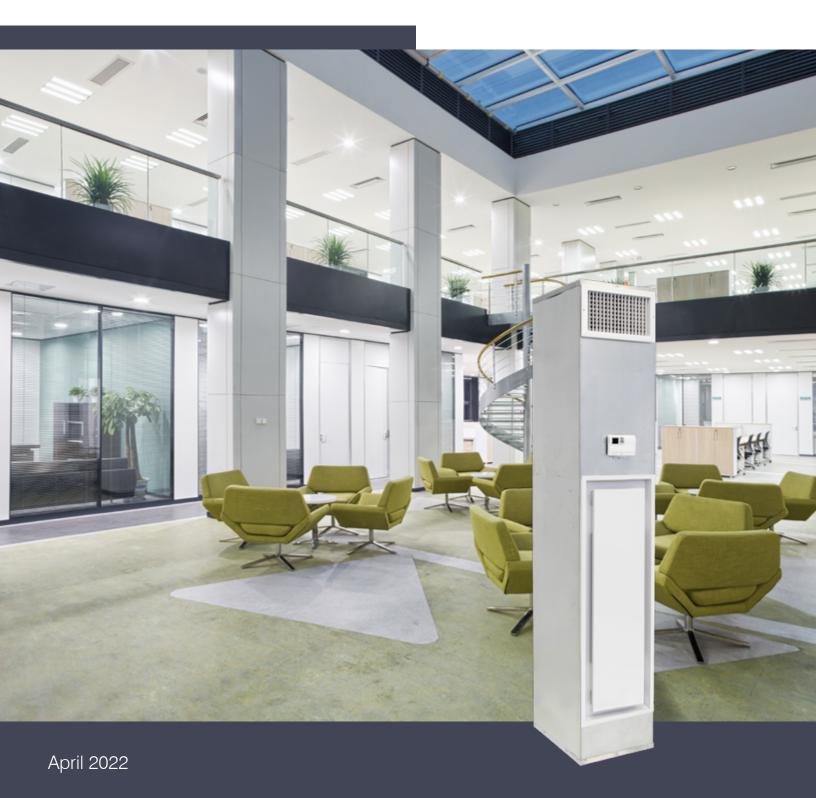


PRODUCT DESIGN GUIDE Whisperpack® Vertical Stack





Vertical Stack

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Category	Position	Option Digit and Description
Product Family	1	V = Vertical Stack Water Source Heat Pump
Drain Type	2	P = P-trap Internal Drain
		A = Heat Pump
		B = Air Conditioning and Electric Heat
System Configuration	3	C = Air Conditioning and Hydronic Heat
System Conliguration	3	D = Cooling Only
		E = Heating Only
		H = Heat Pump and Electric Heat
		02 = 200 CFM (0.5-ton)
		03 = 300 CFM (0.75-ton)
		04 = 400 CFM (1.0-ton)
	4 5	05 = 500 CFM (1.25-ton)
Unit Capacity	4, 5	06 = 600 CFM (1.5-ton)
		08 = 800 CFM (2.0-ton)
		10 = 1000 CFM (2.5-ton)
		12 = 1200 CFM (3.0-ton)
Heat Exchanger / Cabinet	e	0 = Standard
Heat Exchanger / Cabinet	6	1 = Oversized
Revision (Major)	7	4 = 4th Generation
		A = 115-60-1 (200, 300 and 400 CFM Only)
Voltage	8	B = 208/230-60-1
		D = 265-60-1
		S = PSC - Standard Motor
		H = PC - High Static Motor
Fan	9	D = ECM - Constant Torque Motor (Size 08 - 12)
		G = ECM - Constant Torque (Size 02 - 06)
		E = ECM - Constant Air Volume Motor
		- = Original
Revision (Minor)	10	B = 1st Revision
		C = 2nd Revision
Sound Attenuation	11	- = Standard Quiet Construction
	11	D = P-trap Drain / Sound Package



Category	Position	Option Digit and Description
Product Family	1	W = Vertical Stack Water Source Heat Pump
		A = Heat Pump (Cooling default)
		B = Cooling Only
System Configuration	2	C = Air Conditioning and Hydronic Heat
System Comguration	2	E = Heating Only
		F = Heat Pump and Hydronic Heat (heating default)
		G = Heat Pump (heating default)
		02 = 200 CFM (0.5-ton)
		03 = 300 CFM (0.75-ton)
		04 = 400 CFM (1.0-ton)
	0.4	05 = 500 CFM (1.25-ton)
Unit Capacity	3, 4	06 = 600 CFM (1.5-ton)
		08 = 800 CFM (2.0-ton)
		10 = 1000 CFM (2.5-ton)
		12 = 1200 CFM (3.0-ton)
	-	0 = Standard
Heat Exchanger / Cabinet	5	1 = Oversized
Revision (Major)	6	4 = 4th Generation
		A = 115-60-1
Voltage	7	B = 208/230-60-1
		D = 265-60-1
		C = Copeland
		B = Bristol
Compressor	8	T = Tecumseh
		M = Matsushita
		L = LG
		X = Extended Range (TXV)
Distributor Options	9	Y = Standard (TXV)
		I = Boilerless (TXV - Must be type A)
		- = Original
Revision (Minor)	10	B = 1st Revision
· · /		C = 2nd Revision
		B = Whalen Drain / Silver Rails / 18ga. Compressor Box
Option Style	11	D = P-trap Drain / Silver Rails / 18ga. Compressor Box
		D i adp brain / onvernans / roga. Outipiessoi box

Table 1: AHRI Performance Ratings - ASHRAE / ANSI / AHRI / ISO Standard 13256-1

		AHRI Certified	l Performance					
	ASHRAE	/ ANSI / AHRI	/ ISO Standar		Entering L	iquid Temp		
Model with EC Motor			Water Loop	Heat Pump	Heating	Heatin	g 105°F	
Model with EC Motor	CFM	GPM	Coolii	1g 86°F	GPM	_		
	СЕМ	GPM	Capacity Btuh	EER Btuh / W		Capacity Btuh	EER Btuh / W	
VP-C-204*D	290	1.5	6,200	13.20	1.5	7,087	239	
VP-C-304*D	345	2.5	9,300	14.00	2.5	8,769	317	
VP-C-404*D	465	3.3	11,700	13.80	3.3	9,883	371	
VP-C-504*D	540	3.9	14,600	15.70	3.9	14,336	482	
VP-C-604*D	650	4.5	17,800	14.60	4.5	16,884	603	
VP-C-804*D	865	6.0	22,800	13.00	6.0	22,065	829	
VP-C-814*D	830	6.0	Contact Factory		6.0	21,483	760	
VP-C-1004*D	1045	7.5	28,200	13.50	7.5	27,629	944	
VP-C-1204*D	1100	9.0	32,600	12.75	9.0	31,791	1124	

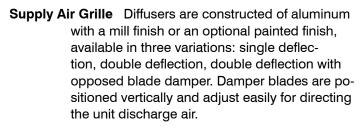
Cooling based upon 80.6°F DB, 66.2°F WB entering air temperature

Heating based upon 68°F DB, 59°F WB entering air temperature

Performance based upon 208/60/1 voltage



- **Electric Heat** Factory installed electric heaters are available on vertical units. Unit controls are available for boilerless, supplemental, primary or emergency electric heat to serve several different application needs. Boilerless electric heat will be energized when the entering water temperature falls below set point. This will allow electric heat to function while ensuring the compressor remains off. With supplemental electric heat control, the wall thermostat will activate the compressor and heater simultaneously if necessary to maintain room heating conditions.
- Internal Pump Internal pump is optional on all size units but cannot be used in conjunction with the two-way solenoid valve. The internal pump is an internally mounted ON/OFF circulating pump for use with our single riser applications.
- **Tin Dipped Coil** Optional tin electro-plated copper tubing protect the air coil from many corrosive elements in the air stream. Corrosion often referred to as Formicary Corrosion occurs due to the presence of dissimilar metals such as copper and aluminum in conjunction with water causes results in refrigerant leaks and eventual failure of the air coil costing hundreds of dollars to replace. Studies have also shown that isolating the copper from the aluminum greatly reduces or eliminates the corrosion thereby increasing the life of the air coil.
- **Constant Torque EC Motor** Are standard on size 1000 and 1200 units; they are optional on size 800 and smaller and provide the efficiency and operability of an ECM at a lower cost than a constant airflow ECM. Constant torque ECMs provide 5 available motor speed settings and will maintain a constant motor torque as external static pressure in the system increases. As the system static pressure increases, reduction in fan airflow with a constant torque ECM is minor.
- **Constant Airflow EC Motor** Are optional on all size units and will maintain a constant unit airflow as the static pressure in the system increases. Constant airflow ECMs provide only 3 available speed settings.



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- Flush Mounted Return Air Panel Constructed of heavy gauge steel, lined with insulation to help attenuate sound from the compressor and fan assembly. Mechanical latching clips ensure the panel door stays closed during operation. Panels are available in chassis accessible version to all removal of refrigerant chassis without removing the return air panel.
- Painted Flush Mounted Return Air Panel Constructed of heavy gauge painted steel, lined with insulation to help attenuate sound from the compressor and fan assembly. Mechanical latching clips ensure the panel door stays closed during operation. Panels are available in chassis accessible version to all removal of refrigerant chassis without removing the return air panel.
- **Telescoping SA Extension Collar** A canvas duct connector to connect the WSHP discharge to the downstream duct system. This reduces vibration-induced noise.
- **Cabinet Stand** An optional cabinet stand is available in heights ranging from 2" up to 14" to accommodate interiors with higher baseboard mouldings.
- **Unfused Disconnect** Units are available with an optional non-fused disconnect switch, located on the unit front behind the return air panel. The disconnect switch is used to break power to the unit for safety and ease of service.
- **Circuit Breaker** Units are available with an optional circuit breaker (HACR breaker). The circuit breaker is used to break power to the unit for safety and ease of service.
- **T-stat extension** Low voltage wire harness ranging from 5 to 20 foot ending with 9-Pin Molex quick connector. The extension can exits cabinet on the top or either side depending on the riser location.

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- **Condensate pump** The internal condensate pump allows the unit to be located virtually wherever desired. The internal condensate pump serves as an effective means for disposing of condensate generated during heat pump operation. A condensate pump should be designed and installed at the unit to pump condensate to a building drain.
- Vibration Isolation Pad Vibration isolator pads dampen vibration from the compressor and fan motors. The 1/2" thick neoprene isolation pads are attached to the bottom of the cabinet at the factory eliminating any additional field labor.
- 2-Way Valve 2-way valves are used for a variety of pumping applications when more than one unit is installed on a common loop. These valves are also used to shut off flow when the unit is not operating. On a call for cooling or heating the valve opens providing full water flow prior to compressor operation. A 24 volt control wire harness is included with the factory provided control valve option.
- **3-Way Valve** These valves are normally closed to the coil as standard and will isolate the coil during a loss of power. Normally open configurations are simply achieved by turning the valve around. Upon response to a signal from the controller, the valve will be either fully open allowing full flow to the coil or fully closed to the coil diverting full flow to the bypass line. All three-way valve configurations include a balance fitting in the bypass line to allow proper flow balancing.
- Automatic Flow Control An automatic flow control device includes a ball valve cast in the valve body and is located on the return water pipe. The flow control valve consists of a stainless steel/brass flow cartridge and a contoured orifice plate. As the pressure drop increases, the flow cartridge will move into the contoured orifice plate to decrease the flow. This flexing action provides a constant flow, independent of pressure (2-80 psi), makes it difficult to clog and resistant to cavitation damage. This valve sets flow through the coil without any action required by a system balancer.

- Manual Flow Control A manual flow control valve, acts as both a flow setting device and a stop valve, taking the place of a ball valve. This valve allows water flow through the unit and can be set quickly and accurately.
- **Ball Valve** Ball valves allow the unit to be shut off for servicing purposes. They have a low resistance to water flow, operate easily. These valves have a compact handle that rotates 90 degrees to a fully open position. The valve body is forged brass and the ball is polished brass with Teflon seats and seals. Ball valves are included on both the supply and return risers.
- **Memory Stop** Adjustable Memory Stop provides both balancing and shutoff in one valve. With the memory stop locked in place, the valve can be closed and then reopened to the same balanced position.
- Pete's Plug An accessible port where pressure and temperature can be measured. Accepts standard 1/8" gauge adapter or thermometer stem.
- Strainer The Y-type strainer body is constructed of brass with a 16 mesh 304 stainless steel screen. Used for removal of small particles from the water supply pipe during normal system operation. The strainer helps protect the coil and minimizes the chance of control valves clogging. Screens should be regularly removed and cleaned as part of a routine maintenance schedule.
- Stainless Steel Hoses Flexible 302/304 stainless steel hose with EPTF inner tube and JIC flare connections. Meets UL-94 VO fire rating.
- **O.A. Internal Duct** A 4" round internal duct is factory installed to provide outside air to the return side of the air coil. By introducing the outside air to the return side of the coil, the outside is conditioned prior to entering the occupied space.
- **O.A. Motorized OA Damper** The control can be configured to operate as a ventilation damper in a 2-position ventilation mode to provide the minimum ventilation requirements during occupied periods. This control operation still utilizes the modulating damper actuator.

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- Filter Units come standard with a one-inch glass fiber throwaway filter. High efficiency MERV 8, MERV 11, and MERV 13 pleated filters as well as a washable aluminum mesh filter are also available as an option.
- **Cu-Ni Coaxial Heat Exchanger** The optional cupronickel tube-in-tube coaxial heat exchanger used in vertical stack water source heat pumps is designed for maximum heat transfer at normal and low water flow rates with minimum pressure drop. The inside tube is deeply fluted to enhance heat transfer and minimize fouling. All coaxial coils are tested to 400 psig on the water

side and 600 psig on the refrigerant side. The extended range chassis has coil and piping insulation to protect against condensation in low-temperature geothermal applications.

Sound Package The silver rail sound package further attenuates the sounds levels of our standard unit by adding a set of rubber isolators under the compressor chassis rails to enhance the dual-level vibration isolation.

Table 2: Whisperpack[®] Thermostats for Standalone Operation

	Feature	SCI SC2010L	SCI SC4011	SCI SC5011	
Mounting Style	Electrical Box				
iouning otyle	Drywall	•	•	•	
	Backlit LCD	•	•	•	
	Temperature & Setpoint	•	•	•	
Display	Operating Mode	•	•	•	
	Fan Status	•	•	•	
Remote Setback		•	•	•	
	Non-programmable	•	•		
	Programmable			7 day	
Operation	Sensing	Local or Remote	Local or Remote	Local or Remote	
	Setpoint Range	45°F to 90°F	45°F to 90°F	45°F to 90°F	
	Changeover	Manual	Automatic	Manual or Automatic	
	System Settings	Heat - Cool - Auto - Off	Heat - Cool - Auto - Off	Heat - Cool - Auto - Off	
Operating Modes	Fan Settings	On - Auto	On - Auto	On - Auto	
	Fan Speeds	1	1	1	
	Heating	1	1	1	
Stages	Cooling	1	1	1	
/oltage	Operating Voltage	20 - 30 VAC	20 - 30 VAC	20 - 30 VAC	



Unit Protections & LED Fault Status Annunciation

Refrigerant Circuit High Pressure Protection

A normally closed high (compressor discharge) pressure switch is used to help protect the refrigerant circuit from excessively high pressure. If the high pressure switch opens twice within 1 hour, the control board will initiate a hard lockout and the alarm contact will energize.

Refrigerant Circuit Low Pressure Protection

A normally closed low (compressor suction) refrigerant pressure switch is used to help protect the refrigerant circuit from excessively low refrigerant pressure. If the low pressure switch opens twice within 1 hour, the control board will initiate a hard lockout and the alarm contact will energize.

Condensate Overflow Sensor

The control is designed to sense when condensate water levels in the drain pan become excessively high. When high condensate water levels are detected, the controller will go into condensate overflow warning mode. If the condensate overflow sensor detects liquid twice within 1 hour, the control board will initiate a hard lockout and the alarm contact will energize.

Heat Exchanger Low Temperature Protection

The control is designed to sense when the refrigerant temperature drops to a temperature where it is possible to freeze the air coil or the coaxial heat exchanger. The threshold temperature is field selectable for 10°, 20°, or 32°F. If the Freeze Sensor drops below the set temperature twice within 1 hour, the control board will initiate a hard lockout and the alarm contact will energize.

Low water temperature

The control is designed to sense when the leaving water temperature drops to a temperature where it is possible to freeze the coaxial heat exchanger or raises to a temperature high enough to cause



possible damage to the compressor. The threshold temperature is field selectable for 0°, 10°, 20°, 36°, or 125°F. If the sensor drops below (or above 125°) the set temperature twice within 1 hour, the control board will initiate a hard lockout and the alarm contact will energize.

Low Voltage (Brownout) Protection

The solid state control will monitor the 24 volt power input supplied to the board. If the supply voltage drops below 18 VAC, the control module will shut down the unit to protect electrical components from low line voltage conditions.

Soft Lockout Reset

This feature is used to minimize nuisance trips of safeties caused by temporary conditions that might inhibit the unit from performing normal functions. When a safety trip occurs, it is counted and the alarm is cleared when the condition returns to normal. If the alarm occurs two times within a 1-hour period, the heat pump remains off (locked out) until the unit is checked and the alarm is annually cleared.



Multi-Protocol DDC Controller

The Whalen Company water source heat pumps are available with a factory installed multi-protocol communication module that is designed to communicate with a building automation system (BAS). The I/O Zone 560 DDC control-



ler is designed to allow the integration of Whalen water source heat pump equipment into DDC systems. The I/O Zone 560 DDC controller has the ability to communicate through a choice of three widely used protocols: BACnet MS/

TP, Johnson Controls N2, and Modbus. The protocol of choice for the particular system is selected by simply configuring DIP switches on the DDC control. This flexibility allows one controller to be used in a multitude of buildings which use any of these three common protocols. The control serves as a node of information processing between the Whalen heat pump and the DDC network.

Features & Benefits

- Multi-Protocol communications provides DDC system flexibility.
- Supports native BACnet MS/TP communications the ASHRAE standard protocol for interoperability.
- Supports Johnson Controls N2 communications for integration into Johnson Controls Metasys DDC systems.
- Supports Modbus communications for integration into Modbus DDC networks.
- Four baud rate levels offer flexible communications speeds of 9600, 19.2k, 38.4k, or 76.8k baud. Enables building operators to easily upgrade firmware in the future.
- Removable field wiring connectors for ease of field service.
- Five (5) digital outputs.
- Six (6) inputs.
- Stand-alone or BAS integrated operational modes.

Hardware Specification

Power:	24Vac +-10%, 50 or 60Hz, 18VA power consumption, 26Vdc, Single Class 2 source only, 100 VA or less.
Physical size:	5-1/16" [129mm] width x 5-11/16" [144mm] height x 1-1/2" [38mm] (minimum panel depth).
Housing material:	Rugged GE C2905HG Cycoloy plastic housing – complies with UL 94 V-O.
Environmental:	0 to 130 degrees F, 10% to 95% non-condensing.
Protection:	Built-in surge transient protection circuitry. Module protected by Internal solid state Polyswitches on incoming power and network connections.
Digital Outputs:	5 digital outputs, relay contacts rated at 1 A resistive @ 24 Vac, configured as dry contact, normally open.
Universal inputs:	6 universal inputs. Inputs 1-6 configurable as thermistor or dry contact; inputs 1 and 2 also configurable as 0-5 Vdc type inputs.
Communication ports	<i>Port 1:</i> Jumper configurable for ARCNET or EIA-485 communication. In ARCNET mode, the port speaks BACnet (at 156k bps). In EIA-485 mode, the communication protocol and baud rate desired are DIP switch selectable between BACnet MS/TP, Modbus RTU, or N2. <i>Rnet port:</i> Interface with a BACview5, BACview6, RS sensors, or local laptop.
Optional card port:	LonWorks Option Card for connection to Free Topology LON networks (TP/FT-10 Channel).



Table 3: Physical Data Table

	Models											
Component	VPC0204	VPC0304	VPC0404	VPC0504	VPC0604	VPC0804	VPC1004	VPC1204				
Nominal Tonnage	0.5	0.75	1	1.25	1.5	2	2.5	3				
COOLING PERFORMANCE												
Capacity (MBTUH)	6.2	9.3	11.7	14.6	17.8	22.8	28.2	32.6				
EER (Btuh/W)	13.2	14.0	13.8	15.7	14.6	13.0	13.5	12.8				
Entering Water Temp (°F)	86	86	86	86	86	86	86	86				
Water Flow (GPM)	1.5	2.5	3.3	3.9	4.5	6.0	7.5	9.0				
Rated CFM	290	345	465	540	650	865	1045	1100				
Refrigerant type	R410A											
Refrigerant charge (oz)	23.0	24.0	26.3	33.0	34.0	36.0	46.0	51.0				
HEATING PERFORMANCE												
Capacity (MBTUH)	8.0	8.3	9.6	14.1	16.8	21.3	27.8	31.1				
EER (Btuh/W)	270	300	360	475	600	800	950	1100				
Entering Water Temp (°F)	105	105	105	105	105	105	105	105				
Water Flow (GPM)	1.5	2.5	3.3	3.9	4.5	6.0	7.5	9.0				
DIMENSIONS (inches)												
Width (in.)	16	16	16	18	18	18	20	20				
Depth (in.)	21	21	21	24	24	24	26	26				
Height (in.)	88	88	88	88	88	88	88	88				
OPERATING WEIGHT (lbs.)												
Chassis	82	84	87	129	130	142	177	188				
Cabinet	141	141	141	161	161	161	180	180				
SHIPPING WEIGHT (lbs.)												
Chassis	88	90	93	135	136	148	183	194				
Cabinet	153	153	153	173	173	173	192	192				
COMPRESSORS												
Туре	Recip	Recip	Recip	Recip	Recip	Scroll	Scroll	Scroll				
Quantity	1	1	1	1	1	1	1	1				
EVAPORATOR COIL DATA												
Cooling Coil (rows)	3 or 4											
Heating Coil (rows)	2 or 3											
Refrigerant control	TXV											
SUPPLY FAN DATA	17.0	17.0	17.0				17.0	17.0				
Quantity	1	1	1	1	1	1	1	1				
Fan Size (D x W)	7.62 x 5	7.62 x 5	8.5 x 7	8.5 x 7	8.5 x 7	9 x 8	10 x 6	10 x 6				
Fan type	Centrifugal											
Maximum E.S.P.	Centhugai	Centrilugai	Centrilugai	Centhugai	Centrilugai	Centinugai	Centhugai	Centhiugai				
ECM Motor - Constant Torque	0.35	0.4	0.4	0.5	0.5	0.5	0.5	0.5				
ECM Motor - Constant Volume	0.35	0.4	0.4	0.5	0.5	0.5	0.5	0.5				
CONSTANT TORQUE ECM HP	0.35	0.4	0.4	0.5	0.5	0.5	0.5	0.5				
Voltage - 208-230/60/1	1/4	1/4	1/4	1/4	1/4	1/2	1/2	1/2				
Voltage - 208-230/60/1 Voltage - 265/60/1	1/4	1/4	1/4	1/4	1/4	1/2	1/2	1/2				
	1/4	1/4	1/4	1/4	1/4	1/2	1/2	1/2				
	1/2	1/0	1/0	1/0				1/2				
Voltage - 208-230/60/1	1/3	1/3	1/3	1/3	1/3	1/2	1/2	1/2				
Voltage - 265/60/1	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2				
ACOUSTICAL RETURN AIR PANEL												
Standard	15.5 x 37.8	15.5 x 37.8	15.5 x 37.8	17.5 x 39.8	17.5 x 39.8	17.5 x 39.8	19.5 x 53.8	19.5 x 53.8				
Flush Mounted	21 x 39	21 x 39	21 x 39	24 x 41	24 x 41	24 x 41	27 x 55	27 x 55				
Chassis Accessable Flush Mounted	22 x 39.8	22 x 39.8	22 x 39.8	25 x 41.8	25 x 41.8	25 x 41.8	28 x 55.8	28 x 55.8				
SUPPLY GRILLE												
1 Grille (W x H)	10 x 8	14 x 8	14 x 10	16 x 12	16 x 12	16 x 16	NA	NA				
2 Grille (W x H)	10 x 4	14 x 6	14 x 6	16 x 6	16 x 6	16 x 6	NA	NA				
2 Grille Cornerstone (W x H)	4 x 10	6 x 14	6 x 14	8 x 16	8 x 16	8 x 16	NA	NA				
3 Grille (W x H)	10 x 4	14 x 6	14 x 6	16 x 6	16 x 6	16 x 6	NA	NA				
Top Duct (W x H)	12 x 10	12 x 10	12 x 12	14 x 14	14 x 14	14 x 16	16 x 14	16 x 14				
FILTERS												
Size	13 x 24 x 1	13 x 24 x 1	13 x 24 x 1	15 x 28 x 1	15 x 28 x 1	17 x 40 x 1	17 x 40 x 1	17 x 40 x 1				

Standard Range Units:

Units are designed to start in an ambient of $50^{\circ}F$ ($10^{\circ}C$) with entering air at $50^{\circ}F$ ($10^{\circ}C$), with entering water at $50^{\circ}F$ ($10^{\circ}C$), with nominal air flow and water flow (3.0 GPM/Ton), for initial start-up in heating and cooling mode.

Note: This is not a normal or continuous operating condition. It is assumed that such start-up is for the purpose of bringing the building space up to occupancy temperature and operating for extended periods of time.

Extended Range Units:

Units are designed to start in an ambient of $50^{\circ}F$ ($10^{\circ}C$) with entering air at $50^{\circ}F$ ($10^{\circ}C$), with entering water at $20^{\circ}F$ (- $7^{\circ}C$), with nominal air flow and water flow (3.0 GPM/Ton), for initial start-up in heating. Units are designed to start in an ambient of $50^{\circ}F$

Table 4: Unit Voltage Limitations

Voltage	Minimum	Maximum
115-60-1	104	127
208/230-60-1	197	252
265-60-1	239	292
460-60-3	414	506
208/230-60-3	197	252

Table 5: Whisperpack® Continuous Operating Limits

	Ambier	nt Air °F	Entering		Entering Air °F			Entering Fluid °F			
Mode	Minimum	Maximum	Mini	mum	Maxi	mum	Standar	d Range	Extende	d Range	
	DB	DB	DB	WB	DB	WB	Min	Max	Min	Max	
Cooling	60	100	75	63	100	83	60	120	30	120	
Heating	60	80	60	-	80	-	60	140	60	140	

Note: Extended Range requires insulated risers, correct control jumper setting, and design condition antifreeze solution

Table 6: Whisperpack[®] Start-up Operating Limits

	Ambier	nt Air °F	Entering		Entering Air °F			Entering Fluid °F			
Mode	Minimum	Maximum	Mini	mum	Maxi	mum	Standar	d Range	Extende	d Range	
	DB	DB	DB	WB	DB	WB	Min	Max	Min	Max	
Cooling	50	100	50	42	100	83	50	120	30	120	
Heating	50	80	50	-	80	-	50	140	50	140	

Note: Extended Range requires insulated risers, correct control jumper setting, and design condition antifreeze solution

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Note: This is not a normal or continuous operating condition. It is assumed that such start-up is for the purpose of bringing the building space up to occupancy temperature and operating for extended periods of time.

Environment

This equipment is designed for indoor installation only. Unconditioned locations such as attics, garages, etc., generally will not provide sufficient protection against extremes in temperature and/or humidity, and equipment performance, reliability, and service life may be adversely affected.

Power supply

A voltage variation of +/-10% of nameplate voltage is acceptable.

Table 7: Whisperpack® Outdoor Temperature Reset

-	
Outdoor Air Tempera- ture	Water Temperature
Below 0°	120° Maximum Water Tem- perature
0°	115°
10°	110°
20°	105°
30°	100°
40°	90°
Above 41°	85° Minimum Water Tem- perature

 $^{(10^{\}circ}C)$ with entering air at 50°F (10°C), with entering water at 30°F (-1°C), with nominal air flow and water flow (3.0 GPM/Ton), for initial start-up in cooling.



				Entering	Air - 80°	F / 67°F			Entering	g Air - 78	B°F / 65°F			Enterin	g Air - 75	°F / 63°F	
Size (Tons)	EWT (°F)	GPM	TC (Btu/hr)	SC (Btu/hr)	kW	HR (Btu/ hr)	Liquid Temp Rise (°F)	TC (Btu/hr)	SC (Btu/hr)	kW	HR (Btu/hr)	Liquid Temp Rise (°F)	TC (Btu/hr)	SC (Btu/hr)	kW	HR (Btu/hr)	Liquid Temp Rise (°F)
	20																
	30																
	40																
	50																
	60																
	70																
	80																
0204 (0.5)		1	5.795	5.187	0.541	7.640	15.3	5.548	5.194	0.540	7.391	14.8	5.301	4.907	0.539	7.142	14.3
(0.0)	90	1.25	5.961	5.256	0.523	7.744	12.4	5.707	5.263	0.522	7.488	12.0	5.453	4.972	0.521	7.232	11.6
		1.5	6.012	5.287	0.512	7.760	10.3	5.756	5.295	0.512	7.501	10.0	5.500	5.003	0.511	7.243	9.7
		1	5.330	4.992	0.607	7.400	14.8	5.103	4.998	0.606	7.170	14.3	4.876	4.723	0.605	6.940	13.9
	100	1.25	5.482	5.058	0.586	7.483	12.0	5.248	5.065	0.586	7.247	11.6	5.015	4.785	0.585	7.011	11.2
		1.5	5.529	5.088	0.575	7.490	10.0	5.294	5.095	0.574	7.252	9.7	5.058	4.814	0.573	7.014	9.4
		1	4.795	4.759	0.680	7.115	14.2	4.590	4.765	0.679	6.908	13.8	4.386	4.503	0.678	6.701	13.4
	110	1.25	4.932	4.822	0.657	7.175	11.5	4.721	4.829	0.657	6.962	11.1	4.511	4.562	0.656	6.749	10.8
		1.5	4.974	4.851	0.644	7.172	9.6	4.762	4.858	0.643	6.957	9.3	4.550	4.590	0.643	6.743	9.0
		1	4.190	4.489	0.761	6.786	13.6	4.011	4.495	0.760	6.604	13.2	3.833	4.247	0.759	6.423	12.8
	120	1.25	4.309	4.549	0.736	6.819	10.9	4.126	4.555	0.735	6.633	10.6	3.942	4.304	0.734	6.446	10.3
		1.5	4.346	4.576	0.721	6.806	9.1	4.161	4.583	0.720	6.618	8.8	3.976	4.330	0.719	6.430	8.6

Heating Performance

			En	tering Air	- 65°F db	Er	tering Air	- 70°F db	Enteri	ng Air - 7	5°F db
Size (Tons)	EWT (°F)	GPM	HC (Btu/ hr)	Suppy Temp (°F)	Liquid Temp Drop (°F)	HC (Btu/ hr)	Suppy Temp (°F)	Liquid Temp Drop (°F)	HC (Btu/ hr)	Suppy Temp (°F)	Liquid Temp Drop (°F)
	20										
	30										
	40										
	50										
	60										
	70										
	80										
0204		1	4.302	79	8.8	3.765	82	7.7	3.226	85	6.7
(0.5)	90	1.25	4.581	80	7.5	4.010	83	6.6	3.435	86	5.7
		1.5	4.779	81	6.5	4.182	84	5.7	3.583	87	4.9
		1	6.289	85	12.8	5.504	88	11.2	4.716	90	9.6
	100	1.25	6.697	87	10.9	5.862	89	9.5	5.022	91	8.2
		1.5	6.986	88	9.5	6.114	90	8.3	5.238	92	7.1
		1	8.289	92	16.8	7.255	94	14.7	6.216	95	12.6
	110	1.25	8.828	94	14.3	7.726	95	12.5	6.619	97	10.8
		1.5	9.208	95	12.4	8.059	96	10.9	6.904	97	9.3
		1	10.303	98	20.8	9.017	99	18.2	7.725	100	15.7
	120	1.25	10.972	101	17.7	9.603	101	15.5	8.227	102	13.3
		1.5	11.444	102	15.4	10.016	103	13.5	8.581	103	11.6



				Entering	g Air - 8	0°F / 67°F			Enterin	g Air - 7	8°F / 65°F			Enterin	ig Air - ७१	5°F / 63°F	
Size (Tons)	EWT (°F)	GPM	TC (Btu/hr)	SC (Btu/hr)	kW	HR (Btu/hr)	Liquid Temp Rise (°F)	TC (Btu/hr)	SC (Btu/hr)	kW	HR (Btu/hr)	Liquid Temp Rise (°F)	TC (Btu/hr)	SC (Btu/hr)	kW	HR (Btu/hr)	Liquid Temp Rise (°F)
	60																
	70																
	80																
		1	5.795	5.187	0.541	7.640	15.3	5.548	5.194	0.540	7.391	14.8	5.301	4.907	0.539	7.142	14.3
	90	1.25	5.961	5.256	0.523	7.744	12.4	5.707	5.263	0.522	7.488	12.0	5.453	4.972	0.521	7.232	11.6
0204		1.5	6.012	5.287	0.512	7.760	10.3	5.756	5.295	0.512	7.501	10.0	5.500	5.003	0.511	7.243	9.7
(0.5)		1	5.330	4.992	0.607	7.400	14.8	5.103	4.998	0.606	7.170	14.3	4.876	4.723	0.605	6.940	13.9
. ,	100	1.25	5.482	5.058	0.586	7.483	12.0	5.248	5.065	0.586	7.247	11.6	5.015	4.785	0.585	7.011	11.2
		1.5	5.529	5.088	0.575	7.490	10.0	5.294	5.095	0.574	7.252	9.7	5.058	4.814	0.573	7.014	9.4
		1	4.795	4.759	0.680	7.115	14.2	4.590	4.765	0.679	6.908	13.8	4.386	4.503	0.678	6.701	13.4
	110	1.25	4.932	4.822	0.657	7.175	11.5	4.721	4.829	0.657	6.962	11.1	4.511	4.562	0.656	6.749	10.8
		1.5	4.974	4.851	0.644	7.172	9.6	4.762	4.858	0.643	6.957	9.3	4.550	4.590	0.643	6.743	9.0
		1	4.190	4.489	0.761	6.786	13.6	4.011	4.495	0.760	6.604	13.2	3.833	4.247	0.759	6.423	12.8
	120	1.25	4.309	4.549	0.736	6.819	10.9	4.126	4.555	0.735	6.633	10.6	3.942	4.304	0.734	6.446	10.3
		1.5	4.346	4.576	0.721	6.806	9.1	4.161	4.583	0.720	6.618	8.8	3.976	4.330	0.719	6.430	8.6

Heating Performance

			Enteri	ng Air - 6	5°F db	Enter	ng Air - 7	0°F db	Enteri	ing Air - 7	5°F db
Size (Tons)	EWT (°F)	GPM	HC (Btu/hr)	Suppy Temp (°F)	Liquid Temp Drop (°F)	HC (Btu/hr)	Suppy Temp (°F)	Liquid Temp Drop (°F)	HC (Btu/hr)	Suppy Temp (°F)	Liquid Temp Drop (°F)
	60										
	70										
	80										
		1	5.115	82	10.4	4.476	85	9.2	3.833	87	7.9
	90	1.25	5.434	83	8.9	4.755	85	7.8	4.072	88	6.7
0204		1.5	5.653	83	7.7	4.946	86	6.7	4.236	89	5.8
(0.5)		1	7.465	89	15.1	6.532	91	13.3	5.594	93	11.4
	100	1.25	7.931	91	12.9	6.940	93	11.3	5.944	94	9.7
		1.5	8.250	92	11.1	7.219	93	9.8	6.183	95	8.4
		1	9.826	97	19.9	8.598	98	17.4	7.364	99	14.9
	110	1.25	10.440	99	16.9	9.135	100	14.8	7.824	100	12.7
		1.5	10.859	100	14.6	9.503	101	12.8	8.138	101	11.0
		1	12.198	105	24.6	10.674	105	21.6	9.141	105	18.5
	120	1.25	12.960	107	20.9	11.341	107	18.3	9.713	107	15.7
		1.5	13.481	109	18.1	11.797	108	15.9	10.103	108	13.6



				Enterin	g Air - 80°	°F / 67°F			Enterin	g Air - 78°	F / 65°F			Enterin	g Air - 75°	F / 63°F	
Size (Tons)	EWT (°F)	GPM	TC (Btu/hr)	SC (Btu/hr)	kW	HR (Btu/hr)	Liquid Temp Rise (°F)	TC (Btu/hr)	SC (Btu/hr)	kW	HR (Btu/hr)	Liquid Temp Rise (°F)	TC (Btu/hr)	SC (Btu/hr)	kW	HR (Btu/hr)	Liquid Temp Rise (°F)
	60																
	70																
	80																
0304		1.5	9.177	7.218	0.746	11.721	15.6	8.786	7.227	0.745	11.326	15.1	8.395	6.829	0.744	10.932	14.6
(0.75)	90	1.875	9.276	7.268	0.725	11.751	12.5	8.881	7.277	0.725	11.353	12.1	8.486	6.876	0.724	10.955	11.7
(,		2.5	9.417	7.300	0.705	11.824	9.5	9.015	7.310	0.705	11.419	9.1	8.614	6.907	0.704	11.015	8.8
	100	1.5	8.379	6.883	0.834	11.226	15.0	8.022	6.893	0.833	10.865	14.5	7.665	6.513	0.832	10.505	14.0
	100	1.875 2.5	8.469 8.598	6.931 6.962	0.812	11.240	12.0 9.0	8.108 8.231	6.940 6.972	0.811 0.789	10.876	11.6 8.7	7.748 7.865	6.558 6.587	0.810 0.788	10.512 10.553	11.2 8.4
		1.5	7.504	6.492	0.929	10.675	14.2	7.184	6.501	0.789	10.352	13.8	6.865	6.142	0.788	10.028	13.4
	110	1.875	7.585	6.537	0.904	10.671	11.4	7.262	6.546	0.903	10.344	11.0	6.939	6.185	0.902	10.020	10.7
		2.5	7.700	6.567	0.879	10.701	8.6	7.372	6.576	0.878	10.369	8.3	7.044	6.213	0.877	10.037	8.0
		1.5	6.553	6.044	1.030	10.068	13.4	6.273	6.052	1.029	9.785	13.0	5.994	5.718	1.028	9.501	12.7
	120	1.875	6.623	6.086	1.003	10.045	10.7	6.341	6.094	1.001	9.758	10.4	6.059	5.758	1.000	9.472	10.1
		2.5	6.724	6.113	0.975	10.050	8.0	6.437	6.122	0.974	9.760	7.8	6.151	5.784	0.973	9.469	7.6

Heating Performance

			Enteri	ng Air - 6	5°F db	Enteri	ng Air - 7	0°F db	Enteri	ng Air - 7	5°F db
Size (Tons)	EWT (°F)	GPM	HC (Btu/hr)	Suppy Temp (°F)	Liquid Temp Drop (°F)	HC (Btu/hr)	Suppy Temp (°F)	Liquid Temp Drop (°F)	HC (Btu/hr)	Suppy Temp (°F)	Liquid Temp Drop (°F)
	60										
	70										
	80										
0304		1.5	5.307	80	7.2	4.644	83	6.4	3.976	86	5.5
(0.75)	90	1.875	5.609	81	6.1	4.908	84	5.4	4.202	87	4.6
(0.70)		2.5	5.917	82	4.8	5.177	84	4.2	4.433	87	3.6
		1.5	7.757	87	10.5	6.787	89	9.2	5.812	91	7.9
	100	1.875	8.197	88	8.9	7.173	90	7.8	6.142	92	6.7
		2.5	8.648	89	7.0	7.567	91	6.1	6.479	93	5.3
		1.5	10.221	94	13.8	8.943	95	12.1	7.658	96	10.4
	110	1.875	10.802	95	11.6	9.451	96	10.2	8.093	98	8.8
		2.5	11.395	97	9.2	9.971	98	8.1	8.538	99	6.9
		1.5	12.700	101	17.1	11.112	101	15.0	9.515	102	12.8
	120	1.875	13.421	103	14.4	11.744	103	12.7	10.056	103	10.9
		2.5	14.159	105	11.4	12.389	105	10.0	10.608	105	8.6



				Enterin	g Air - 80°	°F / 67°F			Enterin	g Air - 78°	°F / 65°F			Enterin	g Air - 75°	°F / 63°F	
Size (Tons)	EWT (°F)	GPM	TC (Btu/hr)	SC (Btu/hr)	kW	HR (Btu/hr)	Liquid Temp Rise (°F)	TC (Btu/hr)	SC (Btu/hr)	kW	HR (Btu/hr)	Liquid Temp Rise (°F)	TC (Btu/hr)	SC (Btu/hr)	kW	HR (Btu/hr)	Liquid Temp Rise (°F)
	60																
	70																
	80																
0304		1.5	9.177	7.218	0.746	11.721	15.6	8.786	7.227	0.745	11.326	15.1	8.395	6.829	0.744	10.932	14.6
(0.75)	90	1.875	9.276	7.268	0.725	11.751	12.5	8.881	7.277	0.725	11.353	12.1	8.486	6.876	0.724	10.955	11.7
(0.1.0)		2.5	9.417	7.300	0.705	11.824	9.5	9.015	7.310	0.705	11.419	9.1	8.614	6.907	0.704	11.015	8.8
	100	1.5	8.379	6.883	0.834	11.226	15.0	8.022	6.893	0.833	10.865	14.5	7.665	6.513	0.832	10.505	14.0
	100	1.875 2.5	8.469 8.598	6.931 6.962	0.812	11.240	12.0 9.0	8.108 8.231	6.940 6.972	0.811 0.789	10.876 10.922	11.6 8.7	7.748 7.865	6.558 6.587	0.810 0.788	10.512 10.553	<u>11.2</u> 8.4
		2.5	7.504	6.492	0.790	11.292 10.675	14.2	7.184	6.501	0.789	10.922	13.8	6.865	6.142	0.788	10.028	13.4
	110	1.875	7.585	6.537	0.929	10.671	11.4	7.262	6.546	0.928	10.344	11.0	6.939	6.185	0.927	10.028	10.7
	110	2.5	7.700	6.567	0.879	10.701	8.6	7.372	6.576	0.878	10.369	8.3	7.044	6.213	0.877	10.037	8.0
		1.5	6.553	6.044	1.030	10.068	13.4	6.273	6.052	1.029	9.785	13.0	5.994	5.718	1.028	9.501	12.7
	120	1.875	6.623	6.086	1.003	10.045	10.7	6.341	6.094	1.001	9.758	10.4	6.059	5.758	1.000	9.472	10.1
		2.5	6.724	6.113	0.975	10.050	8.0	6.437	6.122	0.974	9.760	7.8	6.151	5.784	0.973	9.469	7.6

Heating Performance

			Enteri	ng Air - 6	5°F db	Enteri	ng Air - 7	0°F db	Enteri	ng Air - 7	5°F db
Size (Tons)	EWT (°F)	GPM	HC (Btu/hr)	Suppy Temp (°F)	Liquid Temp Drop (°F)	HC (Btu/hr)	Suppy Temp (°F)	Liquid Temp Drop (°F)	HC (Btu/hr)	Suppy Temp (°F)	Liquid Temp Drop (°F)
	60										
	70										
	80										
0304		1.5	6.120	82	8.3	5.363	85	7.3	4.598	88	6.3
(0.75)	90	1.875	6.404	83	7.0	5.612	86	6.1	4.812	88	5.3
(0.70)		2.5	6.651	84	5.4	5.829	86	4.8	4.998	89	4.1
		1.5	8.923	90	12.1	7.819	92	10.6	6.704	94	9.1
	100	1.875	9.336	91	10.1	8.182	93	8.9	7.015	95	7.6
		2.5	9.697	92	7.9	8.498	94	6.9	7.286	95	5.9
		1.5	11.734	98	15.8	10.283	99	13.9	8.816	100	11.9
	110	1.875	12.278	99	13.2	10.760	100	11.6	9.225	101	10.0
	L	2.5	12.752	101	10.3	11.176	101	9.0	9.582	102	7.8
		1.5	14.553	106	19.6	12.754	106	17.2	10.935	106	14.7
	120	1.875	15.228	108	16.4	13.345	107	14.4	11.442	107	12.3
		2.5	15.816	109	12.7	13.861	109	11.2	11.884	108	9.6



				Enterin	g Air - 80°	°F / 67°F			Enterin	g Air - 78°	°F / 65°F			Enterin	g Air - 75	°F / 63°F	
Size (Tons)	EWT (°F)	GPM	TC (Btu/hr)	SC (Btu/hr)	kW	HR (Btu/hr)	Liquid Temp Rise (°F)	TC (Btu/hr)	SC (Btu/hr)	kW	HR (Btu/hr)	Liquid Temp Rise (°F)	TC (Btu/hr)	SC (Btu/hr)	kW	HR (Btu/hr)	Liquid Temp Rise (°F)
	60																
	70																
	80																
0404		2	12.493	9.557	0.968	15.797	15.8	11.960	9.570	0.967	15.261	15.3	11.428	9.042	0.966	14.725	14.7
(1.0)	90	2.5	12.606	9.616	0.944	15.828	12.7	12.069	9.630	0.943	15.286	12.2	11.532	9.098	0.942	14.746	11.8
(1.0)		3.3	12.761	9.656	0.920	15.900	9.6	12.217	9.670	0.919	15.353	9.3	11.674	9.136	0.918	14.805	9.0
		2	11.552	9.142	1.082	15.243	15.2	11.060	9.154	1.080	14.746	14.7	10.568	8.649	1.079	14.250	14.2
	100	2.5	11.657	9.199	1.054	15.255	12.2	11.160	9.211	1.053	14.753	11.8	10.664	8.703	1.052	14.253	11.4
		3.3	11.800	9.237	1.028	15.306	9.3	11.297	9.249	1.026	14.799	9.0	10.794	8.739	1.025	14.292	8.7
	110	2	10.477	8.641	1.204	14.586	14.6	10.030	8.652	1.203	14.134	14.1	9.584	8.175	1.201	13.683	13.7
	110	2.5 3.3	10.572 10.702	8.694 8.730	<u>1.174</u> 1.144	14.577 14.605	11.7 8.9	10.121 10.245	8.706 8.742	1.172 1.143	14.122 14.144	11.3 8.6	9.671 9.790	8.226 8.260	<u>1.171</u> 1.141	13.667 13.684	10.9 8.3
		3.3	9.267	8.730	1.336	13.826	13.8	8.872	8.742	1.143	13.426	13.4	<u>9.790</u> 8.477	7.620	1.333	13.084	13.0
	120	2.5	9.351	8.104	1.303	13.796	11.0	8.953	8.115	1.301	13.392	10.4	8.554	7.667	1.299	12.988	10.4
	0	3.3	9.466	8.137	1.269	13.797	8.4	9.063	8.148	1.268	13.388	8.1	8.659	7.699	1.266	12.980	7.9

Heating Performance

			Enteri	ing Air - 6	5°F db	Enteri	ing Air - 7	0°F db	Enteri	ng Air - 7	5°F db
Size (Tons)	EWT (°F)	GPM	HC (Btu/hr)	Suppy Temp (°F)	Liquid Temp Drop (°F)	HC (Btu/hr)	Suppy Temp (°F)	Liquid Temp Drop (°F)	HC (Btu/hr)	Suppy Temp (°F)	Liquid Temp Drop (°F)
	60										
	70										
	80										
0404		2	6.320	80	6.6	5.526	84	5.9	4.743	87	5.1
(1.0)	90	2.5	6.636	81	5.6	5.802	84	4.9	4.980	87	4.2
(1.0)		3.3	6.776	82	4.3	5.926	84	3.8	5.085	87	3.3
		2	9.080	87	9.4	7.940	89	8.3	6.814	92	7.1
	100	2.5	9.534	88	7.9	8.337	90	6.9	7.155	92	6.0
		3.3	9.736	89	6.1	8.514	91	5.4	7.306	93	4.6
		2	12.002	94	12.3	10.495	96	10.8	9.006	97	9.3
	110	2.5	12.601	96	10.3	11.019	97	9.1	9.456	98	7.8
		3.3	12.868	96	8.0	11.253	97	7.0	9.657	99	6.0
		2	15.083	102	15.4	13.190	102	13.5	11.319	103	11.6
	120	2.5	15.837	104	12.9	13.848	104	11.3	11.884	104	9.8
		3.3	16.173	105	10.0	14.142	105	8.8	12.136	105	7.6



				Enterin	g Air - 80°	°F / 67°F			Enterin	g Air - 78°	°F / 65°F			Enterin	g Air - 75	°F / 63°F	
Size (Tons)	EWT (°F)	GPM	TC (Btu/hr)	SC (Btu/hr)	kW	HR (Btu/hr)	Liquid Temp Rise (°F)	TC (Btu/hr)	SC (Btu/hr)	kW	HR (Btu/hr)	Liquid Temp Rise (°F)	TC (Btu/hr)	SC (Btu/hr)	kW	HR (Btu/hr)	Liquid Temp Rise (°F)
	60																
	70																
	80																
0404		2	12.493	9.557	0.968	15.797	15.8	11.960	9.570	0.967	15.261	15.3	11.428	9.042	0.966	14.725	14.7
(1.0)	90	2.5	12.606	9.616	0.944	15.828	12.7	12.069	9.630	0.943	15.286	12.2	11.532	9.098	0.942	14.746	11.8
(3.3	12.761	9.656	0.920	15.900	9.6	12.217	9.670	0.919	15.353	9.3	11.674	9.136	0.918	14.805	9.0
		2	11.552	9.142	1.082	15.243	15.2	11.060	9.154	1.080	14.746	14.7	10.568	8.649	1.079	14.250	14.2
	100	2.5	11.657	9.199	1.054	15.255	12.2	11.160	9.211	1.053	14.753	11.8	10.664	8.703	1.052	14.253	11.4
		3.3	11.800	9.237	1.028	15.306	9.3	11.297	9.249	1.026	14.799	9.0	10.794	8.739	1.025	14.292	8.7
	110	2 2.5	10.477 10.572	8.641 8.694	<u>1.204</u> 1.174	14.586 14.577	14.6 11.7	10.030 10.121	8.652 8.706	1.203 1.172	14.134 14.122	14.1 11.3	9.584 9.671	8.175 8.226	<u>1.201</u> 1.171	13.683 13.667	13.7 10.9
	110	3.3	10.572	8.094	1.174	14.577	8.9	10.121	8.706	1.172	14.122	8.6	9.671	8.220	1.171	13.684	8.3
		2	9.267	8.054	1.336	13.826	13.8	8.872	8.065	1.335	13.426	13.4	8.477	7.620	1.333	13.026	13.0
	120	2.5	9.351	8.104	1.303	13.796	11.0	8.953	8.115	1.301	13.392	10.4	8.554	7.667	1.299	12.988	10.4
		3.3	9.466	8.137	1.269	13.797	8.4	9.063	8.148	1.268	13.388	8.1	8.659	7.699	1.266	12.980	7.9

Heating Performance

			Enteri	ng Air - 6	5°F db	Enteri	ng Air - 7	0°F db	Enteri	ng Air - 7	5°F db
Size (Tons)	EWT (°F)	GPM	HC (Btu/hr)	Suppy Temp (°F)	Liquid Temp Drop (°F)	HC (Btu/hr)	Suppy Temp (°F)	Liquid Temp Drop (°F)	HC (Btu/hr)	Suppy Temp (°F)	Liquid Temp Drop (°F)
	60										
	70										
	80										
0404		2	6.962	82	7.3	6.102	85	6.4	5.232	88	5.6
(1.0)	90	2.5	7.288	83	6.1	6.388	86	5.4	5.477	88	4.6
(1.0)		3.3	7.595	84	4.8	6.657	86	4.2	5.708	89	3.7
		2	10.168	90	10.5	8.912	92	9.2	7.642	94	8.0
	100	2.5	10.645	91	8.8	9.330	93	7.7	8.000	95	6.7
		3.3	11.093	92	6.9	9.722	94	6.1	8.337	95	5.2
		2	13.392	98	13.7	11.737	99	12.1	10.065	100	10.4
	110	2.5	14.020	99	11.5	12.287	100	10.1	10.536	101	8.7
		3.3	14.610	101	9.1	12.805	101	8.0	10.980	102	6.9
		2	16.633	106	17.0	14.578	106	14.9	12.500	106	12.8
	120	2.5	17.413	108	14.2	15.261	107	12.5	13.086	107	10.7
		3.3	18.146	109	11.2	15.904	109	9.8	13.637	108	8.5



				Enterin	g Air - 80°	°F / 67°F			Enterin	g Air - 78°	°F / 65°F			Enterin	g Air - 75°	°F / 63°F	
Size (Tons)	EWT (°F)	GPM	TC (Btu/hr)	SC (Btu/hr)	kW	HR (Btu/hr)	Liquid Temp Rise (°F)	TC (Btu/hr)	SC (Btu/hr)	kW	HR (Btu/hr)	Liquid Temp Rise (°F)	TC (Btu/hr)	SC (Btu/hr)	kW	HR (Btu/hr)	Liquid Temp Rise (°F)
	60																
	70																
	80																
0504		2.5	14.919	11.543	1.110	18.706	15.0	14.283	11.559	1.108	18.065	14.5	13.648	10.921	1.107	17.425	13.9
(1.25)	90	3.125	15.113	11.655	1.066	18.752	12.0	14.469	11.671	1.065	18.103	11.6	13.825	11.027	1.064	17.456	11.2
(1.20)		3.9	15.133	11.624	1.039	18.678	9.6	14.487	11.640	1.038	18.029	9.2	13.843	10.998	1.037	17.380	8.9
		2.5	13.642	11.024	1.304	18.092	14.5	13.061	11.039	1.302	17.505	14.0	12.480	10.430	1.301	16.919	13.5
	100	3.125	13.820	11.131	1.253	18.096	11.6	13.230	11.146	1.252	17.501	11.2	12.642	10.531	1.250	16.908	10.8
		3.9	13.837	11.102	1.221	18.004	9.2	13.247	11.117	1.220	17.409	8.9	12.658	10.504	1.218	16.815	8.6
	110	2.5	12.197	10.430	1.523	17.393	13.9	11.677	10.444	1.521	16.867	13.5	11.158	9.868	1.519	16.341	13.1
	110	3.125 3.9	12.356 12.371	10.532 10.504	1.463 1.426	17.349 17.237	11.1 8.8	11.829 11.844	10.546 10.518	1.462 1.424	16.816 16.704	10.8 8.6	11.303 11.317	9.964 9.938	1.460 1.423	16.284 16.171	10.4 8.3
		2.5	10.584	9.763	1.766	16.609	13.3	10.132	9.776	1.424	16.151	8.0 12.9	9.682	9.938	1.762	15.693	12.6
	120	3.125	10.721	9.858	1.697	16.512	10.6	10.264	9.871	1.695	16.048	10.3	9.808	9.326	1.693	15.585	10.0
	120	3.9	10.721	9.832	1.654	16.378	8.4	10.277	9.845	1.652	15.914	8.2	9.820	9.302	1.650	15.450	7.9

Heating Performance

			Enteri	ng Air - 6	5°F db	Enteri	ing Air - 7	0°F db	Enteri	ng Air - 7	5°F db
Size (Tons)	EWT (°F)	GPM	HC (Btu/hr)	Suppy Temp (°F)	Liquid Temp Drop (°F)	HC (Btu/hr)	Suppy Temp (°F)	Liquid Temp Drop (°F)	HC (Btu/hr)	Suppy Temp (°F)	Liquid Temp Drop (°F)
	60										
	70										
	80										
0504		2.5	9.053	82	7.4	7.956	85	6.6	6.852	88	5.7
(1.25)	90	3.125	9.491	83	6.2	8.341	86	5.5	7.184	89	4.7
(1.20)		3.9	9.865	84	5.2	8.670	87	4.6	7.467	89	3.9
		2.5	13.008	90	10.6	11.433	92	9.3	9.846	94	8.1
	100	3.125	13.638	91	8.9	11.986	93	7.8	10.323	95	6.8
		3.9	14.176	92	7.4	12.459	94	6.5	10.730	95	5.6
		2.5	16.991	97	13.8	14.933	98	12.1	12.861	100	10.5
	110	3.125	17.813	99	11.5	15.656	100	10.2	13.483	101	8.8
		3.9	18.516	100	9.6	16.273	101	8.5	14.015	102	7.3
		2.5	20.999	105	17.0	18.456	105	15.0	15.895	105	12.9
	120	3.125	22.016	107	14.2	19.349	107	12.5	16.664	107	10.8
		3.9	22.885	109	11.9	20.113	108	10.4	17.322	108	9.0



				Enterin	g Air - 80°	°F / 67°F			Enterin	g Air - 78°	°F / 65°F			Enterin	g Air - 75°	°F / 63°F	
Size (Tons)	EWT (°F)	GPM	TC (Btu/hr)	SC (Btu/hr)	kW	HR (Btu/hr)	Liquid Temp Rise (°F)	TC (Btu/hr)	SC (Btu/hr)	kW	HR (Btu/hr)	Liquid Temp Rise (°F)	TC (Btu/hr)	SC (Btu/hr)	kW	HR (Btu/hr)	Liquid Temp Rise (°F)
	60																
	70																
	80																
0504		2.5	14.919	11.543	1.110	18.706	15.0	14.283	11.559	1.108	18.065	14.5	13.648	10.921	1.107	17.425	13.9
(1.25)	90	3.125	15.113	11.655	1.066	18.752	12.0	14.469	11.671	1.065	18.103	11.6	13.825	11.027	1.064	17.456	11.2
(1.20)		3.9	15.133	11.624	1.039	18.678	9.6	14.487	11.640	1.038	18.029	9.2	13.843	10.998	1.037	17.380	8.9
		2.5	13.642	11.024	1.304	18.092	14.5	13.061	11.039	1.302	17.505	14.0	12.480	10.430	1.301	16.919	13.5
	100	3.125	13.820	11.131	1.253	18.096	11.6	13.230	11.146	1.252	17.501	11.2	12.642	10.531	1.250	16.908	10.8
		3.9	13.837	11.102	1.221	18.004	9.2	13.247	11.117	1.220	17.409	8.9	12.658	10.504	1.218	16.815	8.6
	110	2.5	12.197	10.430	1.523	17.393	13.9	11.677	10.444	1.521	16.867	13.5	11.158	9.868	1.519	16.341	13.1
	110	3.125 3.9	12.356 12.371	10.532 10.504	1.463 1.426	17.349 17.237	11.1 8.8	11.829 11.844	10.546 10.518	1.462 1.424	16.816 16.704	10.8 8.6	11.303 11.317	9.964 9.938	1.460 1.423	16.284 16.171	10.4 8.3
		2.5	10.584	9.763	1.766	16.609	13.3	10.132	9.776	1.424	16.151	8.0 12.9	9.682	9.938	1.762	15.693	12.6
	120	3.125	10.721	9.858	1.697	16.512	10.6	10.264	9.871	1.695	16.048	10.3	9.808	9.326	1.693	15.585	10.0
		3.9	10.721	9.832	1.654	16.378	8.4	10.277	9.845	1.652	15.914	8.2	9.820	9.302	1.650	15.450	7.9

Heating Performance

			Enteri	ng Air - 6	5°F db	Enteri	ng Air - 7	0°F db	Enteri	ng Air - 7	5°F db
Size (Tons)	EWT (°F)	GPM	HC (Btu/hr)	Suppy Temp (°F)	Liquid Temp Drop (°F)	HC (Btu/hr)	Suppy Temp (°F)	Liquid Temp Drop (°F)	HC (Btu/hr)	Suppy Temp (°F)	Liquid Temp Drop (°F)
	60										
	70										
	80										
0504		2.5	10.740	85	8.8	9.414	88	7.7	8.072	90	6.6
(1.25)	90	3.125	11.191	86	7.3	9.809	89	6.4	8.411	91	5.5
(1.23)		3.9	11.500	87	6.0	10.080	89	5.3	8.643	91	4.6
		2.5	15.519	95	12.6	13.602	96	11.1	11.663	97	9.5
	100	3.125	16.170	96	10.5	14.173	97	9.2	12.153	98	7.9
		3.9	16.616	97	8.6	14.564	98	7.6	12.488	99	6.5
		2.5	20.315	104	16.4	17.806	104	14.4	15.268	104	12.4
	110	3.125	21.167	105	13.7	18.554	105	12.0	15.909	105	10.3
		3.9	21.751	107	11.3	19.065	106	9.9	16.348	106	8.5
		2.5	25.128	113	20.3	22.025	112	17.8	18.886	111	15.3
	120	3.125	26.183	115	16.9	22.950	114	14.8	19.679	113	12.7
		3.9	26.906	116	13.9	23.583	115	12.2	20.222	114	10.5



				Enterin	g Air - 80°	°F / 67°F			Enterin	g Air - 78°	°F / 65°F			Enterin	g Air - 75°	°F / 63°F	
Size (Tons)	EWT (°F)	GPM	TC (Btu/hr)	SC (Btu/hr)	kW	HR (Btu/hr)	Liquid Temp Rise (°F)	TC (Btu/hr)	SC (Btu/hr)	kW	HR (Btu/hr)	Liquid Temp Rise (°F)	TC (Btu/hr)	SC (Btu/hr)	kW	HR (Btu/hr)	Liquid Temp Rise (°F)
	60																
	70																
	80										_						
0604		3	17.872	13.511	1.348	22.473	15.0	17.110	13.529	1.347	21.705	14.5	16.349	12.783	1.345	20.939	14.0
(1.5)	90	3.75	18.123	13.505	1.305	22.575	12.0	17.350	13.523	1.303	21.797	11.6	16.579	12.777	1.301	21.020	11.2
. ,		4.5	18.219	13.603	1.276	22.573	10.0	17.442	13.622	1.275	21.791	9.7	16.666	12.870	1.273	21.010	9.3
		3	16.713	13.019	1.509	21.861	14.6	16.001	13.037	1.507	21.142	14.1	15.289	12.318	1.505	20.424	13.6
	100	3.75	16.948	13.014	1.459	21.928	11.7	16.226	13.031	1.458	21.200	11.3	15.504	12.312	1.456	20.472	10.9
		4.5	17.038	13.108	1.428	21.909	9.7	16.312	13.126	1.426	21.177	9.4	15.586	12.402	1.424	20.445	9.1
	110	3	15.430	12.432	1.680	21.163	14.1	14.772	12.449	1.678	20.498	13.7	14.115	11.762	1.676	19.834	13.2
	110	3.75	15.647	12.427	1.626	21.193	11.3 9.4	14.980	12.444	1.624	20.520	10.9 9.1	14.314	11.757	1.622	19.847	10.6 8.8
		4.5 3	15.730 14.022	12.517 11.750	1.590 1.864	21.155 20.380	9.4 13.6	15.059 13.424	12.534 11.766	1.588 1.861	20.478	9.1 13.2	14.389 12.827	<u>11.843</u> 11.117	1.586 1.859	19.802 19.170	12.8
	120	3.75	14.022	11.744	1.803	20.380	10.9	13.613	11.760	1.801	19.775	10.5	13.007	11.112	1.799	19.170	12.0
	120	4.5	14.294	11.830	1.763	20.311	9.0	13.685	11.846	1.761	19.695	8.8	13.076	11.192	1.759	19.079	8.5

Heating Performance

			Enteri	ng Air - 6	5°F db	Enteri	ng Air - 7	0°F db	Enteri	ng Air - 7	5°F db
Size (Tons)	EWT (°F)	GPM	HC (Btu/hr)	Suppy Temp (°F)	Liquid Temp Drop (°F)	HC (Btu/hr)	Suppy Temp (°F)	Liquid Temp Drop (°F)	HC (Btu/hr)	Suppy Temp (°F)	Liquid Temp Drop (°F)
	60										
	70										
	80										
0604		3	10.643	81	7.4	9.359	84	6.5	8.037	87	5.6
(1.5)	90	3.75	11.122	82	6.2	9.780	85	5.4	8.399	88	4.7
(1.5)		4.5	11.461	82	5.3	10.078	85	4.7	8.654	88	4.0
		3	15.432	88	10.6	13.570	91	9.3	11.653	93	8.1
	100	3.75	16.126	90	8.8	14.181	92	7.8	12.177	94	6.7
		4.5	16.617	90	7.6	14.612	92	6.7	12.548	94	5.8
		3	20.230	96	13.8	17.789	97	12.1	15.276	98	10.5
	110	3.75	21.140	97	11.5	18.589	98	10.1	15.963	99	8.7
		4.5	21.783	98	9.9	19.155	99	8.7	16.449	100	7.5
		3	25.036	103	17.0	22.016	104	15.0	18.905	104	12.9
	120	3.75	26.162	105	14.2	23.006	105	12.5	19.756	105	10.8
		4.5	26.959	106	12.2	23.707	106	10.7	20.357	106	9.2



				Enterin	g Air - 80°	°F / 67°F			Enterin	g Air - 78°	°F / 65°F			Enterin	g Air - 75°	°F / 63°F	
Size (Tons)	EWT (°F)	GPM	TC (Btu/hr)	SC (Btu/hr)	kW	HR (Btu/hr)	Liquid Temp Rise (°F)	TC (Btu/hr)	SC (Btu/hr)	kW	HR (Btu/hr)	Liquid Temp Rise (°F)	TC (Btu/hr)	SC (Btu/hr)	kW	HR (Btu/hr)	Liquid Temp Rise (°F)
	60																
	70																
	80																
0604		3	17.872	13.511	1.348	22.473	15.0	17.110	13.529	1.347	21.705	14.5	16.349	12.783	1.345	20.939	14.0
(1.5)	90	3.75	18.123	13.505	1.305	22.575	12.0	17.350	13.523	1.303	21.797	11.6	16.579	12.777	1.301	21.020	11.2
(1.0)		4.5	18.219	13.603	1.276	22.573	10.0	17.442	13.622	1.275	21.791	9.7	16.666	12.870	1.273	21.010	9.3
		3	16.713	13.019	1.509	21.861	14.6	16.001	13.037	1.507	21.142	14.1	15.289	12.318	1.505	20.424	13.6
	100	3.75	16.948	13.014	1.459	21.928	11.7	16.226	13.031	1.458	21.200	11.3	15.504	12.312	1.456	20.472	10.9
		4.5	17.038	13.108	1.428	21.909	9.7	16.312	13.126	1.426	21.177	9.4	15.586	12.402	1.424	20.445	9.1
	110	3	15.430	12.432	1.680	21.163	14.1	14.772	12.449	1.678	20.498	13.7	14.115	11.762	1.676	19.834	13.2
	110	3.75 4.5	15.647 15.730	12.427 12.517	1.626 1.590	21.193	11.3 9.4	14.980 15.059	12.444 12.534	1.624 1.588	20.520 20.478	10.9 9.1	14.314 14.389	11.757 11.843	1.622 1.586	19.847 19.802	10.6 8.8
		4.5	14.022	11.750	1.864	21.155 20.380	9.4 13.6	13.424	12.534	1.861	19.775	9.1 13.2	12.827	11.843	1.859	19.802	12.8
	120	3.75	14.219	11.744	1.803	20.300	10.9	13.613	11.760	1.801	19.757	10.2	13.007	11.112	1.799	19.144	10.2
		4.5	14.294	11.830	1.763	20.311	9.0	13.685	11.846	1.761	19.695	8.8	13.076	11.192	1.759	19.079	8.5

Heating Performance

			Enteri	ng Air - 6	5°F db	Enteri	ng Air - 7	0°F db	Enteri	ng Air - 7	5°F db
Size (Tons)	EWT (°F)	GPM	HC (Btu/hr)	Suppy Temp (°F)	Liquid Temp Drop (°F)	HC (Btu/hr)	Suppy Temp (°F)	Liquid Temp Drop (°F)	HC (Btu/hr)	Suppy Temp (°F)	Liquid Temp Drop (°F)
	60										
	70										
	80										
0604		3	12.792	84	8.8	11.234	87	7.8	9.663	90	6.7
	90	3.75	13.340	85	7.3	11.715	88	6.5	10.077	90	5.6
(1.5)		4.5	13.688	86	6.3	12.020	88	5.5	10.339	91	4.8
		3	18.405	93	12.6	16.162	95	11.1	13.902	96	9.6
	100	3.75	19.193	94	10.5	16.854	96	9.2	14.498	97	8.0
		4.5	19.693	95	8.9	17.294	96	7.9	14.876	98	6.8
		3	24.041	102	16.3	21.112	102	14.4	18.160	103	12.4
	110	3.75	25.071	103	13.6	22.016	104	12.0	18.938	104	10.3
		4.5	25.725	104	11.6	22.590	104	10.2	19.431	105	8.8
		3	29.703	110	20.1	26.084	110	17.7	22.436	109	15.2
	120	3.75	30.975	112	16.7	27.200	111	14.7	23.397	111	12.7
		4.5	31.782	113	14.3	27.910	112	12.6	24.007	112	10.9



				Enterin	g Air - 80°	°F / 67°F			Enterin	g Air - 78°	°F / 65°F			Enterin	g Air - 75°	°F / 63°F	
Size (Tons)	EWT (°F)	GPM	TC (Btu/hr)	SC (Btu/hr)	kW	HR (Btu/hr)	Liquid Temp Rise (°F)	TC (Btu/hr)	SC (Btu/hr)	kW	HR (Btu/hr)	Liquid Temp Rise (°F)	TC (Btu/hr)	SC (Btu/hr)	kW	HR (Btu/hr)	Liquid Temp Rise (°F)
	60																
	70																
	80																
0804		4	21.583	17.558	1.889	28.028	14.0	20.663	17.582	1.887	27.101	13.6	19.744	16.612	1.884	26.174	13.1
(2.0)	90	5	22.027	17.789	1.835	28.290	11.3	21.088	17.813	1.833	27.343	10.9	20.150	16.831	1.831	26.398	10.6
(2.0)		6	22.266	17.923	1.806	28.427	9.5	21.317	17.948	1.803	27.470	9.2	20.369	16.958	1.801	26.515	8.8
		4	19.675	16.677	2.137	26.967	13.5	18.836	16.700	2.135	26.120	13.1	17.998	15.779	2.132	25.273	12.6
	100	5	20.080	16.896	2.076	27.165	10.9	19.224	16.919	2.074	26.300	10.5	18.369	15.986	2.071	25.437	10.2
		6	20.298	17.024	2.043	27.268	9.1	19.432	17.047	2.040	26.394	8.8	18.568	16.107	2.038	25.522	8.5
		4	17.432	15.651	2.418	25.683	12.8	16.689	15.673	2.415	24.930	12.5	15.946	14.808	2.412	24.178	12.1
	110	5	17.791	15.857	2.350	25.808	10.3	17.032	15.879	2.347	25.040	10.0	16.275	15.003	2.344	24.273	9.7
		6	17.984	15.977	2.311	25.871	8.6	17.217	15.999	2.309	25.095	8.4	16.451	15.116	2.306	24.320	8.1
	100	4	14.854	14.482	2.732	24.177	12.1	14.221	14.501	2.729	23.532	11.8	13.588	13.701	2.726	22.889	11.4
	120	5	15.160	14.672	2.655	24.218	9.7	14.514	14.692	2.651	23.560	9.4	13.868	13.881	2.648	22.904	9.2 7.6
		6	15.325	14.783	2.612	24.235	8.1	14.671	14.803	2.608	23.571	7.9	14.019	13.986	2.605	22.908	1.0

Heating Performance

			Enteri	ng Air - 6	5°F db	Enteri	ing Air - 7	0°F db	Enteri	ing Air - 7	5°F db
Size (Tons)	EWT (°F)	GPM	HC (Btu/hr)	Suppy Temp (°F)	Liquid Temp Drop (°F)	HC (Btu/hr)	Suppy Temp (°F)	Liquid Temp Drop (°F)	HC (Btu/hr)	Suppy Temp (°F)	Liquid Temp Drop (°F)
	60										
	70										
	80										
0804		4	13.941	80	7.3	12.228	83	6.4	10.501	86	5.6
(2.0)	90	5	14.520	81	6.1	12.736	84	5.3	10.937	87	4.6
(2.0)		6	14.990	81	5.2	13.149	84	4.6	11.292	87	4.0
		4	20.231	87	10.4	17.746	89	9.2	15.239	92	7.9
	100	5	21.071	88	8.7	18.483	90	7.6	15.872	92	6.6
		6	21.754	89	7.5	19.082	91	6.6	16.386	93	5.7
		4	26.556	94	13.6	23.294	95	12.0	20.003	97	10.3
	110	5	27.659	95	11.3	24.261	96	10.0	20.834	98	8.6
		6	28.556	96	9.7	25.047	97	8.6	21.509	98	7.4
		4	32.917	101	16.8	28.873	101	14.8	24.794	102	12.7
	120	5	34.283	102	14.0	30.072	103	12.3	25.824	103	10.6
		6	35.395	103	12.0	31.046	104	10.6	26.661	104	9.1



				Enterin	g Air - 80°	°F / 67°F			Enterin	g Air - 78°	°F / 65°F			Enterin	g Air - 75	°F / 63°F	
Size (Tons)	EWT (°F)	GPM	TC (Btu/hr)	SC (Btu/hr)	kW	HR (Btu/hr)	Liquid Temp Rise (°F)	TC (Btu/hr)	SC (Btu/hr)	kW	HR (Btu/hr)	Liquid Temp Rise (°F)	TC (Btu/hr)	SC (Btu/hr)	kW	HR (Btu/hr)	Liquid Temp Rise (°F)
	60																
	70																
	80																
0804		4	21.583	17.558	1.889	28.028	14.0	20.663	17.582	1.887	27.101	13.6	19.744	16.612	1.884	26.174	13.1
(2.0)	90	5	22.027	17.789	1.835	28.290	11.3	21.088	17.813	1.833	27.343	10.9	20.150	16.831	1.831	26.398	10.6
(2.0)		6	22.266	17.923	1.806	28.427	9.5	21.317	17.948	1.803	27.470	9.2	20.369	16.958	1.801	26.515	8.8
		4	19.675	16.677	2.137	26.967	13.5	18.836	16.700	2.135	26.120	13.1	17.998	15.779	2.132	25.273	12.6
	100	5	20.080	16.896	2.076	27.165	10.9	19.224	16.919	2.074	26.300	10.5	18.369	15.986	2.071	25.437	10.2
		6	20.298	17.024	2.043	27.268	9.1	19.432	17.047	2.040	26.394	8.8	18.568	16.107	2.038	25.522	8.5
	110	4	17.432	15.651	2.418	25.683	12.8	16.689	15.673	2.415	24.930	12.5	15.946	14.808	2.412	24.178	12.1
	110	5	17.791	15.857	2.350	25.808	10.3	17.032	15.879	2.347	25.040	10.0	16.275	15.003	2.344	24.273	9.7 8.1
		4	17.984 14.854	15.977 14.482	2.311 2.732	25.871 24.177	8.6 12.1	17.217 14.221	15.999 14.501	2.309 2.729	25.095 23.532	8.4 11.8	16.451 13.588	15.116 13.701	2.306	24.320 22.889	11.4
	120	5	15.160	14.462	2.655	24.177	9.7	14.221	14.692	2.651	23.552	9.4	13.868	13.881	2.648	22.869	9.2
	120	6	15.325	14.783	2.612	24.218	9.7 8.1	14.671	14.803	2.608	23.500	7.9	14.019	13.986	2.605	22.904	7.6

Heating Performance

			Enteri	ng Air - 6	5°F db	Enteri	ng Air - 7	0°F db	Enteri	ng Air - 7	5°F db
Size (Tons)	EWT (°F)	GPM	HC (Btu/hr)	Suppy Temp (°F)	Liquid Temp Drop (°F)	HC (Btu/hr)	Suppy Temp (°F)	Liquid Temp Drop (°F)	HC (Btu/hr)	Suppy Temp (°F)	Liquid Temp Drop (°F)
	60										
	70										
	80										
0804		4	16.983	83	8.8	14.884	86	7.8	12.764	89	6.7
(2.0)	90	5	17.755	84	7.4	15.561	87	6.5	13.344	89	5.6
(2.0)		6	18.267	85	6.3	16.010	87	5.5	13.730	90	4.8
		4	24.523	92	12.6	21.492	93	11.1	18.431	95	9.5
	100	5	25.638	93	10.5	22.469	94	9.2	19.269	96	8.0
		6	26.378	94	9.0	23.118	95	7.9	19.825	97	6.8
		4	32.099	100	16.4	28.132	101	14.4	24.125	101	12.4
	110	5	33.558	101	13.7	29.411	102	12.0	25.222	102	10.3
		6	34.527	102	11.7	30.260	103	10.3	25.950	103	8.9
		4	39.711	108	20.2	34.804	108	17.7	29.847	107	15.2
	120	5	41.516	110	16.9	36.386	110	14.8	31.203	109	12.7
		6	42.715	111	14.4	37.436	111	12.7	32.104	110	10.9



				Enterin	g Air - 80°	°F / 67°F			Enterin	g Air - 78°	°F / 65°F			Enterin	g Air - 75°	°F / 63°F	
Size (Tons)	EWT (°F)	GPM	TC (Btu/hr)	SC (Btu/hr)	kW	HR (Btu/hr)	Liquid Temp Rise (°F)	TC (Btu/hr)	SC (Btu/hr)	kW	HR (Btu/hr)	Liquid Temp Rise (°F)	TC (Btu/hr)	SC (Btu/hr)	kW	HR (Btu/hr)	Liquid Temp Rise (°F)
	60																
	70																
	80																
0814		4	24.023	18.697	1.805	30.181	15.1	22.999	18.723	1.802	29.149	14.6	21.976	17.690	1.800	28.119	14.1
(2.2)	90	5	24.555	18.828	1.758	30.552	12.2	23.508	18.854	1.755	29.498	11.8	22.463	17.814	1.753	28.445	11.4
(2.2)		6	24.803	18.908	1.738	30.732	10.2	23.745	18.933	1.736	29.667	9.9	22.689	17.889	1.733	28.604	9.5
		4	21.869	17.752	1.956	28.543	14.3	20.937	17.776	1.953	27.602	13.8	20.006	16.795	1.951	26.663	13.3
	100	5	22.354	17.876	1.905	28.853	11.5	21.401	17.900	1.903	27.892	11.2	20.449	16.913	1.900	26.933	10.8
		6	22.579	17.951	1.883	29.005	9.7	21.616	17.976	1.881	28.034	9.3	20.655	16.984	1.879	27.065	9.0
	110	4	19.578	16.757	2.104	26.757	13.4	18.743	16.779	2.101	25.914	13.0	17.910	15.854	2.099	25.072	12.5
	110	5	20.012 20.213	16.874 16.945	2.049	27.003 27.126	10.8 9.0	19.158 19.352	16.897 16.968	2.047 2.023	26.142 26.256	10.5 8.8	18.306 18.491	15.965 16.032	2.044	25.281 25.387	10.1 8.5
		4	17.149	15.713	2.026	24.824	9.0	19.352	15.734	2.023	20.250	12.0	15.688	14.866	2.021	23.387	11.7
	120	5	17.529	15.823	2.190	25.003	12.4	16.782	15.844	2.188	24.003	9.7	16.035	14.800	2.185	23.492	9.4
	120	6	17.706	15.889	2.166	25.005	8.4	16.951	15.911	2.163	24.332	8.1	16.197	15.033	2.160	23.569	7.9

Heating Performance

			Enteri	ng Air - 6	5°F db	Enteri	ing Air - 7	0°F db	Enteri	ng Air - 7	5°F db
Size (Tons)	EWT (°F)	GPM	HC (Btu/hr)	Suppy Temp (°F)	Liquid Temp Drop (°F)	HC (Btu/hr)	Suppy Temp (°F)	Liquid Temp Drop (°F)	HC (Btu/hr)	Suppy Temp (°F)	Liquid Temp Drop (°F)
	60										
	70										
	80										
0814		4	13.574	80	7.1	11.906	84	6.3	10.224	87	5.4
(2.2)	90	5	14.137	81	5.9	12.400	84	5.2	10.649	87	4.5
(2.2)		6	14.595	82	5.1	12.802	85	4.5	10.994	88	3.9
		4	19.698	87	10.2	17.278	90	9.0	14.837	92	7.7
	100	5	20.516	88	8.5	17.995	90	7.5	15.453	93	6.4
		6	21.181	89	7.3	18.579	91	6.4	15.954	93	5.5
		4	25.856	94	13.2	22.680	96	11.7	19.476	97	10.1
	110	5	26.930	96	11.0	23.621	97	9.7	20.285	98	8.4
		6	27.803	97	9.5	24.387	98	8.3	20.942	99	7.2
		4	32.049	101	16.3	28.112	102	14.4	24.141	102	12.4
	120	5	33.380	103	13.6	29.279	103	12.0	25.143	104	10.3
		6	34.462	104	11.7	30.228	104	10.3	25.958	105	8.9



				Enterin	g Air - 80°	°F / 67°F			Enterin	g Air - 78°	°F / 65°F			Enterin	g Air - 75°	°F / 63°F	
Size (Tons)	EWT (°F)	GPM	TC (Btu/hr)	SC (Btu/hr)	kW	HR (Btu/hr)	Liquid Temp Rise (°F)	TC (Btu/hr)	SC (Btu/hr)	kW	HR (Btu/hr)	Liquid Temp Rise (°F)	TC (Btu/hr)	SC (Btu/hr)	kW	HR (Btu/hr)	Liquid Temp Rise (°F)
	60																
	70																
	80																
0814		4	24.023	18.697	1.805	30.181	15.1	22.999	18.723	1.802	29.149	14.6	21.976	17.690	1.800	28.119	14.1
(2.2)	90	5	24.555	18.828	1.758	30.552	12.2	23.508	18.854	1.755	29.498	11.8	22.463	17.814	1.753	28.445	11.4
(2.2)		6	24.803	18.908	1.738	30.732	10.2	23.745	18.933	1.736	29.667	9.9	22.689	17.889	1.733	28.604	9.5
		4	21.869	17.752	1.956	28.543	14.3	20.937	17.776	1.953	27.602	13.8	20.006	16.795	1.951	26.663	13.3
	100	5	22.354	17.876	1.905	28.853	11.5	21.401	17.900	1.903	27.892	11.2	20.449	16.913	1.900	26.933	10.8
		6	22.579	17.951	1.883	29.005	9.7 13.4	21.616	17.976	1.881	28.034	9.3	20.655	16.984	1.879	27.065	9.0
	110	4	19.578 20.012	16.757 16.874	2.104 2.049	26.757 27.003	13.4	18.743 19.158	16.779 16.897	2.101 2.047	25.914 26.142	13.0 10.5	17.910 18.306	15.854 15.965	2.099	25.072 25.281	12.5 10.1
		6	20.012	16.945	2.049	27.003	9.0	19.158	16.968	2.047	26.142	8.8	18.306	16.032	2.044	25.281	8.5
		4	17.149	15.713	2.249	24.824	12.4	16.418	15.734	2.246	24.083	12.0	15.688	14.866	2.244	23.344	11.7
	120	5	17.529	15.823	2.190	25.003	10.0	16.782	15.844	2.188	24.247	9.7	16.035	14.970	2.185	23.492	9.4
		6	17.706	15.889	2.166	25.095	8.4	16.951	15.911	2.163	24.332	8.1	16.197	15.033	2.160	23.569	7.9

Heating Performance

			Enteri	ng Air - 6	5°F db	Enteri	ng Air - 7	0°F db	Enteri	ng Air - 7	5°F db
Size (Tons)	EWT (°F)	GPM	HC (Btu/hr)	Suppy Temp (°F)	Liquid Temp Drop (°F)	HC (Btu/hr)	Suppy Temp (°F)	Liquid Temp Drop (°F)	HC (Btu/hr)	Suppy Temp (°F)	Liquid Temp Drop (°F)
	60										
	70										
	80										
0814		4	16.473	84	8.6	14.437	86	7.5	12.381	89	6.5
(2.2)	90	5	17.222	85	7.1	15.093	87	6.3	12.944	90	5.4
(2.2)		6	17.719	85	6.1	15.529	88	5.4	13.317	90	4.6
		4	23.787	92	12.2	20.847	94	10.7	17.878	95	9.3
	100	5	24.868	93	10.2	21.795	95	9.0	18.690	96	7.7
		6	25.586	94	8.7	22.424	96	7.7	19.230	97	6.6
		4	31.135	100	15.9	27.288	101	14.0	23.401	102	12.0
	110	5	32.550	102	13.3	28.528	102	11.7	24.464	103	10.0
		6	33.490	103	11.4	29.352	103	10.0	25.171	104	8.6
		4	38.519	109	19.6	33.759	108	17.2	28.950	108	14.8
	120	5	40.270	111	16.4	35.293	110	14.4	30.266	109	12.4
		6	41.433	112	14.0	36.312	111	12.3	31.140	110	10.6



				Enterin	g Air - 80°	°F / 67°F			Enterin	g Air - 78°	°F / 65°F			Enterin	g Air - 75°	°F / 63°F	
Size (Tons)	EWT (°F)	GPM	TC (Btu/hr)	SC (Btu/hr)	kW	HR (Btu/hr)	Liquid Temp Rise (°F)	TC (Btu/hr)	SC (Btu/hr)	kW	HR (Btu/hr)	Liquid Temp Rise (°F)	TC (Btu/hr)	SC (Btu/hr)	kW	HR (Btu/hr)	Liquid Temp Rise (°F)
	60																
	70																
	80																
1004		5	27.982	20.747	2.129	35.248	14.1	26.789	20.776	2.127	34.047	13.6	25.598	19.630	2.124	32.846	13.1
(2.5)	90	6.25	28.332	20.916	2.076	35.414	11.3	27.124	20.945	2.073	34.198	10.9	25.918	19.790	2.071	32.983	10.6
(2.0)		7.5	28.511	20.991	2.041	35.475	9.5	27.295	21.019	2.039	34.251	9.1	26.081	19.860	2.036	33.029	8.8
		5	26.184	19.714	2.380	34.306	13.7	25.067	19.741	2.378	33.180	13.3	23.952	18.652	2.375	32.055	12.8
	100	6.25	26.511	19.875	2.320	34.428	11.0	25.380	19.902	2.317	33.288	10.7	24.251	18.804	2.315	32.150	10.3
		7.5 5	26.678 23.951	19.946 18.269	2.282	34.463 33.043	9.2 13.2	25.540 22.930	19.973 18.294	2.279 2.662	33.317 32.011	8.9 12.8	24.404 21.910	18.871 17.285	2.276 2.658	32.171 30.980	8.6
	110	6.25	23.951	18.418	2.005	33.113	10.6	22.930	18.443	2.002	32.011	12.8	22.183	17.205	2.000	31.025	12.4 9.9
		7.5	24.403	18.483	2.554	33.119	8.8	23.362	18.509	2.551	32.068	8.6	22.323	17.420	2.548	31.023	8.3
		5	21.284	16.412	2.982	31.461	12.6	20.377	16.434	2.979	30.541	12.2	19.470	15.528	2.975	29.622	11.8
	120	6.25	21.550	16.546	2.907	31.469	10.1	20.631	16.568	2.904	30.539	9.8	19.714	15.654	2.900	29.609	9.5
		7.5	21.686	16.604	2.859	31.441	8.4	20.761	16.627	2.855	30.504	8.1	19.838	15.710	2.852	29.569	7.9

Heating Performance

			Enteri	ng Air - 6	5°F db	Enteri	ng Air - 7	0°F db	Enteri	ng Air - 7	5°F db
Size (Tons)	EWT (°F)	GPM	HC (Btu/hr)	Suppy Temp (°F)	Liquid Temp Drop (°F)	HC (Btu/hr)	Suppy Temp (°F)	Liquid Temp Drop (°F)	HC (Btu/hr)	Suppy Temp (°F)	Liquid Temp Drop (°F)
	60										
	70										
	80										
1004		5	17.795	83	7.4	15.605	85	6.5	13.401	88	5.6
(2.5)	90	6.25	18.551	83	6.2	16.268	86	5.4	13.970	89	4.7
(2.3)		7.5	19.080	84	5.3	16.731	86	4.6	14.368	89	4.0
		5	25.469	90	10.5	22.335	92	9.2	19.180	94	7.9
	100	6.25	26.551	91	8.7	23.284	93	7.7	19.994	95	6.6
		7.5	27.308	92	7.5	23.947	94	6.6	20.564	95	5.7
		5	33.302	98	13.6	29.203	99	12.0	25.078	100	10.3
	110	6.25	34.716	99	11.3	30.444	100	10.0	26.143	101	8.6
		7.5	35.705	100	9.7	31.311	101	8.5	26.888	101	7.4
		5	41.292	106	16.8	36.211	106	14.8	31.095	106	12.7
	120	6.25	43.046	107	14.0	37.749	107	12.3	32.416	107	10.6
		7.5	44.273	109	12.0	38.824	108	10.5	33.340	108	9.1



				Enterin	g Air - 80°	°F / 67°F			Enterin	g Air - 78°	°F / 65°F			Enterin	g Air - 75	°F / 63°F	
Size (Tons)	EWT (°F)	GPM	TC (Btu/hr)	SC (Btu/hr)	kW	HR (Btu/hr)	Liquid Temp Rise (°F)	TC (Btu/hr)	SC (Btu/hr)	kW	HR (Btu/hr)	Liquid Temp Rise (°F)	TC (Btu/hr)	SC (Btu/hr)	kW	HR (Btu/hr)	Liquid Temp Rise (°F)
	60																
	70																
	80																
1004		5	27.982	20.747	2.129	35.248	14.1	26.789	20.776	2.127	34.047	13.6	25.598	19.630	2.124	32.846	13.1
(2.5)	90	6.25	28.332	20.916	2.076	35.414	11.3	27.124	20.945	2.073	34.198	10.9	25.918	19.790	2.071	32.983	10.6
(2.0)		7.5	28.511	20.991	2.041	35.475	9.5	27.295	21.019	2.039	34.251	9.1	26.081	19.860	2.036	33.029	8.8
		5	26.184	19.714	2.380	34.306	13.7	25.067	19.741	2.378	33.180	13.3	23.952	18.652	2.375	32.055	12.8
	100	6.25	26.511	19.875	2.320	34.428	11.0	25.380	19.902	2.317	33.288	10.7	24.251	18.804	2.315	32.150	10.3
		7.5 5	26.678 23.951	19.946 18.269	2.282	34.463 33.043	9.2 13.2	25.540 22.930	19.973 18.294	2.279 2.662	33.317 32.011	8.9 12.8	24.404 21.910	18.871 17.285	2.276 2.658	32.171 30.980	8.6
	110	6.25	23.951	18.418	2.003	33.113	10.6	22.930	18.443	2.002	32.011	12.8	22.183	17.205	2.591	31.025	12.4 9.9
		7.5	24.403	18.483	2.554	33.119	8.8	23.362	18.509	2.551	32.068	8.6	22.323	17.420	2.548	31.023	8.3
		5	21.284	16.412	2.982	31.461	12.6	20.377	16.434	2.979	30.541	12.2	19.470	15.528	2.975	29.622	11.8
	120	6.25	21.550	16.546	2.907	31.469	10.1	20.631	16.568	2.904	30.539	9.8	19.714	15.654	2.900	29.609	9.5
		7.5	21.686	16.604	2.859	31.441	8.4	20.761	16.627	2.855	30.504	8.1	19.838	15.710	2.852	29.569	7.9

Heating Performance

			Enteri	ng Air - 6	5°F db	Enteri	ing Air - 7	0°F db	Enteri	ng Air - 7	5°F db
Size (Tons)	EWT (°F)	GPM	HC (Btu/hr)	Suppy Temp (°F)	Liquid Temp Drop (°F)	HC (Btu/hr)	Suppy Temp (°F)	Liquid Temp Drop (°F)	HC (Btu/hr)	Suppy Temp (°F)	Liquid Temp Drop (°F)
	60										
	70										
	80										
1004		5	20.445	85	8.5	17.928	88	7.4	15.391	90	6.4
(2.5)	90	6.25	21.226	86	7.0	18.613	88	6.2	15.979	91	5.3
(2.5)		7.5	21.711	86	6.0	19.038	89	5.3	16.344	91	4.5
		5	29.547	94	12.1	25.909	95	10.6	22.243	97	9.2
	100	6.25	30.676	95	10.0	26.899	96	8.8	23.093	98	7.6
		7.5	31.377	96	8.5	27.514	97	7.5	23.621	98	6.5
		5	38.677	103	15.7	33.915	103	13.8	29.116	104	11.9
	110	6.25	40.154	104	13.1	35.211	105	11.5	30.229	105	9.9
		7.5	41.072	105	11.1	36.015	105	9.8	30.920	105	8.4
		5	47.835	112	19.4	41.945	111	17.1	36.011	110	14.7
	120	6.25	49.662	114	16.1	43.548	113	14.2	37.387	112	12.2
		7.5	50.797	115	13.7	44.543	114	12.1	38.241	113	10.4



				Enterin	g Air - 80°	°F / 67°F			Enterin	g Air - 78°	°F / 65°F			Enterin	g Air - 75°	°F / 63°F	
Size (Tons)	EWT (°F)	GPM	TC (Btu/hr)	SC (Btu/hr)	kW	HR (Btu/hr)	Liquid Temp Rise (°F)	TC (Btu/hr)	SC (Btu/hr)	kW	HR (Btu/hr)	Liquid Temp Rise (°F)	TC (Btu/hr)	SC (Btu/hr)	kW	HR (Btu/hr)	Liquid Temp Rise (°F)
	60																
	70																
	80																
1204		6	30.959	24.745	2.682	40.111	13.4	29.639	24.779	2.679	38.780	12.9	28.321	23.412	2.676	37.451	12.5
(3.0)	90	7.5	31.579	25.084	2.601	40.456	10.8	30.233	25.118	2.598	39.098	10.4	28.888	23.732	2.595	37.743	10.1
(0.0)		9	31.924	25.279	2.556	40.647	9.0	30.563	25.314	2.553	39.275	8.7	29.204	23.917	2.550	37.906	8.4
		6	28.748	23.653	3.011	39.023	13.0	27.522	23.685	3.008	37.785	12.6	26.298	22.378	3.004	36.548	12.2
	100	7.5	29.324	23.976	2.920	39.289	10.5	28.074	24.009	2.917	38.027	10.1	26.825	22.684	2.913	36.766	9.8
		9	29.644	24.163	2.870	39.437	8.8	28.380	24.196	2.867	38.162	8.5	27.118	22.861	2.863	36.888	8.2
	110	6	26.277	22.400	3.383	37.819	12.6	25.157	22.430	3.379	36.685	12.2	24.038	21.193	3.374	35.552	11.9
	110	7.5 9	26.804	22.706	3.281	37.998	10.1	25.661	22.737	3.277	36.842	9.8	24.520	21.483	3.273	35.687	9.5
		6	27.097 23.547	22.883 20.987	3.224 3.796	38.097 36.500	8.5 12.2	25.942 22.543	22.914 21.015	3.220 3.792	36.929 35.481	8.2 11.8	24.788 21.541	21.650 19.856	3.216 3.787	35.762 34.463	7.9 11.5
	120	7.5	23.347	20.987	3.682	36.582	9.8	22.995	21.303	3.677	35.543	9.5	21.973	20.128	3.673	34.403	9.2
	120	9	24.282	21.440	3.618	36.627	8.1	23.246	21.469	3.614	35.577	7.9	22.212	20.284	3.609	34.528	7.7

Heating Performance

			Enteri	ng Air - 6	5°F db	Enteri	ng Air - 7	0°F db	Enteri	ng Air - 7	5°F db
Size (Tons)	EWT (°F)	GPM	HC (Btu/hr)	Suppy Temp (°F)	Liquid Temp Drop (°F)	HC (Btu/hr)	Suppy Temp (°F)	Liquid Temp Drop (°F)	HC (Btu/hr)	Suppy Temp (°F)	Liquid Temp Drop (°F)
	60										
	70										
	80										
1204		6	20.246	81	7.1	17.780	84	6.2	15.261	87	5.4
(3.0)	90	7.5	21.061	82	5.9	18.495	85	5.2	15.876	88	4.5
(0.0)		9	21.633	83	5.0	18.998	85	4.4	16.307	88	3.8
		6	29.321	89	10.1	25.749	91	8.9	22.102	93	7.7
	100	7.5	30.502	90	8.4	26.786	92	7.4	22.992	94	6.4
		9	31.331	90	7.2	27.514	92	6.3	23.617	94	5.5
		6	38.437	96	13.1	33.754	97	11.6	28.974	99	10.0
	110	7.5	39.985	98	10.9	35.114	99	9.6	30.140	100	8.3
	L	9	41.071	98	9.3	36.068	99	8.2	30.959	100	7.1
		6	47.593	104	16.2	41.795	104	14.2	35.875	104	12.3
	120	7.5	49.509	105	13.5	43.478	105	11.8	37.320	105	10.2
		9	50.854	106	11.5	44.659	106	10.1	38.334	106	8.7



				Enterin	g Air - 80°	°F / 67°F			Enterin	g Air - 78°	°F / 65°F			Enterin	g Air - 75	°F / 63°F	
Size (Tons)	EWT (°F)	GPM	TC (Btu/hr)	SC (Btu/hr)	kW	HR (Btu/hr)	Liquid Temp Rise (°F)	TC (Btu/hr)	SC (Btu/hr)	kW	HR (Btu/hr)	Liquid Temp Rise (°F)	TC (Btu/hr)	SC (Btu/hr)	kW	HR (Btu/hr)	Liquid Temp Rise (°F)
	60																
	70																
	80																
1204		6	30.959	24.745	2.682	40.111	13.4	29.639	24.779	2.679	38.780	12.9	28.321	23.412	2.676	37.451	12.5
(3.0)	90	7.5	31.579	25.084	2.601	40.456	10.8	30.233	25.118	2.598	39.098	10.4	28.888	23.732	2.595	37.743	10.1
(0.0)		9	31.924	25.279	2.556	40.647	9.0	30.563	25.314	2.553	39.275	8.7	29.204	23.917	2.550	37.906	8.4
		6	28.748	23.653	3.011	39.023	13.0	27.522	23.685	3.008	37.785	12.6	26.298	22.378	3.004	36.548	12.2
	100	7.5	29.324	23.976	2.920	39.289	10.5	28.074	24.009	2.917	38.027	10.1	26.825	22.684	2.913	36.766	9.8
		9	29.644	24.163	2.870	39.437	8.8	28.380	24.196	2.867	38.162	8.5	27.118	22.861	2.863	36.888	8.2
	110	6	26.277	22.400	3.383	37.819	12.6	25.157	22.430	3.379	36.685	12.2	24.038	21.193	3.374	35.552	11.9
		7.5 9	26.804 27.097	22.706 22.883	3.281 3.224	37.998 38.097	10.1 8.5	25.661 25.942	22.737 22.914	3.277 3.220	36.842 36.929	9.8 8.2	24.520 24.788	21.483 21.650	3.273 3.216	35.687 35.762	9.5 7.9
		6	23.547	20.987	3.796	36.500	12.2	22.543	22.914	3.792	35.481	 11.8	24.766	19.856	3.787	34.463	11.5
	120	7.5	24.019	21.274	3.682	36.582	9.8	22.995	21.303	3.677	35.543	9.5	21.973	20.128	3.673	34.505	9.2
	0	9	24.282	21.440	3.618	36.627	8.1	23.246	21.469	3.614	35.577	7.9	22.212	20.284	3.609	34.528	7.7

Heating Performance

			Enteri	ng Air - 6	5°F db	Enteri	ng Air - 7	0°F db	Enteri	ng Air - 7	5°F db
Size (Tons)	EWT (°F)	GPM	HC (Btu/hr)	Suppy Temp (°F)	Liquid Temp Drop (°F)	HC (Btu/hr)	Suppy Temp (°F)	Liquid Temp Drop (°F)	HC (Btu/hr)	Suppy Temp (°F)	Liquid Temp Drop (°F)
	60										
	70										
	80										
1204		6	23.284	84	8.1	20.413	87	7.1	17.520	89	6.2
(3.0)	90	7.5	24.203	85	6.7	21.219	87	5.9	18.212	90	5.1
(0.0)		9	24.801	85	5.7	21.743	88	5.0	18.661	90	4.4
		6	33.709	92	11.5	29.552	94	10.2	25.364	96	8.8
	100	7.5	35.040	94	9.6	30.720	95	8.4	26.366	96	7.3
		9	35.904	94	8.2	31.477	96	7.2	27.016	97	6.2
		6	44.179	101	15.0	38.732	102	13.2	33.243	102	11.4
	110	7.5	45.924	102	12.5	40.261	103	11.0	34.555	103	9.5
		9	47.057	103	10.7	41.255	104	9.4	35.408	104	8.1
		6	54.694	110	18.5	47.951	109	16.3	41.155	108	14.0
	120	7.5	56.855	111	15.4	49.845	111	13.5	42.780	110	11.7
		9	58.257	112	13.2	51.074	112	11.6	43.836	111	9.9



	System	Rated CFM	Min. CFM	Fan O	ption	CFM at External Static Pressure (in wg.)											
Unit	Mode			Option	Speed	0.00	0.05	0.10	0.15	0.20	0.25	0.30	0.35	0.40	0.45	0.50	
	0	000	170	EC	HI1	310	294	271	240	202							
0204-xG	Cool	290	170		LOW												
(0.5)	Lloot	060	N/A	- Constant Torque	HI1	283	262	235	203	166							
	Heat	260	IN/A		LOW												
	Cool	345	220		HI1	369	344	315	283	248							
0304-xG	C001	345	220	EC Constant	LOW	258	228										
(0.75)	Hoat	290	N/A	Torque	HI1	329	289	250	211	171							
	Heat 290			LOW	224	194											
	Cool	465	280	EC	HI1	494	470	446	422	399	377	354	333				
0404- xG	000	405	200	Con-	LOW	398	365	333	300								
(1.0)	Heat	345	N/A	stant	HI1	377	344	312	279	246							
. ,	Tieat	545		Torque	LOW	341	286	232									
	Cool	540	380	EC	HI1	559	541	523	504	485	464	443	420	397			
0504- xG (1.25)	0001	540	300	Con- stant	LOW	427	401	380									
	Heat	460	N/A		HI1	482	464	441	412	378	339	295					
	Tieat	400		Torque	LOW	379	353	315									
0604-xG	Cool 65	650	420	EC Constant Torque	HI1	662	649	636	621	606	590	573	556	537	518	498	
		000			LOW	538	519	496	470	441							
(1.5)	Heat	590	N/A		HI1	604	591	577	562	546	530	512	494	474	454	433	
	neat	030			LOW	482	464	441									
	Cool	865	5 580	EC — Constant Torque	HI1	902	886	870	853	837	821	804	788	771	755	738	
0804-xD	0001	000			LOW	752	731	710	690	671	652	633	615	598			
(2.0)	Heat 790	790	N/A		HI1	848	829	810	792	773	755						
	Ticat	/ 30	1.1/7.1		LOW	645	625	605	585								
	Cool	865	580	50	HI1	881	865	849	833	819	804	790	777	764	752	740	
0814-xD	0001	000	000	EC Constant	LOW	728	709	692	675	660	645	631	619	607	596	586	
(2.0)	Heat	790	N/A	Torque	HI1	809	792	775	759	744	730	716	704	692	681	671	
	Tiout	100			LOW	670	650	632	614	598	584					L	
	Cool	1045	650	EC	HI1	1018	1001	983	966	949	933	916	900	884	869	853	
1004- xD		1040	000	Con-	LOW	845	828	811	793	776	758	741	723	705	686	668	
(2.5)	Heat	935	N/A	stant	HI1	936	918	900	882	864	847	829	812	795			
	near	500	1 1/7 1	Torque	LOW	730	713	695	676	657							
	Cool	1100	750	EC	HI1	1244	1227	1211	1194	1178	1161	1145	1129	1113	1097	1081	
1204- xD			,	Con-	LOW	1029	1012	994	977	960	944	927	911	895	880	864	
(3.0)	Heat	1080	N/A	stant	HI1	1131	1113	1095	1077	1059	1041	1024	1006	988		L	
(3.0)	neal	1000		Torque	LOW	858	841	824	807	789							

Table 8: VP Blower - EC Constant Torque Performance Table

1 - Indicates single / high speed factory default setting



Size		Compre	essor		Supply Blower Motor		El	ectric Hea	ıt	Single Po	oint Power		Dual Po	int Power	
(Tons)	Voltage	RLA	LRA	QTY	FLA	HP	Voltage	kW	Amps	МСА	MOPD	Unit MCA	Unit MOPD	E-Heat MCA	E-Heat MOPD
								0.0	0.0	5.3	15	NA	NA	NA	NA
							208/1/60	1.0	4.8	11.3	15	5.3	15.0	6.0	15
	000		17.7				200/ 1/00	1.5	7.2	14.3	15	5.3	15.0	9.0	15
	208- 230/1/60	2.5		1	2.2	1/4		2.0 0.0	9.6 0.0	17.3 5.3	20 15	5.3 NA	15.0 NA	12.0 NA	15 NA
0204-**B	230/1/60						230/1/60	1.0	4.3	10.8	15	5.3	15.0	5.4	15
(0.5)								1.5	6.5	13.5	15	5.3	15.0	8.2	15
(0.5)								2.0	8.7	16.2	20	5.3	15.0	10.9	15
								0.0	0.0	5.5	15	NA	NA	NA	NA
	265/1/60	0.0	13.5	1	2.2	4/4	005/1/00	1.0	3.8	10.2	15	5.5	15.0	4.7	15
	265/1/60	2.6	13.5		2.2	1/4	265/1/60	1.5	5.7	12.5	15	5.5	15.0	7.1	15
								2.0	7.5	14.9	15	5.5	15.0	9.4	15
								0.0	0.0	8.6	15	NA	NA	NA	NA
								1.0	4.8	14.6	15	8.6	15.0	6.0	15
							208/1/60	1.5	7.2	17.6	20	8.6	15.0	9.0	15
		5.1	22.0				200, 1,00	2.0	9.6	20.6	25	8.6	15.0	12.0	15
								2.5	12.0	23.6	25	8.6	15.0	15.0	20
	208-			1	2.2	1/4		3.0	14.4	26.6	30	8.6	15.0	18.0	20
	230/1/60							0.0	0.0 4.3	8.6 14.1	15 15	NA	NA 15.0	NA 5.4	NA 15
0304-**B								1.0	4.3 6.5	14.1	20	<u>8.6</u> 8.6	15.0 15.0	8.2	15
(0.75)							230/1/60	2.0	8.7	10.8	20	8.6	15.0	10.9	15
(0.75)								2.5	10.9	22.2	25	8.6	15.0	13.6	15
								3.0	13.0	24.9	25	8.6	15.0	16.3	20
								0.0	0.0	7.8	15	NA	NA	NA	NA
	265/1/60							1.0	3.8	12.5	15	7.8	15.0	4.7	15
		4.5		1	2.2	1/4	005 14 100	1.5	5.7	14.9	15	7.8	15.0	7.1	15
		4.5	22.0				265/1/60	2.0	7.5	17.2	20	7.8	15.0	9.4	15
								2.5	9.4	19.6	20	7.8	15.0	11.8	15
							208/1/60	3.0	11.3	22.0	25	7.8	15.0	14.2	15
								0.0	0.0	10.2	15	NA	NA	NA	NA
								1.0	4.8	16.2	20	10.2	15.0	6.0	15
								1.5	7.2	19.2	20	10.2	15.0	9.0	15
								2.0	9.6	22.2	25	10.2	15.0	12.0	15
								2.5	12.0 14.4	25.2	30 30	10.2 10.2	15.0	15.0 18.0	20 20
								3.0 3.5	14.4	28.2 NA	NA NA	10.2	<u>15.0</u> 15.0	21.0	20
	208-							4.0	19.2	NA	NA	10.2	15.0	24.0	25
	230/1/60	6.4	25.0	1	2.2	1/4		0.0	0.0	10.2	15	NA	NA	NA	NA
	200/1/00							1.0	4.3	15.7	20	10.2	15.0	5.4	15
								1.5	6.5	18.4	20	10.2	15.0	8.2	15
0404-**B					1		000/1/00	2.0	8.7	21.1	25	10.2	15.0	10.9	15
(1.0)							230/1/60	2.5	10.9	23.8	25	10.2	15.0	13.6	15
. ,								3.0	13.0	26.5	30	10.2	15.0	16.3	20
								3.5	15.2	29.2	30	10.2	15.0	19.0	20
					L			4.0	17.4	NA	NA	10.2	15.0	21.7	25
								0.0	0.0	8.6	15	NA	NA	NA	NA
								1.0	3.8	13.3	15	8.6	15.0	4.7	15
								1.5	5.7	15.7	20	8.6	15.0	7.1	15
	265/1/60	5.1	22.0	1	2.2	1/4	265/1/60	2.0	7.5 9.4	18.0 20.4	20	<u>8.6</u> 8.6	15.0 15.0	9.4 11.8	15 15
							203/1/00	2.5 3.0	9.4	20.4	25 25	8.6	15.0	11.8	15
								3.0	13.2	22.8	30	8.6	15.0	14.2	20
								4.0	15.2	27.5	30	8.6	15.0	18.9	20
			L					4.0	10.1	21.0	00	0.0	10.0	10.3	

Table 10: VI / VP Electrical Data – Constant Torque EC Motor



Size		Compre	essor		Supply Blower Motor		Ele	ectric Hea	at	Single Po	oint Power	Dual Point Power			
(Tons)	Voltage	RLA	LRA	QTY	FLA	НР	Voltage	kW	Amps	МСА	MOPD	Unit MCA	Unit MOPD	E-Heat MCA	E-Heat MOPD
								0.0	0.0	8.2	15	NA	NA	NA	NA
								1.0	4.8	14.2	15	8.2	15.0	6.0	15
								1.5 2.0	7.2 9.6	17.2 20.2	20 25	8.2 8.2	15.0 15.0	9.0 12.0	15 15
							-	2.0	9.0	20.2	25	8.2	15.0	12.0	20
							208/1/60	3.0	14.4	26.2	30	8.2	15.0	18.0	20
					1			3.5	16.8	29.2	30	8.2	15.0	21.0	25
								4.0	19.2	NA	NA	8.2	15.0	24.0	25
								4.5	21.6	NA	NA	8.2	15.0	27.0	30
	208-	4.8	26.0	1	2.2	1/4		5.0 0.0	24.0 0.0	NA 8.2	NA 15	8.2 NA	15.0 NA	30.0 NA	35 NA
	230/1/60							1.0	4.3	13.6	15	8.2	15.0	5.4	15
								1.5	6.5	16.4	20	8.2	15.0	8.2	15
								2.0	8.7	19.1	20	8.2	15.0	10.9	15
0504-**B							230/1/60	2.5	10.9	21.8	25	8.2	15.0	13.6	15
(1.25)							200/1/00	3.0	13.0	24.5	25	8.2	15.0	16.3	20
								3.5	15.2	27.2	30	8.2	15.0	19.0	20
								4.0	17.4 19.6	30.0 NA	30 NA	8.2 8.2	15.0 15.0	21.7 24.5	25 25
								4.5 5.0	21.7	NA	NA	8.2	15.0	24.5	30
								0.0	0.0	7.4	15	NA	NA	NA	NA
	265/1/60							1.0	3.8	12.1	15	7.4	15.0	4.7	15
								1.5	5.7	14.5	15	7.4	15.0	7.1	15
					2.2			2.0	7.5	16.8	20	7.4	15.0	9.4	15
		4.2	25.0	1		1/4	265/1/60	2.5	9.4	19.2	20	7.4	15.0	11.8	15
							200/1/00	3.0 3.5	11.3 13.2	21.6 23.9	25 25	7.4	15.0 15.0	14.2 16.5	15 20
								4.0	15.2	26.3	30	7.4	15.0	18.9	20
								4.5	17.0	28.6	30	7.4	15.0	21.2	25
								5.0	18.9	NA	NA	7.4	15.0	23.6	25
								0.0	0.0	11.8	15	NA	NA	NA	NA
								1.0	4.8	17.8	20	11.8	15.0	6.0	15
								1.5	7.2	20.8	25	11.8	15.0	9.0	15
								2.0 2.5	9.6 12.0	23.8 26.8	25 30	11.8 11.8	15.0	12.0 15.0	15 20
								3.0	14.4	29.8	30	11.8	15.0	18.0	20
							208/1/60	3.5	16.8	NA	NA	11.8	15.0	21.0	25
								4.0	19.2	NA	NA	11.8	15.0	24.0	25
			38.0					4.5	21.6	NA	NA	11.8	15.0	27.0	30
								5.0	24.0	NA	NA	11.8	15.0	30.0	35
	208-							5.5 6.0	26.4 28.8	NA NA	NA NA	11.8 11.8	15.0 15.0	33.1 36.1	35 40
	230/1/60	7.7		1	2.2	1/4		0.0	0.0	11.8	15	NA	NA	NA	NA
	200, 1,00							1.0	4.3	17.3	20	11.8	15.0	5.4	15
								1.5	6.5	20.0	25	11.8	15.0	8.2	15
								2.0	8.7	22.7	25	11.8	15.0	10.9	15
0604-**B								2.5	10.9	25.4	30	11.8	15.0	13.6	15
(1.5)							230/1/60	3.0 3.5	13.0 15.2	28.1 NA	30 NA	<u>11.8</u> 11.8	15.0	16.3 19.0	20 20
(1.5)								4.0	17.4	NA	NA	11.8	15.0	21.7	25
								4.5	19.6	NA	NA	11.8	15.0	24.5	25
								5.0	21.7	NA	NA	11.8	15.0	27.2	30
								5.5	23.9	NA	NA	11.8	15.0	29.9	30
								6.0	26.1	NA	NA	11.8	15.0	32.6	35
								0.0	0.0	11.0 15.7	15 20	NA 11.0	NA 15.0	NA 4.7	NA 15
								1.5	5.7	18.1	20	11.0	15.0	7.1	15
								2.0	7.5	20.5	25	11.0	15.0	9.4	15
								2.5	9.4	22.8	25	11.0	15.0	11.8	15
	265/1/60	7.1	30.0	1	2.2	1/4	265/1/60	3.0	11.3	25.2	30	11.0	15.0	14.2	15
	200/1/00		00.0	'	<u> </u>	1/4	200/1/00	3.5	13.2	27.5	30	11.0	15.0	16.5	20
								4.0	15.1	29.9	30	11.0	15.0	18.9	20
								4.5 5.0	17.0 18.9	NA NA	NA NA	11.0	15.0 15.0	21.2	25
								5.5	20.8	NA NA	NA	11.0	15.0	23.6 25.9	25 30
	1							6.0	20.8	NA	NA	11.0	15.0	28.3	30



(fons) Voltage RLA LRA OTY FLA HP Voltage KW Amps MCA MODD 000 0.0 17.4 25 0.0 10.4 42.3 30 1.5 7.2 26.4 30 17.4 25.0 10.0 15.7 17.4 25.0 10.0 15.7 17.4 25.0 10.0 15.7 17.4 25.0 10.0 10.0 10.3 17.4 25.0 10.0 10.0 10.3 17.4 25.0 10.0	Size		Compre	essor		Supply Blower Motor		Ele	ectric Hea	at	Single Po	oint Power	Dual Point Power				
0804-**B 208- 200+ 10.3 43.0 1 4.6 1/2 1/2 2/2 2/3 1/4 2/3 1/4 2/3 1/4 2/3 1/4 2/3 1/4 2/3 1/4 2/3 1/4 2/3 1/4 2/3 1/4 2/3 1/4 2/3 1/4 1/4 N/4		Voltage	RLA	LRA	QTY			Voltage	kW	Amps	МСА	MOPD					
208- 2301/60 10.3 43.0 1 4.6 1/2 1/2 1/2 2/2 3/2 1/2 <t< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>0.0</td><td>0.0</td><td>17.4</td><td>25</td><td>NA</td><td>NA</td><td>NA</td><td>NA</td></t<>									0.0	0.0	17.4	25	NA	NA	NA	NA	
208- 200- 200-														25.0			
208- 230/1/60 10.3 43.0 1 4.6 1/2 208/1/60 208/1/60 208/1/60 208/1/60																	
208- 230/1/60 10.3 43.0 1 4.6 1/2 208/1/60 3.5 16.8 NA NA <t< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<>																	
208- 230(1/60 10.3 43.0 1 4.6 1/2 208/1/60 3.5 16.8 NA NA <t< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<>																	
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0804+*8 208- 230/1/60 10.3 43.0 1 4.6 1/2																	
$0 60 64^{\mathbf{++}\mathbf{B}} \left[2.0 \right] \\ 26 \left[2.0 \right] \\ 26 \left[10.3 \right] \\ 4.3 \\ 5.4 \\ 5.4 \\ 5.5 \\ 2.6 \\ 4.5 \\ 1.4 \\ 5.5 \\ 2.6 \\ 4.5 \\ 1.7.4 \\ 2.50 \\ 3.3.7 \\ \mathbf{NA} \\ \mathbf{NA} \\ \mathbf{NA} \\ \mathbf{NA} \\ \mathbf{NA} \\ 1.7.4 \\ 2.50 \\ 3.3.1 \\ 3.3.1 \\ 1.7.4 \\ 2.50 \\ 3.3.1 \\ 3.3.1 \\ 1.7.4 \\ 2.50 \\ 3.3.1 \\ 1.7.4 \\ 2.50 \\ 3.5 \\ 3.3.7 \\ \mathbf{NA} \\ $								208/1/60									
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265/1/60 8.3 54.0 1 3.2 1/2 265/1/60 8.3 54.0 1 3.2 1/2 265/1/60 8.3 54.0 1 3.2 1/2 265/1/60 8.3 54.0 1 3.2 1/2 265/1/60 8.3 54.0 1 3.2 1/2 265/1/60 3.3 54.0 1 3.2 1/2 265/1/60 3.3 54.0 1 3.2 1/2 265/1/60 3.3 NA NA NA 1.0 3.8 18.3 25 1.5 5.7 20.7 25 13.6 20.0 4.7 15 1.0 3.8 18.3 25 13.6 20.0 7.1 15 1.3.6 20.0 11.3 27.7 30 31.6 20.0 14.2 15 1.3.6 20.0 14.2 15 13.6 20.0 14.2 15 1.3.6 20.0 18.9 NA NA NA																	
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265/1/60 8.3 54.0 1 3.2 1/2 265/1/60 22.5 9.4 25.4 30 13.6 20.0 14.8 15 265/1/60 8.3 54.0 1 3.2 1/2 265/1/60 265/1/60 265/1/60 265/1/60 13.6 20.0 14.2 15 3.5 13.2 NA NA NA NA 13.6 20.0 14.2 15 3.5 13.2 NA NA NA NA 13.6 20.0 14.2 15 13.6 20.0 18.9 NA NA NA 13.6 20.0 14.2 15 13.6 20.0 18.9 13.6 20.0 18.9 20 13.6 20.0 21.2 25 13.6 20.0 23.6 25 5.0 18.9 NA NA NA 13.6 20.0 28.3 30 13.6 20.0 28.3 30																	
265/1/60 8.3 54.0 1 3.2 1/2 265/1/60 2.5 9.4 25.4 30 13.6 20.0 11.8 15 265/1/60 8.3 54.0 1 3.2 1/2 265/1/60 3.5 13.2 NA NA NA 13.6 20.0 14.2 15 3.5 13.2 NA NA NA NA NA 13.6 20.0 14.2 15 3.5 13.2 NA NA NA NA 13.6 20.0 18.9 20 4.0 15.1 NA NA NA NA 13.6 20.0 21.2 25 5.0 18.9 NA NA NA NA NA 13.6 20.0 22.6 20.0 21.2 25 5.5 20.8 NA NA NA 13.6 20.0 28.3 30 13.6 20.0 28.3 30 35 7.5<																	
265/1/60 8.3 54.0 1 3.2 1/2 265/1/60 3.0 11.3 27.7 30 13.6 20.0 14.2 15 265/1/60 8.3 54.0 1 3.2 1/2 265/1/60 3.5 13.2 NA NA NA 6.0 15.1 NA NA NA NA 13.6 20.0 16.5 20 13.6 20.0 18.9 NA NA NA NA 13.6 20.0 18.9 20 13.6 20.0 12.2 25 17.0 NA NA NA 13.6 20.0 21.2 25 13.6 20.0 23.6 25 13.6 20.0 28.3 30 6.5 24.5 NA NA NA 13.6 20.0 28.3 30 13.6 20.0 33.0 35 13.6 20.0 33.0 35 7.0 26.4 NA																	
265/1/60 8.3 54.0 1 3.2 1/2 265/1/60 3.5 13.2 NA NA NA 265/1/60 8.3 54.0 1 3.2 1/2 265/1/60 3.5 13.2 NA NA NA 4.0 15.1 NA NA NA NA NA 13.6 20.0 18.9 20 5.0 18.9 NA NA NA NA NA 13.6 20.0 21.2 25 6.0 22.6 NA NA NA NA 13.6 20.0 28.3 30 6.5 24.5 NA NA NA 13.6 20.0 33.0 35 7.0 26.4 NA NA NA 13.6 20.0 33.0 35 13.6 20.0 35.4 40 40 13.6 20.0 35.4 40																	
265/1/60 8.3 54.0 1 3.2 1/2 265/1/60 4.0 15.1 NA NA NA 5.0 18.9 NA NA NA NA NA 13.6 20.0 21.2 25 5.0 18.9 NA NA NA NA 13.6 20.0 21.2 25 5.0 18.9 NA NA NA NA 13.6 20.0 23.6 25 5.5 20.8 NA NA NA 13.6 20.0 28.3 30 6.5 24.5 NA NA NA 13.6 20.0 28.3 30 13.6 20.0 30.7 35 35 36 35.5 36.4 NA NA 7.5 28.3 NA NA 13.6 20.0 35.4 40																	
265/1/60 8.3 54.0 1 3.2 1/2 265/1/60 4.5 17.0 NA NA NA 5.0 18.9 NA NA NA NA 13.6 20.0 21.2 25 5.0 18.9 NA NA NA NA NA 13.6 20.0 25.9 30 6.0 22.6 NA NA NA NA 13.6 20.0 25.9 30 13.6 20.0 25.9 30 13.6 20.0 25.9 30 13.6 20.0 30.7 35 35 35 36.5 24.5 NA NA 7.5 28.3 NA NA 13.6 20.0 33.0 35																	
5.018.9NANA5.520.8NANA6.022.6NANA6.524.5NANA13.620.025.93013.620.028.33013.620.028.33013.620.030.7357.026.4NANA13.620.033.0357.528.3NANA13.620.035.4		265/1/60	8.3	54.0	1	3.2	1/2	265/1/60									
5.520.8NANA6.022.6NANA6.524.5NANA13.620.028.33030.730.7357.528.3NA13.620.033.033.03535.536.536.528.3NA37.528.3NA36.520.035.437.520.035.4																	
6.022.6NANA13.620.028.3306.524.5NANA13.620.030.7357.026.4NANA13.620.033.0357.528.3NANA																	
6.524.5NANA7.026.4NANA13.620.030.735357.528.3NANA13.620.035.440											-						
7.026.4NANA7.528.3NANA13.620.033.035.440																	
7.5 28.3 NA NA 13.6 20.0 35.4 40																	
								-									
									8.0	30.2	NA	NA	13.6	20.0	37.7	40	



Size		Compre	essor		Supply Blower Motor		Electric Heat			Single Po	oint Power	Dual Point Power				
(Tons)	Voltage	RLA	LRA	QTY	FLA	HP	Voltage	kW	Amps	МСА	MOPD	Unit MCA	Unit MOPD	E-Heat MCA	E-Heat MOPD	
								0.0	0.0	13.9	20	NA	NA	NA	NA	
								1.0	4.8	19.9	25	13.9	20.0	6.0	15	
								1.5	7.2	22.9	25	13.9	20.0	9.0	15	
								2.0	9.6	25.9	30	13.9	20.0	12.0	15	
								2.5	12.0	28.9	30	13.9	20.0	15.0	20	
								3.0	14.4	NA	NA	13.9	20.0	18.0	20	
								3.5	16.8	NA	NA	13.9	20.0	21.0	25	
							208/1/60	4.0	19.2	NA NA	NA	13.9	20.0	24.0	25 30	
								4.5	21.6		NA NA	13.9	20.0	27.0		
								5.0	24.0 26.4	NA NA	NA	13.9 13.9	20.0	30.0 33.1	35 35	
								5.5 6.0	28.8	NA	NA		20.0	36.1	40	
								6.5	28.8	NA	NA	13.9 13.9	20.0	30.1	40	
								7.0	31.3	NA	NA	13.9	20.0	42.1	40	
								7.5	36.1	NA	NA	13.9	20.0	45.1	50	
	208-	7.4	43.0					8.0	38.5	NA	NA	13.9	20.0	48.1	50	
				1	4.6	1/2		0.0	0.0	13.9	20	NA	NA	40.1 NA	NA	
	230/1/60							1.0	4.3	19.3	25	13.9	20.0	5.4	15	
								1.5	6.5	22.0	25	13.9	20.0	8.2	15	
								2.0	8.7	24.7	25	13.9	20.0	10.9	15	
								2.5	10.9	27.4	30	13.9	20.0	13.6	15	
								3.0	13.0	NA	NA	13.9	20.0	16.3	20	
								3.5	15.2	NA	NA	13.9	20.0	19.0	20	
0814-**C								4.0	17.4	NA	NA	13.9	20.0	21.7	25	
(2.0)							230/1/60	4.5	19.6	NA	NA	13.9	20.0	24.5	25	
()								5.0	21.7	NA	NA	13.9	20.0	27.2	30	
								5.5	23.9	NA	NA	13.9	20.0	29.9	30	
								6.0	26.1	NA	NA	13.9	20.0	32.6	35	
								6.5	28.3	NA	NA	13.9	20.0	35.3	40	
								7.0	30.4	NA	NA	13.9	20.0	38.0	40	
								7.5	32.6	NA	NA	13.9	20.0	40.8	45	
								8.0	34.8	NA	NA	13.9	20.0	43.5	45	
								0.0	0.0	11.6	15	NA	NA	NA	NA	
								1.0	3.8	16.3	20	11.6	15.0	4.7	15	
								1.5	5.7	18.7	20	11.6	15.0	7.1	15	
								2.0	7.5	21.0	25	11.6	15.0	9.4	15	
								2.5	9.4	23.4	25	11.6	15.0	11.8	15	
								3.0	11.3	25.7	30	11.6	15.0	14.2	15	
								3.5	13.2	28.1	30	11.6	15.0	16.5	20	
	265/1/60	6.7	46.0	1	3.2	1/2	265/1/60	4.0	15.1	NA	NA	11.6	15.0	18.9	20	
		0.7	.0.0		0.2	'/-	_00,1,00	4.5	17.0	NA	NA	11.6	15.0	21.2	25	
								5.0	18.9	NA	NA	11.6	15.0	23.6	25	
								5.5	20.8	NA	NA	11.6	15.0	25.9	30	
								6.0	22.6	NA	NA	11.6	15.0	28.3	30	
								6.5	24.5	NA	NA	11.6	15.0	30.7	35	
								7.0	26.4	NA	NA	11.6	15.0	33.0	35	
								7.5	28.3	NA	NA	11.6	15.0	35.4	40	
								8.0	30.2	NA	NA	11.6	15.0	37.7	40	



Size		Compre	essor		Supply Blower Motor		EI	ectric Hea	ıt	Single Po	oint Power		Dual Point Power				
(Tons)	Voltage	RLA	LRA	QTY	FLA	HP	Voltage	kW	Amps	МСА	MOPD	Unit MCA		E-Heat MCA	E-Heat MOPD		
				ĺ		ĺ		0.0	0.0	22.2	35	NA	NA	NA	NA		
					1			1.0	4.8	28.2	40	22.2	35.0	6.0	15		
								1.5	7.2	NA	NA	22.2		9.0	15		
								2.0	9.6	NA	NA	22.2		12.0	15		
								2.5	12.0	NA	NA	22.2		15.0	20		
								3.0	14.4	NA	NA	22.2		18.0	20		
								3.5 4.0	16.8 19.2	NA NA	NA NA	22.2 22.2		21.0 24.0	25 25		
								4.0	21.6	NA	NA	22.2		27.0	30		
								5.0	24.0	NA	NA	22.2		30.0	35		
							208/1/60	5.5	26.4	NA	NA	22.2		33.1	35		
								6.0	28.8	NA	NA	22.2	35.0	36.1	40		
								6.5	31.3	NA	NA	22.2	35.0	39.1	40		
								7.0	33.7	NA	NA	22.2		42.1	45		
								7.5	36.1	NA	NA	22.2		45.1	50		
								8.0	38.5	NA	NA	22.2		48.1	50		
								8.5	40.9	NA	NA	22.2		51.1	55		
								9.0	43.3 45.7	NA	NA	22.2		54.1	55 60		
	208-							9.5 10.0	45.7	NA NA	NA NA	22.2 22.2		57.1 60.1	65		
	230/1/60	14.1	73.0	1	4.6	1/2		0.0	0.0	22.2	35	 NA		NA NA	NA		
	230/1/00							1.0	4.3	27.7	40	22.2		5.4	15		
								1.5	6.5	NA	NA	22.2		8.2	15		
								2.0	8.7	NA	NA	22.2		10.9	15		
								2.5	10.9	NA	NA	22.2		13.6	15		
								3.0	13.0	NA	NA	22.2	35.0	16.3	20		
								3.5	15.2	NA	NA	22.2		19.0	20		
								4.0	17.4	NA	NA	22.2		21.7	25		
								4.5	19.6	NA	NA	22.2	35.0	24.5	25		
1004-**C							230/1/60	5.0	21.7	NA	NA	22.2		27.2	30		
(2.5)								5.5 6.0	23.9 26.1	NA NA	NA NA	22.2		29.9 32.6	30 35		
								6.5	28.3	NA	NA	22.2 22.2		35.3	40		
								7.0	30.4	NA	NA	22.2		38.0	40		
								7.5	32.6	NA	NA	22.2		40.8	45		
								8.0	34.8	NA	NA	22.2		43.5	45		
								8.5	37.0	NA	NA	22.2		46.2	50		
								9.0	39.1	NA	NA	22.2		48.9	50		
								9.5	41.3	NA	NA	22.2		51.6	55		
								10.0	43.5	NA	NA	22.2	35.0	54.3	55		
								0.0	0.0	17.2	25	NA	NA	NA	NA		
								1.0	3.8	21.9	30	17.2		4.7	15		
								1.5 2.0	5.7 7.5	24.3 26.6	30 35	17.2 17.2		7.1 9.4	15 15		
								2.0	9.4	20.0	35	17.2		9.4	15		
								3.0	11.3	29.0 NA	NA	17.2		14.2	15		
								3.5	13.2	NA	NA	17.2		16.5	20		
								4.0	15.1	NA	NA	17.2		18.9	20		
								4.5	17.0	NA	NA	17.2	25.0	21.2	25		
	265/1/60	11.0	60.0	1	3.2	1/0	265/1/60	5.0	18.9	NA	NA	17.2	25.0	23.6	25		
	200/1/00	11.2	60.0	1	3.2	1/2	265/1/60	5.5	20.8	NA	NA	17.2		25.9	30		
								6.0	22.6	NA	NA	17.2		28.3	30		
								6.5	24.5	NA	NA	17.2		30.7	35		
								7.0	26.4	NA	NA	17.2		33.0	35		
								7.5	28.3	NA	NA	17.2		35.4	40		
								8.0	30.2	NA	NA	17.2		37.7	40		
					1			8.5 9.0	32.1 34.0	NA NA	NA NA	17.2		40.1 42.5	45 45		
								9.0	34.0	NA	NA	17.2		42.5	45		
								10.0	37.7	NA	NA	17.2		44.8	50		
-					·			10.0	<u> </u>	1 1/1	1.11/1						



VI / VP Electrical Data – Constant Torque EC Motor (cont'd.)

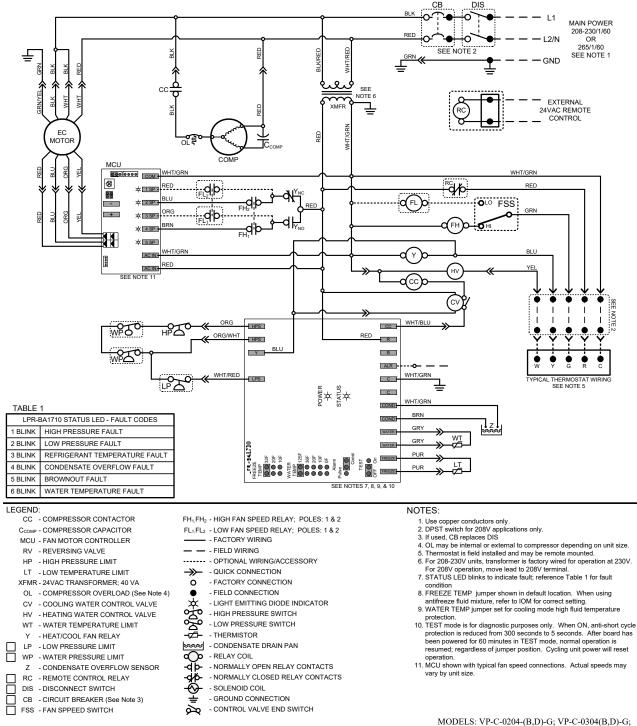
Size		Compre	essor			Blower	Ele	ectric Hea	at	Single Po	oint Power		Dual Poi	nt Power	
(Tons)	Voltage	RLA	LRA	QTY	FLA	HP	Voltage	kW	Amps	МСА	MOPD	Unit MCA	Unit MOPD	E-Heat MCA	E-Heat MOPD
								0.0 1.0	0.0 4.8	22.2 28.2	35 40	NA 22.2	NA 35.0	NA 6.0	NA 15
								1.5	7.2	NA	NA	22.2	35.0	9.0	15
								2.0	9.6	NA	NA	22.2	35.0	12.0	15
								2.5	12.0	NA	NA	22.2	35.0	15.0	20
								3.0	14.4	NA	NA	22.2	35.0	18.0	20
								3.5	16.8	NA	NA	22.2	35.0	21.0	25
								4.0	19.2 21.6	NA NA	NA NA	22.2 22.2	35.0 35.0	24.0 27.0	25 30
								5.0	24.0	NA	NA	22.2	35.0	30.0	35
							208/1/60	5.5	26.4	NA	NA	22.2	35.0	33.1	35
								6.0	28.8	NA	NA	22.2	35.0	36.1	40
	1				1			6.5	31.3	NA	NA	22.2	35.0	39.1	40
								7.0	33.7	NA	NA	22.2	35.0	42.1	45
								7.5	36.1	NA	NA	22.2	35.0	45.1	50
								8.0	38.5	NA	NA	22.2	35.0	48.1	50
								8.5	40.9	NA	NA	22.2	35.0	51.1	55
								9.0	43.3	NA	NA	22.2	35.0	54.1	55
	208-							9.5	45.7	NA	NA	22.2	35.0	57.1 60.1	60
	208-	14.1	77.0	1	4.6	1/2		<u>10.0</u> 0.0	48.1 0.0	NA 22.2	NA 35	22.2 NA	35.0 NA	NA	65 NA
	230/1/00							1.0	4.3	27.7	40	22.2	35.0	5.4	15
								1.5	6.5	NA	NA	22.2	35.0	8.2	15
								2.0	8.7	NA	NA	22.2	35.0	10.9	15
								2.5	10.9	NA	NA	22.2	35.0	13.6	15
								3.0	13.0	NA	NA	22.2	35.0	16.3	20
								3.5	15.2	NA	NA	22.2	35.0	19.0	20
								4.0	17.4	NA	NA	22.2	35.0	21.7	25
1204-**C								4.5	19.6	NA	NA	22.2	35.0	24.5	25
							230/1/60	5.0 5.5	21.7 23.9	NA NA	NA NA	22.2 22.2	35.0 35.0	27.2 29.9	30 30
(3.0)								6.0	26.1	NA	NA	22.2	35.0	32.6	35
								6.5	28.3	NA	NA	22.2	35.0	35.3	40
								7.0	30.4	NA	NA	22.2	35.0	38.0	40
	1				1			7.5	32.6	NA	NA	22.2	35.0	40.8	45
								8.0	34.8	NA	NA	22.2	35.0	43.5	45
								8.5	37.0	NA	NA	22.2	35.0	46.2	50
								9.0	39.1	NA	NA	22.2	35.0	48.9	50
								9.5	41.3	NA	NA	22.2	35.0	51.6	55
								10.0	43.5	NA 10.5	NA	22.2	35.0	54.3	55
								0.0	0.0	18.5 23.2	30 30	NA 18.5	NA 30.0	NA 4.7	NA 15
								1.5	5.7	25.5	35	18.5	30.0	7.1	15
								2.0	7.5	27.9	35	18.5	30.0	9.4	15
								2.5	9.4	NA	NA	18.5	30.0	11.8	15
								3.0	11.3	NA	NA	18.5	30.0	14.2	15
								3.5	13.2	NA	NA	18.5	30.0	16.5	20
								4.0	15.1	NA	NA	18.5	30.0	18.9	20
								4.5	17.0	NA	NA	18.5	30.0	21.2	25
	265/1/60	12.2	72.0	1	3.2	1/2	265/1/60	5.0	18.9	NA NA	NA NA	18.5	30.0	23.6	25 30
								5.5 6.0	20.8 22.6	NA NA	NA NA	18.5 18.5	30.0 30.0	25.9 28.3	30
								6.5	24.5	NA	NA	18.5	30.0	30.7	35
								7.0	24.3	NA	NA	18.5	30.0	33.0	35
								7.5	28.3	NA	NA	18.5	30.0	35.4	40
								8.0	30.2	NA	NA	18.5	30.0	37.7	40
								8.5	32.1	NA	NA	18.5	30.0	40.1	45
								9.0	34.0	NA	NA	18.5	30.0	42.5	45
								9.5	35.8	NA	NA	18.5	30.0	44.8	45
	1		1		1			10.0	37.7	NA	NA	18.5	30.0	47.2	50



Table 12:	Additional	Static Res	sistance		Filter1		
Size (Tons)	Model	Fan Speed	MERV 4 (Fiberglass)	MERV 4 (Poly)	MERV 8	MERV 11	MERV 13
0204		High	0.02	0.03	0.08	0.10	0.09
(0.5)		Low	0.02	0.03	0.08	0.09	0.08
0304		High	0.02	0.03	0.08	0.09	0.09
(0.75)		Low	0.01	0.02	0.05	0.06	0.05
0404		High	0.04	0.05	0.13	0.14	0.14
(1.0)		Low	0.02	0.03	0.09	0.10	0.10
0504		High	0.03	0.04	0.11	0.12	0.11
(1.25)		Low	0.02	0.02	0.07	0.08	0.07
0604	VP-C	High	0.04	0.06	0.14	0.15	0.15
(1.5)	VP-C	Low	0.03	0.04	0.10	0.11	0.11
0804		High	0.07	0.10	0.22	0.22	0.26
(2.0)		Low	0.05	0.07	0.17	0.17	0.19
0814]	High	0.02	0.03	0.09	0.10	0.10
(2.0)		Low	0.02	0.02	0.07	0.08	0.07
1004]	High	0.03	0.05	0.11	0.12	0.13
(2.5)		Low	0.02	0.03	0.09	0.10	0.09
1204]	High	0.05	0.07	0.16	0.16	0.18
(3.0)		Low	0.03	0.05	0.12	0.13	0.13

Table 12: Additional Static Desistance

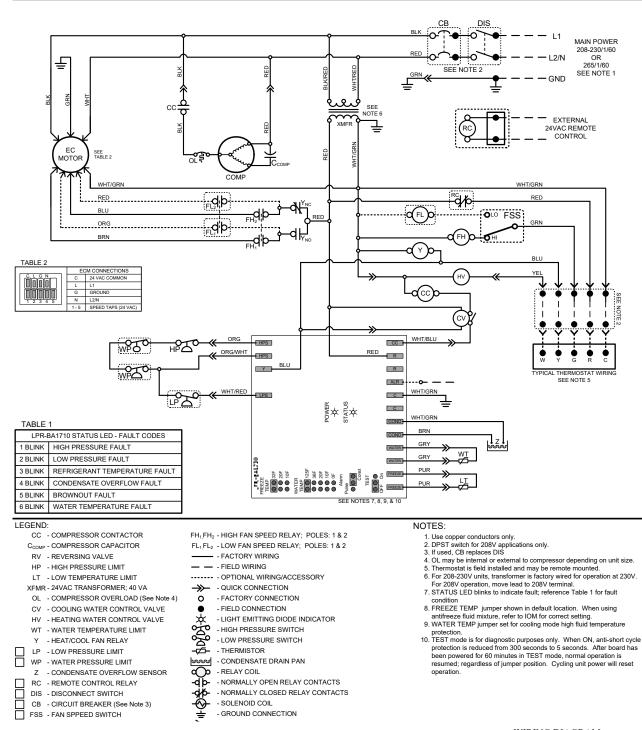




SDELS: VP-C-0204-(B,D)-G; VP-C-0304(B,D)-G; VP-C-0404-(B,D)-G; VP-C-0504-(B,D)-G; VP-C-0604-(B,D)-G

19 August, 2015



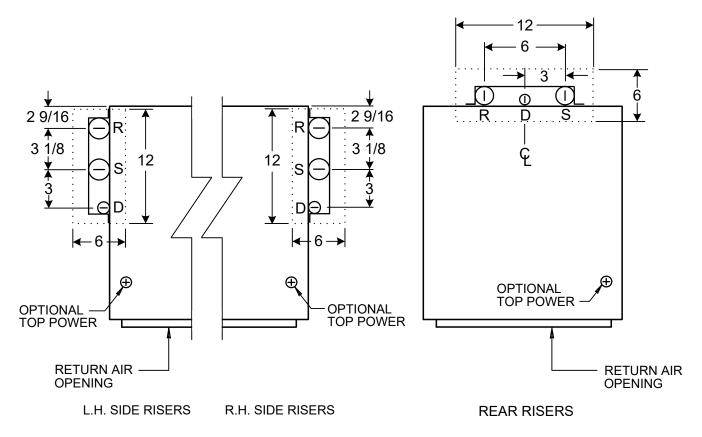


WIRING DIAGRAM

MODELS: VP-C-0804-(B,D)D; VP-C-0814-(B,D)D; VP-C-1004-(B,D)D; VP-C-1204-(B,D)D

19 August, 2015





Notes:

- 1. "Riser size" refers to the larger of the supply and return risers one each heat pump.
- Risers are protected by a steel riser cover extending the height of the cabinet. Risers are soldered to a copper clamp to help prevent movement during shipment and jobsite handling.
- 3. Riser couplings are not furnished by Whalen, unless otherwise noted.
- 4. Sleeve hole dimensions (12" X 6") are recommended minimums.
- Supply pipe is always towards the R.A. on side riser units and to the right on rear riser units.
- Maximum Drain size is 1 1/2" with 3/8" insulation or 1 1/4" with 1/2" insulation for standard or extended option. Use split option for 1 1/2" drain with 1/2" insulation.

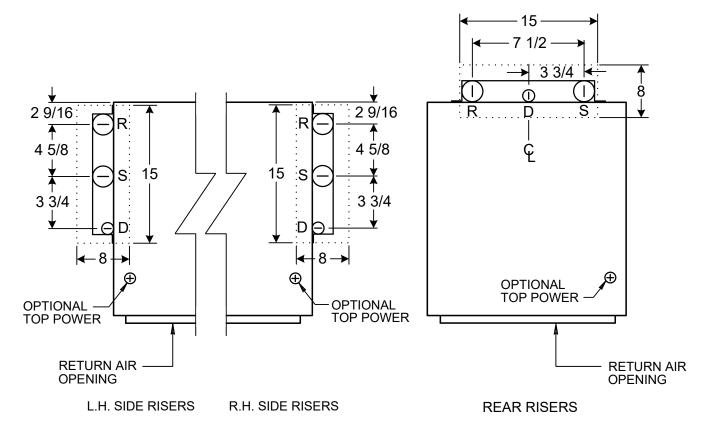
OPTION	RISER	SIZE **		
OPTION	No Insulation	1/2" Insulation		
STANDARD	2 1/2	1 1/2		

** RISER SIZE REFERS TO THE LARGEST RISER ON PROJECT.

····· REPRESENTS RECOMMENDED SLEEVE HOLE.

DRAWING NUMBER: 609f-PT-STD JULY 2017





Notes:

- 1. "Riser size" refers to the larger of the supply and return risers one each heat pump.
- 2. Risers are protected by a steel riser cover extending the height of the cabinet. Risers are soldered to a copper clamp to help prevent movement during shipment and jobsite handling.
- 3. Riser couplings are not furnished by Whalen, unless otherwise noted.
- 4. Sleeve hole dimensions (15" X 8") are recommended minimums.
- Supply pipe is always towards the R.A. on side riser units and to the right on rear riser units.
- Maximum Drain size is 1 1/2" with 3/8" insulation or 1 1/4" with 1/2" insulation for standard or extended option. Use split option for 1 1/2" drain with 1/2" insulation.

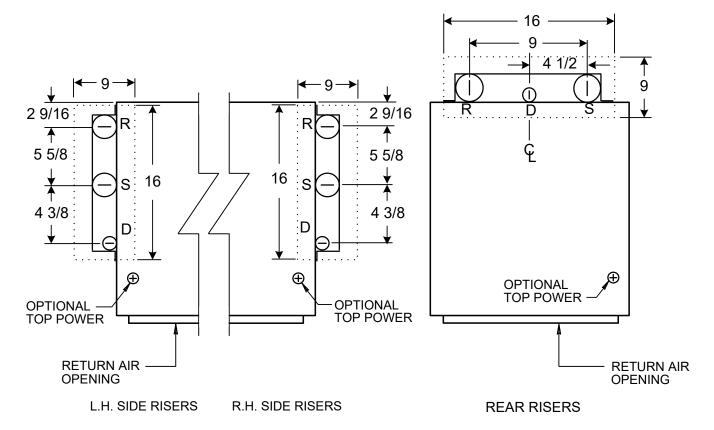
OPTION	RISER	SIZE **
	No Insulation	1/2" Insulation
EXTENDED	4	3

** RISER SIZE REFERS TO THE LARGEST RISER ON PROJECT.

SLEEVE HOLE.

DRAWING NUMBER: 609f-PT-EXT JULY 2017





Notes:

- 1. "Riser size" refers to the larger of the supply and return risers one each heat pump.
- 2. Risers are protected by a steel riser cover extending the height of the cabinet. Risers are soldered to a copper clamp to help prevent movement during shipment and jobsite handling.
- 3. Riser couplings are not furnished by Whalen, unless otherwise noted.
- 4. Sleeve hole dimensions (16" X 9") are recommended minimums.
- 5. Supply pipe is always towards the R.A. on side riser units and to the right on rear riser units.
- Maximum Drain size is 1 1/2" with 3/8" insulation or 1 1/4" with 1/2" insulation for standard or extended option. Use split option for 1 1/2" drain with 1/2" insulation.

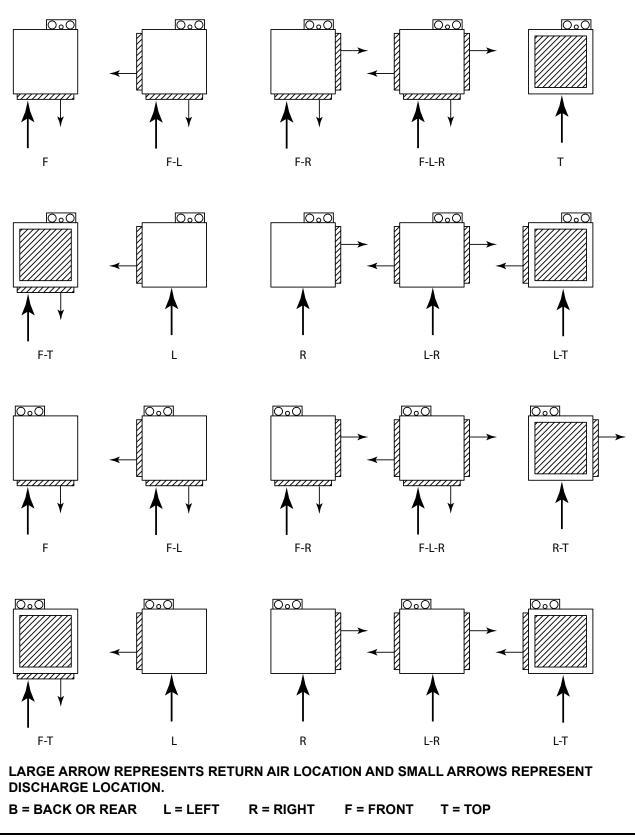
OPTION	RISER	SIZE **
OPTION	No Insulation	1/2" Insulation
SPLIT	4	4

** RISER SIZE REFERS TO THE LARGEST RISER ON PROJECT.

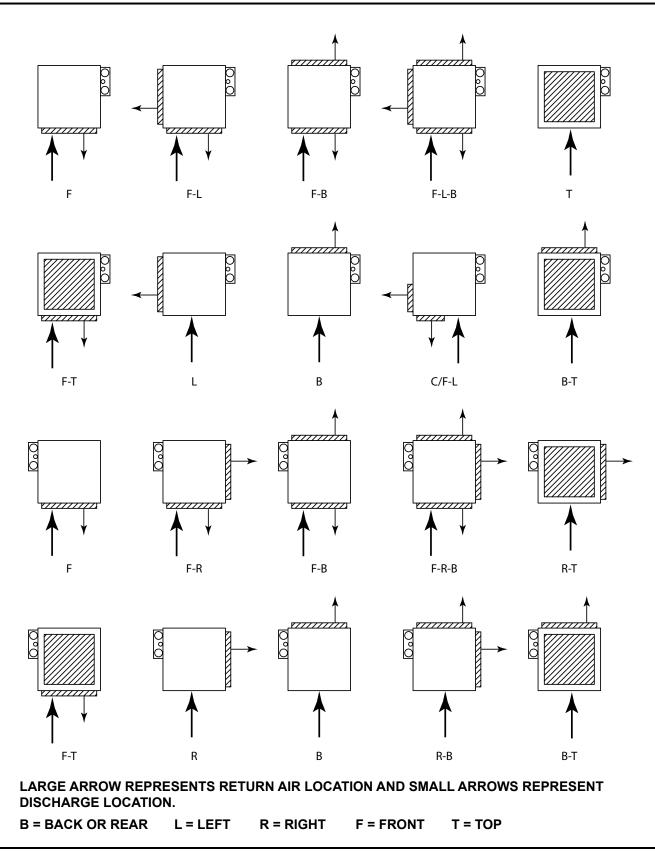
····· REPRESENTS RECOMMENDED SLEEVE HOLE.

DRAWING NUMBER: 609f-PT-SPLIT JULY 2017

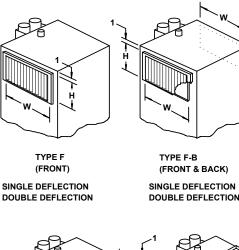


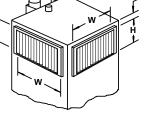


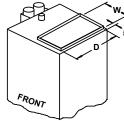












TYPE F-R (FRONT & RIGHT)

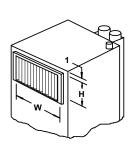
TYPE T (TOP DUCTED) DIMENSION D CENTERED

SINGLE DEFLECTION DOUBLE DEFLECTION

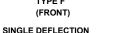
> LH SIDE RISER UNITS SHOWN ABOVE See Drawing No. 611PVS for plan views.

Notes:

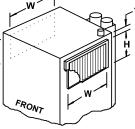
- 1. All standard Whalen supply grilles and registers are fabricated of clear anodized aluminum.
- 2. See unit schedule for discharge types. Optional supply registers are available with either parallel or opposed blade dampers at extra cost.
- 3. Supply and return air grilles are shipped loose, for installation after drywall installation is complete.
- 4. Listed grille and register dimensions are for the grille opening size. All grilles are centered, except for the cornerstone type.



TYPE F (FRONT)



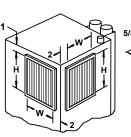
DOUBLE DEFLECTION



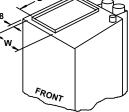
(LEFT-RIGHT) SINGLE DEFLECTION DOUBLE DEFLECTION

TYPE L-R

Ĥ



TYPE C/F-R (CORNERSTONE -FRONT & RIGHT) SINGLE DEFLECTION DOUBLE DEFLECTION



TYPE T (TOP DUCTED)

DIMENSION D CENTERED

RH REAR RISER UNITS SHOWN ABOVE See Drawing No. 611PVR for plan views.

- 5. Unless otherwise noted, the front grille blades will be vertical, as drawn.
- 6. Registers should be avoided whenever possible, as restriction of airflow may lead to lockout of the compressor. Avoid combining ducted (Type T) discharge with unit mounted registers. This combination can increase the noise level at the unit.
- 7. Where Type T is combined with Type F, B, L or R, grille height will be that of a two-grille discharge.

UNIT SIZE	1 Grille (F,B,		2 Grille (F-B, F- L-R, B-	-L, F-R,	stone	Corner- Type , C/F-R)	3 Grille (F-L-R. F-B-R)	F-B-L,	Top D Type	ucted (T)
	w	Н	W	Н	W	н	w	Н	W	D
0204	10	8	10	4	4	10	10	4	12	10
0304	14	8	14	6	6	14	14	6	12	10
0404	14	10	14	6	6	14	14	6	12	12
0504	16	12	16	6	8	16	16	6	14	14
0604	16	12	16	6	8	16	16	6	14	14
0804	16	16	16	8	8	16	16	8	14	16
0814	16	16	16	8	8	16	16	8	See Dwg	. 611-K-V
			All	dimensi	ons in in	ches.				



RONT

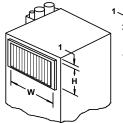
TYPE L-R

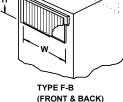
(LEFT-RIGHT) SINGLE DEFLECTION

DOUBLE DEFLECTION

(DIMENSION W CENTERED)

Η





SINGLE DEFLECTION

DOUBLE DEFLECTION

(DIMENSION W CENTERED)

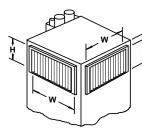
FRONT

TYPE T

(TOP DUCTED)

(FRONT) SINGLE DEFLECTION DOUBLE DEFLECTION (DIMENSION W CENTERED)

TYPE F



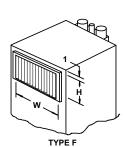
TYPE F-R (FRONT & RIGHT)

SINGLE DEFLECTION DOUBLE DEFLECTION (DIMENSION W CENTERED)

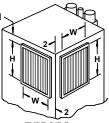
> LH SIDE RISER UNITS SHOWN ABOVE RH SIDE RISER UNITS OPPOSITE See Drawing No. 611PVS for plan views.

Notes:

- 1. All standard Whalen supply grilles and registers are fabricated of clear anodized aluminum.
- 2. See unit schedule for discharge types. Optional supply registers are available with either parallel or opposed blade dampers at extra cost.
- 3. Supply and return air grilles are shipped loose, for installation after drywall installation is complete.
- 4. Listed grille and register dimensions are for the grille opening



(FRONT) SINGLE DEFLECTION DOUBLE DEFLECTION (DIMENSION W CENTERED)



TYPE C/F-R (CORNERSTONE -FRONT & RIGHT)

SINGLE DEFLECTION DOUBLE DEFLECTION

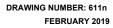
TYPE T (TOP DUCTED)

FRONT

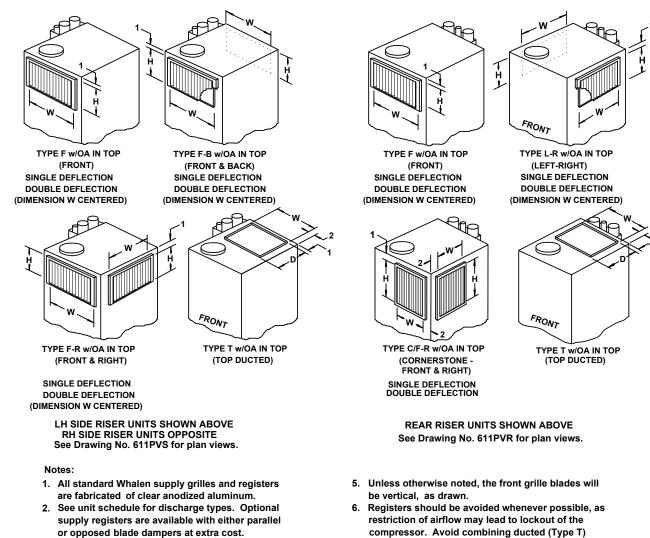
REAR RISER UNITS SHOWN ABOVE See Drawing No. 611PVR for plan views.

- 5. Unless otherwise noted, the front grille blades will be vertical, as drawn.
- 6. Registers should be avoided whenever possible, as restriction of airflow may lead to lockout of the compressor. Avoid combining ducted (Type T) discharge with unit mounted registers. This combination can increase the noise level at the unit.
- 7. Where Type T is combined with Type F, B, L or R, grille height will be that of a two-grille discharge.

UNIT SIZE	1 Grille Type (F,B,L,R)	2 Grille Type (F-B, F-L, F-R, L-R, B-L, B-R)	2 Grille Corner- stone Type (C/F-L, C/F-R)	3 Grille Type (F-L-R. F-B-L, F-B-R)	Top Ducted Type (T)
	wн	w н	wн	w н	W D
0204	10 8	10 4	4 10	10 4	12 10
0304	14 8	14 6	6 14	14 6	12 10
0404	14 10	14 6	6 14	14 6	12 12
0504	16 12	16 6	8 16	16 6	14 14
0604	16 12	16 6	8 16	16 6	14 14
0804	16 16	16 8	8 16	16 8	14 16
0814	18 14	18 8	Not Available	18 8	16 14
1004	Not Available	18 10	Not Available	18 10	16 14
1204	Not Available	18 12	Not Available	18 12	16 14
	•	All dime	ensions in inches.		







- 3. Supply and return air grilles are shipped loose, for installation after drywall installation is complete.
- 4. Listed grille and register dimensions are for the grille opening

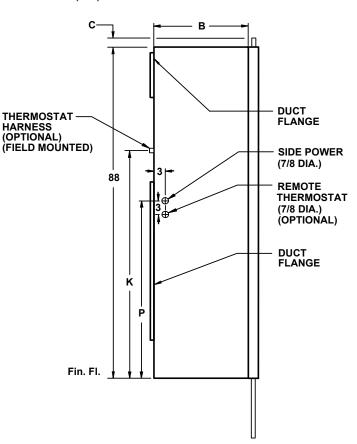
discharge with unit mounted registers. This combination can increase the noise level at the unit.7. Where Type T is combined with Type F, B, L or R, grille height will be that of a two-grille discharge.

UNIT SIZE	1 Grille (F,B,	21	2 Grille (F-B, F L-R, B-	-L, F-R,	stone	e Corner- e Type , C/F-R)	3 Grille Type (F-L-R. F-B-L, F-B-R)		Тор D Туре	ucted (T)
	W	Н	W	Н	w	Н	W	Н	W	D
0204	10	8	10	4	4	10	10	4	12	10
0304	14	8	14	6	6	14	14	6	12	10
0404	14	10	14	6	6	14	14	6	12	12
0504	16	12	16	6	8	16	16	6	14	14
0604	16	12	16	6	8	16	16	6	14	14
0804	16	16	16	8	8	16	16	8	14	16
0814	18	14	18	8	Not A	vailable	18	8	16	14
1004	Not Av	/ailable	18	10	Not A	vailable	18	10	16	14
1204	Not Av	/ailable	18	12	Not A	vailable	18	12	16	14

DRAWING NUMBER: 611d-ERV EBRUARY 2019

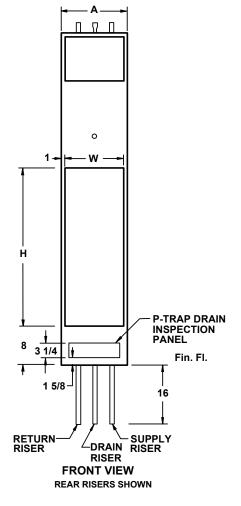
All dimensions in inches.





Whisperpack[®] Units with Internal Drain Rear Risers

RIGHT SIDE VIEW



Notes:

- 1. The return air opening is always on the front of the unit.
- 2. Cabinet is acoustically and thermally insulated and is fabricated of continuous galvanized steel.
- 3. Supply, return, and drain risers are copper (see notes page for copper type). Riser assemblies include two shut off valves inside the cabinet. Standard units include high-pressure hose kits for connection of the hydronic chassis.
- 4. For plan views, see drawing 609-PT.
- 5. Unit power and remote thermostat connections are located on right side on rear riser units.
- 6. Supply air options on 814, 1004 & 1204 models are specified on drawing 611, minimum of two discharges.

UNIT SIZE	A	в	w	н	к	Р
0204-**B 0304-**B 0404-**B	16	21	14	44	58	48
0504-**B 0604-**B 0804-**B	18	24	16	44	58	48
0814-**C 1004-**C 1204-**C	20	26	18	54	68	59

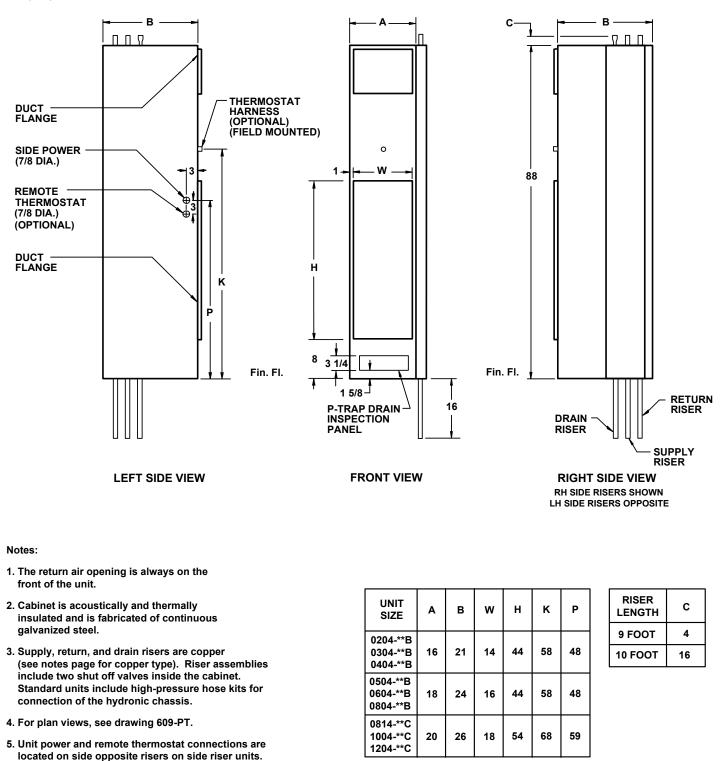
с
4
16

All dimensions in inches. DRAWING NUMBER: 670i-R

FEBRUARY 2017



Whisperpack® Units with Internal Drain Side Risers



All dimensions in inches.

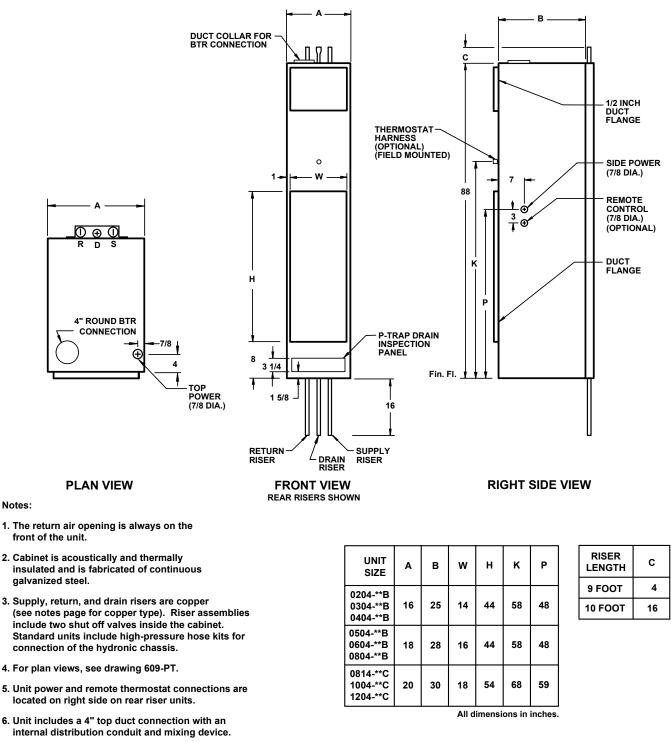
DRAWING NUMBER: 670i-S FEBRUARY 2017

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6. Supply air options on 814, 1004 & 1204 models are specified on drawing 611, minimum of two discharges.



Whisperpack [®] Units with Internal Drain & 4" Round To	n Front RTP Duct Connection Poor Disors
Whisperpack offics with internat Drain & 4 Round to	ip From Dirk Duct Connection Real Risers



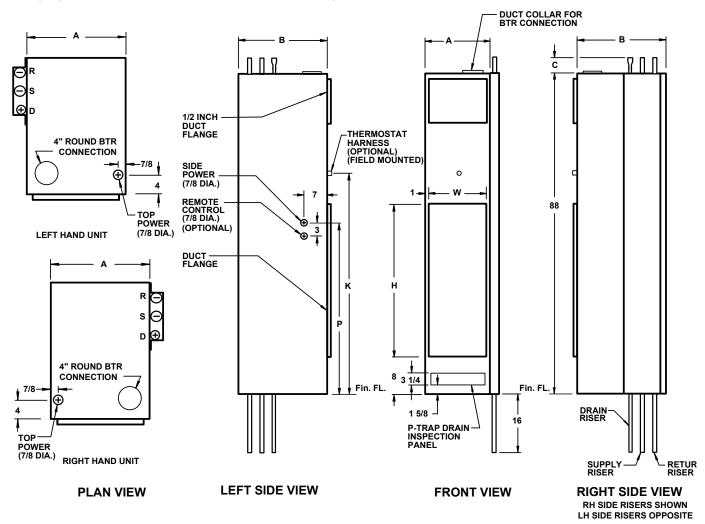
7. Supply air options on 814, 1004 & 1204 models are specified on drawing 611, minimum of two discharges.

DRAWING NUMBER: 672f-R-TOAF4 FEBRUARY 2017





Whisperpack[®] Units with Internal Drain & 4" Round Top Front BTR Duct Connection Side Risers



Notes:

- 1. The return air opening is always on the front of the unit.
- 2. Cabinet is acoustically and thermally insulated and is fabricated of continuous galvanized steel.
- 3. Supply, return, and drain risers are copper (see notes page for copper type). Riser assemblies include two shut off valves inside the cabinet. Standard units include high-pressure hose kits for connection of the hydronic chassis.
- 4. For plan views, see drawing 609-PT.
- 5. Unit power and remote thermostat connections are located on side opposite risers on side riser units.
- 6. Unit includes a 4" top duct connection with an internal distribution conduit and mixing device.
- 7. Supply air options on 814, 1004 & 1204 models are specified on drawing 611, minimum of two discharges.

UNIT SIZE	A	в	w	н	к	Р
0204-**B 0304-**B 0404-**B	16	25	14	44	58	48
0504-**B 0604-**B 0804-**B	18	28	16	44	58	48
0814-**C 1004-**C 1204-**C	20	30	18	54	68	59

RISER LENGTH	с
9 FOOT	4
10 FOOT	16

All dimensions in inches.

DRAWING NUMBER: 672f-S-TOAF4 FEBRUARY 2017



Mechanical Specifications

SERIES VI WHISPERPACK® WATER SOURCE AIR CONDITIONER WITH HYDRONIC HEAT

PART 1 GENERAL

- 1.01 SECTION INCLUDES
 - A. Vertical Stack Water Source Air Conditioner with Hydronic Heat

1.02 RELATED SECTIONS

1.03 REFERENCES

- A. ETL Listed under Underwriters Laboratories Standard for Safety UL1995 for heat pumps.
- B. AHRI ISO Standard 13256-1

1.04 DELIVERY, STORAGE AND HANDLING

A. Deliver products to site, store and protect from the weather and construction debris. Air conditioner cabinets and refrigeration chassis must be individually packaged and be tagged with site location, model number and configuration.

1.05 ENVIRONMENTAL REQUIREMENTS

A. Protect units from construction debris by covering all openings prior to start-up of the equipment. Units must not be used for heating, cooling, or ventilation prior to the start-up of equipment for permanent use. Use of the equipment for the temporary heating, cooling or ventilation is prohibited.

1.06 FACTORY TESTING

A. All units shall be factory tested at normal operating conditions. Cabinets and fans shall be tested to verify proper fan and control operation. Refrigeration chassis shall be factory tested with cataloged water flow rates and sequenced to verify the proper operation of safety controls. Testing without utilizing cataloged water flow rates is unacceptable. All factory risers shall be pressure tested for leaks.

1.07 SUBMITTAL DOCUMENTATION

A. Standard submittals shall include capacities, drawings, electrical data, installation, operation and maintenance manuals and other details.

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PART 2 PRODUCTS

2.01 TYPE

A. Vertical Stack Water Source Air Conditioner with integral risers, hot water heating coil, discharge arrangements, hose kits, and all accessories (ADD SPECIFIC OPTIONS HERE). Units shall be standard operating range 75°F to 120°F (23.9°C to 48.9°C) entering fluid temperature for water source air conditioning applications.

2.02 CAPACITY

A. Shall be as indicated on the drawings, which are based on Whalen units. Capacities shall be certified under AHRI ISO Standard 13256-1.

2.03 CABINETS

- A. The one-piece unit cabinet shall be fabricated of reinforced 22-gauge continuous G60 galvanized steel. All internal assemblies shall be welded and treated to prevent corrosion.
- B. The cabinet shall be insulated with 1/2-inch thick 2-pound density thermal and acoustical fiberglass insulation meeting material standard ASTM-C1071 and have an integral water repellent. The insulation shall have a fungi and bacteria resistant barrier with no growth conforming to ASTM-C1338, ASTM G21 and ASTM G22 and meet fire safety standards under NFPA90A and NFPA90B. (OPTION) 1-inch thick 1-1/2-pound density thermal and acoustical fiberglass insulated discharge plenum.
- C. The cabinet shall allow the placement of vertical risers on any side not being used for service access or discharge air openings.
- D. The cabinet will have slots with edge protectors to accommodate movement of the risers with the isolation valves affixed (see 2.05 B). The slots shall remain covered with insulation to minimize air infiltration.
- E. Cabinet return and discharge air openings shall be factory cut and flanged on all sides. All insulation located behind cabinet openings must be removed by the unit manufacturer prior to shipment. Knockouts for field cutting are unacceptable.
- F. Cabinet design shall allow a minimum 5-inches below the chassis access opening to allow for full height baseboard.
- G. (OPTION) A factory installed vibration isolation pad shall be installed on the bottom of the unit.
- H. The air conditioner cabinets shall be shipped separately from, and prior to the refrigeration chassis for early installation at the jobsite.

2.04 REFRIGERATION CHASSIS

A. The refrigeration chassis consisting of the compressor, air coil, water coil, expansion device, receiver, filter-drier, hot water heating air coil and safety controls shall be slide-rail base mounted in the cabinet, and shall be

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designed for easy removal after disconnecting the two hoses and a polarized electrical power plug.

- B. The compressor shall be the sealed hermetic type approved and tested for reverse cycle operation. Internal thermal overload protection shall be provided. The compressor shall be internally isolated and externally hard rubber mounted to the floating chassis. Compressor motors shall be permanent split capacitor (PSC) type. The compressor shall not operate on a call for heating.
- C. The air coils shall be copper tubes mechanically bonded to aluminum fins, multi-circuited to insure maximum coil distribution and effectiveness, and a minimum of three rows deep. The coil shall be rated to withstand 600 psig refrigerant working pressure. Face velocity shall not exceed 400 feet per minute to insure quiet operation and positive condensate drainage.
- D. The water coils shall incorporate an electro-coated steel outer tube and a copper inner tube. The inner tube shall be spirally fluted and bonded to the outer tube to insure controlled refrigerant velocity and distribution. The coil shall be rated to withstand 650 psig refrigerant and 400 psig fluid working pressures. (OPTION) Provide Cupro-nickel COAX coil.
- E. The hot water heating air coil shall be copper tubes mechanically bonded to the aluminum fins, multi-circuited to insure maximum coil distribution and effectiveness and a minimum of two (OPTION: three) rows deep. Face velocity shall not exceed 400 feet per second to insure quiet operation. The refrigeration circuit shall not operate on a call for heating.
- F. The chassis shall be shipped separately from the WSHP cabinets to prevent exposure to, and fouling from finishing work.
- G. A three-way, two-position (On/Off) electric control valve (30 psi differential pressure) shall be factory mounted and wired into the refrigeration chassis to divert fluid flow between the water to refrigerant coil and hot water heating air coil. (OPTION) Provide two, two-way, two-position (On/Off) electric control valves (30 psi differential pressure) in lieu of a three-way control valve for variable flow systems. The valves shall factory mounted and wired into the refrigeration chassis to prevent fluid flow to the unit when a call for cooling or heating is not present.
- H. (OPTION) Automatic flow control valve An automatic flow control valve shall be provided with each chassis and be factory preset for a fixed flow rate regardless of system pressure. Each automatic balancing valve shall be capable of operation over a pressure differential range of 2 to 80 PSID. Valves must utilize threaded connections and be easily removable for cleaning and maintenance.
- I. Water connections between chassis and the riser shall be accomplished via an Insta-Lock[™] quick connect accessory hose kit consisting of synthetic yarn-reinforced EPDM core hose surrounded by a 304 stainless-steel braid. Hose kit shall have brass fittings with stainless-steel locking balls and EPDM seals. Hose ends shall have colored bands to indicate supply or return water as well as colored indicator to verify locking status which connects to Insta-Lock[™] fitting on chassis and mating shut-off valve. Threaded connections with or without sealing washers are not permitted. The hose kit shall be rated for maximum working pressure of 750 psi and minimum burst pressure rating of 2250 psi.

2.05 RISERS

A. The unit manufacturer shall furnish Type M (OPTION: Type L) copper supply and return condenser water risers as an integral factory-assembled component of the heat pump. Supply and return risers shall be protected

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by a galvanized steel pipe chase the length of the cabinet. (OPTION) Provide (3/8) (1/2)-inch thick closed-cell riser insulation the length of the cabinet for ground-source applications.

- B. Ball-type isolation valves shall be factory assembled on the risers by the heat pump manufacturer. The chassis shall be connected to the isolation valves through high-pressure stainless steel hoses provided by the unit manufacturer, to isolate compressor noise and vibration from the piping system. Connection of the refrigerant chassis to building water system through the use of unions is unacceptable.
- C. The unit manufacturer shall furnish the air conditioner cabinet with the supply and return risers connected together (short circuited) between the isolation valves to facilitate flushing by bypassing water directly into the return loop without the water passing thru any device in the unit (i.e. refrigeration chassis, automatic flow control valve).
- D. The condensate drain riser shall be Type M copper and insulated the length of the cabinet with 3/8-inch closed-cell insulation.

2.06 DRAIN PAN

A. The drain pan shall collect and drain condensate that may form from any component internal to the heat pump and shall be fabricated of welded and soldered 20 Ga. 304 stainless steel. The copper condensate drain shall be rolled and soldered into the pan.

2.07 FANS

A. The fan shall be slow speed forward curved centrifugal type capable of two fan speeds, and shall be accessible for removal and maintenance through the return air opening.

2.08 MOTORS

- A. Fan motors for heat pumps under 2-ton shall be of the permanently lubricated PSC standard or hi-static pressure (OPTION: ECM) type, as required; suitable for the current characteristics shown on the drawings, and shall have built-in thermal overload protection.
- B. Fan motors for heat pumps 2-ton and above shall be of the permanently lubricated constant-torque ECM (OP-TION: constant-volume ECM) type, suitable for the current characteristics shown on the drawings, and shall have built-in overload protection.
- C. Motors shall be plug-in, multi-speed type with 1050-RPM maximum.
- D. (OPTION) Provide a two-speed fan switch located behind the acoustic return air panel. The fan switch must be configurable for use with available fan speed motor taps.

2.09 SUPPLY GRILLES

A. (OPTION 1) The supply grilles shall be of the single deflection type fabricated of clear anodized aluminum. All supply openings shall be painted black with a damper assembly and sight baffle provided when one unit is serving two separate rooms.

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(OPTION 2) The supply grilles shall be of the single deflection type fabricated of (factory white painted extruded aluminum) or (custom painted extruded aluminum) (SELECT ONE). All supply openings shall be painted black with a damper assembly and sight baffle provided when one unit is serving two separate rooms.

(OPTION 3) The supply grilles shall be of the double deflection type fabricated of (clear anodized extruded aluminum), (factory white painted extruded aluminum) or (custom painted extruded aluminum) (SELECT ONE). All supply openings shall be painted black with a damper assembly and sight baffle provided when one unit is serving two separate rooms.

2.10 RETURN AIR PANEL

A. (OPTION 1) Painted Flush Mounted Acoustical Panel – The return air opening shall be covered with a flush mounted hinged front acoustical panel with return air entering through the bottom, top and both sides. The panel shall be fabricated of etched galvanized steel and painted factory white. The return air panel shall allow for filter removal without the use of tools.

(OPTION 2) Flush Mounted Acoustical Panel – The return air opening shall be covered with a flush mounted hinged front acoustical panel with return air entering through the bottom, top and both sides. The panel shall be fabricated of etched galvanized steel suitable for field painting to match the room décor after attachment to the field installed drywall framing on the front of the unit. The return air panel shall allow for filter removal without the use of tools.

(OPTION 3) Unit Mounted Acoustical Panel - The return air opening shall be covered with a standard solid hinged front acoustical panel with return air entering through the bottom, top and both sides. The front panel shall be fabricated of etched galvanized steel suitable for field painting to match the room decor. The return air panel shall allow for filter maintenance without the use of tools.

(OPTION 4) Standard Return Air Grille – The return air opening shall be covered with an (Standard) Clear anodized aluminum, (Option A) Factory white painted extruded aluminum or (Option B) Custom painted extruded aluminum air grille that is attached directly to the unit with two screws.

(OPTION 5) Removable Core Return Air Grille – The return air opening shall be covered with a (Standard) clear anodized aluminum, (Option A) factory white painted extruded aluminum or (Option B) custom painted extruded aluminum air grille with quick-removal fasteners for easy filter removal without the use of tools.

2.11 FILTERS

B. (STANDARD) Filters shall be 1" thick disposable fiberglass media, MERV 4.

(OPTION 1) Filters shall be 1" thick disposable pleated media, MERV 8.

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(OPTION 2) Filters shall be 1" thick disposable pleated media, MERV 13.

(OPTION 3) Filters shall be 1" thick permanent aluminum cleanable media, MERV 4.

2.12 OUTDOOR AIR

A. (OPTION 1) Heat pumps to be furnished with an outdoor air plenum for field installation incorporating an outdoor air opening to provide conditioning of outdoor air and manual (motorized) block-off damper. The OA plenum shall be attached directly to the front of the heat pump unit and surround the return air opening. The outdoor air opening shall be located on the side of the plenum kit for either right or left side connection.

(OPTION 2) Heat pumps to be furnished with a "deep cabinet" configuration incorporating an outdoor air opening to provide conditioning of outdoor air and manual (motorized) block-off damper. Outdoor air opening must be placed before the heat pump air coil to allow conditioning while the heat pump is operating. The outdoor air opening shall be located on either side of the cabinet.

2.13 POWER SUPPLY

A. Single point field power connection is made to unit junction box through either of the 7/8" knockouts located on the side or on the top of the cabinet as shown on the drawings.

(OPTION 1) Each unit shall include a non-fused disconnect switch, factory mounted and wired.

(OPTION 2) Each unit shall include a fused disconnect switch, factory mounted and wired.

2.14 CONTROLS

- A. Unit shall include a solid-state control board as part of the unit control system incorporating these features:
 - a. Random start compressor protection. Anti-short cycle compressor minimum OFF time delay. Safety con trols that protect the compressor from the following conditions:
 - i. High pressure
 - ii. Low pressure (Loss of Charge Protection)
 - iii. Low airflow
 - iv. Low liquid flow
 - v. Low entering air temperature
 - vi. Brown-out power conditions
 - vii. Condensate Overflow Protection
 - viii. Low liquid temperature protection with three different settings based on liquid properties.
 - b. Status LED indicating the device causing a fault condition.
 - c. Soft lockout feature that provides for an automatic reset prior to the initiation of a hard lockout.
 - d. Test mode capability with shortened time delays for servicing.

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2.15 THERMOSTAT

- A. The heat pump manufacturer shall provide a 24-volt manual changeover wall thermostat with a HEAT-OFF-COOL system switch and AUTO-ON fan selector switch.
- B. On units up to two tons of cooling, the thermostat shall be unit mounted at a height of 48 inches from the bottom of the cabinet. On units greater than two tons of cooling, the thermostat shall be remote mounted.
- C. Others shall install thermostat by plugging into the control wiring with a polarized male-female plug after the walls are finished when unit mounted or attaching to color coded pigtails when remote mounted. High voltage, return air thermostats with remote bulbs subject to damage during routine service will not be accepted.

2.16 SPARE PARTS

A. The installing contractor shall provide to the Owner one spare chassis for each fifty heat pumps of a given size. (Add any additional spare parts requirements here).

PART 3 EXECUTION

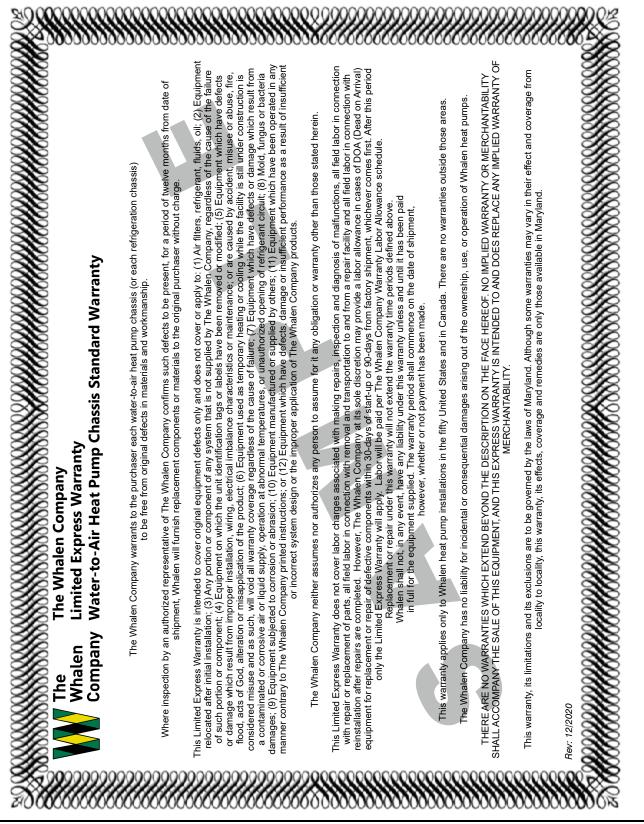
3.01 INSTALLATION

- A. Furnish as shown on the drawings and as specified herein, vertical stack water source heat pumps with integral risers, and with capacity and electrical characteristics as scheduled. Units shall be Series VI as manufactured by The Whalen Company of Easton, MD.
- B. Install in accordance with manufacturer's installation instructions. Install units plumb and level, and maintain manufacturer's recommended clearances for the unit and accessories.
- C. Follow manufacturer's recommendations for cleaning and flushing.





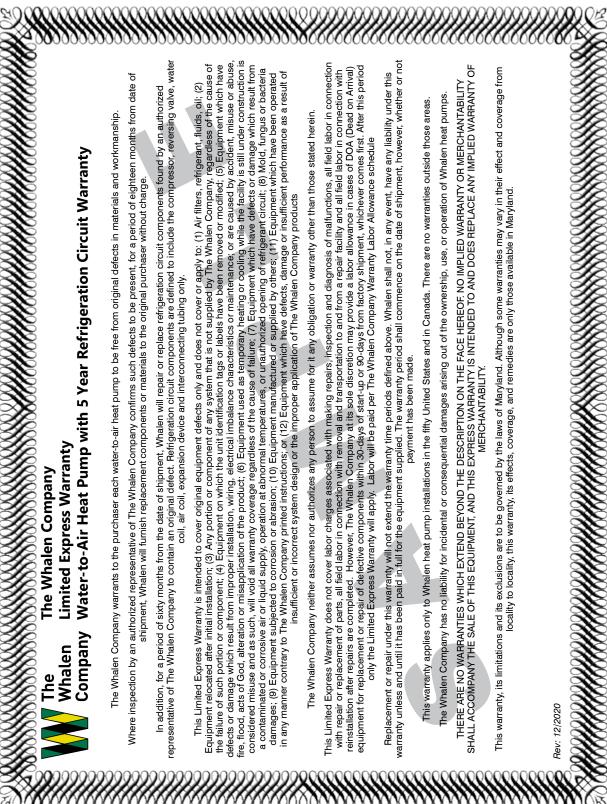








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Whisperpack® Design Guide Revision Table

Date	Description
4/12/22	Updated 1204 AHRI Ratings
2/10/21	Updated Warranty Certificates
9/24/20	Updated Mechanical Specification
8/29/17	Supply Grille Drawings Updated
7/20/17	Registered Marks Added to Whisperpack®
7/20/17	Riser and Cabinet Drawings Updated
3/15/17	Electrical Data Tables Updated
3/15/17	Cabinet Drawings Updated
3/15/17	Standard Warranty Updated
11/21/16	Refrigerant Charge line corrected in Physical Data Table
8/30/16	Cabinet Drawings and Riser Drawings Updated
6/20/16	Supply Grille Discharge with 4" Round Outdoor Air Drawing Added
6/2/16	Supply Grille Discharge Arrangement Drawing Updated
4/22/2016	Drawings Updated, Electrical Data Updated
1/2016	Cabinet Nomenclature Updated
12/2015	New Release of document



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