AMERICAN WHEATLEY

Standard & High Velocity Air Dirt Separator

The American Wheatley HVAD high velocity and STAD standard velocity, coalescing type air & dirt separator is intended for use on commercial HVAC, Institutional, and industrial applications to remove entrained air and particulate from the system water. American Wheatley utilizes a coalescing media consisting of 304SS high performance saddle rings. All American Wheatley are designed and constructed to ASME Section VIII, Division 1 standard. The American Wheatley HVAD & STAD series coalescing type air & dirt separator is capable of removing 99.6% free air and 99% of the measurable entrained and dissolved air with continuous circulation. Solids to 20 microns can be eliminated within 100 passes continuous circulation.

Features:

- HVAD-High Velocity up to 6039 GPM
- STAD-Standard Velocity up to 2599 GPM
- Available with or without removable cover
- Stainless steel coalescing media
- Skim and drain valve connections standard
- Available 2" through 16", with larger sizes POA
- ASME rated 150PSI WP 2"-12", 125PSI WP14"-16" with higher pressures available
- Designed and built in accordance with ASME Section VI 11, Division I, latest edition

Options:

- Stainless Steel Construction
- Other Alloy Construction
- Higher pressures available
- Painted surface top coat / Epoxy coats
- Magnetic Insert
- Ceiling clips/seismic clips

NR-
Non Removable Cover

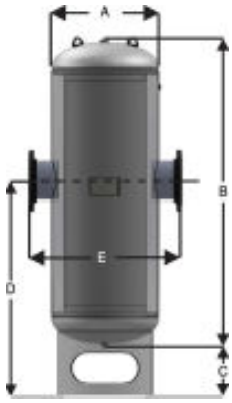
RC-
Removable Cover

2701 W. Concord Street
Broken Arrow, Ok 74012
Toll Free: 866-204-5229 | PH: 918-317-0401
americanwheatley.com | sales@americanwheatley.com

AMERICAN WHEATLEY

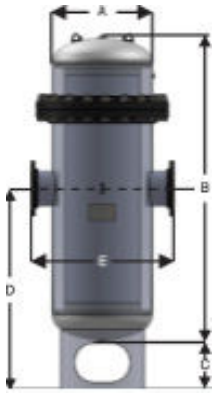
Standard Velocity with Non Removable Cover

MODEL NO	PIPE SIZE	DIA. A (INCH)	TANK HEIGHT B (INCH)	SKIRT HEIGHT C (INCH)	FLANG CRT TO FLOOR D (INCH)	FLANG CRT TO FLANG E (INCH)	SURFACE AREA (SQ. FT.)	OPTIMAL FLOW (GPM)	WEIGHT (LBS)
STAD-2-NR	2	14	24 13/16	6	15	21 3/4	64	50	85
STAD-2.5-NR	2 1/2	14	24 13/16	6	15	21 3/8	39	75	90
STAD-3-NR	3	14	28 7/16	6	15	21 1/4	51	115	100
STAD-4-NR	4	14	28 7/16	6	15	24	51	190	110
STAD-5-NR	5	20	39 13/16	6 3/4	18 3/4	30	106	300	190
STAD-6-NR	6	20	39 13/16	6 3/4	18 3/4	30	106	440	205
STAD-8-NR	8	24	47 1/4	7 1/16	21 1/16	34 5/8	187	750	430
STAD-10-NR	10	30	59 7/16	7 13/16	25 13/16	41 1/4	300	1,200	600
STAD-12-NR	12	30	59 7/16	7 13/16	25 13/16	42 3/4	300	1,700	650
STAD-14-NR	14	36	77 13/16	8 1/2	34 1/2	49 5/8	600	2,040	870
STAD-16-NR	16	36	77 13/16	8 1/2	34 1/2	51	600	2,599	870
STAD-18-NR	18	36	91	13 1/2	55 3/4	48	571.4	3,673	1,665
STAD-20-NR	20	42	100	12 3/4	58 1/2	54	839.4	4,561	2,430
STAD-22-NR	22	48	109	12 5/8	64 5/16	60	1,215.5	5,300	3,205
STAD-24-NR	24	48	118	12 5/8	66 1/8	60	1,295.7	6,346	3,375
STAD-30-NR	30	60	145	14	76 1/2	74	2,336.5	10,262	7,075
STAD-36-NR	36	72	172	15 3/4	92 1/8	90	3,993.1	14,905	12,050



Standard Velocity with Removable Cover

MODEL NO	PIPE SIZE	DIA. A (INCH)	TANK HEIGHT B (INCH)	SKIRT HEIGHT C (INCH)	FLANG CRT TO FLOOR D (INCH)	FLANG CRT TO FLANG E (INCH)	SURFACE AREA (SQ. FT.)	OPTIMAL FLOW (GPM)	WEIGHT (LBS)
STAD-2-RC	2	14	27 1/8	6	15	21 3/4	38	50	265
STAD-2.5-RC	2 1/2	14	27 1/8	6	15	21 3/8	38	75	270
STAD-3-RC	3	14	30 11/16	6	15	21 1/4	51	115	280
STAD-4-RC	4	14	30 11/16	6	15	24	51	190	290
STAD-5-RC	5	20	44 1/16	6 3/4	18 3/4	30	106	300	520
STAD-6-RC	6	20	44 1/16	6 3/4	18 3/4	30	106	440	535
STAD-8-RC	8	24	52 1/2	7 1/16	21 1/16	34 5/8	187	750	870
STAD-10-RC	10	30	64 9/16	7 13/16	25 13/16	41 1/4	300	1,200	1,000
STAD-12-RC	12	30	64 9/16	7 13/16	25 13/16	42 3/4	300	1,700	1,050
STAD-14-RC	14	36	82 15/16	8 1/2	34 1/2	49 5/8	600	2,040	1,523
STAD-16-RC	16	36	82 15/16	8 1/2	34 1/2	51	600	2,599	1,553

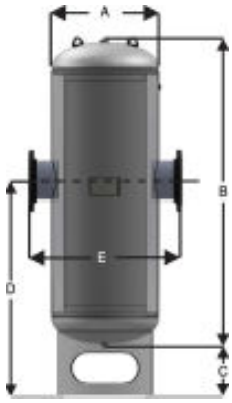


2701 W. Concord Street
Broken Arrow, Ok 74012
Toll Free: 866-204-5229 | PH: 918-317-0401
americanwheatley.com | sales@americanwheatley.com

AMERICAN WHEATLEY

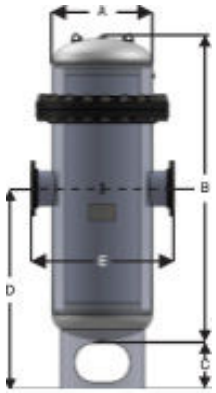
High Velocity with Non Removable Cover

MODEL NO	PIPE SIZE	DIA. A (INCH)	TANK HEIGHT B (INCH)	SKIRT HEIGHT C (INCH)	FLANG CRT TO FLOOR D (INCH)	FLANG CRT TO FLANG E (INCH)	SURFACE AREA (SQ. FT.)	OPTIMAL FLOW (GPM)	WEIGHT (LBS)
HVAD-2-NR	2	14	31 11/16	10 15/16	27 15/16	21 3/4	65.1	108	99
HVAD-2.5-NR	2 1/2	14	31 11/16	10 15/16	27 15/16	21 3/8	65.1	163	103
HVAD-3-NR	3	14	39 1/8	10 15/16	31 3/4	21 1/4	80.6	249	119
HVAD-4-NR	4	14	39 1/8	10 15/16	31 3/4	24	80.6	432	128
HVAD-5-NR	5	20	56 1/2	11 15/16	41 11/16	30	162.2	685	253
HVAD-6-NR	6	20	56 1/2	11 15/16	41 11/16	30	162.2	988	270
HVAD-8-NR	8	24	68 1/16	12 1/8	48 7/8	34 5/8	287	1,714	519
HVAD-10-NR	10	30	84 13/16	12 3/4	58 3/16	41 1/4	455	2,698	736
HVAD-12-NR	12	30	84 13/16	12 3/4	58 3/16	42 3/4	455	3,831	783
HVAD-14-NR	14	36	101 15/16	12 5/8	66 7/8	49 5/8	798.1	4,623	1,101
HVAD-16-NR	16	36	101 15/16	12 5/8	66 7/8	51	798.1	6,039	1,124
HVAD-18-NR	18	42	121	12 3/4	74 1/2	57	1,109.5	8,246	2,945
HVAD-20-NR	20	48	132	12 5/8	80 3/16	62	1,585	10,238	3,715
HVAD-22-NR	22	54	143	13 1/8	88 7/8	67	2,113.4	11,874	5,368
HVAD-24-NR	24	54	148	13 1/8	85 7/8	67	2,430.4	14,245	5,905
HVAD-30-NR	30	66	186	14 13/16	110 1/8	82	4,226.8	23,037	10,650
HVAD-36-NR	36	84	219	15 3/8	129 1/4	104	7,925.2	33,457	21,475



High Velocity with Removable Cover

MODEL NO	PIPE SIZE	DIA. A (INCH)	TANK HEIGHT B (INCH)	SKIRT HEIGHT C (INCH)	FLANG CRT TO FLOOR D (INCH)	FLANG CRT TO FLANG E (INCH)	SURFACE AREA (SQ. FT.)	OPTIMAL FLOW (GPM)	WEIGHT (LBS)
HVAD-2-RC	2	14	34 1/16	10 15/16	27 7/8	21 3/4	64.8	108	281
HVAD-2.5-RC	2 1/2	14	34 1/16	10 15/16	27 7/8	21 3/8	64.8	163	283
HVAD-3-RC	3	14	41 9/16	10 15/16	24 3/4	21 1/4	78.7	249	300
HVAD-4-RC	4	14	41 9/16	10 15/16	24 3/4	24	78.7	432	308
HVAD-5-RC	5	20	60 13/16	11 15/16	42 11/16	30	159	685	587
HVAD-6-RC	6	20	60 13/16	11 15/16	42 11/16	30	159	989	598
HVAD-8-RC	8	24	73 1/4	12 1/8	48 7/8	34 5/8	282.2	1,714	958
HVAD-10-RC	10	30	90 1/8	12 3/4	58 3/16	41 1/4	448.9	2,698	1,129
HVAD-12-RC	12	30	90 1/8	12 3/4	58 3/16	42 3/4	448.9	3,831	1,179
HVAD-14-RC	14	36	108 1/2	12 5/8	66 7/8	49 5/8	787.6	4,623	1,658
HVAD-16-RC	16	36	108 1/2	12 5/8	66 7/8	51	787.6	6,039	1,689



2701 W. Concord Street
Broken Arrow, Ok 74012
Toll Free: 866-204-5229 | PH: 918-317-0401
americanwheatley.com | sales@americanwheatley.com

AMERICAN WHEATLEY

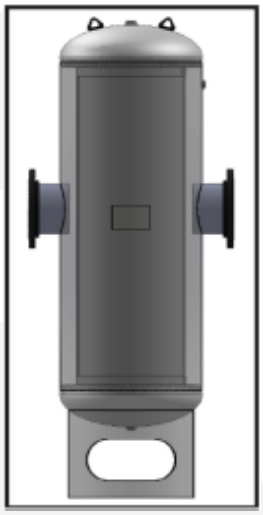
Air & Dirt Separator - Principles of Operation

The obvious function is to remove as much air and dirt from the system fluid so that it does not cause any adverse effects on system efficiency or its components, through continuous circulation. The Wheatley STAD and HVAD air & dirt separators utilize several physical actions to accomplish this. Micro- air bubbles pass through, over, around, above and below the many 304SS saddle rings contained in the coalescing basket. While trying to pass through the coalescing media, the micro-bubbles cling to the myriad of twists and turns required as they continue their journey through the coalescing basket. As these micro-bubbles collect, they join together and form larger air molecules which with then detach from the saddle rings and are expelled from the system through the automatic float type air vent located at the top of the air & dirt separator. As any system pollutants, or dirt, are circulated through the air & dirt separator coalescing basket, they too collide with the saddle rings and are separated from the water and subsequently expelled through periodic blow-down through the blow-down port on the bottom of the separator, or removal and cleaning of the coalescing basket if so equipped.

Separating impurities in the closed circuit hydronic system depends on a number of conditions.

- The capacity for separation increases as the size of the particulate increase
- The capacity for separation increases as the velocity decreases
- The capacity for separation increases with the number of passes through the separator with continuous circulation

Saddle Rings



STAD/HVAD
NR - Non Removable Cover

Coalescing Basket

2701 W. Concord Street
Broken Arrow, Ok 74012
Toll Free: 866-204-5229 | PH: 918-317-0401
americanwheatley.com | sales@americanwheatley.com

AMERICAN WHEATLEY

Air In Water Solubility

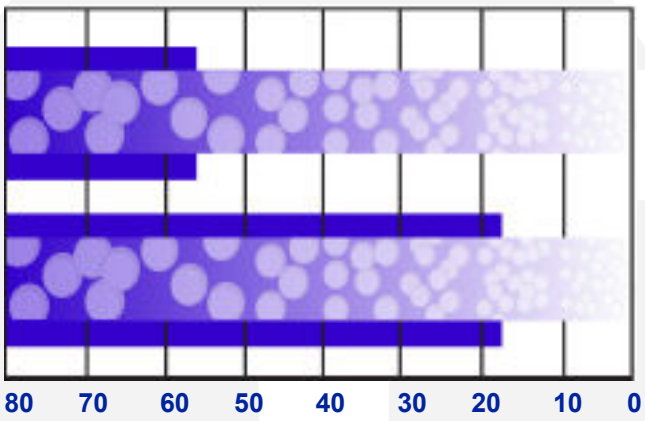
All water contains a certain amount of entrained air; this is commonly referred to as water solubility. As we all know, air is the single worst enemy to any hydronic heating system.

When the air is released from the solution, it can collect and create air pockets at the top of pipes and heating elements, also known "air locking" of a system. The air can also increase the corrosion rate of certain metals throughout the system.

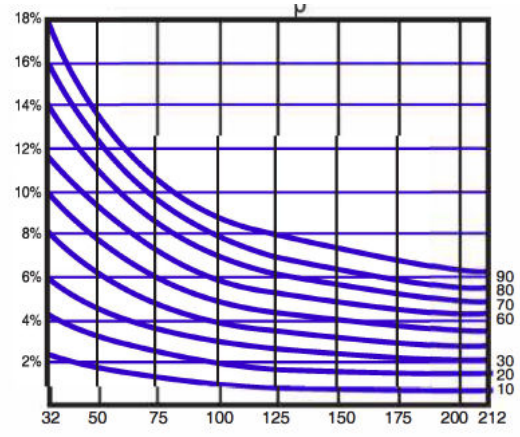
To avoid these unwanted occurrences, air elimination devices are routinely used to remove most of the air trapped in the water molecules. The table shown below depicts the solubility curve for air contained in water.

As noted, increasing the temperature at a fixed or constant pressure reduces the amount of air that can be contained within the water molecule. In this example, at 50 PSIA and at a temperature of 50° F, the water can contain just below 8% air by volume.

Conversely then, at 200° F, the water molecule can contain approximately 3.5% air by volume. Therefore, as you can see, reducing the pressure while temperature remains constant reduces the amount of air that can be dissolved in solution. As indicated below, 125° F water at 80 PSIA would contain approximately 7% air by volume. For purposes of our example, that same 125° F water at 20 PSIA would contain less than 2% air by volume. Therefore, the conclusion must be made that the air contained within the water molecules is least soluble at the points of highest temperature and lowest pressure. The air separators should then be installed at this point in the system.



Air Bubble Size in microns

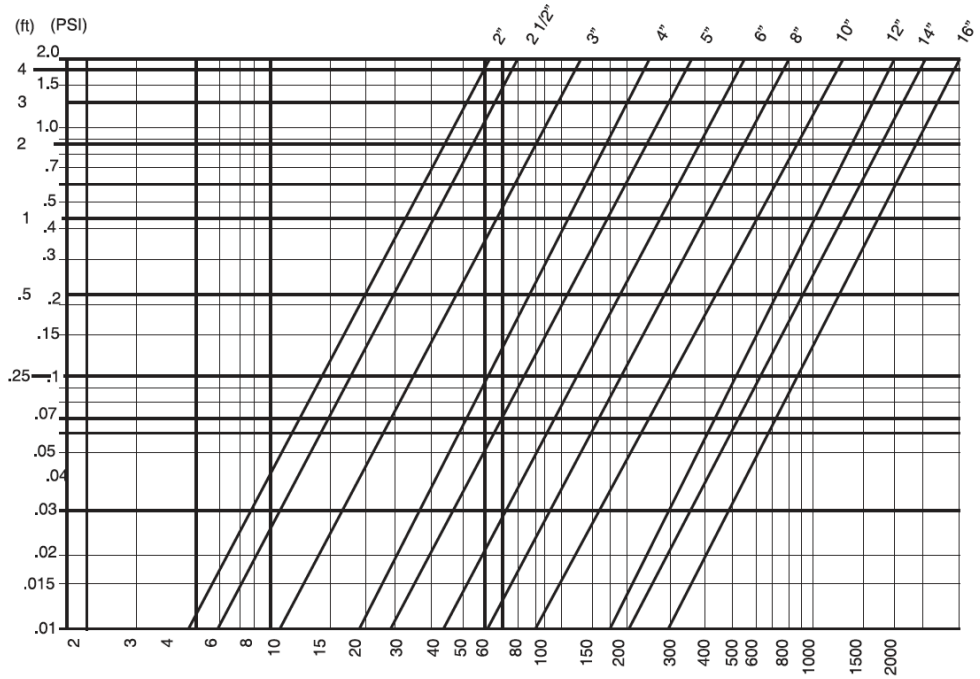


Solubility Curve
Solubility of air in water at standard temp and pressure

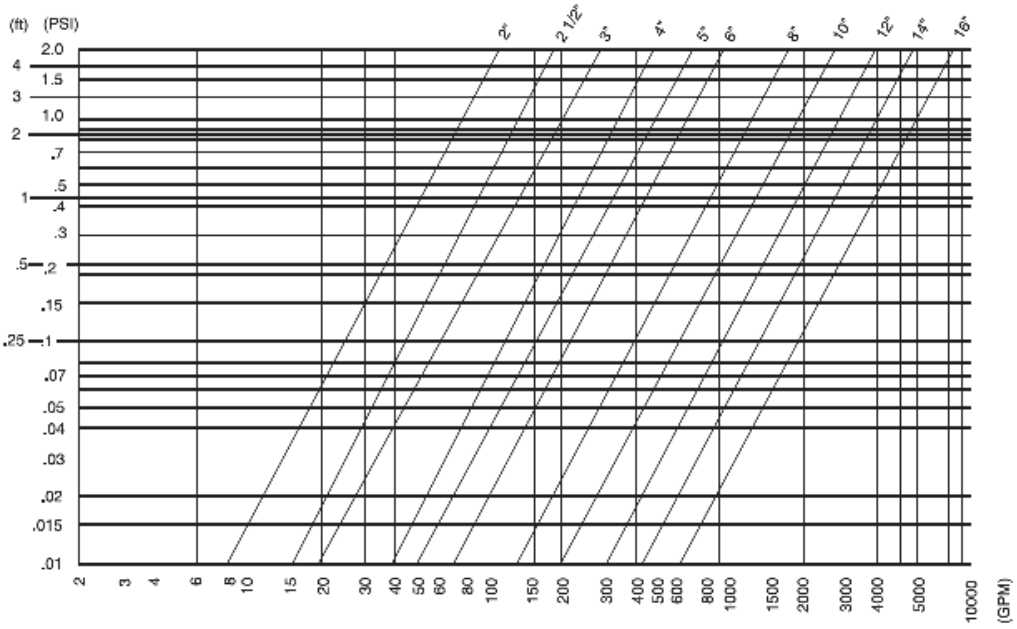
2701 W. Concord Street
Broken Arrow, Ok 74012
Toll Free: 866-204-5229 | PH: 918-317-0401
americanwheatley.com | sales@americanwheatley.com

AMERICAN WHEATLEY

STAD PRESSURE DROP



HVAD PRESSURE DROP



2701 W. Concord Street
Broken Arrow, Ok 74012
Toll Free: 866-204-5229 | PH: 918-317-0401
americanwheatley.com | sales@americanwheatley.com