Marvair®
AIRXCEL®, Inc.
ISO 9001 2000 REGISTERED COMPANY

Classic 13 Heat Pumps

High Efficiency Vertical Packaged Heat Pumps
Models HVPA24-30-36-42-49-60 and HVPSA36-42-49-60

General Description

HIGH EFFICIENCY - The Marvair® Classic 13 High Efficiency Series Heat Pumps, Models HVPA24, 30, 36, 42, 49 & 60, feature the highest efficiency rating in a wall mount with the ability to duct the conditioned air. These qualities make the HVPA series ideal for modular classrooms and free standing schools. The scroll compressor, low energy indoor and outdoor air movers, and generous heat transfer coils combine for a unit unsurpassed in energy efficiency.

QUIET - The Classic 13 minimizes sound levels in the classroom. A high efficiency axial fan moves air silently through the outdoor coils. A low vibration, scroll compressor insures quiet operation as well as energy efficiency. The indoor air mover utilizes a revolutionary electronically commutated motor (ECM). This motor consumes a minimum of power with whisper quiet operation. The ECM automatically adjusts its speed to maintain the proper air flow at various external static pressures.

FRESH AIR VENTILATION - The Classic™ heat pumps are available in a wide variety of styles and configurations to meet the various ventilation and cooling requirements. For school classrooms, models are available to comply with the ASHRAE 62-1999 standard, "Ventilation for Acceptable Indoor Air Quality." Where cooling is required during cool or cold weather, e.g., telecommunication shelters, a factory-installed economizer can be used. To ensure proper operation and optimum performance, all outside air ventilation packages and the economizer are non-removable, factory installed and tested.

HVPSA MODELS WITH 2-STAGE COMPRESSORS - The HVPSA models are built with a two stage compressor with a first stage capacity of 65% of the total capacity. The two stage compressor offers better comfort and improved overall energy efficiency. The two stage compressor is able to maintain more precise temperature and relative humidity levels. During mild days, the first stage can satisfy the load, minimizing temperature fluctuations providing steady, even comfort. The Classic heat pump with the two stage high efficiency compressor can provide significant energy savings compared to older, less efficient systems. The cooling mode has two stage operation, heating is single stage.

SAFETY LISTED AND ENERGY CERTIFIED - All Classic heat pumps 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 to the ANSI/ARI (Air-Conditioning and Refrigeration Institute) Standard 390- 2003 (Single Package Vertical Units). All units meet or exceed the efficiency requirements of ANSI/ASHRAE/IESNA 90.1.2007. The Classic heat pumps are commercial units and are not intended for use in residential applications.

Classic™ Heat Pump Features

High Efficiency
- Up to 12.0 EER.
- High efficiency compressor.
- Lanced fins and rifled tubing on many indoor & outdoor coils.
- ECM 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 on 208/230V & 460V units.

Built-in Reliability
- High pressure and loss of charge switches with lockout relay protect refrigerant circuit.
- Time delay for compressor protection.
- One-inch filter is standard. (Two-inch pleated filter is standard on units with the economizer, optional on all others.)

Range of Ventilation Options
- Manual damper capable of up to 15% of rated airflow of outside air; field adjustable, no pressure relief.

Classic™ Heat Pump Features (continued)

- Manual damper capable of 0 to 450 cfm of outside air; field adjustable, no pressure relief.
- Manual damper capable of 0 to 450 cfm of outside air; field adjustable, includes pressure relief.
- Motorized, two position damper (open and closed) capable of 0 to 450 cfm of outside air; includes pressure relief. A 24-volt actuated motor controls the damper from an external input such as: a time clock, CO2 sensor, energy management system or manual switch.
- GreenWheel® total energy recovery ventilator that can recover both sensible and latent heat with efficiencies up to 75%.

Economizer

- Factory-installed economizer provides free cooling when outside conditions are acceptable.

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.)

Hot Gas Reheat

- HGR coil allows the indoor humidity in the classroom to be maintained at or below humidity set point.

Outside Air Ventilation Schedule

Ventilation Package*	Description	Pressure Relief
N	Manual, fixed position damper allows approximately 15% of rated air flow	No
H	GreenWheel® ERV	Yes
B	Two position (open and close) motorized damper	Yes
Y	Manual damper adjustable from 0 to 450 cfm, not to exceed 40% of rated air flow	No
Z	Manual damper adjustable from 0 to 450 cfm, not to exceed 40% of rated air flow	Yes

*See Model Identification Chart.

Economizer

The economizer reduces the cost of air conditioning by using outside air when acceptable to cool the room. The factory installed Marvair® economizer has integral pressure relief. On a signal from a thermostat that cooling is required, either mechanical cooling with the compressor or free cooling with the economizer is provided. The Marvair economizer is capable of bringing in outside air equal to 100% of the rated cooling capacity of the unit and has built in pressure relief.

An internal enthalpy controller determines whether the outside air is sufficiently cool and dry to be used with cooling. If suitable, the compressor is locked out and the economizer damper opens to bring in outside air. The temperature at which the economizer opens is adjustable from 53°F at 50% RH to 78°F at 50% RH. If the outside air becomes too hot or humid, the economizer damper closes completely or to a minimum position and mechanical cooling is activated. When used with minimum position potentiometer (optional), the Marvair® economizer can meet requirements of ASHRAE Std. 62.

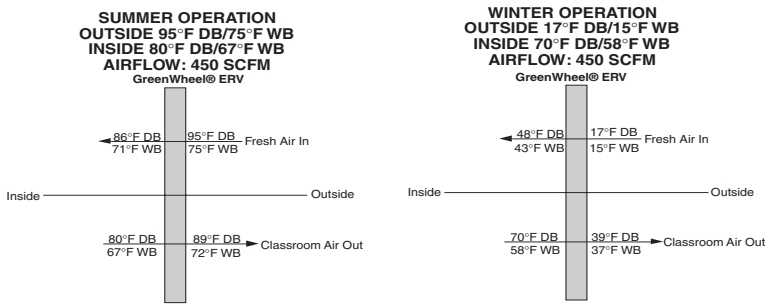
The Marvair® GreenWheel® ERV

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 Marvair GreenWheel ERV 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 wheel, two blowers, an air filter for the outside air 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 permit that the desired quantity of outside air is delivered into the room. Optional independent exhaust air blower control allows positive pressurization of the classroom, i.e., more outside air can be introduced through the GreenWheel ERV than is exhausted.



GreenWheel® ERV Performance

SCFM* of Outside Air	95° DB/73° WB Outside 80° DB/67° WB Inside Energy Conserved, BTUH			95° DB/80° WB Outside 80° DB/67° WB Inside Energy Conserved, BTUH		
	Sensible	Latent	Total	Sensible	Latent	Total
225	2,900	1,100	4,000	2,900	6,400	9,300
250	3,100	1,200	4,300	3,100	6,900	10,000
325	3,700	1,400	5,100	3,700	8,100	11,800
400	4,200	1,500	5,700	4,200	9,100	13,300
450	4,500	1,600	6,100	4,500	9,700	14,200

SCFM* of Outside Air	90° DB/74° WB Outside 75° DB/64° WB Inside Energy Conserved, BTUH			80° DB/70° WB Outside 75° DB/64° WB Inside Energy Conserved, BTUH			60° DB/54° WB Outside 70° DB/58° WB Inside Energy Conserved, BTUH		
	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 Energy Conserved, BTUH			20° DB/18° WB Outside 70° DB/58° WB Inside Energy Conserved, BTUH			0° DB/7° WB Outside 70° DB/58° WB Inside Energy Conserved, BTUH		
	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. A return filter grille is required on all HVPA24 heat pumps with the GreenWheel ERV ventilation option.

Hot Gas Reheat Operation

Marvair® heat pumps equipped with Hot Gas Reheat (HGR) 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.

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.

Classic Heat Pump Options

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

Adjustable Outdoor Thermostat – Will not allow electric resistance heat to be energized unless the outdoor temperature is below the desired set point. Field or factory installed. Available on all Classic™ units.

"S" Circuit – Limits the electric demand by preventing simultaneous operation of the compressor and electric strip heat; requires only one field power circuit in most cases. Factory installed. Available on all Classic™ units.

Low Ambient Cooling Operation Control – Used when cooling is required and outdoor temperatures range from 60°F down to 20°F; control switch cycles outdoor fan to regulate refrigerant pressures. Field or factory installed. Available on all Classic™ units. Standard on units with economizer.

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

Electric Reheat – Control provides simultaneous operation of compressor when in cooling mode and the electric elements to provide dehumidification without over cooling the room. The electric element (kW) must be properly sized for each model for proper operation. Factory installed. Available on all Classic™ units. Consult factory for details.

Hot Gas Reheat - Factory installed Hot Gas Reheat coil (HGR). Permits dehumidification of the fresh and return air without over cooling the classroom. Must be used with either the GreenWheel® ERV or the "B" ventilation configuration. The operation of the HGR coil is controlled by a humidity controller or BAS control.

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

Accessories

Supply Grilles

For HVPA24	28" x 8"	P/N 80675
For HVPA30,36,42,49,60 and HVPSA36,42,49, 60	30" x 10"	P/N 80676

Return Grilles

For HVPA24	28" x 14"	P/N 80678
For HVPA30,36,42,49,60 and HVPSA36,42,49, 60	30" x 16"	P/N 80679

Return Filter Grilles

For HVP24A*	28" x 14"	P/N 80672
For HVPA30,36,42,49,60 and HVPSA36,42,49, 60	30" x 16"	P/N 80673

*A return air filter grille is required on the HVPA24 with the GreenWheel® ERV ventilation option.

Thermostats and Sub-Bases

Note all HVPSA models (2-stage compressor) require a two stage cooling thermostat.

Digital Heat Pump Thermostat (p/n 50107) - two stage heat, two stage cool. Seven day programmable. Programmable fan. Auto-On Fan switch. Auto-changeover. Non-volatile program memory. Status LED's.

Digital Heat Pump Thermostat (p/n 50122) - two stage heat, two stage cool. Non-programmable. Auto-On Fan switch. Manual changeover. Cool-Off-Heat-Emergency Heat System switch. Status LED's.

Internal Electronic Programmable Heat Pump Thermostat (p/n S/02792) (factory installed) with automatic changeover, has two stages of heating and one stage of cooling and a fan switch. System mode switch has OFF, COOL, AUTO, HEAT, and EM.HT. settings. Fan mode switch has OFF and AUTO settings. This thermostat may be used with systems that have no heat, electric resistance, a hot water coil or a steam coil.

Non-Programmable Electronic Heat Pump Thermostat (p/n 50116) has two stage heat, one stage cool. Auto changeover. System switch: OFF, COOL, HEAT, AUTO and EMERGENCY HEAT. Fan switch: AUTO and ON. Lockable keypad.

Programmable Electronic Heat Pump Thermostat (p/n 50100). Seven day programming. Two occupied and two unoccupied periods per day. Individual heat and cool setpoints. Manual or automatic changeover. System switch: OFF, COOL, HEAT, EMERGENCY HEAT. Fan Switch: AUTO and ON. Keypad lockout available. Ventilation terminals. No batteries required. Display indicates when Auxiliary Heat or Emergency Heat are activated. Requires a 50101 subbase.

MAR5000 Energy Management System provides a number of functions while remaining extremely cost sensitive. For a complete description of the operation and features of the MAR5000 EMS, please see the MAR5000 Product Data Sheet. The MAR5000 features:

- Temperature control.
- Dynamic recovery time.
- Run time limitation of air conditioner to minimize energy costs.
- Humidity measurement and direct control of the dehumidification function.
- Seven relays for interfacing with the HVAC system or external devices.
- Ventilation control.
- One dry contact set of inputs enables data feed from any dry contact output device, e.g., a door switch.
- Support for peak load shedding.
- A precise time clock that will keep accurate time for lengthy power outages (at least 2 1/2 weeks).
- Intelligent occupancy and departure anticipation.

Options include:

- Unoccupied continuous fan shutoff.

Classic 13 Heat Pump Model Identification

HVP S A ● HP ● ●● ● ●

High efficiency
Vertical
Package

2 Stage Cooling

R410A Refrigerant

Nominal Cooling
24 = 23,500 BTUH
30 = 30,000 BTUH
36 = 36,000 BTUH
42 = 40,000 BTUH
49 = 50,000 BTUH
60 = 59,000 BTUH

System Type
Heat Pump

Power Supply
A = 208/230V, 1ø, 60Hz
C = 208/230V, 3ø, 60Hz
D = 460V, 3ø, 60Hz

Electric Heat
00 = No Heat
040 = 4 kW
050 = 5 kW
060 = 6 kw
090 = 9 kW
100 = 10 kW
120 = 12 kW
150 = 15 kW

Ventilation Configuration
N = 0-15% fresh air with manual damper, no pressure relief.
Y = 0 to 450 cfm of outside air, field adjustable, manual damper, no pressure relief.
Z = 0 to 450 cfm of outside air, field adjustable, manual damper, includes pressure relief.
B = Motorized two position damper (open & closed) capable of 0 to 450 cfm of outside air, includes pressure relief.
C = Economizer; capable of 100% of rated cooling capacity using outside air.
H = GreenWheel® energy recovery ventilator

Special Option Code
R = Electric Reheat
U = Scroll Compressor
G = HGR (Hot Gas Reheat

HVPA Certified Performance Ratings in accordance with ARI Standard 390

Cooling Rating Points: Outdoor 95°F; Indoor 80°F Dry Bulb/67°F Wet Bulb
Heating Rating Points: Outdoor 47°F Dry Bulb/43°F Wet Bulb and 17°F Dry Bulb/15°F Wet Bulb; Indoor 70°F

	Cooling[1]		Heating[2]				
BASIC MODEL	Cooling (BTUH)	EER	High Temp. Heating @ 47°F		Low Temp. Heating @ 17°F		CFM
			BTUH	COP[3]	BTUH	COP[3]	
HVPA24	23,600	11.00	21,600	3.30	11,500	2.05	800
HVPA30	30,000	11.80	26,000	3.20	14,600	2.05	1,000
HVPA36	36,000	11.20	33,000	3.15	16,600	1.90	1,200
HVPA42	40,000	10.85	36,000	3.25	19,000	1.95	1,200
HVPA49	49,000	12.00	42,000	3.30	23,600	2.05	1,750
HVPA60	59,000	10.80	51,000	3.15	28,000	1.95	1,750

[1]Cooling rated at 95°F outdoor and 80°F (DB) /67°F(WB) indoor
[2]Heating rated at outdoor 47°F dry bulb/43°F wet bulb and 17°F dry bulb/15°F wet bulb and 70°F indoor
[3]COP= Coefficient of Performance
Ratings are with no outside air and at 230v. or 460v. Performance will be affected by altitude.

HVPA Cooling Performance (BTUH) at Various Outdoor Temperatures

MODEL	75°F	80°F	85°F	90°F	95°F	100°F	105°F	110°F	115°F
24	27,260	26,320	25,380	24,440	23,600	22,560	21,620	20,680	20,210
30	34,800	33,600	32,400	31,200	30,000	28,800	27,600	26,400	25,800
36	41,760	40,320	38,880	37,440	36,000	34,560	33,120	31,680	30,960
42	46,400	44,800	43,200	41,600	40,000	38,400	36,800	35,200	34,400
49	58,000	56,000	54,000	52,000	49,000	48,000	46,000	44,000	43,000
60	68,440	66,080	63,720	61,360	59,000	56,640	54,280	51,920	50,740

Cooling capacity based on 80°F Dry Bulb/67°F Wet Bulb Return air temperatures at various outdoor ambient temperatures at rated CFM

HVPA Heating Performance (BTUH) at Various Outdoor Temperatures

MODEL	10°F	17°F	20°F	30°F	40°F	47°F	50°F	60°F	70°F
24	9,775	11,500	12,510	16,045	19,075	21,600	22,248	23,220	24,300
30	12,410	14,600	15,740	19,370	23,150	26,000	26,780	27,950	29,250
36	14,110	16,600	18,240	23,980	28,900	33,000	33,990	35,475	37,125
42	16,150	19,000	20,700	26,650	31,750	36,000	37,080	38,700	40,500
49	20,060	23,600	25,440	31,880	37,400	42,000	43,260	45,150	47,250
60	23,800	28,000	30,300	38,350	45,250	51,000	52,530	54,825	57,375

Heating capacity based on 70°F Dry Bulb Return air temperatures at various outdoor ambient temperatures at rated CFM

HVPA Sensible/Total Ratio

MODEL	24	30	36	42	49	60
Total Capacity	23,600	30,000	36,000	40,000	49,000	59,000
Sensible Heat Ratio	0.74	0.71	0.72	0.69	0.74	0.70
Sensible Capacity	17,400	21,193	26,000	27,720	36,290	41,230
Rated CFM	800	1,000	1,200	1,200	17,500	1,750
Sensible ratios based upon ARI standard 390 return air conditions of 80°F Dry Bulb/67°F Wet Bulb Return air and 95°F Dry Bulb Outside Air						

HVPA Summary Ratings (Wire Sizing) - Options N, Y, Z, B & C

BASIC MODEL	No Heat		4 kW		5 kW				6 kW				8 kW				9 kW		10 kW				12 kW				15 kW			
	CKT #1		CKT #1		CKT #1		CKT #2		CKT #1		CKT #2		CKT #1		CKT #2		CKT #1		CKT #1		CKT #2		CKT #1		CKT #2		CKT #1		CKT #2	
	MCA	MFS	MCA	MFS	MCA	MFS	MCA	MFS	MCA	MFS	MCA	MFS	MCA	MFS	MCA	MFS	MCA	MFS	MCA	MFS	MCA	MFS	MCA	MFS	MCA	MFS	MCA	MFS	MCA	MFS
HVPA24HPA	21.4	30	42.2	45	47.4	50			52.6	60									47.4	50	26.0	30								
HVPA30HPA	21.6	30			47.6	50			52.9	60									47.6	50	26.0	30	42.5	45	41.6	45	47.6	50	52.1	60
HVPA36HPA	26.4	40			52.4	60			57.6	60									52.4	60	26.0	30	47.2	50	41.6	45	52.4	60	52.1	60
HVPA42HPA*	29.5	45			29.5	45	26.0	30					50.4	60	20.9	25			29.5	45	52.1	60	29.5	45	41.6	45	29.5	45	52.1	60
HVPA49HPA*	34.4	50			34.4	50	26.0	30											34.4	50	52.1	60	34.4	50	41.6	45	34.4	50	52.1	60
HVPA60HPA*	39.9	60			39.9	60	26.0	30											39.9	60	52.1	60	39.9	60	41.6	45	39.9	60	52.1	60
HVPA24HPC	14.2	20							32.2	35							41.4	45												
HVPA30HPC	16.0	20							34.0	40							43.1	45					52.1	60			16.0	20	45.1	50
HVPA36HPC	18.6	25							36.6	40							45.7	50					54.7	60			18.6	25	45.1	50
HVPA42HPC	24.0	35							41.6	45							51.1	60					24.0	35	36.1	40	24.0	35	45.1	50
HVPA49HPC	24.2	35															51.4	60					24.2	35	36.1	40	24.2	35	45.1	50
HVPA60HPC	26.6	40															53.7	60					26.6	40	36.1	40	26.6	40	45.1	50
HVPA24HPD	7.3	15							16.3	20							20.8	25									29.8	30		
HVPA30HPD	9.2	15							18.2	20							22.2	25					27.2	30			31.7	35		
HVPA36HPD	10.1	15							19.1	20							23.6	25					28.1	30			32.6	35		
HVPA42HPD	11.1	15							20.1	25							24.6	25					29.1	30			33.6	35		
HVPA49HPD	11.3	15															24.8	25					29.3	30			33.8	35		
HVPA60HPD	13.2	20															26.7	30					31.2	35			35.7	40		

The above chart should be used as a general guideline for estimating conductor size and overcurrent protection for the unit models listed. For specific requirements, refer to the data label attached to the unit cabinet. Heat kW shown at 240V for HPA and HPC models. Heat kW shown at 480V for HPD models. MCA and MFS calculated at 240V for HPA and HPC models and at 480V for HPD models. *Denotes all electric heat on circuit #2. For 15 kW units maximum allowable electric heat to operate simultaneously with compressor is 10 kW located on the second circuit.
MCA = Minimum Circuit Ampacity (Wiring Size Amps) MFS = Maximum External Fuse or External HACR Circuit Breaker Size.

HVPA Summary Ratings (Wire Sizing) - Option H

	No Heat		4 kW		5 kW				6 kW				8 kW				9 kW		10 kW				12 kW				15 kW			
	CKT #1		CKT #1		CKT #1		CKT #2		CKT #1		CKT #2		CKT #1		CKT #2		CKT #1		CKT #1		CKT #2		CKT #1		CKT #2		CKT #1		CKT #2	
BASIC MODEL	MCA	MFS	MCA	MFS	MCA	MFS	MCA	MFS	MCA	MFS	MCA	MFS	MCA	MFS	MCA	MFS	MCA	MFS	MCA	MFS	MCA	MFS	MCA	MFS	MCA	MFS	MCA	MFS	MCA	MFS
HVPA24HPA	23.6	35	44.4	45	49.6	50			54.8	60									49.6	50	26.0	30								
HVPA30HPA	23.8	30			49.8	50			55.1	60									49.8	50	26.0	30	44.7	45	41.6	45	49.8	50	52.1	60
HVPA36HPA	28.6	40			54.6	60			59.8	60									54.6	60	26.0	30	49.4	50	41.6	45	54.6	60	52.1	60
HVPA42HPA*	31.7	45			31.7	45	26.0	30					52.6	60	20.9	25			31.7	45	52.1	60	31.7	45	41.6	45	31.7	45	52.1	60
HVPA49HPA*	36.6	50			36.6	50	26.0	30											36.6	50	52.1	60	36.6	50	41.6	45	36.6	50	52.1	60
HVPA60HPA*	41.1	60			41.1	60	26.0	30											41.1	60	52.1	60	41.1	60	41.6	45	41.1	60	52.1	60
HVPA24HPC	16.4	20							34.4	35							43.6	45												
HVPA30HPC	18.2	20							36.2	40							45.3	45					54.3	60			18.2	20	45.1	50
HVPA36HPC	20.8	25							38.8	40							47.9	50					56.9	60			20.8	25	45.1	50
HVPA42HPC	26.2	35							43.8	45							53.3	60					26.2	35	36.1	40	26.2	35	45.1	50
HVPA49HPC	26.4	35															53.6	60					26.4	35	36.1	40	26.4	35	45.1	50
HVPA60HPC	28.8	40															55.9	60					28.8	40	36.1	40	28.8	40	45.1	50
HVPA24HPD	8.4	15							17.4	20							21.9	25									30.9	35		
HVPA30HPD	10.3	15							19.3	20							23.3	25					28.3	30			32.8	35		
HVPA36HPD	11.2	15							20.2	20							24.7	25					29.2	30			33.7	35		
HVPA42HPD	12.2	15							21.2	25							25.7	30					30.2	35			34.7	35		
HVPA49HPD	12.4	15															25.9	30					30.4	35			34.9	35		
HVP60HPD	14.3	20															27.8	30					32.3	35			36.8	40		

The above chart should be used as a general guideline for estimating conductor size and overcurrent protection for the unit models listed. For specific requirements, refer to the data label attached to the unit cabinet. Heat kW shown at 240V for HPA and HPC models. Heat kW shown at 480V for HPD models. MCA and MFS calculated at 240V for HPA and HPC models and at 480V for HPD models. *Denotes all electric heat on circuit #2. For 15 kW units maximum allowable electric heat to operate simultaneously with compressor is 10 kW located on the second circuit.
MCA = Minimum Circuit Ampacity (Wiring Size Amps) MFS = Maximum External Fuse or External HACR Circuit Breaker Size.

HVPA "S" Circuit Summary Ratings (Wire Sizing) Options N, Y, Z, B & C

	No Heat		4 kW		5 kW				6 kW				8 kW				9 kW		10 kW				12 kW				15 kW			
	CKT #1		CKT #1		CKT #1		CKT #2		CKT #1		CKT #2		CKT #1		CKT #2		CKT #1		CKT #1		CKT #2		CKT #1		CKT #2		CKT #1		CKT #2	
BASIC MODEL	MCA	MFS	MCA	MFS	MCA	MFS	MCA	MFS	MCA	MFS	MCA	MFS	MCA	MFS	MCA	MFS	MCA	MFS	MCA	MFS	MCA	MFS	MCA	MFS	MCA	MFS	MCA	MFS	MCA	MFS
HVPA24HPA	21.4	30	23.7	30	28.8	30			34.1	35			44.4	45					54.9	60										
HVPA30HPA	21.6	30			28.8	30			34.1	35									54.9	60			23.7	30	41.6	45	28.8	30	52.1	60
HVPA36HPA	26.4	40			28.8	40			34.1	40									54.9	60			26.4	40	41.6	45	26.4	40	52.1	60
HVPA42HPA	29.5	45			30.3	45							45.9	50					56.4	60			29.5	45	41.6	45	30.3	45	52.1	60
HVPA49HPA	34.4	50			34.4	50													56.4	60			34.4	50	41.6	45	34.4	50	52.1	60
HVPA60HPA	39.9	60			39.9	60													56.4	60			39.9	60	41.6	45	39.9	60	52.1	60
HVPA24HPC	14.2	20							20.8	25							29.9	30												
HVPA30HPC	16.0	20							20.8	25							29.9	30					38.9	40			47.9	50		
HVPA36HPC	18.6	25							22.1	30							29.9	30					38.9	40			47.9	50		
HVPA42HPC	24.0	35							24.0	35							31.4	35					40.4	45			49.4	50		
HVPA49HPC	24.2	35															31.4	35					40.4	45			49.4	50		
HVPA60HPC	26.6	40															31.4	40					40.4	45			49.4	50		
HVPA24HPD	7.3	15							10.4	15							14.9	15									23.9	25		
HVPA30HPD	9.2	15							10.4	15							14.9	15					19.4	20			23.9	25		
HVPA36HPD	10.1	15							10.4	15							14.9	15					19.4	20			23.9	25		
HVPA42HPD	11.1	15							11.2	15							15.7	20					20.2	25			24.7	25		
HVPA49HPD	11.3	15							11.3	15							15.7	20					20.2	25			24.7	25		
HVPA60HPD	13.2	20							13.2	20							15.7	20					20.2	25			24.7	25		

"S" denotes "S" Circuit - this control configuration limits the electric demand by preventing simultaneous operation of the heat pump and electric heat and requires only one field power circuit. The above chart should be used as a general guideline for estimating conductor size and overcurrent protection for the unit models listed. For specific requirements, refer to the data label attached to the unit cabinet. Heat kW shown at 240V for HPA and HPC models and at 480V for HPD models. MCA and MFS calculated at 240V for HPA and HPC models and at 480V for HPD models.
MCA = Minimum Circuit Ampacity (Wiring Size Amps) MFS = Maximum External Fuse or External HACR Circuit Breaker Size.

HVPA Unit Load Amps

BASIC MODEL	VOLTS/ PH/HZ	CURRENT (AMPS)		LOAD OF RESISTIVE HEATING ELEMENTS (AMPS)								TOTAL MAXIMUM HEATING LOAD (AMPS)							
		HEAT PUMP INCLUDES IBM	INDOOR BLOWER	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
HVPA24HPA	208-230/1/60	18.0	2.8	16.7	20.8	25.0	33.3		41.7			34.7	38.8	43.0	51.3		59.7		
HVPA30HPA	208-230/1/60	18.4	2.8		20.8	25.0			41.7	50.0	62.5		39.2	43.4			60.1	68.4	80.9
HVPA36HPA	208-230/1/60	22.2	2.8		20.8	25.0			41.7	50.0	62.5		43.0	47.2			63.9	72.2	84.7
HVPA42HPA	208-230/1/60	25.0	4.3		20.8		33.3		41.7	50.0	62.5		45.8		58.3		66.7	75.0	87.5
HVPA49HPA	208-230/1/60	28.9	4.3		20.8				41.7	50.0	62.5		49.7				70.6	78.9	91.4
HVPA60HPA	208-230/1/60	33.3	4.3		20.8				41.7	50.0	62.5		54.1				75.0	83.3	95.8
HVPA24HPC	208-230/3/60	12.3	2.8			14.4		21.7		28.9	36.1			26.7		34.0		41.2	48.4
HVPA30HPC	208-230/3/60	13.9	2.8			14.4		21.7		28.9	36.1			28.3		35.6		42.8	50.0
HVPA36HPC	208-230/3/60	17.5	2.8			14.4		21.7		28.9	36.1			31.9		39.2		46.4	53.6
HVPA42HPC	208-230/3/60	20.6	4.3			14.4		21.7		28.9	36.1			35.0		42.3		49.5	56.7
HVPA49HPC	208-230/3/60	20.8	4.3			14.4		21.7		28.9	36.1			35.2		42.5		49.7	56.9
HVPA60HPC	208-230/3/60	22.7	4.3			14.4		21.7		28.9	36.1			37.1		44.4		51.6	58.8
HVPA24HPD	460/3/60	6.3	1.4			7.2		10.8		14.4	18.0			13.5		17.1		20.7	24.3
HVPA30HPD	460/3/60	7.9	1.4			7.2		10.8		14.4	18.0			15.1		18.7		22.3	25.9
HVPA36HPD	460/3/60	8.6	1.4			7.2		10.8		14.4	18.0			15.8		19.4		23.0	26.6
HVPA42HPD	460/3/60	9.6	2.2			7.2		10.8		14.4	18.0			16.8		20.4		24.0	27.6
HVPA49HPD	460/3/60	9.8	2.2			7.2		10.8		14.4	18.0			17.0		20.6		24.2	27.8
HVPA60HPD	460/3/60	11.3	2.2			7.2		10.8		14.4	18.0			18.5		22.1		25.7	29.3

Heating kW shown for 240V for all HPA and HPC models. Derate by 25% for 208V service. Total heating amps for all HPA (208/230V 1ø) units with 8 kW and larger includes both circuits (#1 and #2). Heating kW shown for 480 for all HPD models. NOTE: Three phase equipment (HPC and HPD models) contain single-phase motor loads. Values shown are maximum phase loads. Loads are not equally balanced on each phase. Total heating amps includes motor loads.

HVPA "S" Circuit Unit Load Amps

BASIC MODEL	VOLTS/ PH/HZ	CURRENT (AMPS)		LOAD OF RESISTIVE HEATING ELEMENTS (AMPS)								TOTAL MAXIMUM HEATING LOAD (AMPS)							
		HEAT PUMP INCLUDES IBM	INDOOR BLOWER	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
HVPA24HPA	208-230/1/60	18.0	2.8	16.7	20.8	25.0	33.3		41.7			19.5	23.6	27.8	36.1		44.5		
HVPA30HPA	208-230/1/60	18.4	2.8		20.8	25.0			41.7	50.0	62.5		23.6	27.8			44.5	52.8	65.3
HVPA36HPA	208-230/1/60	22.2	2.8		20.8	25.0			41.7	50.0	62.5		23.6	27.8			44.5	52.8	65.3
HVPA42HPA	208-230/1/60	25.0	4.3		20.8		33.3		41.7	50.0	62.5		25.1		37.6		46.0	54.3	66.8
HVPA49HPA	208-230/1/60	28.9	4.3		20.8				41.7	50.0	62.5		25.1				46.0	54.3	66.8
HVPA60HPA	208-230/1/60	33.3	4.3		20.8				41.7	50.0	62.5		25.1				46.0	54.3	66.8
HVPA24HPC	208-230/3/60	12.3	2.8			14.4		21.7		28.9	36.1			17.2		24.5		31.7	38.9
HVPA30HPC	208-230/3/60	13.9	2.8			14.4		21.7		28.9	36.1			17.2		24.5		31.7	38.9
HVPA36HPC	208-230/3/60	17.5	2.8			14.4		21.7		28.9	36.1			17.2		24.5		31.7	38.9
HVPA42HPC	208-230/3/60	20.6	4.3			14.4		21.7		28.9	36.1			18.7		26.0		33.2	40.4
HVPA49HPC	208-230/3/60	20.8	4.3			14.4		21.7		28.9	36.1			18.7		26.0		33.2	40.4
HVPA60HPC	208-230/3/60	22.7	4.3			14.4		21.7		28.9	36.1			18.7		26.0		33.2	40.4
HVPA24HPD	460/3/60	6.3	1.4			7.2		10.8		14.4	18.0			8.6		12.2		15.8	19.4
HVPA30HPD	460/3/60	7.9	1.4			7.2		10.8		14.4	18.0			8.6		12.2		15.8	19.4
HVPA36HPD	460/3/60	8.6	1.4			7.2		10.8		14.4	18.0			8.6		12.2		15.8	19.4
HVPA42HPD	460/3/60	9.6	2.2			7.2		10.8		14.4	18.0			9.4		13.0		16.6	20.2
HVPA49HPD	460/3/60	9.8	2.2			7.2		10.8		14.4	18.0			9.4		13.0		16.6	20.2
HVPA60HPD	460/3/60	11.3	2.2			7.2		10.8		14.4	18.0			9.4		13.0		16.6	20.2

Heating kW shown for 240V for all HPA and HPC models. Derate by 25% for 208V service. Total heating amps for all HPA (208/230V 1ø) units with 8 kW and larger includes both circuits (#1 and #2). Heating kW shown for 480 for all HPD models. NOTE: Three phase equipment (HPC and HPD models) contain single-phase motor loads. Values shown are maximum phase loads. Loads are not equally balanced on each phase. Total heating amps includes motor loads.

HVPA Electrical Characteristics

BASIC MODEL							OUTDOOR FAN MOTOR					INDOOR FAN MOTOR				
	Type	VOLTS	Hz/Ph	RLA[1]	LRA[2]	MCC[3]	VOLTS	Hz/Ph	RPM[4]	FLA[5]	HP	VOLTS	Hz/Ph	RPM	FLA	HP
HVPA24HPA	Scroll	208-230	60/1	13.4	58.3	21.0	208/230	60/1	825	1.8	1/4	208/230	60/1	1050	2.8	1/3
HVPA30HPA	Scroll	208-230	60/1	12.8	64.0	20.0	208/230	60/1	825	2.8	1/3	208/230	60/1	1050	2.8	1/3
HVPA36HPA	Scroll	208-230	60/1	16.6	79.0	26.0	208/230	60/1	825	2.8	1/3	208/230	60/1	1050	2.8	1/3
HVPA42HPA	Scroll	208-230	60/1	17.9	112.0	28.0	208/230	60/1	825	2.8	1/3	208/230	60/1	1050	4.3	1/2
HVPA49HPA	Scroll	208-230	60/1	21.8	117.0	34.0	208/230	60/1	825	2.8	1/2	208/230	60/1	1050	4.3	1/2
HVPA60HPA	Scroll	208-230	60/1	26.2	134.0	41.0	208/230	60/1	825	2.8	1/2	208/230	60/1	1050	4.3	1/2
HVPA24HPC	Scroll	208-230	60/3	7.7	55.0	12.1	208/230	60/1	825	1.8	1/4	208/230	60/1	1050	2.8	1/3
HVPA30HPC	Scroll	208-230	60/3	8.3	61.0	13.0	208/230	60/1	825	2.8	1/3	208/230	60/1	1050	2.8	1/3
HVPA36HPC	Scroll	208-230	60/3	10.4	88.0	16.3	208/230	60/1	825	2.8	1/3	208/230	60/1	1050	2.8	1/3
HVPA42HPC	Scroll	208-230	60/3	13.5	88.0	21.1	208/230	60/1	825	2.8	1/3	208/230	60/1	1050	4.3	1/2
HVPA49HPC	Scroll	208-230	60/3	13.7	83.1	21.4	208/230	60/1	825	2.8	1/2	208/230	60/1	1050	4.3	1/2
HVPA60HPC	Scroll	208-230	60/3	15.6	111.0	24.4	208/230	60/1	825	2.8	1/2	208/230	60/1	1050	4.3	1/2
HVPA24HPD	Scroll	460	60/3	4.0	22.4	6.2	208/230	60/1	825	1.8	1/4	208/230	60/1	1050	2.8	1/3
HVPA30HPD	Scroll	460	60/3	5.1	28.0	8.0	208/230	60/1	825	2.8	1/3	208/230	60/1	1050	2.8	1/3
HVPA36HPD	Scroll	460	60/3	5.8	38.0	9.0	208/230	60/1	825	2.8	1/3	208/230	60/1	1050	2.8	1/3
HVPA42HPD	Scroll	460	60/3	6.0	44.0	9.3	208/230	60/1	825	2.8	1/3	208/230	60/1	1050	4.3	1/2
HVPA49HPD	Scroll	460	60/3	6.2	41.0	9.7	208/230	60/1	825	2.8	1/2	208/230	60/1	1050	4.3	1/2
HVPA60HPD	Scroll	460	60/3	7.7	52.0	12.1	208/230	60/1	825	2.8	1/2	208/230	60/1	1050	4.3	1/2

[1]RLA = Rated Load Amps
[2]LRA = Locked Rotor Amps
[3]MCC = Maximum Continuous Current
[4]RPM = Revolutions per Minute HP = Horse Power
[5]FLA = Full Load Amps
All 460V units have a step down transformer for 230V motors.

HVPSA Certified Performance Ratings in accordance with ARI Standard 390

Cooling Rating Points: Outdoor 95°F; Indoor 80°F Dry Bulb/67°F Wet Bulb
Heating Rating Points: Outdoor 47°F Dry Bulb/43°F Wet Bulb and 17°F Dry Bulb/15°F Wet Bulb; Indoor 70°F

	Cooling[1]			Heating[2]				
BASIC MODEL	Cooling (BTUH)	EER BTUH/Watt	IPLV[3]	High Temp. Heating @ 47°F		Low Temp. Heating @ 17°F		CFM
				BTUH	COP[4]	BTUH	COP	
HVPSA36	35,600	10.80	14.7	31,600	3.20	17,200	2.00	1,200
HVPSA42	40,000	10.40	14.7	37,600	3.15	20,800	2.10	1,300
HVPSA49	48,000	11.70	14.5	40,000	3.00	22,000	2.00	1,750
HVPSA60	57,000	10.60	14.5	48,000	3.00	30,000	2.00	1,750

[1]Cooling rated at 95°F outdoor and 80°F (DB) /67°F(WB) indoor
[2]Heating rated at outdoor 47°F dry bulb/43°F wet bulb and 17°F dry bulb/15°F wet bulb and 70°F indoor
[3]Integrated Part Load Value
[4]COP= Coefficient of Performance
Ratings are with no outside air and at 230v. or 460v. Performance will be affected by altitude.

HVPSA Heating Performance (BTUH) at Various Outdoor Temperatures

MODEL	10°F	17°F	20°F	30°F	40°F	47°F	50°F	60°F	70°F
36	14,620	17,200	18,640	23,680	28,000	35,600	32,548	33,970	35,550
42	17,680	20,800	22,480	28,360	33,400	40,000	38,728	40,420	42,300
49	18,700	22,000	23,800	30,100	35,500	40,000	41,200	43,000	45,000
60	25,500	30,000	31,800	38,100	43,500	48,000	49,440	51,600	54,000

Heating capacity based on 70°F Dry Bulb Return air temperatures at various outdoor ambient temperatures at rated CFM

HVPSA (2 Stage Compressor) Summary Ratings

Manual Damper with Fresh Air Intake Blower (“N”), or Field Adjustable Manual Damper with Fresh Air Intake Blower (“Y”), or Field Adjustable Manual Damper with Fresh Air Intake Blower (“Z”), or Motorized Damper with Fresh Air Intake Blower (“B”), or Economizer with Enthalpy Sensor & Mixed Air Sensor (“C”)

BASIC MODEL	No Heat		4 kW		5 kW				6 kW				8 kW				9 kW		10 kW				12 kW				15 kW			
	CKT #1		CKT #1		CKT #1		CKT #2		CKT #1		CKT #2		CKT #1		CKT #2		CKT #1		CKT #1		CKT #2		CKT #1		CKT #2		CKT #1		CKT #2	
	MCA	MFS	MCA	MFS	MCA	MFS	MCA	MFS	MCA	MFS	MCA	MFS	MCA	MFS	MCA	MFS	MCA	MFS	MCA	MFS	MCA	MFS	MCA	MFS	MCA	MFS	MCA	MFS	MCA	MFS
HVPSA36HPA	26.4	40			52.4	60			57.6	60									26.4	40	52.1	60	47.2	50	41.6	45	52.4	60	52.1	60
HVPSA42HPA	26.4	40			52.4	60							26.4	40	41.3	45			26.4	40	52.1	60	47.2	50	41.6	45	52.4	60	52.1	60
HVPSA49HPA	33.5	50			33.5	50	26.0	30											33.5	50	52.1	60	33.5	50	41.6	45	33.5	50	52.1	60
HVPSA60HPA	39.1	60			39.1	60	26.0	30											39.1	60	52.1	60	39.1	60	41.6	45	39.1	60	52.1	60
HVPSA36HPC	19.5	30							37.5	40							46.6	50					55.6	60			19.5	30	45.1	50
HVPSA42HPC	22.4	35							40.4	45							49.5	50					22.4	35	36.1	40	22.4	35	45.1	50
HVPSA49HPC	23.9	35															51.0	60					23.9	35	36.1	40	23.9	35	45.1	50
HVPSA60HPC	29.1	45															56.2	60					29.1	45	36.1	40	29.1	45	45.1	50
HVPSA36HPD	8.4	15							17.4	20							21.9	25					26.4	30			30.9	35		
HVPSA42HPD	10.4	15							19.4	20							23.9	25					28.4	30			32.9	35		
HVPSA49HPD	11.6	15															25.1	30					29.6	30			34.1	35		
HVPSA60HPD	14.8	20															28.3	30					32.8	35			37.3	40		

MCA=Minimum Circuit ampacity (Wire Sizing amps).
MFS=Maximum Fuse or HACR size.
MCA & MFS calculated at 240v. for “A” & “C” models and 480v. for “D” models. 460v. units have a stepped down transformer for 230v. motors.
For 1Ø (HPA) units with 15 kW of electric heat, the maximum allowable heat to operate simultaneously with the compressor is 10 kW.

HVPSA “S” Circuit (2 Stage Compressor) Summary Ratings

Manual Damper with Fresh Air Intake Blower (“N”), or Field Adjustable Manual Damper with Fresh Air Intake Blower (“Y”), or Field Adjustable Manual Damper with Fresh Air Intake Blower (“Z”), or Motorized Damper with Fresh Air Intake Blower (“B”), or Economizer with Enthalpy Sensor & Mixed Air Sensor (“C”)

BASIC MODEL	No Heat		4 kW		5 kW				6 kW				8 kW				9 kW		10 kW				12 kW				15 kW			
	CKT #1		CKT #1		CKT #1		CKT #2		CKT #1		CKT #2		CKT #1		CKT #2		CKT #1		CKT #1		CKT #2		CKT #1		CKT #2		CKT #1		CKT #2	
	MCA	MFS	MCA	MFS	MCA	MFS	MCA	MFS	MCA	MFS	MCA	MFS	MCA	MFS	MCA	MFS	MCA	MFS	MCA	MFS	MCA	MFS	MCA	MFS	MCA	MFS	MCA	MFS	MCA	MFS
HVPSA36HPA	26.4	40			28.8	40			34.1	40									54.9	60			26.4	40	41.6	45	28.8	40	52.1	60
HVPSA42HPA	26.4	40			28.8	40							44.4	45					54.9	60			26.4	40	41.6	45	28.8	40	52.1	60
HVPSA49HPA	33.5	50			33.5	50													56.4	60			33.5	50	41.6	45	33.5	50	52.1	60
HVPSA60HPA	39.1	60			39.1	60													56.4	60			39.1	60	41.6	45	39.1	60	52.1	60
HVPSA36HPC	19.5	30							20.8	30							29.9	30					38.9	40			47.9	50		
HVPSA42HPC	22.4	35							22.4	35							29.9	35					38.9	40			47.9	50		
HVPSA49HPC	23.9	35															31.4	35					40.4	45			49.4	50		
HVPSA60HPC	29.1	45															31.4	40					40.4	45			49.4	50		
HVPSA36HPD	8.4	15							10.4	15							14.9	15					19.4	20			23.9	25		
HVPSA42HPD	10.4	15							10.4	15							14.9	15					19.4	20			23.9	25		
HVPSA49HPD	11.6	15							11.6	15							15.7	20					20.2	25			24.7	25		
HVPSA60HPD	14.8	20							14.8	20							15.7	20					20.2	25			24.7	25		

MCA=Minimum Circuit ampacity (Wire Sizing amps).
MFS=Maximum Fuse or HACR size.
MCA & MFS calculated at 240v. for “A” & “C” models and 480v. for “D” models. 460v. units have a stepped down transformer for 230v. motors.

HVPSA (2 Stage Compressor) Summary Ratings w/GreenWheel® ERV - Option H

BASIC MODEL	No Heat		4 kW		5 kW				6 kW				8 kW				9 kW		10 kW				12 kW				15 kW			
	CKT #1		CKT #1		CKT #1		CKT #2		CKT #1		CKT #2		CKT #1		CKT #2		CKT #1		CKT #1		CKT #2		CKT #1		CKT #2		CKT #1		CKT #2	
	MCA	MFS	MCA	MFS	MCA	MFS	MCA	MFS	MCA	MFS	MCA	MFS	MCA	MFS	MCA	MFS	MCA	MFS	MCA	MFS	MCA	MFS	MCA	MFS	MCA	MFS	MCA	MFS	MCA	MFS
HVPSA36HPA	28.6	45			54.6	60			59.8	60									28.6	45	52.1	60	49.4	50	41.6	45	54.6	60	52.1	60
HVPSA42HPA	28.6	45			54.6	60							28.6	45	41.3	45			28.6	45	52.1	60	49.4	50	41.6	45	54.6	60	52.1	60
HVPSA49HPA	35.7	50			35.7	50	26	30											35.7	50	52.1	60	35.7	50	41.6	45	35.7	50	52.1	60
HVPSA60HPA	41.3	60			41.3	60	26	30											41.3	60	52.1	60	41.3	60	41.6	45	41.3	60	52.1	60
HVPSA36HPC	21.7	30							37.5	40							48.8	50					57.8	60	36.1	40	21.7	30	45.1	50
HVPSA42HPC	24.6	35							40.4	45							51.7	60					24.6	35	36.1	40	24.6	35	45.1	50
HVPSA49HPC	26.1	35															51	60					26.1	35	36.1	40	26.1	35	45.1	50
HVPSA60HPC	31.3	45															56.2	60					31.3	45	36.1	40	31.3	45	45.1	50
HVPSA36HPD	9.5	15							18.5	20							23	25					27.5	30			31	35		
HVPSA42HPD	11.5	15							20.5	25							25	30					29.5	30			34	35		
HVPSA49HPD	12.7	15															26.2	30					30.7	35			35.2	40		
HVPSA60HPD	15.9	20															29.4	30					33.9	35			38.4	40		

MCA=Minimum Circuit ampacity (Wire Sizing amps).
MFS=Maximum Fuse or HACR size.
MCA & MFS calculated at 240v. for "A" & "C" models and 480v. for "D" models. 460v. units have a stepped down transformer for 230v. motors.
For 1Ø (HPA) units with 15 kW of electric heat, the maximum allowable heat to operate simultaneously with the compressor is 10 kW.

HVPSA "S" Circuit (2 Stage Compressor) Summary Ratings w/GreenWheel® ERV - Option H

BASIC MODEL	No Heat		4 kW		5 kW				6 kW				8 kW				9 kW		10 kW				12 kW				15 kW			
	CKT #1		CKT #1		CKT #1		CKT #2		CKT #1		CKT #2		CKT #1		CKT #2		CKT #1		CKT #1		CKT #2		CKT #1		CKT #2		CKT #1		CKT #2	
	MCA	MFS	MCA	MFS	MCA	MFS	MCA	MFS	MCA	MFS	MCA	MFS	MCA	MFS	MCA	MFS	MCA	MFS	MCA	MFS	MCA	MFS	MCA	MFS	MCA	MFS	MCA	MFS	MCA	MFS
HVPSA36HPA	28.6	45			31	45			36.3	45									57.1	60			28.6	45	41.6	45	31	45	52.1	60
HVPSA42HPA	28.6	45			31	45							46.6	50					57.1	60			28.6	45	41.6	45	31	45	52.1	60
HVPSA49HPA	35.7	50			35.7	50													58.6	60			35.7	50	41.6	45	35.7	50	52.1	60
HVPSA60HPA	41.3	60			41.3	60													58.6	60			41.3	60	41.6	45	41.3	60	52.1	60
HVPSA36HPC	21.7	30							23	30							32.1	35					41.1	45			50.1	60		
HVPSA42HPC	24.6	35							22.4	35							32.1	35					41.1	45			50.1	60		
HVPSA49HPC	26.1	35															33.6	35					42.6	45			51.6	50		
HVPSA60HPC	31.3	45															33.6	45					42.6	45			51.6	50		
HVPSA36HPD	9.5	15							11.5	15							16	20					20.5	25			25	30		
HVPSA42HPD	11.5	15							11.5	15							16	20					20.5	25			25	30		
HVPSA49HPD	12.7	15							12.7	15							16.8	20					21.3	25			25.8	30		
HVPSA60HPD	15.9	20							15.9	20							16.8	20					21.3	25			25.8	30		

MCA=Minimum Circuit ampacity (Wire Sizing amps).
MFS=Maximum Fuse or HACR size.
MCA & MFS calculated at 240v. for "A" & "C" models and 480v. for "D" models. 460v. units have a stepped down transformer for 230v. motors.

HVPSA (2 Stage Compressor) Electrical Characteristics

BASIC MODEL	COMPRESSOR				OUTDOOR FAN MOTOR				INDOOR FAN MOTOR (ECM)				GREENWHEEL ERV	
	VOLTS-HZ-PH	RLA[1]	LRA[2]	MCC[3]	VOLTS-HZ-PH	RPM[4]	FLA[5]	HP	VOLTS-HZ-PH	RPM	FLA	HP	VOLTS-HZ-PH	RLA
HVPSA36HPA	208/230-60-1	16.6	82.0	26.0	208/230-60-1	825	2.8	1/3	208/230-60-1	1500	2.8	1/2	208/230-60-1	2.2
HVPSA42HPA	208/230-60-1	16.6	96.0	26.0	208/230-60-1	825	2.8	1/3	208/230-60-1	1500	2.8	1/2	208/230-60-1	2.2
HVPSA49HPA	208/230-60-1	21.1	96.0	33.0	208/230-60-1	825	2.8	1/2	208/230-60-1	1500	4.3	3/4	208/230-60-1	2.2
HVPSA60HPA	208/230-60-1	25.6	118.0	40.0	208/230-60-1	825	2.8	1/2	208/230-60-1	1500	4.3	3/4	208/230-60-1	2.2
HVPSA36HPC	208/230-60-3	11.1	58.0	17.4	208/230-60-1	825	2.8	1/3	208/230-60-1	1500	2.8	1/2	208/230-60-1	2.2
HVPSA42HPC	208/230-60-3	13.4	88.0	21.0	208/230-60-1	825	2.8	1/3	208/230-60-1	1500	2.8	1/2	208/230-60-1	2.2
HVPSA49HPC	208/230-60-3	13.4	88.0	21.0	208/230-60-1	825	2.8	1/2	208/230-60-1	1500	4.3	3/4	208/230-60-1	2.2
HVPSA60HPC	208/230-60-3	17.6	123.0	27.5	208/230-60-1	825	2.8	1/2	208/230-60-1	1500	4.3	3/4	208/230-60-1	2.2
HVPSA36HPD	460-60-3	4.5	29.0	7.0	208/230-60-1	825	2.8	1/3	208/230-60-1	1500	2.8	1/2	208/230-60-1	2.2
HVPSA42HPD	460-60-3	6.1	44.0	9.5	208/230-60-1	825	2.8	1/3	208/230-60-1	1500	2.8	1/2	208/230-60-1	2.2
HVPSA49HPD	460-60-3	6.4	41.0	10.0	208/230-60-1	825	2.8	1/2	208/230-60-1	1500	4.3	3/4	208/230-60-1	2.2
HVPSA60HPD	460-60-3	9.0	62.0	14.0	208/230-60-1	825	2.8	1/2	208/230-60-1	1500	4.3	3/4	208/230-60-1	2.2

[1]RLA = Rated Load Amps
[2]LRA = Locked Rotor Amps
[3]MCC = Maximum Continuous Current
[4]RPM = Revolutions per Minute HP = Horse Power
[5]FLA = Full Load Amps

HVPSA Heat Pump (2 Stage Compressor) Unit Load Amps

BASIC MODEL	VOLTS/ PH/HZ	CURRENT (AMPS)		LOAD OF RESISTIVE HEATING ELEMENTS (AMPS)								TOTAL MAXIMUM HEATING LOAD (AMPS)							
		HEAT PUMP INCLUDES IBM	INDOOR BLOWER	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
HVPSA36HPA	208-230/1/60	22.2	2.8		20.8	25.0			41.7	50.0	62.5		43.0	47.2			63.9	55.5	63.9
HVPSA42HPA	208-230/1/60	22.2	4.3		20.8		33.3		41.7	50.0	62.5		43.0		55.5		63.9	55.5	63.9
HVPSA49HPA	208-230/1/60	28.2	4.3		20.8				41.7	50.0	62.5		53.5				74.4	66.0	74.4
HVPSA60HPA	208-230/1/60	32.7	4.3		20.8				41.7	50.0	62.5		53.5				74.4	66.0	74.4
HVPSA36HPC	208-230/3/60	16.7	2.8			14.4		21.7		28.9	36.1			31.1		38.4		45.6	52.8
HVPSA42HPC	208-230/3/60	19.0	4.3			14.4		21.7		28.9	36.1			33.4		40.7		47.9	55.1
HVPSA49HPC	208-230/3/60	20.5	4.3			14.4		21.7		28.9	36.1			34.9		42.2		49.4	56.6
HVPSA60HPC	208-230/3/60	24.7	4.3			14.4		21.7		28.9	36.1			39.1		46.4		53.6	60.8
HVPSA36HPD	460/3/60	7.3	1.4			7.2		10.8		14.4	18.0			14.5		18.1		21.7	25.3
HVPSA42HPD	460/3/60	8.9	2.2			7.2		10.8		14.4	18.0			16.1		19.7		23.3	26.9
HVPSA49HPD	460/3/60	10.0	2.2			7.2		10.8		14.4	18.0			17.2		20.8		24.4	28.0
HVPSA60HPD	460/3/60	12.6	2.2			7.2		10.8		14.4	18.0			19.8		23.4		27.0	30.6

Heating kW shown at 240v. for HPA and HPC models and 480v. for HPD models. Three phase equipment (HPC & HPD models) have single phase loads.
Values shown are maximum phase loads. Loads may not be equally balanced on each phase. Total heating amps includes motor loads.
HPD models (460v.) have a step down transformer for 230 v. motors. IBM=Indoor Blower Motor

HVPSA Heat Pump (2 Stage Compressor) Unit Load Amps w/GreenWheel® ERV - Option H

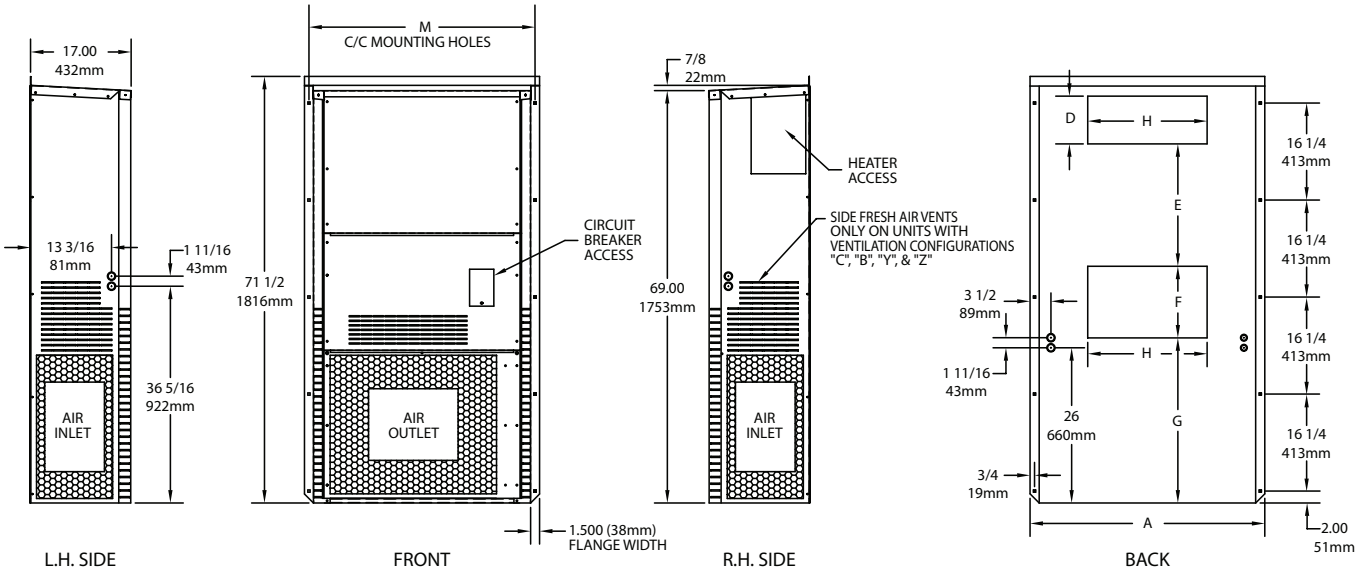
BASIC MODEL	VOLTS/ PH/HZ	CURRENT (AMPS)			LOAD OF RESISTIVE HEATING ELEMENTS (AMPS)								TOTAL MAXIMUM HEATING LOAD (AMPS)							
		HEAT PUMP INCLUDES IBM	INDOOR BLOWER	GREEN WHEEL	04 kW	05 kW	06 kW	08 kW	09 kW	10 kW	12 kW	15 kW	04 kW	05 kW	06 kW	08 kW	09 kW	10 kW	12 kW	15 kW
HVPSA36HPA	208-230/1/60	22.2	2.8	2.2		20.8	25.0			41.7	50.0	62.5		45.2	49.4			66.1	57.7	66.1
HVPSA42HPA	208-230/1/60	22.2	4.3	2.2		20.8		33.3		41.7	50.0	62.5		45.2		57.7		66.1	57.7	66.1
HVPSA49HPA	208-230/1/60	28.2	4.3	2.2		20.8				41.7	50.0	62.5		51.2				72.1	63.7	72.1
HVPSA60HPA	208-230/1/60	32.7	4.3	2.2		20.8				41.7	50.0	62.5		55.7				76.6	68.2	76.6
HVPSA36HPC	208-230/3/60	16.7	2.8	2.2			14.4		21.7		28.9	36.1			33.3		40.6		47.8	55.0
HVPSA42HPC	208-230/3/60	19.0	4.3	2.2			14.4		21.7		28.9	36.1			35.6		42.9		50.1	57.3
HVPSA49HPC	208-230/3/60	20.5	4.3	2.2			14.4		21.7		28.9	36.1			37.1		44.4		51.6	58.8
HVPSA60HPC	208-230/3/60	24.7	4.3	2.2			14.4		21.7		28.9	36.1			41.3		48.6		55.8	63.0
HVPSA36HPD	460/3/60	7.3	1.4	1.1			7.2		10.8		14.4	18.0			15.6		19.2		22.8	26.4
HVPSA42HPD	460/3/60	8.9	2.2	1.1			7.2		10.8		14.4	18.0			17.2		20.8		24.4	28.0
HVPSA49HPD	460/3/60	10.0	2.2	1.1			7.2		10.8		14.4	18.0			18.3		21.9		25.5	29.1
HVPSA60HPD	460/3/60	12.6	2.2	1.1			7.2		10.8		14.4	18.0			20.9		24.5		28.1	31.7

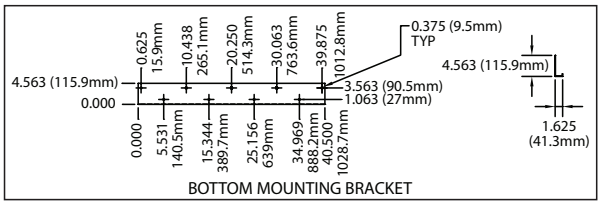
Heating kW shown at 240v. for HPA and HPC models and 480v. for HPD models. Three phase equipment (HPC & HPD models) have single phase loads.
Values shown are maximum phase loads. Loads may not be equally balanced on each phase. Total heating amps includes motor loads.
HPD models (460v.) have a step down transformer for 230 v. motors. IBM=Indoor Blower Motor

HVPA & HVPSA Air Flow (CFM) at Various Static Pressures

MODEL	0.10	0.20	0.25	0.30	0.40	0.50
24	800	770	725	680	600	500
30	1200	1100	1050	1000	900	800
36	1290	1170	1115	1060	1000	920
42	1500	1360	1295	1230	1160	1070
49	1900	1800	1700	1600	1500	1350
60	2200	2100	2000	1900	1800	1650

Dimensional Data for HVPA24 (in inches and mm)





MODEL		A	D	E	F	G	H	M
HVPA24	IN	44 9/16	8	18	14	28 1/2	28	43 1/16
	MM	1132	203	457	356	724	711	1094
* H Dimension is centered between A Dimension								

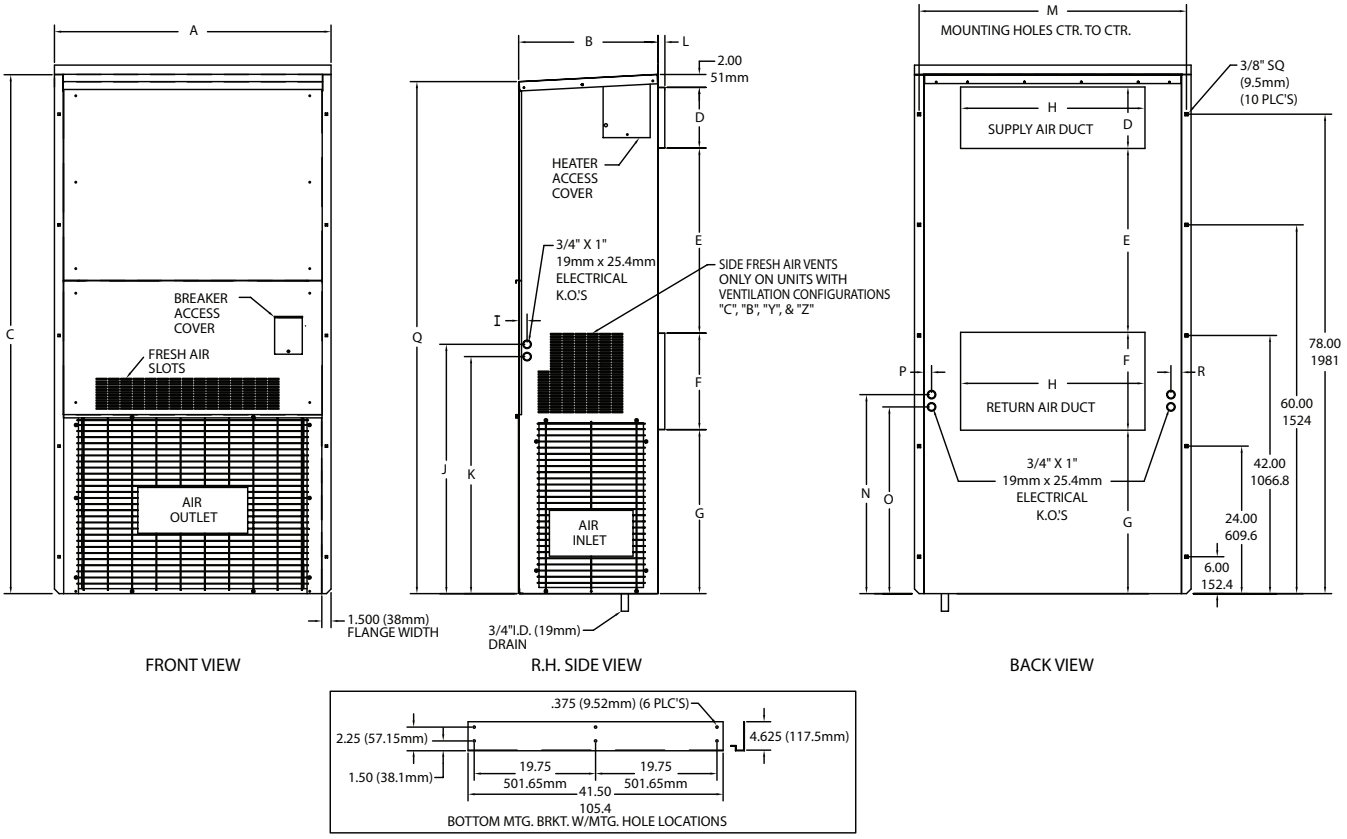
Shipping Weight (pounds/kilograms)

BASIC MODEL	LBS/KG
WITH "N" VENTILATION CONFIGURATION	375/171
WITH "Y", "Z", "B" & "C" VENTILATION CONFIGURATION	560/225

Internal Filter Size (inches)

BASIC MODEL	HVPA24†
FILTER SIZE	16" x 30" x 1"
†Return air filter grille required for GreenWheel ERV, "H" ventilation option.	

Dimensional Data for HVPA30/36/42 and HVPSA36/42 (in inches and mm)



MODEL		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
HVPA30-36-42 HVPSA36-42	IN	45 1/8	22 5/8	86	10	30	16	26 1/2	30	1 5/16	40 9/16	38 9/16	1 1/8	43 1/2	32 3/8	30 3/8	1 1/4	83 5/16	1 3/4
	MM	1146	575	2184	25.4	762	406	673	762	33	1030	979	29	1105	822	772	32	2116	44
* H Dimension is centered between A Dimension																			

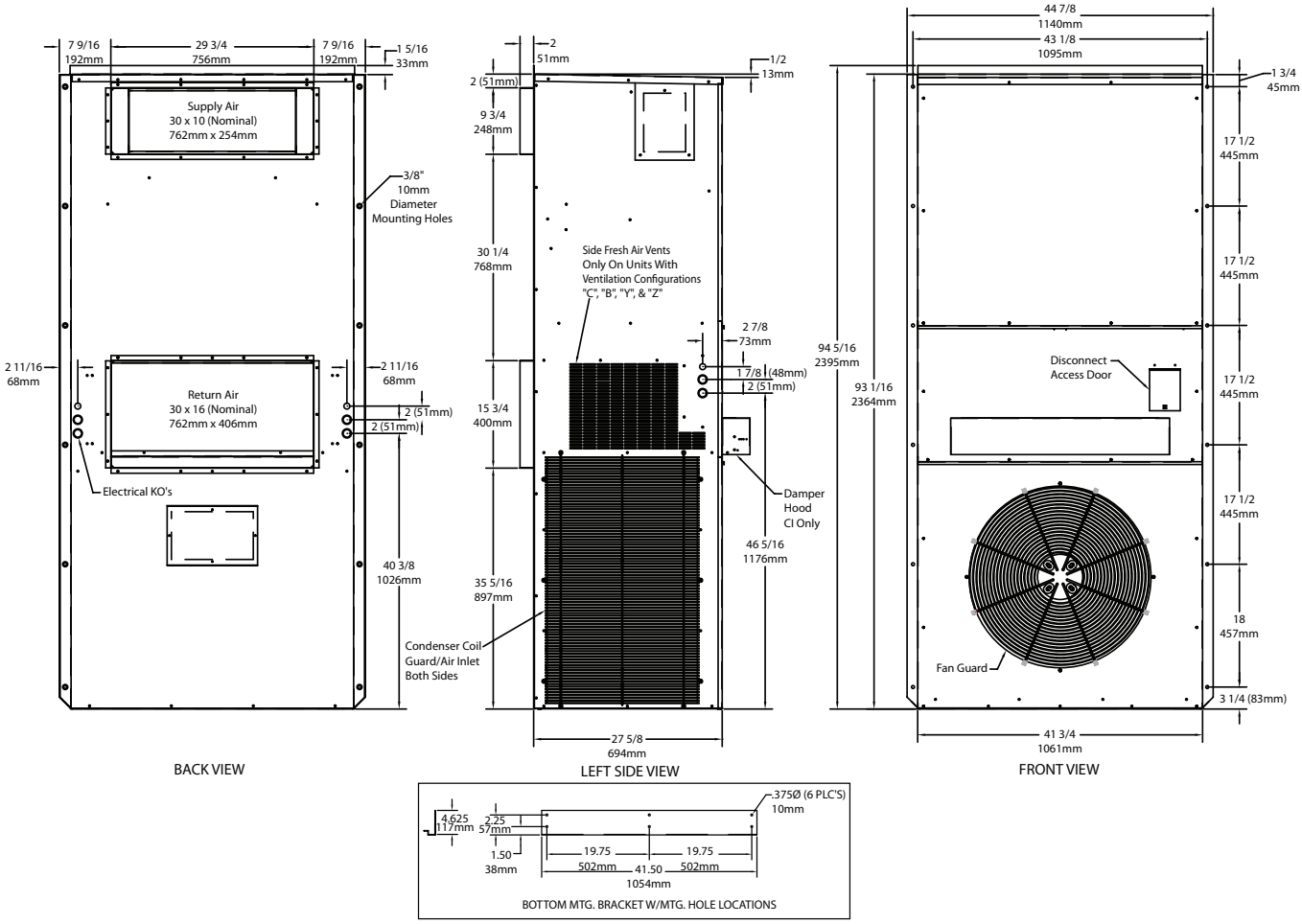
Shipping Weight (pounds and kilograms)

BASIC MODEL	LBS/KG
HVPA30/36/42 & HVPSA36/42 WITH "N" VENTILATION CONFIGURATION	405/184
HVPA30/36/42 & HVPSA36/42 WITH "Y", "Z", "B" & "C" VENTILATION CONFIGURATION	590/269

Internal Filter Size (inches)

BASIC MODEL	HVPA30/36/42 & HVPSA36/42		
FILTER SIZE	22" x 36-1/2" x 1"	22" x 36-1/2" x 1"	22" x 36-1/2" x 1"

Dimensional Data for HVPA49/60 and HVPSA49/60 (in inches and mm)



Shipping Weight (pounds and kilograms)

BASIC MODEL	HVPA49/HVPSA49 LBS/KG	HVPA60/HVPSA60 LBS/KG
HVPA49/60 & HVPSA49/60 WITH "N" VENTILATION CONFIGURATION	610/278	625/284
HVPA49/60 & HVPSA49/60 WITH "Y", "Z", "B" & "C" VENTILATION CONFIGURATION	625/284	640/291

Internal Filter Size (inches)

BASIC MODEL	HVPA49*	HVPA60*
FILTER SIZE	18" x 40" x 1"	18" x 40" x 1""
*Two filters required.		

Notes

Please consult the Marvair® website at www.marvair.com for the latest product literature. Complete installation instructions are in the Classic™ Heat Pump I&O Manual. 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.

Marvair® AIRXCEL®, Inc.
ISO 9001 2000 REGISTERED COMPANY

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

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