

## PRODUCT DESIGN GUIDE

Whisperline® SRS Vertical Stack





# Vertical Stack



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Category	Position	<b>Option Digit</b>	Option Description
Product Family	1	V	Vertical Stack Water Source Heat Pump
Product Type	2		Internal Whalen Drain
7,1		Р	Whisper Series 1-stage
		Н	Whisperpack Hydronic Heating Unit
		S	Whisper Series Single Riser System
		T	Whisper Series Integrated Thermal Recovery Unit (Enthalpy Core)
		R	Whisper Series Integrated Thermal Recovery Unit (Sensible Core)
Contain Confirmation	3	Δ	Hart Down
System Configuration	3	A	Heat Pump
		В	Air Conditioning and Electric Heat
		C	Air Conditioning and Hydronic Heat
		D -	Cooling Only
		Е	Heating Only
		Н	Heat Pump and Electric Heat (Supplemental heat)
		J	Heat Pump or Electric Heat (Boilerless heat)
Unit Capacity / Cabinet	4-6	020	020 - 0.50-ton
		030	030 - 0.75-ton
		040	040 - 1.00-ton
		050	050 - 1.25-ton
		060	060 - 1.5-ton
		080	080 - 2.0-ton Standard
		081	081 - 2.0-ton Enhanced
		100	100 - 2.5-ton
		120	120 - 3.0-ton
Davisian (Majar)	7	1	1st Generation
Revision (Major)	1		
		3	3rd Generation
		4	4th Generation
Unit Voltage	8	В	Single Point Power: 208/230-60-1
		D	Single Point Power: 265-60-1
		F	Dual Point Power: 208/230-60-1
		Н	Dual Point Power: 265-60-1
Fan	9	S	PSC - Standard Motor
		Н	PC - High Static Motor
		D	ECM - Constant Torque Motor (Size 081-120)
		E	ECM - Constant Air Volume Motor
		G	ECM - Constant Torque Motor (Size 020-080)
Revision (Minor)	10	В	B - Minor Revision B
		С	C - Minor Revision C
		D	D - Minor Revision D
	11	А	Standard Quiet Construction
Sound Attenuation			
Sound Attenuation		В	Whalen Drain with silver rails
Sound Attenuation		B C	Whalen Drain with silver rails Standard Quiet Construction with Vibration Isolator Pad



Category	Position	<b>Option Digit</b>	Option Description
Sound Attenuation	11	E	Standard Quiet Construction with Silver Rails and Vibration Isolator Pad
		F	Standard Quiet Construction with Vibration Isolator Pad
Cabinet Type / Height	12	A	88 inch tall - Galvanized
		В	84 inch tall - Galvanized
		С	80 inch tall - Galvanized
		D	74 inch tall - Galvanized
		Е	Ducted Vertical - Galvanized
		F	88 inch tall - Paint Grip
		G	84 inch tall - Paint Grip
		Н	80 inch tall - Paint Grip
		J	74 inch tall - Paint Grip
		K	Ducted Vertical - Paint Grip
		R	88 inch tall with Factory Mounted Cabinet Stand
		S	84 inch tall with Factory Mounted Cabinet Stand
		T	80 inch tall with Factory Mounted Cabinet Stand
		U	74 inch tall with Factory Mounted Cabinet Stand
		W	Ducted Vertical with Factory Mounted Cabinet Stand
Electric Heat	13	X	No electric heat installed
		Α	Electric Heat - 1.0 kW
		В	Electric Heat - 1.5 kW
		С	Electric Heat - 2.0 kW
		D	Electric Heat - 2.5 kW
		Е	Electric Heat - 3.0 kW
		F	Electric Heat - 3.5 kW
		G	Electric Heat - 4.0 kW
		Н	Electric Heat - 4.5 kW
		J	Electric Heat - 5.0 kW
		L	Electric Heat - 6.0 kW
Electric Heat	13	N	Electric Heat - 7.0 kW
		Q	Electric Heat - 8.0 kW
		S	Electric Heat - 9.0 kW
		U	Electric Heat - 10.0 kW
		1	35 CFM (constant) / 150 CFM (intermittent with accessory switch) TRU Ventilation Rate
		2	50 CFM (constant) / 150 CFM (intermittent with accessory switch) TRU Ventilation Rate
		3	70 CFM (constant) / 150 CFM (intermittent with accessory switch) TRU Ventilation Rate
		4	90 CFM (constant) / 150 CFM (intermittent with accessory switch) TRU Ventilation Rate
		5	25 CFM (constant) / 100 CFM (intermittent with accessory switch) TRU Ventilation Rate
		6	35 CFM (constant) / 100 CFM (intermittent with accessory switch) TRU Ventilation Rate
		7	50 CFM (constant) / 100 CFM (intermittent with accessory switch) TRU Ventilation Rate
		8	70 CFM (constant) / 100 CFM (intermittent with accessory switch) TRU Ventilation Rate
Electric Heat Voltage	14	Х	No electric heat installed
		В	Single Point Power: 208/230-60-1
		D	Single Point Power: 265-60-1
		F	Dual Point Power: 208/230-60-1
		Н	Dual Point Power: 265-60-1
Fan Control	15	Х	X - Field Provided Thermostat



Category	Position	Option Digit	Option Description
Fan Control	15	А	A - Thermostat - Single speed
		В	B - Thermostat - Single speed with 2-speed fan switch
		D	D - Thermostat - Single speed with Ultra-low airflow
		E	E - Thermostat - Single speed with Ultra-low airflow and 2-speed fan switch
		F	F - Thermostat - Two speed
		G	G - Thermostat - Two speed with Ultra-low airflow
		Н	H - Thermostat - Three speed
		J	J - Thermostat - Three speed with Ultra-low airflow
		K	K - DDC Wall Sensor
		L	L - Customer Supplied Speed Control
Supply Air Discharge	16	1	Front
		2	Left
		3	Right
		4	Тор
		5	Back
		6	Front - Back (Includes Sight Baffle with Sound Insulation)
		7	Front - Left
		8	Front - Right
		9	Front - Top
		Α	Left - Right (Includes Sight Baffle with Sound Insulation)
		В	Left - Top
		C	Right - Top
		D	Back - Left
		E	Back - Right
		F	Back - Top
		G	Front - Left - Right
		Н	Front - Left - Back
		J	Front - Right - Back
		K	Front - Left - Top
		L	Front - Right - Top
		R	
			Front - Back - Top  Cornerstone : Front - Right
		M	•
		N	Cornerstone: Front - Left
		P	Knockouts - all sides
		Z	Z - Special Configuration
Cabinet Protection	17	Χ	No SA / RA covers installed
		Α	Return Air Opening Cover
		В	All Supply Air Openings Covered
		С	All Supply & Return Air Openings Covered
		D	All Openings Shrink Wrapped
Power Termination / Entry Location	18	Х	Side Entry - Single Point Power: without unit disconnect
,		Α	Side Entry - Single Point Power: Unfused unit disconnect
		В	Side Entry - Single Point Power: Unit circuit breaker (Fused disconnect to protect unit only)
		С	Side Entry - Single Point Power: Unfused unit disconnect on both circuit
		D	Side Entry - Dual Point Power: Unit circuit breaker on both circuits
		E	
		E	Side Entry - Dual Point Power: Unfused unit disconnect on unit & circuit breaker on E-heat



Category	Position	<b>Option Digit</b>	Option Description
Power Termination / Entry Location	18	F	Side Entry - Dual Point Power: Unit circuit breaker on unit & unfused disconnect on E-heat
Littly Loodton		G	Top Entry - Single Point Power: Unfused unit disconnect
		Н	Top Entry - Single Point Power: Unit circuit breaker (Fused disconnect to protect unit only)
		 J	Top Entry - Dual Point Power: Unfused unit disconnect on both circuit
		K	Top Entry - Dual Point Power: Unit circuit breaker on both circuits
		I	Top Entry - Dual Point Power: Unfused unit disconnect on unit & circuit breaker on E-heat
		M	Top Entry - Dual Point Power: Unit circuit breaker on unit & unfused disconnect on E-heat
		N	Top Entry - Single Point Power: Without unit disconnect
		P	Side Entry - Dual Point Power: without unit disconnect
		Q	Top Entry - Dual Point Power: without unit disconnect
Thermostat Extension	19	A	Standard Front
		В	T-stat Extension w/plug for offset mounting - 5 ft
		С	T-stat Extension w/plug for offset mounting - 10 ft
		D	T-stat Extension w/plug for offset mounting - 20 ft
		E	T-stat Extension w/plug for offset mounting - 30 ft
		F	T-stat Extension w/plug for offset mounting - 40 ft
		G	T-stat Extension w/plug for offset mounting - 50 ft
		Р	Panel Mount Thermostat / Wall Sensor
		2	Factory Wired Remote Thermostat (Secondary Unit) - Front
		3	Factory Wired Remote Thermostat (Secondary Unit) - Right Side
		4	Factory Wired Remote Thermostat (Secondary Unit) - Left Side
		7	Factory Wired Remote Thermostat - Right Side
		8	Factory Wired Remote Thermostat - Left Side
Control Type	20	A	Solid State Control
		Z	Special
Water Temperature Sensors	21	А	32°F Freeze Protection with 36°F Low/High Liquid Temp setting
		E	32°F Freeze Protection with 125°F Low/High Liquid Temp setting
		G	20°F Freeze Protection with 20°F Low/High Liquid Temp setting
		N	10°F Freeze Protection with 10°F Low/High Liquid Temp setting
		Р	10°F Freeze Protection with 0°F Low/High Liquid Temp setting
DDC Control	22	Х	X - No DDC control package installed
		В	B - Whalen DDC Control (IO Zone 560) no current switch
DDC Control	22	С	C - Customer supplied: DDC Controller - No sensors or fan speeds
		D	D - Return Air Sensor
		E	E - IO Zone 560 DDC Control with Fan & Compressor status current switch
		F	F - IO Zone 560 DDC Control with Discharge Air Temperature
		G	G - IO Zone 560 DDC Control with Fault Alarm
		Н	H - IO Zone 560 DDC Control with Fan & Compressor status current switch with Discharge Air Temperature
		J	J - IO Zone 560 DDC Control with Fan & Compressor status current switch with Fault Alarm
		K	K - IO Zone 560 DDC Control with Fan & Compressor status current switch, Discharge Air Temperature, and Fault Alarm
		L	L - IO Zone 560 DDC Control with Discharge Air Temperature & Fault Alarm
		Z	Z - Special control configuration
Drain Pan Options	23	А	A - Standard Stainless Steel P-trap Drain Pan
		В	B - Standard Stainless Steel P-trap Drain Pan with Condensate Pump



Category	Position	<b>Option Digit</b>	Option Description
		E	E - Standard Stainless Steel Whalen Style Insulated Drain Pan with Condensate Pump
		G	G - Standard Stainless Steel Whalen Style Insulated Drain Pan
Insulation Option	24	A	1/2" thick fiberglass insulation
		В	1/2" thick Foil Face fiberglass insulation - Entire Unit
		С	1/2" thick Closed Cell insulation - Entire Unit
		D	1" thick fiberglass insulation in top of unit for sound reduction - 1/2" thick fiberglass in bottom of unit
Outdoor Air	25	Х	No outside air opening installed
		Α	4" Internal Duct - top connection
		В	4" Internal Duct - top connection with constant airflow regulator
		С	5" Internal Duct - top connection
		D	5" Internal Duct - top connection with constant airflow regulator
		J	2x8 Opening in side of cabinet with Manual outdoor air damper
		K	2x8 Opening in side of cabinet with Motorized outdoor air damper - (not for use with Internal Duct)
		1	Whispertherm Top Connections
		2	Whispertherm Right Side Connections
		3	Whispertherm Rear Top Connections
		4	Whispertherm Rear Right Connections
Filtration	26	Х	Field installed / field furnished 1" thick air filters
		Α	1" MERV 4 Throwaway
		В	1" MERV 8 Throwaway
		С	1" MERV 11 Throwaway
		D	1" MERV 13 Throwaway
		E	2" MERV 4 Throwaway
		F	2" MERV 8 Throwaway
		G	2" MERV 11 Throwaway
		Н	2" MERV 13 Throwaway
		J	Aluminum
Riser Style	27	A	Unit mounted risers with riser cover
		В	Unit mounted risers without riser cover
		С	Unit mounted primary riser with riser cover
		D	Unit mounted primary riser without riser cover
		E	Unit mounted secondary riser with condensate riser
		F	Shipped Separate - Chassis Shipped in Cabinet



Category	Position	<b>Option Digit</b>	Option Description	
Riser Style	27	К	Shipped Separate - Chassis Shipped in cabinet with Sweat x Push-on ball valves	
		M	Shipped Separate - with Sweat x GHT ball valves	
		N	Shipped Separate - with FPT x GHT ball valves	
		Р	Shipped Separate - with Sweat x Push-on ball valves	
		Q	Knockouts - all sides	
		Χ	None / Secondary unit with no risers or condensate	
Riser Spacing	28	A	Standard Spacing	
		В	Standard spacing with Bulls-Eye Stand-off	
		С	Standard spacing with 4" x 4" (W x H) Riser Opening	
		D	Standard spacing with 7" x 4" (W x H) Riser Opening	
		F	Extended Spacing	
		G	Extended spacing with Bulls-Eye Stand-off	
		Н	Extended spacing with 4" x 4" (W x H) Riser Opening	
		J	Extended spacing with 8" x 4" (W x H) Riser Opening	
		L	Split Spacing	
		M	Split spacing with Bulls-Eye Stand-off	
		N	Split spacing with 4" x 4" (W x H) Riser Opening	
		Р	Split spacing with 7" x 4" (W x H) Riser Opening	
		S	Cast-in Firestop Device - Upto 2" Max Riser	
		Т	Cast-in Firestop Device - 3" Max Riser	
		U	Cast-in Firestop Device - 4" Max Riser	
		Χ	None	
		Z	Z - Special Riser Spacing / Configuration	
Riser Location	29	1	Rear	
		2	Right	
		3	Left	
		Χ	None	
Special Configuration	30	Z	Future option	



Category	Position		Option Digit and Description
Brand	1	W	Whalen
Product Family	2-3	VI	Vertical Stack Water Source Heat Pump w/ Whalen drain
		VP	Vertical Stack Water Source Heat Pump - 1-stage
System Configuration	4	A	Heat Pump (Cooling default)
		В	Cooling Only
		С	Air Conditioning or Hydronic Heat
		Е	Heating Only
		G	Heat Pump (heating default) Standard option
		J	Heat Pump or Electric Heat (Boilerless)
Unit Capacity / Cabinet	5-7	020	0.50-ton
		030	0.75-ton
		040	1.00-ton
		050	1.25-ton
		060	1.5-ton
		080	2.0-ton Standard
		081	2.0-ton Enhanced
		100	2.5-ton
		120	3.0-ton
Revision (Major)	8	3	3rd Generation
		4	4th Generation
Unit Voltage	9	В	Single Point Power: 208/230-60-1
		D	Single Point Power: 265-60-1
Compressor	10	С	Copeland
		В	Bristol
		T	Tecumseh
		L	LG
Distributor Options	11	G	Geothermal (TXV)
		Υ	Standard (TXV)
Revision (Minor)	12	В	B - Minor Revision B
		С	C - Minor Revision C
		D	D - Minor Revision D
Control Voltage	13	L	Normally Closed - 24 VAC
		1	Normally Open - 24 VAC



Category	Position		Option Digit and Description
Control Type	14	А	Solid State Control
Sound Attenuation	15	X	Standard
		Α	Anti-vibe Compressor Enclusure
Coil / Chassis Protection	16	A	Standard (Galvanized) Chassis & Galvanized Coil Casing with Copper tube / Aluminum fin
		В	Standard (Galvanized) Chassis & Galvanized Coil Casing with Tin Dipped Hairpins
		С	Standard (Galvanized) Chassis & Galvanized Coil Casing with Epoxy Coating (E-Coating)
		F	Standard (Galvanized) Chassis & Stainless Steel Coil Casing with Copper tube / Aluminum fin
		G	Standard (Galvanized) Chassis & Stainless Steel Coil Casing with Tin Dipped Hairpins
		Н	Standard (Galvanized) Chassis & Stainless Steel Coil Casing with Epoxy Coating (E-Coating)
Hot Water Coil	17	Х	None
		В	2-row Hot Water Coil
		С	3-row Hot Water Coil
Control Valve	18	X	X - None
		Α	A - 2-way valve, on/off, std diff
		В	B - 2-way valve, on/off, 60 psi diff
		С	C - 2-way valve, on/off, 125 psi diff
		Н	H - Pressure Independent Control Valve
		J	J - 3-way valve, on/off, std diff (Whisperpack Only)
		K	K - 3-way valve, on/off, 60 psi diff (Whisperpack Only)
		W	W - Factory installed valve supplied by customer
		2	2 - Two 2-way valve, on/off, std diff (Qty 2 valves for use with Whisperpack)
		3	3 - Two 2-way valve, on/off, 60 psi diff (Qty 2 valves for use with Whisperpack)
		4	4 -Two 2-way valve, on/off, 125 psi diff (Qty 2 valves for use with Whisperpack)
Flow Control	19	Х	X - None
		С	C - Automatic Flow Valve - Griswold K with PT Ports
		D	D - Automatic Flow Valve - Hays
		E	E - Automatic Flow Valve - Hays with PT Ports
		Н	H - Manual Flow Control Valve
		L	L - Internal Circulating Pump - Taco (208 or 265V)
		M	M - Internal Circulating Pump - Grundfos (208V only)
		Q	Q - Pressure Independent Control Valve
Water Flow	20-23	XXXX	Manual valve or no flow control device installed
		0100	1.0 GPM
		0113	1.13 GPM
		0120	1.20 GPM
		0125	1.25 GPM
		0150	1.5 GPM



Category	Position	0	ption Digit and Description
Water Flow	20-23	0163	1.63 GPM
		0175	1.75 GPM
		0200	2.0 GPM
		0225	2.25 GPM
		0230	2.30 GPM
		0250	2.5 GPM
		0300	3.0 GPM
		0325	3.25 GPM
		0330	3.30 GPM
		0350	3.5 GPM
		0400	4.0 GPM
		0450	4.5 GPM
		0500	5.0 GPM
		0550	5.5 GPM
		0600	6.0 GPM
		0650	6.5 GPM
		0660	6.6 GPM
		0700	7.0 GPM
		0740	7.4 GPM
		0750	7.5 GPM
		0800	8.0 GPM
		0900	9.0 GPM
		1000	10.0 GPM
Strainer	24	X	None
		2	Y-strainer
		3	Y-strainer with blowdown
Vater Connections	25	A	GHT (Male)
		D	MNPT (Tapered)
		J	Push to Connect
Vater-side Access Ports	26	X	None
		Α	Pressure / Temperature Port (Supply)
		В	Pressure / Temperature Port (Return)
		С	Pressure / Temperature Port (Supply & Return)
		D	Pressure / Temperature Port (Supply) and Manual Air Vent
		E	Pressure / Temperature Port (Return) and Manual Air Vent
		F	Pressure / Temperature Port (Supply & Return) and Manual Air Vent
		G	Pressure / Temperature Port (Supply) with Manual Air Vent & Drain Petcock
		Н	Pressure / Temperature Port (Return) with Manual Air Vent & Drain Petcock
		J	Pressure / Temperature Port (Supply & Return) with Manual Air Vent & Drain Petcock



Category	Position		Option Digit and Description
Coax Type	27	А	Standard
		В	Cupro-Nickel Coax
Chassis Plug	28	Q	15 pin
Air / Fluid Sensor	29	Х	None
		D	Differential Pressure Switch
Coil height		D	D - 18" tall
		E	E - 20" tall
		G	G - 24" tall
		J	J - 28" tall
		N	N - 36" tall



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

			Water Loop Heat Pump				Ground Loop Heat Pump			
			Coolin	Cooling 86°F		g 68°F	Coolir	ng 77°F	Heating	32°F
Model with PSC Motor	CFM	GPM	Capacity Btuh	EER Btuh / W	Capacity Btuh	СОР	Capacity Btuh	EER Btuh / W	Capacity Btuh	СОР
VP-A-0204*SC	280	1.5	6,500	13.5	8,000	5.3	6,600	14.0	4,600	3.1
VP-A-0304*SC	340	2.5	9,300	13.8	12,500	5.3	9,650	14.8	6,850	3.2
VP-A-0404*SC	420	3.3	12,300	14	14,900	5.0	12,500	15.8	9,300	3.2
VP-A-0604*SB	630	4.5	18,000	14.5	21,600	5.0	18,800	15.5	13,000	3.2

			V	Vater Loop	Heat Pum	р	G	round Loo	p Heat Pum	р
			Coolir	ng 86°F	Heatin	g 68°F	Coolir	ng 77°F	Heatin	g 32°F
Model with EC Motor	CFM	GPM	Capacity Btuh	EER Btuh / W	Capacity Btuh	СОР	Capacity Btuh	EER Btuh / W	Capacity Btuh	СОР
VP-A-0204*GC	280	1.5	6,500	15.0	8,000	5.5	6,600	14.2	4,600	3.2
VP-A-0304*GC	340	2.5	9,300	15.0	12,500	5.7	9,650	15.4	6,850	3.3
VP-A-0404*GC	420	3.3	12,800	15.6	15,000	5.5	12,700	16.0	9,400	3.3
VP-A-0504*GB	540	3.9	15,000	16.1	18,200	5.5	15,500	17.0	10,800	3.2
VP-A-0604*GB	655	4.5	18,200	15.2	21,600	5.1	19,000	16.2	13,000	3.3
VP-A-0804*DB	830	6.0	23,000	13.1	30,000	5.0	25,000	14.5	19,000	3.2
VP-A-0814*DD	830	6.0	23,200	16.0	28,200	5.6	24,000	17.1	17,000	3.8
VP-A-1004*DD	970	7.5	30,000	17.0	34,800	5.5	31,000	18.2	20,800	3.8
VP-A-1204*DD	1170	9.0	37,000	15.9	41,200	5.5	38,200	16.8	24,800	3.7

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



#### Features & Benefits

- 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 0800 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 size 0400 1200 units and will maintain a constant unit airflow as the static pressure in the system increases. Constant airflow ECMs provide only single speed settings.

- PSC (Permanent Split Capacitor) Are standard on size 0600 and smaller units. Our PSC motor is available in standard static range as well as high static applications. The supplied motor is available in single or two-speed configurations (two manual two-speed fan switch, control based fan relay, or two-speed thermostat.
- Supply Air Grille Diffusers are constructed of aluminum with a mill finish or an optional painted finish, available in three variations: single deflection, double deflection, double deflection with opposed blade damper. Damper blades are positioned vertically and adjust easily for directing the unit discharge air.
- 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 allow 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 allow 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 (Magnetic Hydraulic 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 6-pin Molex quick connector. The extension can exit cabinet on the top, front, or either side depending on the riser location.
- 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.
- 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, tak-

- ing 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.
- P/T Port 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 20 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. The O.A. Internal Duct is insulated when inernal to cabinet.
- O.A. Motorized O.A. 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. Note that the motorized O.A. damper cannot be used with the internal O.A. duct.



Filter Units come standard with a one-inch glass fiber throwaway filter. High efficiency MERV 4, 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.

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

Table 2: Whisperline® Thermostats for Standalone Operation

	Feature	SCI SC2010L	SCI SC4011	SCI SC5011
	Electrical Box	0010020102	301334011	00100011
Mounting Style	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
Stages	Heating	1	1	1
Stayes	Cooling	1	1	1
Voltage	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 manually 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 connec-

tions.

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: Port 1: 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. Rnet port:

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

Component	<u></u>				Models				
Component	VP-A-0204	VP-A-0304	VP-A-0404	VP-A-0504	VP-A-0604	VP-A-0804	VP-A-0814	VP-A-1004	VP-A-1204
Nominal Tonnage	0.5	0.75	1.0	1.25	1.5	2.0	2.0	2.5	3.0
COOLING PERFORMANCE	İ	İ							
Capacity (MBTUH), ECM fan	6.5	9.3	11.8	15.0	18.2	23.0	23.2	30.0	37.0
EER (Btuh/W), ECM fan	15.0	15.0	14.0	16.1	15.2	13.1	16.0	17.0	15.9
Entering Water Temp (°F)	86	86	86	86	86	86	86	86	86
Water Flow (GPM)	1.5	2.5	3.3	3.9	4.5	6.0	6.0	7.5	9.0
Rated CFM	280	340	420	540	655	830	830	970	1170
Refrigerant type	R410A	R410A	R410A	R410A	R410A	R410A	R410A	R410A	R410A
Refrigerant charge (oz)	24.0	25.5	25.3	33.5	35.0	38.0	43.0	48.0	54.0
HEATING PERFORMANCE									
Capacity (MBTUH), ECM fan	8.0	12.5	14.9	18.2	21.6	30.0	28.2	34.8	41.2
COP, ECM fan	5.5	5.7	5.2	5.5	5.1	5.0	5.6	5.5	5.5
Entering Water Temp (°F)	68	68	68	68	68	68	68	68	68
Nater Flow (GPM)	1.5	2.5	3.3	3.9	4.5	6.0	6.0	7.5	9.0
DIMENSIONS (inches)									
Width (in.)	16	16	16	18	18	18	20	20	20
Depth (in.)	17	17	17	20	20	20	22	22	22
Height (in.)	88	88	88	88	88	88	88	88	88
OPERATING WEIGHT (lbs.)	70	04	00	100	400	100	105	474	470
Chassis Cabinet	79 133	81 133	83 133	122 153	123 153	132 153	165 172	171 174	172 174
	133	133	133	100	100	155	172	174	174
SHIPPING WEIGHT (lbs.)	05	07	00	100	100	100	474	477	470
Chassis Cabinet	85 145	87 145	89 145	128 165	129 165	138 165	171 184	177 186	178 186
COMPRESSORS	145	145	145	100	100	100	184	180	180
Гуре	Rotary	Rotary	Rotary	Rotary	Rotary	Rotary/Scroll	Scroll	Scroll	Scroll
Quantity	1	1	1	1	1	1	1	1	1
EVAPORATOR COIL DATA	<del> </del>	· ·	<del>                                     </del>	·		<del>                                     </del>		· ·	
Rows	3	3	3	3	3	3	3	3	3
Refrigerant control	TXV	TXV	TXV	TXV	TXV	TXV	TXV	TXV	TXV
SUPPLY FAN DATA								i	
Quantity	1	1	1	1	1	1	1	1	1
Fan Size (D x W)	7.62 x 5	7.62 x 5	8 x 5	8.5 x 7	8.5 x 7	9 x 8	9.5 x 9.5	9.87 x 10.5	10.7 x 10.5
Fan type	Centrifugal	Centrifugal	Centrifugal	Centrifugal	Centrifugal	Centrifugal	Centrifugal	Centrifugal	Centrifuga
Maximum E.S.P.									
PSC Motor - Standard	0.15	0.2	0.25	NA	0.3	NA	NA	NA	NA
PSC Motor - High Static	0.2	0.25	0.35	0.4	0.4	NA	NA	NA	NA
ECM Motor - Constant Torque	0.35	0.4	0.4	0.5	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	0.5
PSC MOTOR HP	1/15	1/15	1/15	NIA	1/10	NIA.	N.1.0	NIA.	N 1 A
Voltage - 208-230/60/1	1/15 1/20	1/15 1/20	1/15 1/12	NA NA	1/12 0.15	NA NA	NA NA	NA NA	NA NA
Voltage - 265/60/1 PSC HIGH STATIC MOTOR HP	1/20	1/20	1/12	INA	0.15	INA	INA	INA	INA
Voltage - 208-230/60/1	1/15	1/15	1/12	NA	1/5	NA	NA	NA	NA
Voltage - 265/60/1	1/20	1/12	0.15	NA NA	0.17	NA NA	NA NA	NA	NA
CONSTANT TORQUE ECM HP	,,==	.,							
Voltage - 208-230/60/1	1/4	1/4	1/4	1/4	1/4	1/2	1/2	1/2	1/2
Voltage - 265/60/1	1/4	1/4	1/4	1/4	1/4	1/2	1/2	1/2	1/2
CONSTANT VOLUME ECM HP									
Voltage - 208-230/60/1	NA	NA	1/3	1/3	1/3	1/2	1/2	1/2	1/2
Voltage - 265/60/1	NA	NA	1/2	1/2	1/2	1/2	1/2	1/2	1/2
ACOUSTICAL RETURN AIR PANEL	ļ		ļ						
Flush Mounted	16 x 46	16 x 46	16 x 46	18 x 46	18 x 46	18 x 46	20 x 56	20 x 56	20 x 56
Chassis Accessable Flush Mounted	22 x 49	22 x 49	22 x 49	24 x 49	24 x 49	24 x 49	26 x 59	26 x 59	26 x 59
SUPPLY GRILLE	10.0	11. 0	14. 10	10. 10	10: 10	10. 10	N/A	N/A	h 1 A
Grille (W x H)	10 x 8	14 x 8	14 x 10	16 x 12	16 x 12	16 x 16	NA NA	NA 10	NA 10
2 Grille (W x H)	10 x 4	14 x 6	14 x 6	16 x 6	16 x 6	16 x 6	18 x 8	18 x 10	18 x 12
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	NA 10 0	NA 10.0
3 Grille (W x H)	10 x 4	14 x 6	14 x 6	16 x 6	16 x 6	16 x 6	18 x 8	18 x 8	18 x 8
Top Duct (W x H) FILTERS	12 x 10	12 x 10	12 x 12	14 x 14	14 x 14	14 x 16	16 x 14	16 x 14	16 x 14
Size	13 x 24 1	13 x 24 1	13 x 24 x 1	15 x 28 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
Quantity	1	1	1	1	1	1	1	1	1



Table 4: Unit Voltage Limitations

Voltage	Minimum	Maximum
208/230-60-1	197	252
265-60-1	239	292

Table 5: VP Continuous Operating Limits

	Ambier	nt Air °F		Enterino	g Air °F			Entering	Fluid °F	
	Minimum	Maximum	Minin	num	Maxi	mum	Standar	d Range	Extende	d Range
Mode	DB	DB	DB	DB WB		WB	Min	Max	Min	Max
Cooling	60	100	75	75 63		83	60	120	30	120
Heating	60	80	60	-	80	-	60	90	20	90

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

Table 6: VP Start-up Operating Limits

	Ambier	nt Air °F		Enterino	g Air °F			Entering	Fluid °F	
Mode	Minimum	Maximum	Minin	num	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	90	20	90

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

## **Standard Range Units:**

Units are designed to start in an ambient of 50°F (10°C) with entering air at 50°F (10°C), with entering water at 50°F (10°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°F (10°C) with entering air at 50°F (10°C), with entering water at 20°F (-7°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°F (10°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.

**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.



				Entering	g Air - 8	30°F / 67°F		E	Intering	Air - 78	°F / 65°l	F		Enterin	g Air - 7	5°F / 63°F	
Size (Tons)	EWT (°F)	GРM	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	1.2															
	30	1.2	7.192	5.455	0.293	8.191	13.7	6.886	5.462	0.292	7.883	13.1	6.579	5.161	0.292	7.576	12.6
	40	1.2	7.146	5.483	0.313	8.214	13.7	6.841	5.491	0.313	7.908	13.2	6.537	5.188	0.312	7.603	12.7
	50	1.2	7.029	5.475	0.341	8.191	13.7	6.729	5.482	0.340	7.890	13.2	6.430	5.180	0.340	7.589	12.6
	60	1.2	6.841	5.430	0.375	8.122	13.5	6.549	5.437	0.375	7.829	13.0	6.258	5.137	0.375	7.536	12.6
204 (0.5)	70	1.2	6.583	5.349	0.418	8.008	13.3	6.302	5.356	0.417	7.725	12.9	6.022	5.060	0.417	7.443	12.4
(0.0)	80	1.2	6.254	5.231	0.467	7.847	13.1	5.987	5.238	0.466	7.578	12.6	5.721	4.949	0.466	7.310	12.2
	90	1.2	5.855	5.076	0.523	7.640	12.7	5.605	5.083	0.523	7.389	12.3	5.356	4.803	0.522	7.137	11.9
	100	1.2	5.385	4.885	0.587	7.388	12.3	5.155	4.892	0.586	7.156	11.9	4.926	4.622	0.586	6.924	11.5
	110	1.2	4.844	4.658	0.658	7.090	11.8	4.637	4.664	0.657	6.881	11.5	4.431	4.407	0.657	6.672	11.1
	120	1.2	4.233	4.393	0.737	6.746	11.2	4.052	4.399	0.736	6.562	10.9	3.872	4.157	0.735	6.379	10.6

			En	itering A	ir - 65°l	F db	En	tering Air	- 70°F d	lb	E	Entering A	Air - 75°F	db
Size (Tons)	EWT (°F)	GРM	HC (Btu/hr)	kW	HE (Btu/ hr)	Liquid Temp Drop (°F)	HC (Btu/hr)	kW	HE (Btu/ hr)	Liquid Temp Drop (°F)	HC (Btu/ hr)	kW	HE (Btu/hr)	Liquid Temp Drop (°F)
	20	1.2	3.509	0.420	2.077	3.462	3.4	0.441	1.929	3.216	3.358	0.5	1.778	2.964
	30	1.2	4.569	0.428	3.108	5.180	4.5	0.450	2.936	4.893	4.372	0.5	2.760	4.601
	40	1.2	5.581	0.435	4.095	6.826	5.5	0.458	3.900	6.500	5.340	0.5	3.702	6.169
	50	1.2	6.543	0.441	5.039	8.398	6.4	0.463	4.822	8.037	6.261	0.5	4.601	7.669
	60	1.2	7.457	0.445	5.939	9.898	7.3	0.468	5.702	9.503	7.135	0.5	5.460	9.101
204 (0.5)	70	1.2	8.322	0.448	6.794	11.324	8.1	0.470	6.539	10.898	7.963	0.5	6.278	10.463
()	80	1.2	9.138	0.449	7.607	12.678	8.9	0.472	7.333	12.222	8.744	0.5	7.055	11.758
	90	1.2	9.905	0.448	8.375	13.959	9.7	0.471	8.085	13.476	9.478	0.5	7.790	12.984
	100													
	110													
	120													



				Enterin	g Air - 8	0°F / 67°F			Entering	g Air - 78	3°F / 65°F			Entering	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	2.3															
	30	2.3	11.510	7.861	0.373	12.781	11.1	11.019	7.872	0.372	12.289	10.7	10.529	7.437	0.372	11.797	10.3
	40	2.3	11.510	8.093	0.411	12.911	11.2	11.019	8.104	0.410	12.419	10.8	10.529	7.657	0.410	11.927	10.4
	50	2.3	11.375	8.218	0.455	12.929	11.2	10.890	8.230	0.455	12.442	10.8	10.406	7.776	0.454	11.956	10.4
	60	2.3	11.105	8.236	0.507	12.835	11.2	10.631	8.248	0.506	12.359	10.7	10.159	7.793	0.506	11.884	10.3
304 (0.75)	70	2.3	10.700	8.147	0.565	12.628	11.0	10.244	8.158	0.565	12.170	10.6	9.788	7.708	0.564	11.712	10.2
(511-5)	80	2.3	10.160	7.951	0.630	12.310	10.7	9.727	7.962	0.629	11.875	10.3	9.294	7.523	0.629	11.439	9.9
	90	2.3	9.485	7.648	0.702	11.880	10.3	9.081	7.658	0.701	11.473	10.0	8.677	7.236	0.700	11.066	9.6
	100	2.3	8.676	7.238	0.780	11.338	9.9	8.306	7.247	0.779	10.965	9.5	7.936	6.848	0.778	10.592	9.2
	110	2.3	7.731	6.720	0.865	10.684	9.3	7.401	6.729	0.864	10.351	9.0	7.072	6.358	0.863	10.018	8.7
	120	2.3	6.652	6.095	0.957	9.918	8.6	6.368	6.104	0.956	9.631	8.4	6.085	5.767	0.955	9.343	8.1

			Eı	ntering A	Air - 65°F	db	En	tering A	ir - 70°F c	ib	E	ntering	Air - 75°F	db
Size (Tons)	EWT (°F)	GРM	HC (Btu/hr)	kW	HE (Btu/hr)	Liquid Temp Drop (°F)	HC (Btu/hr)	kW	HE (Btu/hr)	Liquid Temp Drop (°F)	HC (Btu/hr)	kW	HE (Btu/hr)	Liquid Temp Drop (°F)
	20	2.3	4.747	0.539	2.907	2.528	4.6	0.567	2.712	2.358	4.542	0.6	2.513	2.185
	30	2.3	6.598	0.558	4.693	4.081	6.5	0.587	4.455	3.874	6.313	0.6	4.212	3.663
	40	2.3	8.330	0.576	6.364	5.534	8.2	0.605	6.086	5.292	7.971	0.6	5.802	5.046
	50	2.3	9.943	0.593	7.921	6.888	9.7	0.623	7.605	6.613	9.515	0.7	7.283	6.333
	60	2.3	11.438	0.608	9.362	8.141	11.2	0.639	9.012	7.836	10.945	0.7	8.655	7.526
304 (0.75)	70	2.3	12.814	0.623	10.689	9.295	12.5	0.654	10.307	8.962	12.261	0.7	9.917	8.624
(0.1.0)	80	2.3	14.070	0.636	11.901	10.349	13.8	0.668	11.489	9.991	13.464	0.7	11.070	9.626
	90	2.3	15.208	0.648	12.998	11.302	14.9	0.681	12.560	10.921	14.553	0.7	12.114	10.534
	100													
	110													
	120													



				Enterin	g Air - 8	80°F / 67°F			Entering	Air - 78	3°F / 65°F			Entering	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	3.3															
	30	3.3	14.670	9.250	0.470	16.273	9.9	14.044	9.262	0.469	15.645	9.5	13.420	8.752	0.469	15.019	9.1
	40	3.3	14.566	9.366	0.523	16.350	9.9	13.945	9.378	0.522	15.727	9.5	13.325	8.861	0.522	15.105	9.2
	50	3.3	14.317	9.392	0.585	16.315	9.9	13.707	9.404	0.585	15.702	9.5	13.097	8.886	0.584	15.090	9.1
	60	3.3	13.923	9.328	0.657	16.165	9.8	13.329	9.341	0.656	15.568	9.4	12.736	8.825	0.655	14.973	9.1
404 (1.0)	70	3.3	13.384	9.175	0.738	15.901	9.6	12.813	9.187	0.737	15.327	9.3	12.243	8.681	0.736	14.755	8.9
	80	3.3	12.699	8.932	0.828	15.524	9.4	12.158	8.944	0.827	14.979	9.1	11.617	8.451	0.826	14.435	8.7
	90	3.3	11.870	8.600	0.927	15.032	9.1	11.363	8.611	0.926	14.523	8.8	10.858	8.136	0.925	14.013	8.5
	100	3.3	10.895	8.178	1.035	14.427	8.7	10.430	8.189	1.034	13.959	8.5	9.966	7.737	1.033	13.490	8.2
	110	3.3	9.775	7.666	1.153	13.708	8.3	9.358	7.677	1.151	13.287	8.1	8.942	7.253	1.150	12.866	7.8
	120	3.3	8.510	7.065	1.279	12.876	7.8	8.147	7.075	1.278	12.508	7.6	7.785	6.684	1.276	12.140	7.4

			En	tering Ai	ir - 65°F	db	Ent	ering Ai	r - 70°F d	b	E	ntering A	Air - 75°F	db
Size (Tons)	EWT (°F)	GРM	HC (Btu/hr)	kW	HE (Btu/ hr)	Liquid Temp Drop (°F)	HC (Btu/hr)	kW	HE (Btu/hr)	Liquid Temp Drop (°F)	HC (Btu/hr)	kW	HE (Btu/hr)	Liquid Temp Drop (°F)
	20	3.3	7.365	0.684	5.031	3.049	7.2	0.719	4.754	2.881	7.048	8.0	4.472	2.710
	30	3.3	9.303	0.711	6.879	4.169	9.1	0.747	6.556	3.973	8.902	0.8	6.227	3.774
	40	3.3	11.138	0.736	8.628	5.229	10.9	0.773	8.262	5.007	10.658	0.8	7.889	4.781
	50	3.3	12.871	0.759	10.279	6.230	12.6	0.798	9.872	5.983	12.316	0.8	9.457	5.732
	60	3.3	14.500	0.782	11.832	7.171	14.2	0.822	11.386	6.900	13.875	0.9	10.931	6.625
404 (1.0)	70	3.3	16.027	0.803	13.286	8.052	15.7	0.844	12.804	7.760	15.336	0.9	12.312	7.462
` ,	80	3.3	17.450	0.823	14.642	8.874	17.1	0.865	14.125	8.561	16.698	0.9	13.600	8.242
	90	3.3	18.771	0.842	15.899	9.636	18.4	0.885	15.351	9.304	17.962	0.9	14.793	8.966
	100													
	110													
	120													



				Enterin	ıg Air - 8	80°F / 67°F			Enterin	g Air - 78	°F / 65°F			Entering	Air - 75	°F / 63°F	=
Size (Tons)	EWT (°F)	GРM	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	3.3															
	30	3.3	19.343	13.256	0.435	20.829	12.6	18.519	13.274	0.435	20.002	12.1	17.695	12.542	0.434	19.177	11.6
	40	3.3	19.071	13.181	0.481	20.712	12.6	18.258	13.199	0.480	19.897	12.1	17.446	12.471	0.480	19.083	11.6
	50	3.3	18.628	13.032	0.550	20.504	12.4	17.834	13.049	0.549	19.707	11.9	17.041	12.329	0.548	18.912	11.5
	60	3.3	18.014	12.807	0.642	20.204	12.2	17.246	12.824	0.641	19.434	11.8	16.479	12.117	0.640	18.664	11.3
504 (1.25)	70	3.3	17.230	12.507	0.757	19.814	12.0	16.495	12.524	0.756	19.076	11.6	15.762	11.833	0.755	18.339	11.1
,	80	3.3	16.275	12.131	0.896	19.332	11.7	15.581	12.148	0.895	18.634	11.3	14.888	11.478	0.894	17.938	10.9
	90	3.3	15.149	11.681	1.058	18.759	11.4	14.503	11.697	1.057	18.108	11.0	13.858	11.052	1.055	17.459	10.6
	100	3.3	13.852	11.156	1.243	18.094	11.0	13.261	11.171	1.242	17.498	10.6	12.672	10.555	1.240	16.904	10.2
	110	3.3	12.385	10.555	1.452	17.338	10.5	11.857	10.570	1.450	16.804	10.2	11.329	9.987	1.448	16.271	9.9
	120	3.3	10.746	9.880	1.684	16.491	10.0	10.288	9.893	1.682	16.026	9.7	9.831	9.347	1.680	15.562	9.4

			Er	ntering A	Air - 65°F	- db	En	tering A	Air - 70°F	db	Eı	ntering A	lir - 75°F	db
Size (Tons)	EWT (°F)	GРM	HC (Btu/ hr)	kW	HE (Btu/ hr)	Liquid Temp Drop (°F)	HC (Btu/hr)	kW	HE (Btu/ hr)	Liquid Temp Drop (°F)	HC (Btu/ hr)	kW	HE (Btu/ hr)	Liquid Temp Drop (°F)
	20	3.3	7.403	0.831	4.569	2.769	7.2	0.873	4.266	2.586	7.084	0.9	3.957	2.398
	30	3.3	9.806	0.857	6.882	4.171	9.6	0.901	6.523	3.953	9.383	0.9	6.157	3.731
	40	3.3	12.116	0.882	9.106	5.519	11.9	0.927	8.693	5.268	11.593	1.0	8.273	5.014
	50	3.3	14.333	0.906	11.241	6.813	14.0	0.952	10.777	6.531	13.715	1.0	10.304	6.245
	60	3.3	16.458	0.929	13.288	8.054	16.1	0.976	12.775	7.742	15.748	1.0	12.252	7.425
504 (1.25)	70	3.3	18.490	0.950	15.247	9.241	18.1	0.999	14.686	8.901	17.693	1.0	14.115	8.555
(,	80	3.3	20.430	0.971	17.118	10.374	20.0	1.020	16.512	10.007	19.549	1.1	15.895	9.633
	90	3.3	22.278	0.990	18.900	11.455	21.8	1.040	18.251	11.061	21.317	1.1	17.591	10.661
	100													
	110													
	120													



				Enterin	g Air - 8	0°F / 67°F			Enterin	g Air - 78	8°F / 65°F	•		Entering	Air - 75	s°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	4.5															
	30	4.5	22.818	14.810	0.600	24.865	11.1	21.845	14.830	0.599	23.889	10.6	20.874	14.012	0.598	22.915	10.2
	40	4.5	22.397	14.894	0.685	24.736	11.0	21.442	14.914	0.685	23.778	10.6	20.489	14.091	0.684	22.822	10.1
	50	4.5	21.848	14.879	0.782	24.517	10.9	20.916	14.900	0.781	23.582	10.5	19.986	14.078	0.780	22.649	10.1
	60	4.5	21.171	14.767	0.890	24.207	10.8	20.268	14.787	0.889	23.301	10.4	19.366	13.972	0.888	22.396	10.0
604 (1.5)	70	4.5	20.365	14.557	1.009	23.806	10.6	19.496	14.577	1.007	22.934	10.2	18.629	13.773	1.006	22.063	9.8
(1.0)	80	4.5	19.431	14.249	1.138	23.315	10.4	18.602	14.269	1.137	22.482	10.0	17.775	13.482	1.136	21.650	9.6
	90	4.5	18.368	13.843	1.279	22.733	10.1	17.585	13.862	1.278	21.945	9.8	16.803	13.098	1.276	21.157	9.4
	100	4.5	17.178	13.340	1.431	22.060	9.8	16.445	13.358	1.429	21.322	9.5	15.714	12.621	1.428	20.585	9.1
	110	4.5	15.859	12.738	1.594	21.297	9.5	15.182	12.756	1.592	20.614	9.2	14.507	12.052	1.590	19.933	8.9
	120	4.5	14.411	12.039	1.768	20.443	9.1	13.797	12.055	1.766	19.821	8.8	13.183	11.390	1.763	19.201	8.5

			E	ntering A	Air - 65°F	db	Er	ntering A	\ir - 70°F	db	E	ntering /	Air - 75°F	db
Size (Tons)	EWT (°F)	GРM	HC (Btu/hr)	kW	HE (Btu/hr)	Liquid Temp Drop (°F)	HC (Btu/hr)	kW	HE (Btu/hr)	Liquid Temp Drop (°F)	HC (Btu/hr)	kW	HE (Btu/hr)	Liquid Temp Drop (°F)
	20	4.5	8.140	1.004	4.715	2.096	8.0	1.055	4.366	1.941	7.789	1.1	4.011	1.783
	30	4.5	11.958	1.055	8.360	3.715	11.7	1.108	7.920	3.520	11.443	1.2	7.473	3.321
	40	4.5	15.302	1.099	11.551	5.134	15.0	1.156	11.032	4.903	14.642	1.2	10.504	4.668
	50	4.5	18.171	1.138	14.288	6.350	17.8	1.196	13.701	6.089	17.388	1.3	13.104	5.824
	60	4.5	20.566	1.171	16.572	7.365	20.1	1.230	15.928	7.079	19.679	1.3	15.273	6.788
604 (1.5)	70	4.5	22.486	1.197	18.402	8.179	22.0	1.258	17.713	7.872	21.517	1.3	17.011	7.560
(,	80	4.5	23.931	1.217	19.779	8.791	23.4	1.279	19.055	8.469	22.900	1.3	18.318	8.141
	90	4.5	24.902	1.231	20.702	9.201	24.4	1.294	19.955	8.869	23.829	1.4	19.194	8.531
	100													
	110													
	120													



				Enterin	g Air - 8	80°F / 67°F			Enterin	g Air - 78	°F / 65°F	:		Entering	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	6.6															
	30	6.6	26.905	20.306	1.026	30.405	9.2	25.758	20.334	1.025	29.254	8.9	24.612	19.212	1.023	28.104	8.5
	40	6.6	27.008	20.290	1.074	30.674	9.3	25.857	20.318	1.073	29.518	8.9	24.707	19.197	1.072	28.363	8.6
	50	6.6	26.766	20.127	1.153	30.702	9.3	25.625	20.154	1.152	29.556	9.0	24.485	19.042	1.151	28.411	8.6
	60	6.6	26.177	19.815	1.264	30.488	9.2	25.061	19.842	1.262	29.367	8.9	23.946	18.748	1.261	28.247	8.6
804 (2.0)	70	6.6	25.241	19.356	1.405	30.035	9.1	24.165	19.382	1.403	28.953	8.8	23.090	18.313	1.401	27.872	8.4
· - /	80	6.6	23.960	18.749	1.577	29.340	8.9	22.938	18.774	1.575	28.312	8.6	21.918	17.739	1.573	27.285	8.3
	90	6.6	22.332	17.994	1.780	28.404	8.6	21.380	18.018	1.778	27.445	8.3	20.429	17.024	1.775	26.487	8.0
	100	6.6	20.357	17.090	2.014	27.228	8.3	19.489	17.114	2.011	26.352	8.0	18.623	16.170	2.009	25.477	7.7
	110	6.6	18.037	16.039	2.278	25.811	7.8	17.268	16.061	2.276	25.032	7.6	16.500	15.175	2.273	24.255	7.4
	120	6.6	15.369	14.840	2.574	24.153	7.3	14.714	14.861	2.571	23.487	7.1	14.060	14.041	2.568	22.822	6.9

			Er	ntering A	Air - 65°l	db	En	tering A	\ir - 70°F	db	Е	ntering A	ir - 75°F	db
Size (Tons)	EWT (°F)	GРM	HC (Btu/ hr)	kW	HE (Btu/ hr)	Liquid Temp Drop (°F)	HC (Btu/hr)	kW	HE (Btu/ hr)	Liquid Temp Drop (°F)	HC (Btu/ hr)	kW	HE (Btu/ hr)	Liquid Temp Drop (°F)
	20	6.6	11.720	1.530	6.500	1.970	11.5	1.608	5.983	1.813	11.215	1.7	5.456	1.653
	30	6.6	15.922	1.578	10.536	3.193	15.6	1.659	9.920	3.006	15.235	1.7	9.293	2.816
	40	6.6	19.949	1.636	14.368	4.354	19.5	1.719	13.656	4.138	19.089	1.8	12.932	3.919
	50	6.6	23.801	1.701	17.997	5.454	23.3	1.788	17.192	5.210	22.775	1.9	16.372	4.961
	60	6.6	27.480	1.775	21.423	6.492	26.9	1.866	20.526	6.220	26.295	2.0	19.613	5.943
804 (2.0)	70	6.6	30.983	1.857	24.646	7.468	30.3	1.952	23.660	7.170	29.648	2.0	22.656	6.865
(===)	80	6.6	34.313	1.948	27.665	8.383	33.6	2.048	26.592	8.058	32.834	2.1	25.500	7.727
	90	6.6	37.468	2.047	30.482	9.237	36.7	2.152	29.324	8.886	35.853	2.3	28.145	8.529
	100													
	110													
	120													



				Enteri	ng Air - 8	80°F / 67°F			Enterin	g Air - 78	3°F / 65°F	=		Entering	Air - 75	s°F / 63°F	=
Size (Tons)	EWT (°F)	GРM	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	7.4															
	30	7.4	30.239	18.539	1.271	34.576	9.3	28.950	18.564	1.270	33.282	9.0	27.662	17.540	1.268	31.989	8.6
	40	7.4	31.059	19.997	1.320	35.563	9.6	29.735	20.024	1.318	34.233	9.3	28.412	18.920	1.317	32.905	8.9
	50	7.4	31.437	21.038	1.401	36.216	9.8	30.097	21.067	1.399	34.870	9.4	28.758	19.905	1.397	33.526	9.1
	60	7.4	31.372	21.662	1.514	36.537	9.9	30.035	21.691	1.512	35.193	9.5	28.699	20.494	1.510	33.851	9.1
1004 (2.5)	70	7.4	30.866	21.867	1.658	36.524	9.9	29.550	21.897	1.656	35.202	9.5	28.235	20.689	1.654	33.881	9.2
(2.0)	80	7.4	29.916	21.655	1.835	36.179	9.8	28.641	21.685	1.833	34.896	9.4	27.367	20.489	1.831	33.615	9.1
	90	7.4	28.525	21.026	2.044	35.500	9.6	27.309	21.055	2.042	34.276	9.3	26.094	19.893	2.039	33.053	8.9
	100	7.4	26.691	19.979	2.285	34.489	9.3	25.553	20.006	2.282	33.341	9.0	24.417	18.903	2.280	32.195	8.7
	110	7.4	24.415	18.514	2.558	33.144	9.0	23.374	18.540	2.555	32.093	8.7	22.335	17.517	2.552	31.042	8.4
	120	7.4	21.697	16.632	2.863	31.466	8.5	20.772	16.655	2.860	30.529	8.3	19.848	15.736	2.856	29.594	8.0

			E	ntering	Air - 65°F	db	En	tering A	ir - 70°F	db	E	ntering A	\ir - 75°F	db
Size (Tons)	EWT (°F)	GPM	HC (Btu/hr)	kW	HE (Btu/hr)	Liquid Temp Drop (°F)	HC (Btu/hr)	kW	HE (Btu/hr)	Liquid Temp Drop (°F)	HC (Btu/hr)	kW	HE (Btu/hr)	Liquid Temp Drop (°F)
	20	7.4	13.697	2.024	6.789	1.835	13.4	2.128	6.144	1.660	13.106	2.2	5.486	1.483
	30	7.4	20.650	2.033	13.714	3.707	20.2	2.136	12.919	3.492	19.759	2.2	12.108	3.272
	40	7.4	26.517	2.045	19.538	5.281	25.9	2.150	18.615	5.031	25.374	2.3	17.675	4.777
	50	7.4	31.298	2.062	24.261	6.557	30.6	2.168	23.233	6.279	29.949	2.3	22.186	5.996
	60	7.4	34.995	2.084	27.884	7.536	34.2	2.190	26.773	7.236	33.486	2.3	25.641	6.930
1004 (2.5)	70	7.4	37.605	2.110	30.405	8.218	36.8	2.218	29.234	7.901	35.984	2.3	28.041	7.579
(2.0)	80	7.4	39.130	2.141	31.825	8.601	38.3	2.250	30.616	8.275	37.443	2.4	29.384	7.942
	90	7.4	39.570	2.176	32.145	8.688	38.7	2.287	30.920	8.357	37.864	2.4	29.673	8.020
	100													
	110													
	120													



				Enterin	g Air - 8	80°F / 67°F			Enterin	g Air - 78	°F / 65°F			Entering	g Air - 7	5°F / 63°I	=
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	8															
	30	8	39.759	28.452	1.536	45.001	11.250	38.064	28.491	1.535	43.300	10.825	36.371	26.919	1.533	41.601	10.400
	40	8	39.089	28.318	1.609	44.579	11.1	37.422	28.357	1.607	42.906	10.7	35.758	26.793	1.605	41.235	10.3
	50	8	38.152	28.021	1.723	44.030	11.0	36.526	28.059	1.720	42.396	10.6	34.901	26.512	1.718	40.765	10.2
	60	8	36.950	27.561	1.877	43.353	10.8	35.374	27.599	1.874	41.770	10.4	33.801	26.076	1.872	40.189	10.0
1204 (3.0)	70	8	35.481	26.938	2.072	42.550	10.6	33.968	26.975	2.069	41.028	10.3	32.458	25.487	2.067	39.509	9.9
(,	80	8	33.746	26.151	2.307	41.618	10.4	32.308	26.187	2.304	40.170	10.0	30.871	24.742	2.302	38.724	9.7
	90	8	31.745	25.202	2.583	40.560	10.1	30.392	25.236	2.580	39.196	9.8	29.040	23.844	2.577	37.834	9.5
	100	8	29.478	24.089	2.900	39.374	9.8	28.221	24.122	2.897	38.105	9.5	26.966	22.791	2.893	36.838	9.2
	110	8	26.945	22.813	3.258	38.061	9.5	25.796	22.844	3.254	36.899	9.2	24.649	21.584	3.250	35.738	8.9
	120	8	24.146	21.374	3.656	36.621	9.2	23.116	21.403	3.652	35.576	8.9	22.088	20.222	3.647	34.533	8.6

			Er	ntering A	Air - 65°F	db	En	tering A	ir - 70°F	db	En	tering A	ir - 75°F	db
Size (Tons)	EWT (°F)	GPM	HC (Btu/ hr)	kW	HE (Btu/ hr)	Liquid Temp Drop (°F)	HC (Btu/hr)	kW	HE (Btu/ hr)	Liquid Temp Drop (°F)	HC (Btu/ hr)	kW	HE (Btu/ hr)	Liquid Temp Drop (°F)
	20	8	21.147	1.980	14.390	3.597	20.7	2.082	13.593	3.398	20.235	2.2	12.780	3.195
	30	8	26.222	2.079	19.128	4.782	25.7	2.185	18.206	4.551	25.091	2.3	17.266	4.316
	40	8	31.057	2.173	23.643	5.911	30.4	2.284	22.601	5.650	29.718	2.4	21.539	5.385
	50	8	35.655	2.263	27.933	6.983	34.9	2.378	26.777	6.694	34.118	2.5	25.599	6.400
	60	8	40.013	2.349	32.000	8.000	39.2	2.468	30.735	7.684	38.288	2.6	29.447	7.362
1204 (3.0)	70	8	44.133	2.430	35.842	8.960	43.2	2.554	34.475	8.619	42.231	2.7	33.083	8.271
(0.0)	80	8	48.015	2.507	39.459	9.865	47.0	2.635	37.996	9.499	45.945	2.8	36.506	9.126
	90	8	51.658	2.581	42.853	10.713	50.6	2.712	41.299	10.325	49.431	2.8	39.717	9.929
	100													
	110													
	120													



Table 7: VP PSC Performance Table

Hait	Rated	Min.	Fan O	otion				CFM	at Externa	al Static P	ressure (i	n wg.)			
Unit	CFM	CFM	Option	Speed	0.00	0.05	0.10	0.15	0.20	0.25	0.30	0.35	0.40	0.45	0.50
			Standard	HI	294	284	273	260							
0204	280	170	Standard	LO	229	221	210								
(0.5)	280	170	High Static	HI	362	351	338	323	306						
			rigit Static	LO	240	227	214								
			Standard	HI	391	374	357	339	321						
0304	345	220	Staridard	LO	229	221									
(0.75)	345	220	High Static	HI	445	427	409	391	372	353					
			Tilgit Static	LO	393	377	360	342	323						
			Standard	HI	465	444	424	406	389	373					
0404	420	280	Stariuaru	LO	337	305									
(1.0)	420	200	High Statc	HI	525	511	496	478	458	435	411	384			
			nigii state	LO	368	356	341	325	307	287					
			Standard	HI						Not Availabl					
0504	540	000	Staridard	LO					ı	NOI AVAIIADI	е				
(1.25)	540	380	11:	HI	660	650	638	624	608	589	569				
. ,			High Statc	LO	504	494	483	471	459						
			Ota - da - d	HI	660	650	638	624	608	589	569				
0604	655	420	Standard	LO	504	494	483	471	459						
(1.5)	000	420	Liberta Obestie	HI	858	850	838	825	808	788	766	741	713		
. ,			High Static	LO	748	745	739	730	718	703	685				
			Ota - da - d	HI				NI-+ A		- 0	Т ГС	NA-+			
0804	830	500	Standard	LO				NOL A	valiable, se	e Constant	lorque EC	IVIOLOI			
(2.0)	830	580	Liberta Obestie	HI				NI-+ A		- 0	Т ГС	\ \ \ \ - \			
` '			High Static	LO				NOI A	valiable; Se	e Constant	lorque EC	MOTOL			
			Ota - da - d	HI				NI-+ A		- 0	Т ГС	NA-+			
0814	000	580	Standard	LO				NOI A	valiable; Se	e Constant	lorque EC	MOTOL			
(2.0)	830	580	11: 1 0: 1:	HI				N A	"	0	T 50				
` '			High Static	LO				Not A	valiable; Se	e Constant	iorque EC	Motor			
			0, , ,	HI				N	"	0 1 1	T 50				
1004			Standard	LO				NOT A	valiable; Se	e Constant	lorque EC	Motor			
(2.5)	970	650		HI							c				
,			High Statc	LO				Not A	vailable; Se	e Constant	Iorque EC	Motor			
			0, , ,	HI				N1 · *	"	<u> </u>	T ===				
1204	4470	750	Standard	LO				Not A	vailable; Se	e Constant	Iorque EC	Motor			
(3.0)	1170	750	11: 1 0: ::	HI				N1 · •	"	<u> </u>	T ===				
(/			High Static	LO				Not A	vailable; Se	e Constant	Iorque EC	Motor			



Table 8: VP Blower EC Constant Torque Performance Table

	Rated	Min.	Fan	Option				CFM	at Externa	I Static P	ressure (iı	າ wg.)			
Unit	CFM	CFM	Option	Speed	0.00	0.05	0.10	0.15	0.20	0.25	0.30	0.35	0.40	0.45	0.50
				HI	354	346	330	308	278	240	196				
			EC	MED HI.	320	303	280	251	217	176					
204-xGC	280	170	Constant	MED	307	290	267	238	204						
(0.5)			Torque	MED LO	272	247	217	181							
			lorquo	LOW	219	193									
				HI	443	411	378	346	315	283	252	221			
			EC	MED HI.	408	375	343	311	280	250	221				
304-xGC	345	220	Constant	MED	378	352	323	291	257	220					
(0.75)	0.0		Torque	MED LO	337	302	263	220							
			lorque	LOW	278	248									
				HI	521	493	466	439	413	386	360	334	309	283	
			EC	MED HI,	498	470	443	416	389	363	337	004	003	200	
)404-xGC	420	280	Constant	MED	445	411	378	345	312	280	007				
(1.0)	420	200	Torque	MED LO.	400	366	328	286	012	200					
			lorque	LOW	364	319	281	200							
				HI	594	579	563	546	528	509	489	468	446	423	400
			EC	MED HI,	557	541	523	504	484	462	438	413	387	423	400
)504-xGB	540	380	Constant	MED	521	504	486	464	440	414	385	413	367		
(1.25)	340	360		MED LO	478	457	435	410	383	414	365				
			Torque	LOW	440	410	383	410	303						
				HI	723	711	698	684	670	655	639	622	604	585	566
			EC	MED HI,	677		652								
0604-xGB	055	400		MED HI₁		665 572		639	624	609	593	576	558	540	520
(1.5)	655	420	Constant	MED LO.	588 509		555 473	535 453	513 431	489	463	434			
` ′			Torque	LOW		492 447	473	453	431						
					464			011	207	000	000	0.47	000	011	700
			EC	H	966	949	931	914	897	880	863	847	830	814	798
0804-xDB		=00		MED HI.	902	886	870	853	837	821	804	788	771	755	738
(2.0)	830	580	Constant	MED	848	829	810	792	773	755	737	720	702		
(=,			Torque	MED LO <sub>2</sub>	752	731	710	690	671	652					
				LOW	645	625	605	585							
				H	911	897	883	869	856	842	829	815	801	788	775
0814-xDD			EC	MED HI,	860	845	831	817	803	788	774	760	746	731	717
(2.0)	830	580	Constant	MED	798	780	763	746	730	714	698	684	669	655	642
(2.0)			Torque	MED LO <sub>2</sub>	757	738	719	701	685	669	654	639	626	613	602
				LOW	683	662	642	622	602	582					
				H	1237	1223	1208	1193	1177	1161	1144	1127	1109	1091	1073
1004-xDD			EC	MED HI₁	1081	1062	1044	1025	1006	986	967	947	927	907	886
(2.5)	970	650	Constant	MED	988	969	949	929	909	888	866	844	822	799	776
(2.3)			Torque	MED LO <sub>2</sub>	937	917	896	874	852	829	806	782	757	731	705
				LOW	840	818	794	769	743	715	687	657			
				HI	1368	1353	1338	1322	1307	1291	1274	1258	1241	1224	1207
1204-xDD			EC	MED HI₁	1273	1256	1240	1223	1206	1188	1170	1152	1133	1114	1098
-	1170	750	Constant	MED .	1163	1145	1128	1109	1091	1072	1052	1033	1012	992	970
(3.0)			Torque	MED LO <sub>2</sub>	1083	1063	1043	1023	1002	981	960	938	916	894	872
			' '	LOW	913	889	864	840	815	791	766				

<sup>&</sup>lt;sup>1</sup> - Indicates single / high speed factory default setting

 $<sup>^{\</sup>rm 2}$  - Indicates dual / low speed factory default setting



Table 9: VP Blower EC Constant Volume Performance Table

1114	Rated	Min.	Fan Opt	ion		CFM at External Static Pressure (in wg.)											
Unit	CFM	CFM	Option	Speed	0.00	0.05	0.10	0.15	0.20	0.25	0.30	0.35	0.40	0.45	0.50		
0204 (0.5)	280	280	EC Constant Volume	Default	NA												
0304 (0.75)	345	345	EC Constant Volume	Default	NA												
0404 (1.0)	420	420	EC Constant Volume	Default	420	420	420	420	420	420	420	420	420	420	420		
0504 (1.25)	540	540	EC Constant Volume	Default	540	540	540	540	540	540	540	540	540	540	540		
0604 (1.5)	655	655	EC Constant Volume	Default	655	655	655	655	655	655	655	655	655	655	655		
0804 (2.0)	830	830	EC Constant Volume	Default	830	830	830	830	830	830	830	830	830	830	830		
0814 (2.0)	830	830	EC Constant Volume	Default	830	830	830	830	830	830	830	830	830	830	830		
1004 (2.5)	970	970	EC Constant Volume	Default	970	970	970	970	970	970	970	970	970	970	970		
1204 (3.0)	1170	1170	EC Constant Volume	Default	1170	1170	1170	1170	1170	1170	1170	1170	1170	1170	1170		



Table 10: VP Electrical Data - Standard PSC Motor

Size	c	ompre	essor			ly Blov lotor	ver	Elec	tric H	eat	Single Point Power		
(Tons)	Voltage	RLA	LRA	QTY	Voltage	FLA	НР	Voltage	kW	Amps	МСА	MOPD	
								208/1/60	0.0 1.0 1.5	0.0 4.8 7.2	3.7 9.7 12.7	15 15 15	
0204-**C	208- 230/1/60	2.5	17.7	1	208- 230/1/60	0.6	1/15	230/1/60	2.0 0.0 1.0 1.5	9.6 0.0 4.3 6.5	15.7 3.7 9.2 11.9	20 15 15 15	
	265/1/60	2.6	13.5	1	265/1/60	0.4	0.05	265/1/60	2.0 0.0 1.0 1.5	8.7 0.0 3.8 5.7	14.6 3.7 8.4 10.7	15 15 15 15	
									2.0 0.0 1.0	7.5 0.0 4.8	13.1 7.0 13.0	15 15 15	
0304-**C	208- 230/1/60			1	208-	0.6	1/15	208/1/60	1.5 2.0 2.5 3.0	7.2 9.6 12.0 14.4	16.0 19.0 22.0 25.0	20 20 25 30	
		5.1	22.0		230/1/60	0.6	1/15	230/1/60	0.0 1.0 1.5 2.0 2.5	0.0 4.3 6.5 8.7 10.9	7.0 12.5 15.2 17.9 20.6	15 15 20 20 25	
	265/1/60	4.5	22.0	1	265/1/60	0.4	0.05	265/1/60	3.0 0.0 1.0 1.5	13.0 0.0 3.8 5.7	23.3 6.0 10.7 13.1	25 15 15 15	
									2.0 2.5 3.0 0.0	7.5 9.4 11.3 0.0	15.4 17.8 20.2 8.6	20 20 25 15	
						0.6		208/1/60	1.0 1.5 2.0 2.5 3.0	4.8 7.2 9.6 12.0 14.4	14.6 17.6 20.6 23.6 26.6	15 20 25 25 30	
	208- 230/1/60	6.4	25.0	1	208- 230/1/60		1/15		3.5 4.0 0.0 1.0	16.8 19.2 0.0 4.3	29.7 NA 8.6 14.1	30 NA 15 15 20	
0404-**C								230/1/60	1.5 2.0 2.5 3.0 3.5	6.5 8.7 10.9 13.0 15.2	16.8 19.5 22.2 24.9 27.6	20 25 25 30	
	265/1/60	5.1	22.0	1	265/1/60	0.5	1/10	265/1/60	4.0 0.0 1.0 1.5 2.0	17.4 0.0 3.8 5.7 7.5	NA 6.9 11.6 14.0 16.3	NA 15 15 15 20	
	265/1/60	5.1	22.0	1	265/1/60	0.5	1/12	265/1/60	2.5 3.0 3.5 4.0	9.4 11.3 13.2 15.1	18.7 21.1 23.4 25.8	20 25 25 30	

Dual Point Power										
Unit MCA	Unit MOPD	E-Heat MCA	E-Heat MOPD							
NA	NA	NA I	NA							
3.7	15	6.0	15							
3.7	15	9.0	15							
3.7	15	12.0	15							
NA	NA	NA	NA							
3.7	15	5.4	15							
3.7	15	8.2	15							
3.7	15	10.9	15							
NA 0.7	NA	NA	NA NA							
3.7	15	4.7	15							
3.7	15	7.1	15 15							
3.7	15	9.4								
7.0	NA 15	NA 6.0	NA 15							
7.0	15	9.0	15							
7.0	15	12.0	15							
7.01	15.00	15.02	20							
7.01	15.00	18.03	20							
NA	NA	NA	NA							
7.01	15.00	5.43	15							
7.01	15.00	8.15	15							
7.01	15.00	10.87	15							
7.01	15.00	13.59	15							
7.01	15.00	16.30	20							
NA	NA	NA	NA							
6.01	15.00	4.72	15							
6.01	15.00	7.08	15							
6.01	15.00	9.43	15							
6.01	15.00	11.79	15							
6.01	15.00	14.15	15							
NA 0.61	NA 15.00	NA 6.01	NA 15							
8.61	15.00 15.00	6.01	15 15							
8.61 8.61	15.00	9.01 12.02	15							
8.61	15.00	15.02	20							
8.61	15.00	18.03	20							
8.61	15.00	21.03	25							
8.61	15.00	24.04	25							
NA	NA	NA	NA							
8.61	15.00	5.43	15							
8.61	15.00	8.15	15							
8.61	15.00	10.87	15							
8.61	15.00	13.59	15							
8.61	15.00	16.30	20							
8.61	15.00	19.02	20							
8.61	15.00	21.74	25							
NA	NA	NA NA	NA							
6.91	15.00	4.72	15							
6.91	15.00	7.08	15							
6.91	15.00	9.43	15							
6.91	15.00	11.79	15							
6.91	15.00	14.15	15							
6.91 6.91	15.00 15.00	16.51 18.87	20 20							
0.91	1 10.00	1 10.0/	20							

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## VP Electrical Data - Standard PSC Motor

2	208- 0/1/60	4.8	<b>LRA</b> 26.0	1	208- 230/1/60	<b>FLA</b>	НР	Voltage 208/1/60	0.0 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5 5.0	0.0 4.8 7.2 9.6 12.0 14.4 16.8 19.2 21.6	6.0 12.0 15.0 18.0 21.0 24.0 27.0 NA	15 15 20 20 25 25 25 30 NA NA	Unit MCA  NA 6.01 6.01 6.01 6.01 6.01 6.01 6.01 6.01	15.0 15.0 15.0 15.0 15.0 15.0
230		4.8	26.0	1	1	0.0		208/1/60	1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5	4.8 7.2 9.6 12.0 14.4 16.8 19.2 21.6	12.0 15.0 18.0 21.0 24.0 27.0 NA NA	15 20 20 25 25 30 NA NA	6.01 6.01 6.01 6.01 6.01 6.01 6.01 6.01	NA 15.00 15.00 15.00 15.00 15.00 15.00
230		4.8	26.0	1	1	0.0		208/1/60	1.5 2.0 2.5 3.0 3.5 4.0 4.5	7.2 9.6 12.0 14.4 16.8 19.2 21.6	15.0 18.0 21.0 24.0 27.0 NA NA	20 20 25 25 30 NA NA	6.01 6.01 6.01 6.01 6.01 6.01 6.01	15.00 15.00 15.00 15.00 15.00
230		4.8	26.0	1	1	0.0		208/1/60	2.0 2.5 3.0 3.5 4.0 4.5	9.6 12.0 14.4 16.8 19.2 21.6	18.0 21.0 24.0 27.0 NA NA	20 25 25 30 NA NA	6.01 6.01 6.01 6.01 6.01 6.01	15.0 15.0 15.0 15.0
230		4.8	26.0	1	1	0.0		208/1/60	3.0 3.5 4.0 4.5	14.4 16.8 19.2 21.6	24.0 27.0 NA NA	25 30 NA NA	6.01 6.01 6.01 6.01	15.0 15.0 15.0
230		4.8	26.0	1	1	0.0		200/1/00	3.5 4.0 4.5	16.8 19.2 21.6	27.0 NA NA	30 NA NA	6.01 6.01 6.01	15.0 15.0
230		4.8	26.0	1	1	0.0			4.0 4.5	19.2 21.6	NA NA	NA NA	6.01 6.01	15.0
230		4.8	26.0	1	1	0.0			4.5	21.6	NA	NA	6.01	
230		4.8	26.0	1	1	0.0								
	0/1/60	4.0	20.0	'	230/1/60	0.0			5.0	24.0	NA	NA	6.01	15.0
0504-**B									0.0	0.0	6.0	15	NA	NA
0504-**B									1.0	4.3	11.4	15	6.01	15.0
0504-**B									1.5 2.0	6.5 8.7	14.2 16.9	15 20	6.01 6.01	15.0 15.0
U5U4-^^B									2.5	10.9	19.6	20	6.01	15.0
					1			230/1/60	3.0	13.0	22.3	25	6.01	15.0
									3.5	15.2	25.0	30	6.01	15.0
									4.0	17.4	27.8	30	6.01	15.0
									4.5 5.0	19.6 21.7	NA NA	NA NA	6.01 6.01	15.0 15.0
									0.0	0.0	5.2	15	NA	NA
									1.0	3.8	9.9	15	5.21	15.0
									1.5	5.7	12.3	15	5.21	15.0
I									2.0	7.5 9.4	14.6 17.0	15 20	5.21 5.21	15.0 15.0
265	5/1/60	4.2	25.0	1	265/1/60	0.0	0.00	265/1/60	3.0	11.3	19.4	20	5.21	15.0
									3.5	13.2	21.7	25	5.21	15.0
									4.0	15.1	24.1	25	5.21	15.0
									4.5	17.0	26.4	30	5.21	15.00
	_								5.0 0.0	18.9 0.0	28.8 10.5	30 15	5.21 NA	15.00 NA
									1.0	4.8	16.5	20	10.52	15.00
									1.5	7.2	19.5	25	10.52	15.0
									2.0	9.6	22.5	25	10.52	15.00
									2.5 3.0	12.0 14.4	25.5 28.5	30	10.52 10.52	15.00 15.00
								208/1/60	3.5	16.8	NA	NA	10.52	15.00
İ									4.0	19.2	NA	NA	10.52	15.00
									4.5	21.6	NA	NA	10.52	15.00
									5.0 5.5	24.0 26.4	NA NA	NA NA	10.52 10.52	15.00 15.00
,	208-				208-				6.0	28.8	NA	NA	10.52	15.00
	0/1/60	7.7	38.0	1	230/1/60	0.9	1/12		0.0	0.0	10.5	15	NA	NA
255	0, 1, 00				200, 1,00				1.0	4.3	16.0	20	10.52	15.00
									1.5 2.0	6.5 8.7	18.7 21.4	20 25	10.52 10.52	15.00 15.00
									2.5	10.9	24.1	25	10.52	15.0
									3.0	13.0	26.8	30	10.52	15.0
0604-**B								230/1/60	3.5	15.2	29.5	30	10.52	15.0
									4.0	17.4	NA	NA	10.52	15.0
									4.5	19.6	NA	NA	10.52	15.0
									5.0	21.7	NA NA	NA NA	10.52	15.0
									5.5 6.0	23.9 26.1	NA	NA	10.52 10.52	15.0 15.0
<del>                                     </del>									0.0	0.0	9.4	15	NA	NA
									1.0	3.8	14.1	20	9.41	15.0
									1.5 2.0	5.7 7.5	16.5 18.9	20	9.41 9.41	15.0 15.0
									2.5	9.4	21.2	25	9.41	15.0
065	5/1/60	71	20.0	1	265/1/60	0.6	0.15	265/1/60	3.0	11.3	23.6	25	9.41	15.0
200	5/1/60	7.1	30.0	1	265/1/60	0.6	0.15	265/1/60	3.5 4.0	13.2 15.1	25.9 28.3	30	9.41 9.41	15.0 15.0
									4.5	17.0	NA	NA	9.41	15.0
									5.0	18.9	NA	NA	9.41	15.0
									5.5	20.8	NA NA	NA	9.41	15.0
							1		6.0	22.6		NA	9.41	15.0

<b>Dual Point Power</b>											
Unit MCA	Unit MOPD	E-Heat MCA	E-Heat MOPD								
NA	NA	NA	NA								
6.01	15.00	6.01	15								
6.01	15.00	9.01	15								
6.01	15.00	12.02	15								
6.01	15.00	15.02	20								
6.01	15.00	18.03	20								
6.01 6.01	15.00 15.00	21.03 24.04	25 25								
6.01	15.00	27.04	30								
6.01	15.00	30.05	35								
NA	NA	NA	NA								
6.01	15.00	5.43	15								
6.01	15.00	8.15	15 15								
6.01	15.00 15.00	10.87 13.59	15								
6.01	15.00	16.30	20								
6.01	15.00	19.02	20								
6.01	15.00	21.74	25								
6.01	15.00	24.46	25								
6.01	15.00	27.17	30								
NA 5.21	15.00	NA 4.72	NA 15								
5.21	15.00	7.08	15								
5.21	15.00	9.43	15								
5.21	15.00	11.79	15								
5.21	15.00	14.15	15								
5.21	15.00	16.51	20								
5.21 5.21	15.00 15.00	18.87 21.23	20 25								
5.21	15.00	23.58	25								
NA	NA	NA	NA								
10.52	15.00	6.01	15								
10.52	15.00	9.01	15								
10.52	15.00	12.02	15								
10.52 10.52	15.00 15.00	15.02 18.03	20 20								
10.52	15.00	21.03	25								
10.52	15.00	24.04	25								
10.52	15.00	27.04	30								
10.52	15.00	30.05	35								
10.52	15.00 15.00	33.05 36.06	35 40								
10.52 NA	NA	NA	NA								
10.52	15.00	5.43	15								
10.52	15.00	8.15	15								
10.52	15.00	10.87	15								
10.52	15.00	13.59	15								
10.52	15.00	16.30	20								
10.52	15.00	19.02	20								
10.52	15.00	21.74	25								
10.52	15.00	24.46	25								
10.52	15.00 15.00	27.17	30								
10.52 10.52	15.00	29.89 32.61	30 35								
NA	NA	NA	NA								
9.41	15.00	4.72	15								
9.41	15.00	7.08	15								
9.41 9.41	15.00 15.00	9.43 11.79	15 15								
9.41	15.00	14.15	15								
9.41	15.00	16.51	20								
9.41	15.00	18.87	20								
9.41	15.00	21.23	25								
9.41	15.00	23.58	25								
9.41	15.00	25.94	30								
9.41	15.00	28.30	30								



## VP Electrical Data - Standard PSC Motor

Size	Compressor			Supply Blower Motor			Electric Heat			Single Point Power		Dual Point Power				
(Tons)	Voltage	RLA	LRA	QTY	Voltage	FLA	НР	Voltage	kW	Amps	МСА	MOPD	Unit MCA	Unit MOPD	E-Heat MCA	E-Heat MOPD
0804-**B	N/A : See Electrical Data - CT Motor															
0814-**D	N/A : See Electrical Data - CT Motor															
1004-**D	N/A : See Electrical Data - CT Motor															
1204-**D	N/A : See Electrical Data - CT Motor															



Table 11: VP Electrical Data - High Static PSC Motor

Size		Compre	ssor		Supply B	lower	Motor	Elec	tric H	eat	Single Point Power	
(Tons)	Voltage	RLA	LRA	QTY	Voltage	FLA	НР	Voltage	kW	Amps	МСА	MOPD
	208-	0.5	47.7	1	208-	0.0	4/45	208/1/60	0.0 1.0 1.5 2.0	0.0 4.8 7.2 9.6	3.7 9.7 12.7 15.7	15 15 15 20
0204-**C	230/1/60	2.5	17.7	·	230/1/60	0.6	1/15	230/1/60	0.0 1.0 1.5 2.0	0.0 4.3 6.5 8.7	3.7 9.2 11.9 14.6	15 15 15 15
	265/1/60	2.6	13.5	1	265/1/60	0.4	0.05	265/1/60	0.0 1.0 1.5 2.0	0.0 3.8 5.7 7.5	3.7 8.4 10.7 13.1	15 15 15 15
	000				208-		1/15	208/1/60	0.0 1.0 1.5 2.0 2.5 3.0	0.0 4.8 7.2 9.6 12.0 14.4	7.0 13.0 16.0 19.0 22.0 25.0	15 15 20 20 25 30
0304-**C	208- 230/1/60	5.1	22.0	1	230/1/60	0.6		230/1/60	0.0 1.0 1.5 2.0 2.5 3.0	0.0 4.3 6.5 8.7 10.9	7.0 12.5 15.2 17.9 20.6 23.3	15 15 20 20 25 25
	265/1/60	4.5	22.0	1	265/1/60	0.5	1/12	265/1/60	0.0 1.0 1.5 2.0 2.5 3.0	0.0 3.8 5.7 7.5 9.4 11.3	6.1 10.8 13.2 15.5 17.9 20.3	15 15 15 15 20 20 25
				1	000	0.9	9 1/12	208/1/60	0.0 1.0 1.5 2.0 2.5 3.0 3.5 4.0	0.0 4.8 7.2 9.6 12.0 14.4 16.8 19.2	8.9 14.9 17.9 20.9 23.9 26.9 30.0 NA	15 20 20 25 25 30 30 NA
0404-**C	208- 230/1/60	6.4	25.0		208- 230/1/60			230/1/60	0.0 1.0 1.5 2.0 2.5 3.0 3.5	0.0 4.3 6.5 8.7 10.9 13.0 15.2	8.9 14.4 17.1 19.8 22.5 25.2 27.9	15 15 20 20 25 30 30
	265/1/60	5.1	22.0	1	265/1/60	0.6	0.15	265/1/60	4.0 0.0 1.0 1.5 2.0 2.5 3.0 3.5 4.0	17.4 0.0 3.8 5.7 7.5 9.4 11.3 13.2 15.1	NA 7.0 11.7 14.1 16.4 18.8 21.2 23.5 25.9	NA 15 15 15 20 20 25 25 30

	Dual Point Power											
Unit MCA	Unit MOPD	E-Heat MCA	E-Heat MOPD									
NA	NA	NA	NA									
3.7	15	6.0	15									
3.7	15	9.0	15									
3.7	15	12.0	15									
NA	NA	NA	NA									
3.7	15	5.4	15									
3.7 3.7	15 15	8.2 10.9	15 15									
NA	NA	NA	NA									
3.7	15	4.7	15									
3.7	15	7.1	15									
3.7	15	9.4	15									
NA	NA	NA	NA									
7.0	15	6.0	15									
7.0	15	9.0	15									
7.0	15	12.0	15									
7.01	15.00	15.02	20									
7.01 NA	15.00 NA	18.03 NA	20 NA									
7.01	15.00	5.43	15									
7.01	15.00	8.15	15									
7.01	15.00	10.87	15									
7.01	15.00	13.59	15									
7.01	15.00	16.30	20									
NA	NA	NA	NA									
6.11	15.00	4.72	15									
6.11	15.00	7.08	15									
6.11	15.00	9.43	15									
6.11	15.00	11.79	15									
6.11	15.00	14.15	15									
NA	NA	NA	NA									
8.91	15.00	6.01	15									
8.91	15.00	9.01	15									
8.91	15.00	12.02	15									
8.91	15.00	15.02	20									
8.91	15.00	18.03	20									
8.91	15.00	21.03	25									
8.91	15.00	24.04	25									
NA	NA	NA	NA									
8.91	15.00	5.43	15									
8.91	15.00	8.15	15									
8.91	15.00	10.87	15									
8.91	15.00	13.59	15									
8.91	15.00	16.30	20									
8.91	15.00	19.02	20									
8.91	15.00	21.74	25									
NA	NA	NA	NA									
7.01	15.00	4.72	15									
7.01	15.00	7.08	15									
7.01	15.00	9.43	15									
7.01	15.00	11.79	15									
7.01	15.00	14.15	15									
7.01	15.00	16.51	20									
7.01	15.00	18.87	20									



## VP Electrical Data - High Static PSC Motor

Size		Compre	ssor		Supply B	lower I	Motor	Elec	tric H	eat	Single Point Power	
(Tons)	Voltage	RLA	LRA	QTY	Voltage	FLA	НР	Voltage	kW	Amps	МСА	MOPD
0504-**B	208- 230/1/60	4.8	26.0	1	208-	0.9	1/12	208/1/60	0.0 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5 5.0	0.0 4.8 7.2 9.6 12.0 14.4 16.8 19.2 21.6 24.0	6.9 12.9 15.9 18.9 21.9 24.9 27.9 NA NA	15 15 20 20 25 25 30 NA NA NA
		i.e			230/1/60			230/1/60	0.0 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5 5.0	0.0 4.3 6.5 8.7 10.9 13.0 15.2 17.4 19.6 21.7	6.9 12.3 15.1 17.8 20.5 23.2 25.9 28.7 NA	15 20 20 25 25 30 30 NA NA
	265/1/60	4.2	25.0	1	265/1/60	0.6	0.15	265/1/60	0.0 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5 5.0	0.0 3.8 5.7 7.5 9.4 11.3 13.2 15.1 17.0 18.9	5.8 10.5 12.9 15.2 17.6 20.0 22.3 24.7 27.0 29.4	15 15 15 20 20 20 25 25 30 30
	208-				208-			208/1/60	0.0 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5 5.0 5.5 6.0	0.0 4.8 7.2 9.6 12.0 14.4 16.8 19.2 21.6 24.0 26.4 28.8	11.1 17.1 20.1 23.1 26.1 29.1 NA NA NA NA NA	15 20 25 25 30 30 NA NA NA NA NA NA
0604-**B	230/1/60	7.7	38.0	1	230/1/60	1.5	1/5	230/1/60	0.0 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5 5.0 5.5 6.0	0.0 4.3 6.5 8.7 10.9 13.0 15.2 17.4 19.6 21.7 23.9 26.1	11.1 16.6 19.3 22.0 24.7 27.4 NA NA NA NA	15 20 25 25 25 30 NA NA NA NA NA
	265/1/60	7.1	30.0	1	265/1/60	0.9	0.17	265/1/60	0.0 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5 5.0 5.5	0.0 3.8 5.7 7.5 9.4 11.3 13.2 15.1 17.0 18.9 20.8 22.6	9.7 14.4 16.8 19.2 21.5 23.9 26.2 28.6 NA NA NA	15 20 20 20 25 25 30 30 NA NA NA

Dual Point Power												
Unit MCA	Unit MOPD	E-Heat MCA	E-Heat MOPD									
NA	NA	NA	NA									
6.91	15.00	6.01	15									
6.91	15.00	9.01	15									
6.91	15.00	12.02	15									
6.91	15.00	15.02	20									
6.91	15.00	18.03	20									
6.91	15.00	21.03	25									
6.91	15.00	24.04	25									
6.91	15.00	27.04	30									
6.91	15.00	30.05	35									
NA	NA	NA	NA									
6.91	15.00	5.43	15									
6.91			15									
6.91	15.00 15.00	8.15 10.87	15									
6.91	15.00	13.59	15									
6.91	15.00	16.30	20									
6.91	15.00	19.02	20									
6.91	15.00	21.74	25									
6.91	15.00	24.46	25									
6.91	15.00	27.17	30									
NA	NA	NA	NA									
5.81	15.00	4.72	15									
5.81	15.00	7.08	15									
5.81	15.00	9.43	15									
5.81	15.00	11.79	15									
5.81	15.00	14.15	15									
5.81	15.00	16.51	20									
5.81	15.00	18.87	20									
5.81	15.00	21.23	25									
5.81	15.00	23.58	25									
NA	NA	NA	NA									
11.12	15.00	6.01	15									
11.12	15.00	9.01	15									
11.12	15.00	12.02	15									
11.12	15.00	15.02	20									
11.12	15.00	18.03	20									
11.12	15.00	21.03	25									
11.12	15.00	24.04	25									
11.12	15.00	27.04	30									
11.12	15.00	30.05	35									
11.12	15.00	33.05	35									
11.12	15.00	36.06	40									
NA	NA	NA	NA									
11.12		5.43	15									
	15.00											
11.12	15.00	8.15	15									
11.12	15.00	10.87	15									
11.12	15.00	13.59	15									
11.12	15.00	16.30	20									
11.12	15.00	19.02	20									
11.12	15.00	21.74	25									
11.12	15.00	24.46	25									
11.12	15.00	27.17	30									
11.12	15.00	29.89	30									
11.12	15.00	32.61	35									
NA	NA	NA	NA									
9.71	15.00	4.72	15									
9.71	15.00	7.08	15									
9.71	15.00	9.43	15									
9.71	15.00	11.79	15									
9.71	15.00	14.15	15									
9.71	15.00	16.51	20									
9.71	15.00	18.87	20									
9.71	15.00	21.23	25									
9.71	15.00	23.58	25									
9.71	15.00	25.94	30									
9.71	15.00	28.30	30									



### VP Electrical Data - High Static PSC Motor

Size				Supply Blower Motor			Electric Heat			Single Point Power		Dual Point Power				
(Tons)	Voltage	RLA	LRA	QTY	Voltage	FLA	НР	Voltage	kW	kW Amps MCA		MOPD	Unit MCA	Unit MOPD	E-Heat MCA	E-Heat MOPD
0804-**B	N/A : See Electrical Data - CT Motor															
0814-**D	N/A : See Electrical Data - CT Motor															
1004-**D	N/A : See Electrical Data - CT Motor															
1204-**D	N/A : See Electrical Data - CT Motor															



Table 12: VP Electrical Data - Constant Torque EC Motor

Size					Supply E	Elec	etric H	Single Point Power				
(Tons)	Voltage	RLA	LRA	QTY	Voltage	FLA	НР	Voltage	kW	Amps	МСА	MOPD
	208-				208-			208/1/60	0.0 1.0 1.5 2.0	0.0 4.8 7.2 9.6	5.3 11.3 14.3 17.3	15 15 15 20
0204-**C	230/1/60	2.5	17.7	1	230/1/60	2.2	1/4	230/1/60	0.0 1.0 1.5 2.0	0.0 4.3 6.5 8.7	5.3 10.8 13.5 16.2	15 15 15 20
	265/1/60	2.6	13.5	1	265/1/60	2.2	1/4	265/1/60	0.0 1.0 1.5 2.0	0.0 3.8 5.7 7.5	5.5 10.2 12.5 14.9	15 15 15 15
	208-				208-			208/1/60	0.0 1.0 1.5 2.0 2.5 3.0	0.0 4.8 7.2 9.6 12.0	8.6 14.6 17.6 20.6 23.6 26.6	15 15 20 25 25 30
0304-**C	230/1/60	5.1	22.0	1	230/1/60	2.2	1/4	230/1/60	0.0 1.0 1.5 2.0 2.5 3.0	0.0 4.3 6.5 8.7 10.9	8.6 14.1 16.8 19.5 22.2 24.9	15 15 20 20 25 25
	265/1/60	4.5	22.0	1	265/1/60	2.2	1/4	265/1/60	0.0 1.0 1.5 2.0 2.5 3.0	0.0 3.8 5.7 7.5 9.4 11.3	7.8 12.5 14.9 17.2 19.6 22.0	15 15 15 20 20 25
	208-				208-			208/1/60	0.0 1.0 1.5 2.0 2.5 3.0 3.5 4.0	0.0 4.8 7.2 9.6 12.0 14.4 16.8	10.2 16.2 19.2 22.2 25.2 28.2 NA	15 20 20 25 30 30 NA NA
0404-**C	230/1/60	6.4	25.0	1	230/1/60	2.2	1/4	230/1/60	0.0 1.0 1.5 2.0 2.5 3.0 3.5 4.0	0.0 4.3 6.5 8.7 10.9 13.0 15.2	10.2 15.7 18.4 21.1 23.8 26.5 29.2 NA	15 20 20 25 25 30 30 NA
	265/1/60	5.1	22.0	1	265/1/60	2.2	1/4	265/1/60	0.0 1.0 1.5 2.0 2.5 3.0 3.5 4.0	0.0 3.8 5.7 7.5 9.4 11.3 13.2 15.1	8.6 13.3 15.7 18.0 20.4 22.8 25.1 27.5	15 15 20 20 25 25 30 30

<b>Dual Point Power</b>										
Unit MCA	Unit MOPD	E-Heat MCA	E-Heat MOPD							
NA	NA	NA	NA							
5.3	15	6.0	15							
5.3	15	9.0	15							
5.3	15	12.0	15							
NA	NA	NA	NA							
5.3	15	5.4	15							
5.3	15	8.2	15							
5.3 NA	15 NA	10.9 NA	15 NA							
5.5	15	4.7	15							
5.5	15	7.1	15							
5.5	15	9.4	15							
NA	NA	NA	NA							
8.6	15	6.0	15							
8.6	15	9.0	15							
8.6	15	12.0	15							
8.6	15	15.0	20							
8.6	15	18.0	20							
NA	NA NA	NA	NA							
8.6	15	5.4	15							
8.6 8.6	15 15	8.2 10.9	15 15							
8.6	15	13.6	15							
8.6	15	16.3	20							
NA	NA	NA	NA							
7.8	15	4.7	15							
7.8	15	7.1	15							
7.8	15	9.4	15							
	15									
7.8	15	11.8 14.2	15 15							
7.8	_									
NA	NA	NA	NA							
10.2	15	6.0	15							
10.2	15	9.0	15							
10.2	15 15	12.0 15.0	15 20							
10.2	15									
10.2	15	18.0 21.0	20 25							
		24.0								
10.2 NA	15 NA	24.0 NA	25 NA							
		5.4								
10.2 10.2	15		15 15							
10.2	15 15	8.2 10.9	15							
10.2	15	13.6	15							
10.2	15	16.3	20							
10.2	15	19.0	20							
10.2	15	21.7	25							
NA	NA	NA	NA							
8.6	15	4.7	15							
8.6 15		7.1	15							
8.6	15	9.4	15							
8.6	15	11.8	15							
8.6	15	14.2	15							
8.6	15	16.5	20							
8.6	15	18.9	20							



Size					Supply Blower Motor			Electric Heat			Single Point Power		
(Tons)	Voltage	RLA	LRA	QTY	Voltage	FLA	НР	Voltage	kW	Amps	МСА	MOPD	
0504-**B	208- 230/1/60	4.8	26.0	1	208- 230/1/60	2.2	1/4	208/1/60	0.0 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5 5.0 0.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5 4.0 4.5	0.0 4.8 7.2 9.6 12.0 14.4 16.8 19.2 21.6 24.0 0.0 4.3 6.5 8.7 10.9 13.0 15.2 17.4	8.2 14.2 17.2 20.2 23.2 26.2 29.2 NA NA NA 8.2 13.6 16.4 19.1 21.8 24.5 27.2 30.0 NA	15 15 20 25 25 30 30 NA NA NA 15 15 20 20 25 25 30 NA	
	265/1/60	4.2	25.0	1	265/1/60	2.2	1/4	265/1/60	5.0 0.0 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5 5.0	21.7 0.0 3.8 5.7 7.5 9.4 11.3 13.2 15.1 17.0 18.9	NA 7.4 12.1 14.5 16.8 19.2 21.6 23.9 26.3 28.6 NA	NA 15 15 15 20 20 25 25 30 30 NA	
0604-**B	208- 230/1/60	7.7	38.0	1	208- 230/1/60	2.2	1/4	208/1/60	0.0 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5 5.0 5.5 6.0 0.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5	0.0 4.8 7.2 9.6 12.0 14.4 16.8 19.2 21.6 24.0 28.8 0.0 4.3 6.5 8.7 10.9 13.0 15.2 17.4 19.6 21.7 23.9	11.8 17.8 20.8 23.8 26.8 29.8 NA NA NA NA 11.8 17.3 20.0 22.7 25.4 28.1 NA NA NA NA NA NA NA NA NA NA NA NA NA	15 20 25 25 30 30 NA NA NA NA NA 15 20 25 30 NA NA NA NA NA NA NA NA NA NA NA NA NA	
	265/1/60	7.1	30.0	1	265/1/60	2.2	1/4	265/1/60	6.0 0.0 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5 5.0 5.5 6.0	26.1 0.0 3.8 5.7 7.5 9.4 11.3 13.2 15.1 17.0 18.9 20.8 22.6	NA 11.0 15.7 18.1 20.5 22.8 25.2 27.5 29.9 NA NA NA	NA 15 20 20 25 25 30 30 NA NA NA NA	

	Dual Po	oint Powe	r
Unit MCA	Unit MOPD	E-Heat MCA	E-Heat MOPD
NA	NA	NA	NA
8.2	15	6.0	15
8.2	15	9.0	15
8.2	15	12.0	15
8.2	15	15.0 18.0	20
8.2 8.2	15 15	21.0	20 25
8.2	15	24.0	25
8.2	15	27.0	30
8.2	15	30.0	35
NA	NA	NA	NA
8.2	15	5.4	15
8.2	15	8.2	15
8.2	15	10.9	15
8.2 8.2	15 15	13.6 16.3	15
8.2	15	19.0	20
8.2	15	21.7	25
8.2	15	24.5	25
8.2	15	27.2	30
NA	NA	NA	NA
7.4	15	4.7	15
7.4	15	7.1	15
7.4	15	9.4	15
7.4 7.4	15 15	11.8 14.2	<u>15</u> 15
7.4	15	16.5	20
7.4	15	18.9	20
7.4	15	21.2	25
7.4	15	23.6	25
NA	NA	NA	NA
11.8	15	6.0	15
<u>11.8</u> 11.8	15 15	9.0 12.0	<u>15</u> 15
11.8	15	15.0	20
11.8	15	18.0	20
11.8	15	21.0	25
11.8	15	24.0	25
11.8 11.8	15 15	27.0 30.0	30 35
11.8	15	33.1	35
11.8	15	36.1	40
NA 11.0	NA 15	NA E 4	NA 15
<u>11.8</u> 11.8	15 15	5.4 8.2	<u>15</u> 15
11.8	15	10.9	15
11.8	15	13.6	15
11.8	15	16.3	20
11.8	15	19.0	20
11.8	15	21.7	25
11.8 11.8	15 15	24.5 27.2	25 30
11.8	15	29.9	30
11.8	15	32.6	35
NA	NA	NA	NA
11.0	15	4.7	15
11.0	15	7.1	15
11.0	15	9.4	15
11.0	15	11.8	15
11.0	15	14.2	15
11.0	15	16.5	20
11.0	15	18.9	20
11.0	15	21.2	25
11.0	15 15	23.6 25.9	25 30
11.0	10	20.9	30



Size	Compressor				Supply E	Motor	Elec	ctric H	Single Point Power			
(Tons)	Voltage	RLA	LRA	QTY	Voltage	FLA	НР	Voltage	kW	Amps	МСА	MOPD
0804-**B	208- 230/1/60	10.3	43.0	1	208- 230/1/60	4.6	1/2	208/1/60	0.0 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5 5.0 6.5 7.0 7.5 8.0 0.0 1.5 2.0 2.5 6.0 6.5 7.0 7.5 8.0 0.0 1.5 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0	0.0 4.8 7.2 9.6 12.0 14.4 16.8 19.2 21.6 24.0 26.4 28.8 31.3 33.7 36.1 38.5 0.0 4.3 6.5 8.7 10.9 11	17.4 23.4 26.4 29.4 NA NA NA NA NA NA NA NA NA NA NA NA NA	25 30 30 35 NA NA NA NA NA NA NA NA NA NA NA NA NA
	265/1/60	8.3	54.0	1	265/1/60	3.2	1/2	265/1/60	0.0 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5 5.0 5.5 6.0 6.5 7.0 7.5 8.0	0.0 3.8 5.7 7.5 9.4 11.3 13.2 15.1 17.0 18.9 20.8 22.6 24.5 26.4 28.3 30.2	13.6 18.3 20.7 23.0 25.4 27.7 NA NA NA NA NA NA	20 25 25 25 25 30 30 NA NA NA NA NA NA NA
0814-**D	208- 230/1/60	9.2	49.1	1	208- 230/1/60	4.6	1/2	208/1/60	0.0 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5 5.0 6.5 7.0 7.5 8.0	0.0 4.8 7.2 9.6 12.0 14.4 16.8 19.2 21.6 24.0 26.4 28.8 31.3 33.7 36.1 38.5	16.1 22.2 25.2 28.2 NA NA NA NA NA NA NA NA NA NA	25 30 30 30 NA NA NA NA NA NA NA NA NA NA NA

Dual Point Power											
Unit MCA	Unit MOPD	E-Heat MCA	E-Heat MOPD								
NA	NA	NA	NA								
17.4	25	6.0	15								
17.4	25	9.0	15								
17.4	25	12.0	15								
17.4	25	15.0	20								
17.4	25	18.0	20								
17.4	25	21.0	25								
17.4	25	24.0	25								
17.4	25	27.0	30								
17.4	25	30.0 33.1	35								
17.4	25		35 40								
17.4 17.4	25 25	36.1 39.1	40								
17.4	25	42.1	45								
17.4	25	45.1	50								
17.4	25	48.1	50								
NA	NA	NA	NA								
17.4	25	5.4	15								
17.4	25	8.2	15								
17.4	25	10.9	15								
17.4	25	13.6	15								
17.4	25	16.3	20								
17.4	25	19.0	20								
17.4	25	21.7	25								
17.4	25	24.5	25								
17.4	25	27.2	30								
17.4	25	29.9	30								
17.4	25	32.6	35								
17.4	25	35.3	40								
17.4	25	38.0	40								
17.4	25	40.8	45								
17.4	25	43.5	45								
NA	NA	NA	NA NA								
13.6	20	4.7	15								
13.6	20	7.1	15								
13.6	20	9.4	15								
13.6	20	11.8	15								
13.6	20	14.2	15								
13.6	20	16.5	20								
13.6	20	18.9	20								
13.6 13.6	20	21.2 23.6	25 25								
13.6	20	25.9	30								
13.6	20	28.3	30								
13.6	20	30.7	35								
13.6	20	33.0	35								
13.6	20	35.4	40								
13.6	20	37.7	40								
NA	NA	NA	NA								
16.1	25	6.0	15								
16.1	25	9.0	15								
16.1	25	12.0	15								
16.1	25	15.0	20								
16.1	25	18.0	20								
16.1	25 25	21.0 24.0	25 25								
16.1 16.1	25	27.0	30								
16.1	25	30.0	35								
16.1	25	33.1	35								
16.1	25	36.1	40								
16.1	25	39.1	40								
16.1	25	42.1	45								
16.1	25	45.1	50								
16.1	25	48.1	50								



Size	Compressor				Supply E	Blower I	Motor	Elec	ctric He	Single Point Power		
(Tons)	Voltage	RLA	LRA	QTY	Voltage	FLA	НР	Voltage	kW	Amps	МСА	MOPD
0814-**D	208- 230/1/60	9.2	49.1	1	208- 230/1/60	4.6	1/2	230/1/60	0.0 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5 5.0 5.5 6.0 6.5 7.0 7.5 8.0	0.0 4.3 6.5 8.7 10.9 13.0 15.2 17.4 19.6 21.7 23.9 26.1 28.3 30.4 32.6 34.8	16.1 21.6 24.3 27.0 29.7 NA NA NA NA NA NA NA	25 25 30 30 35 NA NA NA NA NA NA NA NA NA
0614	265/1/60	8.3	54.0	1	265/1/60	3.2	1/2	265/1/60	0.0 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5 5.0 5.5 6.0 6.5 7.0 7.5 8.0	0.0 3.8 5.7 7.5 9.4 11.3 13.2 15.1 17.0 18.9 20.8 22.6 24.5 26.4 28.3 30.2	13.6 18.3 20.7 23.0 25.4 27.7 NA NA NA NA NA NA	20 25 25 25 30 30 NA NA NA NA NA NA NA
1004-**D	208- 230/1/60	12.3	63.0	1	208- 230/1/60	4.6	1/2	208/1/60	3.0 1.0 1.5 2.5 3.0 3.5 4.0 4.5 5.0 6.5 7.0 8.5 8.0 9.5 10.0 0.0 1.5 2.5 3.0 3.5 4.5 5.0 6.5 7.5 8.0 9.5 10.0 4.5 5.0 6.5 7.5 5.5 6.0 6.0 6.0 6.0 6.0 6.0 6.0 6.0 6.0 6.0	0.0 4.8 7.2 9.6 12.0 14.4 16.8 19.2 21.6 24.0 26.4 28.8 31.3 33.7 36.1 38.5 40.9 43.7 48.1 0.0 15.2 17.4 19.6 21.6 24.0 26.4 36.5 8.7 10.9 26.1	20.0 26.0 29.0 NA NA NA NA NA NA NA NA NA NA NA NA NA	30 35 35 NA NA NA NA NA NA NA NA NA NA NA NA NA

Dual Point Power										
Unit MCA	Unit MOPD	E-Heat MCA	E-Heat MOPD							
NA	NA	NA	NA							
16.1	25	5.4	15							
16.1	25	8.2	15							
16.1	25	10.9	15							
16.1	25	13.6	15							
16.1 16.1	25 25	16.3 19.0	20 20							
16.1	25	21.7	25							
16.1	25	24.5	25							
16.1	25	27.2	30							
16.1	25	29.9	30							
16.1 16.1	25 25	32.6 35.3	35 40							
16.1	25	38.0	40							
16.1	25	40.8	45							
16.1	25	43.5	45							
NA	NA	NA	NA							
13.6	20	4.7	15							
13.6 13.6	20	7.1 9.4	<u>15</u> 15							
13.6	20	11.8	15							
13.6	20	14.2	15							
13.6	20	16.5	20							
13.6	20	18.9	20							
13.6	20	21.2	25							
13.6	20	23.6	25							
13.6	20	25.9	30							
13.6 13.6	20	28.3 30.7	30 35							
13.6	20	33.0	35							
13.6	20	35.4	40							
13.6	20	37.7	40							
NA	NA	NA	NA							
20.0	30	6.0	15							
20.0	30	9.0	15							
20.0	30	12.0	15							
20.0 20.0	30 30	15.0 18.0	20 20							
20.0	30	21.0	25							
20.0	30	24.0	25							
20.0	30	27.0	30							
20.0	30	30.0	35							
20.0 20.0	30 30	33.1 36.1	35 40							
20.0	30	39.1	40							
20.0	30	42.1	45							
20.0 20.0	30 30	45.1 48.1	50 50							
20.0	30	51.1	55							
20.0	30	54.1	55							
20.0 20.0	30 30	57.1 60.1	60 65							
NA	NA	NA	NA							
20.0	30	5.4	15							
20.0	30	8.2	15							
20.0	30	10.9	15							
20.0 20.0	30	13.6 16.3	15 20							
20.0	30	19.0	20							
20.0	30	21.7	25							
20.0	30	24.5	25							
20.0 20.0	30 30	27.2 29.9	30 30							
20.0	30	32.6	35							
20.0	30	35.3	40							
20.0 20.0	30 30	38.0 40.8	40 45							
20.0	30	43.5	45							
20.0	30	46.2	50							
20.0 20.0	30 30	48.9 51.6	50 55							



Compressor Size			Supply E	lower I	Motor	Elec	Electric Heat			Single Point Power		Dual Point Power				
(Tons)	Voltage	RLA	LRA	QTY	Voltage	FLA	НР	Voltage	kW	Amps	МСА	MOPD	Unit MCA	Unit MOPD	E-Heat MCA	E-Heat MOPD
1004-**D	265/1/60	11.2	60.0	1	265/1/60	3.2	1/2	265/1/60	0.0 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5 5.0 5.5 6.0 6.5 7.0 7.5 8.0 8.5 9.0	0.0 3.8 5.7 7.5 9.4 11.3 13.2 15.1 17.0 18.9 20.8 22.6 24.5 26.4 28.3 30.2 32.1 34.0	17.2 21.9 24.3 26.6 29.0 NA NA NA NA NA NA NA NA NA NA NA NA NA	25 30 35 35 35 NA NA NA NA NA NA NA NA NA NA NA NA NA	NA 17.2 17.2 17.2 17.2 17.2 17.2 17.2 17.2	NA 25 25 25 25 25 25 25 25 25 25 25 25 25	NA 4.7 7.1 9.4 11.8 14.2 16.5 18.9 21.2 23.6 25.9 28.3 30.7 35.4 37.7 40.1 42.5	NA 15 15 15 15 15 20 20 25 25 25 30 30 35 40 40 45
1204-**D	208- 230/1/60	13.6	79.0	1	208- 230/1/60	4.6	1/2	208/1/60	9.5 10.0 0.0 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5 5.0 6.0 6.5 7.0 7.5 8.5 9.0 9.5 10.0 0.0 1.5 2.0 2.5 8.5 9.0 9.0 9.5 10.0 6.5 7.0 7.5 8.0 8.0 8.0 8.0 8.0 8.0 8.0 8.0 8.0 8.0	35.8 37.7 0.0 4.8 7.2 9.6 12.0 14.4 16.8 19.2 21.6 24.0 26.4 28.8 31.3 33.7 36.1 38.5 40.9 43.3 45.7 10.0 4.3 6.5 8.7 10.0 11.0 1	NA NA NA NA NA NA NA NA NA NA NA NA NA N	NA	17.2 17.2 17.2 17.2 17.6 21.6 21.6 21.6 21.6 21.6 21.6 21.6 21	25 25 NA 35 35 35 35 35 35 35 35 35 35 35 35 35	44.8 47.2 NA 6.0 9.0 12.0 15.0 18.0 21.0 27.0 30.0 33.1 36.1 39.1 42.1 45.1 45.1 45.1 157.1 50.1 NA 5.4 8.2 10.9 13.6 16.3 19.0 21.0 27.0 30.0 33.1 36.1 39.1 45.1 45.1 45.1 45.1 46.1 57.1 60.1 NA 5.4 8.2 10.9 13.6 16.3 19.0 21.0 21.0 21.0 22.0 33.1 36.1 36.1 39.1 45.1 46.1 46.1 57.1 60.1 NA 57.1 60.1 8.2 10.9 13.6 13.6 14.5 14.5 15.1 15.4 16.3 19.0 21.7 24.5 27.2 29.9 38.0 38.0 38.0 38.0 39.0 39.0 39.0 39.0 40.0 39.0 40	45 50 NA 15 15 15 20 20 25 25 25 30 35 40 40 45 50 55 55 NA 15 15 20 20 25 25 25 30 35 40 40 40 45 50 50 50 50 50 50 60 60 60 60 60 60 60 60 60 6
	265/1/60	12.2	72.0	1	265/1/60	3.2	1/2	265/1/60	0.0 1.5 2.0 2.5 3.0 4.5 5.0 6.5 7.0 8.5 9.0 9.5	0.0 3.8 5.7 7.5 9.4 11.3 13.2 15.1 17.0 18.9 20.8 22.6 24.5 26.4 28.3 30.2 32.1 34.0 35.8	18.5 23.2 25.5 27.9 NA NA NA NA NA NA NA NA NA NA NA NA NA	30 30 35 35 NA NA NA NA NA NA NA NA NA NA NA NA NA	NA 18.5 18.5 18.5 18.5 18.5 18.5 18.5 18.5	NA 30 30 30 30 30 30 30 30 30 30 30 30 30	NA 4.7 7.1 9.4 11.8 14.2 16.5 18.9 21.2 23.6 25.9 28.3 30.7 33.0 35.4 37.7 40.1 42.5 44.8 47.2	NA 15 15 15 15 15 15 20 20 25 25 25 30 30 30 35 40 40 45 45 45



Table 13: VP Electrical Data - Constant Volume EC Motor

Size	С	ompre	ssor		Supply Blower Motor			Elect	tric He	at	Single Point Power		
(Tons)	Voltage	RLA	LRA	QTY	Voltage	FLA	НР	Voltage	kW	Amps	МСА	MOPD	
	208- 230/1/60	2.5	17.7	1	208- 230/1/60	2.7	1/3	208/1/60	0.0 1.0 1.5 2.0 0.0	0.0 4.8 7.2 9.6 0.0	5.8 11.8 14.8 17.8 5.8	15 15 15 20 15	
0204-**C	200/1/00				200/1/00			230/1/60	1.0 1.5 2.0 0.0	4.3 6.5 8.7 0.0	11.3 14.0 16.7 6.5	15 15 20 15	
	265/1/60	2.6	13.5	1	265/1/60	3.2	1/2	265/1/60	1.0 1.5 2.0	3.8 5.7 7.5 0.0	11.2 13.5 15.9 9.1	15 15 20 15	
	208-				208-			208/1/60	1.0 1.5 2.0 2.5 3.0	7.2 9.6 12.0 14.4	9.1 15.1 18.1 21.1 24.1 27.1	20 20 25 25 30	
0304-**C	230/1/60	5.1	22.0	1	230/1/60	2.7	1/3	230/1/60	0.0 1.0 1.5 2.0 2.5 3.0	0.0 4.3 6.5 8.7 10.9	9.1 14.6 17.3 20.0 22.7	15 15 20 20 25 30	
	265/1/60	4.5	22.0	1	265/1/60	3.2	1/2	265/1/60	3.0 0.0 1.0 1.5 2.0 2.5 3.0	13.0 0.0 3.8 5.7 7.5 9.4	25.4 8.8 13.5 15.9 18.2 20.6 23.0	15 15 20 20 25 25	
								208/1/60	0.0 1.0 1.5 2.0 2.5	11.3 0.0 4.8 7.2 9.6 12.0	10.7 16.7 19.7 22.7 25.7	15 20 20 25 30	
	208- 230/1/60	6.4	25.0	1	208- 230/1/60	2.7	1/3		3.0 3.5 4.0 0.0 1.0 1.5	14.4 16.8 19.2 0.0 4.3 6.5	28.7 NA NA 10.7 16.2 18.9	30 NA NA 15 20 20	
0404-**C								230/1/60	2.0 2.5 3.0 3.5 4.0	8.7 10.9 13.0 15.2 17.4	21.6 24.3 27.0 29.7 NA	25 25 30 30 NA	
	265/1/60	5.1	22.0	1	265/1/60	3.2	1/2	265/1/60	0.0 1.0 1.5 2.0 2.5 3.0	0.0 3.8 5.7 7.5 9.4 11.3	9.6 14.3 16.7 19.0 21.4 23.8	15 15 20 20 25 25	
									3.5 4.0 0.0 1.0	13.2 15.1 0.0 4.8 7.2	26.1 28.5 8.7 14.7 17.7	30 30 15 15 20	
								208/1/60	2.0 2.5 3.0 3.5 4.0 4.5	9.6 12.0 14.4 16.8 19.2 21.6	20.7 23.7 26.7 29.7 NA NA	25 25 30 30 NA NA	
0504-**B	208- 230/1/60	4.8	26.0	1	208- 230/1/60	2.7	1/3		5.0 0.0 1.0 1.5 2.0	24.0 0.0 4.3 6.5 8.7	NA 8.7 14.1 16.9 19.6	NA 15 15 20 20	
								230/1/60	2.5 3.0 3.5 4.0 4.5 5.0	10.9 13.0 15.2 17.4 19.6 21.7	22.3 25.0 27.7 NA NA NA	25 30 30 NA NA NA	

Dual Point Power										
Unit MCA	Unit MOPD	E-Heat MCA	E-Heat MOPD							
NA	NA	NA	NA							
5.8	15	6.0	15							
5.8	15	9.0	15							
5.8 NA	NA	12.0 NA	15 NA							
5.8	15	5.4	15							
5.8 5.8	15 15	8.2	15 15							
5.8	15	10.9	15							
NA 6.5	NA 15	NA 4.7	NA 15							
6.5	15	4.7 7.1	15							
6.5 6.5	15 15	9.4	15 15							
NA	NA	NA	NA							
9.1	15	6.0	15							
9.1	15	9.0	15							
9.1 9.1	15 15	12.0 15.0	15 20							
9.1	15	18.0	20							
NA	NA	NA	NA							
9.1	15	5.4	15							
9.1 9.1	15	8.2	15							
9.1	15 15	10.9 13.6	15 15							
9.1	15	16.3	15 20							
NA_	NA NA	l NA	NA.							
8.8	15 15	4.7 7.1	15 15							
8.8 8.8	15	9.4	15							
8.8	15 15	11.8	15 15							
8.8	15	14.2	15							
NA 10.7	NA 15	NA 6.0	NA 15							
10.7 10.7	15 15	6.0 9.0	15 15							
10.7	15	12.0	15							
10.7	15	15.0	20							
10.7	15	18.0	20							
10.7	15	21.0 24.0	25 25							
10.7 NA	15 NA	NA	NA							
10.7	15	5.4	15							
10.7	15	8.2	15							
10.7	15	10.9	15							
10.7 10.7	15 15	13.6 16.3	15 20							
10.7	15	19.0	20							
10.7	15	21.7	25							
NA	NA	NA	NA							
9.6	15	4.7	15							
9.6 9.6	15 15	7.1 9.4	15 15							
9.6	15	11.8	15							
9.6	15	14.2	15							
9.6	15	16.5	20							
9.6	15	18.9	20							
NA	NA	NA	NA							
8.7	15	6.0	15							
8.7	15	9.0	15							
8.7 8.7	15 15	12.0 15.0	15 20							
8.7	15	18.0	20							
8.7	15	21.0	25							
8.7	15	24.0	25							
8.7	15	27.0	30							
8.7	15	30.0	35							
NA 0.7	NA 15	NA 5.4	NA 15							
8.7	15	5.4	15							
8.7	15	8.2	15							
8.7 8.7	15 15	10.9	15 15							
8.7	15	13.6 16.3	20							
8.7	15	19.0	20							
8.7	15	21.7	25							
8.7	15	24.5	25							



Size	С	Compressor				lower I	Motor	Electric Heat			Single Point Power		
(Tons)	Voltage	RLA	LRA	QTY	Voltage	FLA	НР	Voltage	kW	Amps	МСА	MOPD	
0504-**B	265/1/60	4.2	25.0	1	265/1/60	3.2	1/2	265/1/60	0.0 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5 5.0	0.0 3.8 5.7 7.5 9.4 11.3 13.2 15.1 17.0 18.9	8.4 13.1 15.5 17.8 20.2 22.6 24.9 27.3 29.6 NA	15 15 20 20 25 25 25 25 30 30 NA	
	208-	7.7	38.0	1	208-	2.7	1/3	208/1/60	0.0 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5 5.0 5.5	0.0 4.8 7.2 9.6 12.0 14.4 16.8 19.2 21.6 24.0 26.4 28.8	12.3 18.3 21.3 24.3 27.3 NA NA NA NA NA NA	20 20 25 25 30 NA NA NA NA NA NA	
0604-**B	230/1/60	230/1/60		230/1/60	0.0 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5 5.0 5.5 6.0	0.0 4.3 6.5 8.7 10.9 13.0 15.2 17.4 19.6 21.7 23.9 26.1	12.3 17.8 20.5 23.2 25.9 28.6 NA NA NA NA NA	20 20 25 25 30 30 NA NA NA NA NA NA					
	265/1/60	7.1	30.0	1	265/1/60	3.2	1/2	265/1/60	0.0 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5 5.0 5.5 6.0	0.0 3.8 5.7 7.5 9.4 11.3 13.2 15.1 17.0 18.9 20.8 22.6	12.0 16.7 19.1 21.5 23.8 26.2 28.5 NA NA NA NA	15 20 20 25 25 30 30 NA NA NA NA NA	
0804-**B	208-	10.0	40.0		222				208/1/60	0.0 1.0 1.5 2.0 2.5 3.0 4.0 4.5 5.0 5.5 6.0 6.5 7.0 7.5 8.0	22.0 0.0 4.8 7.2 9.6 12.0 14.4 16.8 19.2 21.6 24.0 26.4 28.8 31.3 33.7 36.1 38.5	16.7 22.7 25.7 28.7 NA NA NA NA NA NA NA NA NA	25 30 30 30 35 NA NA NA NA NA NA NA NA NA NA
	1 103 430 1 1 1	230/1/60	208- 230/1/60 3.9	3.9 1/2 -	230/1/60	0.0 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5 5.0 5.5 6.0 6.5 7.0 7.5 8.0	0.0 4.3 6.5 8.7 10.9 13.0 15.2 17.4 19.6 21.7 23.9 26.1 28.3 30.4 32.6 34.8	16.7 22.2 24.9 27.6 NA NA NA NA NA NA NA NA NA NA	25 30 30 30 35 NA NA NA NA NA NA NA NA NA NA				

	Dual Poi	nt Power	
Unit MCA	Unit MOPD	E-Heat MCA	E-Heat MOPD
NA	NA	NA	NA
8.4	15	4.7	15
8.4 8.4	15 15	7.1 9.4	15 15
8.4	15 15	11.8	15 15
8.4	15	14.2	15
8.4 8.4	15 15	16.5 18.9	20 20
8.4	15	21.2	25
8.4	15	23.6	25
NA	NA	NA	NA
12.3 12.3 12.3	20 20	6.0 9.0	15 15
12.3	20	12.0	15
12.3	20	15.0	20
12.3	20	18.0	20
12.3	20	21.0	25
12.3 12.3	20 20	24.0 27.0	25 30
12.3	20	30.0	35
12.3	20	33.1	35
12.3	20	36.1	40
NA 12.3	NA 20	NA 5.4	NA 15
12.3	20 20	5.4 8.2	15 15
12.3	20	10.9	15
12.3	20	13.6	15
12.3	20	16.3	20
12.3 12.3 12.3 12.3	20 20	19.0 21.7	20 25
12.3	20 20 20	24.5 27.2	25 25
12.3	20	27.2	30
12.3 12.3	20 20	29.9 32.6	30 35
NA	NA	NA	NA
12.0	15	4.7	15
12.0	15	7.1	15
12.0 12.0	15 15	9.4 11.8	15 15
12.0	15	14.2	15
12.0	15	16.5	20
12.0 12.0	15	18.9	20 25
12.0	15 15	21.2 23.6	25 25
12.0	15	25.9	30
12.0	15	28.3	30
NA	NA	NA	NA.
16.7 16.7	25 25	6.0 9.0	15 15
10.7	25	12.0	15
16.7	25	15.0	20
16.7 16.7	25 25 25 25	18.0 21.0	20 25
16.7	25	24.0	25 25
16.7	l 25	27.0	30
16.7	25 25	30.0 33.1	35 35
16.7 16.7	25	36.1	40
16.7	25 25	39 1	40
16.7	l 25	1 42.1	45
16.7 16.7	25 25	45.1 48.1	50 50
NA	NA	NA	NA
16.7	25 25	5.4	15
16.7 16.7	25 25	8.2 10.9	15 15
16.7	25	13.6	15
167	25	16.3	20
16 7	25	19.0	20 25
16.7 16.7	25 25 25	21.7 24.5	25 25
16.7		21.2	30
16.7	25	29.9	30
16.7	25	32.6 35.3	35 40
16.7 16.7	25 25	38.0	40
16.7	25	40.8	45



Size	Compressor				Supply E	lower l	Motor	Elect	ric He	at	Single Point Power	
(Tons)	Voltage	RLA	LRA	QTY	Voltage	FLA	НР	Voltage	kW	Amps	МСА	MOPD
									0.0	0.0	13.6	20
									1.0	3.8	18.3	25
									1.5	5.7	20.7	25
									2.0	7.5 9.4	23.0	25 30
									2.5 3.0	11.3	25.4 27.7	30
									3.5	13.2	NA	NA
0804-**B	265/1/60	8.3	54.0	1	265/1/60	3.2	1/2	265/1/60	4.0	15.1	NA	NA
					, ,		,		4.5	17.0	NA	NA NA
									5.0 5.5	18.9 20.8	NA NA	NA NA
									6.0	22.6	NA	NA NA
									6.5	24.5	NA	NA
									7.0	26.4	NA	NA
									7.5 8.0	28.3 30.2	NA NA	NA NA
									0.0	0.0	15.4	
									1.0	4.8	21.5	20 25 30 30
						3.9	1/2	208/1/60	1.5	7.2 9.6	21.5 24.5 27.5	30
									2.0	9.6 12.0	27.5 NA	NA NA
				1					1.5 2.0 2.5 3.0	14.4	NA	NA NA
									3.5	16.8	NA	NA
									4.0	19.2	NA	NA
									4.5 5.0	21.6 24.0	NA NA	NA NA
									5.5	26.4	NA	NA NA
					208- 230/1/60				6.0	28.8	NA	NA
			49.1						6.5 7.0	31.3	NA	NA NA
	208- 230/1/60	9.2							7.0	33.7 36.1	NA NA	NA NA
									8.0	38.5	NA	NA
								230/1/60	0.0	0.0	15.4	20
									1.0 1.5	4.3 6.5	20.9 23.6	25 30
									2.0	8.7	26.3	30
									2.5	10.9	29.0	35
									3.0	13.0 15.2	NA NA	NA NA
0814-**D									4.0	17.4	NA	NA
								230/1/00	4.5	19.6	NA	NA
									5.0	21.7	NA NA	NA NA
									5.5 6.0	23.9 26.1	NA	NA
									6.5	28.3	NA	NA
									7.0 7.5	30.4 32.6	NA NA	NA NA
									8.0	34.8	NA	NA
									0.0	0.0	13.6	20
									1.0	3.8	18.3 20.7	25 25
									1.5 2.0	5.7 7.5	23.0	25
									2.5	9.4	25.4	30
									3.0	11.3	27.7	30
	265/1/60	8.3	54.0	1	265/1/60	3.2	1/2	265/1/60	3.5 4.0	13.2 15.1	NA NA	NA NA
	200/1/00	0.3	34.0	'	200/1/00	3.2	1/2	200/1/00	4.5	15.1 17.0	NA	NA
									5.0	18.9	NA	NA
									5.5 6.0	20.8 22.6 24.5	NA NA	NA NA
									6.5 7.0	24.5	NA	NA
									7.0 7.5	26.4 28.3	NA NA	NA NA
									8.0	30.2	NA NA	NA NA

	Dual Poi	nt Power	
Unit MCA	Unit MOPD	E-Heat MCA	E-Heat MOPD
NA	NA	NA	NA
13.6	20	4.7	15
13.6	20	7.1	15
13.6	20	9.4	15
13.6	20	11.8	15
13.6	20	14.2	15
13.6	20	16.5	20
13.6 13.6	20 20	18.9 21.2	20 25
13.6	20	23.6	25
13.6	20	25.9	30
13.6	20	28.3	30
13.6	20	30.7	35
13.6	20	33.0	35
13.6 13.6	20	35.4	40
13.6	20	37.7	40
NA.	NA	l NA	NA
15.4	20	6.0	15 15
15.4 15.4	20	9.0 12.0	15
15.4	20	15.0	20
15.4	20	18.0	20
15.4	20	21.0	25
15.4	20	24.0	25
15.4 15.4	20	27.0	30
15.4	20	1 30.0	35
15.4 15.4	20 20 20 20	33.1 36.1	35 40
15.4	20	39.1	40
15.4	20 20	42.1	45
15.4	20	45.1	50
15.4	20	48.1	50
NA 15.4	NA 20	NA 5.4	NA 15
15.4 15.4	20	5.4 8.2	15
15.4	20 20 20 20 20 20	10.9	15
15.4	20	13.6	15
15.4 15.4	20	16.3	20
15.4	20	19.0	20
15.4	20	21.7	25
15.4 15.4	20 20	24.5 27.2	25 30
15.4	20 20 20	29.9	30
15.4 15.4	20	29.9 32.6 35.3	35
154		35.3	40
15.4 15.4	20	38.0	40 45
15.4	20 20 20 20	40.8 43.5	45
NA	NA	NA	NA
13.6	20	4.7	15
13.6	20	7.1	15
13.6	20	9.4	15
13.6	20	11.8	15
13.6	20 20	14.2 16.5	15 20
13.6 13.6	20	18.9	20
13.0	20 20	21.2	20 25
13.6	20	23.6	1 25
13.6	20 20	25.9 28.3	30
13.6	20	30.7	30 35 35
13.6	20	33.0	
13.6	20 20	30.7 33.0 35.4	40



Size	Compressor				Supply B	Supply Blower Motor			Electric Heat			Single Point Power		
(Tons)	Voltage	RLA	LRA	QTY	Voltage	FLA	НР	Voltage	kW	Amps	МСА	MOPD		
									0.0	0.0	19.3	30		
									1.0	4.8	25.3	35		
									1.5	7.2	28.3	35		
			2.0	9.6 12.0	NA NA	NA NA								
									3.0	14.4	NA	NA		
									3.5	16.8	NA	NA		
									4.0	19.2	NA	NA		
			4.5	21.6 24.0	NA	NA								
								208/1/60	5.0 5.5	26.4	NA NA	NA NA		
									6.0	28.8	NA	NA		
									6.5 7.0	31.3 33.7	NA	NA		
									7.0 7.5	33.7	NA NA	NA NA		
									8.0	36.1 38.5	NA	NA NA		
									8.5	40.9	NA	NA		
			63.0				1/2		8.5 9.0	43.3	NA	NA		
	208- 230/1/60			1	000				9.5	45.7	NA	NA NA		
		12.3			208-	3.9			10.0 0.0	48.1	NA 10.3	NA 30		
	230/1/60				230/1/60				1.0	4.3	19.3 24.7 27.4	35		
									1.5	6.5	27.4	35		
									2.0	8.7	NA	NA		
									2.5 3.0	10.9 13.0	NA NA	NA NA		
									3.5	15.2	NA	NA		
									4.0	17.4	NA	NA		
									4.5	19.6	NA	NA		
								230/1/60	5.0	21.7	NA	NA		
1004-**D									5.5	23.9	NA	NA		
									6.0	26.1	NA NA	NA NA		
									6.5 7.0	28.3 30.4	NA NA	NA NA		
									7.5 8.0	32.6	NA	NA		
									8.0	34.8 37.0	NA	NA		
									8.5 9.0	37.0	NA NA	NA NA		
									9.5	41.3	NA NA	NA		
									10.0	43.5	NA	NA		
									0.0	0.0	17.2	25		
									1.0	3.8	21.9	30		
									1.5 2.0	5.7 7.5	24.3 26.6	30 35		
									2.5	9.4	29.0	35		
									3.0	11.3	NA	NA		
									3.5	13.2	NA	NA		
									4.0	15.1	NA	NA		
									4.5	17.0	NA	NA		
	265/1/60	11.2	60.0	1	265/1/60	3.2	1/2	265/1/60	5.0 5.5	18.9	NA NA	NA NA		
									6.0	20.8	NA NA	NA NA		
	1								6.5	24.5	NA	NA NA		
	1								7.0	26.4	NA	NA		
									7.5	28.3	NA	NA		
	I								8.0	30.2	NA	NA		
	[								8.5	32.1	NA	NA		
	!								9.0	34.0	NA	NA		
					1				9.5	35.8	NA	NA		

	Dual Poi	int Power	
Unit MCA	Unit MOPD	E-Heat MCA	E-Heat MOPD
NA	NA	NA	NA
19.3	30	6.0	15
19.3	30	9.0	15
19.3	30	12.0	15
19.3	30	15.0	20
19.3	30	18.0	20
19.3	30	21.0	25 25
19.3	30	24.0	25
19.3 19.3	30 30	27.0 30.0	30 35
19.3	30	33.1	35
19.3	J 20	26.1	40
19.3 19.3 19.3	30 30	39.1 42.1 45.1	40
19.3	30	42.1	45
19.3	30	70.1	50
19.3	30	48.1	50
19.3	30	51.1	55
19.3 19.3	30	54.1	55
	30	57.1	60
19.3	30	60.1	65
NA 19.3	NA 30	NA 5.4	NA 15
19.3	30	5.4 8.2	15
	30	10.9	15
19.3 19.3	30	13.6	15
19.3	30	16.3	20
19.3	30	19.0	20
19.3	30	21.7	25
19.3	30	24.5	25
19.3	30	27.2	30
19.3	30	29.9	30
19.3	30	32.6	35
19.3	30	35.3	40
19.3	30	38.0	40
19.3	30	40.8	45
19.3 19.3 19.3 19.3	30	43.5 46.2 48.9	45
19.3	30	46.2	50
19.3	30	48.9	50 55
19.3	30 30	51.6 54.3	55
NA	NA	NA	NA
17.2	25	4.7	15
17.2	25	7.1	15
17.2	25	9.4	15
17.2	25	11.8	15
17.2	25	14.2	15
	25	16.5	20
17.2 17.2	25	18.9	20
17.2	25	21.2	25
17.2	25	23.6	25
17.2	25	25.9	30
17.2	25	28.3	30
17.2	25	30.7	35
17.2	25	33.0	35
17.2			
17.2	25 25	35.4	40
17.2		37.7	40 45
17.2	25	40.1	
17.2 17.2	25 25	42.5 44.8	45 45
17.2	25	44.8	45 50



Size	С	Compressor			Supply B	Supply Blower Motor			Electric Heat			Single Point Power		
(Tons)	Voltage	RLA	LRA	QTY	Voltage	FLA	НР	Voltage	kW	Amps	МСА	MOPD		
									0.0	0.0	20.9	30		
									1.0	4.8	26.9	35		
									1.5 2.0	7.2	29.9	40		
									2.0	9.6	NA	NA		
									2.5 3.0	12.0 14.4	NA NA	NA		
									3.5	16.8	NA NA	NA NA		
									4.0	19.2	NA	NA		
									4.5	21.6	NA	NA		
								208/1/60	5.0	24.0	NA	NA		
									5.5 6.0	26.4	NA	NA		
								6.0	28.8	NA	NA			
									6.5 7.0	31.3 33.7	NA NA	NA NA		
									7.5	36.1	NA	NA		
								8.0	38.5	NA	NA			
									8.5 9.0	40.9 43.3	NA NA	NA NA		
2	208- 230/1/60			1	208-		1/2		9.5	45.7	NA NA	NA NA		
		13.6	79.0		230/1/60	3.9			10.0	48.1	NA	NA		
	230/1/60				230/1/60				0.0	0.0	20.9	30		
									1.0	4.3	26.3	35		
									1.5	6.5 8.7 10.9	29.0 NA	40 NA		
									2.5	10.9	NA	NA		
									1.5 2.0 2.5 3.0 3.5	13.0	NA NA	NA NA NA		
									3.5 4.0	13.0 15.2 17.4	NA NA	NA NA		
									4.5	19.6	NA NA	NA		
1204-**D								230/1/60	5.0	21.7	NA	NA		
									5.5	23.9	NA	NA		
									6.0	26.1 28.3 30.4 32.6 34.8	NA	NA NA		
									6.5 7.0	30.4	NA NA	NA		
									7.5	32.6	NA	NA		
									8.0	34.8	NA	NA		
									8.5 9.0	37.0 39.1	NA NA	NA NA		
									9.5	41.3	NA	NA		
									10.0	43.5	NA	NA		
									0.0	0.0	18.5	30		
									1.0	3.8	23.2	30		
									1.5 2.0 2.5	5.7 7.5	25.5 27.9	35 35		
									2.5	9.4	NA	NA		
									3.0	11.3	NA	NA		
									3.5	13.2	NA	NA		
									4.0 4.5	15.1 17.0	NA NA	NA NA		
	005/4/00	400	70.0		005/4/00	0.0	4/0	005 /4 /00	5.0	18.9	NA NA	NA		
	265/1/60	12.2	72.0	1	265/1/60	3.2	1/2	265/1/60	5.5	20.8	NA	NA		
									6.0	22.6	NA	NA		
									6.5	24.5	NA	NA		
									7.0	26.4	NA NA	NA NA		
									7.5 8.0	28.3 30.2	NA NA	NA NA		
									8.5	32.1	NA	NA		
									9.0	34.0	NA	NA		
									9.5	35.8 37.7	NA NA	NA NA		
		1	1	1		l .	1		10.0	01.1	1 1/7	1 1 1 1 1		

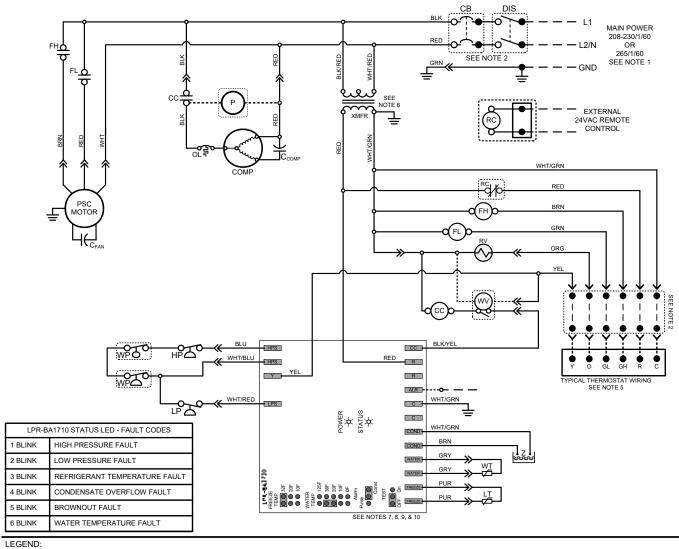
<b>Dual Point Power</b>									
Unit MCA	Unit MOPD	E-Heat MCA	E-Heat MOPD						
NA	NA	NA	NA						
20.9	30	6.0	15						
20.9	30	9.0	15						
20.9	30	12.0	15						
20.9	30	15.0	20						
20.9	30	18.0	20						
20.9	30	21.0	25						
20.9	30	24.0	25						
20.9	30	27.0	30						
20.9	30	30.0	35						
20.9	30	33.1	35						
20.9	30	36.1	40						
20.9	30	39.1	40						
20.9	30	42.1	45						
20.9	30	45.1	50						
20.9	30	48.1	50						
20.9 20.9	30 30	51.1 54.1	55 55						
20.9	30	57.1	60						
20.9	30	60.1	65						
NA	NA	NA	NA						
20.9	30	5.4	15						
20.0	30	8.2	15						
20.9	30	10.9	15						
	30	13.6	15 20						
20.9 20.9	30 30	16.3 19.0	20						
20.9	30	21.7	25						
20.9	30	24.5	25						
20.9 20.9	30	24.5 27.2	25 30						
20.9	30	29.9	30						
20.9	30	32.6	35						
20.0	30	35.3	40						
20.9	30	38.0	40						
20.9 20.9	30 30	40.8 43.5	45 45						
20.9	30	46.2	50						
20.9	30	48.9	50						
20.9	30	51.6	55						
20.9	30	54.3	55						
NA	NA	NA	NA						
18.5	30 30	4.7	15						
18.5	30	7.1	15						
18.5	30	9.4	15						
18.5	30	11.8	15						
18.5	30	14.2	15						
18.5	30	16.5	20						
18.5	30	18.9	20						
18.5	30	21.2	25 25						
18.5	30	23.6							
18.5		25.9	30						
18.5 18.5	30 30	28.3 30.7	30 35						
18.5	30	33.0	35						
18.5	30	35.4	40						
18.5	30	37.7	40						
18.5	30	40.1	45						
18.5	30	42.5	45						
18.5 18.5	30 30	44.8 47.2	45						
18.5	30	47.2	50						



Table 14: Additional Static Resistance

					Filter1							
Size (Tons)		Fan Speed	MERV 4 (Fiberglass)	MERV 4 (Poly)	MERV 8	MERV 11	MERV 13					
0204		High	0.02	0.03	0.08	0.09	0.08					
(0.5)	Low	0.01	0.02	0.05	0.06	0.05						
0304		High	0.02	0.03	0.09	0.10	0.10					
(0.75)		Low	0.01	0.01	0.04	0.05	0.04					
0404		High	0.03	0.05	0.12	0.13	0.13					
(1.0)		Low	0.02	0.03	0.07	0.08	0.07					
0504 (1.25)	High	0.03	0.04	0.10	0.12	0.11						
	Low	0.02	0.03	0.08	0.09	0.09						
0604	VI						High	0.04	0.06	0.14	0.15	0.16
(1.5)	VP	Low	0.02	0.03	0.09	0.10	0.10					
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	0.09					
(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					





CC - COMPRESSOR CONTACTOR

C<sub>COMP</sub> - COMPRESSOR CAPACITOR

FH - HIGH SPEED FAN RELAY

FL - LOW SPEED FAN RELAY

CFAN - FAN CAPACITOR

RV - REVERSING VALVE HP - HIGH PRESSURE LIMIT

LT - LOW TEMPERATURE LIMIT

XFMR - 24VAC TRANSFORMER; 40 VA

OL - COMPRESSOR OVERLOAD (See Note 4)

7 - CONDENSATE OVERELOW SENSOR

LP - LOW PRESSURE LIMIT

WT - WATER TEMPERATURE LIMIT WV - WATER CONTROL VALVE

WP - WATER PRESSURE LIMIT P - INLINE CIRCULATING PUMP

RC - REMOTE CONTROL RELAY

DIS - DISCONNECT SWITCH

CB - CIRCUIT BREAKER (See Note 3)

### - FACTORY WIRING

FIELD WIRING

----- - OPTIONAL WIRING/ACCESSORY

- QUICK CONNECTION

- FACTORY CONNECTION

- FIELD CONNECTION

- LIGHT EMITTING DIODE INDICATOR - HIGH PRESSURE SWITCH

- LOW PRESSURE SWITCH

- THERMISTOR

- CONDENSATE DRAIN PAN

- RELAY COIL

- NORMALLY OPEN RELAY CONTACTS

- NORMALLY CLOSED RELAY CONTACTS

- SOLENOID COIL

- GROUND CONNECTION

### NOTES:

- Use copper conductors only.
   DPST switch for 208V applications only.
   If used, CB replaces DIS
- OL may be internal or external to compressor depending on unit size.
   Thermostat is field installed and may be remote mounted.
- 6. For 208-230V units, transformer is factory wired for operation at 230V.
- For 208V operation, move lead to 208V terminal.
  7. STATUS LED blinks to indicate fault; reference Table 1 for fault
- condition

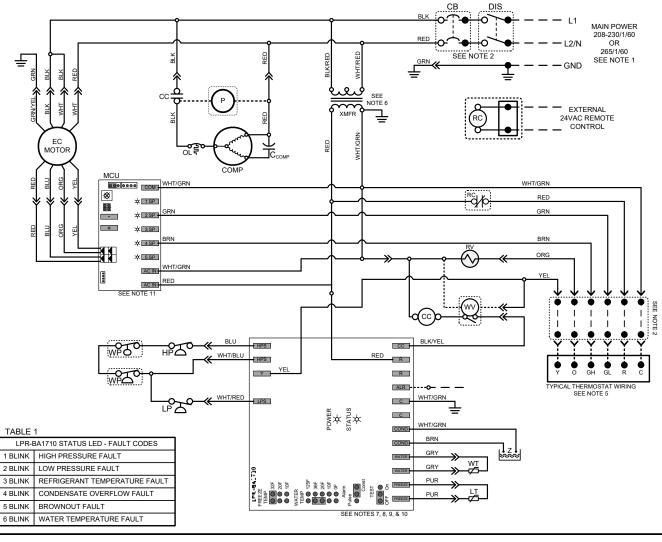
  8. FREEZE TEMP jumper shown in default location. When using antifreeze fluid mixture, refer to IOM for correct setting.

  9. WATER TEMP jumper shown in bypass position when WT sensor is not equipped. When WT sensor is equipped, refer to IOM for correct fluid
- mixture protection setting.

  10. TEST mode is for diagnostic purposes only. When ON, anti-short cycle protection is reduced from 300 seconds to 5 seconds. After board has been powered for 60 minutes in TEST mode, normal operation is resumed; regardless of jumper position. Cycling unit power will reset

6\_A11-S2g.vsd 9 March, 2017





CC - COMPRESSOR CONTACTOR

C<sub>COMP</sub> - COMPRESSOR CAPACITOR

MCU - FAN MOTOR CONTROLLER

RV - REVERSING VALVE

HP - HIGH PRESSURE LIMIT

LT - LOW TEMPERATURE LIMIT XFMR - 24VAC TRANSFORMER; 40 VA

OL - COMPRESSOR OVERLOAD (See Note 4)

Z - CONDENSATE OVERFLOW SENSOR

WT - WATER TEMPERATURE LIMIT

LP - LOW PRESSURE LIMIT

WV - WATER CONTROL VALVE (See Note 12) WP - WATER PRESSURE LIMIT

P - INLINE CIRCULATING PUMP

RC - REMOTE CONTROL RELAY

DIS - DISCONNECT SWITCH

CB - CIRCUIT BREAKER (See Note 3)

- - FACTORY WIRING

- - FIELD WIRING

----- - OPTIONAL WIRING/ACCESSORY

- QUICK CONNECTION

- FACTORY CONNECTION

- FIELD CONNECTION

- LIGHT EMITTING DIODE INDICATOR

- HIGH PRESSURE SWITCH

- LOW PRESSURE SWITCH - THERMISTOR **-**Ø

- CONDENSATE DRAIN PAN

- RELAY COIL

- NORMALLY OPEN RELAY CONTACTS

- NORMALLY CLOSED RELAY CONTACTS

- SOLENOID COIL

- GROUND CONNECTION

### NOTES:

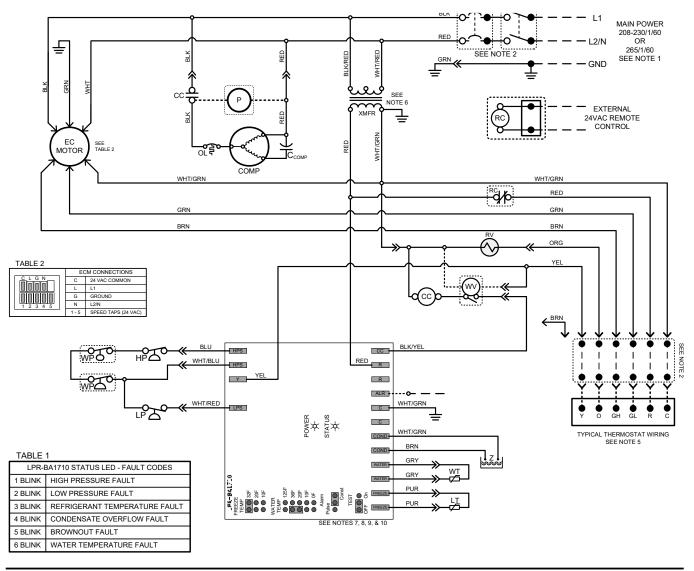
- Use copper conductors only.
   DPST switch for 208V applications only.

- If used, CB replaces DIS
   OL may be internal or external to compressor depending on unit size. 5. Thermostat is field installed and may be remote mounted
- For 208-230V units, transformer is factory wired for operation at 230V.
   For 208V operation, move lead to 208V terminal.
- 7. STATUS LED blinks to indicate fault; reference Table 1 for fault
- REFEZE TEMP jumper shown in default location. When using
- antifreeze fluid mixture, refer to IOM for correct setting.

  9. WATER TEMP jumper shown in bypass position when WT sensor is not equipped. When WT sensor is equipped, refer to IOM for correct fluid mixture protection setting.
- 10. TEST mode is for diagnostic purposes only. When ON, anti-short cycle protection is reduced from 300 seconds to 5 seconds. After board has been powered for 60 minutes in TEST mode, normal operation is resumed; regardless of jumper position. Cycling unit power will reset
- 11. MCU shown with typical fan speed connections. Actual speeds may

6 A11GS2e.vsd 9 March, 2017





- CC COMPRESSOR CONTACTOR
- C<sub>COMP</sub> COMPRESSOR CAPACITOR
- RV REVERSING VALVE
- HP HIGH PRESSURE LIMIT
- LT LOW TEMPERATURE LIMIT
- XFMR 24VAC TRANSFORMER; 40 VA
- OL COMPRESSOR OVERLOAD (See Note 4)
- Z CONDENSATE OVERFLOW SENSOR
- I.P. LOW PRESSURE LIMIT
- WT WATER TEMPERATURE LIMIT
- WV WATER CONTROL VALVE
- WP WATER PRESSURE LIMIT
- P INLINE CIRCULATING PUMP
- RC REMOTE CONTROL RELAY - DISCONNECT SWITCH
- - CB CIRCUIT BREAKER (See Note 3)

- FACTORY WIRING
- - FIELD WIRING
- --- OPTIONAL WIRING/ACCESSORY
- QUICK CONNECTION
- 0 - FACTORY CONNECTION
- FIELD CONNECTION
- LIGHT EMITTING DIODE INDICATOR
- HIGH PRESSURE SWITCH
- LOW PRESSURE SWITCH
- THERMISTOR - CONDENSATE DRAIN PAN
- RELAY COIL
  - NORMALLY OPEN RELAY CONTACTS
- NORMALLY CLOSED RELAY CONTACTS
- SOLENOID COIL
- GROUND CONNECTION

### NOTES:

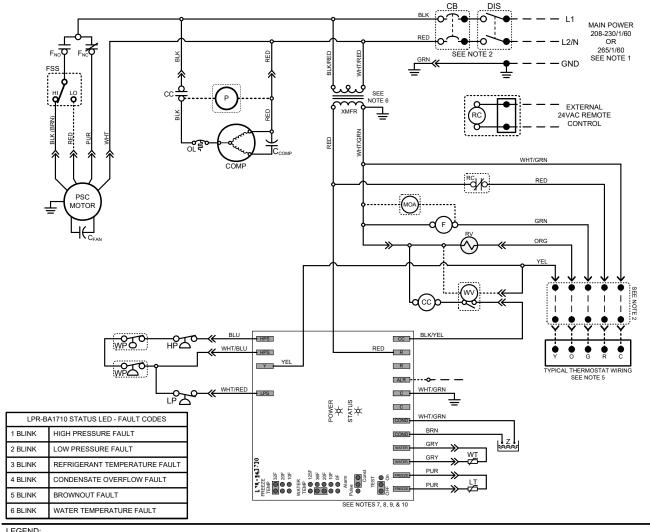
- Use copper conductors only.
   DPST switch for 208V applications only.
- 3. If used, CB replaces DIS
- 4. OL may be internal or external to compressor depending on unit size.
- 5. Thermostat is field installed and may be remote mounted
- For 208-230V units, transformer is factory wired for operation at 230V.
   For 208V operation, move lead to 208V terminal. 7. STATUS LED blinks to indicate fault; reference Table 1 for fault
- condition

  8. FREEZE TEMP jumper shown in default location. When using antifreeze fluid mixture, refer to IOM for correct setting,

  9. WATER TEMP jumper shown in bypass position when WT sensor is nequipped. When WT sensor is equipped, refer to IOM for correct fluid mixture protection setting.
- 10. TEST mode is for diagnostic purposes only. When ON, anti-short cycl protection is reduced from 300 seconds to 5 seconds. After board has been powered for 60 minutes in TEST mode, normal operation is resumed; regardless of jumper position. Cycling unit power will reset

6\_A11DS2i.vsd 9 March, 2017





CC - COMPRESSOR CONTACTOR

C<sub>COMP</sub> - COMPRESSOR CAPACITOR

F - FAN RELAY

C<sub>FAN</sub> - FAN CAPACITOR

RV - REVERSING VALVE

HP - HIGH PRESSURE LIMIT

LT - LOW TEMPERATURE LIMIT XFMR - 24VAC TRANSFORMER; 40 VA

OL - COMPRESSOR OVERLOAD (See Note 4)

Z - CONDENSATE OVERFLOW SENSOR

LP - LOW PRESSURE LIMIT

WT - WATER TEMPERATURE LIMIT

WV - WATER CONTROL VALVE

WP - WATER PRESSURE LIMIT P - INLINE CIRCULATING PUMP

RC - REMOTE CONTROL RELAY

DIS - DISCONNECT SWITCH

CB - CIRCUIT BREAKER (See Note 3) FSS - FAN SPPEED SWITCH

MOA - MOTORIZED OUTDOOR AIR

- FACTORY WIRING

- - FIELD WIRING

----- - OPTIONAL WIRING/ACCESSORY

- QUICK CONNECTION

- FACTORY CONNECTION

- FIELD CONNECTION

- LIGHT EMITTING DIODE INDICATOR

- HIGH PRESSURE SWITCH

- LOW PRESSURE SWITCH

- THERMISTOR

- CONDENSATE DRAIN PAN

- RELAY COIL

- NORMALLY OPEN RELAY CONTACTS

- NORMALLY CLOSED RELAY CONTACTS

- SOLENOID COIL

- GROUND CONNECTION

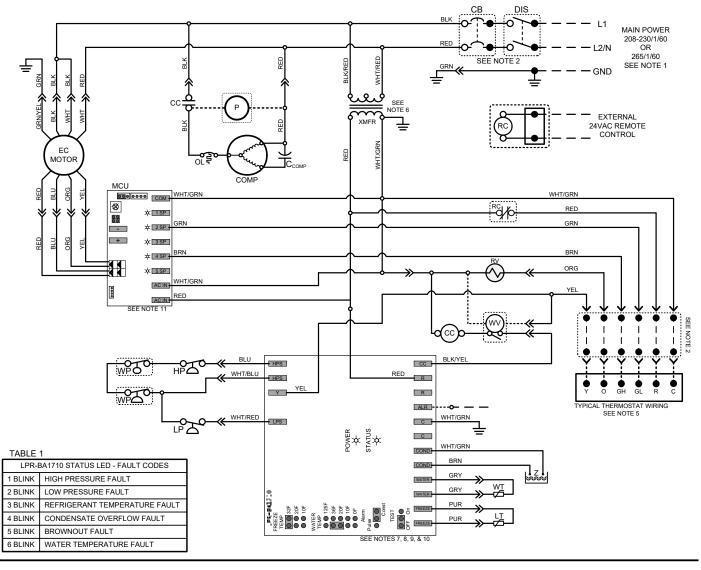
### NOTES:

- Use copper conductors only.
   DPST switch for 208V applications only.
- If used, CB replaces DIS
   OL may be internal or external to compressor depending on unit size.
- 5. Thermostat is field installed and may be remote mounted
- For 208-230V units, transformer is factory wired for operation at 230V. For 208V operation, move lead to 208V terminal.
- 7. STATUS LED blinks to indicate fault; reference Table 1 for fault
- 7. STATUS LED blinks to indicate fault; reference Table 1 for fault condition
  8. FREEZE TEMP jumper shown in default location. When using antifreeze fluid mixture, refer to IOM for correct settling.
  9. WATER TEMP jumper shown in bypass position when WT sensor is not equipped. When WT sensor is equipped, refer to IOM for correct fluid
- mixture protection setting.

  10. TEST mode is for diagnostic purposes only. When ON, anti-short cycle protection is reduced from 300 seconds to 5 seconds. After board has been powered for 60 minutes in TEST mode, normal operation is resumed; regardless of jumper position. Cycling unit power will reset

6\_A11-S1g ULF.vsd 9 March, 2017





CC - COMPRESSOR CONTACTOR

C<sub>COMP</sub> - COMPRESSOR CAPACITOR

MCU - FAN MOTOR CONTROLLER

RV - REVERSING VALVE

HP - HIGH PRESSURE LIMIT

LT - LOW TEMPERATURE LIMIT

XFMR - 24VAC TRANSFORMER; 40 VA

OL - COMPRESSOR OVERLOAD (See Note 4)

Z - CONDENSATE OVERFLOW SENSOR

WT - WATER TEMPERATURE LIMIT

LP - LOW PRESSURE LIMIT

WV - WATER CONTROL VALVE (See Note 12)

WP - WATER PRESSURE LIMIT P - INLINE CIRCULATING PUMP

RC - REMOTE CONTROL RELAY

DIS - DISCONNECT SWITCH

CB - CIRCUIT BREAKER (See Note 3)

- - FACTORY WIRING

- FIFI D WIRING

- - OPTIONAL WIRING/ACCESSORY

- QUICK CONNECTION

- FACTORY CONNECTION

- FIELD CONNECTION

- LIGHT EMITTING DIODE INDICATOR

- HIGH PRESSURE SWITCH

- LOW PRESSURE SWITCH

- CONDENSATE DRAIN PAN

- RELAY COIL

- NORMALLY OPEN RELAY CONTACTS

- NORMALLY CLOSED RELAY CONTACTS - SOLENOID COIL - GROUND CONNECTION

### NOTES:

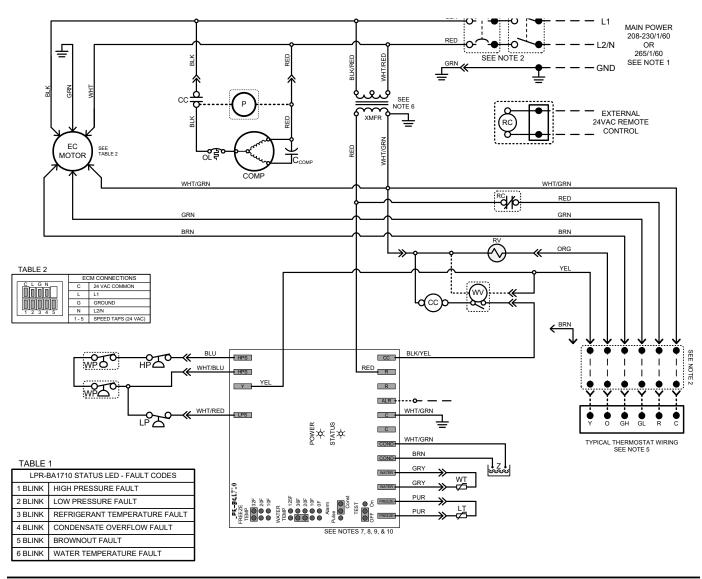
- 1. Use copper conductors only.
- 2. DPST switch for 208V applications only.
- 3. If used, CB replaces DIS
- 4. OL may be internal or external to compressor depending on unit size. 5. Thermostat is field installed and may be remote mounted
- 6. For 208-230V units, transformer is factory wired for operation at 230V.
- For 208V operation, move lead to 208V terminal.
- 7. STATUS LED blinks to indicate fault; reference Table 1 for fault
- S. FREEZE TEMP jumper shown in default location. When using antifreeze fluid mixture, refer to IOM for correct setting.

  9. WATER TEMP jumper shown in bypass position when WT sensor is not equipped. When WT sensor is equipped, refer to IOM for correct fluid mixture protection setting.
- 10. TEST mode is for diagnostic purposes only. When ON, anti-short cycle protection is reduced from 300 seconds to 5 seconds. After board has been powered for 60 minutes in TEST mode, normal operation is resumed; regardless of jumper position. Cycling unit power will reset
- 11. MCU shown with typical fan speed connections. Actual speeds may vary by unit size.

6 A11GS2e.vsd

9 March, 2017





- CC COMPRESSOR CONTACTOR
- CCOMP COMPRESSOR CAPACITOR
- RV REVERSING VALVE
- HP HIGH PRESSURE LIMIT
- LT LOW TEMPERATURE LIMIT
- XFMR 24VAC TRANSFORMER: 40 VA
- OL COMPRESSOR OVERLOAD (See Note 4)
- CONDENSATE OVERFLOW SENSOR
- LOW PRESSURE LIMIT
- WT WATER TEMPERATURE LIMIT
- WV WATER CONTROL VALVE WP - WATER PRESSURE LIMIT
- P INLINE CIRCULATING PUMP
- RC REMOTE CONTROL RELAY
- DIS DISCONNECT SWITCH
  - CB CIRCUIT BREAKER (See Note 3)

### - FACTORY WIRING

- - FIELD WIRING
- ----- OPTIONAL WIRING/ACCESSORY
- QUICK CONNECTION
- FACTORY CONNECTION
- FIELD CONNECTION
  - LIGHT EMITTING DIODE INDICATOR
- HIGH PRESSURE SWITCH
- LOW PRESSURE SWITCH
- THERMISTOR
- CONDENSATE DRAIN PAN - RELAY COIL
- NORMALLY OPEN RELAY CONTACTS
- NORMALLY CLOSED RELAY CONTACTS
- SOLENOID COIL - GROUND CONNECTION

### NOTES:

- 1. Use copper conductors only.
- 2. DPST switch for 208V applications only.3. If used, CB replaces DIS

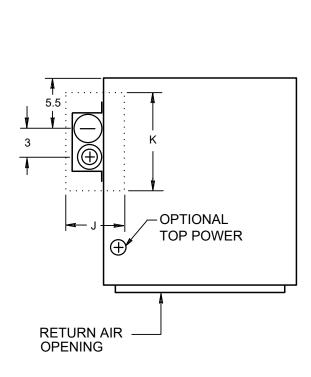
- 4. OL may be internal or external to compressor depending on unit size.
  5. Thermostat is field installed and may be remote mounted.
  6. For 208-230V units, transformer is factory wired for operation at 230V.
- For 208V operation, move lead to 208V terminal.

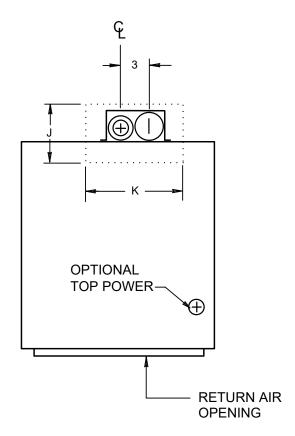
  7. STATUS LED blinks to indicate fault; reference Table 1 for fault
- condition
  8. FREEZE TEMP jumper shown in default location. When using antifreeze fluid mixture, refer to IOM for correct setting.

  9. WATER TEMP jumper shown in bypass position when WT sensor is not
- equipped. When WT sensor is equipped, refer to IOM for correct fluid mixture protection setting.
- 10. TEST mode is for diagnostic purposes only. When ON, anti-short cycle protection is reduced from 300 seconds to 5 seconds. After board has been powered for 60 minutes in TEST mode, normal operation is resumed; regardless of jumper position. Cycling unit power will reset

6 A11DS2i.vsd 9 March, 2017







L.H. SIDE RISERS R.H. OPPOSITE (STANDARD)

REAR RISERS (OPTIONAL)

### Notes:

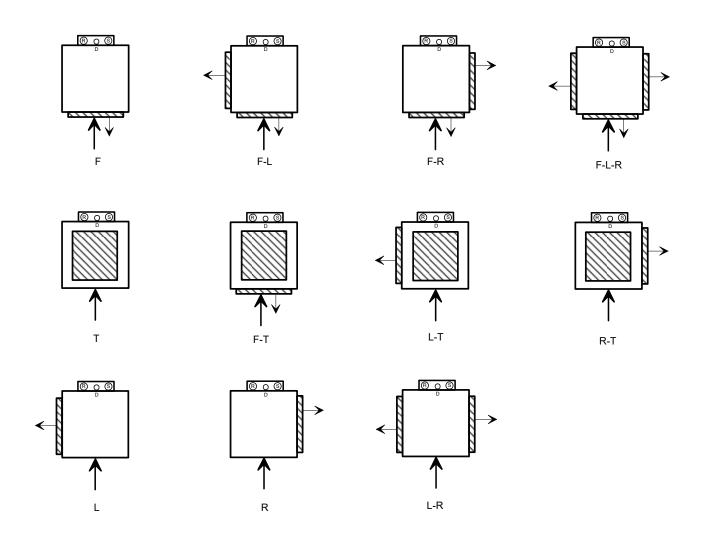
- "Riser size" refers to the larger of the supply and return risers on each heat pump.
- Risers are protected by a steel riser cover extending the height of the cabinet.
   Risers are soldered to a copper clamp to help prevent movement during shipment and jobsite handling.
- 3. Riser couplings are not furnished by Whalen, unless otherwise noted.
- 4. Sleeve hole dimensions "J" and "K" are recommended minimums.

RISER SIZE	J	K
3/4	6	10
1	6	10
1 1/4	6	10
1 1/2	6	10
2	6	12
2 1/2	6	12

All dimensions in inches.

DRAWING NUMBER: 609g-PT-SRS OCTOBER 2016





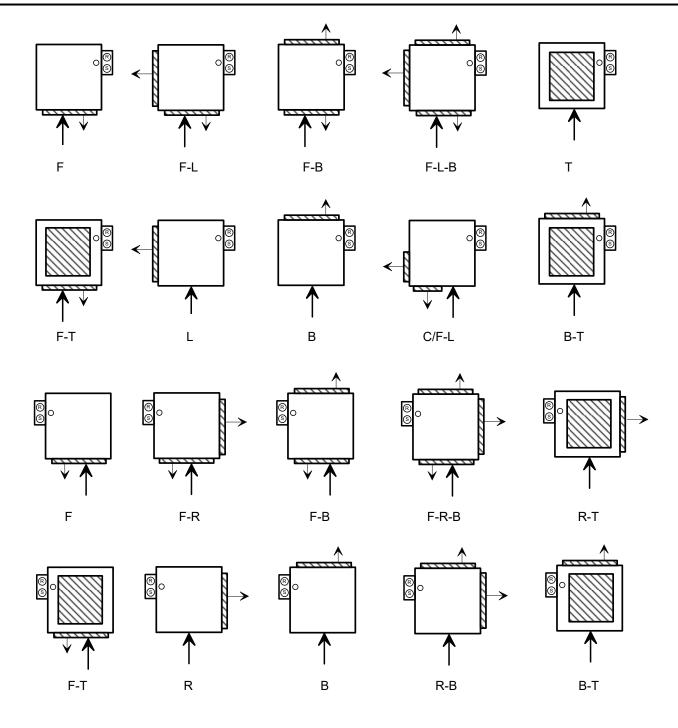
LARGE ARROW REPRESENTS RETURN AIR LOCATION AND SMALL ARROWS REPRESENT DISCHARGE LOCATION.

B = BACK OR REAR L = LEFT R = RIGHT F = FRONT T = TOP

DRAWING NUMBER: 611c-PVR

**MARCH 2016** 



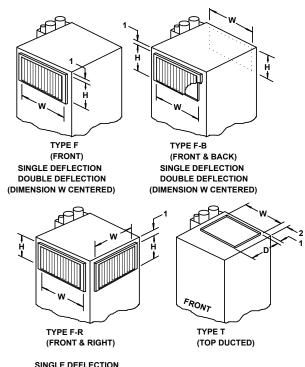


LARGE ARROWS REPRESENT RETURN AIR LOCATION AND SMALL ARROWS REPRESENT DISCHARGE LOCATION.

B = BACK OR REAR L = LEFT R = RIGHT F = FRONT T = TOP C = CORNERSTONE

DRAWING NUMBER: 611b-PVS JANUARY 2015



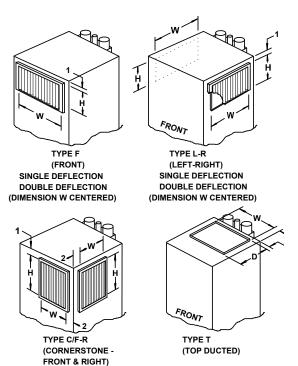


SINGLE DEFLECTION
DOUBLE DEFLECTION
(DIMENSION W CENTERED)

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.
- See unit schedule for discharge types. Optional supply registers are available with either parallel or opposed blade dampers at extra cost.
- 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



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.

SINGLE DEFLECTION

DOUBLE DEFLECTION

- 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)
	w H	W H	W H	W H	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

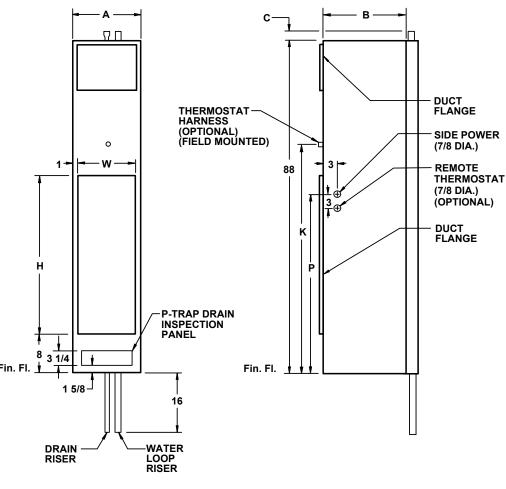
All dimensions in inches

DRAWING NUMBER: 611n

**BRUARY 2019** 



### Whisperline® Single Riser Units with Integral Pump Rear Riser



FRONT VIEW REAR RISER SHOWN **RIGHT SIDE VIEW** 

### Notes:

- 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.
- Water loop 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 refrigeration chassis.
- 4. For plan views, see drawing 609-PT-SRS.
- 5. Unit power and remote thermostat connections are located on right side on rear riser units.
- 6. Supply air options on 1004 & 1204 models are specified on drawing 611, minimum of two discharges.

UNIT SIZE	A	В	w	н	K	Р
204-**C 304-**C 404-**C	16	17	14	46	60	50
504-**B 604-**B 804-**B	18	20	16	50	64	54
814-**D 1004-**D 1204-**D	20	22	18	54	68	59

4
16

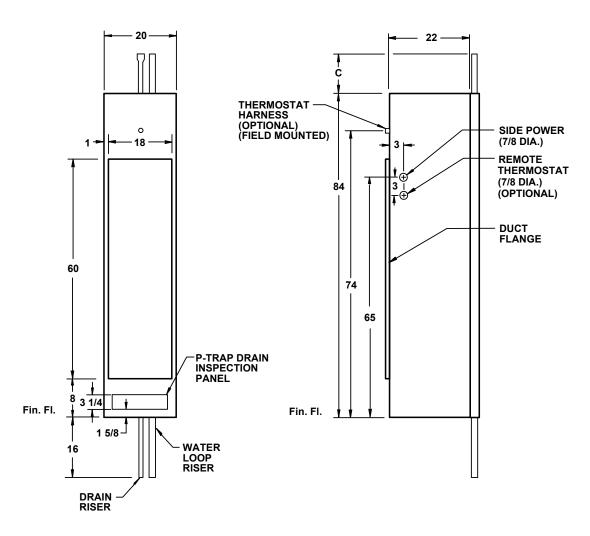
All dimensions in inches.

DRAWING NUMBER: 660j-R

BRUARY 2019



### Whisperline® Single Riser Units with Integral Pump 1004 and 1204 Rear Riser



FRONT VIEW
REAR RISER SHOWN

### **RIGHT SIDE VIEW**

### Notes:

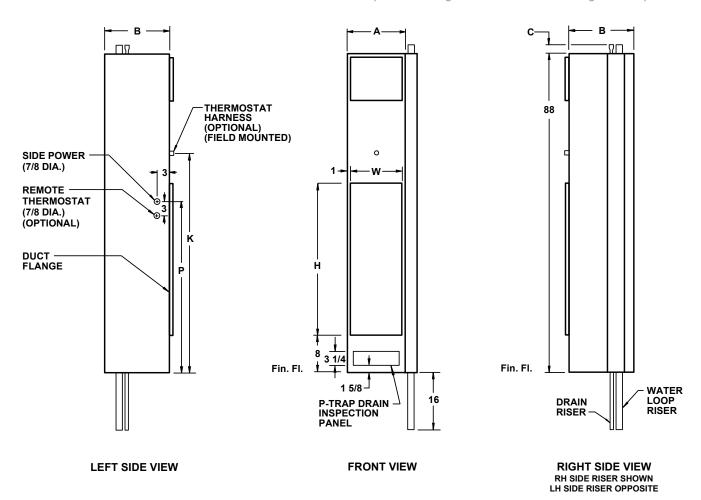
- The return air opening is always on the front of the unit.
- Cabinet is acoustically and thermally insulated and is fabricated of continuous galvanized steel.
- Water loop and drain risers are copper (see notes page for copper type).
   Riser assemblies include two shut off valves inside the cabinet. Standard units include high-pressure hose kits for connection of the refrigeration chassis.
- 4. For plan views, see drawing 609-PT-SRS.
- Unit power and remote thermostat connections are located on right side on rear riser units.

RISER LENGTH	С
9 FOOT	8
10 FOOT	20

DRAWING NUMBER: 660f-R-K AUGUST 2016



### Whisperline® Single Riser Units with Integral Pump Side Riser



### Notes:

- 1. The return air opening is always on the front of the unit.
- Cabinet is acoustically and thermally insulated and is fabricated of continuous galvanized steel.
- Water loop 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 refrigeration chassis.
- 4. For plan views, see drawing 609-PT-SRS.
- 5. Unit power and remote thermostat connections are located on side opposite risers on side riser units.
- 6. Supply air options on 1004 & 1204 models are specified on drawing 611, minimum of two discharges.

UNIT SIZE	A	В	w	н	К	Р
204-**C 304-**C 404-**C	16	17	14	46	60	50
504-**B 604-**B 804-**B	18	20	16	50	64	54
814-**D 1004-**D 1204-**D	20	22	18	54	68	59

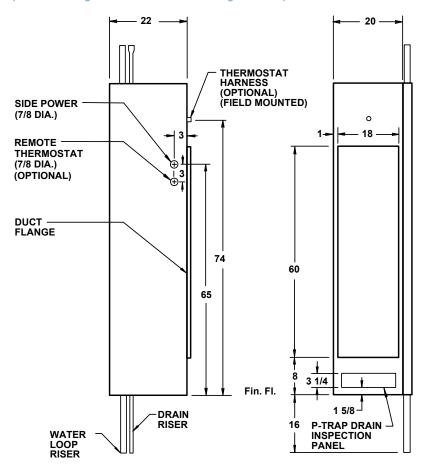
С
4
16

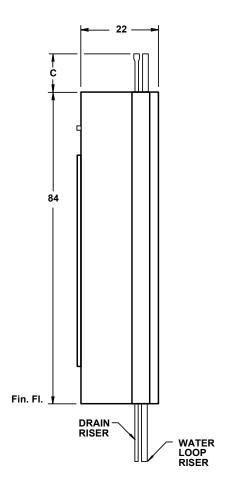
All dimensions in inches.

DRAWING NUMBER: 660k-S EBRUARY 2019



### Whisperline® Single Riser Units with Integral Pump 1004 and 1204 Side Riser





LEFT SIDE VIEW FRONT VIEW RIGHT SIDE VIEW
RH SIDE RISER SHOWN
LH SIDE RISER OPPOSITE

### Notes:

- 1. The return air opening is always on the front of the unit.
- Cabinet is acoustically and thermally insulated and is fabricated of continuous galvanized steel.
- Water loop 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 refrigeration chassis.
- 4. For plan views, see drawing 609-PT-SRS.
- 5. Unit power and remote thermostat connections are located on side opposite risers on side riser units.

RISER LENGTH	С
9 FOOT	8
10 FOOT	20

DRAWING NUMBER: 660f-S-K AUGUST 2016



Mechanical Specifications

### SERIES VI WHISPERLINE (WATER SOURCE) (GROUND SOURCE) SINGLE RISER HEAT PUMPS

PART 1 GENERAL

### 1.01 SECTION INCLUDES

A. Vertical Stack Water Source Single Riser Heat Pumps

### 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. Heat pump cabinets and refrigeration chassis must be individually packaged and be tagged with site location, model number and configuration.

### 1.05 ENVIROMENTAL 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.



### PART 2 PRODUCTS

### 2.01 TYPE

A. Vertical Stack (Water Source) (Ground Source) Single Riser Heat Pump with integral risers, discharge arrangements, hose kits, and all accessories (ADD SPECIFIC OPTIONS HERE). Units shall be (standard range 60°F to 95°F (15.6°C to 35°C)) (extended range 20°F to 120°F (-6.7°C to 48.9°C)) entering fluid temperature for (water source) (ground source) heat pump 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 heat pump 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, reversing valve, expansion device, receiver, filter-drier, circulator and safety controls shall be slide-rail base mounted in the cabinet, and shall be



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.
- 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 reversing valve shall be 4-way electric type, pilot operated for quiet reversal.
- F. The chassis shall be shipped separately from the WSHP cabinets to prevent exposure to, and fouling from finishing work.
- G. 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 dual supply/return condenser water riser as an integral factory-assembled component of the heat pump. Supply/return riser shall be protected 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 riser 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 heat pump 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 (OPTION: 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.

(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.
  - (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 controls 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.



### 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.



Water-to-Air Heat Pump Standard Warranty **Limited Express Warranty** The Whalen Company company The Whalen Company warrants to the purchaser each water-to-air heat pump to be free from original defects in materials and workmanship.

Where inspection by an authorized representative of The Whalen Company confirms such defects to be present, for a period of eighteen months from date of shipment, Whalen will furnish replacement components or materials to the original purchaser without charge.

a contaminated or corrosive air or liquid supply, operation at abnormal temperatures, or unauthorized opening of refrigerant circuit; (8) Mold, Tungus or bacteria amages; (9) Equipment subjected to corrosion or abrasion; (10) Equipment subjected to corrosion or abrasion; (10) Equipment subjected to corrosion or abrasion; (10) Equipment anufactured or supplied by others; (11) Equipment which have been operated in any relocated after initial installation; (3) Any portion or component of any system that is not supplied by The Whalen Company, regardless of the cause of the failure of such portion or component; (4) Equipment on which the unit identification tags or labels have been removed or modified; (5) Equipment which have defects considered misuse and as such, will void all warranty coverage regardless of the cause of failure; (7) Equipment which have defects or damage which result from nanner contrary to The Whalen Company printed instructions; or (12) Equipment which have defects, damage or insufficient performance as a result of insufficien flood, acts of God, alteration or misapplication of the product; (6) Equipment used as temporary heating or cooling while the facility is still under construction is This Limited Express Warranty is intended to cover original equipment defects only and does not cover or apply to: (1) Air filters, refrigerant, damage which result from improper installation, wiring, electrical imbalance characteristics or maintenance; or are caused by accident or incorrect system design or the improper application of The Whalen Company products damages; (9)

The Whalen Company neither assumes nor authorizes any person to assume for it any obligation or warranty other than those stated herein.

This Limited Express Warranty does not cover labor charges associated with making repairs, inspection and diagnosis of malfunctions, all field labor in connection with removal and from sond from a repair facility and all field labor in connection with reinstallation after repairs are completed. However, The Whalen Company at its sole discretion may provide a labor allowance in cases of DOA (Dead on Arrival) equipment for replacement or repair of defective components within 30-days of start-up or 90-days from factory shipment, whichever comes first. After this period only the Limited Express Warranty will apply. Labor will be paid per The Whalen Company Warranty Labor Allowance schedule Whalen shall not, in any event, have any liability under this warranty unless and until it has been paid Replacement or repair under this warranty will not extend the warranty time periods defined above.

in full for the equipment supplied. The warranty period shall commence on the date of shipment,

however, whether or not payment has been made.

rhis warranty applies only to Whalen heat pump installations in the fifty United States and in Canada. There are no warranties outside those areas.

The Whalen Company has no liability for incidental or consequential damages arising out of the ownership, use, or operation of Whalen heat pumps.

THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THE DESCRIPTION ON THE FACE HEREOF. NO IMPLIED WARRANTY OR MERCHANTABILITY SHALL ACCOMPANY THE SALE OF THIS EQUIPMENT, AND THIS EXPRESS WARRANTY IS INTENDED TO AND DOES REPLACE ANY IMPLIED WARRANTY OF MERCHANTABILITY

This warranty, its limitations and its exclusions are to be governed by the laws of Maryland. Although some warranties may vary in their effect and coverage from locality to locality, this warranty, its effects, coverage and remedies are only those available in Maryland

Rev: 12/2020



**Limited Express Warranty** 

ompany

The Whalen Company

Water-to-Air Heat Pump Chassis Standard Warranty

The Whalen Company warrants to the purchaser each water-to-air heat pump chassis (or each refrigeration chassis) to be free from original defects in materials and workmanship.

a contaminated or corrosive air or liquid supply, operation at abnormal temperatures, or unauthorized opening of refrigerant circuit; (8) Mold, fungus or bacteria damages; (9) Equipment subjected to corrosion or abrasion; (10) Equipment manufactured or supplied by others; (11) Equipment which have been operated in any manner contrary to The Whalen Company printed instructions; or (12) Equipment which have defects, damage or insufficient performance as a result of insufficient considered misuse and as such, will void all warranty coverage regardless of the cause of failure; (7) Equipment which have defects or damage which result from acts of God, alteration or misapplication of the product, (6) Equipment used as temporary heating or cooling while the facility is still under construction is such portion or component; (4) Equipment on which the unit identification tags or labels have been removed or modified; (5) Equipment which have defects Where inspection by an authorized representative of The Whalen Company confirms such defects to be present, for a period of twelve months from date of shipment, Whalen will furnish replacement components or materials to the original purchaser without charge. and does not cover or apply to: (1) Air filters, refrigerant, damage which result from improper installation, wiring, electrical imbalance characteristics or maintenance; or are caused by accident, or incorrect system design or the improper application of The Whalen Company products relocated after initial installation; (3) Any portion or component of any system that is not supplied by The Whalen This Limited Express Warranty is intended to cover original equipment defects only

for it any obligation or warranty other than those stated herein. The Whalen Company neither assumes nor authorizes any person to assume This Limited Express Warranty does not cover labor charges associated with making repairs, inspection and diagnosis of malfunctions, all field labor in connection

equipment for replacement or repair of defective components within 30-days of start-up or 90-days from factory shipment, whichever comes first. After this period reinstallation after repairs are completed. However, The Whalen Company at its sole discretion may provide a labor allowance in cases of DOA (Dead on Arrival) with repair or replacement of parts, all field labor in connection with removal and transportation to and from a repair facility and all field labor in connection with only the Limited Express Warranty will apply. Labor will be paid per The Whalen Company Warranty Labor Allowance schedule Whalen shall not, in any event, have any liability under this warranty unless and until it has been paid Replacement or repair under this warranty will not extend the warranty time periods defined above. in full for the equipment supplied. The warranty period shall commence on the date of shipment,

however, whether or not payment has been made.

This warranty applies only to Whalen heat pump installations in the fifty United States and in Canada. There are no warranties outside those areas.

The Whalen Company has no liability for incidental or consequential damages arising out of the ownership, use, or operation of Whalen heat pumps

THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THE DESCRIPTION ON THE FACE HEREOF. NO IMPLIED WARRANTY OR MERCHANTABILITY SHALL ACCOMPANY THE SALE OF THIS EQUIPMENT, AND THIS EXPRESS WARRANTY OF

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## **The Whalen Company**

# Water-to-Air Heat Pump with 5 Year Compressor Warranty **Limited Express Warranty**

The Whalen Company warrants to the purchaser each water-to-air heat pump to be free from original defects in materials and workmanship

for a period of eighteen months from date of Where inspection by an authorized representative of The Whalen Company confirms such defects to be present, for a period of eighte shore inspinal purchaser without charge, In addition, for a period of sixty months from date of shipment, Whalen will furnish a replacement for any compressor found by an authorized representative of The Whalen Company to contain an original defect.

ire, flood, acts of God, alteration or misapplication of the product; (6) Equipment used as temporary heating or cooling while the facility is still under construction is defects or damage which result from improper installation, wiring, electrical imbalance characteristics or maintenance; or are caused by accident, misuse or abuse Equipment relocated after initial installation, (3) Any portion or component of any system that is not supplied by The Whalen Company, regardless of the cause of the failure of such portion or component; (4) Equipment on which the unit identification tags or labels have been removed or modified; (5) Equipment which have considered misuse and as such, will void all warranty coverage regardless of the cause of failure; (7) Equipment which have defects or damage which result from a contaminated or corrosive air or liquid supply, operation at abnormal temperatures, or unauthorized opening of refrigerant circuit; (8) Mold, fungus or bacteria damages; (9) Equipment subjected to corrosion or abrasion; (10) Equipment manufactured or supplied by others; (11) Equipment which have been operated in any manner contrary to The Whalen Company printed instructions; or (12) Equipment which have defects, damage or insufficient performance as a result of insufficient or incorrect system design or the improper application of The Whalen Company products. This Limited Express Warranty is intended to cover original equipment defects only and does not cover or apply to: (1) Air filters, refrigerant, fluids, oil; (2)

The Whalen Company neither assumes nor authorizes any person to assume for it any obligation or warranty other than those stated herein.

This Limited Express Warranty does not cover labor charges associated with making repairs, inspection and diagnosis of malfunctions, all field labor in connection with removal and transportation to and from a repair facility and all field labor in connection with removal and transportation to and from a repair facility and all field labor in connection with reinstallation after repairs are completed. However, The Whalen Company at its sole discretion may provide a labor allowance in cases of DOA (Dead on Arrival) equipment for replacement or repair of defective components within 30-days of start-up or 90-days from factory shipment, whichever comes first. After this period Labor will be paid per The Whalen Company Warranty Express Warranty will apply. only the Limited

Replacement or repair under this warranty will not extend the warranty time periods defined above. Whalen shall not, in any event, have any liability under this warranty unless and until it has been paid in full for the equipment supplied. The warranty period shall commence on the date of shipment, however, whether or not payment has been made.

This warranty applies only to Whalen heat pump installations in the fifty United States and in Canada. There are no warranties outside those areas.

The Whalen Company has no liability for incidental or consequential damages arising out of the ownership, use, or operation of Whalen heat pumps.

THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THE DESCRIPTION ON THE FACE HEREOF. NO IMPLIED WARRANTY OR MERCHANTABILITY SHALL ACCOMPANY THE SALE OF THIS EQUIPMENT, AND THIS EXPRESS WARRANTY IS INTENDED TO AND DOES REPLACE ANY IMPLIED WARRANTY OF MERCHANTABILITY. vary in their effect and coverage from

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### Water-to-Air Heat Pump with 5 Year Refrigeration Circuit Warranty **Limited Express Warranty Fhe Whalen Company** company

Where inspection by an authorized representative of The Whalen Company confirms such defects to be present, for a period of eighteen months from date of The Whalen Company warrants to the purchaser each water-to-air heat pump to be free from original defects in materials and workmanship. shipment, Whalen will furnish replacement components or materials to the original purchaser without charge.

representative of The Whalen Company to contain an original defect. Refrigeration circuit components are defined to include the compressor, reversing valve, water components found by an authorized In addition, for a period of sixty months from the date of shipment, Whalen will repair or replace refrigeration circuit coil, air coil, expansion device and interconnecting tubing only

fire, flood, acts of God, alteration or misapplication of the product; (6) Equipment used as temporary heating or cooling while the facility is still under construction is defects or damage which result from improper installation, wiring, electrical imbalance characteristics or maintenance; or are caused by accident, misuse or abuse Equipment relocated after initial installation; (3) Any portion or component of any system that is not supplied by The Whalen Company, regardless of the cause of considered misuse and as such, will void all warranty coverage regardless of the cause of failure; (7) Equipment which have defects or damage which result from a contaminated or corrosive air or liquid supply, operation at abnormal temperatures, or unauthorized opening of refrigerant circuit; (8) Mold, fungus or bacteria Equipment subjected to corrosion or abrasion; (10) Equipment manufactured or supplied by others; (11) Equipment which have been operated in any manner contrary to The Whalen Company printed instructions; or (12) Equipment which have defects, damage or insufficient performance as a result of This Limited Express Warranty is intended to cover original equipment defects only and does not cover or apply to: (1) Air filters, refrigerant, fluids, the failure of such portion or component; (4) Equipment on which the unit identification tags or labels have been removed or modified; (5) insufficient or incorrect system design or the improper application of The Whalen Company products damages; (9)

The Whalen Company neither assumes nor authorizes any person to assume for it any obligation or warranty other than those stated herein.

This Limited Express Warranty does not cover labor charges associated with making repairs, inspection and diagnosis of malfunctions, all field labor in connection equipment for replacement or repair of defective components within 30-days of start-up or 90-days from factory shipment, whichever comes first. After this period reinstallation after repairs are completed. However, The Whalen Company at its sole discretion may provide a labor allowance in cases of DOA (Dead on Arrival) with repair or replacement of parts, all field labor in connection with removal and transportation to and from a repair facility and all field labor in connection with only the Limited Express Warranty will apply. Labor will be paid per The Whalen Company Warranty Labor Allowance schedule Replacement or repair under this warranty will not extend the warranty time periods defined above. Whalen shall not, in any event, have any liability under this warranty unless and until it has been paid in full for the equipment supplied. The warranty period shall commence on the date of shipment, however, whether or not payment has been made.

The Whalen Company has no liability for incidental or consequential damages arising out of the ownership, use, or operation of Whalen heat pumps. This warranty applies only to Whalen heat pump installations in the fifty United States and in Canada. There are no warranties outside those areas.

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Rev: 12/2020



### Whisperline® Single Riser Design Guide Revision Table

Date	Description
4/12/22	Updated 1204 AHRI ratings
2/5/21	Updated Warranty Certificates
09/29/20	Updated Nomenclature Thermostat Extension
09/9/20	Updated Mechanical Specification
04/22/19	Cabinet & Chassis Nomenclature Updated, Electrical Data Updated
07/19/17	Registered Symbol added to Whisperline®
11/16/2016	Refrigerant Charge line corrected in Physical Data Table
10/12/2016	Integral Pump Drawing Updated
08/29/2016	Cabinet Drawings and Riser Drawings Updated
07/01/2016	High Static PSC Motor electrical data tables added
06/14/16	Riser Detail and Cabinet Drawings Updated
06/02/16	Supply Grille Discharge Arrangement Drawing Updated
04/21/16	Drawings Updated
03/04/16	Drawings Updated; CV and CT Electrical Data Updated
01/18/2015	Cabinet Nomenclature Updated
10/2015	New Release of document



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