PRATT®

AirPro Max®

Air Valves






Engineering Creative Solutions
for Fluid Systems Since 1901

401 South Highland Avenue
Aurora, Illinois 60506-5563
www.henrypratt.com
phone: 630.844.4000
Email: moreinfo@henrypratt.com

Table of Contents

AirPro Max® Air Valves

Valve Data and Sizing Guide
Air Release Valves for Water and Wastewater

Sizing Guide

1. Sizing Air Release Valves is based upon the diameter of the pipeline and volume of air that must be released from high points on the pipeline during normal operation. Since AirPro Max® Air Release Valves are designed to continuously release air pockets from high points on the pipeline, it's not essential to calculate a precise volume of air that must be released. Use Air Release Valve Sizing Charts below.

2. When the volume of air to be vented is known, refer to the Standard Orifice Sizes with Venting Capacities chart on page 3. Use maximum pipeline operating pressure and flow (in psi & SCFM) to identify the correct orifice size.

Installation Guide:

1. The maximum effectiveness of AirPro Max Air Release Valves is dependent upon it being placed on predetermined pipeline high points. On horizontal pipelines, Air Release Valves should be placed at uniform intervals of approximately every 1/4 - 1/2 miles.

2. Three conditions can cause an air pocket to form slightly downstream of a true high point (exceeding 2-3 pipe diameters) within a piping system.
   1. Changes in velocity and temperature of the liquid
   2. Angle of the slope adjacent to the high point or a change of the gradient
   3. Inside surface texture of the piping system

   When any of these conditions occur, it is recommended an AirPro Max Air Release Valve be installed downstream of the high point to eliminate the air pocket.

3. Henry Pratt Company has developed the AirPro Max sizing selector to assist you in the correct sizing of air valves. Call or e-mail to receive your free AirPro Max sizing selector – (877) 436-7977 or moreinfo@henrypratt.com.

Series WAR Air Release Valve Sizing Chart Water Pipelines

Pipeline Dia. (inches)	Pumping Cap. (GPM)	1 -175 psi			100 - 300 psi		
		Model No.	Inlet Size	Orifice Size	Model No.	Inlet Size	Orifice Size
2" - 3" - 4" Diameter	200/800 gpm	050505/116	1/2"	1/16"	050505/116	1/2"	1/16"
		757505/116	3/4"		751005/116	3/4"	
		101005/116	1"		101005/116	1"	
Pipeline Dia. (inches)	**Pumping Cap.** (GPM)	**1 -175 psi**			**100 - 300 psi**		
		Model No.	**Inlet Size**	**Orifice Size**	**Model No.**	**Inlet Size**	**Orifice Size**
6" - 8" - 10" Diameter	800/2200 gpm	057505/332	1/2"	3/32"	050505/116	1/2"	1/16"
		757505/332	3/4"		751005/116	3/4"	
		101005/332	1"		101005/116	1"	
Pipeline Dia. (inches)	**Pumping Cap.** (GPM)	**1 -150 psi**			**1 - 300 psi**		
		Model No.	**Inlet Size**	**Orifice Size**	**Model No.**	**Inlet Size**	**Orifice Size**
12" - 14" - 16" Diameter	2000/5000 gpm	751005/018	3/4"	1/8"	751005/332	3/4"	3/32"
		101005/018	1"		101005/332	1"	
Pipeline Dia. (inches)	**Pumping Cap.** (GPM)	**1 -150 psi**			**1 - 300 psi**		
		Model No.	**Inlet Size**	**Orifice Size**	**Model No.**	**Inlet Size**	**Orifice Size**
18" - 20" Diameter	5000/15000 gpm	101005/316	1"	3/16"	101005/332	1"	3/32"
		202005/316	2"		202005/532	2"	5/32"
Pipeline Dia. (inches)	**Pumping Cap.** (GPM)	**1 -150 psi**			**1 - 300 psi**		
		Model No.	**Inlet Size**	**Orifice Size**	**Model No.**	**Inlet Size**	**Orifice Size**
24+" Diameter	15000/50000 gpm	202010/2364	2"	23/64"	202010/732	2"	7/32"
		303010/2364	3"		303010/732	3"	

Pipeline Dia. (inches)	Pumping Cap. (GPM)	1 -75 psi			1 - 150 psi			1 - 300 psi		
		Model No.	Inlet Size	Orifice Size	Model No.	Inlet Size	Orifice Size	Model No.	Inlet Size	Orifice Size
4" - 12" Diameter	0-4000 gpm	202005/516	2"	5/16"	202005/316	2"	3/16"	202005/532	2"	5/32"
		303005/516	3"		303005/316	3"		303005/532	3"	
		404005/516	4"		404005/316	4"		404005/532	4"	
Pipeline Dia. (inches)	**Pumping Cap.** (GPM)	**1 -75 psi**			**1 - 150 psi**			**1 - 300 psi**		
		Model No.	**Inlet Size**	**Orifice Size**	**Model No.**	**Inlet Size**	**Orifice Size**	**Model No.**	**Inlet Size**	**Orifice Size**
14+" Diameter	4100+ gpm	202010/012	2"	1/2"	202010/716	2"	7/16"	202010/732	2"	7/32"
		303010/012	3"		303010/716	3"		303010/732	3"	
		404010/012	4"		404010/716	4"		404010/732	4"	

Note: To lessen the possibility of clogged inlets for wastewater applications, 2" is the smallest inlet size.
Backwash Kit option: The AirPro Max® Backwash Kit is recommended for routine maintenance.

Valve Data and Sizing Guide
Air Vacuum Valves for Water and Wastewater

Air Vacuum Valve Sizing - Combination Air Vacuum Valves - Vacuum Breaker Valves

1. AirPro Max® Air Vacuum Valves should be sized to handle the maximum amount of air to be exhausted or admitted into the pipeline and not exceed an acceptable pressure differential across the valve.
2. Each high point or change in grade must be examined independently when determining valve size. Use the steepest slope for calculations.
3. Use the flow capacity charts on page 6 to assist in sizing AirPro Max Air Vacuum Valves.
4. Determine the smallest valve size capable of exhausting air equal to the filling rate of the pipeline in CFS while not exceeding a pressure differential of 2 psi across the valve orifice. (Based on pump capacity).

   The following formula is recommended to calculate the rate of flow in CFS for filling the pipeline:

$$CFS = \frac{GPM}{448.83}$$

Where: CFS = Cubic feet per second
GPM= Gallons per minute

5. Determine the smallest valve size capable of admitting air equal to the potential flow in CFS while not exceeding a pressure differential of 5 psi across the valve orifice. (Based on gravity flow).

The following formula should be used to calculate the rate of flow in CFS that can occur within the pipeline under gravity flow conditions. (During Initial Filling ▪ During Intentional Draining ▪ During A Pipeline Rupture)

$$Q = .0007872\ C \sqrt{S\ D^5}$$

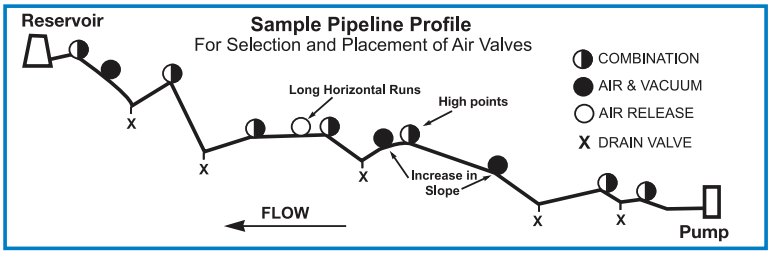
Where: Q = Flow of water in cubic feet per second
C = Coefficient in Chezy's formula = 110
S = Slope in feet per foot of length
D = Inside pipe diameter in inches

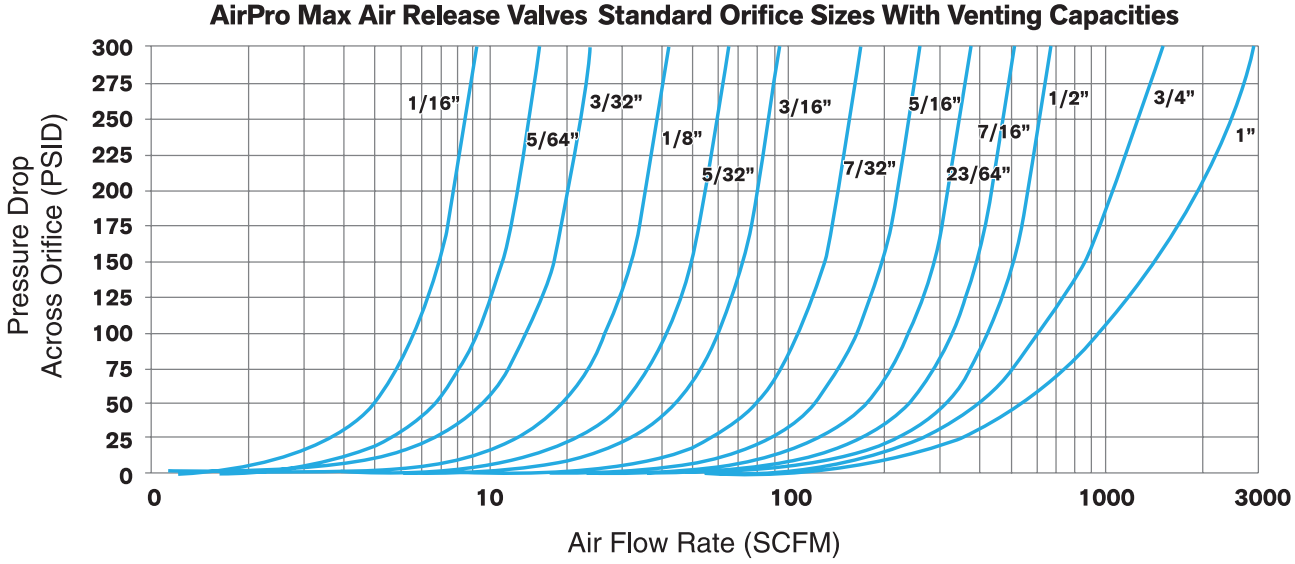
6. If thin wall pipe is being used, the risk of pipeline collapse due to the formation of vacuum must be considered. The following formula may be used to calculate the collapsing pressure of thin walled cylindrical steel pipe using a safety factor of four:

$$P = 12{,}500{,}000 \left(\frac{T}{D}\right)^3$$

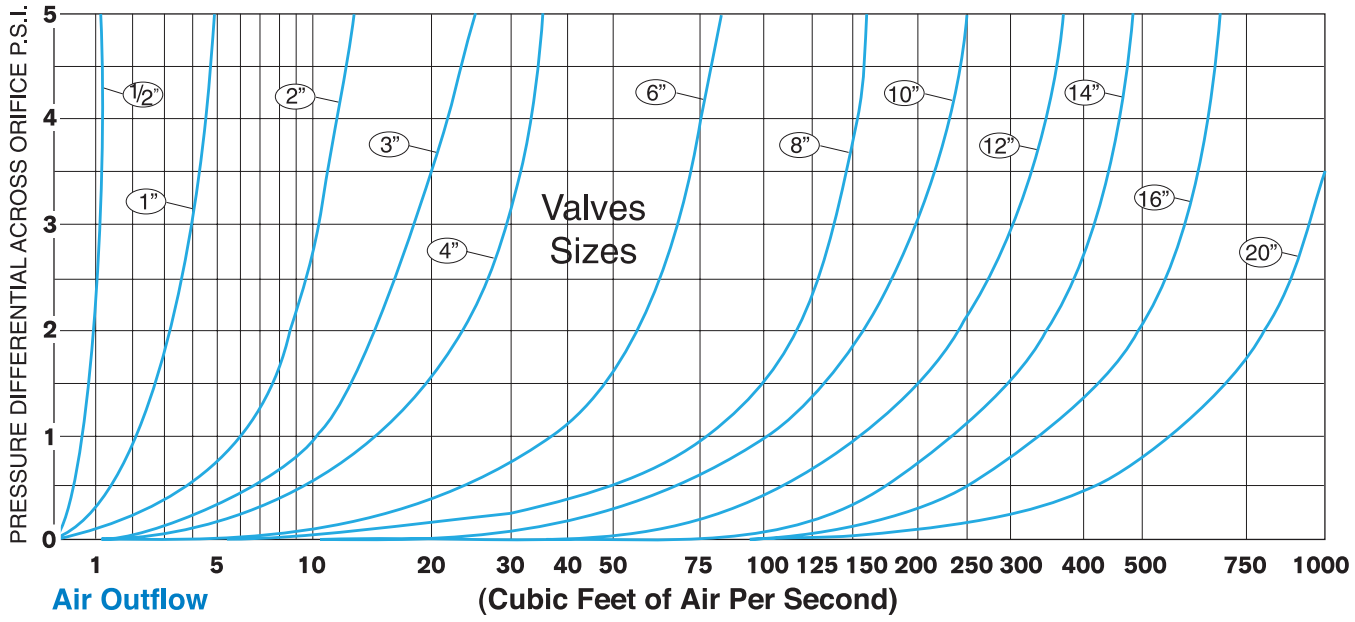
Where: *P = Collapsing pressure in psi*
T = Thickness of pipe in inches
D = Diameter of pipe in inches

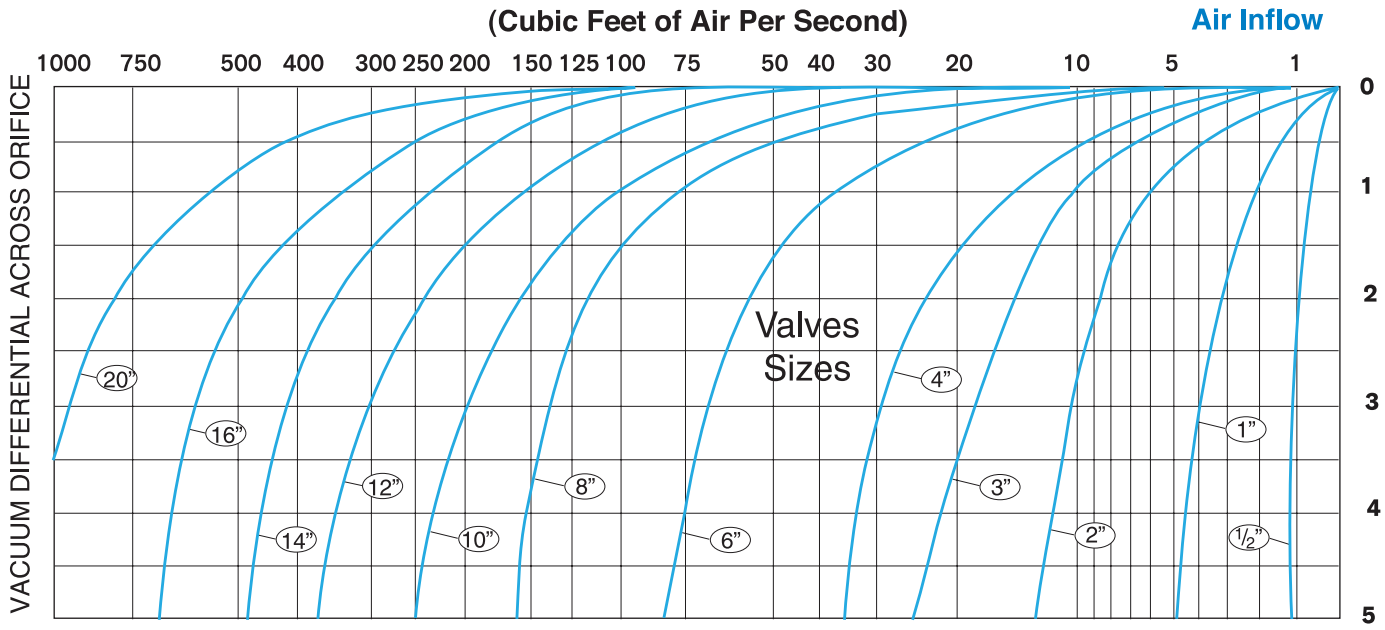
7. For other pipe materials or thickness, consult the pipe manufacturer for pipe collapsing pressure.
8. Determine the smallest valve size capable of admitting the required air in CFS (as found in step 5) without exceeding the collapsing pressure (as found in step 6) or 5 psi, whichever is less. Do not exceed a pressure differential greater than 5 psi
9. Finally, compare the valve size determined in step 4 with the valve size determined in steps 5 or 6. If they differ, always select the larger valve size.





Air Outflow Capacities in Standard Cubic Feet of Free Air Per Second, (SCFS) for Above Air Valves





Capacities at 14.7 psi atmospheric pressure and ambient temperature

Note: Manufactured to meet ANSI/AWWA C512

Series WAR Water Air Release Valves

Introduction

- **All 316 Stainless Steel Trim Standard**
- **All 316 Stainless Steel Floats Standard**
- **Ductile Iron Bodies and Covers Standard**
- **Vent Caps with Screens Included Upon Request**
- **Meets or Exceeds ANSI/AWWA C512 Standard/ NSF61/372 Certified**
- **Drop Tight Shut-off at Low Pressures**

AirPro Max® Series WAR Air Release Valves are designed to vent trapped air that collects at high points in a pipeline. These valves continuously release air from systems thereby preventing large air pockets to form which can cause damaging pressure surge to the system. In many installations lacking Air Release Valves, large pockets of air in the pipeline will cause power consumption to increase, and flow to decrease, possibly completely. Another possible result of excessive air accumulation is the inexplicable pipeline rupture that is mistakenly attributed to ground settling or defective pipe. In reality unusually large air pockets can greatly increase the pressure of normally occurring surges to the point where sudden stops and starts of flow can cause a pipe to rupture.

As air accumulates in the air valve, water is displaced, causing the stainless steel float to drop to a point where the valve orifice opens and the accumulated air is exhausted into the atmosphere. The water level in the air valve then rises and closes the valve orifice once again. This cycle repeats as needed and avoids the formation of potentially destructive air pockets.

Scope of Line

Sizes

1/2", 3/4", 1", 2", 3" NPT; 6" #125 Flg.

Pressure Ratings (See Note)

150 psi
175 psi
300 psi

Note: Specify when operating pressure will be below 10 psi

Temperature Range

Water to 180°F

Standard Materials

Body and Cover: Ductile Iron ASTM A536 65-45-12
Float: 316 Stainless Steel
Internal Trim: 316 Stainless Steel
Orifice Button: EPDM
External Cover Bolts: ASTM F593 316SS
Coating: Fusion Bonded Epoxy (12 mils)

Installation

Series WAR AirPro Max Air Release Valves must be installed at high points in pipelines, and also at regular intervals (approximately every 1/4 to 1/2 mile) along uniform grade lines.

Air Valves should be mounted in the vertical position at high points of the pipe, with an isolation valve installed below each valve in the event servicing is required. A valve vault with adequate air venting and drainage is recommended.

Air Release Valve Specification

The Air Release Valve shall be float operated, simple lever or compound lever type, designed to automatically vent accumulated air from the pipeline 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 diameter of the orifice must be sized to vent air within a given operating pressure range to insure maximum air venting capacity.

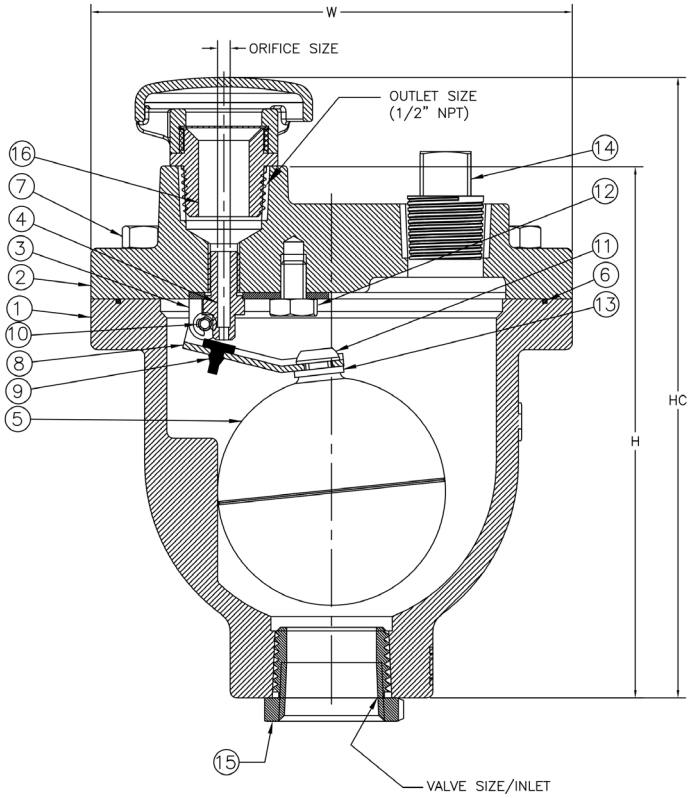
The float and connection shall be all 316 stainless steel construction and guaranteed to withstand the designed system surge pressure without failure. The body and cover shall be ductile iron construction and valve internal parts and cover bolts shall be 316 stainless steel. The rubber orifice button shall be EPDM for water tight shut-off. A vent cap with screen must be provided to prevent debris from entering the valve.

The Air Release Valve shall be manufactured per ANSI/ AWWA C512 and shall be Series WAR AirPro Max Air Release Valves manufactured by the Henry Pratt Company, Aurora, IL USA.

Series WAR Air Release Valves – Simple Lever

Valve Size	Orifice Size	Max C.W.P.	Inlet Connection	W	H	HC	Fusion Series Part #	Wt. (Lbs.)	Air Rel Code
1/2"*	1/16"	175	NPT	4-3/4"	5-1/4"	6-1/8"	WAR05-116-175-FS	6.3	A
3/4"*	1/16"	175	NPT	4-3/4"	5-1/4"	6-1/8"	WAR75-116-175-FS	6.3	B
1"	1/16"	175	NPT	4-3/4"	5-1/4"	6-1/8"	WAR10-116-175-FS	6.3	C
1/2"*	3/32"	175	NPT	5-1/8"	6"	6-7/8"	WAR05-332-175-FS	8.2	D
3/4"*	3/32"	175	NPT	5-1/8"	6"	6-7/8"	WAR75-332-175-FS	8.2	E
1"	3/32"	175	NPT	5-1/8"	6"	6-7/8"	WAR10-332-175-FS	8.2	F
1/2"*	1/16"	300	NPT	5-1/8"	6"	6-7/8"	WAR05-116-300-FS	8.2	G
3/4"*	1/16"	300	NPT	5-1/8"	6"	6-7/8"	WAR75-116-300-FS	8.2	H
1"	1/16"	300	NPT	5-1/8"	6"	6-7/8"	WAR10-116-300-FS	8.2	I
3/4"*	1/8"	150	NPT	6-1/8"	7"	7-7/8"	WAR75-018-150-FS	12.4	J
3/4"*	3/32"	300	NPT	6-1/8"	7"	7-7/8"	WAR75-332-300-FS	12.4	K
1"	1/8"	150	NPT	6-1/8"	7"	7-7/8"	WAR10-018-150-FS	12.4	L
1"	3/32"	300	NPT	6-1/8"	7"	7-7/8"	WAR10-332-300-FS	12.4	M

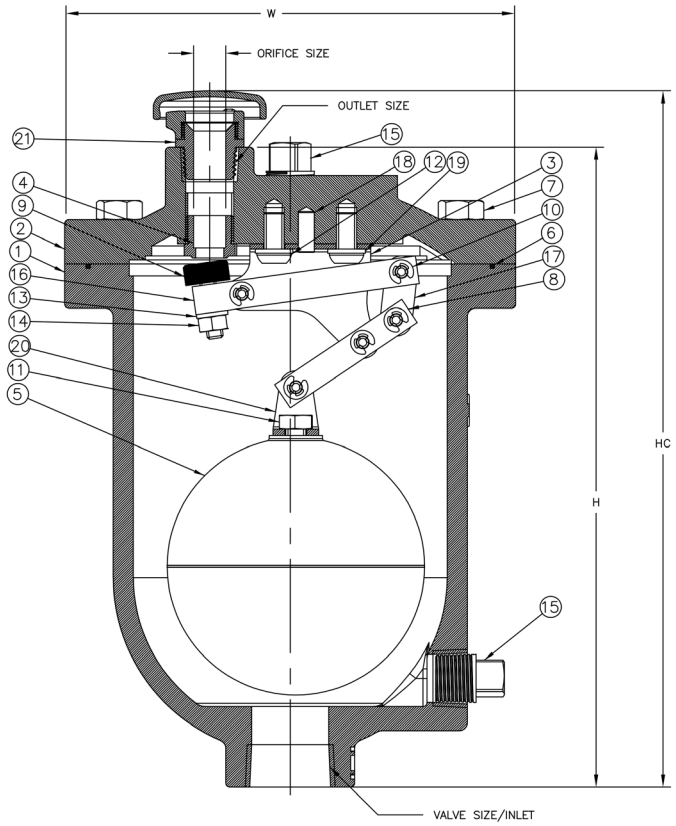
* = Reducer Bushing Included



Part #	Description	Material
1	Body	ASTM A536 65-45-12
2	Cover	ASTM A536 65-45-12
3	Lever Bracket	ASTM A582 316SS
4	Seat	ASTM A582 316SS
5	Float	ASTM A240 316SS
6	O-Ring	EPDM
7	Cover Bolt	ASTM F593 316SS
8	Lever Arm	ASTM A240 316SS
9	Button	EPDM
10	Pivot Pin & Retaining Ring	Stainless Steel
11	Float Retainer	ASTM F879 316SS
12	Positioner	ASTM F593 316SS
13	Lock Washer	ASTM A240 316SS
14	1/2" Pipe Plug	316 SS
15	Reducer Bushing (*if required)	ASTM A582 316SS
16	Vent Cap and Screen	ASTM A536 65-45-12 (Screen 316SS)

Series WAR Air Release Valves – Compound Lever

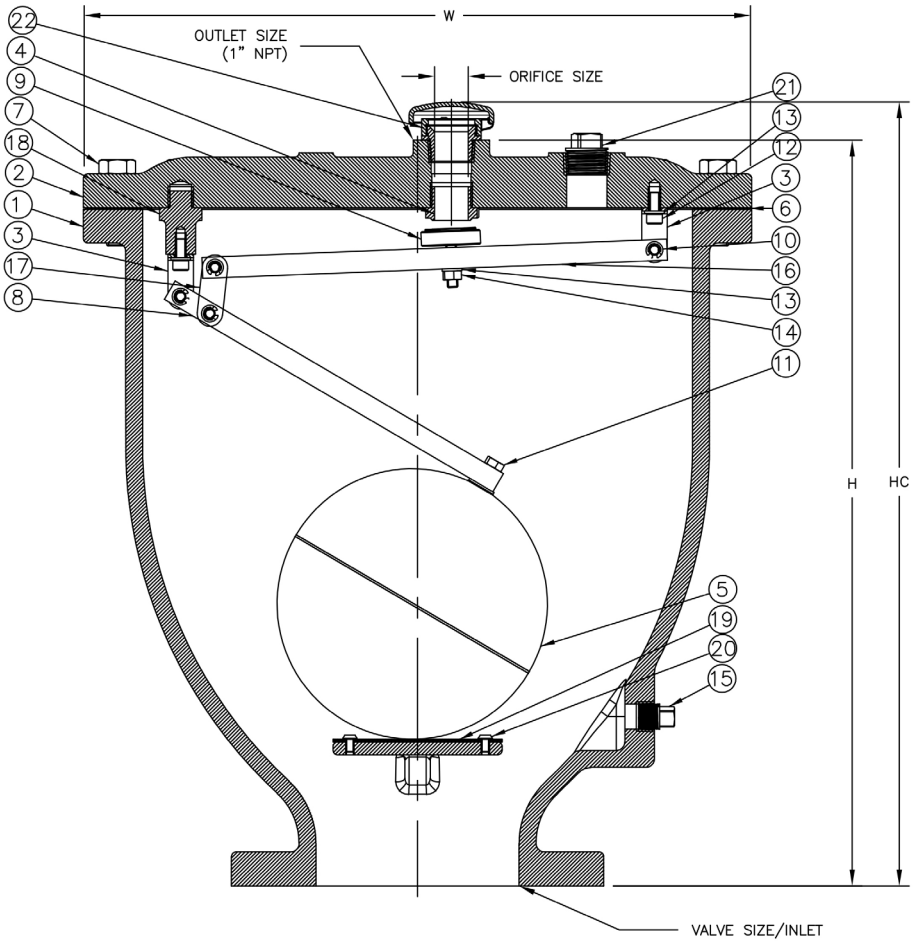
Valve Size	Orifice Size	Max C.W.P.	Inlet Connection	W	H	HC	Fusion Series Part #	Wt. (Lbs.)	Air Rel Code
1"	3/16"	150	NPT	7"	9-15/16"	10-13/16"	WAR10-316-150-FS	23.2	N
1"	5/32"	300	NPT	7"	9-15/16"	10-13/16"	WAR10-532-300-FS	23.2	O
2"	3/16"	150	NPT	7"	9-15/16"	10-13/16"	WAR20-316-150-FS	23.2	P
2"	5/32"	300	NPT	7"	9-15/16"	10-13/16"	WAR20-532-300-FS	23.2	Q
2"	23/64"	150	NPT	9-1/2"	12-1/4"	13-11/32"	WAR20-2364-150-FS	48.1	R
2"	7/32"	300	NPT	9-1/2"	12-1/4"	13-11/32"	WAR20-732-300-FS	48.1	S
3"	23/64"	150	NPT	9-1/2"	12-1/4"	13-11/32"	WAR30-2364-150-FS	48.1	T
3"	7/32"	300	NPT	9-1/2"	12-1/4"	13-11/32"	WAR30-732-300-FS	48.1	U



Part #	Description	Material
1	Body	ASTM A536 65-45-12
2	Cover	ASTM A536 65-45-12
3	Lever Bracket	ASTM A240 316SS
4	Seat	ASTM A582 316SS
5	Float	ASTM A240 316SS
6	O-Ring	EPDM
7	Cover Bolt	ASTM F593 316SS
8	Short Lever Arm	ASTM A582 316SS
9	Button	Stainless Steel & EPDM
10	Pivot Pin & Retaining Ring	Stainless Steel
11	Float Retainer	ASTM F593 316SS
12	Positioner	ASTM F879 316SS
13	Lock Washer	ASTM A240 316SS
14	Lock Nut	ASTM F594 316SS
15	1/2" Pipe Plug	316SS
16	Long Lever Arm	ASTM A582 316SS
17	Arm Link	ASTM A240 316SS
18	Positioning Pin	420SS
19	Lock Washer	ASTM A240 316SS
20	Clevis	ASTM A240 316SS
21	Vent Cap and Screen	ASTM A536 65-45-12 (Screen 316 SS)

Series WAR Air Release Valves – Compound Lever

Valve Size	Orifice Size	Max C.W.P.	Inlet Connection	W	H	HC	Fusion Series Part #	Wt. (Lbs.)	Air Rel Code
6"	1"	150	#125 Flg	19-3/4"	22"	23-1/4"	WAR60-100-150F-FS	200.9	V



Part #	Description	Material
1	Body	ASTM A536 65-45-12
2	Cover	ASTM A536 65-45-12
3	Lever Bracket	ASTM A240 316SS
4	Seat	ASTM A276 316SS
5	Float	ASTM A240 316SS
6	Gasket	Non-Asbestos Fiber
7	Cover Bolt	ASTM F593 316SS
8	Short Lever Arm	ASTM A276 316SS
9	Button	Stainless Steel & Buna-N (EPDM available)
10	Pivot Pin & Retaining Ring	Stainless Steel
11	Float Retainer	ASTM F593 316SS
12	Positioner	ASTM F879 316SS
13	Lock Washer	ASTM A240 316SS
14	Lock Nut	ASTM F593 316SS
15	1/2" Pipe Plug	316SS
16	Long Lever Arm	ASTM A276 316SS
17	Arm Link	ASTM A240 316SS
18	Lever Bracket Base	ASTM A276 316SS
19	Cushion	EPDM
20	Cushion Retainer	ASTM F879 316SS
21	1" Pipe Plug	316SS
22	Vent Cap and Screen	ASTM A536 65-45-12 (Screen 316 SS)

Series WAV Water Air Vacuum Valves

Introduction

- **Diffuser Standard for 1"-3" WAV Valves**
- **All 316 Stainless Steel Trim Standard**
- **All 316 Stainless Steel Floats Standard**
- **Ductile Iron Bodies and Covers Standard**
- **Threaded or Flanged Outlet with Screened Vent Cap or Hood Included Upon Request[1]**
- **Meets or Exceeds ANSI/AWWA C512 Standard/NSF61/372 Certified**
- **Optional Well Service Features Available**

AirPro Max® Series WAV Air Vacuum Valves are high capacity air venting and intake valves designed to provide two separate functions. First, as the line is being filled with water they allow large quantities of air to be vented from the pipeline. When air has been completely vented, water enters the valve causing the stainless steel float to rise and seal tightly against the seat to prevent leakage. Second, when the line is drained, either intentionally or as a result of power failure or pipeline breakage, the air vacuum valve responds to a negative pressure and opens, allowing air to re-enter the valve and line preventing a vacuum from forming which could lead to damaging the pipeline.

Series WAV Air Vacuum Valves do not open when closed and pressurized to exhaust any air that collects at high points during operation of the system. Series WAR Air Release Valves are needed for this function.

Series WAV Air Vacuum valves 1"-3" are fitted with internal diffusers. Throttling devices are available for valves sized ½" – 8". Please specify these options when ordering.

Note: For valve sizing, see page 2.

Scope of Line

Sizes

1/2", 1", 2", 3" NPT

4" through 24" 125 lb or 250 lb ANSI Flanged

Pressure Ratings (See Note)

150 psi
300 psi

Note: Specify when operating pressure will be below 10 psi

Temperature Range

Water to 180°F

1. Rain hoods and vent cap heights provided in our envelope dimensions are for typical applications where a low profile and typical 1/4" screen mesh is desired. If a special screen mesh or minimum vent flow capacity is needed, contact factory.

Standard Materials

Body and Cover: Ductile Iron ASTM A536 65-45-12
Float: 316 Stainless Steel
Internal Trim: 316 Stainless Steel
Seat: EPDM
External Cover Bolts: ASTM F593 316SS
Coating: Fusion Bonded Epoxy (12 mils)

Installation

Series WAV AirPro Max Air Vacuum Valves should be installed at pipeline high points, grade changes and regular intervals of approximately every 1/4 to 1/2 mile along uniform grade line of the pipeline. Mount each valve vertically on top of the pipe with an isolation valve below each valve in the event servicing is required. A vault with adequate venting and drainage should be provided.

Air Vacuum Valve Specifications

Air Vacuum valve shall allow large volumes of air to be exhausted from the pipeline during filling and large volumes of air to re-enter when draining the pipeline occurs for any reason.

The outlet size of the Air Vacuum Valve shall have the same cross-section area as the valve inlet size. A stainless steel single bottom guide shaft shall guide the float. The 4" and larger air vacuum valve floats shall have top and bottom guide shafts to accurately guide the float, without hunting, into the seat for shut-off. A steel valve hood shall be provided to protect the valve discharge orifice from debris.

The float shall be of all stainless steel construction guaranteed to withstand the design system surge pressure without failure. The body and cover shall be concentrically located for vertical float rising accurately into the seat shut-off position to prevent water spilling. The valve body and cover shall be constructed of ductile iron and the valve internal parts shall be of 316 Stainless Steel with EPDM rubber seat.

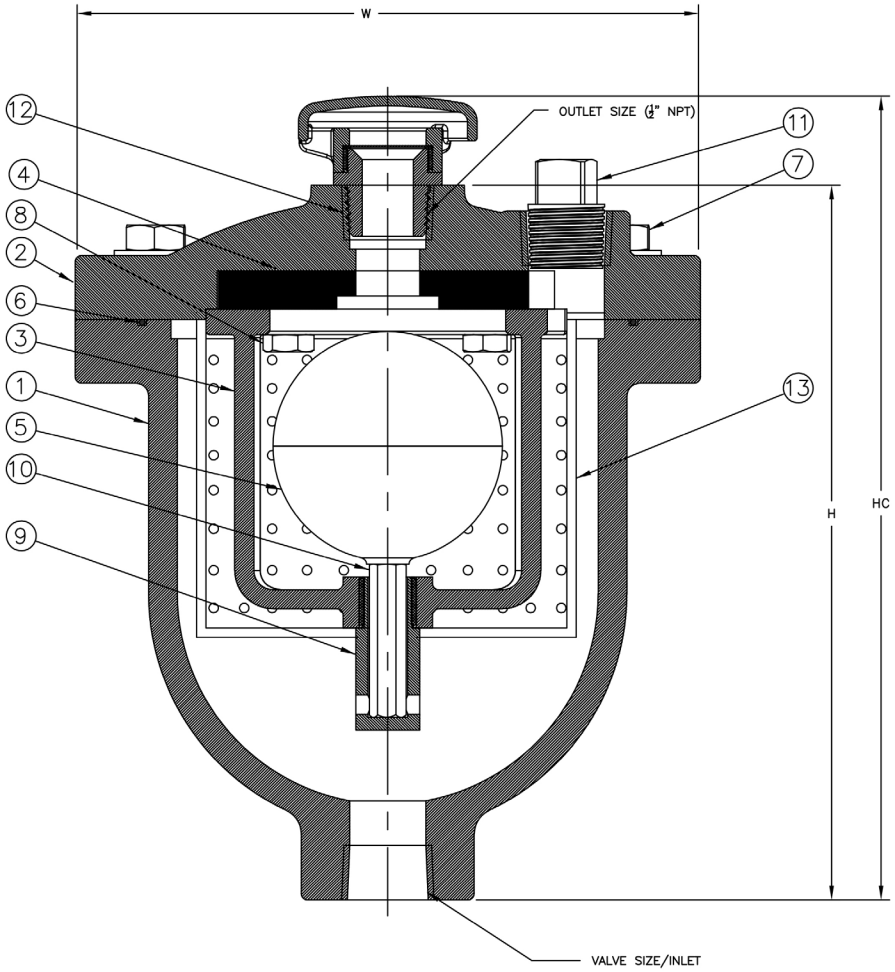
The Air Vacuum Valve shall be manufactured per ANSI/AWWA C512 and shall be Series WAV AirPro Max Air Vacuum Valves manufactured by the Henry Pratt Company, Aurora, IL USA.

When Ordering, Please Specify:

1. Model Number
2. Inlet Size - NPT or Flanged
3. Inlet Pressure Rating
4. Specify when operating pressure will be below 10 psi.

Series WAV Air Vacuum Valve

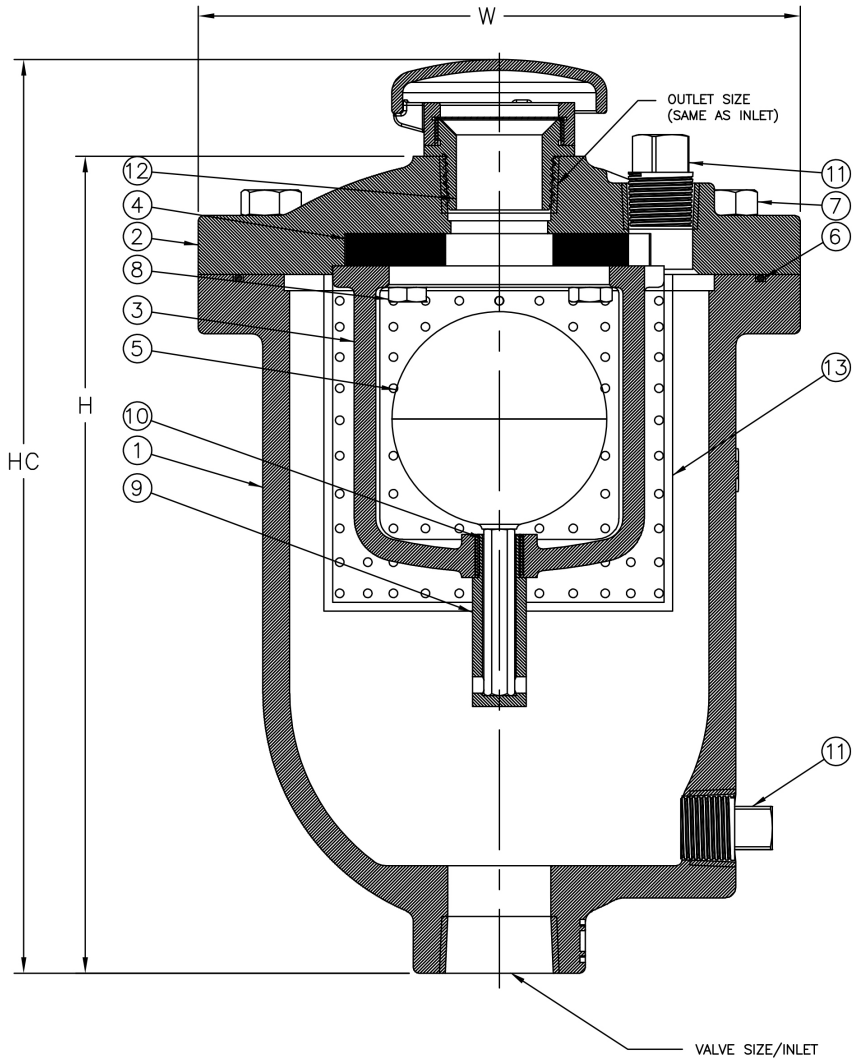
Valve Size	Max C.W.P.	Inlet Connection	W	H	HC	Fusion Series Part #	Wt. (Lbs.)
1/2"	300	NPT	6-1/8"	7"	7-7/8"	WAV05-300-FS	14



Part #	Description	Material
1	Body	ASTM A536 65-45-12
2	Cover	ASTM A536 65-45-12
3	Baffle	ASTM A536 65-45-12
4	Seat	EPDM
5	Float	ASTM A240 316SS
6	O-Ring	EPDM
7	Cover Bolt	ASTM F593 316SS
8	Baffle Bracket	ASTM F593 316SS
9	Guide Bushing	ASTM A276 316SS
10	Guide Shaft	ASTM A276 316SS
11	1/2" Pipe Plug	316SS
12	Vent Cap and Screen	ASTM A536 65-45-12 (Screen 316SS)
13	Diffuser	ASTM A276 316SS

Series WAV Air Vacuum Valve

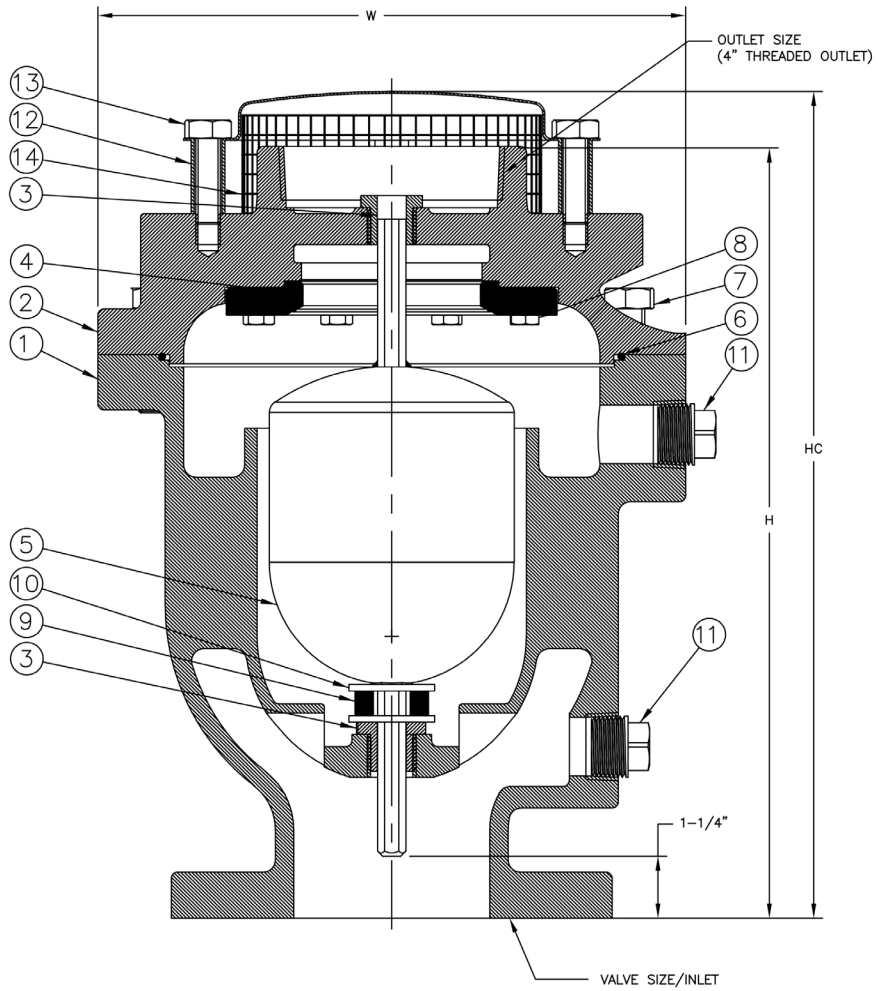
Valve Size	Max C.W.P.	Inlet Connection	W	H	HC	Fusion Series Part #	Wt. (Lbs.)
1"	300	NPT	7"	9-1/2""	10-5/8"	WAV10-300-FS	23.5
2"	300	NPT	9-1/2"	11-15/16"	13-13/16"	WAV20-300-FS	50.1
3"	300	NPT	9-1/2"	12"	14-5/8"	WAV30-300-FS	50.4



Part #	Description	Material
1	Body	ASTM A536 65-45-12
2	Cover	ASTM A536 65-45-12
3	Baffle	ASTM A536 65-45-12
4	Seat	EPDM
5	Float	ASTM A240 316SS
6	O-Ring	EPDM
7	Cover Bolt	ASTM F593 316SS
8	Baffle Bracket	ASTM F593 316SS
9	Guide Bushing	ASTM A240 316SS
10	Washer	ASTM A240 316SS
11	1/2" Pipe Plug	316 Stainless Steel
12	Vent Cap and Screen	ASTM A536 65-45-12 (Screen 316SS)
13	Diffuser	ASTM A276 316SS

Series WAV Air Vacuum Valve

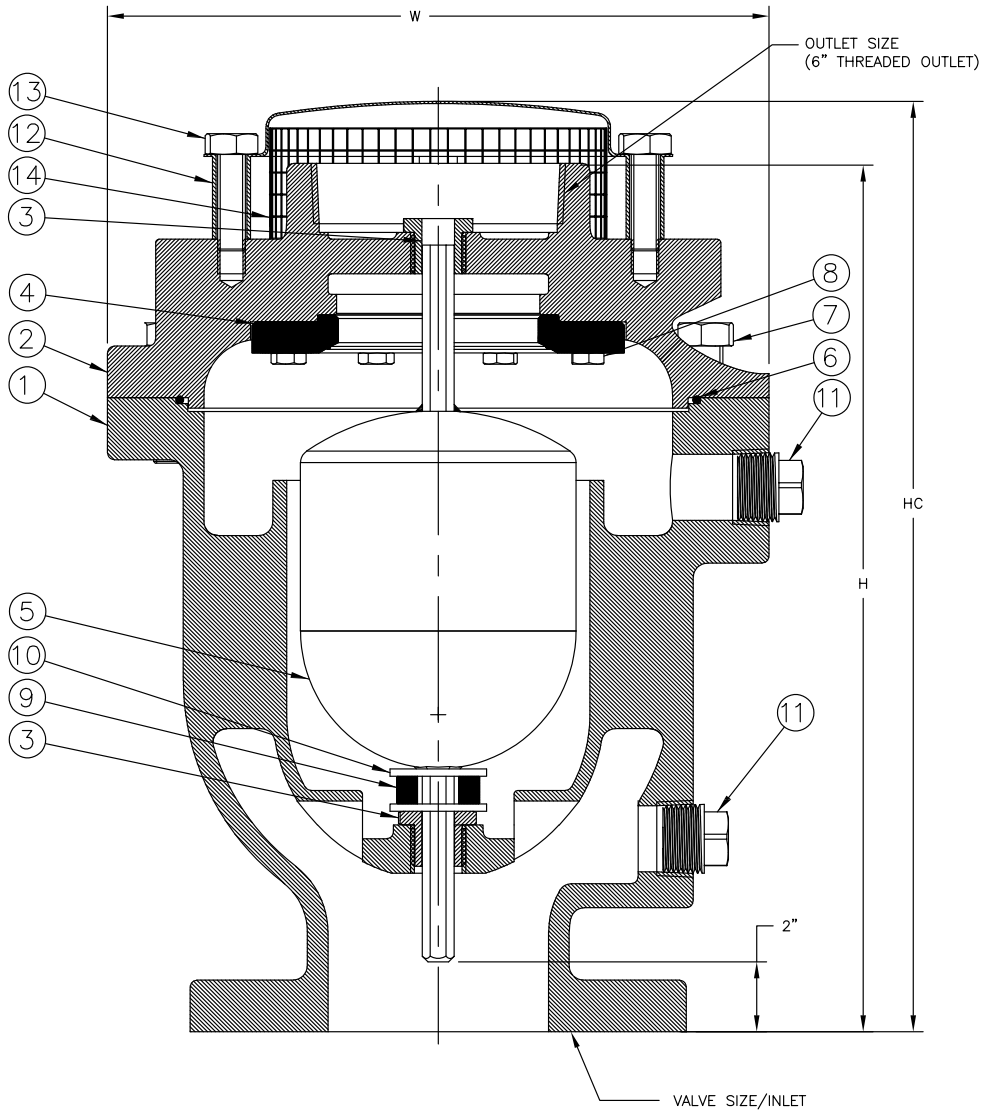
Valve Size	Max C.W.P.	Inlet Connection	W	H	HC	Fusion Series Part #	Wt. (Lbs.)
4"	150	#125 Flg	12"	15-3/4"	16-7/8"	WAV40-150F-FS	104
4"	300	#250 Flg	12"	15-3/4"	16-7/8"	WAV40-300F-FS	104



Part #	Description	Material
1	Body	ASTM A536 65-45-12
2	Cover	ASTM A536 65-45-12
3	Guide Bushing	ASTM A276 316SS
4	Seat	EPDM
5	Float	ASTM A240 316SS
6	O-Ring	EPDM
7	Cover Bolt	ASTM F593 316SS
8	Shoulder Screw	ASTM F593 316SS
9	Cushion Bumper	EPDM
10	Washer	316SS
11	1" Pipe Plug	316SS
12	Hood	Steel
13	Hood Bolt	316SS
14	Screen	316SS

Series WAV Air Vacuum Valve

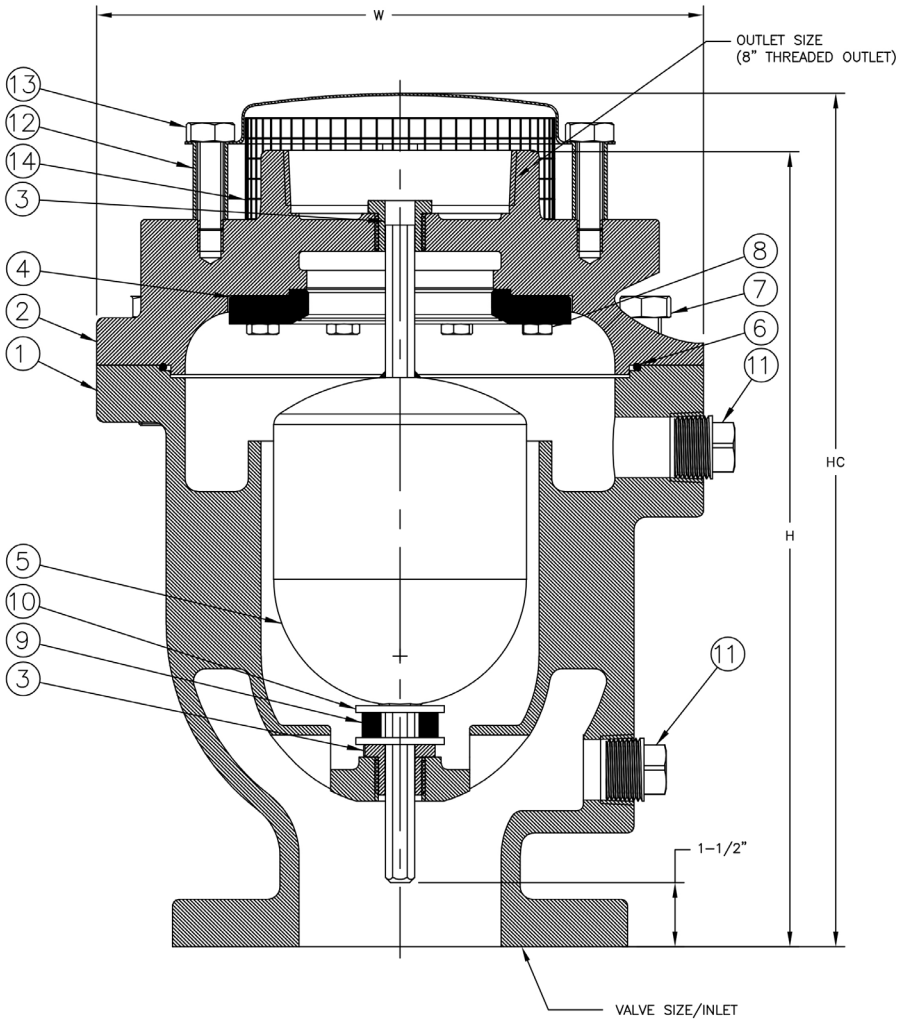
Valve Size	Max C.W.P.	Inlet Connection	W	H	HC	Fusion Series Part #	Wt. (Lbs.)
6"	150	#125 Flg	14"	18-9/16"	20-5/16"	WAV60-150F-FS	158
6"	300	#250 Flg	14"	18-9/16"	20-5/16"	WAV60-300F-FS	158



Part #	Description	Material
1	Body	ASTM A536 65-45-12
2	Cover	ASTM A536 65-45-12
3	Bushing	ASTM A276 316SS
4	Seat	EPDM
5	Float	ASTM A240 316SS
6	O-Ring	EPDM
7	Cover Bolt	ASTM F593 316SS
8	Shoulder Screw	ASTM F593 316SS
9	Cushion Bumper	EPDM
10	Washer	316SS
11	1" Pipe Plug	316SS
12	Hood	Steel
13	Hood Bolt	316SS
14	Screen	316SS

Series WAV Air Vacuum Valve

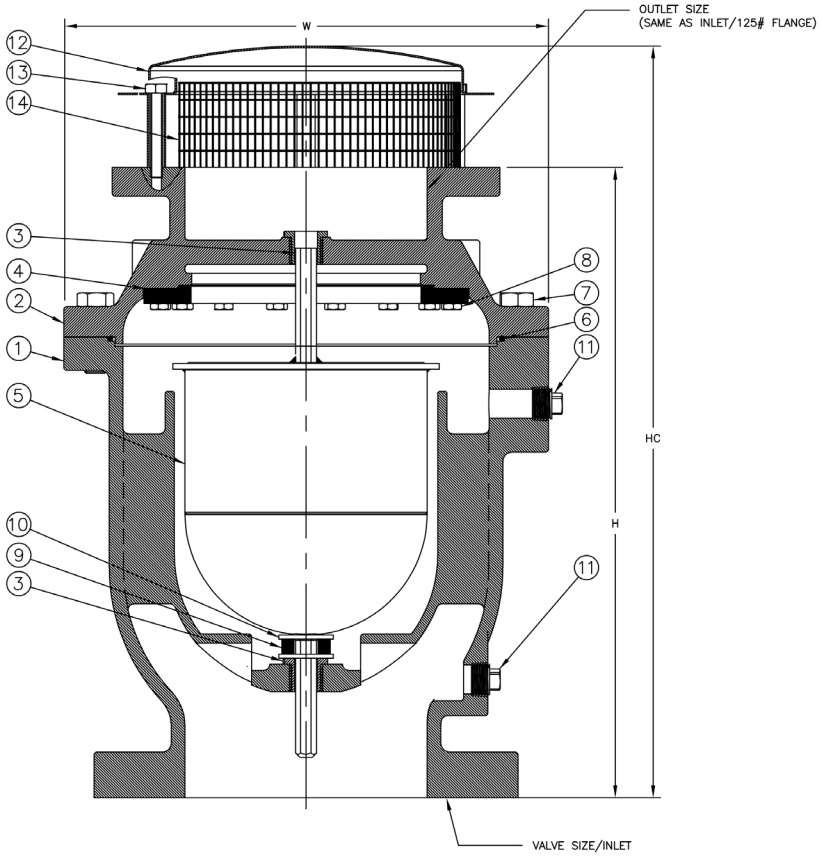
Valve Size	Max C.W.P.	Inlet Connection	W	H	HC	Fusion Series Part #	Wt. (Lbs.)
8"	150	#125 Flg	18"	21-9/16"	23-9/16"	WAV80-150F-FS	284
8"	300	#250 Flg	18"	21-9/16"	23-9/16"	WAV80-300F-FS	284



Part #	Description	Material
1	Body	ASTM A536 65-45-12
2	Cover	ASTM A536 65-45-12
3	Guide Bushing	ASTM A276 316SS
4	Seat	EPDM
5	Float	ASTM A240 316SS
6	O-Ring	EPDM
7	Cover Bolt	ASTM F593 316SS
8	Shoulder Screw	ASTM F593 316SS
9	Cushion Bumper	EPDM
10	Washer	316SS
11	1" Pipe Plug	316SS
12	Hood	Steel
13	Hood Bolt	316SS
14	Screen	316SS

Series WAV Air Vacuum Valve

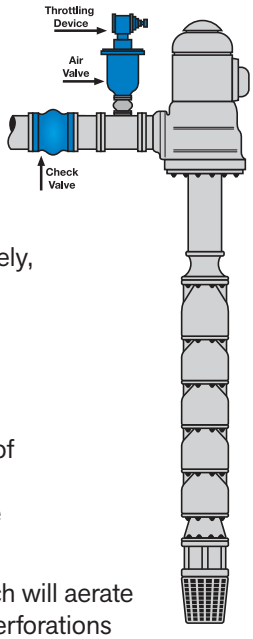
Valve Size	Max C.W.P.	Inlet Connection	W	H	HC	Fusion Series Part #	Wt. (Lbs.)
10"	150	#125 Flg	20"	26"	31"	WAV100-150F-FS	468
10"	300	#250 Flg	20"	26"	31"	WAV100-300F-FS	468
12"	150	#125 Flg	24"	30"	35"	WAV120-150F-FS	711
12"	300	#250 Flg	24"	30"	35"	WAV120-300F-FS	711
14"	150	#125 Flg	27"	32"	38"	WAV140-150F-FS	945
14"	300	#250 Flg	27"	32"	38"	WAV140-300F-FS	945
16"	150	#125 Flg	30-1/2"	34"	41"	WAV160-150F-FS	1275
16"	300	#250 Flg	30-1/2"	34"	41"	WAV160-300F-FS	1275
20"	150	#125 Flg	38-1/4"	42"	51"	WAV200-150F-FS	2081
20"	300	#250 Flg	38-1/4"	42"	51"	WAV200-300F-FS	2081
24"	150	#125 Flg	44"	50"	59"	WAV240-150F-FS	3053
24"	300	#250 Flg	44"	50"	59"	WAV240-300F-FS	3053



Part #	Description	Material
1	Body	ASTM A536 65-45-12
2	Cover	ASTM A536 65-45-12
3	Guide Bushing	ASTM A582 316SS
4	Seat	EPDM
5	Float	ASTM A240 316SS
6	O-Ring	EPDM
7	Cover Bolt	ASTM F593 316SS
8	Shoulder Screw	ASTM F593 316SS
9	Cushion Bumper	EPDM
10	Washer	316SS
11	1" Pipe Plug	316SS
12	Hood	Steel
13	Hood Bolt	316SS
14	Screen	316SS

Series WAV-D Water Air/Vacuum Valve (Deep-well Service)

Provides for Deep Well Pump Flow Optimization



Well service pumps start up with low water level and a long column of air which results in little or no head (backpressure) while the pump fills the casing.

At pump start, conditions may exist which allow water flow to exceed 10 feet per second as it moves up with little resistance inside a well casing while air is being discharged from the line.

Since a fast water column is rising immediately following the escaping air column, it is critical to protect the float from the in-rushing water column.

If the float is not shielded the fast moving water column will strike the float and slam it shut prematurely, sometimes closing the valve prematurely before all air escapes.

There are various means to protect the air valve float and system. Each device is ranked in order of increasing degree of protection:

- *Diffuser* (perforated basket which aerates and moderates water flow)
- *Anti-Shock Slow Closing Surge Check Air Valve* (perforated disc "sprung open" to allow slow fill of float chamber)
- *Double-Acting Throttling Device* (device which controls outflowing air backpressure with variable plug closure- but allows free air in)

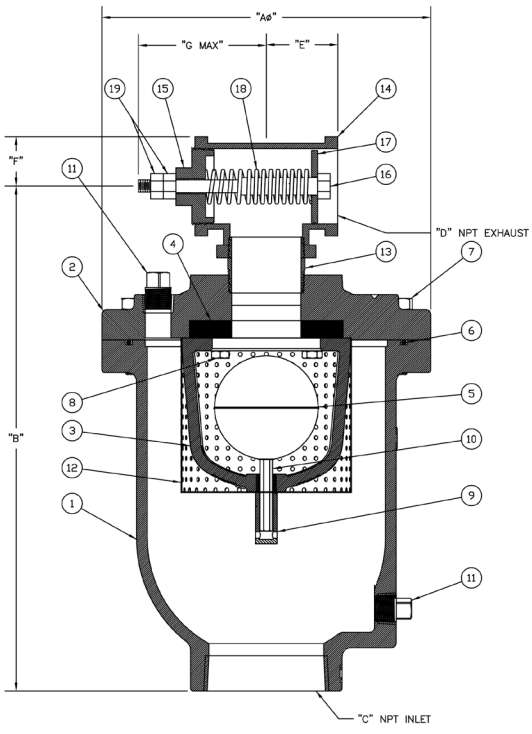
Positive control of the water flow is provided by a Diffuser – a float-enclosing, perforated basket which will aerate and disperse a fast straight-on column impact into steady, slower flow. Water is forced through the perforations and aerated as it streams through to buoy up the float in a controlled manner.

The Pratt® throttling device is the final level of protection that can be provided for deep well service pump/pipeline systems. This proven design is the maximum protection that can be provided for slowing down the water column.

Well Service Air Valve General Specification

For a CSI formatted specification describing the AirPro Max® Well Service Valves, please contact your local sales representative.

Valve Size	CWP	AØ	B	C NPT	D NPT	E	F	G	Fusion Series Part #	Wt.
1"	300	7"	12-1/8"	1"	1"	1-1/2"	7/8	3-5/8	WAV10-300D-FS	25
2"	300	9-1/2"	15-15/16"	2"	2"	2-1/4"	1-1/2	5-3/4	WAV20-300D-FS	54
3"	300	9-1/2"	16-7/16""	3"	3"	3-1/16"	2-1/8	7-11/16	WAV30-300D-FS	55



Item #	Description	Material
1	Body	Ductile Iron
2	Cover	Ductile Iron
3	Baffle	Ductile Iron
4	Seat	EPDM
5	Float	ASTM A240 316SS
6	O-Ring	EPDM
7	Cover Bolts	ASTM F593 316SS
8	Baffle Bracket Bolts	ASTM F593 316SS
9	Guide Bushing	ASTM A240 316SS
10	Guide Shaft	ASTM A240 316SS
11	Pipe Plug (1/2")	316SS
12	Diffuser	Perforated 316SS
13	Pipe Nipple	Carbon Steel
14	Tee Pipe Fitting	Cast Iron
15	Plug	Cast Iron ASTM A-126
16	Bolt	ASTM A276 316SS
17	Throttle Disc	ASTM A276 316SS
18	Spring	ASTM A276 316SS
19	Hex Lock Nut	316SS

All well service valves should be piped to drain or back to well to muffle sound of escaping air. No screen is provided.

Anti-Shock Air Vacuum Valves – Series WAVASD

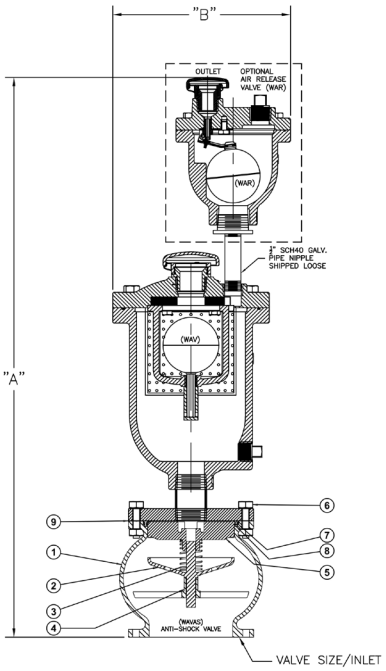
Pratt® AirPro Max® Anti-Shock Air Valves are equipped with a slow closing action which regulates the flow of water into a valve float chamber. This regulation of flow provides additional protection by preventing the air valve float from slamming shut during critical operations. This controlled closure of the air valve prevents surge or water hammer conditions from occurring and helps eliminate the possibility of damage to the valve caused by excessive pressure forces.

The Series WAVAS Anti-Shock Air Valve, mounted on the inlet of the air valve, is a normally open valve. The disc is held open by a flexible spring allowing air to pass through unrestricted. As the Anti-Shock Valve fills with water the disc quickly closes preventing fluid surge into the air valve. The disc of the Anti-Shock Valve is drilled with adjustable flow ports which allow water to only enter the Air Vacuum Valve at a measured rate. This regulated flow closes the Air Vacuum Valve without excessive force caused by surge or water hammer.

When the Air Vacuum Valve is closed the pressure on both sides of the Anti-Shock Check Valve disc equalize, returning the disc to the open position. This allows the Air Vacuum Valve to open at any time the water level drops and line pressure approaches atmospheric, permitting air to re-enter the pipeline before a vacuum can form.

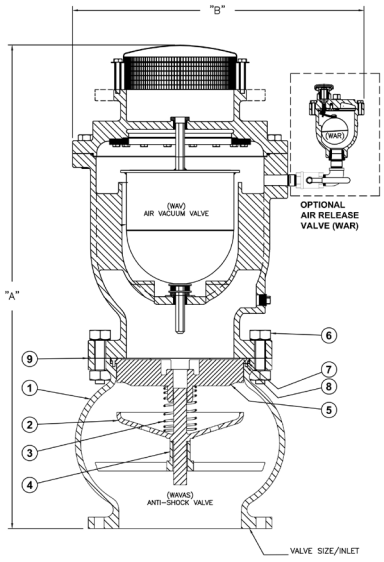
Series WAVAS Anti-Shock Air Valves should be used:

- At high points in pipelines where the hydraulic gradient and flow conditions are such that a negative pressure can possibly form.
- High points on sections of the pipeline having velocities in excess of 7-10 f/s.
- Adjacent to any quick closing valve in a pipeline where a vacuum can be formed when closed.
- On the discharge of larger deep well turbine pumps, between the pump and the check valve.



Sizes 2" - 3"

Part #	Description	Material
1	Body	ASTM A536 65-45-12
2	Disc	304SS
3	Spring	304SS
4	Bushing	304SS
5	Seat	304SS
6	Hardware	316SS
7	Gasket (Seat)	EPDM
8	Seat Hardware	Stainless Steel
9	Flange Gasket	EPDM



Sizes 4" - 20"

WAVASD - Dual Body (WAVAS + WAV)							
Valve Size	CWP**	Fusion Series Combo Part #	Anti-Shock Valve (WAVAS) Part #	Air Vacuum Valve (WAV) Part #	A	C	Weight (LBS)
2"*	150	WAVASD20-150F-FS	WAVAS20-FS	WAV20-300-FS	19-1/2"	9-9/16"	70
3"*	150	WAVASD30-150F-FS	WAVAS30-FS	WAV30-300-FS	23-1/4"	9-1/2"	85
4"	150	WAVASD40-150F-FS	WAVAS40-FS	WAV40-150F-FS	24-1/8"	12"	154
6"	150	WAVASD60-150F-FS	WAVAS60-FS	WAV60-150F-FS	30-1/16"	14"	248
8"	150	WAVASD80-150F-FS	WAVAS80-FS	WAV80-150F-FS	36-1/16"	18"	434
10"	150	WAVASD100-150F-FS	WAVAS100-FS	WAV100-150F-FS	46-1/2"	20"	693
12"	150	WAVASD120-150F-FS	WAVAS120-FS	WAV120-150F-FS	49-1/4"	24"	1081
14"	150	WAVASD140-150F-FS	WAVAS140-FS	WAV140-150F-FS	53-3/4"	27"	1417
16"	150	WAVASD160-150F-FS	WAVAS160-FS	WAV160-150F-FS	58-5/8"	30-1/2"	1942
20"	150	WAVASD200-150F-FS	WAVAS200-FS	WAV200-150F-FS	71-5/8"	38-1/4"	3261

WAVASD - Triple Body (WAVAS + WAV + WAR)								
Valve Size	CWP**	Fusion Series Combo Part #	Anti-Shock Valve (WAVAS) Part #	Air Vacuum Valve (WAV) Part #	Air Release Valve (WAR) Part #	A	B	Weight (LBS)
2"*	150	WAVASD20-150F-N-FS	WAVAS20-FS	WAV20-300-FS	WAR10-316-150-FS	33-9/16"	11-3/8"	93
3"*	150	WAVASD30-150F-N-FS	WAVAS30-FS	WAV30-300-FS	WAR10-316-150-FS	36-7/8"	11-3/8"	109
4"	150	WAVASD40-150F-N-FS	WAVAS40-FS	WAV40-150F-FS	WAR10-316-150-FS	23-1/4"	12"	177
6"	150	WAVASD60-150F-N-FS	WAVAS60-FS	WAV60-150F-FS	WAR10-316-150-FS	30-1/2"	14"	271
8"	150	WAVASD80-150F-N-FS	WAVAS80-FS	WAV80-150F-FS	WAR10-316-150-FS	35-5/8"	18"	457
10"	150	WAVASD100-150F-N-FS	WAVAS100-FS	WAV100-150F-FS	WAR10-316-150-FS	41-5/8"	20"	716
12"	150	WAVASD120-150F-N-FS	WAVAS120-FS	WAV120-150F-FS	WAR10-316-150-FS	49-7/8"	24"	1104
14"	150	WAVASD140-150F-N-FS	WAVAS140-FS	WAV140-150F-FS	WAR10-316-150-FS	51-3/4"	27"	1440
16"	150	WAVASD160-150F-N-FS	WAVAS160-FS	WAV160-150F-FS	WAR10-316-150-FS	57"	30-1/2"	1965
20"	150	WAVASD200-150F-N-FS	WAVAS200-FS	WAV200-150F-FS	WAR10-316-150-FS	75"	47-3/4"	3284

** Threaded inlet with flange adapter for sizes 2" and 3" WAV*
*** 300 CWP available, contact factory for information*
250# Flange is available, consult contact factory

For WAV drawing details, reference WAV series Water Air Vacuum Valves (Pages 10-14).
For WAR drawing details, reference WAR series Water Air Release Valves (Page 6).

Series WCV Combination Air Valves

Introduction

- **All 316 Stainless Steel Trim Standard**
- **All 316 Stainless Steel Floats Standard**
- **Threaded Outlet with Screened Vent Cap or Rain HoodIncluded as Standard**
- **Meets or Exceeds ANSI/AWWA C512 Standard/ NSF61/372 Certified**
- **Drop Tight Shut-off At Low Pressures**

The AirPro Max® Series WCV Combination Air Valve combines the functions of both the Air Release Valve and Air Vacuum Valve. Our Series WCV Combination Valve allows a large volume of air to be vented when filling, or a large volume of air intake when draining the pipeline. The Combination Air Valve also vents small pockets of air that accumulate after the line is filled, pressurized and operating. Series WCV Combination Air Valves are offered in both single body and dual body designs.

Note: For valve sizing, see page 2.

Scope of Line

Sizes

Single Body Design

1", 2", 3", 4" NPT

3" through 8" Flanged ANSI Class 125 & 250

Dual Body Design

1", 2", 3" NPT

4" through 16" Flanged ANSI Class 125 & 250

Pressure Ratings (See Note)

150 psi
300 psi
Note: Specify when operating pressure will be below 10 psi

Temperature Range

Water to 180°F

Standard Materials

Body and Cover: Ductile Iron ASTM A536 65-45-12
Float: 316 Stainless Steel
Internal Trim: 316 Stainless Steel
Seat: EPDM
External Cover Bolts: ASTM F593 316SS
Coating: Fusion Bonded Epoxy (12 mils)

Installation

Series WCV AirPro Max Combination Air Valves should be installed at high points and change of gradients and regular intervals of approximately every 1/4 to 1/2 miles along lines without clearly defined high points. Install valves vertically on top of the pipeline with an isolation valve under each valve should servicing be required. A vault with adequate venting and drainage is highly recommended.

Suggested Specifications

The Combination Air Valve shall function as an air vacuum valve and air release valve in a single or dual body design. The large air vacuum orifice shall allow large volumes of air to be exhausted during pipeline filling and large volume of air intake while draining, or in the event of a break in the pipeline, to prevent a vacuum from forming.

The inlet/outlet and seat of the valve shall have the same flow area. The stainless steel poppet shall be guided by a stainless steel guide shaft and seal drip tight against a EPDM seat. 4" and larger valves shall have dual guided stainless steel 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 trim shall be of 316 Stainless Steel. Seat shall be EPDM for water tight shut off.

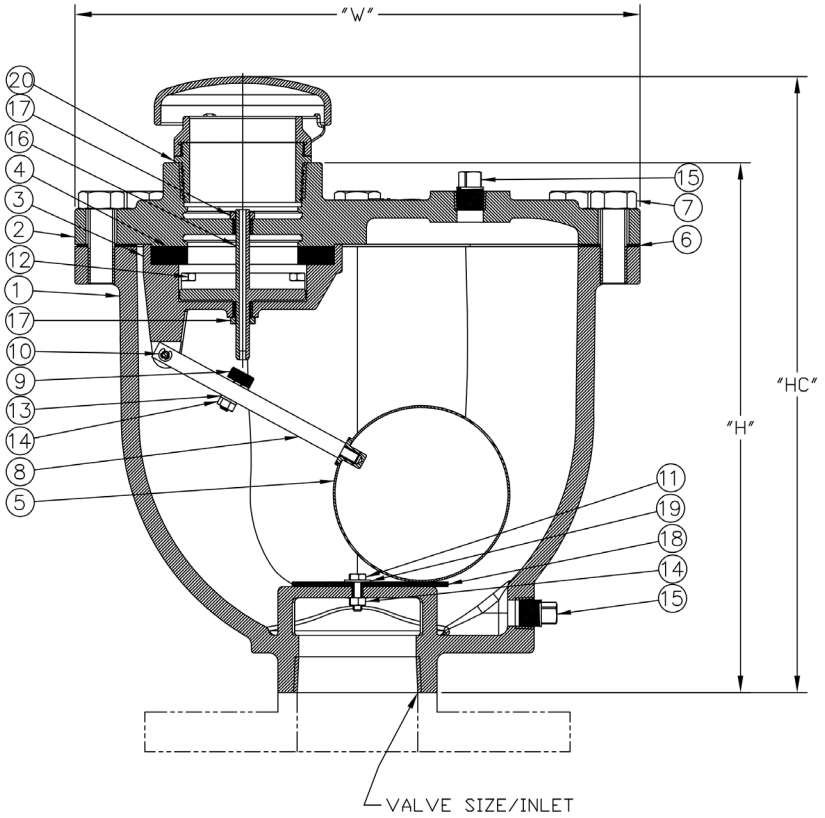
The Combination Air Valve shall be manufactured per ANSI/AWWA C512 and shall be Series WCV AirPro Max Combination Air Valves manufactured by the Henry Pratt Company, Aurora, IL USA.

When Ordering, Please Specify

1. Model Number
2. Inlet/Outlet Size & Connection
3. Valve Pressure Rating

Series WCV Combination Air Valves

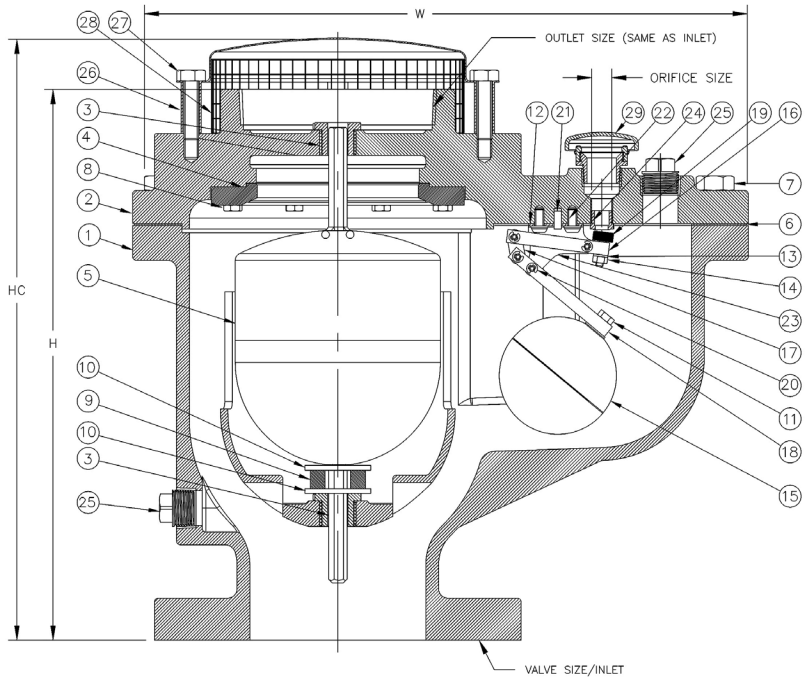
Valve Size	Orifice Size	Max C.W.P.	Inlet Connection	W	H	HC	Fusion Series Part #	Wt. (Lbs.)
1"	5/64"	300	NPT	11-3/8"	10-1/2"	11-5/8"	WCV10-564-300-FS	40.6
2"	3/32"	300	NPT	14"	13"	14-7/8"	WCV20-332-300-FS	75.5
3"	3/32"	300	NPT	16"	15"	17-9/16"	WCV30-332-300-FS	114
3"	3/32"	150	#125 Flg	16"	17"	19-9/16"	WCV30-332-150F-FS	114
3"	3/32"	300	#250 Flg	16"	17-1/2"	20-1/16"	WCV30-332-300F-FS	114
4"	3/32"	300	NPT	18-1/2"	17"	20"	WCV40-332-300-FS	161.9
4"	3/32"	150	#125 Flg	18-1/2"	19"	22"	WCV40-332-150F-FS	161.9
4"	3/32"	300	#250 Flg	18-1/2"	19-1/2"	22-1/2"	WCV40-332-300F-FS	161.9



Part #	Description	Material
1	Body	ASTM A536 65-45-12
2	Cover	ASTM A536 65-45-12
3	Lever Frame	ASTM A536 65-45-12
4	Seat	EPDM
5	Float	ASTM A240 316SS
6	Gasket	Non-Asbestos Fiber
7	Cover Bolt	ASTM F593 316SS
8	Lever Arm	ASTM F582 316SS
9	Button	Stainless Steel & EPDM
10	Pivot Pin & Retaining Ring	316SS
11	Cushion Retainer	ASTM F593 316SS
12	Lever Frame Bracket	ASTM F879 316SS
13	Lock Washer	ASTM A240 316SS
14	Lock Nut	ASTM F594 316SS
15	1/2" Pipe Plug	316SS
16	Poppet	ASTM A582 316SS
17	Guide Bushing	ASTM A582 316SS
18	Cushion	EPDM
19	Washer	ASTM A240 316SS
20	Vent Cap	ASTM A536 65-45-12

Series WCV Combination Air Valves

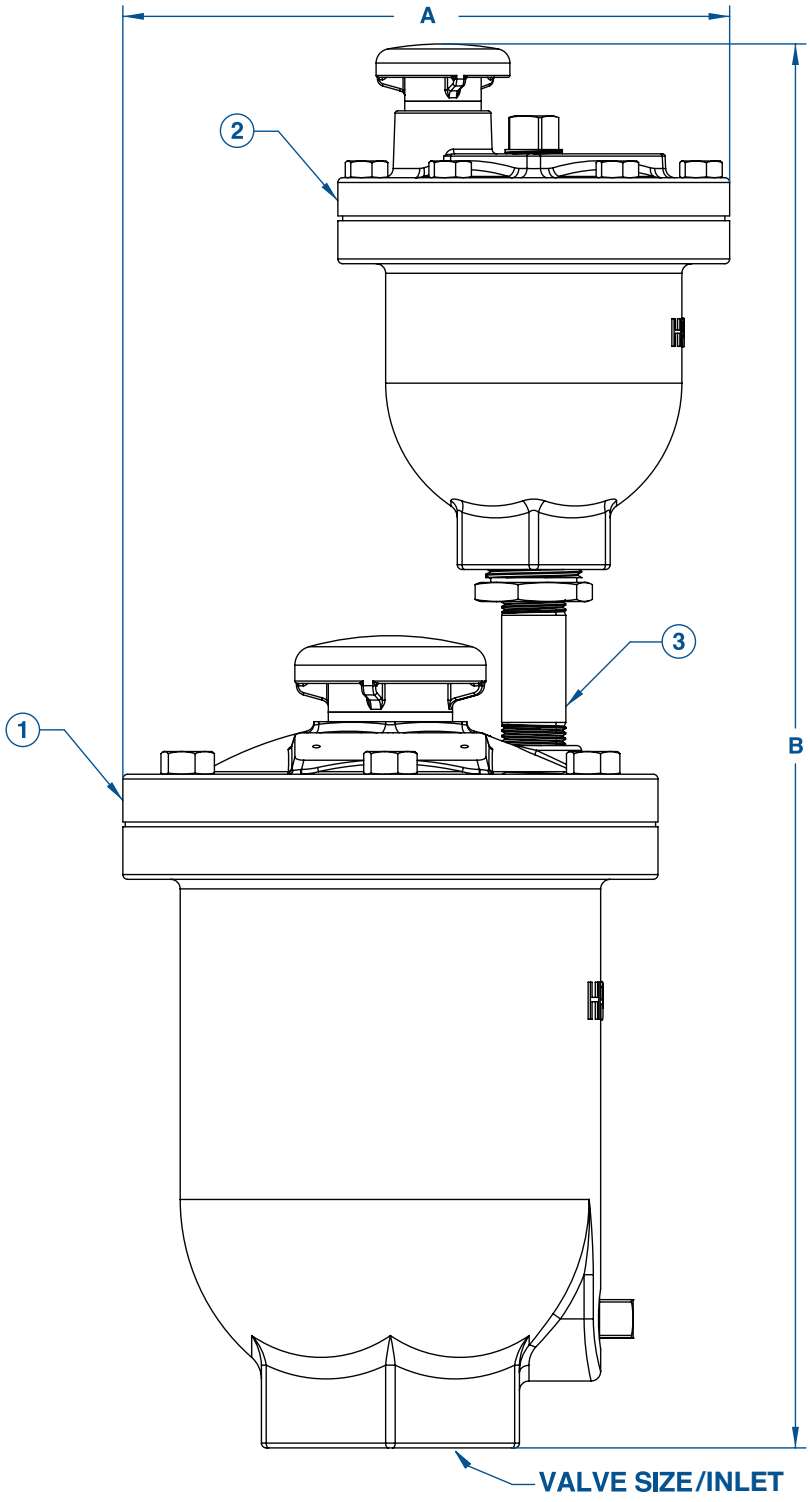
Valve Size	Orifice Size	Max C.W.P.	Inlet Connection	W	H	HC	Fusion Series Part #	Wt. (Lbs.)
6"	6"	150	#125 Flg	21"	18-3/4"	20-1/2"	WCV60-038-150F-FS	231
6"	6"	300	#250 Flg	21"	18-3/4"	20-1/2"	WCV60-732-300F-FS	231
8"	8"	150	#125 Flg	25"	21-11/16"	23-11/16"	WCV80-038-150F-FS	373
8"	8"	300	#250 Flg	25"	21-11/16"	23-11/16"	WCV80-732-300F-FS	373



Part #	Description	Material
1	Body	ASTM A536 65-45-12
2	Cover	ASTM A536 65-45-12
3	Bushing	ASTM A582 316SS
4	Seat	EPDM
5	Float	ASTM A240 316SS
6	Gasket	ASTM A536 65-45-12
7	Cover Bolt	ASTM F593 316SS
8	Shoulder Screw	ASTM F593 316SS
9	Cushion Bumper	EPDM
10	Washer	ASTM A240 316SS
11	Float Retainer	ASTM F593 316SS
12	Lock Washer	ASTM A240 316SS
13	Lock Washer	ASTM A240 316SS
14	Lock Nut	ASTM F594 316SS
15	Float	ASTM A240 316SS
16	Long Lever Arm	ASTM A582 316SS
17	Arm Link	ASTM A240 316SS
18	Short Lever Arm	ASTM A582 316SS
19	Button	316SS & EPDM
20	Pivot Pin & Retaining Ring	316SS Stainless Steel
21	Positioning Pin	420SS
22	Positioner	ASTM F879 316SS
23	Lever Bracket	ASTM A240 316SS
24	Seat	ASTM A582 316SS
25	1" Pipe Plug	316SS
26	Hood	Steel
27	Hood Bolt	316SS
28	Screen	316SS
29	Vent Cap	ASTM A536 65-45-12

Series WCVD Combination Air Valves (Dual Body)

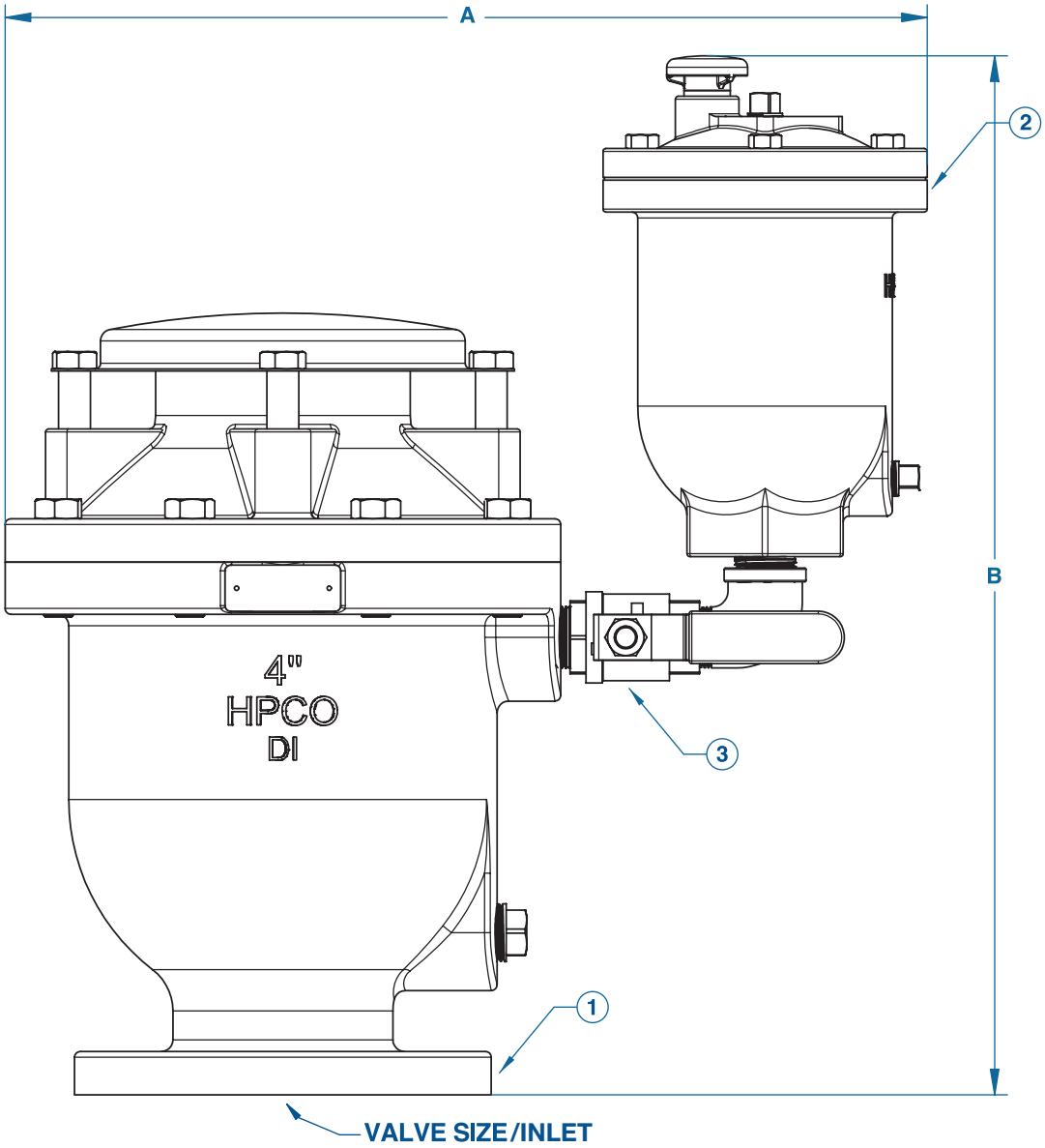
Valve Size	Orifice Size	Max C.W.P.	Inlet Connection	Air Vacuum Valve	Air Release Valve	A	B	Wt. (Lbs)	Fusion Series Combo Part #
1"	1/16"	300 psi	NPT	WAV10-300-FS	WAR10-116-300-FS	8"	17"	33	WCVD10-300-I-FS
2"	1/16"	300 psi	NPT	WAV20-300-FS	WAR10-116-300-FS	10-1/2"	19"	60	WCVD20-300-I-FS
3"	1/16"	300 psi	NPT	WAV30-300-FS	WAR10-116-300-FS	10-1/2"	19"	62	WCVD30-300-I-FS



No.	Part Name	Valve Specs.
1	Air Vacuum Valve	See Series WAV
2	Air Release Valve	See Series WAR
3	Dual Body Pipe Nipple (Shipped separately for field install by others)	Galvanized Steel Pipe

Series WCVD Combination Air Valves (Dual Body)

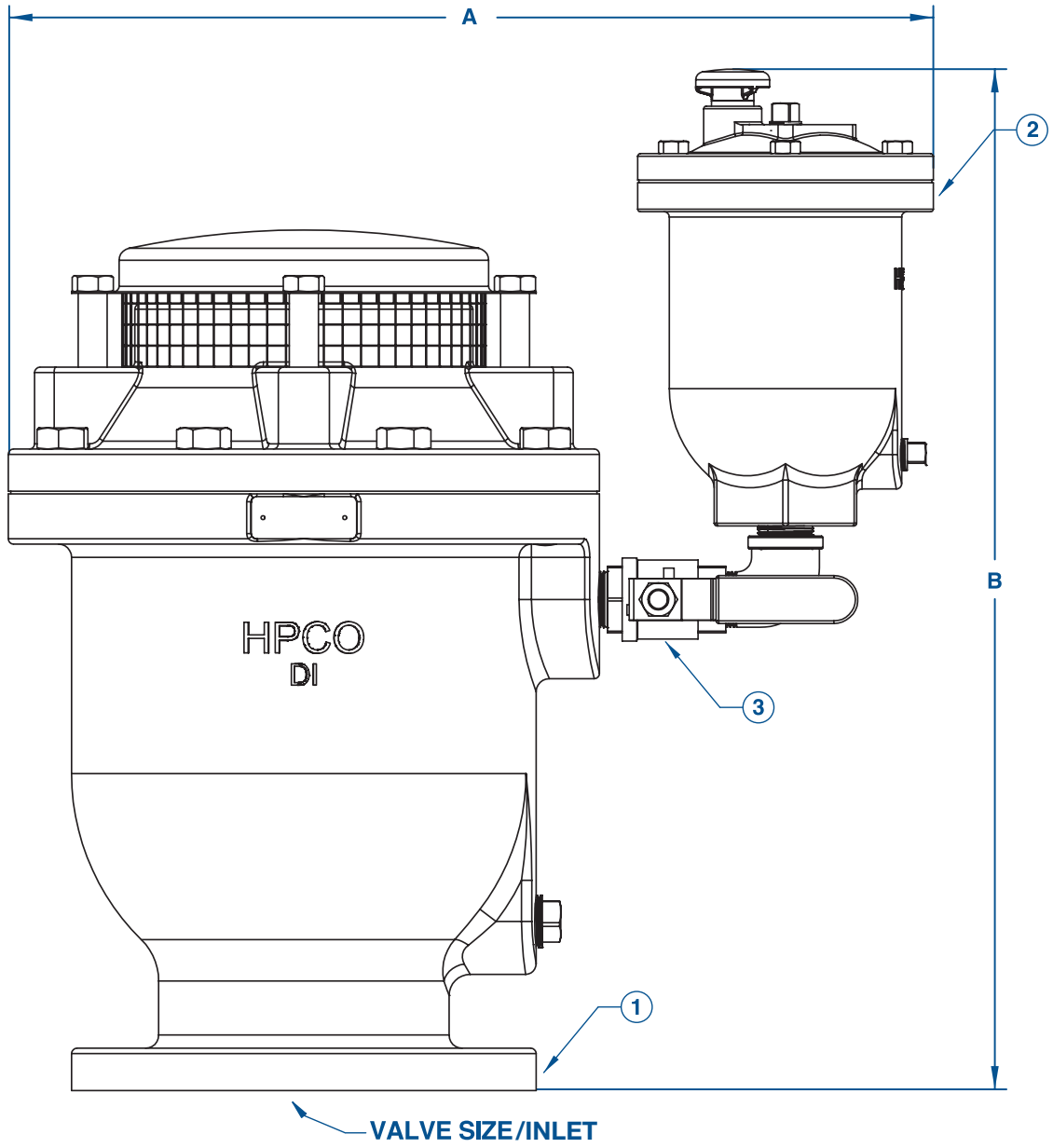
Valve Size	Orifice Size	Max C.W.P.	Inlet Connection	Air Vacuum Valve (WAV) Part #	Air Release Valve (WAR) Part #	A	B	Wt. (Lbs)	Fusion Series Combo Part #
4"	3/16"	150 psi	125# Flg	WAV40-150F-FS	WAR10-316-150-FS	20"	22-1/2"	131	WCVD40-150F-N-FS
4"	5/32"	300 psi	250# Flg	WAV40-300F-FS	WAR10-532-300-FS	20"	22-1/2"	139	WCVD40-300F-O-FS



No.	Part Name	Valve Specs.
1	Air Vacuum Valve	See Series WAV
2	Air Release Valve	See Series WAR
3	Dual Body Pipe Nipple (Shipped separately for field install by others)	Galvanized Steel Pipe & SS Ball Valve

Series WCVD Combination Air Valves (Dual Body)

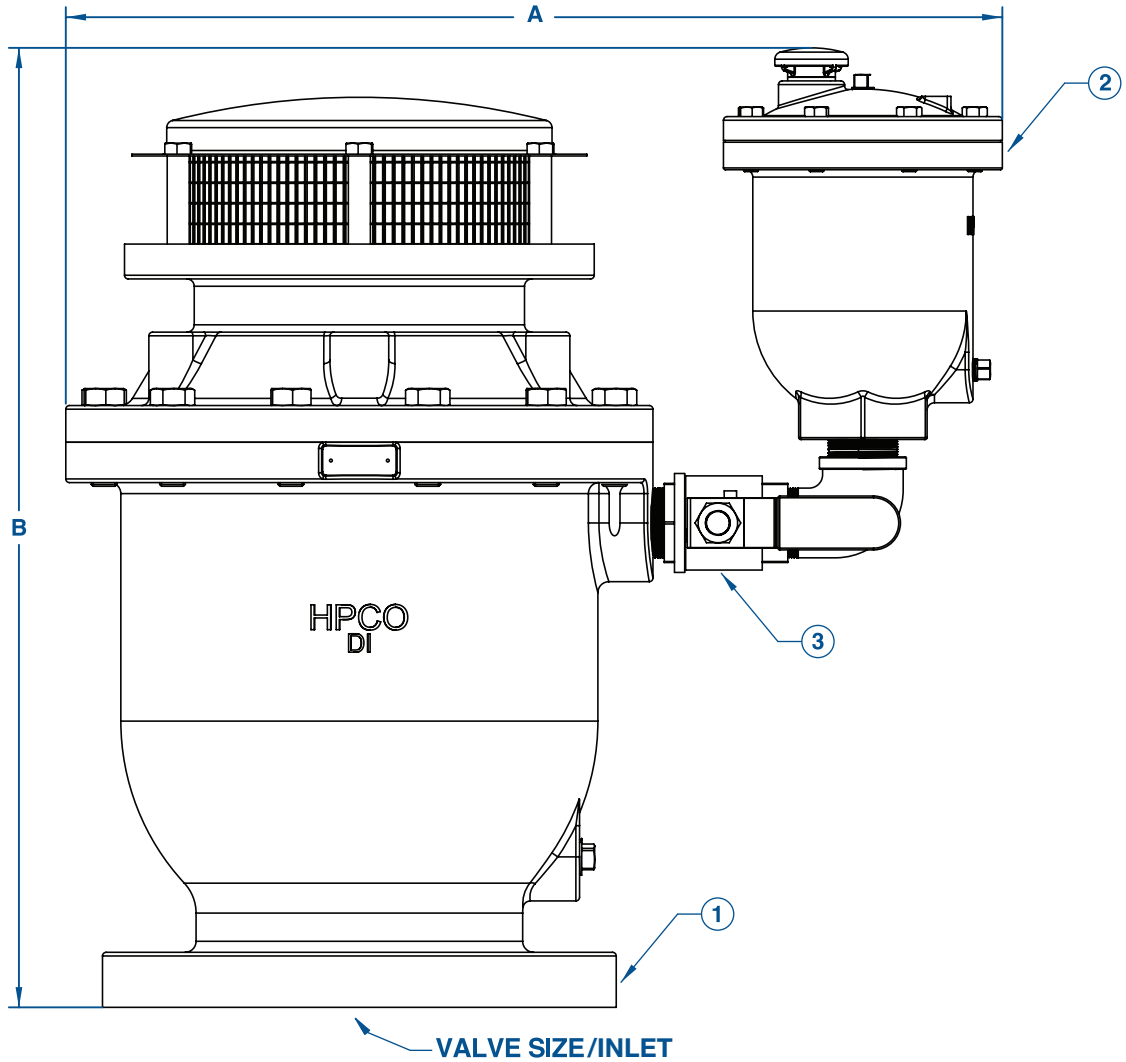
Valve Size	Orifice Size	Max C.W.P.	Inlet Connection	Air Vacuum Valve (WAV) Part #	Air Release Valve (WAR) Part #	A	B	Wt. (Lbs)	Fusion Series Combo Part #
6"	3/16"	150 psi	150# Flg	WAV60-150F-FS	WAR10-316-150-FS	22"	24-1/4"	187	WCVD60-150F-N-FS
6"	5/32"	300 psi	250# Flg	WAV60-300F-FS	WAR10-532-300-FS	22"	24-1/4"	217	WCVD60-300F-O-FS
8"	3/16"	150 psi	150# Flg	WAV80-150F-FS	WAR10-316-150-FS	26"	25-1/2"	316	WCVD80-150F-N-FS
8"	5/32"	300 psi	250# Flg	WAV80-300F-FS	WAR10-532-300-FS	26"	25-1/2"	346	WCVD80-300F-O-FS
8"	23/64"	150 psi	150# Flg	WAV80-150F-FS	WAR20-2364-150-FS	30"	29"	344	WCVD80-150F-R-FS
8"	7/32"	300 psi	250# Flg	WAV80-300F-FS	WAR20-732-300-FS	30"	29"	374	WCVD80-300F-S-FS



No.	Part Name	Valve Specs.
1	Air Vacuum Valve	See Series WAV
2	Air Release Valve	See Series WAR
3	Dual Body Pipe Nipple (Shipped separately for field install by others)	Galvanized Steel Pipe & SS Ball Valve

Series WCVD Combination Air Valves (Dual Body)

Valve Size	Orifice Size	Max C.W.P.	Inlet Connection	Air Vacuum Valve (WAV) Part #	Air Release Valve (WAR) Part #	A	B	Wt. (Lbs)	Fusion Series Combo Part #
10"	3/16"	150 psi	150# Flg	WAV100-150F-FS	WAR10-316-150-FS	28"	31"	465	WCVD100-150F-N-FS
10"	5/32"	300 psi	250# Flg	WAV100-300F-FS	WAR10-532-300-FS	28"	31"	490	WCVD100-300F-O-FS
10"	23/64"	150 psi	150# Flg	WAV100-150F-FS	WAR20-2364-150-FS	32"	32-1/2"	495	WCVD100-150F-R-FS
10"	7/32"	300 psi	250# Flg	WAV100-300F-FS	WAR20-732-300-FS	32"	32-1/2"	520	WCVD100-300F-S-FS
12"	3/16"	150 psi	150# Flg	WAV120-150F-FS	WAR10-316-150-FS	32"	35"	715	WCVD120-150F-N-FS
12"	5/32"	300 psi	250# Flg	WAV120-300F-FS	WAR10-532-300-FS	32"	35"	740	WCVD120-300F-O-FS
12"	23/64"	150 psi	150# Flg	WAV120-150F-FS	WAR20-2364-150-FS	36"	36"	745	WCVD120-150F-R-FS
12"	7/32"	300 psi	250# Flg	WAV120-300F-FS	WAR20-732-300-FS	36"	36"	765	WCVD120-300F-S-FS
14"	3/16"	150 psi	150# Flg	WAV140-150F-FS	WAR10-316-150-FS	35"	38"	950	WCVD140-150F-N-FS
14"	5/32"	300 psi	250# Flg	WAV140-300F-FS	WAR10-532-300-FS	35"	38"	975	WCVD140-300F-O-FS
14"	23/64"	150 psi	150# Flg	WAV140-150F-FS	WAR20-2364-150-FS	39"	38"	975	WCVD140-150F-R-FS
14"	7/32"	300 psi	250# Flg	WAV140-300F-FS	WAR20-732-300-FS	39"	38"	1000	WCVD140-300F-S-FS
16"	3/16"	150 psi	150# Flg	WAV160-150F-FS	WAR10-316-150-FS	38-1/2"	41"	1280	WCVD160-150F-N-FS
16"	5/32"	300 psi	250# Flg	WAV160-300F-FS	WAR10-532-300-FS	38-1/2"	41"	1300	WCVD160-300F-O-FS
16"	23/64"	150 psi	150# Flg	WAV160-150F-FS	WAR20-2364-150-FS	42-1/2"	41"	1310	WCVD160-150F-R-FS
16"	7/32"	300 psi	250# Flg	WAV160-300F-FS	WAR20-732-300-FS	42-1/2"	41"	1330	WCVD160-300F-S-FS



No.	Part Name	Valve Specs.
1	Air Vacuum Valve	See Series WAV
2	Air Release Valve	See Series WAR
3	Dual Body Piping Kit (Shipped separately for field install by others)	Galvanized Steel Pipe & SS Ball Valve

Series WAVB Vacuum Breaker Air Inlet Valve

Pratt® AirPro Max® Vacuum Breaker Valves (Series WAVB) are designed as large orifice, one way, spring loaded valves that allow air flow in only one direction (air flowing in to the pipeline). All standard valves begin admitting air at a minimal ¼ - ½ PSI vacuum to maximize vacuum breaking potential. When the vacuum condition ceases, the vacuum breaker valve disc is instantly closed against the body seat, thereby trapping air at the high point. The fast closure of the valve disc avoids any slamming which could be caused when the water column rejoins.

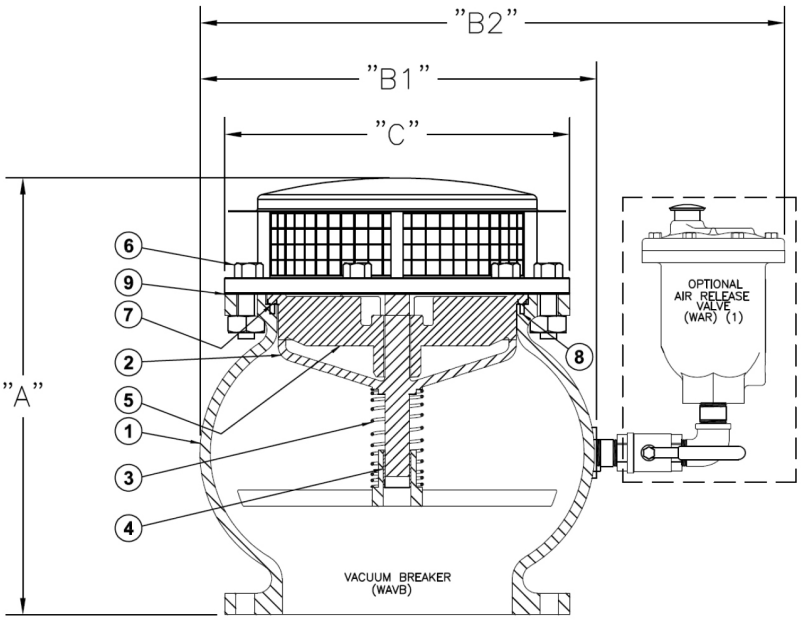
By equipping the Vacuum Breaker Valve with an optional AirPro Max Series WAR Air Release valve as a special combination setup, the assembly acts as a "free air in – controlled air out" regulator. After a vacuum condition ceases and the line returns to positive pressure – the Air Release valve slowly releases the trapped air and bleeds it to atmosphere. In this manner, the pipeline is fully restored in a controlled manner to normal operating condition (pipeline fully charged with liquid media).

Series WAVB Vacuum Breaker Valves should be used:

- For high vacuum break capacity required to protect critical infrastructure (like a penstock, etc.)
- At high points in pipelines where the hydraulic gradient and flow conditions are such that a negative pressure can possibly form but where some trapped air is desired for cushioning (until bled off).
- Where water column separation is expected which may result in water hammer.
- Adjacent to any quick closing valve in a pipeline where a severe vacuum can be formed when closed.

Vacuum Breaker Valve

WAVB Vacuum Breaker Valve (Single Body)					
Valve Size	Fusion Series Vacuum Breaker Part#	A	B1	C	Weight (LBS)
3"	WAVB30-150F-FS	9"	6-7/8"	7-1/2"	32
4"	WAVB40-150F-FS	10-1/4"	8-1/2"	9"	47
6"	WAVB60-150F-FS	13-1/2"	11-1/8"	12-1/2"	89
8"	WAVB80-150F-FS	17"	16-1/8"	16-1/4"	152
10"	WAVB100-150F-FS	21"	17-7/8"	16"	231
12"	WAVB120-150F-FS	19-1/4"	19-1/8"	19"	383
14"	WAVB140-150F-FS	22-1/4"	22-1/2"	21"	490
16"	WAVB160-150F-FS	24-1/8"	26"	23-1/2"	695
18"	WAVB180-150F-FS	26-1/4"	29"	25"	966
20"	WAVB200-150F-FS	30-1/8"	32-3/4"	27-1/2"	1234



WAVBD Combination Vacuum Breaker with WAR (Dual Body)							
Valve Size	Fusion Series Vacuum Breaker w/ WAR Combo Part #	Fusion Series Vacuum Breaker Part #	Air Release Valve (WAR) Part #	A	B2	C	Weight (LBS)
3"	WAVBD30-150F-N-FS	WAVB30-150F-FS	WAR10-316-150-FS	9"	16-1/8"	7-1/2"	61
4"	WAVBD40-150F-N-FS	WAVB40-150F-FS	WAR10-316-150-FS	10-1/4"	17-3/4"	9"	76
6"	WAVBD60-150F-N-FS	WAVB60-150F-FS	WAR10-316-150-FS	13-1/2"	20-3/8"	11"	118
8"	WAVBD80-150F-N-FS	WAVB80-150F-FS	WAR10-316-150-FS	17"	25-3/8"	13-1/2"	181
10"	WAVBD100-150F-N-FS	WAVB100-150F-FS	WAR10-316-150-FS	21"	27-1/8"	16"	260
12"	WAVBD120-150F-N-FS	WAVB120-150F-FS	WAR10-316-150-FS	19-1/4"	28-3/8"	19"	412
14"	WAVBD140-150F-N-FS	WAVB140-150F-FS	WAR10-316-150-FS	22-1/4"	31-3/4"	21"	519
16"	WAVBD160-150F-N-FS	WAVB160-150F-FS	WAR10-316-150-FS	24-1/8"	35-1/4"	23-1/2"	724
18"	WAVBD180-150F-N-FS	WAVB180-150F-FS	WAR10-316-150-FS	26-1/4"	38-1/4"	25"	995
20"	WAVBD200-150F-N-FS	WAVB200-150F-FS	WAR10-316-150-FS	30-1/8"	42"	27-1/2"	1263

250# Flange is available, consult contact factory

Vacuum Breaker Valve		
1	Body	Ductile
2	Disc	304SS
3	Spring	304SS
4	Bushing	304SS
5	Seat/O-Ring	304SS/EPDM
6	Hardware	316SS
7	Gasket (Seat)	EPDM
8	Seat Hardware	Stainless Steel
9	Flange Gasket	EPDM

Series WWAR Wastewater Air Release Valves

Introduction

- **All 316 Stainless Steel Trim Standard**
- **All 316 Stainless Steel Floats Standard**
- **Ductile Iron Bodies and Covers Standard**
- **Service Without Removal from Pipeline**
- **Drop Tight Shut-off at Low Pressures**
- **Optional Backwash Kit Available**

AirPro Max® Series WWAR Wastewater Air Release Valves are specifically designed for wastewater having an elongated valve body to prevent the collection of waste in the linkage area of the air valve. Series WWAR valves prevent disruption of service by venting pockets of air that collect at high points in a pipeline. These valves continuously eliminate air from systems by releasing small pockets of air before large air pockets can occur. In many installations lacking Air Release Valves accumulations of air in the pipeline will cause flow to decrease, and power consumption to increase, due to air blocks in the system. Another possible result of excessive air accumulation may be an inexplicable pipeline rupture. These ruptures are often falsely attributed to ground settling or defective pipe. In reality, unusually large air pockets can greatly increase the pressure of normally occurring surges to the point where sudden stops and starts of flow can cause a pipe collapse.

As air accumulates at a high point in the pipeline, liquid is displaced within the air valve, lowering the water level, causing the stainless steel float to drop. When the float drops to a pre-determined point the valve orifice opens and permits accumulated air to be exhausted into the atmosphere. The liquid level in the air valve then rises and closes the valve orifice once again. This cycle repeats as needed and avoids the formation of potentially destructive air pockets.

Scope of Line

Sizes

2", 3", 4" NPT

Pressure Ratings (See Note)

75 psi
150 psi
300 psi

Note: Specify when operating pressure will be below 10 psi

Standard Materials

Body and Cover: Ductile Iron ASTM A536 65-45-12
Float: 316 Stainless Steel
Internal Trim: 316 Stainless Steel
Seat: EPDM
External Cover Bolts: ASTM F593 316SS
Coating: Interior and Exterior Fusion Bonded Epoxy (12 mils)

Installation

Series WWAR AirPro Max Wastewater Air Release Valves should be installed at high points in pipelines and also at regular intervals (approximately every 1/4 to 1/2 mile) along uniform grade lines.

Valves should be mounted in the vertical position on top of the pipe with an isolation valve installed below each valve in the event servicing is required. A vault with adequate air venting and drainage is recommended.

An optional customer-installed Backwash Kit is available. This kit is used for regular cleaning to keep equipment in good working condition. It includes a back flushing hose and quick disconnect couplings.

Wastewater Air Release Valve Specifications

The Air Release Valve shall be of the float operated, compound lever type, and capable of automatically venting accumulated air, gas or vapor 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 diameter of the orifice 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 maximum system surge pressure without failure. The body and the cover shall be of ductile iron and all valve internal parts shall be of stainless steel. The rubber seat is EPDM for water tight shut-off.

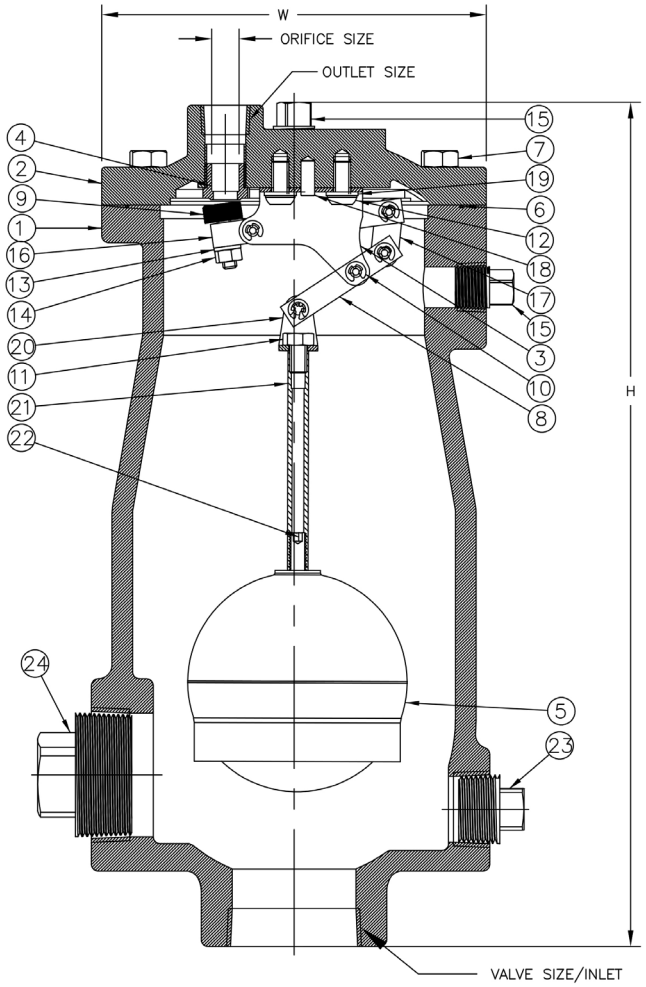
The air release valve shall be manufactured per ANSI/AWWA C512 and shall be Series WWAR AirPro Max Wastewater Air Release Valves manufactured by the Henry Pratt Company, Aurora, IL USA.

Series WWAR Wastewater Air Release Valves

Valve Size	Outlet Size	Orifice Size	Max C.W.P.	Inlet Connection	W	H	Fusion Series Part #	Wt. (Lbs)	Air Rel Code
2"	1/2"	5/16"	75	NPT	7"	15-5/16"	WWAR20-516-75-FS	40	WA
2"	1/2"	3/16"	150	NPT	7"	15-5/16"	WWAR20-316-150-FS	40	WB
2"	1/2"	5/32"	300	NPT	7"	15-5/16"	WWAR20-532-300-FS	40	WC
2"	1"	1/2"	75	NPT	9-1/2"	17-9/16"	WWAR20-012-75-FS	66.7	WD
2"	1"	7/16"	150	NPT	9-1/2"	17-9/16"	WWAR20-716-150-FS	66.7	WE
2"	1"	7/32"	300	NPT	9-1/2"	17-9/16"	WWAR20-732-300-FS	66.7	WF
3"	1/2"	5/16"	75	NPT	7"	15-5/16"	WWAR30-516-75-FS	40	WG
3"	1/2"	3/16"	150	NPT	7"	15-5/16"	WWAR30-316-150-FS	40	WH
3"	1/2"	5/32"	300	NPT	7"	15-5/16"	WWAR30-532-300-FS	40	WI
3"	1"	1/2"	75	NPT	9-1/2"	17-9/16"	WWAR30-012-75-FS	66.7	WJ
3"	1"	7/16"	150	NPT	9-1/2"	17-9/16"	WWAR30-716-150-FS	66.7	WK
3"	1"	7/32"	300	NPT	9-1/2"	17-9/16"	WWAR30-732-300-FS	66.7	WL
4"	1/2"	5/16"	75	NPT	7"	15-5/16"	WWAR40-516-75-FS	40	WM
4"	1/2"	3/16"	150	NPT	7"	15-5/16"	WWAR40-316-150-FS	40	WN
4"	1/2"	5/32"	300	NPT	7"	15-5/16"	WWAR40-532-300-FS	40	WO
4"	1"	1/2"	75	NPT	9-1/2"	17-9/16"	WWAR40-012-75-FS	66.7	WP
4"	1"	7/16"	150	NPT	9-1/2"	17-9/16"	WWAR40-716-150-FS	66.7	WQ
4"	1"	7/32"	300	NPT	9-1/2"	17-9/16"	WWAR40-732-300-FS	66.7	WR

Note: Please see next page for drawing and chart.

Series WWAR Wastewater Air Release Valves



Part #	Description	Material
1	Body	ASTM A536 65-45-12
2	Cover	ASTM A536 65-45-12
3	Lever Bracket	ASTM A240 316SS
4	Seat	ASTM A582 316SS
5	Float	ASTM A240 316SS
6	O-Ring	EPDM
7	Cover Bolt	ASTM F593 316SS
8	Short Lever Arm	ASTM F582 316SS
9	Button	Stainless Steel & EPDM
10	Pivot Pin & Retaining Ring	316SS
11	Float Retainer	ASTM F593 316SS
12	Positioner	ASTM A879 316SS
13	Lock Washer	ASTM A240 316SS
14	Lock Nut	ASTM F594 316SS
15	1/2" Pipe Plug	316SS
16	Long Lever Arm	ASTM A582 316SS
17	Arm Link	ASTM A240 316SS
18	Positioning Pin	420SS
19	Lock Washer	ASTM A240 316SS
20	Clevis	ASTM A240 316SS
21	Extension Shaft	ASTM A240 316SS
22	Socket Set Screw	ASTM A240 316SS
23	1" Pipe Plug	316SS
24	2" Pipe Plug	316SS

Series WWAV Wastewater Air Vacuum Valves

Introduction

- **All 316 Stainless Steel Trim Standard**
- **All 316 Stainless Steel Floats Standard**
- **Fully Ported Valves - No Restrictions**
- **Drop Tight Shut-off At Low Pressures**
- **Optional Backwash Kit Available**

The AirPro Max® Series WWAV Wastewater Air Vacuum Valves are specifically designed with elongated valve bodies. The purpose of the elongated bodies is to increase the gap between the float and the mechanical linkage inside and top of the valve body. The valve is designed to perform two critical functions. First, as the line is being filled with water they expel large quantities of air from the pipeline. When air has been completely vented, water enters the valve causing the float to seal tightly against the seat to prevent leakage. Second, when the line is drained, either intentionally or as a result of pipeline breakage, the Air Vacuum Valve responds to the drop in pressure and opens. Air then re-enters the valve and line eliminating the conditions which could lead to a damaging vacuum developing in the pipeline.

Air Vacuum Valves do not open when under pressure to exhaust small quantities of air that may collect at high points during operation of the system. A Series WWAR Air Release Valve is required for this function.

Scope of Line

Sizes

2" & 3" NPT

4", 6", 8" flanged ANSI Class 125

Pressure Rating (See Note)

150 psi

Note: Specify when operating pressure will be below 10 psi

Standard Materials

Body and Cover: Ductile Iron ASTM A536 65-45-12
Float: 316 Stainless Steel
Internal Trim: 316 Stainless Steel
Seat: EPDM
External Cover Bolts: ASTM F593 316SS
Coating: Interior and Exterior Fusion Bonded Epoxy (12 mils)

Installation

Series WWAV AirPro Max Wastewater Air Vacuum Valves are typically installed at high points and at grade changes along the pipeline. Mount each unit vertically on top of the pipe with an isolation valve below each valve in the event servicing is required. A vault with adequate venting and drainage should be provided.

An optional customer-installed Backwash Kit is available. This kit is used for regular cleaning to keep equipment in good working condition. It includes a back flushing hose and quick disconnect couplings.

Wastewater Air Vacuum Valve Specifications

The Wastewater Air Vacuum Valve shall be able to automatically exhaust large quantities of air during filling of a pipeline and allow air to re-enter pipeline during the draining or when a negative pressure occurs.

The inlet and outlet of the Air Vacuum Valve shall have the same cross-section area as the valve size. A stainless steel bottom guide shaft shall guide the float. 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 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 316 stainless steel with EPDM rubber seat.

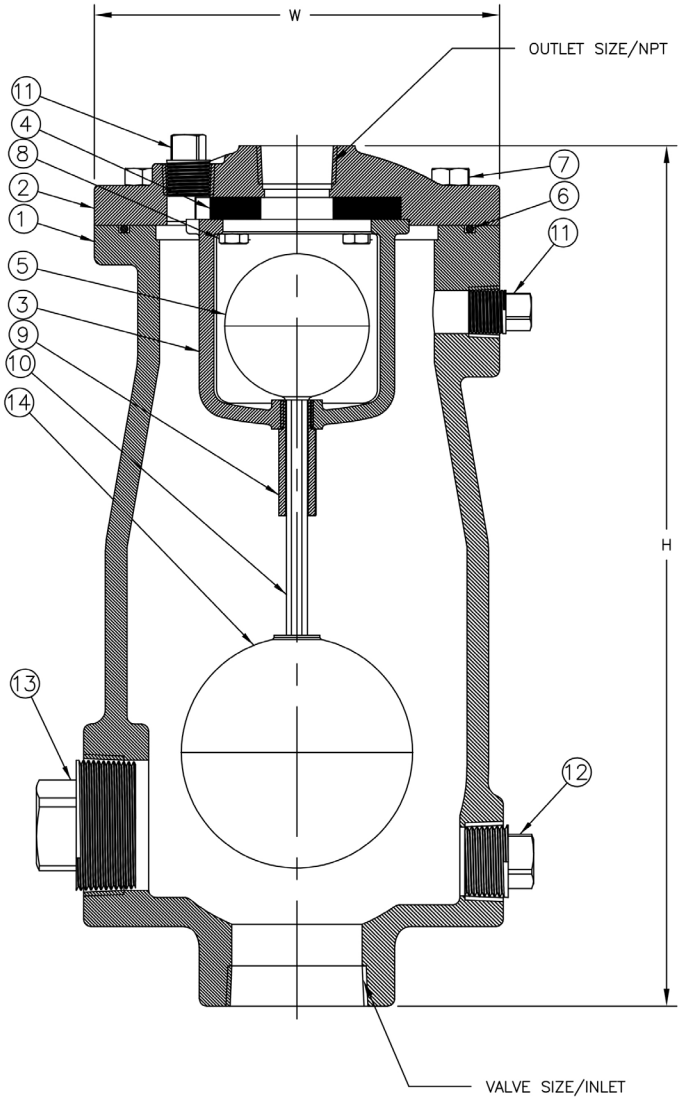
The Wastewater Air Vacuum Valve shall be manufactured per ANSI/AWWA C512 and shall be Series WWAV AirPro Max Air Vacuum Valves manufactured by the Henry Pratt Company, Aurora, IL USA.

When Ordering, Please Specify:

1. Model Number
2. Inlet Size
3. Optional Backwash Kit (See page 37)

Series WWAV Wastewater Air Vacuum Valves

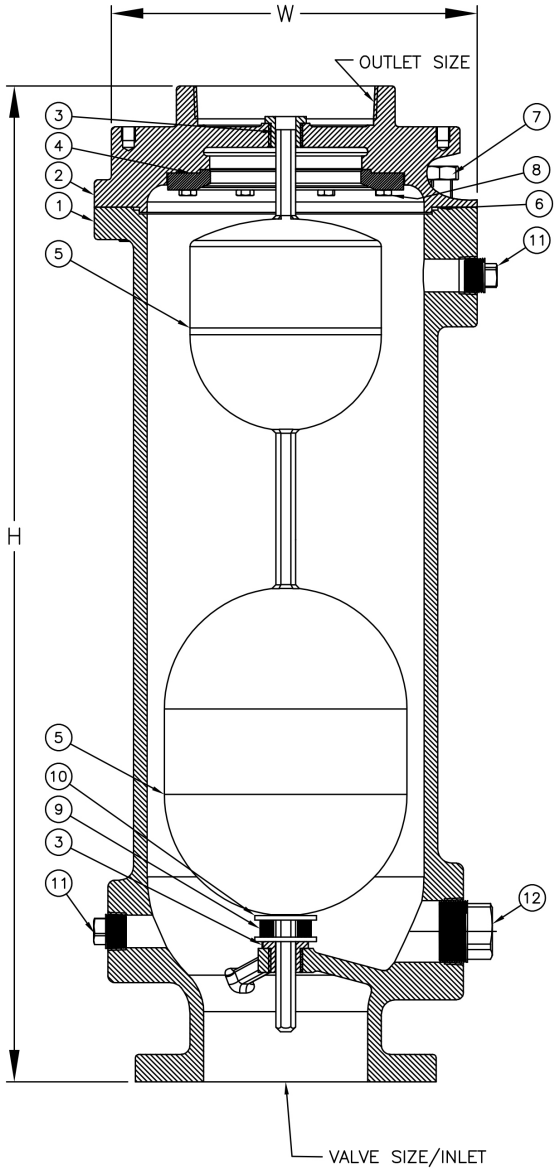
Valve Size	Outlet Size	Max C.W.P.	Inlet Connection	W	H	Fusion Series Part #	Wt. (Lbs.)
2"	1"	150	NPT	7"	14-7/8"	WWAV20-1-150-FS	40.6
2"	2"	150	NPT	9-1/2"	17-5/16"	WWAV20-150-FS	65.8
3"	3"	150	NPT	9-1/2"	17-5/8"	WWAV30-150-FS	69.5



Part #	Description	Material
1	Body	ASTM A536 65-45-12
2	Cover	ASTM A536 65-45-12
3	Baffle	ASTM A536 65-45-12
4	Seat	EPDM
5	Float	ASTM A240 316SS
6	O-Ring	EPDM
7	Cover Bolt	ASTM F593 316SS
8	Baffle Bracket	ASTM F593 316SS
9	Guide Bushing	ASTM F582 316SS
10	Guide Shaft	ASTM A240 316SS
11	1/2" Pipe Plug	316SS
12	1" Pipe Plug	316SS
13	2" Pipe Plug	316SS
14	Float	ASTM A240 316SS

Series WWAV Wastewater Air Vacuum Valves

Valve Size	Outlet Size	Max C.W.P.	Inlet Connection	W	H	Fusion Series Part #	Wt. (Lbs.)
4"	4"	150	#125 Flg	12"	36-1/2"	WWAV40-150F-FS	178
6"	6"	150	#125 Flg	14"	36-1/2"	WWAV60-150F-FS	250
8"	8"	150	#125 Flg	18"	41-1/4"	WWAV80-150F-FS	417



Part #	Description	Material
1	Body	ASTM A536 65-45-12
2	Cover	ASTM A536 65-45-12
3	Bushing	ASTM F582 316SS
4	Seat	EPDM
5	Float	ASTM A240 316SS
6	O-Ring	EPDM
7	Cover Bolt	ASTM F593 316SS
8	Shoulder Screw	ASTM F593 316SS
9	Cushion Bumper	EPDM
10	Washer	316SS
11	1" Pipe Plug	316SS
12	2" Pipe Plug	316SS

Series WWCV Wastewater Combination Air Valves

Introduction

- **All 316 Stainless Steel Trim Standard**
- **All 316 Stainless Steel Floats Standard**
- **Fully Ported Valves - No Restrictions**
- **Drop Tight Shut-off At Low Pressures**
- **Optional Backwash Kit Available**

The AirPro Max® Series WWCV Wastewater Combination Air Valve is a multipurpose valve that combines the operation of both the Air Release Valve and Air Vacuum Valve for wastewater applications. Our Series WWCV Combination Valve has two functions: to exhaust large quantities of air in the pipeline during the filling cycle and to admit air, as needed, to prevent a potentially dangerous vacuum from forming when being emptied either intentionally or from a pipeline breakage.

Scope of Line

Sizes

Single Body Design

1", 2", 3", 4" NPT

Dual Body Design

2" & 3" NPT

4", 6", 8" Flanged ANSI Class 125

Pressure Rating (See Note)

150 psi

Note: Specify when operating pressure will be below 10 psi

Materials

Body and Cover: Ductile Iron ASTM A536 65-45-12
Float: 316 Stainless Steel
Internal Parts: 316 Stainless Steel
Seat: EPDM
Coating: Interior and Exterior Fusion Bonded Epoxy (12 mils)

Installation

Series WWCV AirPro Max Combination Air Valves should be installed at high points, grade changes and along level pipelines without clearly defined high points at approximately 1/4 to 1/2 mile intervals. Mount each unit vertically on top of the pipe with an isolation valve below each valve in the event servicing is required. A vault with adequate venting and drainage should be provided.

Optional customer installed Backwash Kit is available. This kit is used for regular cleaning to keep equipment in good working condition. It includes a back flushing hose and quick disconnect couplings.

Wastewater Combination Air Valve Specifications

The Combination Air Valve shall combine the operating features of both the large orifice Air Vacuum Valve and the small orifice Air Release Valve into one unit. The large orifice Air Vacuum Valve portion shall automatically exhaust large quantities of air during the filling of the pipeline and automatically allow large volumes of air to reenter the pipeline when the internal pressure of the pipeline approaches a negative value due to vacuum column separation, draining of the pipeline, or other emergency condition. The small orifice Air Release Valve portion shall automatically release small pockets of air from the pipeline while it is under pressure.

The inlet and outlet of the valve shall have the same size and cross section flow area. The float shall be center guided by a single or double stainless steel guide shaft and shut drop tight against a resilient EPDM seat.

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 to accurately guide the float, without hunting, to shut-off to prevent spillage. The body and cover shall be ductile iron and the valve internal parts shall be of 316 stainless steel with EPDM rubber seat.

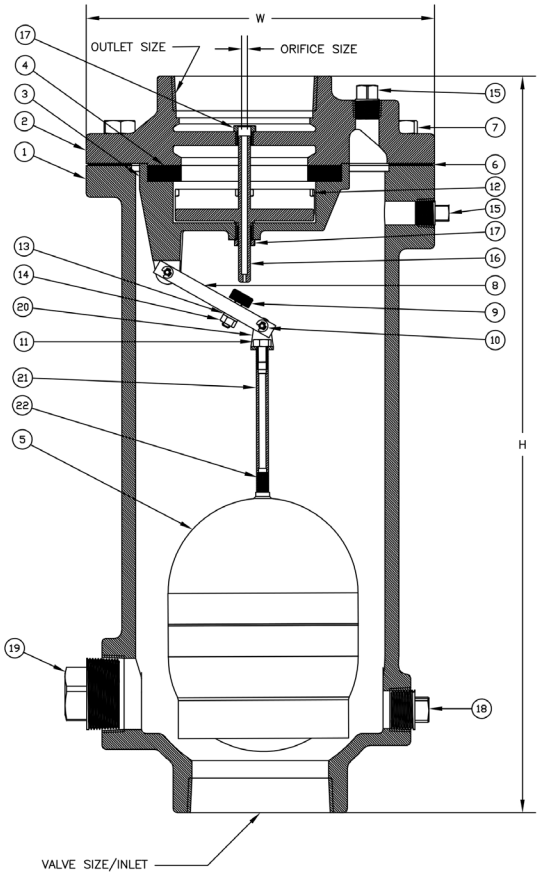
The Combination Air Release and Vacuum Valve shall be manufactured per ANSI/AWWA C512 and shall be Series WWCV AirPro Max Combination Air Valves manufactured by the Henry Pratt Company, Aurora, IL USA.

When Ordering, Please Specify

1. Model Number
2. Inlet
3. Pipeline Pressure Rating
4. Valve Size
5. Optional Backwash Kit (See page 37.)

Series WWCV Wastewater Combination Air Valves

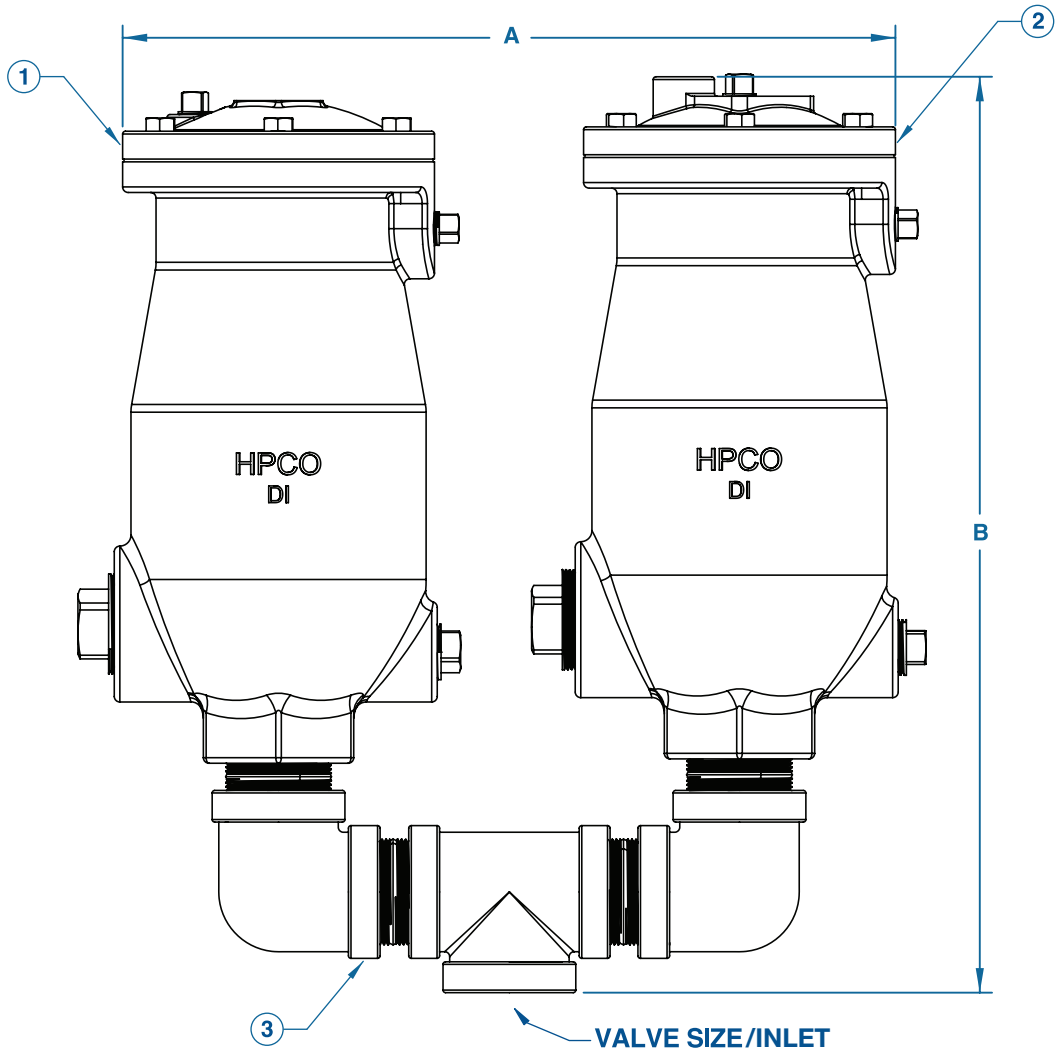
Valve Size	Outlet Size	Orifice Size	Max C.W.P.	Inlet Connection	W	H	Fusion Series Part #	Wt. (Lbs.)
2"	1"	1/8"	150	NPT	7"	14-15/16"	WWCV20-018-150-FS	40.57
2"	2"	9/64"	150	NPT	9-1/2"	18-1/16"	WWCV20-964-150-FS	67.35
3"	3"	11/64"	150	NPT	11"	23-1/4"	WWCV30-1164-150-FS	112.6
4"	4"	11/64"	150	NPT	11"	23-1/4"	WWCV40-1164-150-FS	113



Part #	Description	Material
1	Body	ASTM A536 65-45-12
2	Cover	ASTM A536 65-45-12
3	Lever Frame	ASTM A536 65-45-12
4	Seat	EPDM
5	Float	ASTM A240 316SS
6	Gasket	Non-Asbestos Fiber
7	Cover Bolt	ASTM F593 316SS
8	Lever Arm	ASTM A276 316SS
9	Button	Stainless Steel & EPDM
10	Pivot Pin & Retaining Ring	316SS
11	Float Retainer	ASTM F593 316SS
12	Lever Frame Bracket	ASTM F593 316SS
13	Lock Washer	ASTM A240 316SS
14	Lock Nut	ASTM F594 316SS
15	1/2" Pipe Plug	316SS
16	Poppet	ASTM A276 316SS
17	Guide Bushing	ASTM A276 316SS
18	1" Pipe Plug	316SS
19	2" Pipe Plug	316SS
20	Clevis	ASTM A240 316SS
21	Extension Shaft	ASTM A276 316SS
22	Socket Set Screw	ASTM F880 316SS

Series WWCVD Wastewater Combination Air Valves (Dual Body)

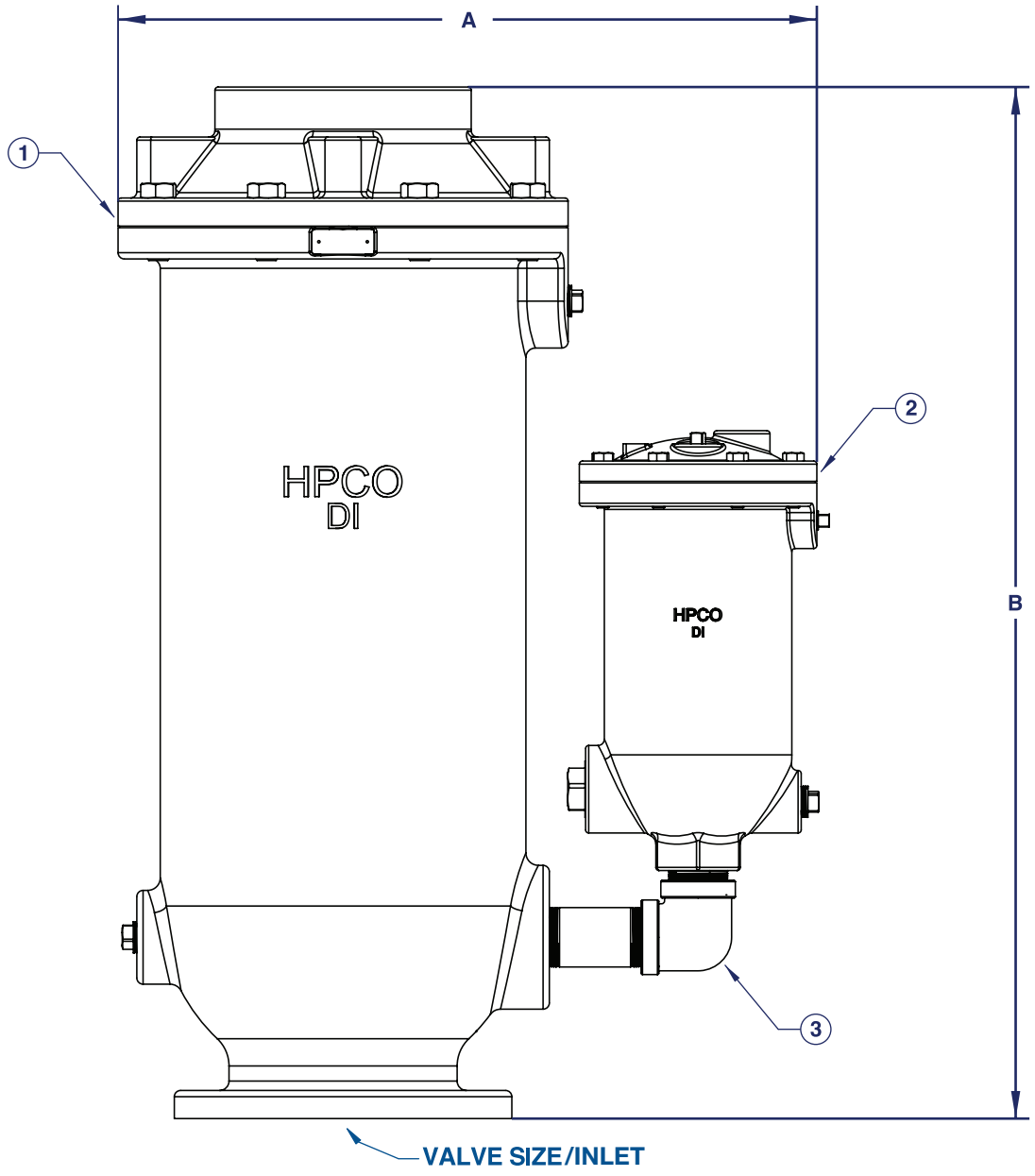
Valve Size	Pipe Inlet Size	Outlet Size	Orifice Size	Max C.W.P.	Air Vacuum Valve (WWAV) Part #	Air Release Valve (WWAR) Part #	A	B	Wt. (Lbs.)	Fusion Series Combo Part #
2"	2"	1"	3/16"	150	WWAV20-1-150-FS	WWAR20-316-150-FS	17-1/4"	20-1/4"	86	WWCVD21-150-WB-FS
2"	2"	2"	3/16"	150	WWAV20-150-FS	WWAR20-316-150-FS	18-1/2"	20-1/4"	112	WWCVD20-150-WB-FS
2"	2"	2"	7/16"	150	WWAV20-150-FS	WWAR20-716-150-FS	19-3/4"	22-3/4"	140	WWCVD20-150-WE-FS
3"	2"	3"	3/16"	150	WWAV30-150-FS	WWAR20-316-150-FS	18-1/2"	22-3/4"	112	WWCVD30-150-WB-FS
3"	2"	3"	7/16"	150	WWAV30-150-FS	WWAR20-716-150-FS	19-3/4"	22-3/4"	140	WWCVD30-150-WE-FS



No.	Part Name	Valve Specs.
1	Air Vacuum Valve	See Series WWAV
2	Air Release Valve	See Series WWAR
3	Dual Body Piping Kit	Brass

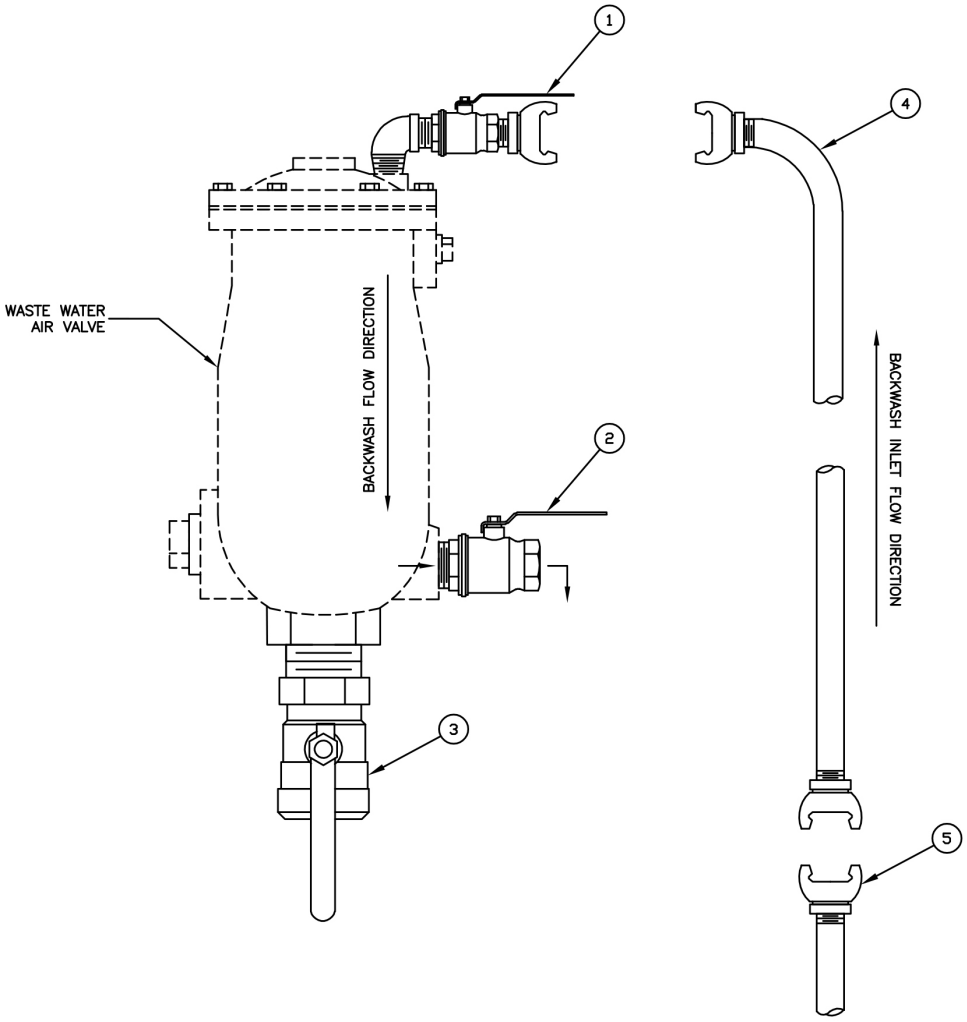
Series WWCVD Wastewater Combination Air Valves (Dual Body)

Valve Size	Orifice Size	Max C.W.P.	Air Vacuum Valve (WWAV)	Air Release Valve (WWAR)	A	B	Wt. (Lbs.)	Fusion Series Combo Part #
4"	4"	150	WWAV40-150F-FS	WWAR20-316-150-FS	21"	36-1/2"	220	WWCVD40-150F-WB-FS
4"	4"	150	WWAV40-150F-FS	WWAR20-716-150-FS	22-1/8"	36-1/2"	250	WWCVD40-150F-WE-FS
6"	6"	150	WWAV60-150F-FS	WWAR20-316-150-FS	23-5/8"	36-1/2"	294	WWCVD60-150F-WB-FS
6"	6"	150	WWAV60-150F-FS	WWAR20-716-150-FS	24-1/8"	36-1/2"	320	WWCVD60-150F-WE-FS
8"	8"	150	WWAV80-150F-FS	WWAR20-316-150-FS	26-3/4"	41-1/4"	468	WWCVD80-150F-WB-FS
8"	8"	150	WWAV80-150F-FS	WWAR20-716-150-FS	28"	41-1/4"	495	WWCVD80-150F-WE-FS



No.	Part Name	Valve Specs.
1	Air Vacuum Valve	See Series WWAV
2	Air Release Valve	See Series WWAR
3	Dual Body Piping Kit	Brass

Backwash Kit for Wastewater Air Valves



Item	Description
1	Backwash Inlet Assembly
2	Backwash Outet Assembly
3	Isolation Valve Assembly
4	6' Standard Backwash Hose
5	10' Backwash Hose – If Required

Backwash Kit Components

1= 1/2" Brass 90° Street Elbow

2= 1/2" x 1-1/8" Brass Pipe Nipple

3= 1/2" Brass Ball Valve

4= 1/2" Quick Disconnect Hose Fitting

5= 1/2" Backflush Hose (6' Hose Std.)

6= 1x1-1/2 Brass Close Pipe Nipple

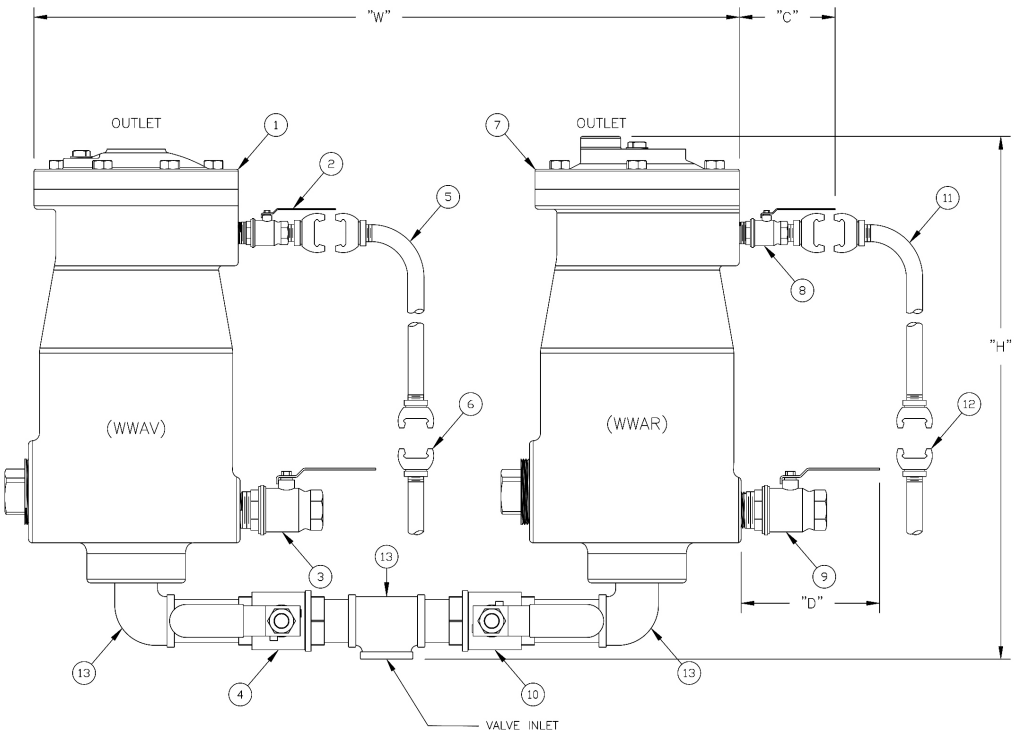
7= 1" Brass Ball Valve

8= 1" Brass Pipe Nipple

9= 2"x3" or 4" Brass Ball Valve (not incl. for Kit #2353188)

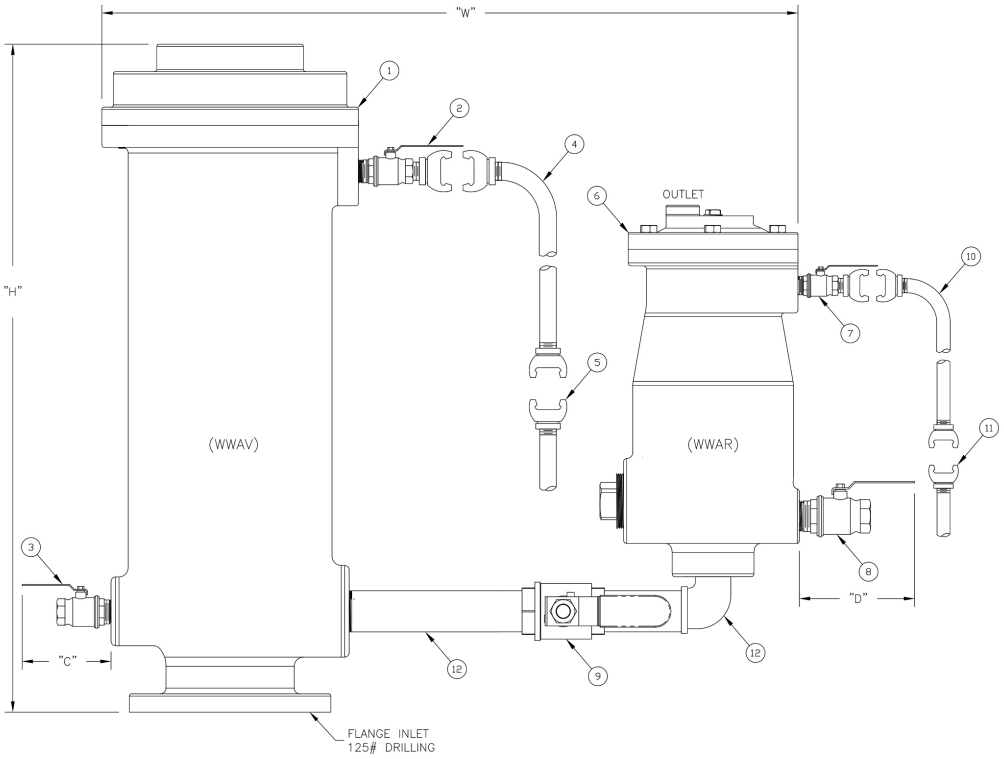
Kit #	Description	Wt.
2345464	2" Wastewater Backwash Kit	6
2344628	3" Wastewater Backwash Kit	7
2344640	4" Wastewater Backwash Kit	8
2353189	10' Hose Extension Accessory	5
2353188	2" Wastewater Backwash Kit (isolation valve not included)	4

Backwash Kit for Wastewater Combination Air Valves (Dual Body)



Item	Description
1	WWAV Valve
2	WWAV Backwash Inlet Assembly
3	WWAV Backwash Outlet Assembly
4	WWAV Backwash Isolation Valve Assembly
5	6' Standard Backwash Hose
6	10' Backwash Hose – If Required
7	WWAR Valve
8	WWAR Backwash Inlet Assembly
9	WWAR Backwash Outlet Assembly
10	WWAR Backwash Isolation Valve Assembly
11	6' Standard Backwash Hose
12	10' Backwash Hose – If Required
13	Valve Pipe Kit Assembly

Sizes 2" & 3"

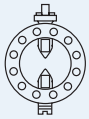


Item	Description
1	WWAV Valve
2	WWAV Backwash Inlet Assembly
3	WWAV Backwash Outlet Assembly
4	6' Standard Backwash Hose
5	10' Backwash Hose – If Required
6	WWAR Valve
7	WWAR Backwash Inlet Assembly
8	WWAR Backwash Outlet Assembly
9	WWAR Backwash Isolation Valve Assembly
10	6' Standard Backwash Hose
11	10' Backwash Hose – If Required
12	Valve Pipe Kit Assembly

Sizes 4" - 8"

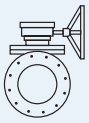
Notes

PRATT® PRODUCT GUIDE

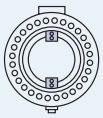


Model
2FII

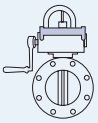
Monoflange
MKII



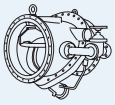
Plug
Valve



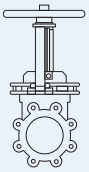
Triton®
XR70



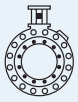
Indicating Butterfly Valve
UL & FM approved



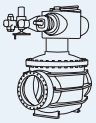
Tilting Disc
Check Valve



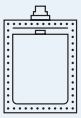
Knife Gate Valve



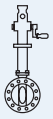
N-Stamp Nuclear
Butterfly Valve



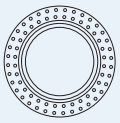
Cone
Valve



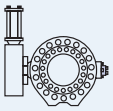
Rectangular



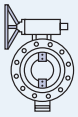
PIVA Post Indicating Valve Assembly
UL & FM approved



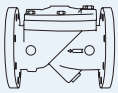
Sleeve
Valve



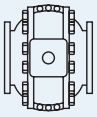
Rubber Seated
Ball Valve



Triton®
HP250

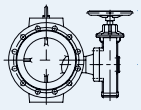


Check
Valve



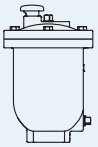
Metal Seated
Ball Valve

Control
Systems



Plunger Valve

PRATT®



Air Valve

Mueller Co.
Reliable Connections™

©2018 Henry Pratt Company, LLC. | Printed in the U.S.A. | 13805 5/18