



GreenPac™ & GreenPac HGR™ Air Conditioners

Single stage models AVPA24-30-36-42-48-60 and
HVEA24-30-36-42-49-60 and
2-stage models HVESA36-42-49-60

General Description

The Marvair® GreenPac™ and GreenPac HGR™ (Hot Gas Reheat) air conditioners are complete, factory assembled wall-mounted systems designed to provide total comfort while meeting ventilation requirements. Optional electric heat is available on all models. Ventilation packages include either the GreenWheel® or the GreenCube™ Energy Recovery Ventilator (ERV). The GreenWheel ERV is a total energy wheel that can recover both sensible and latent heat with efficiencies of up to 75%. The GreenCube is an enthalpy plate heat exchanger that transfers sensible and latent energies between the outgoing and incoming air streams. The use of the GreenWheel or GreenCube ERV allows compliance with ASHRAE standard for ventilation requirements while keeping operating costs to a minimum.

Three Series to Meet any Budget or Efficiency Requirements

Requirements - Three series of GreenPac air conditioners are available. The GreenPac HVEA models are our most efficient models and feature EERs (Energy Efficiency Ratio) of up to 11.75. No wall mount air conditioner is more efficient. The HVESA models feature a 2-stage compressor that matches the cooling capacity to the heat load. Our AVPA models have EERs of up to 9.50. The AVPA & HVEA (single stage compressor units) are built in nominal cooling capacities of 2, 2½, 3, 3½, 4 and 5 tons. The HVESA (2-stage compressor) units are available in nominal cooling capacities of 3, 3½, 4 and 5 tons.

GreenPac HGR™ Air Conditioners - In addition to the factory installed GreenWheel® ERV or the GreenCube, the GreenPac HGR air conditioners have a Hot Gas Reheat coil. The HGR coil permits dehumidification of the fresh and return air without overcooling the classroom. The operation of the HGR coil is controlled by a humidity controller or BAS. For optimum control of indoor humidity levels, we recommend the use of the either the GreenWheel or GreenCube ERV in combination with the Hot Gas Reheat coil.

All GreenPac and GreenPac HGR air conditioners are built to UL standard 1995, 2nd edition and CAN/CSA C22, No. 236-5, 2nd edition. For energy efficiency and performance, the units are tested and rated in accordance with ANSI/AHRI (Air-Conditioning, Heating and Refrigeration Institute) standard 390-2003 (Single Package Vertical Air Conditioners) All units meet or exceed the efficiency requirements of ANSI/ASHRAE/IESNA 90.1.2007. The GreenPac & GreenPac HGR air conditioners are commercial units and are not intended for use in residential applications.

The most current version of this Product Data Sheet can be downloaded from the Marvair® website at www.marvair.com.



Standard Features

High Efficiency

- High efficiency compressor.
- Lanced fins and rifled tubing on many indoor and outdoor coils.
- Two-speed indoor blower motor.

Ease of Installation

- Sloped top with flashing eliminates need of rainhood.
- Built-in full length mounting flanges facilitate

installation and minimizes chance of water leaks.

- Factory installed disconnect all 208/230v. and 460v. units.

Built-in Reliability

- High and low pressure switches with lockout relay protect refrigerant circuit.
- Time delay/anti-short cycle timer and low ambient control.

Rugged Construction

- Copper tube, aluminum fin evaporator and condenser coils.
- Factory-installed heaters on discharge side of evaporator coil. (Optional.)
- Prepainted neutral beige polyester finish over primed G-60 galvanized steel for maximum cabinet life. (Other finishes are available.)

The Marvair® GreenWheel® ERV

The Marvair GreenWheel® ERV is a total energy (both sensible and latent) wheel that reduces both construction and operating cost while ventilating the classroom to ASHRAE 62-1999 requirements. The use of the GreenWheel ERV reduces the energy load of the outside air. Exhausting stale, inside air keeps indoor pollutants and harmful gases to a minimum. The energy recovery wheel has been tested and certified according to ARI Standard 1060.

How It Works

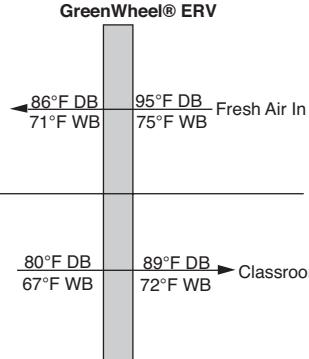
During the summer, cool dry air from the classroom is exhausted through the GreenWheel® ERV to the outside. As the air passes through the rotating wheel, the desiccant becomes cooler and drier. Simultaneously, hot humid air is being pulled across the rotating wheel. The cool, dry desiccant absorbs moisture and heat from the incoming air. The cooler, drier air is mixed with the return air from the classroom and distributed throughout the room.

In the winter, warm moist air is exhausted through the GreenWheel® ERV to the outside. As the air passes through the rotating wheel, the desiccant becomes warmer and absorbs moisture. Simultaneously, cold dry air is being pulled across the rotating wheel. The cold, dry air absorbs heat and moisture from the desiccant. The warmed air is mixed with the return air from the classroom and distributed throughout the room.

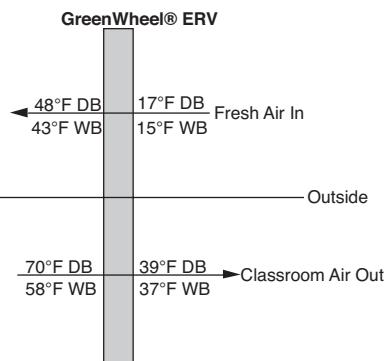
Quality Components

The GreenWheel® ERV cassette consists of the energy recovery wheel, two blowers and the drive motor and belt. The two blowers simultaneously pull fresh air from outside and exhaust air from the classroom through the rotating wheel. The air streams are separated by an insulated partition so that the incoming fresh air is not mixed with the exhaust air. Two variable speed blowers ensure that up to 450 CFM of outside air can be brought into the room and the indoor air is properly exhausted. Variable speed blowers

SUMMER OPERATION
OUTSIDE 95°F DB/75°F WB
INSIDE 80°F DB/67°F WB
AIRFLOW: 450 SCFM



WINTER OPERATION
OUTSIDE 17°F DB/15°F WB
INSIDE 70°F DB/58°F WB
AIRFLOW: 450 SCFM



GreenWheel® Energy Recovery Ventilator Performance

SCFM* of Outside Air	95° DB/73° WB Outside 80° DB/67° WB Inside			95° DB/80° WB Outside 80° DB/67° WB Inside			60° DB/54° WB Outside 70° DB/58° WB Inside		
	Sensible	Latent	Total	Sensible	Latent	Total	Sensible	Latent	Total
225	2,900	1,100	4,000	2,900	6,400	9,300	1900	200	2100
250	3,100	1,200	4,300	3,100	6,900	10,000	2000	200	2200
325	3,700	1,400	5,100	3,700	8,100	11,800	2400	200	2600
400	4,200	1,500	5,700	4,200	9,100	13,300	2700	300	3000
450	4,500	1,600	6,100	4,500	9,700	14,200	2900	300	3200
SCFM* of Outside Air	90° DB/74° WB Outside 75° DB/64° WB Inside			80° DB/70° WB Outside 75° DB/64° WB Inside			60° DB/54° WB Outside 70° DB/58° WB Inside		
	Sensible	Latent	Total	Sensible	Latent	Total	Sensible	Latent	Total
225	2800	3600	6400	900	2800	2700	1900	200	2100
250	3000	3800	6800	1000	3000	4000	2000	200	2200
325	3600	4500	8100	1200	3500	4700	2400	200	2600
400	4100	4900	9000	1400	3800	5200	2700	300	3000
450	4300	5200	9500	1400	4000	5400	2900	300	3200
SCFM* of Outside Air	40° DB/36° WB Outside 70° DB/58° WB Inside			20° DB/18° WB Outside 70° DB/58° WB Inside			0° DB/7° WB Outside 70° DB/58° WB Inside		
	Sensible	Latent	Total	Sensible	Latent	Total	Sensible	Latent	Total
225	5600	3300	8900	9300	4900	14200	13000	5700	18700
250	6000	3600	9600	10000	5300	15300	14000	6100	14100
325	7200	4200	11400	12000	6200	18200	16700	7100	23800
400	8100	4600	12700	13500	6800	20300	18900	7900	26800
450	8600	4800	13400	14400	7100	21500	20100	8200	28300

*SCFM = Standard Cubic Feet per Minute

For performance of the GreenWheel® ERV at conditions other than those shown, please contact your Marvair® representative or the factory.

GreenCube™ ERV, Ventilation Configuration “Q”.

The Marvair GreenCube ERV is an enthalpy plate heat exchanger that transfers both sensible and latent energies between outgoing and incoming air streams in a cross flow arrangement. Except for two air movers, it has no moving parts. It can introduce up to a maximum of 300 cfm of outside air into the classroom. Two MERV 6 type filters are used on both sides of the enthalpy core. The fresh air and exhaust motors have independent speed controllers to permit each of the motors to be regulated independently.

The media is impregnated with a RC134 polymeric desiccant that exchanges water by direct vapor transfer using molecular transport without the need of condensation. The GreenCube ERV will operate at temperatures as low as 10°F with no defrost mechanism. In addition, the desiccant is a bactericide.

The GreenCube ERV is only available on HVESA units (2-stage compressor). **All HVESA units with the GreenCube ERV, including the HVESA36 and HVESA42, are in the HVESA49/60 cabinet.**

GreenPac HGR™ Air Conditioner Operation

Marvair® GreenPac HGR™ air conditioners and heat pumps equipped with the Hot Gas Reheat (HGR) to allow the indoor humidity of the controlled environment to be maintained at or below a certain humidity set point. These units do not have the ability to add humidity to the classroom.

Dehumidification is achieved by operating mechanical cooling in conjunction with a hot gas reheat coil. The coil is sized approximately to the sensible capacity of the total tonnage of the machine.

Operation

If the humidity rises above the set point on the humidity controller and the temperature in the classroom is satisfied, both mechanical cooling and the HGR coil operate to temper the air and lower the humidity. If the temperature in the classroom rises above (or falls below) the set point of the thermostat and the unit is operating in the dehumidification mode, the call for cooling (or heating) will override the call for dehumidification and the coil is disengaged until the thermostat is satisfied. This assures the environment temperature is maintained as first priority and humidity control is second.

Accessories

Supply Grilles

For Models	Size	Part Number
AVPA24,30,36 and HVEA24	28" x 8"	80675
AVPA42,48,60 and	30" x 10"	80676
HVEA30, 36, 42, 49, 60 and HVESA36, 42, 49 & 60		

Return Filter Grilles

Filter used in Return Filter Grille is 1" thick.

For Models	Size	Part Number
AVPA24,30,36 and HVEA24	28" x 14"	80672
AVPA42,48,60 and	30" x 16"	80673
HVEA30, 36, 42, 49, 60 and HVESA36, 42, 49 & 60		

Thermostats for Air Conditioners

Thermostat, PN 50121

Digital thermostat. 1 stage heat, 1 stage cool. Non-programmable. Fan switch: Auto & On. Manual changeover system switch: Cool-Off-Heat. Low temperature protection. °F or °C.

Thermostat, P/N 50123

Digital thermostat. 1 stage heat, 1 stage cool. 7 day programmable. Fan switch: Auto & On. Auto-change over. Keypad lockout. Non-volatile program memory. Title 24 compliant - no batteries required

Thermostat, P/N 50246

Non-programmable, single stage heat, single stage cool. Manual changeover. Fan: Auto & On. 60 minute power back-up.

Thermostat, P/N 50289

Programmable 2-stage heat, 2-stage cool. System settings: Heat, Cool, Off, Auto-changeover. Fan Auto & ON. 3-hour override and button lockout to prevent tampering.

Thermostat, P/N 50107

Digital thermostat. 2 stage heat, 2 stage cool. 7 day programmable. Fan switch: Auto & On. Auto-change over. Status LED's. Backlit display. Programmable fan. Non-volatile program memory

Humidity Controller (Required for GreenPac HGR™ Air Conditioners)

Humidity Controller, PN 50245

Programmable dehumidification and ventilation controller. Permanent memory retention of set points. Humidity sensor can be field calibrated. High & low dehumidification set points. Includes outdoor temperature and humidity sensor. °F or °C selectable.

GreenPac™ & GreenPac HGR™ Air Conditioner Standard Controls & Options

Marvair® options can be used to provide optimum performance over a full range of operating conditions.

Standard Controls

High Pressure and Low Pressure Switches with lockout relay.

PLC Controller. The PLC is a factory installed microprocessor. LED indicator lights show operational status and provide assistance with diagnosis if troubleshooting is ever required. The controller can perform extensive self-diagnosis to assess the operational status and indicate a fault when detected. The controller can be programmed remotely or with a removable program storage device. Pertinent statistical data regarding the history of the refrigerant system is also stored.

The controller in the GreenPac And GreenPac HGR air conditioners improves reliability due to a reduction of components and simplification of control panel wiring and can control a Building Automation System (BAS) and various ventilation operations.

Anti-short Cycle Timer: Prevents the compressor's motor windings and starting controls from destructive overheating. The time interval is adjustable from three to eight minutes.

BAS Control Relay (24V only): Provides a 24 VAC coil to control operation from a Building Automation System. Note: An additional BAS control relay can be added when 120 or 240 VAC coils are required.

Ventilation Control: A fresh air fan controls both the ventilation intake and exhaust blowers together, automatically balancing the intake exhaust cfm up to 450 cfm.

Hard Start Kit – Used on single phase equipment to give the compressor higher starting torque under low voltage conditions. Field installed. Available on all units. (Not recommended for use on scroll compressor.)

Optional Controls

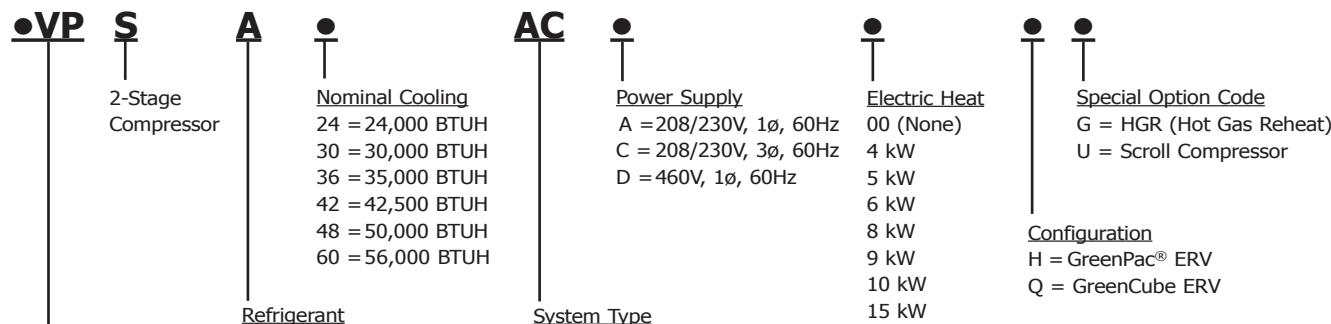
Evaporator Variable Fan Speed Control – Variable speed control of indoor blower motor provides adjustable air volume. Field or factory installed. Available on all units.

Energy Management System (EMS) Relay Kit – Relay to control the unit. Available in 24, 120 or 240 VAC. Field or factory installed.

Low Ambient Cooling Control – Cycles the condenser fan on/off to allow operation in the cooling mode down to 20°F.

Variable Fan Speed Control for the GreenWheel® ERV Exhaust Blower – For separate control of the exhaust blower. When used, the standard speed controller control the intake blower and the optional, second controller operates the exhaust blower. Individual blower control allows positive pressurization of the classroom. Field installed, P/N S/03335. Can be factory installed.

Model Identification



A = Air Source Vertical Package
H = High Efficiency Vertical Package

Certified Efficiency and Capacity Ratings at ANSI/AHRI Standard 390 - Air Conditioners

Model Number	AVPA24			AVPA30			AVPA36			AVPA42			AVPA48			AVPA60		
	ACA	ACC	ACD															
Cooling BTUH ¹	24,000			29,000			35,000			42,000			46,000			54,500		
EER ²	9.25			9.25			9.25			9.25			9.50			9.25		
Rated Air Flow (CFM ³)	840			1,000			1,220			1,575			1,760			1,850		

¹Cooling rated at 95°F (35°C) outdoor and 80°F DB/67° WB (26.5°C DB/19.5°C WB) return air. ²EER=Energy Efficiency Ratio

³CFM=Cubic Feet per Minute

Ratings are with no outside air. Performance will be affected by altitude.

Ratings are at 230 volts for 208/230 volt units ("A" & "C" models) and 460 volts for "D" models.

Operation of units at a different voltage from that of the rating point will affect performance and air flow.



Sensible Total Heat Ratio @ 95°F (35°C) Outside Air Dry Bulb - Air Conditioners

Model Number	AVPA24			AVPA30			AVPA36			AVPA42			AVPA48			AVPA60		
	ACA	ACC	ACD															
Total Capacity	24,000			29,000			35,000			42,000			46,000			54,500		
Sensible Heat Ratio	0.71			0.75			0.69			0.75			0.76			0.72		
Sensible Capacity	16,950			21,740			24,155			31,640			34,940			39,000		
Rated Air Flow (CFM ¹)	840			1,000			1,220			1,575			1,760			1,850		

¹CFM=Cubic Feet per Minute. Sensible heat ratios based upon ANSI/AHRI std. 390 outdoor air conditions of 95°F (35°C) and 80°F DB/67° WB (26.5°C DB/19.5°C WB) return air.

Cooling Performance (BTUH) at Various Outdoor Temperatures - Air Conditioners

Model Number	Outdoor Temperature								
	75°F / 24°C	80°F / 26.5°C	85°F / 29°C	90°F / 32°C	95°F / 35°C	100°F / 38°C	105°F / 40.5°C	110°F / 43.3°C	115°F / 46°C
AVPA24AC	27,840	26,880	25,920	24,960	24,000	23,040	22,080	21,120	20,640
AVPA30AC	33,640	32,480	31,320	30,160	29,000	27,840	26,680	25,520	24,940
AVPA36AC	40,600	39,200	37,800	36,400	35,000	33,600	32,200	30,800	30,100
AVPA42AC	48,720	47,040	45,360	43,680	42,000	40,320	38,640	36,960	36,120
AVPA48AC	53,360	51,520	49,680	47,840	46,000	44,160	42,320	40,480	39,560
AVPA60AC	63,220	61,040	58,860	56,680	54,500	52,320	50,140	47,960	46,870

Based upon ANSI/AHRI std. 390 return air conditions of 80°F DB/67° WB (26.5°C DB/19.5°C WB) at various outdoor temperatures.

Air Flow (CFM¹) @ ESP² (Wet Coil) Models AVPA

MODEL	AIR FLOW (CFM) @ ESP (WET COIL)						Maximum Total Static	Minimum Filter Area (Sq. Ft)
	0.10	0.20	0.25	0.30	0.40	0.50		
AVPA24	860	810	740	670	n/a	n/a	0.30	2.25
AVPA30	1100	1000	960	920	810	n/a	0.40	3.00
AVPA36	1310	1220	1185	1150	1060	n/a	0.40	3.00
AVPA42	n/a	1650	1585	1520	1450	1360	0.50	3.90
AVPA48	n/a	1900	1830	1760	1700	1620	0.50	3.90
AVPA60	n/a	1900	1830	1760	1700	1620	0.50	3.90

¹CFM = Cubic feet per minute ²ESP = External static pressure

Electrical Characteristics - Compressor, Fan & Blower Motors - AVPA air conditioners

BASIC MODEL	COMPRESSOR				OUTDOOR FAN MOTOR				INDOOR FAN MOTOR				GREENWHEEL® ERV	
	Type	VOLTS-HZ-PH	RLA ¹	LRA ²	VOLTS-HZ-PH	RPM ³	FLA ⁴	HP ⁵	VOLTS-HZ-PH	RPM ³	FLA ⁴	HP ⁵	VOLTS-HZ-PH	RLA ¹
AVPA24ACA	RECIPROCATING	208/230-60-1	10.6	54.0	208/230-60-1	1075	1.5	1/5	208/230-60-1	1075	1.5	1/5	208/230-60-1	2.2
AVPA30ACA		208/230-60-1	13.1	74.0	208/230-60-1	1075	1.8	1/4	208/230-60-1	1075	2.5	1/4	208/230-60-1	2.2
AVPA36ACA		208/230-60-1	14.7	84.0	208/230-60-1	1075	1.8	1/4	208/230-60-1	1075	2.5	1/4	208/230-60-1	2.2
AVPA42ACA		208/230-60-1	15.7	84.0	208/230-60-1	825	2.8	1/3	208/230-60-1	1075	3.1	1/2	208/230-60-1	2.2
AVPA48ACA		208/230-60-1	18.6	102.0	208/230-60-1	825	2.8	1/3	208/230-60-1	1075	3.1	1/2	208/230-60-1	2.2
AVPA60ACA		208/230-60-1	23.0	130.0	208/230-60-1	825	2.8	1/3	208/230-60-1	1075	5.2	3/4	208/230-60-1	2.2
AVPA24ACA	SCROLL	208/230-60-1	12.8	64.0	208/230-60-1	1075	1.5	1/5	208/230-60-1	1075	1.5	1/5	208/230-60-1	2.2
AVPA30ACA		208/230-60-1	14.1	77.0	208/230-60-1	1075	1.8	1/4	208/230-60-1	1075	2.5	1/4	208/230-60-1	2.2
AVPA36ACA		208/230-60-1	17.9	112.0	208/230-60-1	1075	1.8	1/4	208/230-60-1	1075	2.5	1/4	208/230-60-1	2.2
AVPA42ACA		208/230-60-1	19.8	109.0	208/230-60-1	825	2.8	1/3	208/230-60-1	1075	3.1	1/2	208/230-60-1	2.2
AVPA48ACA		208/230-60-1	21.8	117.0	208/230-60-1	825	2.8	1/3	208/230-60-1	1075	3.1	1/2	208/230-60-1	2.2
AVPA60ACA		208/230-60-1	26.2	134.0	208/230-60-1	825	2.8	1/3	208/230-60-1	1075	5.2	3/4	208/230-60-1	2.2
AVPA24ACC	SCROLL	208/230-60-3	8.3	61.0	208/230-60-1	1075	1.5	1/5	208/230-60-1	1075	1.5	1/5	208/230-60-1	2.2
AVPA30ACC		208/230-60-3	9.0	71.0	208/230-60-1	1075	1.8	1/4	208/230-60-1	1075	2.5	1/4	208/230-60-1	2.2
AVPA36ACC		208/230-60-3	13.2	88.0	208/230-60-1	1075	1.8	1/4	208/230-60-1	1075	2.5	1/4	208/230-60-1	2.2
AVPA42ACC		208/230-60-3	13.6	83.1	208/230-60-1	825	2.8	1/3	208/230-60-1	1075	3.1	1/2	208/230-60-1	2.2
AVPA48ACC		208/230-60-3	13.7	83.1	208/230-60-1	825	2.8	1/3	208/230-60-1	1075	3.1	1/2	208/230-60-1	2.2
AVPA60ACC		208/230-60-3	15.6	111.0	208/230-60-1	825	2.8	1/3	208/230-60-1	1075	5.2	3/4	208/230-60-1	2.2
AVPA24ACD	SCROLL	460-60-3	5.1	28.0	208/230-60-1	1075	1.5	1/5	208/230-60-1	1075	1.5	1/5	208/230-60-1	2.2
AVPA30ACD		460-60-3	5.6	38.0	208/230-60-1	1075	1.8	1/4	208/230-60-1	1075	2.5	1/4	208/230-60-1	2.2
AVPA36ACD		460-60-3	6.0	44.0	208/230-60-1	1075	1.8	1/4	208/230-60-1	1075	2.5	1/4	208/230-60-1	2.2
AVPA42ACD		460-60-3	6.1	41.0	208/230-60-1	825	2.8	1/3	208/230-60-1	1075	3.1	1/2	208/230-60-1	2.2
AVPA48ACD		460-60-3	6.2	41.0	208/230-60-1	825	2.8	1/3	208/230-60-1	1075	3.1	1/2	208/230-60-1	2.2
AVPA60ACD		460-60-3	7.7	52.0	208/230-60-1	825	2.8	1/3	208/230-60-1	1075	5.2	3/4	208/230-60-1	2.2

¹RLA = Rated Load Amps ²LRA = Locked Rotor Amps ³RPM = Revolutions per Minute ⁴FLA = Full Load Amps ⁵HP = Horsepower

The 460 volt units have a step down transformer for the 230 volt motors.

Summary Electrical Ratings (Wire and Circuit Breaker Sizing) - AVPA Air Conditioners with GreenWheel® Energy Recovery Ventilator - Ventilation Configuration ("H")

ELECTRIC HEAT	000 = None	036 = 3.6 kw	040 = 4 kw	050 = 5 kw	060 = 6 kw	080 = 8 kw	090 = 9 kw	100 = 10 kw	120 = 12 kw	150 = 15 kw	
BASIC MODEL	VOLTAGE PHASE / HZ	SPPE ³									
		MCA ¹	MFS ²	MCA ¹	MFS ²						
AVPA24ACA	208/230-1-60	21.2	30			24.6	30	29.7	30	35.0	35
AVPA30ACA	208/230-1-60	24.1	35			25.6	35	30.7	35	36.0	40
AVPA36ACA	208/230-1-60	28.9	45			28.9	40	30.7	40	36.0	40
AVPA42ACA	208/230-1-60	32.9	50					32.9	50		
AVPA48ACA	208/230-1-60	35.4	50					35.4	50		
AVPA60ACA	208/230-1-60	43.0	60					43.0	60		
AVPA24ACC	208/230-3-60	15.6	20						21.7	25	
AVPA30ACC	208/230-3-60	17.8	25						22.7	25	
AVPA36ACC	208/230-3-60	23.0	35						23.0	35	
AVPA42ACC	208/230-3-60	25.1	35						25.1	35	
AVPA48ACC	208/230-3-60	25.2	35						25.2	35	
AVPA60ACC	208/230-3-60	29.7	45						29.7	45	
AVPA24ACD	460-3-60	9.0	15						10.9	15	
AVPA30ACD	460-3-60	10.3	15						11.4	15	
AVPA36ACD	460-3-60	10.8	15						11.4	15	
AVPA42ACD	460-3-60	11.7	15						12.0	15	
AVPA48ACD	460-3-60	11.8	15						12.0	15	
AVPA60ACD	460-3-60	14.7	20						14.7	20	

¹MCA = Minimum Circuit Ampacity (Wiring Size Amps) ²MFS = Maximum Fuse or HACR Breaker Size ³SPPE = Single Point Power Entry

MCA & MFS are calculated at 230 volts on the ACA & ACC models. The 460 volts ACD models are calculated at 460 volts. This chart should only be used as a guideline for estimating conductor size and overcurrent protection. For the requirements of specific units, always refer to the data label on the unit.

Unit Load Amps - AVPA Air Conditioner with GreenWheel® Energy Recovery Ventilator ("H")

BASIC MODEL NUMBER	VOLTAGE PHASE / HZ	CURRENT AMPS			LOAD OF RESISTIVE HEATING - ELEMENTS ONLY (AMPS) (1) ALL HEATING ELEMENTS ARE ON A SEPARATE CIRCUIT (2) SHADED VALUES (12 & 15 kW) UTILIZE TWO CIRCUITS										TOTAL MAXIMUM HEATING AMPS INCLUDES AMPS FROM MOTOR(S) THAT ARE LOCATED ON AN ELECTRICAL CIRCUIT THAT DOES NOT HAVE HEATERS									
		AC ¹	IBM ²	H ³	3.6 kW	04 kW	05 kW	06 kW	08 kW	09 kW	10 kW	12 kW	15 kW	3.6 Kw	04 Kw	05 Kw	06 Kw	08 Kw	09 Kw	10 Kw	12 Kw	15 Kw		
AVPA24ACA	208/230-1-60	18.0	1.5	2.2		16.7	20.8	25.0	33.3		41.7					20.4	24.5	28.7	37.0		45.4			
AVPA30ACA	208/230-1-60	20.6	2.5	2.2		16.7	20.8	25.0	33.3		41.7	50.0	62.5			21.4	25.5	29.7	38.0		46.4	54.7	67.2	
AVPA36ACA	208/230-1-60	24.4	2.5	2.2		16.7	20.8	25.0	33.3		41.7	50.0	62.5			21.4	25.5	29.7	38.0		46.4	54.7	67.2	
AVPA42ACA	208/230-1-60	27.9	3.1	2.2			20.8				41.7	50.0	62.5				26.1					47.0	55.3	67.8
AVPA48ACA	208/230-1-60	29.9	3.1	2.2			20.8				41.7	50.0	62.5				26.1					47.0	55.3	67.8
AVPA60ACA	208/230-1-60	36.4	5.2	2.2			20.8				41.7	50.0	62.5				28.2					49.1	57.4	69.9
AVPA24ACC	208/230-3-60	13.4	1.5	2.2				14.4		21.7		28.9	36.1				18.1		25.4			32.6	39.8	
AVPA30ACC	208/230-3-60	15.5	2.5	2.2				14.4		21.7		28.9	36.1				19.1		26.4			33.6	40.8	
AVPA36ACC	208/230-3-60	19.7	2.5	2.2				14.4		21.7		28.9	36.1				19.1		26.4			33.6	40.8	
AVPA42ACC	208/230-3-60	21.7	3.1	2.2				14.4		21.7		28.9	36.1				19.7		27.0			34.2	41.4	
AVPA48ACC	208/230-3-60	21.8	3.1	2.2				14.4		21.7		28.9	36.1				19.7		27.0			34.2	41.4	
AVPA60ACC	208/230-3-60	25.8	5.2	2.2				14.4		21.7		28.9	36.1				21.8		29.1			36.3	43.5	
AVPA24ACD	460-3-60	7.7	0.8	1.1				7.2		10.8		14.4	18.0				9.1		12.7			16.3	19.9	
AVPA30ACD	460-3-60	8.9	1.3	1.1				7.2		10.8		14.4	18.0				9.6		13.2			16.8	20.4	
AVPA36ACD	460-3-60	9.3	1.3	1.1				7.2		10.8		14.4	18.0				9.6		13.2			16.8	20.4	
AVPA42ACD	460-3-60	10.2	1.6	1.1				7.2		10.8		14.4	18.0				9.9		13.5			17.1	20.7	
AVPA48ACD	460-3-60	10.3	1.6	1.1				7.2		10.8		14.4	18.0				9.9		13.5			17.1	20.7	
AVPA60ACD	460-3-60	12.8	2.6	1.1				7.2		10.8		14.4	18.0				10.9		14.5			18.1	21.7	

¹AC = Air Conditioner Unit Amps ²IBM = Indoor Blower Motor ³H = GreenWheel Energy Recovery Ventilator

Heating KW is rated at 240 volts on the ACA & ACC models. Derate heater output by 25% for operation at 208 volts. Heating kW is rated at 480 volts on the ACD models.

Total heating and cooling amps includes all motors. Three phase models contain single phase motor loads. Loads are not equally balanced on each phase and values shown are maximum phase loads.

HVEA HIGH EFFICIENCY AIR CONDITIONERS WITH SINGLE STAGE COMPRESSORS

Certified Efficiency and Capacity Ratings at ANSI/AHRI Standard 390 - HVEA Air Conditioners with Single Stage Compressor

Model Number	HVEA24			HVEA30			HVEA36			HVEA42			HVEA49			HVEA60		
	ACA	ACC	ACD															
Cooling BTUH ¹	23,600			29,000			35,600			40,000			49,000			58,000		
EER ²	11.25			11.75			11.25			10.50			11.50			10.50		
Rated Air Flow (CFM ³)	800			1,000			1,300			1,400			1,750			1,900		

¹Cooling rated at 95°F (35°C) outdoor and 80°F DB/67° WB (26.5°C DB/19.5°C WB) return air

²EER=Energy Efficiency Ratio ³CFM=Cubic Feet per Minute

Ratings are with no outside air. Performance will be affected by altitude.

Ratings are at 230 volts for 208/230 volt units ("A" & "C" models) and 460 volts for "D" models. Operation of units at a different voltage from that of the rating point will affect performance and air flow.



Sensible Total Heat Ratio @ 95°F (35°C) Outside Air Dry Bulb - HVEA Air Conditioners with Single Stage Compressor

Model Number	HVEA24			HVEA30			HVEA36			HVEA42			HVEA49			HVEA60		
	ACA	ACC	ACD															
Total Capacity	23,600			29,000			35,600			40,000			49,000			58,000		
Sensible Heat Ratio	0.74			0.76			0.76			0.73			0.74			0.73		
Sensible Capacity	17,435			22,020			26,945			29,270			36,175			42,505		
Rated Air Flow (CFM ¹)	800			1,000			1,300			1,400			1,750			1,900		

¹CFM=Cubic Feet per Minute

Sensible heat ratios based upon ANSI/AHRI std. 390 outdoor air conditions of 95°F (35°C) and 80°F DB/67° WB (26.5°C DB/19.5°C WB) return air.

Cooling Performance (BTUH) at Various Outdoor Temperatures - HVEA Air Conditioners with Single Stage Compressor

Model Number	Outdoor Temperature											
	75°F / 24°C	80°F / 26.5°C	85°F / 29°C	90°F / 32°C	95°F / 35°C	100°F / 38°C	105°F / 40.5°C	110°F / 43.3°C	115°F / 46.1°C	120°F / 48.9°C	125°F / 51.7°C	130°F / 54.4°C
HVEA24AC	27,375	26,430	25,490	24,545	23,600	22,655	21,710	20,770	20,295	19,870	19,445	19,020
HVEA30AC	33,640	32,480	31,320	30,160	29,000	27,840	26,680	25,520	24,940	24,420	23,895	23,375
HVEA36AC	41,295	39,870	38,450	37,025	35,600	34,175	32,750	31,320	30,615	29,975	29,335	28,695
HVEA42AC	46,400	44,800	43,200	41,600	40,000	38,400	36,800	35,200	34,400	33,680	32,960	32,240
HVEA49AC	56,840	54,880	52,920	50,960	49,000	47,040	45,080	43,120	42,140	41,260	40,375	39,495
HVEA60AC	67,280	64,960	62,640	60,320	58,000	55,680	53,360	51,040	49,880	48,835	47,790	46,745

Based upon ANSI/AHRI std. 390 return air conditions of 80°F DB/67° WB (26.5°C DB/19.5°C WB) at various outdoor temperatures.

Air Flow (Cubic Feet per Minute) Models HVEA and HVESA

MODEL	External Static Pressure (WET COIL)					
	0.10	0.20	0.25	0.30	0.40	0.50
HVEA24	800	770	725	680	600	500
HVEA30	1200	1100	1050	1000	900	800
HVEA36/HVESA36	1290	1170	1115	1060	1000	920
HVEA42/HVESA42	1500	1360	1295	1230	1160	1070
HVEA48/HVESA48	1900	1800	1700	1600	1500	1350
HVEA60/HVESA60	2200	2100	2000	1900	1800	1650

Air flow ratings of 208-230v. Units are at 230v. Air flow ratings of 480 v. units are at 460 volts. Operation of units at a different voltage from the rating point will affect air flow.

Electrical Characteristics - Compressor, Fan & Blower Motors - HVEA Air Conditioners with Single Stage Compressor

BASIC MODEL	COMPRESSOR			OUTDOOR FAN MOTOR			INDOOR FAN MOTOR (ECM)			GREENWHEEL® ERV			
	VOLTS-HZ-PH	RLA ¹	LRA ²	VOLTS-HZ-PH	RPM ³	FLA ⁴	HP ⁵	VOLTS-HZ-PH	RPM ³	FLA ⁴	HP ⁵	VOLTS-HZ-PH	RLA ¹
HVEA24ACA	208/230-60-1	12.8	58.3	208/230-60-1	1075	1.8	1/4	208/230-60-1	1500	2.8	1/3	208/230-60-1	2.2
HVEA30ACA	208/230-60-1	12.8	64.0	208/230-60-1	825	2.8	1/3	208/230-60-1	1500	2.8	1/2	208/230-60-1	2.2
HVEA36ACA	208/230-60-1	16.6	79.0	208/230-60-1	825	2.8	1/3	208/230-60-1	1500	2.8	1/2	208/230-60-1	2.2
HVEA42ACA	208/230-60-1	19.8	109.0	208/230-60-1	825	2.8	1/3	208/230-60-1	1500	2.8	1/2	208/230-60-1	2.2
HVEA49ACA	208/230-60-1	21.8	117.0	208/230-60-1	825	2.8	1/2	208/230-60-1	1500	4.3	3/4	208/230-60-1	2.2
HVEA60ACA	208/230-60-1	26.4	134.0	208/230-60-1	825	2.8	1/2	208/230-60-1	1500	4.3	3/4	208/230-60-1	2.2
HVEA24ACC	208/230-60-3	7.7	55.4	208/230-60-1	1075	1.8	1/4	208/230-60-1	1500	2.8	1/3	208/230-60-1	2.2
HVEA30ACC	208/230-60-3	8.3	61.0	208/230-60-1	825	2.8	1/3	208/230-60-1	1500	2.8	1/2	208/230-60-1	2.2
HVEA36ACC	208/230-60-3	10.4	88.0	208/230-60-1	825	2.8	1/3	208/230-60-1	1500	2.8	1/2	208/230-60-1	2.2
HVEA42ACC	208/230-60-3	13.6	83.1	208/230-60-1	825	2.8	1/3	208/230-60-1	1500	2.8	1/2	208/230-60-1	2.2
HVEA49ACC	208/230-60-3	13.7	83.1	208/230-60-1	825	2.8	1/2	208/230-60-1	1500	4.3	3/4	208/230-60-1	2.2
HVEA60ACC	208/230-60-3	15.9	111.0	208/230-60-1	825	2.8	1/2	208/230-60-1	1500	4.3	3/4	208/230-60-1	2.2
HVEA24ACD	460-60-3	4.0	28.0	208/230-60-1	1075	1.8	1/4	208/230-60-1	1500	2.8	1/3	208/230-60-1	2.2
HVEA30ACD	460-60-3	5.1	28.0	208/230-60-1	825	2.8	1/3	208/230-60-1	1500	2.8	1/2	208/230-60-1	2.2
HVEA36ACD	460-60-3	5.8	38.0	208/230-60-1	825	2.8	1/3	208/230-60-1	1500	2.8	1/2	208/230-60-1	2.2
HVEA42ACD	460-60-3	6.1	41.0	208/230-60-1	825	2.8	1/3	208/230-60-1	1500	2.8	1/2	208/230-60-1	2.2
HVEA49ACD	460-60-3	6.2	41.0	208/230-60-1	825	2.8	1/2	208/230-60-1	1500	4.3	3/4	208/230-60-1	2.2
HVEA60ACD	460-60-3	7.7	52.0	208/230-60-1	825	2.8	1/2	208/230-60-1	1500	4.3	3/4	208/230-60-1	2.2

¹RLA = Rated Load Amps ²LRA = Locked Rotor Amps ³RPM = Revolutions per Minute ⁴FLA = Full Load Amps ⁵HP = Horsepower
The 460 volt units have a step down transformer for the 230 volt motors.

Summary Electrical Ratings (Wire and Circuit Breaker Sizing) - Air Conditioners with Single Stage Compressor and Ventilation Configuration: GreenWheel® Energy Recovery Ventilator - Ventilation Configuration ("H")

ELECTRIC HEAT		000 = None		040 = 4 kw		050 = 5 kw		060 = 6 kw		080 = 8 kw		090 = 9 kw		100 = 10 kw		120 = 12 kw		150 = 15 kw	
BASIC MODEL	VOLTAGE PHASE / HZ	SPPE ³																	
		MCA ¹	MFS ²																
HVEA24ACA	208/230-1-60	22.8	35	25.3	35	31.0	35	36.3	40	46.6	50			57.1	60				
HVEA30ACA	208/230-1-60	23.8	35	25.3	35	31.0	35	36.3	40	46.6	50			57.1	60	67.5	70	83.1	90
HVEA36ACA	208/230-1-60	28.6	45	28.6	45	31.0	45	36.3	45	46.6	50			57.1	60	67.5	70	83.1	90
HVEA42ACA	208/230-1-60	32.6	50			32.6	50							57.1	60	67.5	70	83.1	90
HVEA49ACA	208/230-1-60	36.6	50			36.6	50							58.6	60	69.0	70	84.6	90
HVEA60ACA	208/230-1-60	42.3	60			42.3	60							58.6	60	69.0	70	84.6	90
HVEA24ACC	208/230-3-60	16.4	20					23.0	25			32.1	35			41.1	45		
HVEA30ACC	208/230-3-60	18.2	25					23.0	25			32.1	35			41.1	45	49.1	50
HVEA36ACC	208/230-3-60	20.8	30					23.0	30			32.1	35			41.1	45	49.1	50
HVEA42ACC	208/230-3-60	24.8	35					24.8	35			32.1	35			41.1	45	49.1	50
HVEA49ACC	208/230-3-60	26.4	40					26.4	40			33.6	40			42.6	50	51.6	60
HVEA60ACC	208/230-3-60	29.2	45					29.2	45			33.6	45			42.6	50	51.6	60
HVEA24ACD	460-3-60	8.4	15					11.5	15			16.0	20			20.5	25	25.0	25
HVEA30ACD	460-3-60	10.3	15					11.5	15			16.0	20			20.5	25	25.0	25
HVEA36ACD	460-3-60	11.2	15					11.5	15			16.0	20			20.5	25	25.0	25
HVEA42ACD	460-3-60	11.5	15					11.5	15			16.0	20			20.5	25	25.0	25
HVEA49ACD	460-3-60	12.4	15					13.5	15			16.8	20			21.3	25	25.8	30
HVEA60ACD	460-3-60	14.3	20					14.3	20			16.8	20			21.3	25	25.8	30

¹MCA = Minimum Circuit Ampacity (Wiring Size Amps) ²MFS = Maximum Fuse or HACR Breaker Size ³SPPE = Single Point Power Entry

MCA & MFS are calculated at 230 volts on the ACA & ACC models. The 460 volts ACD models are calculated at 460 volts. This chart should only be used as a guideline for estimating conductor size and overcurrent protection. For the requirements of specific units, always refer to the data label on the unit.

Unit Load Amps - HVEA Air Conditioner with Single stage Compressor and GreenWheel® Energy Recovery Ventilator ("H")

BASIC MODEL NUMBER	VOLTAGE PHASE / HZ	CURRENT AMPS			LOAD OF RESISTIVE HEATING - ELEMENTS ONLY (AMPS) (1) ALL HEATING ELEMENTS ARE ON A SEPARATE CIRCUIT (2) SHADED VALUES (12 & 15 KW) UTILIZE TWO CIRCUITS										TOTAL MAXIMUM HEATING AMPS INCLUDES AMPS FROM MOTOR(S) THAT ARE LOCATED ON AN ELECTRICAL CIRCUIT THAT DOES NOT HAVE HEATERS						
		AC ¹	IBM ²	H ³	04 KW	05 KW	06 KW	08 KW	09 KW	10 KW	12 KW	15 KW	04 Kw	05 Kw	06 Kw	08 Kw	09 Kw	10 Kw	12 Kw	15 Kw	
HVEA24ACA	208/230-1-60	19.6	2.8	2.2	16.7	20.8	25.0	33.3		41.7			21.7	25.8	30.0	38.3		46.7			
HVEA30ACA	208/230-1-60	20.6	2.8	2.2	16.7	20.8	25.0	33.3		41.7	50.0	62.5	21.7	25.8	30.0	38.3		46.7	55.0	67.5	
HVEA36ACA	208/230-1-60	24.4	2.8	2.2	16.7	20.8	25.0	33.3		41.7	50.0	62.5	21.7	25.8	30.0	38.3		46.7	55.0	67.5	
HVEA42ACA	208/230-1-60	27.6	2.8	2.2		20.8				41.7	50.0	62.5		25.8				46.7	55.0	67.5	
HVEA49ACA	208/230-1-60	31.1	4.3	2.2		20.8				41.7	50.0	62.5		27.3				48.2	56.5	69.0	
HVEA60ACA	208/230-1-60	35.7	4.3	2.2		20.8				41.7	50.0	62.5		27.3				48.2	56.5	69.0	
HVEA24ACC	208/230-3-60	14.5	2.8	2.2			14.4		21.7		28.9	36.1			19.4		26.7		33.9	41.1	
HVEA30ACC	208/230-3-60	16.1	2.8	2.2			14.4		21.7		28.9	36.1			19.4		26.7		33.9	41.1	
HVEA36ACC	208/230-3-60	18.2	2.8	2.2			14.4		21.7		28.9	36.1			19.4		26.7		33.9	41.1	
HVEA42ACC	208/230-3-60	21.4	2.8	2.2			14.4		21.7		28.9	36.1			19.4		26.7		33.9	41.1	
HVEA49ACC	208/230-3-60	23.0	4.3	2.2			14.4		21.7		28.9	36.1			20.9		28.2		35.4	42.6	
HVEA60ACC	208/230-3-60	25.2	4.3	2.2			14.4		21.7		28.9	36.1			20.9		28.2		35.4	42.6	
HVEA24ACD	460-3-60	7.4	1.4	1.1			7.2		10.8		14.4	18.0			9.7		13.3		16.9	20.5	
HVEA30ACD	460-3-60	9.0	1.4	1.1			7.2		10.8		14.4	18.0			9.7		13.3		16.9	20.5	
HVEA36ACD	460-3-60	9.7	1.4	1.1			7.2		10.8		14.4	18.0			9.7		13.3		16.9	20.5	
HVEA42ACD	460-3-60	10.0	1.4	1.1			7.2		10.8		14.4	18.0			9.7		13.3		16.9	20.5	
HVEA49ACD	460-3-60	10.9	2.2	1.1			7.2		10.8		14.4	18.0			10.5		14.1		17.7	21.3	
HVEA60ACD	460-3-60	12.4	2.2	1.1			7.2		10.8		14.4	18.0			10.5		14.1		17.7	21.3	

¹AC = Air Conditioner Unit Amps ²IBM = Indoor Blower Motor ³H = GreenWheel ERV

Heating kW is rated at 240 volts on the ACA & ACC models. Derate heater output by 25% for operation at 208 volts. Heating kW is rated at 480 volts on the ACD models.

Total heating and cooling amps includes all motors. Three phase models contain single phase motor loads. Loads are not equally balanced on each phase and values shown are maximum phase loads.

HVESA HIGH EFFICIENCY AIR CONDITIONERS WITH 2-STAGE COMPRESSORS

Certified Efficiency and Capacity Ratings at ANSI/AHRI Standard 390 - HVESA Air Conditioners with 2-Stage Compressors

Model Number	HVESA36			HVESA42			HVESA49			HVESA60		
	ACA	ACC	ACD									
Cooling BTUH ¹ - 2nd Stage	35,000			39,000			47,000			56,000		
EER ² - 2nd Stage	11.00			10.50			11.75			10.50		
Integrated Part Load Value ³	16.0			14.1			16.0			14.8		
Rated Air Flow (CFM ⁴)	1,300			1,400			1,750			1,900		

¹Cooling rated at 95°F (35°C) outdoor and 80°F DB/67° WB (26.5°C DB/19.5°C WB) return air. ²EER=Energy Efficiency Ratio

³Integrated Part Load Value is an integrated efficiency measure from 1st and 2nd stage capacity modulation.

⁴CFM=Cubic Feet per Minute

Ratings are with no outside air. Performance will be affected by altitude.

Ratings are at 230 volts for 208/230 volt units ("A" & "C" models) and 460 volts for "D" models. Operation of units at a different voltage from that of the rating point will affect performance and air flow.



Sensible Total Heat Ratio @ 95°F (35°C) Outside Air Dry Bulb - HVESA Air Conditioners with 2-Stage Compressors

Model Number	HVESA36			HVESA42			HVESA49			HVESA60		
	ACA	ACC	ACD									
Total Capacity	35,000			39,000			47,000			56,000		
Sensible Heat Ratio	0.70			0.71			0.79			0.77		
Sensible Capacity	24,445			27,590			36,920			43,235		
Rated Air Flow (CFM ¹)	1,300			1,400			1,750			1,900		

¹CFM=Cubic Feet per Minute

Sensible heat ratios based upon ANSI/AHRI std. 390 outdoor air conditions of 95°F (35°C) and 80°F DB/67° WB (26.5°C DB/19.5°C WB) return air.

Stage 2 Cooling Performance (BTUH) at Various Outdoor Temperatures

Model Number	Outdoor Temperature											
	75°F / 24°C	80°F / 26.5°C	85°F / 29°C	90°F / 32°C	95°F / 35°C	100°F / 38°C	105°F / 40.5°C	110°F / 43.3°C	115°F / 46.1°C	120°F / 48.9°C	125°F / 51.7°C	130°F / 54.4°C
HVESA36AC	40,600	39,200	37,800	36,400	35,000	33,600	32,200	30,800	30,100	29,470	28,840	28,210
HVESA42AC	45,240	43,680	42,120	40,560	39,000	37,440	35,880	34,320	33,540	32,840	32,135	31,435
HVESA49AC	54,520	52,640	50,760	48,880	47,000	45,120	43,240	41,360	40,420	39,575	38,730	37,880
HVESA60AC	64,960	62,720	60,480	58,240	56,000	53,760	51,520	49,280	48,160	47,150	46,145	45,135

Based upon ANSI/AHRI std. 390 return air conditions of 80°F DB/67° WB (26.5°C DB/19.5°C WB) at various outdoor temperatures.

Air Flow (Cubic Feet per Minute) Models HVEA and HVESA

MODEL	External Static Pressure (WET COIL)					
	0.10	0.20	0.25	0.30	0.40	0.50
HVEA24	800	770	725	680	600	500
HVEA30	1200	1100	1050	1000	900	800
HVEA36/HVESA36	1290	1170	1115	1060	1000	920
HVEA42/HVESA42	1500	1360	1295	1230	1160	1070
HVEA48/HVESA48	1900	1800	1700	1600	1500	1350
HVEA60/HVESA60	2200	2100	2000	1900	1800	1650

Air flow ratings of 208-230v. Units are at 230v. Air flow ratings of 480 v. units are at 460 volts. Operation of units at a different voltage from the rating point will affect air flow.

Electrical Characteristics - Compressor, Fan & Blower Motors - HVESA Air Conditioners with 2-Stage Compressor

BASIC MODEL	COMPRESSOR				OTHER MOTORS	OUTDOOR FAN			INDOOR BLOWER		VENTILATION				
	VOLTS / HZ / PH		RLA ¹	LRA ²		VOLTS / HZ / PH		RPM ³	FLA ⁴	HP ⁵	FLA ⁴	HP ⁵	GREENWHEEL® ERV		GREENCUBE™ ERV
											AMPS		AMPS		
											OAM ⁶	EXM ⁷	WD ⁸	OAM ⁶	EXM ⁷
HVESA36ACA	208/230-60-1	15.2	83.0	208/230-60-1	825	2.8	1/3	2.8	1/2	1.0	1.0	0.2	0.7	0.4	
HVESA42ACA	208/230-60-1	17.9	96.0	208/230-60-1	825	2.8	1/3	2.8	1/2	1.0	1.0	0.2	0.7	0.4	
HVESA49ACA	208/230-60-1	21.1	104.0	208/230-60-1	825	2.8	1/2	4.3	3/4	1.0	1.0	0.2	0.7	0.4	
HVESA60ACA	208/230-60-1	27.1	152.9	208/230-60-1	825	2.8	1/2	4.3	3/4	1.0	1.0	0.2	0.7	0.4	
HVESA36ACC	208/230-60-3	11.6	73.0	208/230-60-1	825	2.8	1/3	2.8	1/2	1.0	1.0	0.2	0.7	0.4	
HVESA42ACC	208/230-60-3	14.1	88.0	208/230-60-1	825	2.8	1/3	2.8	1/2	1.0	1.0	0.2	0.7	0.4	
HVESA49ACC	208/230-60-3	14.0	83.1	208/230-60-1	825	2.8	1/2	4.3	3/4	1.0	1.0	0.2	0.7	0.4	
HVESA60ACC	208/230-60-3	16.5	110.0	208/230-60-1	825	2.8	1/2	4.3	3/4	1.0	1.0	0.2	0.7	0.4	
HVESA36ACD	460-60-3	5.7	38.0	208/230-60-1	825	2.8	1/3	2.8	1/2	1.0	1.0	0.2	0.7	0.4	
HVESA42ACD	460-60-3	6.2	44.0	208/230-60-1	825	2.8	1/3	2.8	1/2	1.0	1.0	0.2	0.7	0.4	
HVESA49ACD	460-60-3	6.4	41.0	208/230-60-1	825	2.8	1/2	4.3	3/4	1.0	1.0	0.2	0.7	0.4	
HVESA60ACD	460-60-3	7.2	52.0	208/230-60-1	825	2.8	1/2	4.3	3/4	1.0	1.0	0.2	0.7	0.4	

¹RLA = Rated Load Amps ²LRA = Locked Rotor Amps ³RPM = Revolutions per Minute ⁴FLA = Full Load Amps ⁵HP = Horsepower

⁶OAM = Outdoor Air Motor (ventilation) ⁷EXM = Exhaust Air Motor (ventilation) ⁸WD = GreenWheel drive motor

The 460 volt units have a step down transformer for the 230 volt motors.

Summary Electrical Ratings (Wire and Circuit Breaker Sizing) - HVESA Air Conditioners with Two Stage Compressor and Ventilation Configuration: GreenWheel® Energy Recovery Ventilator - Ventilation Configuration ("H")

ELECTRIC HEAT		000 = None		040 = 4 kw		050 = 5 kw		060 = 6 kw		080 = 8 kw		090 = 9 kw		100 = 10 kw		120 = 12 kw		150 = 15 kw	
BASIC MODEL	VOLTAGE PHASE / HZ	SPPE ³																	
		MCA ¹	MFS ²																
HVESA36ACA	208/230-1-60	26.8	40	26.8	40	31.0	40	36.3	40	46.6	50			57.1	60	67.5	70	83.1	90
HVESA42ACA	208/230-1-60	30.2	45			31.0	45							57.1	60	67.5	70	83.1	90
HVESA49ACA	208/230-1-60	35.7	50			35.7	50							58.6	60	69.0	70	84.6	90
HVESA60ACA	208/230-1-60	43.2	60			43.2	60							58.6	60	69.0	70	84.6	90
HVESA36ACC	208/230-3-60	22.3	30					23.0	30			32.1	35			41.1	45	50.1	60
HVESA42ACC	208/230-3-60	25.4	35					25.4	35			32.1	35			41.1	45	50.1	60
HVESA49ACC	208/230-3-60	26.8	40					26.8	40			33.6	40			42.6	50	51.6	60
HVESA60ACC	208/230-3-60	29.9	45					29.9	45			33.6	45			42.6	50	51.6	60
HVESA36ACD	460-3-60	11.0	15					11.5	15			16.0	20			20.5	25	25.0	25
HVESA42ACD	460-3-60	11.7	15					11.7	15			16.0	20			20.5	25	25.0	25
HVESA49ACD	460-3-60	12.7	15					12.7	15			16.8	20			21.3	25	25.8	30
HVESA60ACD	460-3-60	13.7	20					13.7	20			16.8	20			21.3	25	25.8	30

¹MCA = Minimum Circuit Ampacity (Wiring Size Amps) ²MFS = Maximum Fuse or HACR Breaker Size ³SPPE = Single Point Power Entry

MCA & MFS are calculated at 230 volts on the ACA & ACC models. The 460 volts ACD models are calculated at 460 volts. This chart should only be used as a guideline for estimating conductor size and overcurrent protection. For the requirements of specific units, always refer to the data label on the unit.

Summary Electrical Ratings (Wire and Circuit Breaker Sizing) - HVESA Air Conditioners with Two Stage Compressor and Ventilation Configuration: GreenCube™ Energy Recovery Ventilator - Ventilation Configuration ("Q")

ELECTRIC HEAT		000 = None		040 = 4 kw		050 = 5 kw		060 = 6 kw		080 = 8 kw		090 = 9 kw		100 = 10 kw		120 = 12 kw		150 = 15 kw	
BASIC MODEL	VOLTAGE PHASE / HZ	SPPE ³																	
		MCA ¹	MFS ²																
HVESA36ACA	208/230-1-60	24.9	40	24.9	40	29.9	40	35.2	40	45.5	50			56.0	60	66.4	70	82.0	90
HVESA42ACA	208/230-1-60	28.3	45			29.9	45							56.0	60	66.4	70	82.0	90
HVESA49ACA	208/230-1-60	34.7	50			34.7	50							57.5	60	67.9	70	83.5	90
HVESA60ACA	208/230-1-60	42.2	60			42.2	60							57.5	60	67.9	70	83.5	90
HVESA36ACC	208/230-3-60	20.4	30					21.9	30			31.0	35			40.0	40	49.1	50
HVESA42ACC	208/230-3-60	23.5	35					23.5	35			31.0	35			40.0	40	49.1	50
HVESA49ACC	208/230-3-60	25.8	35					25.8	35			32.5	35			41.5	45	50.5	60
HVESA60ACC	208/230-3-60	28.9	45					28.9	45			32.5	45			41.5	45	50.5	60
HVESA36ACD	460-3-60	10.1	15					11.0	15			15.5	20			20.0	20	24.5	25
HVESA42ACD	460-3-60	10.7	15					11.0	15			15.5	20			20.0	20	24.5	25
HVESA49ACD	460-3-60	12.2	15					12.2	15			16.2	20			20.7	25	25.2	30
HVESA60ACD	460-3-60	13.2	20					13.2	20			16.2	20			20.7	25	25.2	30

¹MCA = Minimum Circuit Ampacity (Wiring Size Amps) ²MFS = Maximum Fuse or HACR Breaker Size ³SPPE = Single Point Power Entry

MCA & MFS are calculated at 230 volts on the ACA & ACC models. The 460 volts ACD models are calculated at 460 volts. This chart should only be used as a guideline for estimating conductor size and overcurrent protection. For the requirements of specific units, always refer to the data label on the unit.

Unit Load Amps - HVESA Air Conditioners with Two Stage Compressor and Ventilation Configuration: GreenWheel® Energy Recovery Ventilator ("H")

BASIC MODEL NUMBER	VOLTAGE PHASE / HZ	CURRENT AMPS			LOAD OF RESISTIVE HEATING - ELEMENTS ONLY (AMPS) (1) ALL HEATING ELEMENTS ARE ON A SEPARATE CIRCUIT (2) SHADED VALUES (12 & 15 kW) UTILIZE TWO CIRCUITS										TOTAL MAXIMUM HEATING AMPS INCLUDES AMPS FROM MOTOR(S) THAT ARE LOCATED ON AN ELECTRICAL CIRCUIT THAT DOES NOT HAVE HEATERS													
		AC ¹	IBM ²	H ³	04 kW	05 kW	06 kW	08 kW	09 kW	10 kW	12 kW	15 kW	04 Kw	05 Kw	06 Kw	08 Kw	09 Kw	10 Kw	12 Kw	15 Kw	04 Kw	05 Kw	06 Kw	08 Kw	09 Kw	10 Kw	12 Kw	15 Kw
HVESA36ACA	208/230-1-60	23.0	2.8	2.2	16.7	20.8	25.0	33.3		41.7	50.0	62.5	21.7	25.8	30.0	38.3		46.7	55.0	67.5								
HVESA42ACA	208/230-1-60	25.7	2.8	2.2		20.8				41.7	50.0	62.5		25.8				46.7	55.0	67.5								
HVESA49ACA	208/230-1-60	30.4	4.3	2.2		20.8				41.7	50.0	62.5		27.3				48.2	56.5	69.0								
HVESA60ACA	208/230-1-60	36.4	4.3	2.2		20.8				41.7	50.0	62.5		27.3				48.2	56.5	69.0								
HVESA36ACC	208/230-3-60	18.4	2.8	2.2			14.4		21.7		28.9	36.1			19.4		26.7		33.9	41.1								
HVESA42ACC	208/230-3-60	21.9	2.8	2.2			14.4		21.7		28.9	36.1			19.4		26.7		33.9	41.1								
HVESA49ACC	208/230-3-60	23.3	4.3	2.2			14.4		21.7		28.9	36.1			20.9		28.2		35.4	42.6								
HVESA60ACC	208/230-3-60	25.8	4.3	2.2			14.4		21.7		28.9	36.1			20.9		28.2		35.4	42.6								
HVESA36ACD	460-3-60	9.6	1.4	1.1			7.2		10.8		14.4	18.0			9.7		13.3		16.9	20.5								
HVESA42ACD	460-3-60	10.1	1.4	1.1			7.2		10.8		14.4	18.0			9.7		13.3		16.9	20.5								
HVESA49ACD	460-3-60	10.3	2.2	1.1			7.2		10.8		14.4	18.0			10.5		14.1		17.7	21.3								
HVESA60ACD	460-3-60	11.1	2.2	1.1			7.2		10.8		14.4	18.0			10.5		14.1		17.7	21.3								

¹AC = Air Conditioner Unit Amps ²IBM = Indoor Blower Motor ³H = GreenWheel ERV

Heating kW is rated at 240 volts on the ACA & ACC models. Derate heater output by 25% for operation at 208 volts. Heating kW is rated at 480 volts on the ACD models.

Total heating and cooling amps includes all motors. Three phase models contain single phase motor loads. Loads are not equally balanced on each phase and values shown are maximum phase loads..

Unit Load Amps - HVESA Air Conditioners with Two Stage Compressor and Ventilation Configuration: GreenCube™ Energy Recovery Ventilator ("Q")

BASIC MODEL NUMBER	VOLTAGE PHASE / HZ	CURRENT AMPS			LOAD OF RESISTIVE HEATING - ELEMENTS ONLY (AMPS) (1) ALL HEATING ELEMENTS ARE ON A SEPARATE CIRCUIT (2) SHADED VALUES (12 & 15 kW) UTILIZE TWO CIRCUITS										TOTAL MAXIMUM HEATING AMPS INCLUDES AMPS FROM MOTOR(S) THAT ARE LOCATED ON AN ELECTRICAL CIRCUIT THAT DOES NOT HAVE HEATERS													
		AC ¹	IBM ²	Q ³	04 kW	05 kW	06 kW	08 kW	09 kW	10 kW	12 kW	15 kW	04 Kw	05 Kw	06 Kw	08 Kw	09 Kw	10 Kw	12 Kw	15 Kw	04 Kw	05 Kw	06 Kw	08 Kw	09 Kw	10 Kw	12 Kw	15 Kw
HVESA36ACA	208/230-1-60	21.1	2.8	1.1	16.7	20.8	25.0	33.3		41.7	50.0	62.5	20.6	24.7	28.9	37.2		45.6	53.9	66.4								
HVESA42ACA	208/230-1-60	23.8	2.8	1.1		20.8				41.7	50.0	62.5		24.7				45.6	53.9	66.4								
HVESA49ACA	208/230-1-60	29.4	4.3	1.1		20.8				41.7	50.0	62.5		26.2				47.1	55.4	67.9								
HVESA60ACA	208/230-1-60	35.4	4.3	1.1		20.8				41.7	50.0	62.5		26.2				47.1	55.4	67.9								
HVESA36ACC	208/230-3-60	17.5	2.8	1.1			14.4		21.7		28.9	36.1			18.3		25.6		32.8	40.0								
HVESA42ACC	208/230-3-60	20.0	2.8	1.1			14.4		21.7		28.9	36.1			18.3		25.6		32.8	40.0								
HVESA49ACC	208/230-3-60	22.3	4.3	1.1			14.4		21.7		28.9	36.1			19.8		27.1		34.3	41.5								
HVESA60ACC	208/230-3-60	24.8	4.3	1.1			14.4		21.7		28.9	36.1			19.8		27.1		34.3	41.5								
HVESA36ACD	460-3-60	8.7	1.4	0.6			7.2		10.8		14.4	18.0			9.2		12.8		16.4	20.0								
HVESA42ACD	460-3-60	9.2	1.4	0.6			7.2		10.8		14.4	18.0			9.2		12.8		16.4	20.0								
HVESA49ACD	460-3-60	10.6	2.2	0.6			7.2		10.8		14.4	18.0			9.9		13.5		17.1	20.7								
HVESA60ACD	460-3-60	11.4	2.2	0.6			7.2		10.8		14.4	18.0			9.9		13.5		17.1	20.7								

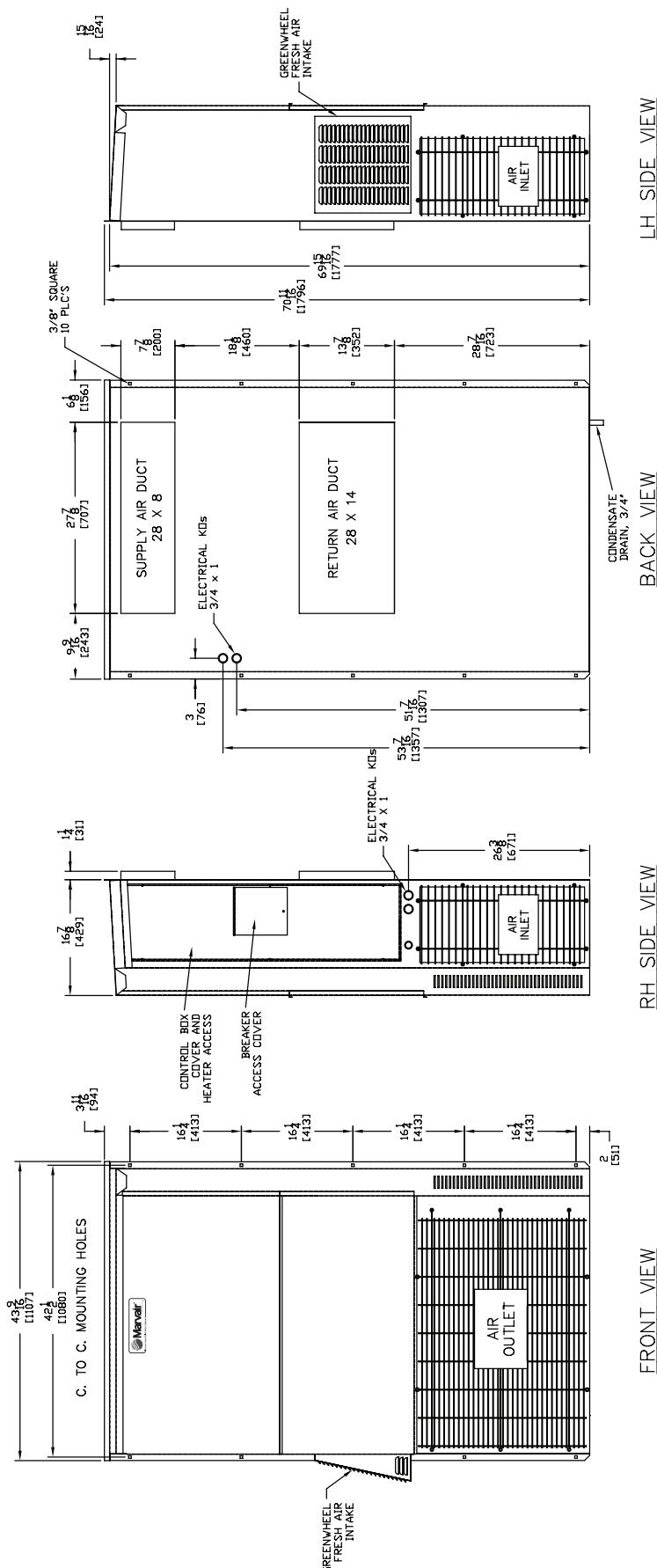
¹AC = Air Conditioner Unit Amps ²IBM = Indoor Blower Motor ³Q = GreenCube ERV

Heating kW is rated at 240 volts on the ACA & ACC models. Derate heater output by 25% for operation at 208 volts. Heating kW is rated at 480 volts on the ACD models.

Total heating and cooling amps includes all motors. Three phase models contain single phase motor loads. Loads are not equally balanced on each phase and values shown are maximum phase loads..

Dimensional Data – AVPA24-36 & HVEA24 GreenPac™ & GreenPac HGR™ A/C

NOTE: Dimensional tolerance $\pm 1/16"$



BOTTOM MOUNTING BRACKET

Shipping Weight (pounds/kilograms)

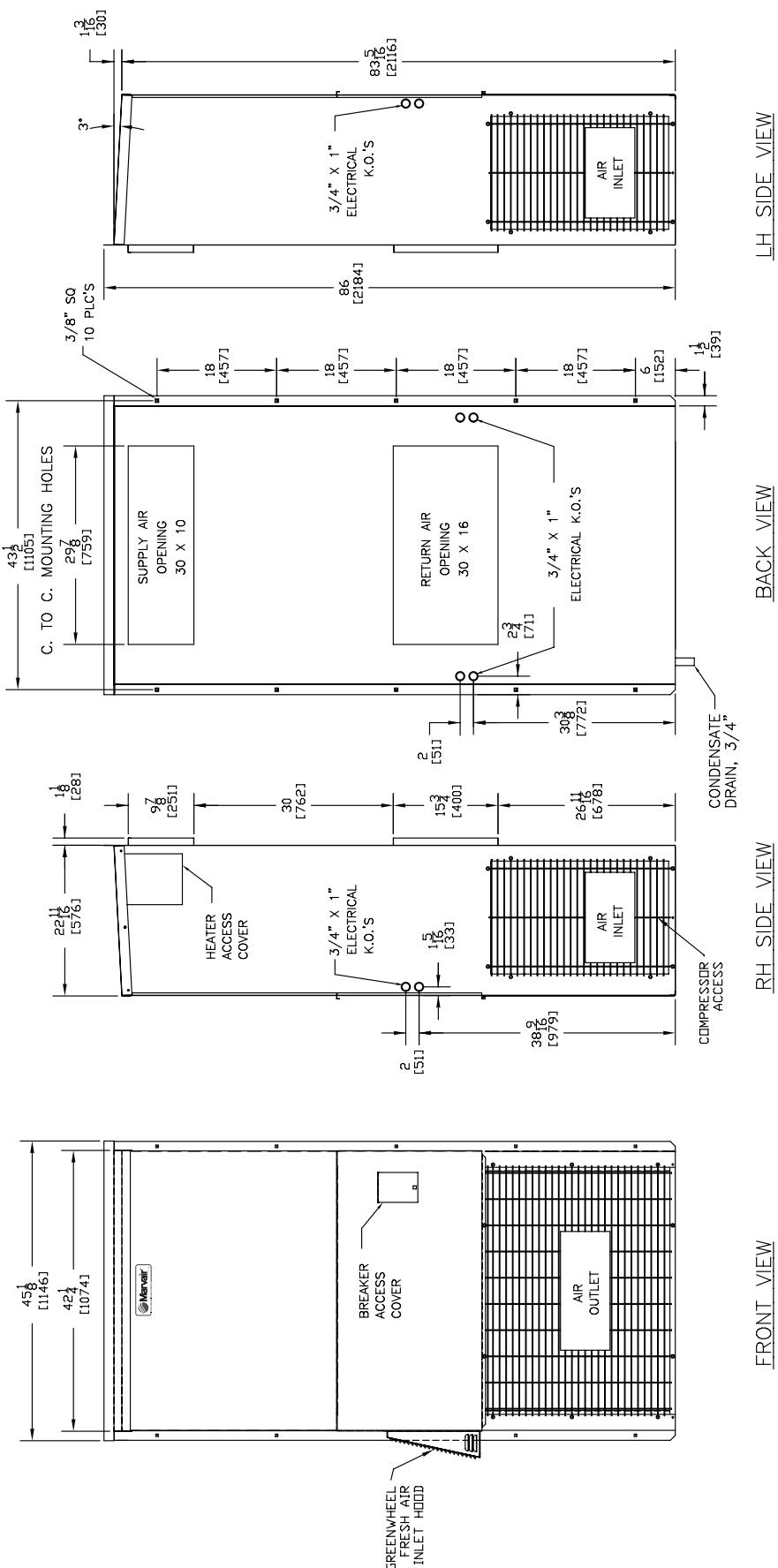
AVPA24-36 & HVEA24 GreenPac & GreenPac HGR	LBS/KGS
	355/170

Filter Size

Filter Size	AVPA24-36 & HVEA24	INCHES	 MILLIMETERS	PART NUMBER	FILTERS PER UNIT	MERV RATING
RETURN AIR FILTER	27½ x 13½ x 1	699 x 343 x 25	80769	1	7	
INTAKE AIR FILTER	14 x 14 x 1	356 x 356 x 25	80192	1	N/A	

Dimensional Data – AVPA42-60 & HVEA30-36-42 & HVESA36-42 GreenPac™ & GreenPac HGR™ A/C

NOTE: Dimensional tolerance $\pm 1/16"$



Shipping Weight (pounds/kilograms)

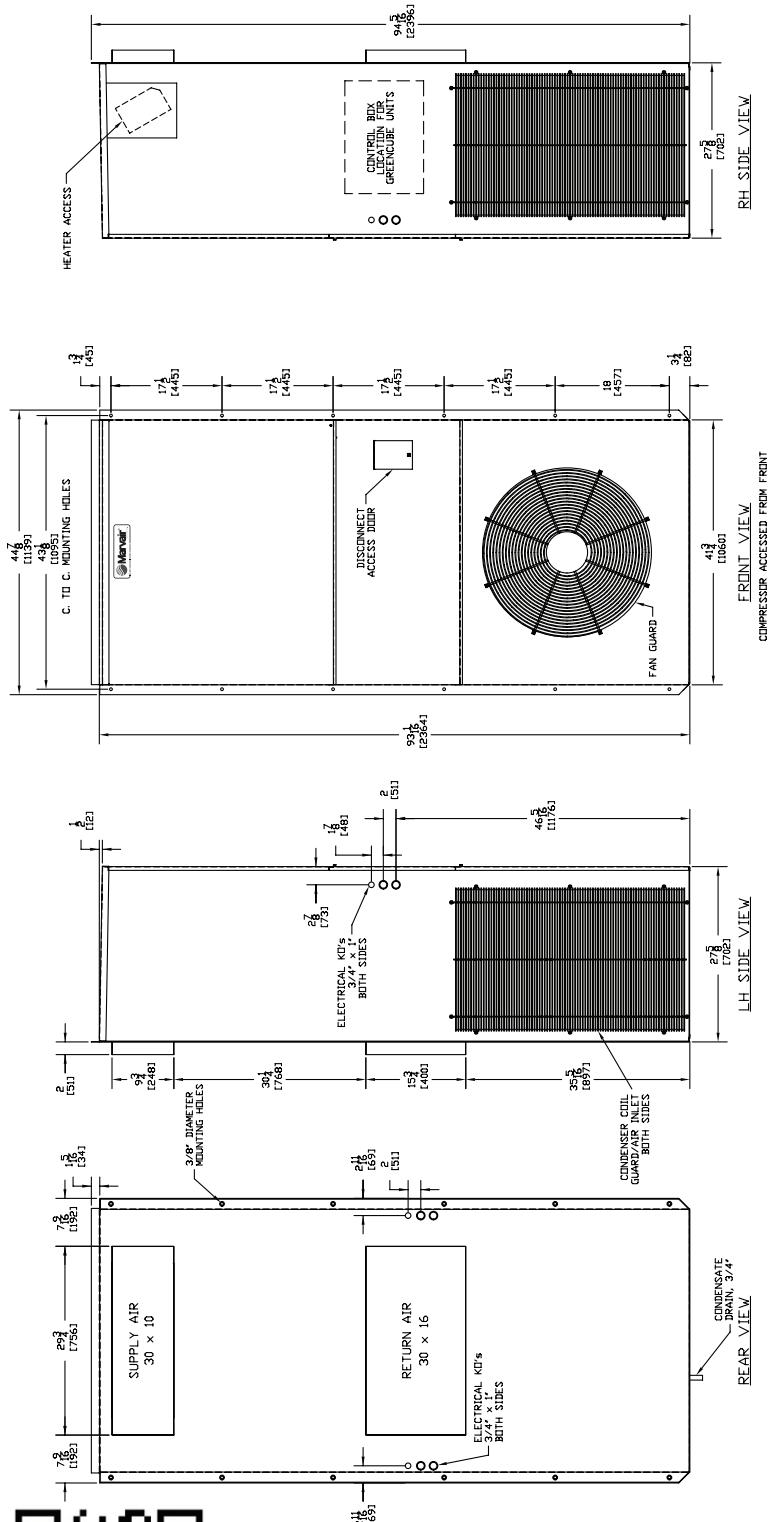
	LBS/KGS
AVPA42-60, HVEA30-42, & HVESA30-42 with GreenWheel® ERV	590/269

Filter Size

INCHES	MMILLIMETERS	PART NUMBER	FILTERS PER UNIT	MERV RATING
.375dia (6 PLC's)	38 [98]			
21 1/2 x 36 1/2 x 2	546 x 927 x 51	80162	1	7
14 x 14 x 1	356 x 356 x 25	80192	1	N/A

Dimensional Data - HVEA49-60 & HVESA49-60 GreenPac & GreenPac HGR A/C

NOTE: Dimensional tolerance $\pm 1/16"$



Shipping Weight (pounds/kilograms)

HVEA49/60 & HVESA with GreenWheel® ERV or GreenCube ERV	LBS/KGS
810/369	

Filter Size

Part Number	Millimetres	Inches	Model	MERV Rating
92367	406 x 610 x 25	16 x 24 x 1	HVEA49-60 and HVESA49-60	7
91968	406 x 610 x 51	16 x 24 x 2	RETURN AIR FILTER (opt.)	8
92113	248 x 248 x 19	14 x 14 x 1	INTAKE AIR FILTER	N/A
92113	248 x 248 x 19	14 x 14 x 1	EXHAUST AIR FILTER	N/A

ALL UNITS WITH THE GREENCUBE ERV INCLUDING THE HVEA36 AND HVESA42, ARE IN THE HVESA49/60 CABINET.



Please consult the Marvair® website at www.marvair.com for the latest product literature. Detailed dimensional data is available upon request. A complete warranty statement can be found in each product's Installation/Operation Manual, on our website or by contacting Marvair at 229-273-3636. As part of the Marvair continuous improvement program, specifications are subject to change without notice.



P.O. Box 400 • Cordele, GA 31010
156 Seedling Drive • Cordele, GA 31015
Ph: 229-273-3636 • Fax: 229-273-5154
Email: marvair@airxcel.com • Internet: www.marvair.com