valves. Type 316 stainless steel provides the greatest protection from aggressive waters and hydrogen sulfide exposure in wastewater application.

UNCONDITIONALLY GUARANTEED FLOATS

Floats are unconditionally guaranteed for the life of the valve from corrosion, collapse or leakage. No other valve manufacturer has the confidence in their float construction to provide this guarantee.

GUIDED FLOATS

Providing a quality float is not enough to assure a good seal every time. When entering the seat, a damaged or off-center float will prevent a valve

from sealing tight. The high air and water velocities in air valves can cause unguided floats to violently strike the sides of the valve body. Val-Matic floats are guided; four inch and larger valves feature double guides (top and bottom). Guiding assures that the float approaches the center of the seat every time to provide a positive drop tight seal.



SELF CLEANING FLOAT GUIDES

The Val-Matic floats are guided by hexagonal float stems. The float stems pass through round stainless steel bushings preventing the build up of debris or scale and provide self cleaning of the bushings.

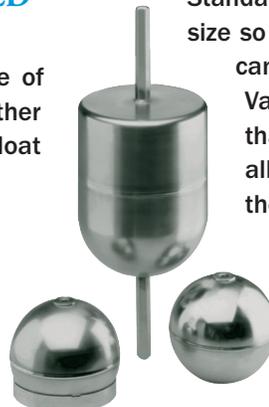
RESILIENT SEATS

All Val-Matic valves incorporate a resilient seat or orifice button which mates with a 316 stainless steel float or seat for positive drip tight seating. Val-Matic elastomers are specially formulated for water and wastewater service and have been NSF/ANSI 61 certified. Air Release Valves have a synthetic sealing button mounted to the float linkage mechanism. On Air/Vacuum and Combination Air Valves, the stainless steel float closes against the resilient seat mechanically retained in a body register. The seats contain raised sealing beads and/or a unique flex edge that provide positive shutoff from the lowest system pressure to the valve's rated working pressure.

FULL SIZE FLOW AREA

Val-Matic Air/Vacuum and Combination Air Valves are equipped with full and equal size inlets and outlets in accordance with AWWA C512. Some air valve manufacturers use common covers for different size air valves resulting in undersized outlets and reduced flow.

Standard industry calculations assume a full port size so the air valve should provide the same. You can be assured that the inlets and outlets of Val-Matic's Air Valves are equal to or larger than the area of the nominal valve size. Finally, all Combination Air Valves with float guides in the outlet have expanded flow areas around the guide spokes to provide full flow area through the valve.



Additional Features & Benefits for Wastewater Valves

STAINLESS STEEL BODY

Cast stainless steel bodies are available for extreme service where hydrogen sulfide or industrial chemicals produce accelerated corrosion in iron. There are no weld-seams to worry about with the cast stainless body and it is in full compliance with AWWA C512.

NON-STICK COATINGS

Special interior coatings are available to minimize the buildup of sewage on the inside of the valve. Val-Matic's Fusion Bonded Epoxy is a baked-on, glass-like coating that reduces maintenance and prevents corrosion of the valve. Non-stick coatings are important when force mains contain grease that tends to collect in valves and pipes.

NON-CLOG DESIGN FOR REDUCED MAINTENANCE

Val-Matic Wastewater Air Valves are specially designed for grit and sewage service without the need for backwashing when combined with non-stick coatings. The bodies are extended in length to prevent solid material from reaching the operating mechanism. The bottom of the body is sloped toward the outlet to prevent clogging (See Figure 14). Val-Matic provides a minimum 2" inlet size and a 2" cleanout connection on all wastewater valves to facilitate the passage of solids.

WASTEWATER FLOATS

As with all Val-Matic Air Valves, the float and operating mechanism are 316 stainless steel for long life in the harshest wastewater applications. Additionally, the floats are equipped with a specially shaped bottom to accelerate the closure of the float to reduce leakage and clogging of the valve.

SEVERE SERVICE BACKWASHING

When systems are heavy in grease and solids, backwashing of Wastewater Air Valves may become a necessary maintenance process. The key is to reduce the frequency of backwashing by designing the valve to handle conditions such as wastewater containing solids and grease. As indicated in the above features, Val-Matic has done that with the extended body, the Bell Bottom, the sensitivity float and the availability of non-stick Fusion Bonded Epoxy. However, periodic maintenance may still be required on severe applications. Therefore, all Wastewater Air Valves can be furnished with an accessory kit which includes a

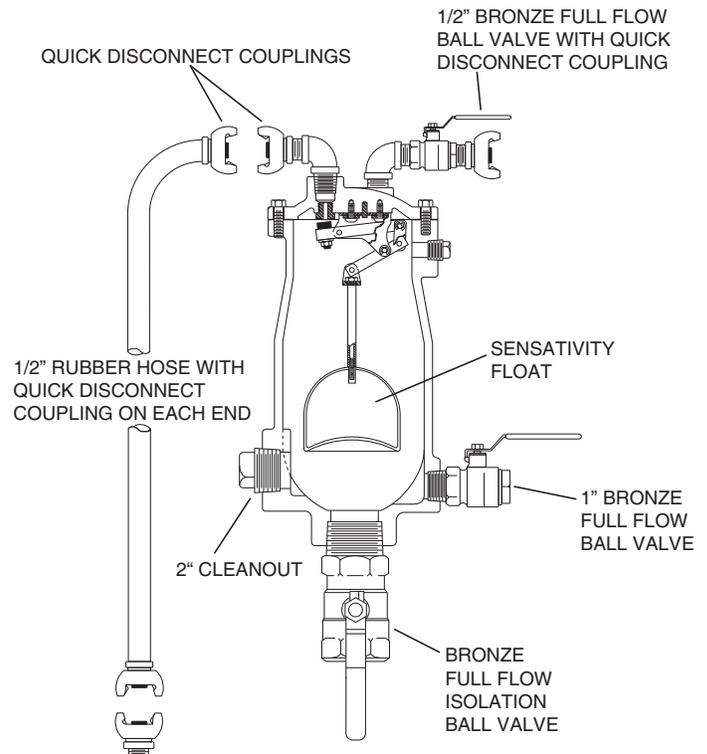


Figure 14

Air Valve with Severe Service Backwash Accessories

shutoff valve to isolate the air valves from the line, flush and drain valves, and a hose for connecting to a clean water supply.

Backwashing is as simple as: 1) isolating the air valve, 2) opening the drain valve, and 3) opening the flush valves to send clean water through the valve body for 5 minutes.

For those installations where backwashing on site is not practical or desirable, a valve rotation program can be established. The valve to be serviced is exchanged with a spare valve and taken back to the shop for cleaning. It is then ready to replace the next valve scheduled for maintenance. The valve rotation program also provides the benefit of a back up valve in the unlikely event one should ever fail.

Air Release Valves

Operational Highlights:

- Maintains system flow efficiency
- Releases unwanted air pockets during system operation
- Protects system against air related surges

Product Features:

- Unconditionally guaranteed stainless steel floats
- Stainless steel 316 internal trim
- Resilient seating for positive shutoff
- Performance proven for over 40 years
- Non-clog design eliminates backwashing



Clean Water*

Wastewater

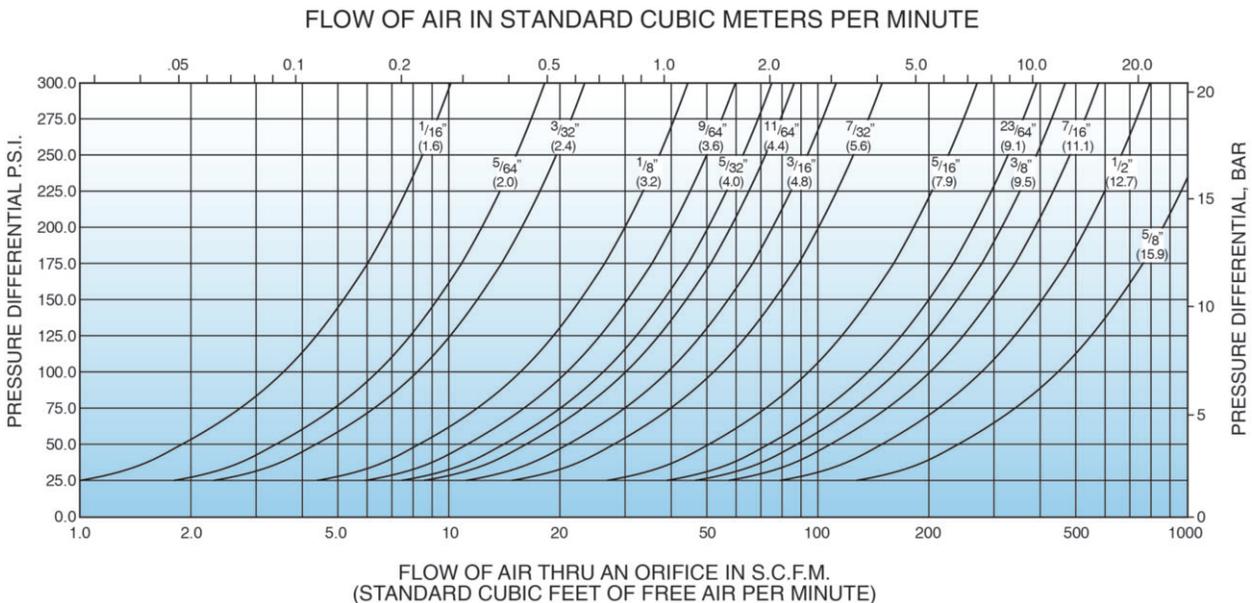
Optional Accessories:

- Vacuum check (prevents inflow of air)
- Outlet hood with screen (prevents debris from entering valves)
- Ball and plug isolation valves (allows valve maintenance)
- Inflow Preventer on outlet (stops flood water and resulting contamination from entering pipeline)
- Backwash kit (for severe wastewater applications)



MATERIALS OF CONSTRUCTION		
COMPONENT	STANDARD	OPTIONAL
Body and Cover	Cast Iron ASTM A126 Class B < 300 psig	Ductile Iron ASTM A536 Grade 65-45-12 Stainless Steel ASTM A351 Grade CF8M
Trim	Type 316 Stainless Steel	—
Coating	Universal Alkyd Primer (external)	Non-Stick Fusion Bonded Epoxy (internal & external)

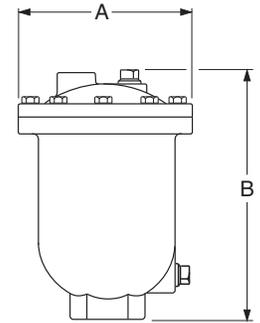
Venting Capacity for Air Release Valve Orifice Sizes



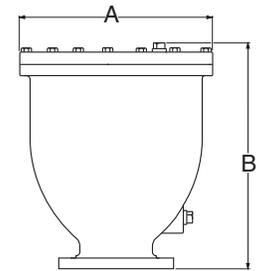
Air Release Valves Installation Dimensions

WATER AIR RELEASE VALVES						
Inlet Size	Outlet Size	Model Number	CWP PSI	Orifice Size	Dimensions	
					A	B
1/2" NPT	1/2" NPT	15A*•	175	1/16"	4 3/4"	5 1/4"
3/4" NPT	1/2" NPT	15A.2*•	175	1/16"	4 3/4"	5 1/4"
1" NPT	1/2" NPT	15A.3*•	175	1/16"	4 3/4"	5 1/4"
1" NPT	1/2" NPT	22.3*•	175	3/32"	5 1/8"	6"
1/2" - 3/4" NPT	1/2" NPT	22.4*•	175	3/32"	5 1/8"	6"
1/2" NPT	1/2" NPT	22.7*•	300	1/16"	5 1/8"	6"
1/2" - 1" NPT	1/2" NPT	22.9*	300	1/16"	5 1/8"	6"
3/4" - 1" NPT	1/2" NPT	25.5*	150	1/8"	6 1/8"	7"
3/4" - 1" NPT	1/2" NPT	25.6*	300	3/32"	6 1/8"	7"
1" NPT	1/2" NPT	38*	150	3/16"	7"	10"
1" NPT	1/2" NPT	38HP*	500	1/8"	7"	10"
2" NPT	1/2" NPT	38.2*	150	3/16"	7"	10"
1" NPT	1/2" NPT	38.5*	300	5/32"	7"	10"
2" NPT	1/2" NPT	38.6*	300	5/32"	7"	10"
2" NPT	1" NPT	45*	150	23/64"	9 1/2"	12 1/4"
2" NPT	1" NPT	45HP*	400	3/16"	9 1/2"	12 1/4"
3" NPT	1" NPT	45.2*	150	23/64"	9 1/2"	12 1/4"
2" NPT	1" NPT	45.5*	300	7/32"	9 1/2"	12 1/4"
3" NPT	1" NPT	45.6*	300	7/32"	9 1/2"	12 1/4"
2" NPT	1" NPT	50*	500	7/32"	10 7/8"	13"
2" NPT	1" NPT	50HP*	1000	1/8"	10 7/8"	13"
6" 125lb Flg	1" NPT	61*	150	1"	18 3/4"	22"

*NSF/ANSI 61 Certified •UL Listed/FM Approved

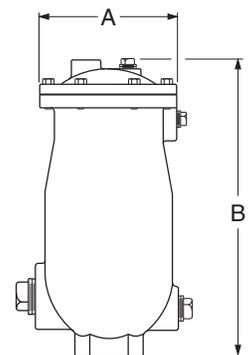


**15A - 50HP
Air Release Valve**



**61
Air Release Valve**

WASTEWATER AIR RELEASE VALVES						
Inlet Size	Outlet Size	Model Number	CWP PSI	Orifice Size	Dimensions	
					A	B
2" NPT	1/2" NPT	48A	150	3/16"	7"	15 5/16"
3" NPT	1/2" NPT	48A.2	150	3/16"	7"	15 5/16"
2" NPT	1/2" NPT	48A.4	75	5/16"	7"	15 5/16"
3" NPT	1/2" NPT	48A.5	75	5/16"	7"	15 5/16"
2" NPT	1" NPT	49A	150	7/16"	9 1/2"	17 9/16"
3" NPT	1" NPT	49A.2	150	7/16"	9 1/2"	17 9/16"
2" NPT	1" NPT	49A.4	75	1/2"	9 1/2"	17 9/16"
3" NPT	1" NPT	49A.5	75	1/2"	9 1/2"	17 9/16"
4" NPT	1" NPT	49A.6	75	1/2"	9 1/2"	17 9/16"



**48A - 49A.6
Wastewater Air
Release Valves**

Air/Vacuum Valves

Operational Highlights:

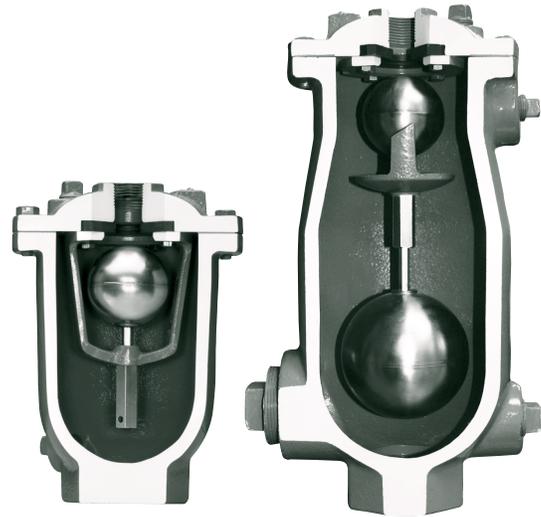
- Exhausts large quantities of air at system start-up
- Provides pipeline vacuum protection
- Responds to loss of pressure during power failures, line breaks and intentional drainage

Product Features:

- Unconditionally guaranteed stainless steel floats
- Stainless steel 316 internal trim
- Exclusive high/low pressure resilient seating
- Full pipe size inlets and outlets provide maximum protection
- Non-clog design eliminates backwashing

Optional Accessories:

- Outlet hood with screen (prevents debris from entering valves)
- Flanged outlets on sizes 8 inch & smaller
- Ball, plug, and butterfly isolation valves (allows valve maintenance)
- Inflow Preventer on outlet (stops flood water and resulting contamination from entering pipeline)
- Backwash kit (for severe wastewater applications)



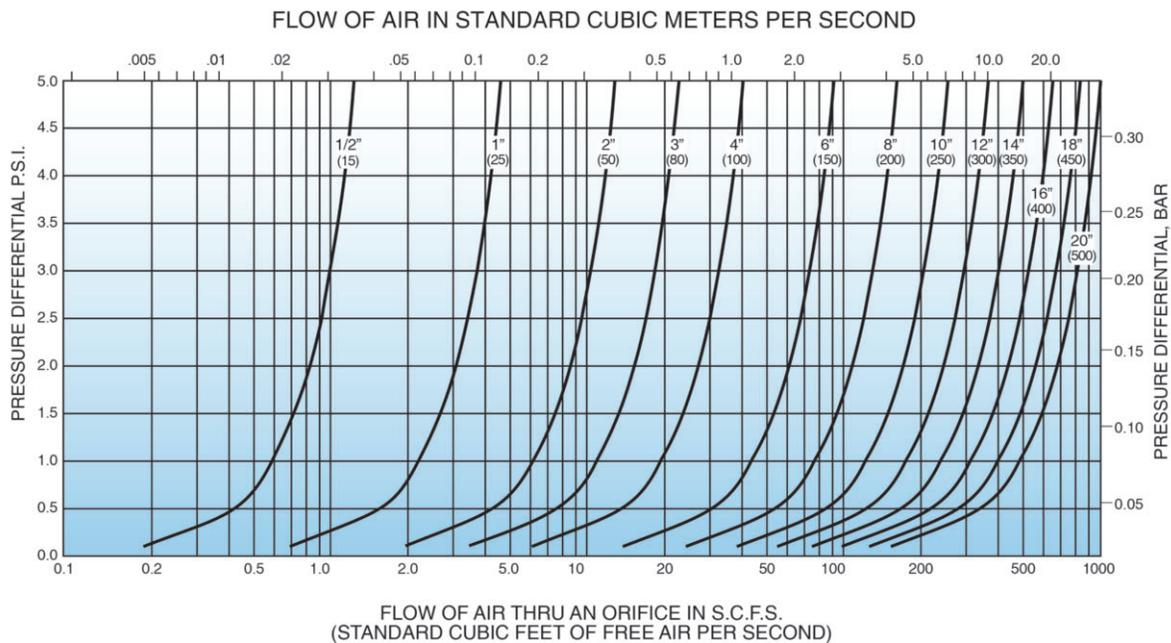
Clean Water*

Wastewater



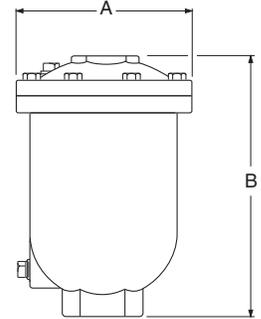
MATERIALS OF CONSTRUCTION		
COMPONENT	STANDARD	OPTIONAL
Body and Cover	Cast Iron ASTM A126 Class B Class 125 and 250	Ductile Iron ASTM A536 Grade 65-45-12 Stainless Steel ASTM A351 Grade CF8M
Trim	Type 316 Stainless Steel	-
Coating	Universal Alkyd Primer (external)	Non-Stick Fusion Bonded Epoxy (internal & external)

FLOW CAPACITY OF AIR/VACUUM VALVES

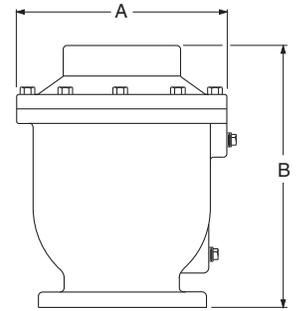


Air/Vacuum Valves Installation Dimensions

WATER AIR/VACUUM VALVES					
Inlet Size	Outlet Size	Model Number	CWP PSI	Dimensions	
				A	B
1/2" NPT	1/2" NPT	100S	300	6 1/8"	7"
1" NPT	1" NPT	101S	300	7"	9 1/2"
2" NPT	2" NPT	102S	300	9 1/2"	12"
3" NPT	3" NPT	103S	300	9 1/2"	12"
4" Flg	4" NPT	104S 154S	125lb - 150 250lb - 300	12"	20 3/4"
6" Flg	6" NPT	106S 156S	125lb - 150 250lb - 300	14"	18 5/8"
8" Flg	8" NPT	108S 158S	125lb - 150 250lb - 300	17 1/4"	21 5/8"
10" Flg	10" Flg	110F 160F	125lb - 150 250lb - 300	20"	26"
12" Flg	12" Flg	112F 162F	125lb - 150 250lb - 300	24"	31"
14" Flg	14" Flg	114F 164F	125lb - 150 250lb - 300	27"	34"
16" Flg	16" Flg	116F 166F	125lb - 150 250lb - 300	30 1/2"	34"
20" Flg	20" Flg	120F 170F	125lb - 150 250lb - 300	38 1/4"	36 1/4"

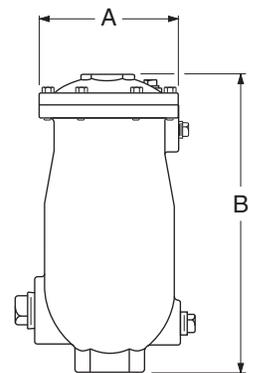


**100S - 103S
Air/Vacuum Valves**



**104S - 170F
Air/Vacuum Valves**

WASTEWATER AIR/VACUUM VALVES					
Inlet Size	Outlet Size	Model Number	CWP PSI	Dimensions	
				A	B
2" NPT	1" NPT	301A	150	7"	15 1/16"
2" NPT	2" NPT	302A	150	9 1/2"	17 7/16"
3" NPT	3" NPT	303A	150	9 1/2"	17 7/16"
4" Flg	4" NPT	304	150	11 1/2"	36 1/2"
6" Flg	6" NPT	306	150	14"	36 1/2"
8" Flg	8" NPT	308	150	17 1/4"	40 1/8"



**301A - 308
Wastewater Air/Vacuum Valves**

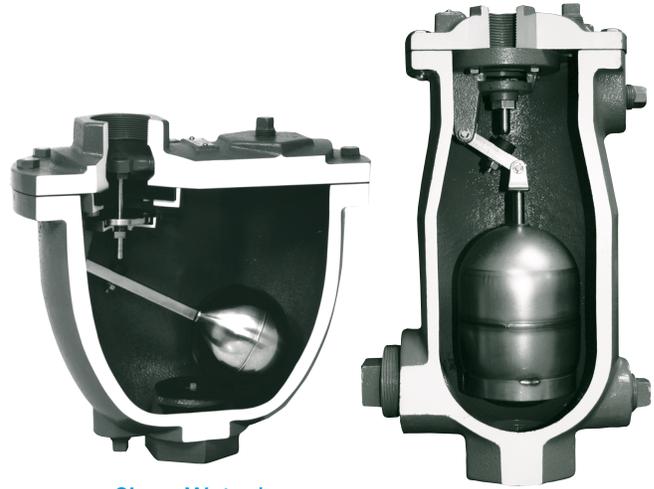
Combination Air Valves

Operational Highlights:

- Provides the functions of both Air Release and Air/Vacuum Valves
- Exhausts large quantities of air at system start-up
- Releases air pockets during system operation
- Provides pipeline vacuum protection

Product Features:

- Single body incorporates both features within one valve
 - More compact and economical
- Dual body consists of two independent valves
 - Allows individual maintenance while still protecting the pipeline
 - Wider range of sizing options
- Inlets and outlets are equal to full nominal size
- Unconditionally guaranteed stainless steel floats
- Stainless steel 316 internal trim
- Non-clog design eliminates backwashing
- Exclusive high/low pressure resilient seating



Clean Water*

Wastewater

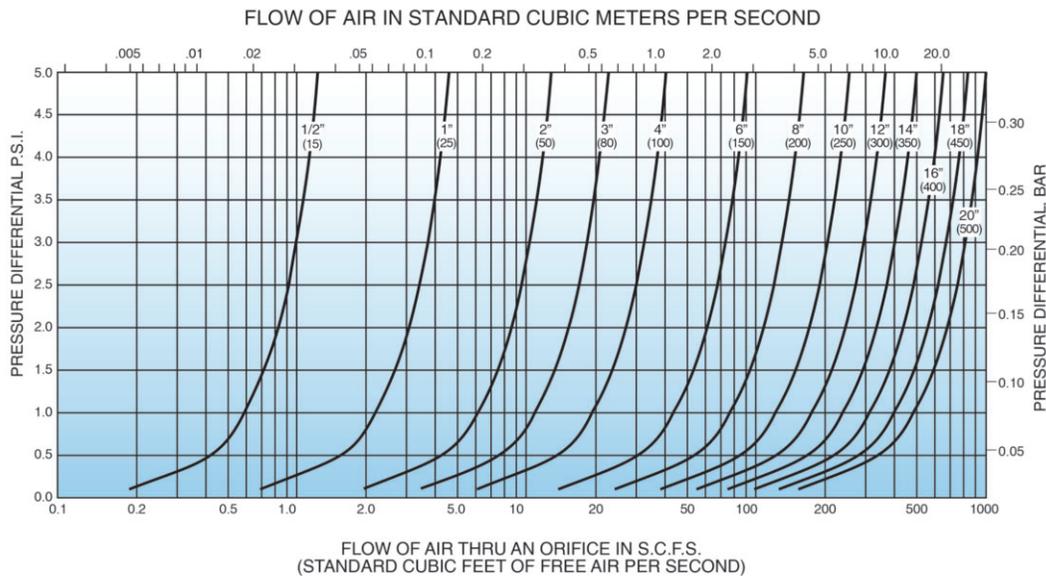
Optional Accessories:

- Outlet hood with screen (prevents debris from entering valves)
- Ball, plug and butterfly isolation valves (allows valve maintenance)
- Inflow Preventer on outlet (stops flood water and resulting contamination from entering pipeline)
- Backwash kit (for severe wastewater applications)



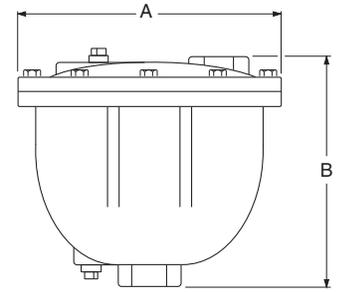
MATERIALS OF CONSTRUCTION		
COMPONENT	STANDARD	OPTIONAL
Body and Cover	Cast Iron ASTM A126 Class B Class 125 and 250	Ductile Iron ASTM A536 Grade 65-45-12 Stainless Steel ASTM A351 Grade CF8M
Trim	Type 316 Stainless Steel	-
Coating	Universal Alkyd Primer (external)	Non-Stick Fusion Bonded Epoxy (internal & external)

FLOW CAPACITY OF COMBINATION AIR VALVES

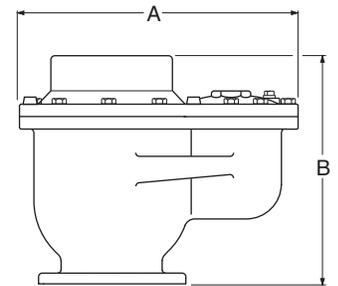


Combination Air Valves Installation Dimensions

WATER COMBINATION AIR VALVES (SINGLE BODY)						
Inlet Size	Outlet Size	Model Number	CWP PSI	Orifice Size	Dimensions	
					A	B
1" NPT	1" NPT	201C.2	300	5/64"	11 3/8"	10 1/2"
2" NPT	2" NPT	202C.2	300	3/32"	14"	13"
3" NPT	3" NPT	203C.2	300	3/32"	16"	15"
3" 125lb Flg	3" NPT	203C.14	150	3/32"	16"	16 3/4"
3" 250lb Flg	3" NPT	203C.15	300	3/32"	16"	17 1/4"
4" NPT	4" NPT	204C.2	300	3/32"	18 1/2"	17"
4" 125lb Flg	4" NPT	204C.14	150	3/32"	18 1/2"	19 3/4"
4" 250lb Flg	4" NPT	204C.15	300	3/32"	18 1/2"	20 1/4"
6" 125lb Flg	6" NPT	206C	150	3/8"	21"	20 1/4"
6" 250lb Flg	6" NPT	256C	300	7/32"	21"	20 1/4"
8" 125lb Flg	8" NPT	208C	150	3/8"	25"	23 1/2"
8" 250lb Flg	8" NPT	258C	300	7/32"	25"	23 1/2"

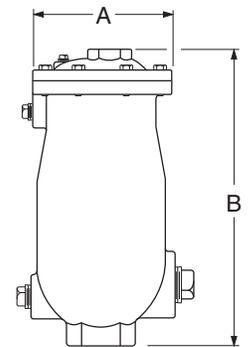


201C.2 - 204C.15
Single Body Combination
Air Valves



206C - 258C
Single Body
Combination Air Valves

WASTEWATER COMBINATION AIR VALVES (SINGLE BODY)						
Inlet Size	Outlet Size	Model Number	CWP PSI	Orifice Size	Dimensions	
					A	B
2" NPT	1" NPT	801A	150	1/8"	7"	14 15/16"
2" NPT	2" NPT	802A	150	9/64"	9 1/2"	18 1/16"
3" NPT	3" NPT	803A	150	11/64"	11"	23 1/2"
4" NPT	4" NPT	804	150	11/64"	11"	23 1/2"

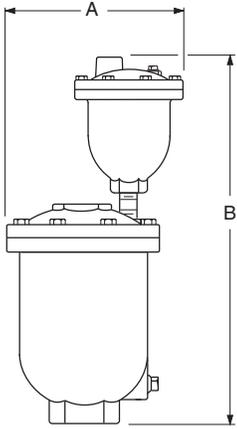


801A - 804
Wastewater
Single Body Combination
Air Valves



Surge-Suppression Air Valves and Isolation Valves in a pump discharge application.

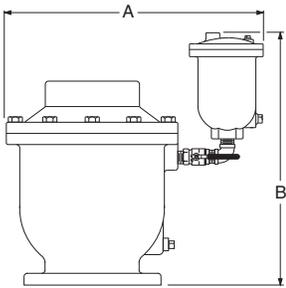
Combination Air Valves Installation Dimensions



WATER COMBINATION AIR VALVES (DUAL BODY)						
Inlet Size	Outlet Size	Model Number	CWP PSI	Orifice Size	Dimensions	
					A	B
1" NPT	1" NPT	101S/22.9	300	1/16"	7 7/8"	15 5/8"
2" NPT	2" NPT	102S/22.9	300	1/16"	10 1/4"	17 7/8"
3" NPT	3" NPT	103S/22.9	300	1/16"	10 1/4"	18 1/4"

101S/22.9 - 103S/22.9
Dual Body Combination
Air Valves

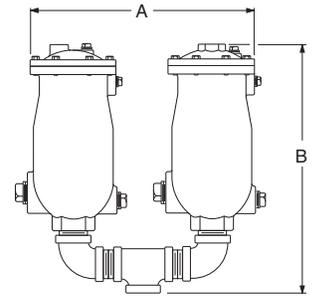
WATER COMBINATION AIR VALVES (DUAL BODY)						
Inlet Size	Outlet Size Air/Vacuum	Model Number	CWP PSI	Orifice Size Air Release	Dimensions	
					A	B
4" Flg	4" NPT	104S/38 154S/38.5	125lb - 150 250lb - 300	3/16" 5/32"	21"	22"
6" Flg	6" NPT	106S/38 156S/38.5	125lb - 150 250lb - 300	3/16" 5/32"	24"	23"
8" Flg	8" NPT	108S/38 158S/38.5	125lb - 150 250lb - 300	3/16" 5/32"	27"	26"
8" Flg	8" NPT	108S/45 158S/45.5	125lb - 150 250lb - 300	23/64" 7/32"	30"	29"
10" Flg	10" Flg	110F/38 160F/38.5	125lb - 150 250lb - 300	3/16" 5/32"	30"	28"
10" Flg	10" Flg	110F/45 160F/45.5	125lb - 150 250lb - 300	23/64" 7/32"	33"	31"
12" Flg	12" Flg	112F/38 162F/38.5	125lb - 150 250lb - 300	3/16" 5/32"	33"	32"
12" Flg	12" Flg	112F/45 162F/45.5	125lb - 150 250lb - 300	23/64" 7/32"	37"	34"
14" Flg	14" Flg	114F/38 164F/38.5	125lb - 150 250lb - 300	3/16" 5/32"	36"	34"
14" Flg	14" Flg	114F/45 164F/45.5	125lb - 150 250lb - 300	23/64" 7/32"	40"	36"
16" Flg	16" Flg	116F/38 166F/38.5	125lb - 150 250lb - 300	3/16" 5/32"	39"	34"
16" Flg	16" Flg	116F/45 166F/45.5	125lb - 150 250lb - 300	23/64" 7/32"	44"	37"



104S/38 - 166F/45.5
Dual Body Combination
Air Valves

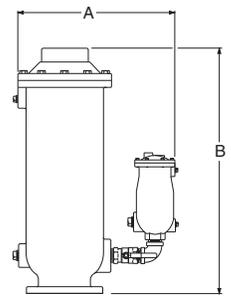
Combination Air Valves Installation Dimensions

WASTEWATER COMBINATION AIR VALVES (DUAL BODY)						
Inlet Size	Outlet Size	Model Number	CWP PSI	Orifice Size	Dimensions	
					A	B
2" NPT	1" NPT	48A/301A	150	3/16"	20 5/16"	20 5/16"
2" NPT	1" NPT	49A/301A	150	7/16"	19 1/2"	22 3/4"
2" NPT	2" NPT	48A/302A	150	3/16"	20 3/4"	25 3/4"
2" NPT	2" NPT	49A/302A	150	7/16"	20 3/4"	22 3/4"
3" NPT	3" NPT	48A/303A	150	3/16"	21 1/2"	24 1/4"
3" NPT	3" NPT	49A/303A	150	7/16"	21 1/2"	24 3/4"

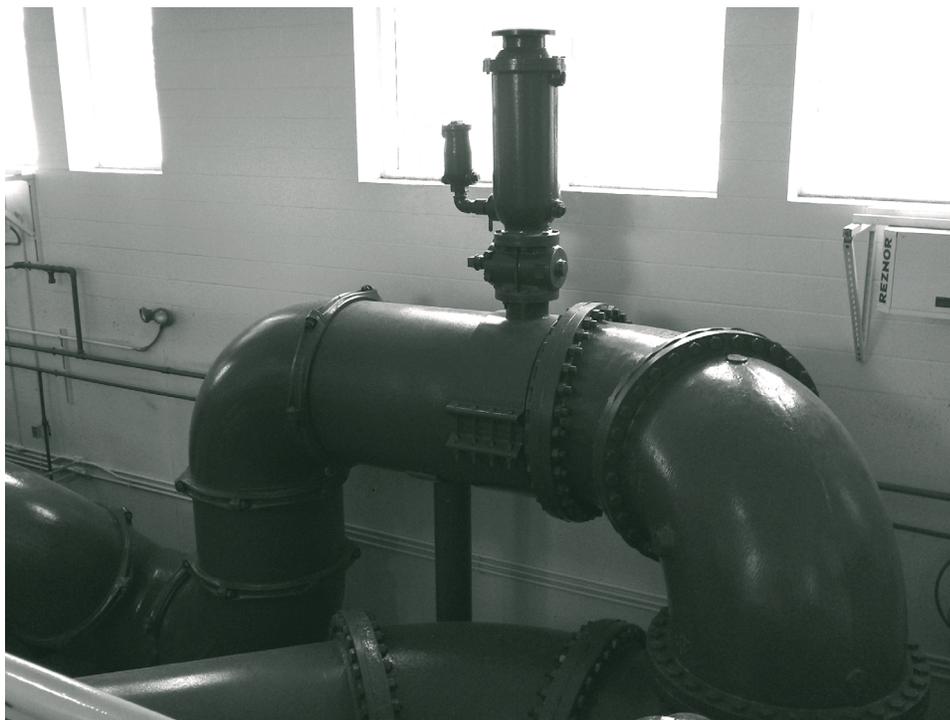


**48A/301A - 49A/303A
Dual Body Wastewater
Combination Air Valves**

WASTEWATER COMBINATION AIR VALVES (DUAL BODY)						
Inlet Size	Outlet Size	Model Number	CWP PSI	Orifice Size	Dimensions	
					A	B
4" Flg	4" NPT	48A/304	150	3/16"	20 3/4"	36 1/2"
4" Flg	4" NPT	49A/304	150	7/16"	20 3/4"	36 1/2"
6" Flg	6" NPT	48A/306	150	3/16"	23 1/4"	36 1/2"
6" Flg	6" NPT	49A/306	150	7/16"	23 1/4"	36 1/2"
8" Flg	8" NPT	48A/308	150	3/16"	25 3/4"	41 1/4"
8" Flg	8" NPT	49A/308	150	7/16"	27 1/2"	41 1/4"



**48A/304 - 49A/308
Dual Body Wastewater
Combination Air Valves**



Air Valves are commonly found in plant service as well as pipelines for efficiency and protection. The model shown above is a 48A/308 with flanged outlet and optional Cam-Centric® Plug Valve for isolation and maintenance.

Surge-Suppression Air Valves

Operational Highlights:

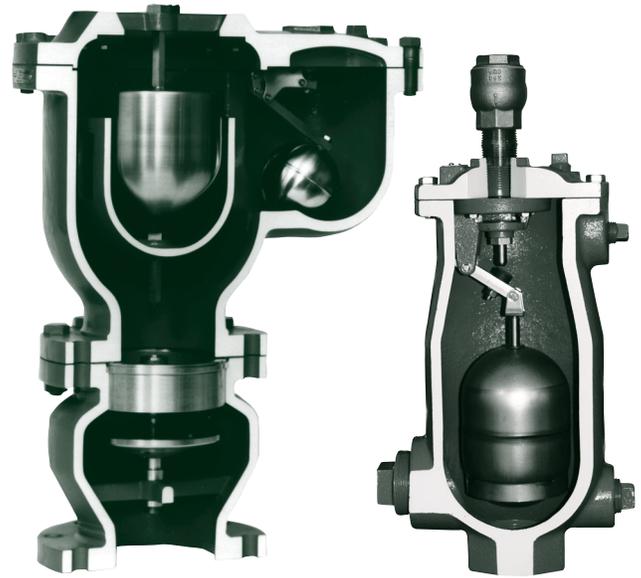
- Provides full vacuum protection for the pipeline
- Provides slow closure suppressing surge in the pipeline
- Minimizes water blow-by during Air Valve closure
- Allows the use of smaller valve size by utilizing a maximum sizing differential pressure of 5 psig
- Releases entrained air while pipeline is operating to maintain pumping efficiency
- Fully complies with AWWA C512 and NSF 61

Surge-Suppression Air Valve Features:

- Restrictor disc provides regulated exhaust to limit secondary surges during column separation
- Ability to adjust air exhaust for greater surge suppression
- Provides full vacuum flow port

Optional Accessories:

- Outlet hood with screen (prevents debris from entering valves)
- Ball and butterfly isolation valves (allows valve maintenance)
- Inflow Preventer on outlet (stops flood water and resulting contamination from entering pipeline)
- Backwash kit (for severe wastewater applications)



Clean Water*

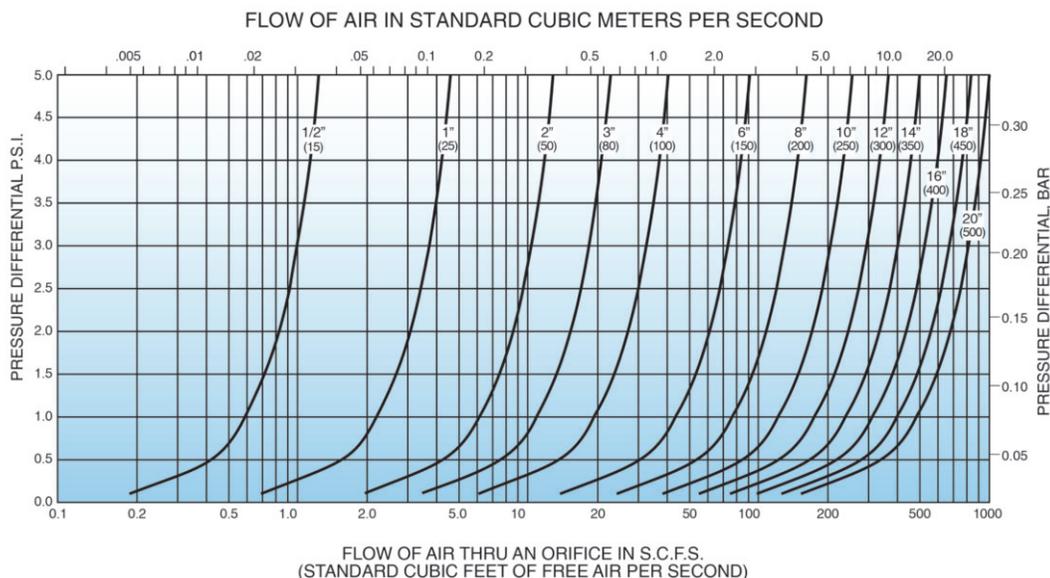
Wastewater



MATERIALS OF CONSTRUCTION		
COMPONENT	STANDARD	OPTIONAL
Body	Cast Iron ASTM A126 Class B	Ductile Iron ASTM A536 Grade 65-45-12
Trim	Type 316 Stainless Steel (Air Valve) Bronze ASTM B584 C83600 (Reg. Exh. Dev.)*	Stainless Steel ASTM A351 Grade CF8M (Reg. Exh. Dev.)*
Exterior Coating	Universal Primer (external)	Non-Stick Fusion Bonded Epoxy (internal & external)

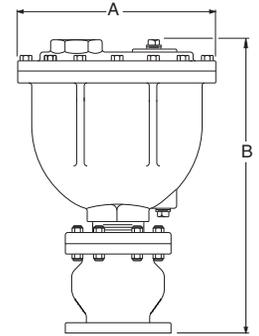
*(Reg. Exh. Dev.) = Regulated-Exhaust Device

FLOW CAPACITY OF SURGE-SUPPRESSION AIR VALVES



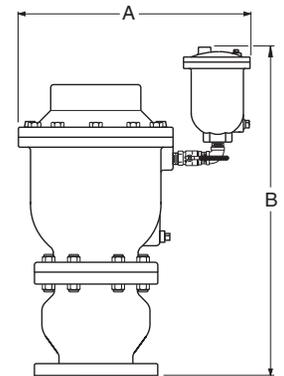
Surge-Suppression Air Valves Installation Dimensions

WATER SURGE-SUPPRESSION AIR VALVES (SINGLE BODY)						
Inlet Size	Outlet Size	Model Number	CWP PSI	Orifice Size	Dimensions	
					A	B
1" NPT	1" NPT	201CSS	250	5/64"	11 3/8"	13 5/8"
2" NPT	2" NPT	202CSS	250	3/32"	14"	17 1/4"
3" 125lb Flg	3" NPT	203CSS	150	3/32"	16"	22 3/4"
3" 250lb Flg	3" NPT	253CSS	300	3/32"	16"	22 3/4"
4" 125lb Flg	4" NPT	204CSS	150	3/32"	18 1/2"	27"
4" 250lb Flg	4" NPT	254CSS	300	3/32"	18 1/2"	27"
6" 125lb Flg	6" NPT	206CSS	150	3/8"	21"	30"
8" 250lb Flg	8" NPT	256CSS	300	7/32"	21"	30"
6" 125lb Flg	6" NPT	208CSS	150	3/8"	25"	36"
8" 250lb Flg	8" NPT	258CSS	300	7/32"	25"	36"



203CSS - 258CSS
Surge-Suppression Single Body
Air Valves

WATER SURGE-SUPPRESSION AIR VALVES (DUAL BODY)						
Inlet* Size	Outlet** Size	Model Number	CWP PSI	Orifice Size	Dimensions	
					A	B
4" 125lb Flg	4" NPT	104SS/38	150	3/16"	21"	29"
4" 250lb Flg	4" NPT	154SS/38.5	300	5/32"	21"	29"
6" 125lb Flg	6" NPT	106SS/38	150	3/16"	22 1/2"	33"
6" 250lb Flg	6" NPT	156SS/38.5	300	5/32"	22 1/2"	33"
8" 125lb Flg	8" NPT	108SS/38	150	3/16"	27"	38"
8" 250lb Flg	8" NPT	158SS/38.5	300	5/32"	27"	38"
10" 125lb Flg	10" Flg	110FSS/45	150	23/64"	33"	47"
10" 250lb Flg	10" Flg	160FSS/45.5	300	7/32"	33"	47"
12" 125lb Flg	12" Flg	112FSS/45	150	23/64"	37"	48 1/2"
12" 250lb Flg	12" Flg	162FSS/45.5	300	7/32"	37"	48 1/2"

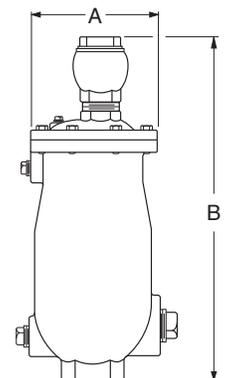


104SS/38 - 162FSS/45.5
Surge-Suppression Dual Body
Air Valves

* For sizes 14" - 20" Consult Factory

**All outlet flanges are class 125 lb.

WASTEWATER SURGE-SUPPRESSION AIR VALVES (SINGLE BODY)						
Inlet Size	Outlet Size	Model Number	CWP PSI	Orifice Size	Dimensions	
					A	B
2" NPT	1" NPT	801SS	150	1/8"	7"	18"
2" NPT	2" NPT	802SS	150	9/64"	9 1/2"	23"
3" NPT	3" NPT	803SS	150	11/64"	11"	33"
4" NPT	4" NPT	804SS	150	11/64"	11"	34"



801SS - 804SS
Surge-Suppression Single Body
Air Valves

Well Service Air Valves

Operational Highlights:

- Regulates the exhaust of air on pump start-up
- Admits air to protect pump and mechanical seals
- Protects against air-related surges on pump start-up
- Fully complies with AWWA C512 and NSF 61

Product Features:

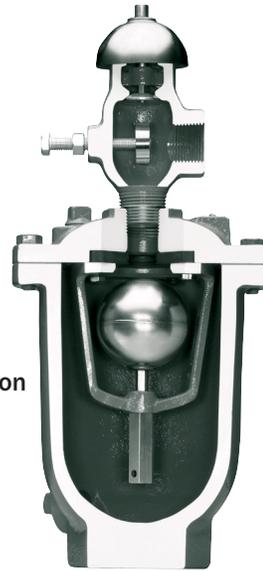
- Unconditionally guaranteed 316 stainless steel floats
- Inlets and outlets are equal to full nominal pipe area
- 1/2" - 3" equipped with Dual Port Throttling Device
- 4" and larger equipped with Regulated-Exhaust Device mounted on the inlet

Dual Port Throttling Device:

- Adjustable discharge outlet provides regulated air exhaust
- Allows air to enter the system on pump shut down through an unrestricted independent vacuum port

Regulated-Exhaust Device:

- Retrictor disc provides regulated exhaust to limit pump column surges
- Ability to adjust air exhaust for greater surge suppression
- Provides full vacuum flow port



1 - 3 inch



4 inch & larger



MATERIALS OF CONSTRUCTION		
COMPONENT	STANDARD	OPTIONAL
Body and Cover	Cast Iron ASTM A126 Class B Class 125 and 250	Ductile Iron ASTM A536 Grade 65-45-12 Stainless Steel ASTM A351 Grade CF8M
Trim	Type 316 Stainless Steel (Air Valve) Bronze ASTM B584 C83600 (Reg. Exh. Dev.)*	-
Coating	Universal Alkyd Primer (external)	Non-Stick Fusion Bonded Epoxy (internal & external)

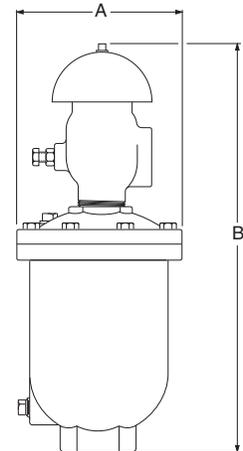
*(Reg. Exh. Dev.) = Regulated-Exhaust Device

WELL SERVICE AIR VALVE SIZING			
VALVE SIZE	NO HEAD PUMP CAPACITY, GPM	MODEL NUMBER	
		150 PSI MODEL	300 PSI MODEL
1/2"	0 - 350	100ST	
1"	351 - 1,350	101ST	
2"	1,351 - 4,000	102ST	
3"	4,001 - 7,000	103ST	
4"	7,001 - 11,000	104SS	154SS
6"	11,001 - 24,000	106SS	156SS
8"	24,001 - 50,000	108SS	158SS
10"	50,001 - 70,000	110FSS	160FSS
12"	70,001 - 110,000	112FSS	162FSS

Well Service Air Valves Installation Dimensions

Well Service Air Valve with Dual Port Throttling Device					
Inlet Size	Outlet Size	Model Number	CWP PSI	Dimensions	
				A	B
1/2" NPT	1/2" NPT	100ST	300	6 1/8"	11 3/4"
1" NPT	1" NPT	101ST*	300	7"	14 3/4"
2" NPT	2" NPT	102ST*	300	9 1/2"	20 1/8"
3" NPT	3" NPT	103ST*	300	9 1/2"	22 1/8"

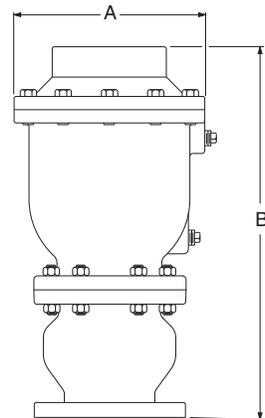
*UL Listed for fire pump service



100ST - 103ST

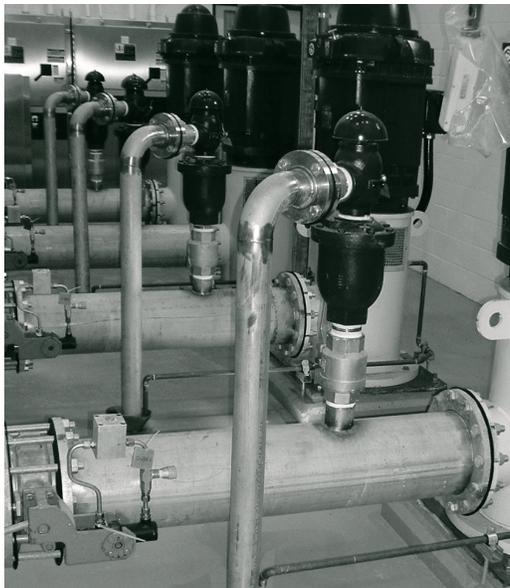
Well Service Air Valves with
Dual Port Throttling Device

Well Service Air Valve with Regulated-Exhaust Device					
Inlet Size	Outlet Size	Model Number	CWP PSI	Dimensions	
				A	B
4" 125lb Flg	4" NPT	104SS	150	11 1/2"	22 3/4"
4" 250lb Flg	4" NPT	154SS	300	11 1/2"	22 3/4"
6" 125lb Flg	6" NPT	106SS	150	14"	28 1/2"
6" 250lb Flg	6" NPT	156SS	300	14"	28 1/2"
8" 125lb Flg	8" NPT	108SS	150	17 1/4"	35 5/16"
8" 250lb Flg	8" NPT	158SS	300	17 1/4"	35 5/16"
10" 125lb Flg	10" 125lb Flg	110FSS	150	20 1/4"	40 1/16"
10" 250lb Flg	10" 125lb Flg	160FSS	300	20 1/4"	40 1/16"
12" 125lb Flg	12" 125lb Flg	112FSS	150	24"	44 5/16"
12" 250lb Flg	12" 125lb Flg	162FSS	300	24"	44 5/16"



104SS - 162FSS

Well Service Air Valves
with Regulated-Exhaust Device



3" Well Service Air Valve on Vertical Pump discharge.

Vacuum Breaker Valves

Operational Highlights:

- Provides vacuum protection for pipelines and tanks
- Cushions surges related to column separation
- Opens in response to a 0.25 psi vacuum

Product Features:

- Resilient seals provide drop tight seating
- Full flow areas provide maximum vacuum protection

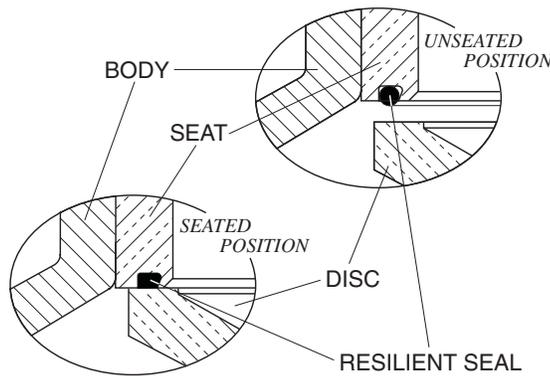
Optional Accessories:

- Hood with inlet screen (prevents debris from entering valves)
- Air Release Valve (slowly releases air to prevent violent rejoining of water columns)
- Inflow Preventer on outlet (stops flood water and resulting contamination from entering pipeline)



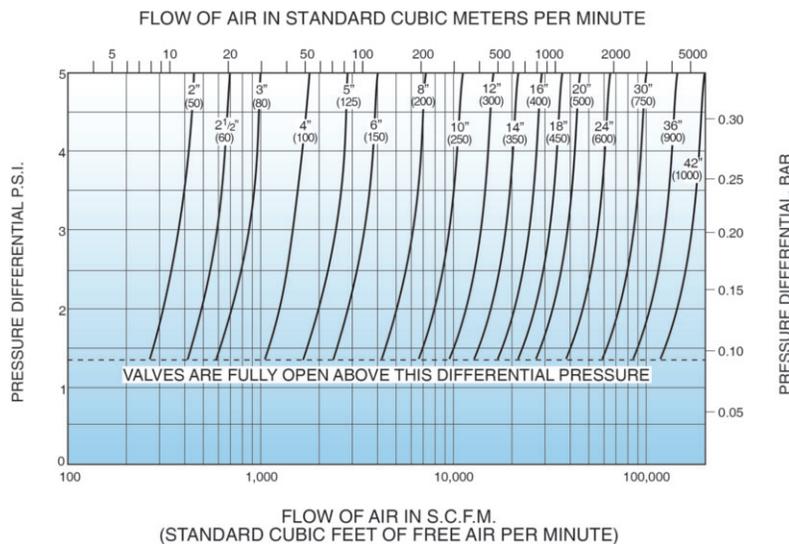
Vacuum Breaker with optional Air Release Valve

SEAT DETAIL



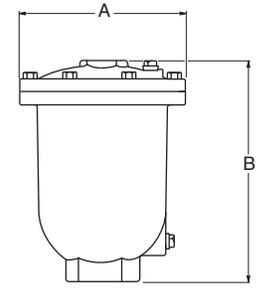
MATERIALS OF CONSTRUCTION		
COMPONENT	STANDARD	OPTIONAL
Body and Cover	Cast Iron ASTM A126 Class B Class 125 and 250	Ductile Iron ASTM A536 Grade 65-45-12
Trim	Bronze, ASTM B584, C83600	Stainless Steel ASTM A351 Grade CF8M
Coating	Universal Alkyd Primer	Non-Stick Fusion Bonded Epoxy (internal & external)

VENTING CAPACITY FOR VACUUM BREAKERS



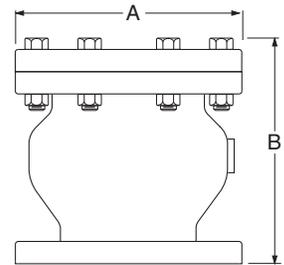
Vacuum Breaker Valves Installation Dimensions

THREADED VACUUM BREAKER AIR VALVE					
INLET	OUTLET	MODEL NUMBER	CWP	Dimensions	
				A	B
1/2" NPT	1/2" NPT	100VB	300	6 1/8"	7"
1" NPT	1" NPT	101VB	300	7"	9 1/2"
2" NPT	2" NPT	102VB	300	9 1/2"	12"
3" NPT	3" NPT	103VB	300	9 1/2"	12 1/2"



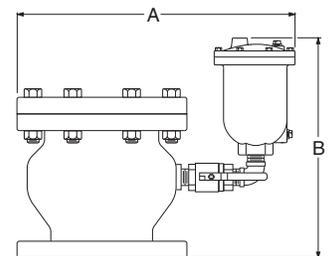
100VB-103VB
Vacuum Breaker Valves

FLANGED VACUUM BREAKER AIR VALVE						
INLET SIZE*	MODEL NUMBER		MODEL NUMBER		Dimensions	
	125lb CLASS (CWP)		250lb CLASS (CWP)		A	B
2	1802VB	200	1852VB	400	7"	8 1/2"
2.5	1825VB	200	1875VB	400	7"	8 1/2"
3	1803VB	200	1853VB	400	7 1/2"	10"
4	1804VB	200	1854VB	400	9"	11 1/4"
5	1805VB	200	1855VB	400	10"	13"
6	1806VB	200	1856VB	400	11"	14 1/4"
8	1808VB	200	1858VB	400	13 1/2"	18"
10	1810VB	200	1860VB	400	16"	21 1/2"
12	1812VB	200	1862VB	400	19"	21 3/8"



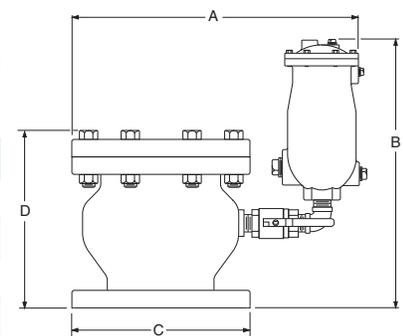
1802VB-1862VB
Vacuum Breaker Valves

FLANGED VACUUM BREAKER WITH AIR RELEASE VALVE						
INLET SIZE*	MODEL NUMBER		MODEL NUMBER		Dimensions	
	125lb CLASS (CWP)		250lb CLASS (CWP)		A	B
3	1803VB/38	150	1853VB/38.5	300	16"	15"
4	1804VB/38	150	1854VB/38.5	300	17 3/8"	15 7/8"
5	1805VB/38	150	1855VB/38.5	300	18 3/4"	16 3/4"
6	1806VB/38	150	1856VB/38.5	300	20"	17 1/4"
8	1808VB/38	150	1858VB/38.5	300	22 3/4"	18 1/4"
10	1810VB/38	150	1860VB/38.5	300	25 5/8"	19 3/4"
12	1812VB/38	150	1862VB/38.5	300	28 3/4"	19 1/8"



1803VB/38 - 1862VB/38.5
Vacuum Breaker Valves

FLANGED VACUUM BREAKER WITH AIR RELEASE VALVE FOR WASTEWATER SERVICE							
INLET SIZE*	MODEL NUMBER	MODEL NUMBER with Air Release Valve		Dimensions			
		125lb CLASS (CWP)		A	B	C	D
3	1803VBS	1803VBS/48A	200	16"	20 5/16"	7 1/2"	10"
4	1804VBS	1804VBS/48A	200	17 3/8"	21 5/16"	9"	11 1/4"
5	1805VBS	1805VBS/48A	200	18 3/4"	22 1/16"	10"	13"
6	1806VBS	1806VBS/48A	200	20"	22 9/16"	11"	14 1/4"
8	1808VBS	1808VBS/48A	200	22 3/4"	23 9/16"	13 1/2"	18"
10	1810VBS	1810VBS/48A	200	25 5/8"	25 1/16"	16"	21 1/2"
12	1812VBS	1812VBS/48A	200	28 3/4"	24 7/16"	19"	21 3/8"



1803VBS - 1812VBS/48A
Vacuum Breaker Valves

*For sizes 14" - 42" consult factory

Vacuum Priming Valves

Operational Highlights:

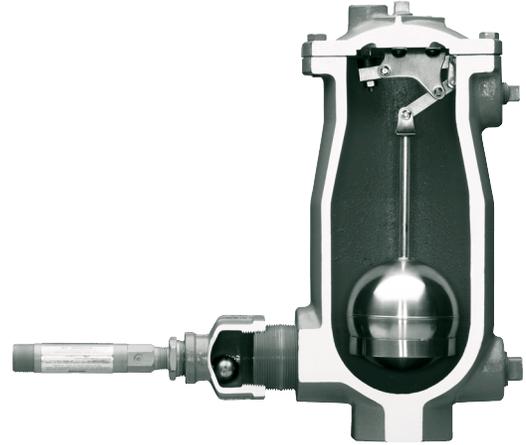
- Allows the extraction of air from the pump housing and suction piping
- Float rises and closes the priming valve to prevent fluid from flowing into the vacuum priming system
- Continues to release air while the pump is running

Product Features:

- Specifically designed to prevent fluid leakage
- Flow sensitive float
- Stainless steel 316 internal trim and float

Optional Accessories:

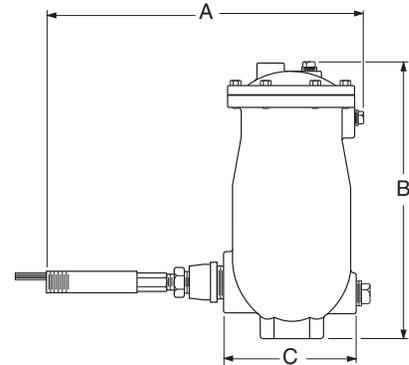
- Water Level Control Switch (Mercury-Free)



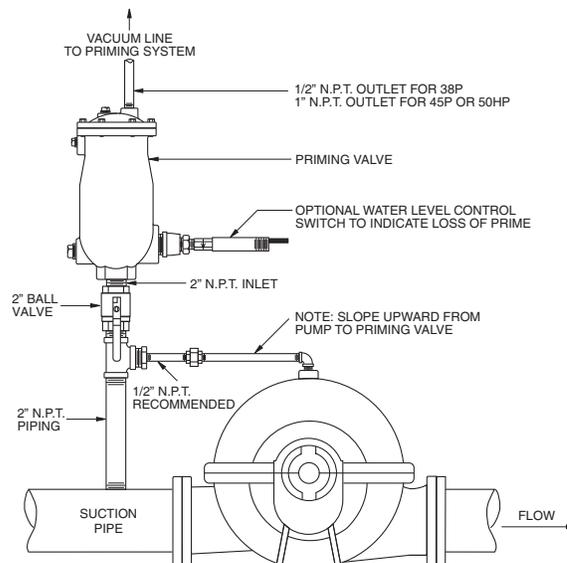
Vacuum Priming Valve

MATERIALS OF CONSTRUCTION		
COMPONENT	STANDARD	OPTIONAL
Body and Cover	Cast Iron ASTM A126, Class B	Ductile Iron ASTM A536 Grade 65-45-12 Stainless Steel ASTM A351 Grade CF8M
Trim	Stainless Steel, Type 316	-
Coating	Universal Alkyd Primer (external)	Non-Stick Fusion Bonded Epoxy (internal & external)

VACUUM PRIMING VALVES							
INLET SIZE	OUTLET SIZE	MODEL NO.	CWP PSI	ORIFICE SIZE	Dimensions		
					A	B	C
2" NPT	1/2" NPT	38P	150	3/16"	16 1/4"	15 5/16"	7"
2" NPT	1/2" NPT	38P.2	75	5/16"	16 1/4"	15 5/16"	7"
2" NPT	1" NPT	45P	150	23/64"	17 1/2"	17 9/16"	9 1/2"
2" NPT	1" NPT	45P.3	75	1/2"	17 1/2"	17 9/16"	9 1/2"

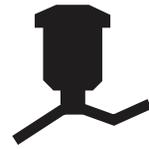


38P - 45P.3
Vacuum Priming Valve
with Optional Water Level
Control Switch



Recommended Piping Arrangement

Air Valve Sizing Software



The Val-Matic airValve Sizing program is an easy to use Windows-based computer program for locating and sizing Air Valves in Water and Wastewater applications.

The pipeline profile data is entered into the program (Figure 1) which evaluates system data and develops sizing criteria such as slope for each pipeline segment and flow rate due to slope. Then it will recommend valve locations, sizes and models and print a valve schedule (Figure 2) and prepare a pipeline profile (Figure 3) for the user. Finally, the program will save your data for future reference.

The Val-Matic airValve Sizing Software is an indispensable, free resource that allows engineers to more effectively and efficiently design their water and wastewater piping systems. It is available for download at www.valmatic.com.

PROJECT INFORMATION

PROJECT:	SAMPLE
OWNER:	Valmatic
ENGINEER:	Valmatic
MEDIA:	Water-NSF/ANSI 61 Certified
PIPE MATERIAL:	Steel or Stainless
PIPE INSIDE DIAMETER:	47.00
STEEL PIPE THICKNESS:	0.25 in
MAX FLOW RATE:	30,000 GPM
FILL RATE:	12,000 GPM
SELECTED SAFETY FACTOR:	4:1
DIFF.PRES. FOR VAC. SIZING:	2.45 Psi
VALVE RATING:	150 Psig (Class 125 Iron)
REVERSE FLOW:	No
VALVE SELECTION CRITERIA:	Surge-Suppression Air Valves

FIGURE 1

PIPELINE AIR VALVE SAMPLE SCHEDULE

Station No	ELEV ft	Excav ft	Description	Recommended Valve Size/Model	Max Slope	Flow Rate CFS
0	0	0.00	Beginning	No valve necessary	0.00	0.00
1,600	5	0.00	Long Ascent	8 IN #108SS Surge-Suppression AV	0.00	84.41
3,200	10	0.00	High Point	8 IN #108SS/38 Surge-Suppression AV	0.00	84.41
4,933	10	0.00	Long Horiz	2 IN #38.2 Air Release	0.00	0.00
6,667	10	0.00	Long Horiz	4 IN #104SS/38 Surge-Suppression AV	0.00	0.00
8,400	10	0.00	Low Point	No valve necessary	0.01	0.00
9,200	20	0.00	High Point	10 IN #110FSS/45 Surge-Suppression AV	0.01	134.66
11,200	16	0.00	Incr in Down-Slope	8 IN #108SS/38 Surge-Suppression AV	-0.02	95.37
12,000	2	0.00	Low Point	No valve necessary	0.02	0.00
12,800	16	0.00	Decr in Up-Slope	8 IN #108SS Surge-Suppression AV	0.02	74.17
13,600	20	0.00	High Point	8 IN #108SS/38 Surge-Suppression AV	0.01	85.17
14,400	20	0.00	End	No valve necessary	0.00	0.00

FIGURE 2

SAMPLE PIPELINE PROFILE

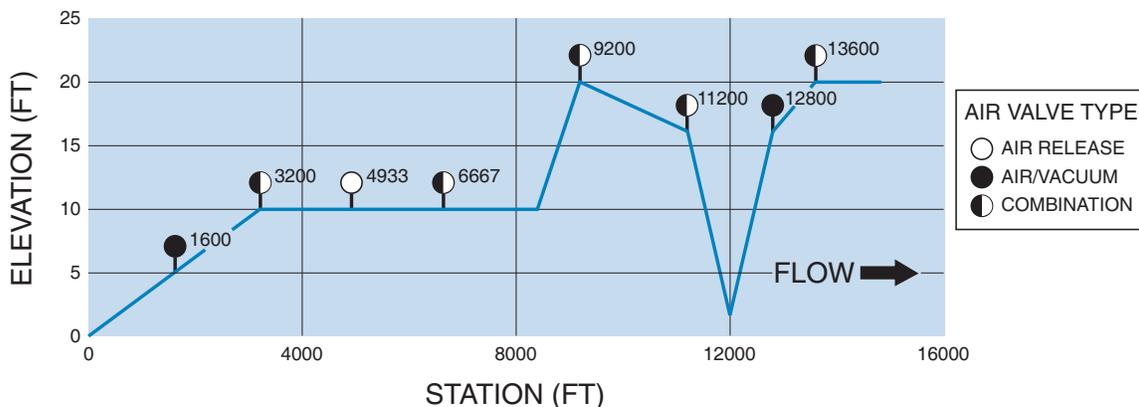


FIGURE 3



Val-Matic's quality of design and meticulous workmanship has set the standards by which all others are measured. Quality design features such as the AWWA **Ener•G® Ball Valve** with its energy efficient design, fusion bonded epoxy and adjustable resilient seating....**Cam-Centric® Plug Valves** have more requested features than any other eccentric plug valve....**American-BFV® Butterfly Valves** include a field replaceable seat without the need for special tools....**Tilted Disc® Check Valves** with high strength and wear resistant aluminum bronze trim as standard....**Silent Check Valves** featuring combined resilient/metal-to-metal seating and are **NSF/ANSI 61 & 372 Certified**....**Sure Seal Foot Valves** provided with a heavy duty stainless steel screened inlet....**Swing-Flex® and Surgebuster® Check Valves** designed with an unrestricted full flow area....**Swing Check Valves** with field adjustable closure

versatility....**Dual Disc® Check Valves** utilizing stabilized components to provide extended life....**Air Release, Air/Vacuum and Combination Air Valves** provided standard with Type 316 stainless steel trim....**VaultSafe®** family of products includes the **FloodSafe® Inflow Preventer, FrostSafe®** two-way damper and the **VentSafe®** vent pipe security cage. The **QuadroSphere® Trunnion Ball Valve** features a unique ball design with recessed surfaces creating additional flow paths to provide a self-cleaning action and reduced wear and torque.

Val-Matic is totally committed to providing the highest quality valves and outstanding service to our customers. Complete customer satisfaction is our goal. **Make the change to quality, specify Val-Matic!**



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