Advanced Distributor Products®

Specification Guide

AV Series Air Handlers – Upflow or Horizontal Left/Right

Electric or Hot Water Heat, with Variable-Speed High Efficiency ECM Motor

Physical Data

		Model >>>	AV240	AV300	AV360	AV480	AV600
R-410A Metering Device			TXV	TXV	TXV	TXV	TXV
Blower Data: Variable-Speed High Efficiency ECM Motor	**Wheel (dia." x width")**		9 X 6	10 X 8	10 X 8	10 X 8	10 X 10
	Motor H. P.		1/3	1/2	1/2	3/4	3/4
	F. L. A. @ 120 V		4.8	5.4	5.4	7.0	8.6
	F. L. A. @ 240 V		2.4	2.7	2.7	3.5	4.3
	Cooling CFM Range		600 - 1000	600 - 1200	600 - 1200	1000 - 1600	1200 - 1850
	Heating CFM Range		600 - 1000	1100 - 1200	1100 - 1200	1100 - 1600	1200 - 1850
Single-Speed Circulating Pump Data	**Pump Connection Size**		7/8"				
	Voltage		120V				
	Amps		0.57 @ 120V				
Air Filter Size (in)			16 X 20	16 X 20	16 X 24	16 X 24	18 X 24
Sound Level Min / Max @ 0.3 Static (dBA) [1]			46 / 51	46 / 54	46 / 53	48 / 54	49 / 55
Refrigerant Conn. (IDS) Suction, Liquid (in)			3/4, 3/8	3/4, 3/8	7/8, 3/8	7/8, 3/8	7/8, 3/8
Weight lbs. (base unit w/out hot water coil)			130	140	150	230	240
Transformer Size and Type			40VA, Class 2				

[1] Sound level min/max is based on selectable control board taps for hi cooling (see blower performance on page 3).

AHRI CERTIFIED™ www.ahridirectory.org

ETL LISTED c US

Product Features

Cabinet and General Features

- Side return right- or left-hand capable on AV240.
- All air handlers are basiloid packaged with bar coding and full description on label.
- Filter rack door with thumb screws for easy access and replacement.
- Fiberglass air filter comes with every air handler and filter racks accepts readily available size filters.
- Cabinet constructed of heavy gauge painted steel for additional corrosion resistance.
- High quality 5/8" foil-faced insulation lines cabinet to prevent sweating.
- Independent lab tested 2% or less cabinet air leakage for better efficiency.
- Approved for installation in manufactured housing and mobile homes.

Evaporator Coil Features

- Rifled copper tubing; lanced fin design.
- Dual 3/4" FPT condensate drains on left and right sides.
- Drain pans are molded of corrosion proof high temperature (450°F) engineering polymer.
- Coils are air pressure tested at 500 PSI, leak tested with helium, sealed with rubber plugs, then charged with dry air.
- R-410A HP TXV factory installed; TXV's are screw-on for easy servicibility.

Variable-Speed High Efficiency ECM Motor Features

- Variable-speed control board includes dry contacts for thermostat connections.
- Constant air circulation feature runs airflow at 50% of cooling CFM, improves IAQ and eliminates stratification.
- Control board LED Lights display operation mode and when dehumidification is activated.
- Dehumidification - cutting dehumidification resistor on variable-speed control board reduces cooling airflow by 10%.
- Choose your own cooling/heating airflow settings, by selecting taps A-D on the variable-speed control board.
- Fine tune your airflow setting by selecting (+) tap to increase airflow by 10% and (-) tap to decrease airflow by 12%.
- Soft start feature runs airflow at 82% of cooling CFM for first 7.5 minutes of operation.

Electrical Features

- Electric heat kits available for field installation.
- Blower door safety switch on all models.
- Electrical connections can be made on top or both sides of cabinet.
- Fan time delay built into the motor (1 second on; 1 minute off for cooling or HP heating; 2 minutes off for electric or hot water heat).

Note: AV Series air handlers feature a standard 5-year limited warranty.

Hot Water Heat Features (Optional)

- Hot water heat kits available for field installation.
- Suitable for potable water systems and certified to NSF 372.
- Purge valve on hot water coil allows for manual release of any air trapped in coil during installation or servicing.
- Water connections 7/8" ODF (for 3/4" water pipe) on AV240 and 1 1/8" ODF (for 1" water pipe) on AV360, AV480, & AV600.
- Control board comes standard factory installed on all Air Handlers and includes the following features:

  Features are compatible with both factory and field installed circulating pumps.

  1. Pump timer- Activates pump for 1 minute every 6 hours eliminating stagnant water in hot water coil.
  2. 24 VAC isolation valve control-allows for zoning control.
  3. Auxiliary contacts for water heater or boiler activation.
  4. Freeze protection- standard factory installed, activates at 40 deg. F and deactivates at 70 deg. F.
  5. Thermostat connections
  6. Time delay for blower activation:
     - 60 seconds (standard)
     - 130 deg. F water temperature (with optional aquastat)

Blower Performance: Variable-Speed High Efficiency ECM Motor

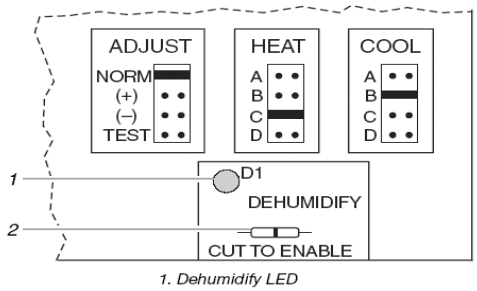
Model	Operating Mode	Thermostat Terminals X = Energized Terminal						Control Board Taps Cool				Heat			
		HUM	EM	W1	Y1	Y2	G	A CFM	B CFM	C CFM	D CFM	A CFM	B CFM	C CFM	D CFM
AV240	Continuous Blower						X	500	400	350	350				
	Hi Cooling / HP Heating	**			X	X		1000	800	700	600				
	Low Cooling / HP Heating				X			700	560	490	420				
	Aux. Heat			X	X	X		***	***	***	***	1000	800	700*	600*
	Emer. Heat		X	X				***	***	***	***	1000	800	700*	600*
AV300	Continuous Blower						X	600	500	400	350				
	Hi Cooling / HP Heating	**			X	X		1200	1000	800	600				
	Low Cooling / HP Heating				X			840	700	560	420				
	Aux. Heat			X	X	X		***	***	***	***	1200	1100	1100	1100
	Emer. Heat		X	X				***	***	***	***	1200	1100	1100	1100
AV360	Continuous Blower						X	600	500	400	350				
	Hi Cooling / HP Heating	**			X	X		1200	1000	800	600				
	Low Cooling / HP Heating				X			840	700	560	420				
	Aux. Heat			X	X	X		***	***	***	***	1200	1100*	1100*	1100*
	Emer. Heat		X	X				***	***	***	***	1200	1100*	1100*	1100*
AV480	Continuous Blower						X	800	700	600	500				
	Hi Cooling / HP Heating	**			X	X		1600	1400	1200	1000				
	Low Cooling / HP Heating				X			1120	980	840	700				
	Aux. Heat			X	X	X		***	***	***	***	1600	1400*	1200*	1100*
	Emer. Heat		X	X				***	***	***	***	1600	1400*	1200*	1100*
AV600	Continuous Blower						X	900	800	700	600				
	Hi Cooling / HP Heating	**			X	X		1850	1600	1400	1200				
	Low Cooling / HP Heating				X			1295	1120	980	840				
	Aux. Heat			X	X	X		***	***	***	***	1850	1600	1400*	1200*
	Emer. Heat		X	X				***	***	***	***	1850	1600	1400*	1200*

* This CFM is not approved for use with the highest kW heater size.
** Humidistat will reduce cooling airflow by 10% in high humidity.
***Airflow is the greater of the COOL and HEAT values when both electric heat and heat pump are operating.
Adjust tap (+) will increase airflow by 10%, while tap (-) will decrease airflow by 12%.
Adjust tap TEST will cause the motor to run at 70% of full airflow. Use this for troubleshooting only.
At the start of a call for cooling there is a short run at 82% of airflow for 7.5 minutes.
At the end of a call for cooling there is a blower off delay of 1 minute.
Note: CFM performance remains constant up to 0.8" ext. static pressure; above 0.8" will result in loss of performance.

Special Note for Units Equipped w/Humidistat: If using a humidistat, the Dehumidify resistor located on the bottom right of the control board must be removed. The HUM terminal on the board must be connected to the Normally Closed contact of the humidistat so that the board senses an open circuit on high humidity.

The motor control board that provides airflow selection also features LED indicators that display operating mode, humidity control, and airflow CFM. In addition, thermostat signals for emergency heat (EM), aux. heat (W1), reversing valve (O), compressor stage 1 (Y1), compressor stage 2 (Y2), and blower (G) are all indicated by lit LED's on this board. If a humidistat is used, the dehumidify LED will light when the humidistat opens and the motor runs at reduced airflow. The control board also has a CFM LED that displays the operating CFM. This red LED flashes once for each 100 CFM. For example, if the operating CFM is 1200, the CFM LED will flash 12 times, then pause before repeating the 12-flash pattern.

Control Board Taps and Dehumidify Resistor.



1. Dehumidify LED
2. Dehumidify resistor

Electrical Data: Variable-Speed High Efficiency ECM Motor

With Water Heat or No Heat

Unit Size (MBTUH)	Electric Heating Capacity		Blower Amps			Minimum Circuit Ampacity			Circuit Breaker Amps Per Stage		
	kW [1]	BTUH	Variable-Speed ECM Blower			Variable-Speed ECM Blower					
	240 V [2]	240 V [2]	120V	208V	240V	120V	208V	240 V	1	2	3
AV240	0	0	4.8	2.6	2.4	6.0	3.3	3.0	15	--	--
AV300	0	0	5.3	2.1	1.9	6.6	2.6	2.4	15	--	--
AV360	0	0	5.4	2.9	2.7	6.8	3.6	3.4	15	--	--
AV480	0	0	7.0	3.7	3.5	8.8	4.6	4.4	15	--	--
AV600	0	0	8.6	4.6	4.3	10.8	5.8	5.4	15	--	--

With Electric Heat

Unit Size (MBTUH)	Electric Heating Capacity		Blower Amps		Min. Circuit Ampacity		Circuit Breaker Amps Per Stage [2]		
	kW	BTUH	Variable-Speed ECM Blower		Variable-Speed ECM Blower				
	240 V [1]	240 V [1]	208V	240V	208V	240 V	1	2	3
AV240	2.5	8,530	2.6	2.4	14.5	16.0	20	--	--
	5	17,065	2.6	2.4	25.8	29.0	30	--	--
	7.5	25,598	2.6	2.4	37.1	42.1	45	--	--
	10	34,130	2.6	2.4	48.4	55.1	60	--	--
	12.5	42,663	2.6	2.4	59.7	68.1	45	30	--
	15	51,195	2.6	2.4	71.0	81.1	60	30	--
AV300	2.5	8,530	2.1	1.9	13.9	15.4	20	--	--
	5	17,065	2.1	1.9	25.2	28.4	30	--	--
	7.5	25,598	2.1	1.9	36.5	41.4	45	--	--
	10	34,130	2.1	1.9	47.8	54.5	60	--	--
	12.5	42,663	2.1	1.9	59.0	67.5	45	30	--
	15	51,195	2.1	1.9	70.3	80.5	60	30	--
	17.5	59,728	2.1	1.9	81.6	93.5	60	45	--
AV360	5	17,065	2.9	2.7	26.2	29.4	30	--	--
	7.5	25,598	2.9	2.7	37.5	42.4	45	--	--
	10	34,130	2.9	2.7	48.8	55.5	60	--	--
	12.5	42,663	2.9	2.7	60.0	68.5	60	30	--
	15	51,195	2.9	2.7	71.3	81.5	60	30	--
	20	68,260	2.9	2.7	93.9	107.5	60	60	--
AV480	5	17,065	3.7	3.5	27.2	30.4	35	--	--
	7.5	25,598	3.7	3.5	38.5	43.4	45	--	--
	10	34,130	3.7	3.5	49.8	56.5	60	--	--
	12.5	42,663	3.7	3.5	61.0	69.5	45	30	--
	15	51,195	3.7	3.5	72.3	82.5	60	30	--
	20	68,260	3.7	3.5	94.9	108.5	60	60	--
	25	85,325	3.7	3.5	117.5	134.6	60	60	30
AV600	5	17,065	4.6	4.3	28.3	31.4	35	--	--
	7.5	25,598	4.6	4.3	39.6	44.4	45	--	--
	10	34,130	4.6	4.3	50.9	57.5	60	--	--
	12.5	42,663	4.6	4.3	62.2	70.5	45	30	--
	15	51,195	4.6	4.3	73.5	83.5	60	30	--
	20	68,260	4.6	4.3	96.0	109.5	60	60	--
	25	85,325	4.6	4.3	118.6	135.6	60	60	30

kW packages in ***bold italics*** indicate that these heat packages require and include circuit breakers. Optional for others.

[1] For 208 Volts use .751 correction factor for kW & BTUH.

[2] Listed circuit breaker size is for 240V applications. For 208V verify breaker sizing based on min. circuit ampacity.

Water Heating Capacity (BTUH)

AV240

Water Coil Size	Entering Water Temp	2 GPM				3 GPM				4 GPM			
		H_2O P.D. in FT.	CFM 800	CFM 1000	CFM 1200	H_2O P.D. in FT.	CFM 800	CFM 1000	CFM 1200	H_2O P.D. in FT.	CFM 800	CFM 1000	CFM 1200
2 ROW	120°F	0.5	17,277	18,048	19,124	1.0	19,588	20,523	21,997	1.7	20,990	22,035	23,750
	140°F	0.5	24,529	25,619	27,164	1.0	27,747	29,072	31,155	1.7	29,682	31,163	33,616
	160°F	0.5	31,899	33,313	35,341	1.0	36,013	37,734	40,464	1.6	38,472	40,396	43,602
	180°F	0.4	39,359	41,098	43,622	0.9	44,360	46,482	49,872	1.6	47,332	49,705	53,678
3 ROW	120°F	0.7	21,309	22,783	26,216	1.4	24,501	26,156	28,137	2.4	25,648	28,187	30,578
	140°F	0.6	30,149	32,261	34,255	1.3	33,970	36,982	39,809	2.3	36,180	39,801	43,208
	160°F	0.6	39,095	41,866	44,472	1.3	43,988	47,928	51,621	2.2	46,799	51,526	55,970
	180°F	0.6	48,121	51,564	54,794	1.3	54,077	58,963	63,537	2.2	57,481	63,331	68,827

AV300

Water Coil Size	Entering Water Temp	3 GPM				4 GPM				5 GPM			
		H_2O P.D. in FT.	CFM 1000	CFM 1100	CFM 1200	H_2O P.D. in FT.	CFM 1000	CFM 1100	CFM 1200	H_2O P.D. in FT.	CFM 1000	CFM 1100	CFM 1200
2 ROW	120°F	0.5	17,277	18,048	19,124	1.0	19,588	20,523	21,997	1.7	20,990	22,035	23,750
	140°F	0.5	24,529	25,619	27,164	1.0	27,747	29,072	31,155	1.7	29,682	31,163	33,616
	160°F	0.5	31,899	33,313	35,341	1.0	36,013	37,734	40,464	1.6	38,472	40,396	43,602
	180°F	0.4	39,359	41,098	43,622	0.9	44,360	46,482	49,872	1.6	47,332	49,705	53,678
3 ROW	120°F	0.7	21,309	22,783	26,216	1.4	24,501	26,156	28,137	2.4	25,648	28,187	30,578
	140°F	0.6	30,149	32,261	34,255	1.3	33,970	36,982	39,809	2.3	36,180	39,801	43,208
	160°F	0.6	39,095	41,866	44,472	1.3	43,988	47,928	51,621	2.2	46,799	51,526	55,970
	180°F	0.6	48,121	51,564	54,794	1.3	54,077	58,963	63,537	2.2	57,481	63,331	68,827

AV360

Water Coil Size	Entering Water Temp	3 GPM				4 GPM				5 GPM			
		H_2O P.D. in FT.	CFM 1000	CFM 1100	CFM 1200	H_2O P.D. in FT.	CFM 1000	CFM 1100	CFM 1200	H_2O P.D. in FT.	CFM 1000	CFM 1100	CFM 1200
3 ROW	120°F	0.8	28,726	29,931	31,014	1.4	31,055	32,522	33,856	2	32,602	34,260	35,779
	140°F	0.8	40,610	42,329	43,874	1.3	43,847	45,937	47,838	2	45,986	48,344	50,505
	160°F	0.8	52,624	54,869	56,888	1.3	56,759	59,485	61,965	1.9	59,479	62,550	65,366
	180°F	0.8	64,735	67,541	70,015	1.3	69,759	73,130	76,197	1.9	73,051	76,844	80,323
4 ROW	120°F	1.0	33,478	34,963	36,329	1.7	36,193	38,058	39,751	2.6	37,946	40,069	42,015
	140°F	1.0	47,246	49,386	51,301	1.7	51,024	53,674	56,080	2.6	53,450	56,462	59,224
	160°F	1.0	61,139	63,925	66,420	1.7	65,969	69,416	72,548	2.5	69,055	72,970	76,562
	180°F	1.0	75,121	78,563	81,645	1.6	80,995	82,250	89,117	2.4	84,734	89,561	93,993

AV480

Water Coil Size	Entering Water Temp	3 GPM				4 GPM				5 GPM			
		H_2O P.D. in FT.	CFM 1400	CFM 1500	CFM 1600	H_2O P.D. in FT.	CFM 1400	CFM 1500	CFM 1600	H_2O P.D. in FT.	CFM 1400	CFM 1500	CFM 1600
3 ROW	120°F	0.8	32,883	33,695	34,441	1.4	36,190	37,221	38,173	2.0	38,464	39,660	40,722
	140°F	0.8	46,541	47,701	48,766	1.3	51,167	52,686	53,996	2.0	54,329	56,032	57,617
	160°F	0.8	60,372	61,888	63,279	1.3	66,310	68,229	70,004	1.9	70,350	72,572	74,640
	180°F	0.9	74,330	76,209	77,933	1.3	81,575	83,951	86,149	1.9	86,486	89,234	91,792
4 ROW	120°F	1.0	38,636	39,631	40,540	1.7	42,707	44,006	45,204	2.6	45,457	46,988	48,409
	140°F	1.0	54,582	55,996	57,288	1.7	60,284	62,131	63,834	2.6	64,115	66,290	68,310
	160°F	1.0	70,692	72,535	74,216	1.7	78,023	80,428	82,647	2.5	82,925	85,756	88,386
	180°F	1.0	86,924	89,200	91,276	1.6	95,879	98,851	101,592	2.4	101,845	105,340	108,588

All capacities are based on 70°F entering air temperature.
For entering air temperatures other than 70°F use the following capacity correction factors:
(72°F x .982), (68°F x 1.02), (66°F x 1.04).
Glycol correction factors: (10% X .98), (20% X .95), (30% X .92), (40% X .88)

Water Heating Capacity (BTUH) (cont.)

AV600

Water Coil Size	Entering Water Temp	*3 GPM*				*4 GPM*				*5 GPM*			
		H_2O P.D. in FT.	CFM			H_2O P.D. in FT.	CFM			H_2O P.D. in FT.	CFM		
			1800	1900	2000		1800	1900	2000		1800	1900	2000
3 ROW	**120°F**	1.2	37,308	37,936	38,521	2.1	41,636	42,459	43,229	3.2	44,672	45,650	46,570
	140°F	1.2	52,797	53,693	54,526	2.1	58,874	60,047	61,145	3.2	63,115	68,679	70,216
	160°F	1.2	68,481	69,650	70,737	2.0	76,308	77,839	79,273	3.1	81,747	83,564	85,273
	180°F	1.2	84,309	85,756	87,101	2.0	93,886	95,781	97,555	3.1	100,517	102,764	104,879
4 ROW	**120°F**	1.1	43,662	44,406	45,095	1.9	49,104	50,118	51,065	2.9	52,882	54,114	55,271
	140°F	1.1	61,666	62,721	63,698	1.9	69,318	70,759	72,104	2.8	74,605	76,356	77,999
	160°F	1.1	79,853	81,224	82,492	1.8	89,723	91,598	93,347	2.8	96,514	103,033	105,735
	180°F	1.1	98,172	99,863	101,427	1.8	110,265	112,579	114,739	2.7	118,557	121,369	124,009

All capacities are based on 70°F entering air temperature.
For entering air temperatures other than 70°F use the following capacity correction factors:
(72°F x .982), (68°F x 1.02), (66°F x 1.04).
Glycol correction factors: (10% X .98), (20% X .95), (30% X .92), (40% X .88)

Hydronic System Design

Includes: Heating coil selection, line sizing and selected pump other than supplied by ADP

Sample Application

3 ton Cooling Load
180° F Water Temp
40% Glycol Mixture
60,000 BTUH Heat Required

(1) From the 3 ton heating capacity tables select a hot water coil that supplies at least 60,000 btuh at 1,200 CFM, 180° F water temp.

The 3 row coil supplies 76,197 BTUH @ 4 GPM, 1.3' pressure drop		76,197
Correct capacity for 40% glycol (correction factors found below capacity chart)	**X**	0.88
Corrected coil heating capacity (BTUH)	**=**	**67,053**

(2) Determine total equivalent line length

Note: Use the following line sizes as a guide for initial selection

1 - 3 GPM, 3/4"	4 - 5 GPM, 1"	6 - 8 GPM, 1 1/4"

Line size 1"

Total number of fittings	Quantity		Equiv. ft. of pipe **(Table 3)**				
90° SR elbows	20	**X**	2.7'	**=**	54'		54'
90° LR elbows	0	**X**	0	**=**	0	**+**	0
45° elbows	0	**X**	0	**=**	0	**+**	0
gate valves	2	**X**	1.9'	**=**	3.8'	**+**	3.8'
Total supply and return line length						**+**	186'
Total equivalent line length						**=**	**244'**

(3) Determine total pump head required

			Press. Drop/ft **(Table 1)**				
Total equivalent line length	244'	**X**	0.015	**=**	3.66		3.66'
Total pressure drop through coil (found on capacity chart)						**+**	1.3'
Line length correction factor for 40% glycol @ 180°F **(Table 2)**						**X**	1.12
Total pump head required							**5.55'**

(4) Now select a pump that supplies 4 GPM with at least 5.55' head capability.

Note: If desired, recalculation can be done with another line size to vary pump requirement.

Note: Factory installed pumps are not approved for use with "on demand" or "Instantaneous" water heaters due to friction losses within the heat exchangers of tankless water heaters.

Table 1 **Piping Pressure Loss, ft/1 ft. (type K copper)**

Nominal Pipe Size	GPM 1	1.25	1.5	1.75	2	2.25	2.5	2.75	3	3.25	3.5	3.75	4	4.5	5	6	7	8
1/2"	.030	.048	.065	.083	.100	.125	.150	.175	.200	-	-	-	-	-	-	-	-	-
3/4"	.005	.009	.012	.016	.019	.024	.029	.034	.039	.045	.050	.056	.062	.077	.092	.130	-	-
1"	-	-	-	-	.005	.006	.007	.008	.009	.011	.012	.014	.015	.019	.023	.033	.042	.053
1 1/4"	-	-	-	-	-	-	-	-	-	-	-	-	.005	.007	.008	.011	.015	.018

Table 2 **Pressure Drop Correction**

% Glycol	140°F	160°F	180°F
10	1.04	1.04	1.02
20	1.08	1.07	1.04
30	1.13	1.11	1.08
40	1.19	1.16	1.12
50	1.24	1.21	1.17

Table 3 **Equivalent ft. of pipe**

Pipe Size	90° SR el	90° LR el	45° el	gate valve
1/2"	1.5	0.8	1	1
3/4"	2	1	1.4	1.4
1"	2.7	1.3	1.9	1.9
1 1/4"	3.6	1.8	2.5	2.5

Maximum Line Lengths for Heating Coils Using ADP Pump

All line lengths are total for supply and return

Model	Water Coil Size	Nominal Pipe Size (ID)	Maximum Supply Pipe Length (ft.) type K copper GPM																		
			1	1.3	1.5	1.8	2	2.3	2.5	2.8	3	3.3	3.5	3.8	4	4.3	4.5	4.8	5	6	7	8
AV240	2 Row	1/2"	-	-	-	-	55	37	25	16	10	-	-	-	-	-	-	-	-	-	-	-
		3/4"	-	-	-	-	**372**	**273**	**208**	162	128	99	76	58	43	-	-	-	-	-	-	-
		1"	-	-	-	-	-	-	-	-	-	**504**	**401**	**321**	**257**	-	-	-	-	-	-	-
	3 Row	1/2"	-	-	-	-	53	35	23	14	8	-	-	-	-	-	-	-	-	-	-	-
		3/4"	-	-	-	-	361	263	188	152	118	89	66	48	33	-	-	-	-	-	-	-
		1"	-	-	-	-	-	-	-	-	-	461	359	280	217	-	-	-	-	-	-	-
AV360 AV480	3 Row	3/4"	-	-	-	-	-	-	-	-	134	104	81	63	48	35	25	16	9	-	-	-
		1"	-	-	-	-	-	-	-	-	-	**526**	**422**	**341**	**277**	**221**	**177**	141	111	-	-	-
		1 1/4"	-	-	-	-	-	-	-	-	-	-	-	-	-		576	467	378	-	-	-
	4 Row	3/4"	-	-	-	-	-	-	-	-	126	97	75	57	43	30	19	11	4	-	-	-
		1"	-	-	-	-	-	-	-	-	-	**497**	**397**	**319**	**257**	**200**	156	120	90	-	-	-
		1 1/4"	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**514**	**405**	**315**	-	-	-
AV600	3 Row	3/4"	-	-	-	-	-	-	-	-	121	92	69	51	37	23	12	3		-	-	-
		1"	-	-	-	-	-	-	-	-	-	**473**	**372**	**293**	**230**	**172**	127	90	59	-	-	-
		1 1/4"	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**430**	**318**	**228**	-	-	-
	4 Row	3/4"	-	-	-	-	-	-	-	-	123	94	72	54	40	27	16	8	-	-	-	-
		1"	-	-	-	-	-	-	-	-	-	**485**	**382**	**306**	**244**	**187**	143	106	77	-	-	-
		1 1/4"	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**476**	**367**	**278**	-	-	-

Notes:

1. Line lengths are based on water only. To adjust maximum line lengths for glycol, divide length by the factors shown in **Table 2.**

2. IMPORTANT: Glycol should never be used in a potable water system.

3. All lengths are based on closed loop systems.

4. Line lengths within the shaded areas should not be used when a water heater is the source of heat. When using a boiler for these line lengths, excessive line temperature loss will occur and must be accounted for.

5. Supply and return lines must be properly insulated to reduce temperature loss and to prevent freezing when passing through an unconditioned space.

6. All lengths include (12) 90° short radius elbows. To adjust for extra or fewer fittings, use the factors in **Table 1.**

7. Always use full flow ball or gate valves to minimize pressure drop.

Table 1 Equivalent ft. of pipe

Pipe size	90° SR el	90° LR el	45° el	gate valve
1/2"	1.5	0.8	1	1
3/4"	2	1	1.4	1.4
1"	2.7	1.3	1.9	1.9
1 1/4"	3.6	1.8	2.5	2.5

Table 2

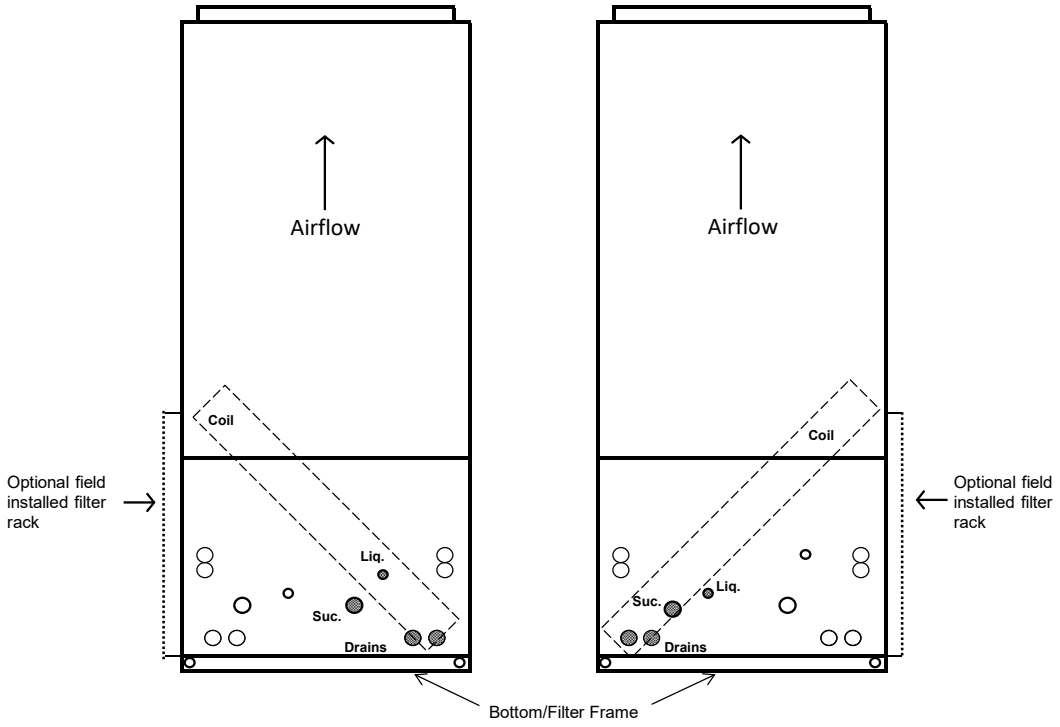
% Glycol	Fluid Temperature 140° F	160° F	180° F
10	1.04	1.04	1.02
20	1.08	1.07	1.04
30	1.13	1.11	1.08
40	1.19	1.16	1.12
50	1.24	1.21	1.17

Installation Configurations: AV240 & AV300

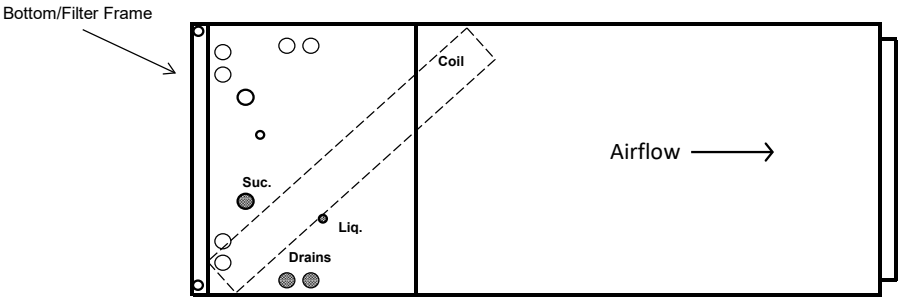
Shading Indicates Proper Line Connections

Upflow
As shipped from factory
(return in bottom or left side)

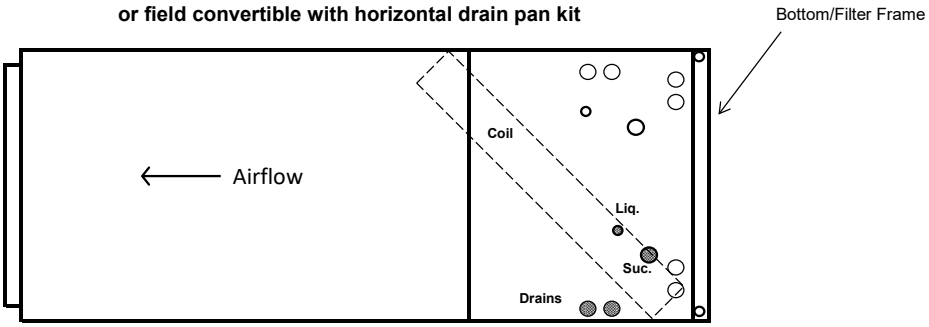
Upflow
Field convertible
(return in bottom or right side)



Horizontal Right
Factory ready if ordered as multi-position
or field convertible with horizontal drain pan kit



Horizontal Left
Field convertible if ordered as multi-position
or field convertible with horizontal drain pan kit

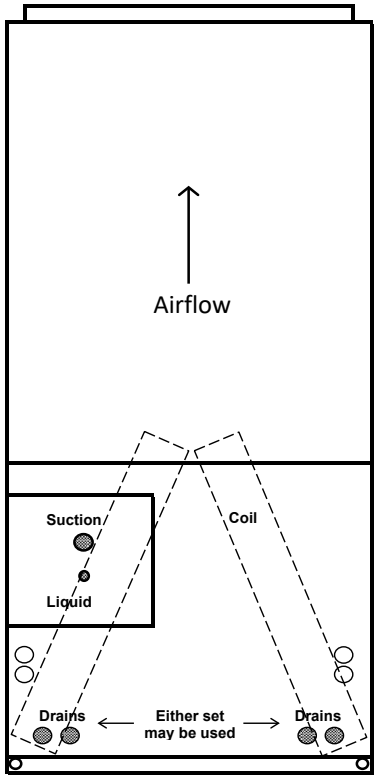


Installation Configurations: AV360, AV480, AV600

Shading Indicates Proper Line Connections

Upflow

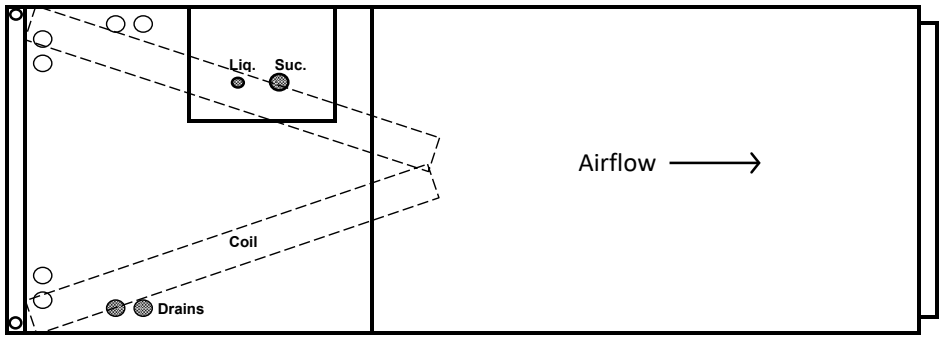
As shipped from factory
(return in bottom)



Bottom/Filter
Frame

Horizontal Right

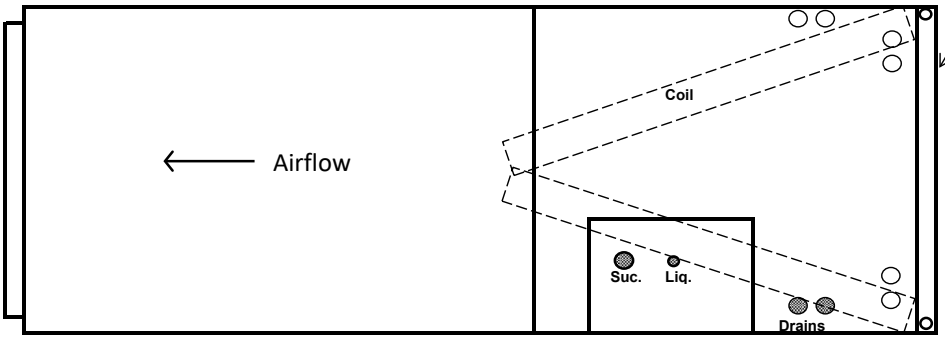
Factory ready if ordered as multi-position
or field convertible with horizontal drain pan kit



Horizontal Left

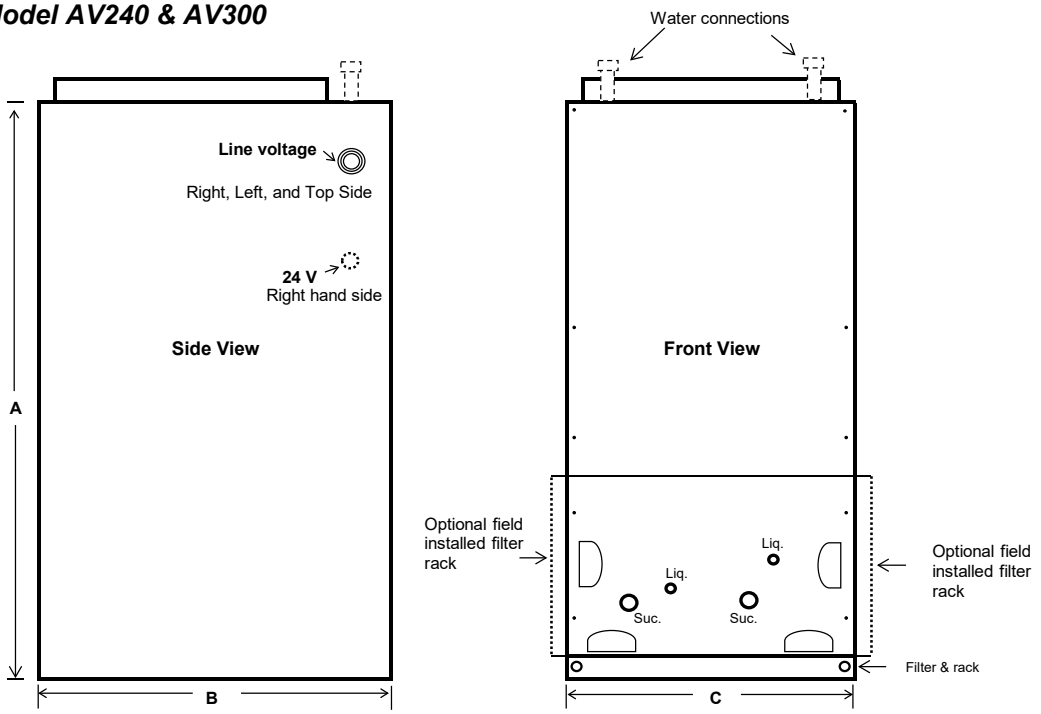
Field convertible if ordered as multi-position
or field convertible with horizontal drain pan kit

Bottom/Filter
Frame



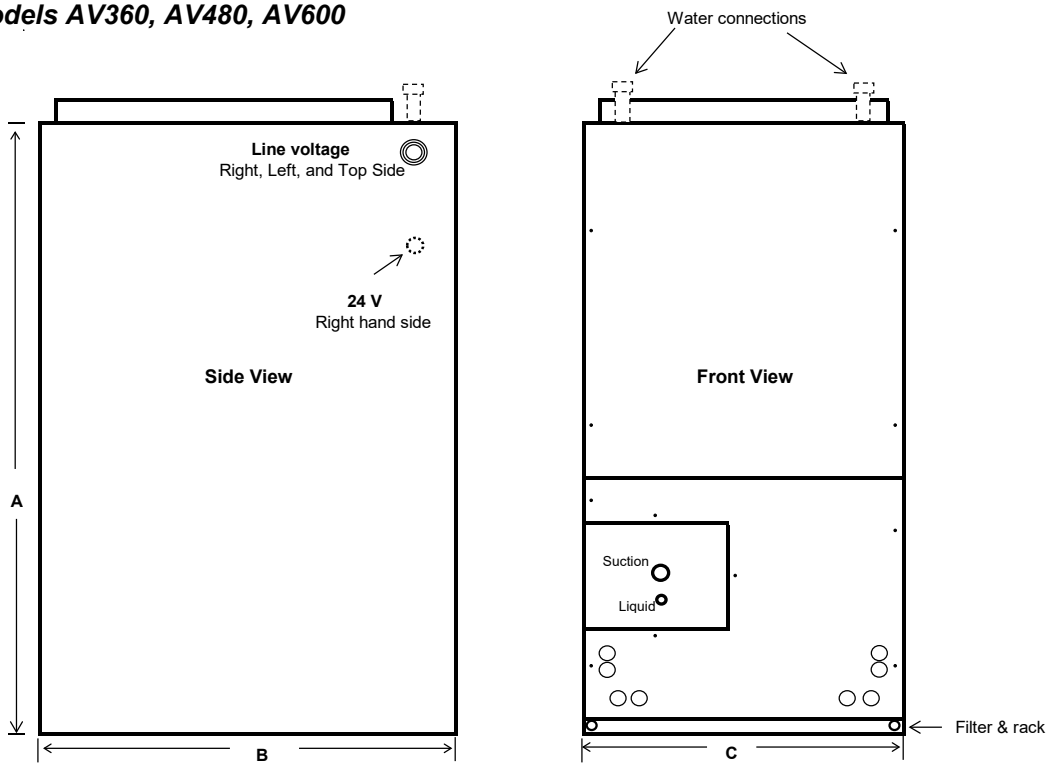
Dimensions

Model AV240 & AV300



				Supply Duct Opening		Return Duct Opening	
Model	**A**	**B**	**C**	**Depth X Width**		**Depth X Width**	
AV240, AV300	48"	22"	18 1/2"	17"	17"	20"	16"

Models AV360, AV480, AV600



				Supply Duct Opening		Return Duct Opening	
Model	**A**	**B**	**C**	**Depth X Width**		**Depth X Width**	
AV360, AV480	49"	26"	20"	21"	18 1/2"	23 3/4"	17 1/8"
AV600	53"	26"	22"	21"	20 1/2"	23 3/4"	19 1/8"

ADP
TM