# **Multiple Circuit Horizontal and Vertical Water Source Heat Pumps**

**Product Catalog** 

Sizes: 084 to 144 – Horizontal Sizes: 084 to 288 – Vertical

Model: M Vintage





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### **Nomenclature**

<u>F</u>	<u>084</u>	<u>H</u>	<u>H</u>	M
Voltage F = 208-230/3/60 G = 460/3/60 J = 380-415/3/50 K = 575/3/60 F = 208-230/3/60	Size (BTUH Cooling) 084 = 84,000 096 = 96,000 120 = 120,000 144 = 144,000 168 = 168,000 192 = 192,000 240 = 240,000 288 = 288,000	Unit Type H = Horizontal V = Vertical	Temperature Range H = Standard Range L = Low Temperature	Vintage



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## **General Description – Twin Circuit Horizontal**

M-vintage, twin circuit horizontal water source heat pumps are ceiling-hung in hallways and other corridors, away from the occupied space for reduced sound and to allow easier service access. Twin circuit units provide the opportunity to serve larger spaces with a single unit. Mammoth offers some of the most compact horizontal water source heat pump units in the industry with critical components located to provide easy maintenance and service in a horizontal application.

#### **Basic Features:**

- Four units from 6 to 12 tons
- R-410A refrigerant
- EER ratios up to 15.0 and COP ratings to 4.8
- Standard or geothermal operation
- Fully run-tested with water in both heating and cooling modes
- UL and ETL listed
- Efficient, quiet scroll compressors on all units
- Optional digital scroll lead compressor provides superior part load operation (down to 10% load) and avoids the need for hot gas bypass
- ETL listed and AHRI/ISO 13256-1 certified for capacity and efficiency



- Factory-installed variable frequency drive (VFD) is standard for all unit sizes
- FANWALL TECHNOLOGY<sup>®</sup> allows higher static pressure operation required for MERV 13 filtration, providing an opportunity to earn a point toward LEED® certification
- Available with left or right hand water connections to match application requirements
- Insulated cabinet with removable access panels for easy service
- Standard HP-5 microprocessor-based control system including condensate overflow protection
- Optional EPiC<sup>™</sup> DDC controls provide for optimum performance using the control scheme or building management system and protocol of your choice

## **General Description –Twin and Quad Circuit Vertical**

M-vintage, twin circuit vertical water source heat pumps are floor-mounted in closets or small mechanical rooms near the occupied space. Twin circuit units offer the opportunity to serve larger spaces with a single unit. Mammoth offers some of the most quiet water source heat pump units in the industry, allowing units to be located near the occupied space with minimal acoustic impact.

#### **Basic Features:**

- Eight unit sizes from 7 to 24 tons
- R-410A refrigerant
- EER ratios up to 15.0 and COP ratings to 4.8
- Standard or geothermal operation
- Fully run-tested with water in both heating and cooling modes
- Scroll compressors on all units
- Optional digital scroll lead compressor provides superior part load operation (to 10% load) and avoids the need for hot gas bypass
- Factory-installed variable frequency drive (VFD) is standard for all unit sizes
- Choice of top or rear fan discharge arrangement
- Available with left or right hand water connections to match application requirements
- ETL listed and AHRI/ISO 13256-1 certified for capacity and efficiency



- FANWALL TECHNOLOGY<sup>®</sup> allows higher static pressure operation required for MERV 13 filtration, providing an opportunity to earn a point toward LEED<sup>®</sup> certification
- Insulated cabinet with removable access panels for easy service
- Standard HP-5 microprocessor-based control system including condensate overflow protection
- Optional EPiC<sup>™</sup> DDC controls provide for optimum performance using the control scheme or building management system and protocol of your choice

#### **Benefits – Horizontal and Vertical**

### **High Efficiency**

Components are selected for high efficiency, up to 15.0 EER and 4.8 COP, to conserve energy and reduce operating costs. Units can help a project obtain LEED® certification.

### **Application Flexibility**

Boiler/tower or geothermal selections provide design flexibility to meet project performance criteria and budget requirements. Multiple discharge arrangements and a wide variety of factory-installed options allow units to be configured to meet design and project requirements. Cooling-only units expand the range of possible applications.

#### R-410A Refrigerant

Mammoth units incorporate R-410A refrigerant that has no ozone depletion potential or phase-out date. This minimizes the impact on our environment and protects against refrigerant availability over the life of the units.

#### **Easy Maintenance**

Horizontal units have multiple access panels to allow easy access to the compressor, fan and control box. Each side of the vertical unit has access panels to the compressor, fan and control box. The back of the unit has access panels to the compressor and fan. The front of the unit, under the coil, has removable panels for additional access.

Each refrigerant circuit has high and low side access valves for easy servicing. Factory-installed filter racks that accommodate return air ducts provide easy access for routine filter replacement.

#### **Controls Flexibility**

Units come standard with an HP-5 controller to provide independent, standalone control of all unit functions. An optional factory-installed EPiC DDC system provides or communication with common building automation systems such as BACnet<sup>®</sup>, LonTalk<sup>®</sup> and Modbus<sup>®</sup>.

#### **Durable and Reliable Operation**

Mammoth units are engineered for long-life and reliable operation. Components are selected for durability and long life. Multiple refrigerant circuits provide standby operation. Optional cupro-nickel inner tubes of the heat exchanger provide additional protection in applications using well water and city water. Ease of service encourages routine maintenance for peak operation.

### **Unit Construction and Components**

#### Cabinet

Cabinet casing is constructed of G-60 galvanized steel. Internal metal parts are also fabricated from galvanized steel. Cabinet insulation is ¾ inch, 1 ½ pound density, skincoated fiberglass. Multiple access panels for the compressor, fan and control box sections allow service to all major components.

Horizontal units have two air coils in the front of the unit. The compressor section is separated from the fan section by an insulated divider panel. There are multiple access panels for the control box, fan and compressor sections. The hanging rail runs along the bottom of the unit.

Vertical units are arranged with the vertical air coil in the front of the unit and the compressor section below. Each side of the unit has multiple access panels to the control box, fan, and compressor. The back of the unit has access panels to the fan and compressor sections. The front of the unit under the coil has removable panels for additional access

Unit sizes 084 through 144 are packaged units. Unit sizes 168 through 288 consist of two sections that ship separately. Dual-section units have a single power source and adjoining power wiring for the adjacent unit, as well as two sets of water connections, condensate connections and thermostat connections.

Each unit includes 1 inch throwaway filters in a factory-mounted filter bracket designed to accommodate a return air duct connection. The filter can be removed horizontally.

Units incorporate 1-¼ inch female NPT copper water connection fittings outside the cabinet for supply water connections using flexible hose or rigid piping. All units must be externally trapped. A 1-¼" O.D. copper condensate connection is located outside the cabinet, adjacent to the water connections.

#### **Refrigeration System**

The refrigeration system for each circuit consists of a scroll compressor, coaxial water to refrigerant heat exchanger, airside coil thermal expansion valve, access valves, reversing valve and safety control. Optional digital scroll lead compressor can be provided for superior part

load operation (to 10% load) and avoids the need for hot gas bypass.

Unit sizes 084 through 144 (horizontal and vertical) have two independent circuits and unit sizes 168 through 288 (vertical only) have four independent circuits. Compressors are mounted on neoprene isolators and heavy gauge mounting rails for minimum noise transmission and quiet operation. Each refrigerant circuit has high side and low side access valves for servicing.

The water to refrigerant coaxial coil consists of a copper inner tube and a steel outer tube. It is rated for 650psig on the refrigerant side and 400 psig on the water side. Large tube diameters prevent clogging unlike brazed plate-type heat exchangers which require mesh strainers. The air coil is a copper tube, aluminum finned type selected for high efficiency.

The reversing valve is energized in the cooling mode and is fail-safe to the heating mode. Safety controls include a high and low refrigerant pressure switch (loss of charge protection) for each refrigerant circuit. A lockout relay prevents the compressor from operating if any safety switch trips.

#### Fan Section

The fan section consists of the plug fan, motors, VFD and discharge outlet. Airside components are separated from the compressor section to limit noise transmission from the compressor. Units incorporate FANWALL TECHNOLOGY® to allow for higher static operation to accommodate MERV 13 filtration. This feature is unique to Mammoth water source heat pumps and can help earn a LEED point.

Motors are premium efficiency, totally-enclosed with sealed and locked bearings and a NEMA rated frame designed for quiet operation. Motors are designed for use with the VFD and include bearing protection rings to reduce bearing frosting, pitting and failure caused by VFD induced voltages on the motor shaft.

Horizontal units can be configured for straightthrough discharge as standard with an optional side discharge. Vertical units can be configured for top discharge as standard with an optional rear discharge.

#### **Controls**

#### **HP-5 Controller**

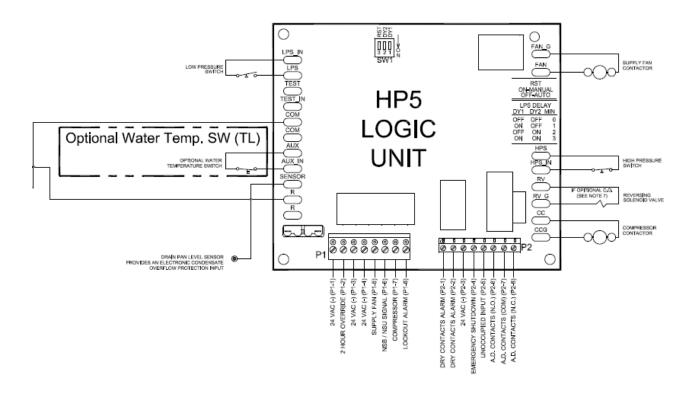
The standard HP-5 microprocessor board provides complete control of the unit compressors, reversing valves, fan, safety features and troubleshooting fault indicators.

#### **EPiC™ DDC Controller**

The optional factory-integrated EPiC DDC controller provides control flexibility that can be easily customized to meet any sequence of operation. It is fully capable of operating in a 100% stand-alone mode or can connect to a Building Automation System (BAS) using any of today's four leading protocols: BACnet, Modbus, N2, and LonTalk. The base controller provides ample input/output capacity, plus support for an expander board if additional I/O capacity is required.

The controller provides these key features:

- I/O point count: 6 digital outputs, 12 universal inputs, and 6 analog outputs. I/O points can be increased by use of an optional I/O Flex Expander.
- Optional built-in protocol support: BACnet (ARCNET, MS/TP, and PTP modes), Modbus (RTU and ASCII modes supported), N2, or LonTalk.
- Powerful, high-speed 16-bit microprocessor with 1 MB Flash memory and 1 MB of battery-backed RAM
- Built-in support through a Rnet port for control's custom configurable keypad/display unit, BACview6 (4-line by 40 character per line display); for intelligent sensors.
- For variable air volume (VAV), constant volume (CAV), and make-up air (MAU) applications. Used with applications having options requiring a greater number of outputs and inputs.
- As additional options are added an I/O 8160 expander will be needed.



## Example of I/O's

	INPUTS										
Point		Des	scription								
UD #1	+Pulse	BMS Supply Air, Duct Static Reset or Room Air Temperature Setpoint									
UD #2		Room Air Temperature	Room Air Temperature								
UD #3	RTD/Therm/Dry	System Sw itch	System Switch Emergency Shut Down Remote Start								
UD #4	Contact, 0-10VDC,	High Static	Low Static	VFD in Bypass							
UD #5	0-20M A	Economizer Lockout	Cooling Lockout	Heating Lockout							
UD #6		Supply Fan Status	Compressor Fault	Condensate Overflow							
UD #7		Duct Static Pressure or A	irflow Switch	-							
UD #8		Filter Static Pressure or D	Dirty Filter Switch #1								
UD #9		Outside Air Temperature	(AiSE Only)								
UD #10		Condenser Water Temper	rature								
UD #11			or Return Air Temperature	e (AiSE)							
UD #12		Supply Air Temperature									
		OUTPU	UTS								
Point	Description										
UO #1	4-20m A, 0-10Vdc	Spare									
UO #2		Heating Source Control S	•								
UO #3	0-10 Vdc	· ·	E)/Damper Control Signal (A	NISE)							
UO #4		WiSE Bypass Valve Signa	al								
UO #5		Spare									
UO#6		Supply Fan VFD Control S	Signal								
DO #1	120 VAC	Start Supply Fan									
DO #2	FORM C	Start Condenser Pump or Switch Reversing Valve									
DO #3		Field-Lin (MWU or Open N	∕lin OA)								
DO #4		Common Alarm									
DO #5		Compressor Call #2									
DO #6		Compressor Call #1									

# **Options**

6-1	Description
Code	Description
Base Mode	
A1-M	Base model CAV, scroll compressors, HP5 board, space temp control / requires thermostat
A2-M	Base model VAV, scroll compressors, MDDC 6126 discharge air control
A3-M	Base model VAV, scroll compressors, MDDC 6126 discharge air control, digital compressor
7.5 171	w/suction pressure demand limit lead circuit
	Base model with VAV, scroll compressors, MDDC 6126 w/expander bd. discharge air control,
A4-M	digital compressor w/suction pressure demand limit lead circuit, Hot gas re-heat,
	dehumidification control,
Sound opti	ons
B1-M	QB sound package
B2-M	QB sound package / SB sound blanket on compressors
B3-M	QB sound package / SB sound blanket on compressors / FI foil backed insulation
Refrigeration	on Options
СО	Cooling only
НО	Heating only
SL	Insulated suction lines
CN	Cupro-nickel coaxial coil
Chassis Opt	tions
RH	Righ hand electrical and water connections
D1	SP / Stainless steel drain pan
SL	Insulated suction lines
TL	Low temperature package / includes SL & WT options
WE	Waterside economizer / check with factory / may require field piping
ED	End discharge
HW	Hot water pre-heat coil only / control valve by "others"
LF	Evaporator low temp frost protection
Filter Optio	ons
FF	Four inch filters
2F	2" filter guides with 2" filters
E1	DF / Dirty filter switch
FS	Source side coaxial flow switch
MDCC Prote	ocol Options
Protocol 1	BACnet MSTP 9600 or 38.4 or 76.6 Baud rate
	BACnet ethernet 10 base T (additional hardware required)
Protocol 3	BACnet IP (additional hardware required)
Protocol 4	ModBus / RTU or ASCII / non-sequential numbers
	ModBus / RTU or ASCII / with sequential register numbers
	Johnson N2 9600 Baud
	Serial LonTalk communication / includes SLTA for each unit
	If protocol 2 or 3 is selected, extra hardware is required / this option must be selected
	If protocol 7 is selected, extra hardware is required / this option must be selected
	Mammoth DDC keypad / required 1 minimum per job W/MDDC control
	- Maria - Mari

## **Engineering Specification**

General: Furnish and install water source heat pumps as indicated on the plans as listed in the unit schedule. All units must be factory run tested of the completed unit with full water flow. All equipment must be safety agency listed with ETL and shall be certified for capacity and efficiency in accordance with AHRI standard 13256-1.

**Unit Construction:** The cabinet walls, access doors, roof and floor shall be constructed of 18 gauge interior panels with ¾"-inch 1 1/2 lb. density fiberglass as the interior core. All openings through the casing shall be grommeted.

All units shall include dual sloped stainless steel drain pans. All units shall be externally trapped. Units shall be capable of being provided with a top or same side as return discharge opening.

Filters shall be side loaded from the same side as the electrical access door. A 2-inch MERV 7 pleated media panel filter is standard. Options include a 2-inch or 4-inch pleated filter with a MERV 13 rating.

**Fan Section**: The fan section shall consist of the fan, motor, and discharge outlet. Airside components shall be separated from the compressor section to limit noise transmission from the compressor.

Units shall include direct drive, dynamically balanced, airfoil-shaped blade plug fans. Motors are premium efficiency totally enclosed with sealed and locked bearings and TEAO rated frame designed for quiet operation. Motors are designed for use with VFD's and include bearing protection rings to reduce bearing frosting, pitting and failure caused by VFD induced voltages on the motor shaft.

Standard vertical models shall be provided with supply air discharge from the top of the unit. Horizontal models shall be of straight through design or optional end discharge.

Refrigeration System: Each unit shall have two separate circuits complete with scroll compressor, coaxial water to refrigerant coil, airside direct expansion coil, reversing valve, thermal expansion valve with external equalizer

line and is serviceable and adjustable while the unit is in operation.

Units shall be designed for use of R-410A refrigerant. The reversing valve is energized in the cooling mode and is fail-safe to the heating mode. Each circuit is equipped with low and high pressure refrigerant manual reset safety controls, Schrader valves on both the high and low pressure sides and liquid line filter drier. Each refrigerant circuit shall ship fully charged and ready for operation, requiring only connections of water and electrical services. Refrigerant systems shall offer an optional 5-year non-prorated warranty.

Compressors shall be scroll type with thermal overload protection and isolated from unit with neoprene isolators as recommended by the compressor manufacturer. Optional digital scroll compressor on the lead refrigeration circuit shall be capable of modulation from 10 – 100% of its capacity. Compressors shall be mounted in an isolated service compartment that can be accessed without affecting unit operation.

Refrigerant side is rated for 650 PSI. Waterside is rated for 300 PSI. Field piping connections shall be MPT connections and shall be made to each heat exchanger at the top of the unit and incorporate isolation valves and manual drain valves as standard equipment.

Direct expansion airside coils shall be constructed of half-inch rifled copper tubes with lanced aluminum fins mechanically bonded to the tubes and galvanized steel end casings. Coils shall have interlaced circuitry and shall be 3 to 4 rows. Coils shall be factory tested with air at 450 psi under water and shall be rated for 250 psi working pressure.

**Economizer coil** shall have a minimum of four (4) rows in depth, half-inch diameter tubing, 8 FPI. The coil shall be located upstream from the direct expansion airside coil and shall be factory mounted. The coil shall have factory-installed drain and vent connections extended to permit draining into a watertight condensate pan. The coil shall be factory tested with air at 450 psi under water and shall be rated for 250 psi working pressure. The coil shall have a single or double actuator valve dependant on the size of

the unit. The coil leaving fluid side shall be factory piped to the water-cooled condenser inlet such that the only field piping required shall be from the water supply main to the three-way diverting valve inlet, and from the water-cooled condenser discharge to the water return main.

Hot water coil shall be one row in depth, half-inch diameter tubing, 8 FPI. The coil shall be located upstream from the direct expansion airside coil and shall be factory mounted into the self-contained packaged water-cooled air conditioning unit. The coil shall have factory-installed drain and vent connections extended to permit draining into a watertight condensate pan. The coil shall be factory tested with air at 450 psi under water and shall be rated for 250 psi working pressure.

Steam coil shall be one row in depth, 5/8" diameter tubing, 10 FPI. The coil shall be located upstream from the direct expansion coil and shall be factory mounted into the self-contained packaged water-cooled air conditioning unit. The coil shall have factory installed drain and vent connections extended to permit draining into a watertight condensate pan. The coil shall be factory tested with air at 450 psi under water and shall be rated for 250 psi working pressure.

Refrigerant re-heat coil shall be one row in depth, half-inch diameter tubing, 8 FPI. The coil shall be located downstream from the direct expansion airside coil and shall be factory

mounted into the self-contained packaged water-cooled air conditioning unit.

Temperature Control System: Unit shall be equipped with a controller capable of operating in a 100% standalone mode. Optional DDC controller shall be the I/O Flex 6126 and be fully capable of operating in a 100% stand-alone control mode or shall be able to connect to a Building Automation System (BAS) using any of today's four leading protocols: BACnet, Modbus, N2, or Lontalk. Minimum open protocol points: Operation mode, supply air temperature, entering air temperature, supply air temperature set point, duct static, and duct static set point. The system shall be prewired in such a manner that remote start-stop can be accomplished through the BMS System via contact closure.

Electrical: Units shall be complete with an ETL listed electrical control panel, which includes contactors, motor protectors, relays, and transformers. A non-fused disconnect shall be located on the control panel for connecting building power to the unit. All branch circuits shall be individually protected and shall include a low-voltage control circuit transformer. Motors and compressors shall be protected on all phases. Units shall be provided with optional phase and brown out protection that shuts down all motors in the unit if the electrical phases are more that 10% out of balance on voltage, the voltage is more that 10% under design voltage or on phase reversal.

## **Application and Design Considerations**

#### **Boiler/Tower**



Also called a standard, conventional or water loop system, a boiler/tower system uses a two pipe water circulating system to add, remove, or transfer rejected heat to other units throughout the building. The system is not geothermal – it typically uses a natural gas or electric boiler located in a mechanical equipment room to provide heat. A cooling tower is used to dissipate waste heat. This system is typically the lowest cost of the loop options. (ARI 320 / ISO 13256-1)

**Horizontal Closed Loop** 



Horizontal loop geothermal systems use a series of parallel loops are installed in trenches approximately 5 feet below the ground. The piping may be installed using a "four-pipe" or "six-pipe" design. This system is well suited for applications where physical space is available – between 1,500 and 2,000 square feet/ton of cooling is required – or where bore drilling is prohibitive. (ARI 330 / ISO 13256-1)

**Vertical Closed Loop** 



Vertical loop geothermal systems are ideal for projects with minimum available space. Vertical bore holes are drilled150 to 400 feet deep depending on building design considerations. A plastic polyethylene supply/return pipe is inserted into the holes and wells are connected in a parallel reverse return arrangement to allow water to circulate evenly throughout the bore field. Loop temperatures range from 37°F to 95°F. (ARI 330 / ISO 13256-1)

**Surface Water Closed Loop** 



Surface water closed loop geothermal systems use a loop that is directly installed in a lake or pond near the building, making it an extremely efficient and cost effective. Bundled polyethylene coils are used in a reverse return design. Care must be taken to ensure the body of water will meet building loads. Debris problems from flooding or the need for public access may limit the use of this application. (ARI 330 / ISO 13256-1)

#### **Open Loop Well Water**



Open loop systems use ground water to remove or add heat to the water loop and are typically used in regions where ground water is plentiful. Water is typically extracted and discharged back to the aguifer. The major benefit is the constant well water temperature, approximately 50°F. which provides very efficient operation at a relatively low installed cost. An intermediate heat exchanger is added in many cases to isolate the loop serving the units from the well water to reduce maintenance costs. This system usually has supply wells and return wells. Some states have requirements on the depths of return wells that must be approved by the U.S. Environmental Protection Agency. Water should be tested and strainers are typically required as poor water quality can increase heat exchanger scaling and suspended solids can lead to heat exchanger erosion. (ARI 325 / ISO 13256-1)

#### **Horizontal Unit Design Considerations**

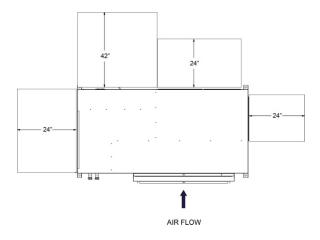
Unit Location and Installation: Units should be positioned to provide enough clearance to perform routine maintenance or service. Units should be located for ease of filter and access panel removal. Allow the minimum clearances on each side of the unit for routine maintenance and service. Leave sufficient space on one side of the filter rack to allow filter removal.

Each horizontal unit is suspended from the ceiling by four threaded rods (provided by others) fastened to the unit by a factory provided mounting bracket and rubber isolator. The unit should be located below building structural members to assure it is securely mounted in a level position.

Do not locate units above noise-sensitive areas such as offices, meeting rooms, classrooms and other spaces. If possible, avoid locations above areas where there is considerable traffic as service time may be limited during occupied hours. Placing units above hallways is a typical location in schools to avoid potential noise problems with supply and return air ducted to adjacent classrooms. Such locations may limit service time during school hours.

Clearance Requirements: The diagram below shows minimum suggested clearances. Any additional clearances would be beneficial, but not always necessary. Units need to be accessed from three sides; two panels for the blower, two electrical access doors and one for the compressor compartment. The requirements on any specific unit may increase or be reduced depending on several factors such as maintenance requirements and mechanical or electrical installation codes. Horizontal unit filters are removed from the bottom with an option for side removal. If return air is not ducted, enough clearance will be required to provide for adequate airflow.

#### Horizontal unit clearances



**Piping**: The unit is usually attached to the supply/return piping using a "reverse return" arrangement. This includes a flow control device to assure proper water flow for each zone. A flexible high-pressure hose should be used to connect the system piping to the unit to simplify installation and provide sound attenuation. One end of the hose has a swivel fitting for removal of the unit for servicing. The

system piping design should include supply and return shutoff valves to facilitate the removal of one unit for servicing or replacement while the system continues to operate. The return valve may be used for water flow balancing. It will typically have a memory to allow it to adjust to the proper position for the required flow upon reopening. Fixed flow valves can be used to replace the memory-type valve. Providing pressure and temperature ports allows measurement of these values during operation.

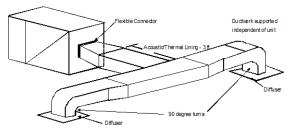
Condensate Drain Piping: Condensate piping can be PVC, steel or copper. PVC typically eliminates the need to insulate the pipe to prevent sweating. A 1-¼ inch O.D. factory supplied copper condensate connection is located outside the cabinet, allowing connection of the condensate hose. The condensate piping must be externally trapped. Piping must be pitched ¼ inch per foot away from the unit. Provide a vent after the trap to allow condensate to drain away from the unit. The vent also provides a clean out should the trap become obstructed. Refer to local codes for the correct condensate piping to drains.

**Ductwork and Sound Attenuation:** Ceiling mounted heat pumps virtually always have discharge ductwork attached to the unit. A collar is provided on the discharge to facilitate attachment of the ductwork. Good design practice requires a flexible connector between the collar and transition to the main duct system. This connector attenuates sound from the unit: especially fan sound levels, and simplifies unit removal. The filter section is supplied with a bracket to accommodate return ductwork. A flexible connector should also be used to connect the unit to the return ducting to attenuate unit sound levels and allow ease of unit removal. Ducted returns are typically used on acoustically sensitive applications. Return ducting should be located at least 12 inches away from the coil to assure even distribution of return air across the coil. For applications that are especially acoustically sensitive, consider an acoustic kit that includes additional unit lining and dampening material beneath the entire unit.

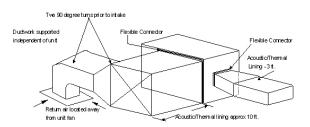
Ductwork should be lined with an acoustic/ thermal insulation a minimum of ½ inch. For sensitive installations, use 1-inch insulation a minimum of five to 10 feet prior to each diffuser. Changes in duct direction such as tees, elbows, and internal devices such as dampers that

create airflow turbulence can increase acoustic problems. Minimize these items where possible. Placing a straight run of duct about the width between fittings will decrease turbulence and associated noise. Diffusers located in the bottom of a trunk duct pose acoustical problems. Volume control dampers should be placed well upstream of any air outlets.

#### ASHRAE and SMACNA Suggested Supply Air Ducting



ASHRAE and SMACNA Suggested Return Air Ducting



Applications that have a single duct discharge, such as hotels, should limit the velocity to a maximum of 600 fpm. These applications have a short run of discharge duct that must be fully lined with an elbow without turning vanes. Return air grilles should be located low on the sidewall and route up to the ceiling plenum. An attenuator placed at the return opening will provide added acoustical protection.

#### **Vertical Unit Design Considerations**

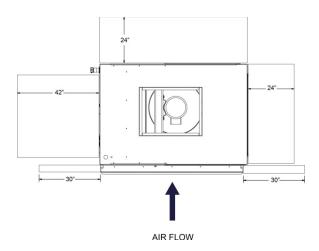
Unit Location and Installation: Units are intended for installation in a small mechanical room or closet. The unit design minimizes sound levels to allow installation adjacent to occupied spaces. The unit is typically placed in a corner of the mechanical room or closet. The return is non-ducted and located ninety degrees to the closet door with access panels facing the door as shown in the drawings below. For application flexibility, Mammoth provides arrangements with the electrical panel, low and control voltage

connections located on either side of the when facing the return air connection.

Locate units for ease of filter and access panel removal. The closet door should extend past the end of the unit to allow for easy filter removal. A field supplied line voltage disconnect is required for branch circuit protection.

Service Clearances: The diagram below shows minimum suggested clearances. Any additional clearances would be beneficial, but not always necessary. Units need to be accessed from three sides: two panels for the blower, two electrical access doors and one for the compressor compartment. The requirements on any specific unit may increase or be reduced depending on several factors such as maintenance requirements and mechanical or electrical installation codes. Vertical unit filters slide out of the left or right side (quad-circuit units must be removed from each side). If return air is not ducted, enough clearance will be required to provide for adequate airflow.

#### Vertical unit clearances



Piping: The supply and return water connections are located just above the filter to minimize the required size of the space required for units. A high pressure, flexible hose is available to connect the unit to the system hard piping to dampen the unit operating sound level. One end of the hose has a swivel fitting to allow easy removal of the unit. A deluxe hose kit is available to eliminate the need for final water balance. Provide supply and return shutoff valves to allow removal of a single unit without the need to shut down the entire system. Pressure/temperature ports should be provided

to allow service personnel to monitor water flow and unit operating pressures.

Condensate Drain Piping: Condensate piping can be PVC, steel or copper. PVC typically eliminates the need to insulate the pipe to prevent sweating. A 1-¼ inch O.D. factory supplied copper condensate connection is located outside the cabinet, allowing connection of the condensate hose. The condensate piping must be externally trapped. Piping must be pitched ¼ inch per foot away from the unit. Provide a vent after the trap to allow condensate to drain away from the unit. The vent also provides a clean out should the trap become obstructed. Refer to local codes for the correct condensate piping to drains.

**Ductwork and Sound Attenuation**: Ductwork should conform to industry standards as listed in the ASHRAE Systems Guide.

Discharge ductwork should include a noninsulated transition from the unit connection to a flexible connector at the full duct size, a short run of duct and an elbow internally lined with insulation but without turning vanes. The main duct tees into branch circuits with discharge diffusers.

Return air is typically brought in through a grille in the closet door. The door should be located ninety degrees from the unit return to eliminate any "line of sight". Return air can be brought in through the grille and ducted to the unit with internally lined acoustic insulation to a flexible connector at the unit. Sound attenuation is particularly critical at the unit return.

Return ducting is facilitated through use of a filter rack that is designed to accept return air ducting. Return ducting will likely increase the required width of the closet.

## Nominal Capacity – Horizontal Units\*

### Cooling only and ISO 13256-1 Water Loop (Boiler/Tower Systems)

			Model HHM							
Size	CFM	GPM		Coo	ling		Heating			
			Qt	Q <sub>t</sub> Q <sub>s</sub> kW EER				kW	СОР	
84	2800	22.0	83,800	69,000	5.7	14.8	96,200	5.8	4.8	
96	3200	26.0	96,800	78,800	6.5	15.0	113,100	7.0	4.7	
120	4000	32.0	124,400	99,900	8.5	14.6	141,600	9.2	4.5	
144	4400	35.0	139,800	111,300	9.8	14.3	158,200	10.5	4.4	

#### Notes:

Shaded are indicates cooling only and water loop units. Cooling capacity is based on  $80.6^{\circ}F$  db,  $66.2^{\circ}F$  wb  $(27/19^{\circ}C)$  entering air temperature and  $86^{\circ}F$  ( $30^{\circ}C$ ) entering water temperature. Heating capacity is based on  $68^{\circ}F$  ( $20^{\circ}C$ ) entering air temperature and  $68^{\circ}F$  ( $20^{\circ}C$ ) entering water temperature. GPM = Gallons Per Minute, EDB = Entering Dry Bulb ( $^{\circ}F$ ), EWB = Entering Wet Bulb ( $^{\circ}F$ ), EWT = Entering Water Temperature ( $^{\circ}F$ ),  $Q_t$  = Capacity Total (BTUH),  $Q_s$  = Capacity Sensible (BTUH), EER = Energy Efficiency Ratio, COP = Coefficient of Performance

### ISO 13256-1 Ground Loop (Geothermal)

			Model HHM							
Size	CFM	GPM		Cod	oling		Heating			
			Q <sub>t</sub>	Q <sub>t</sub> Q <sub>s</sub> kW EER				kW	СОР	
84	2800	22.0	83,800	69,000	5.7	14.8	96,200	5.8	4.8	
96	3200	26.0	96,800	78,800	6.5	15.0	113,100	7.0	4.7	
120	4000	32.0	124,400	99,900	8.5	14.6	141,600	9.2	4.5	
144	4400	35.0	139,800	111,300	9.8	14.3	158,200	10.5	4.4	

#### Notes:

Cooling capacity is based on  $80.6^{\circ}F$  db,  $66.2^{\circ}F$  wb  $(27/19^{\circ}C)$  entering air temperature and  $77^{\circ}F$  ( $25^{\circ}C$ ) entering water temperature. Heating capacity is based on  $68^{\circ}F$  ( $20^{\circ}C$ ) entering air temperature and  $32^{\circ}F$  ( $0^{\circ}C$ ) entering water temperature. GPM = Gallons Per Minute, EDB = Entering Dry Bulb ( $^{\circ}F$ ), EWB = Entering Wet Bulb ( $^{\circ}F$ ), EWT = Entering Water Temperature ( $^{\circ}F$ ),  $Q_t$  = Capacity Total (BTUH),  $Q_s$  = Capacity Sensible (BTUH), EER = Energy Efficiency Ratio, COP = Coefficient of Performance

<sup>\*</sup> Please refer to Mammoth's WSHP selection software for accurate performance at the precise entering conditions of your project. The capacity data above is provided using minimum and maximum entering water temperatures as an example only.

## Nominal Capacity – Vertical Units\*

### Cooling only and ISO 13256-1 Water Loop (Boiler/Tower Systems)

Size	CFM	GPM	Model VHM							
Size	CFIVI	GFIVI		Coolii	ng		He	Heating		
084	2800	22	83,900	69,000	5.7	14.8	96,200	5.8	4.8	
096	3200	26	96,800	78,800	6.5	15.0	113,100	7.0	4.7	
120	4000	32	124,900	124,900 100,200 8.5 14.7		141,600	9.2	4.5		
144	4400	35	138,800	110,300	9.8	14.2	157,400	10.7	4.3	
168	5600	44	167,800	138,000	11.4	14.8	192,300	11.6	4.8	
192	6400	52	193,500	193,500 157,500 12.9 15.0		226,200	14.1	4.7		
240	8000	64	249,900	200,300	17.0	14.7	283,300	18.5	4.5	
288	8800	70	277,600	220,600	19.6	14.2	314,900	21.4	4.3	

#### Notes:

Shaded are indicates cooling only and water loop units. Cooling capacity is based on  $80.6^{\circ}F$  db,  $66.2^{\circ}F$  wb  $(27/19^{\circ}C)$  entering air temperature and  $86^{\circ}F$  ( $30^{\circ}C$ ) entering water temperature. Heating capacity is based on  $68^{\circ}F$  ( $20^{\circ}C$ ) entering air temperature and  $68^{\circ}F$  ( $20^{\circ}C$ ) entering water temperature. GPM = Gallons Per Minute, EDB = Entering Dry Bulb ( $^{\circ}F$ ), EWB = Entering Wet Bulb ( $^{\circ}F$ ), EWT = Entering Water Temperature ( $^{\circ}F$ ),  $Q_t$  = Capacity Total (BTUH),  $Q_s$  = Capacity Sensible (BTUH), EER = Energy Efficiency Ratio, COP = Coefficient of Performance

### ISO 13256-1 Ground Loop (Geothermal)

Size	CFM	GPM	Model VLM						
Size	CITIVI	GFIVI		Cooling			Heating		
084	2800	22	82,900	66,900	5.70	14.5	55,800	5.28	3.1
096	3200	26	95,700	76,800	6.49	14.7	65,600	6.39	3.0
120	4000	32	123,500	97,600	8.55	14.4	82,100	8.39	2.9
144	4400	35	137,200	108,000	9.83	14.0	91,300	9.71	2.8
168	5600	44	165,800	133,800	11.42	14.5	111,500	10.56	3.1
192	6400	52	191,300	153,600	12.99	14.7	131,200	12.80	3.0
240	8000	64	247,000	195,300	17.09	14.4	164,300	16.78	2.9
288	8800	70	274,400	215,900	19.66	14.0	182,600	19.42	2.8

#### Notes:

Cooling capacity is based on  $80.6^{\circ}F$  db,  $66.2^{\circ}F$  wb  $(27/19^{\circ}C)$  entering air temperature and  $77^{\circ}F$  ( $25^{\circ}C$ ) entering water temperature. Heating capacity is based on  $68^{\circ}F$  ( $20^{\circ}C$ ) entering air temperature and  $32^{\circ}F$  ( $0^{\circ}C$ ) entering water temperature. GPM = Gallons Per Minute, EDB = Entering Dry Bulb ( $^{\circ}F$ ), EWB = Entering Wet Bulb ( $^{\circ}F$ ), EWT = Entering Water Temperature ( $^{\circ}F$ ),  $Q_t$  = Capacity Total (BTUH),  $Q_s$  = Capacity Sensible (BTUH), EER = Energy Efficiency Ratio, COP = Coefficient of Performance

<sup>\*</sup> Please refer to Mammoth's WSHP selection software for accurate performance at the precise entering conditions of your project. The capacity data above is provided using minimum and maximum entering water temperatures as an example only.

# **Application Limits**

# Application Limits – Water Temperature (°F)

	Standar	d Range	Low Temperate	ure Geothermal
	COOLING HEATING		COOLING	HEATING
MINIMUM WATER TEMPERATURE	50 <sup>0</sup> F	50 <sup>0</sup> F	30 <sup>0</sup> F	25 <sup>0</sup> F
MAXIMUM WATER TEMPERATURE	100 <sup>0</sup> F	90 <sup>0</sup> F	110 <sup>0</sup> F	90 <sup>0</sup> F

# Application Limits – Air Temperature (°F)

	Standa	rd Range	Low Temperat	ure Geothermal
	COOLING	HEATING	COOLING	HEATING
MINIMUM AMBIENT AIR TEMPERATURE	50 <sup>0</sup> F	50 <sup>0</sup> F	50 <sup>0</sup> F	50 <sup>0</sup> F
MAXIMUM AMBIENT AIR TEMPERATURE	110 <sup>0</sup> F	110 <sup>0</sup> F	110 <sup>0</sup> F	110 <sup>0</sup> F
MINIMUM ENTERING A IR TEMPERATURE	65 <sup>0</sup> F	60 <sup>0</sup> F	65 <sup>0</sup> F	60 <sup>0</sup> F
MAXIMUM ENTERING AIR TEMPERATURE	100 <sup>0</sup> F	90 <sup>0</sup> F	100 <sup>0</sup> F	90 <sup>0</sup> F



HORIZONTAL M VINTAGE TWIN CIRCUIT SUBMITTAL PACKAGE

084H\_144H\_M\_RH

RIGHT HAND

Mammoth Inc. certifies that it will furnish equipment in accordance with this drawing and specifications, and subject to its published warranty. Purchaser's approval of this drawing signifies that the equipment is acceptable under the provisions of the job specifications. Any change made hereon by any person whomever is subject to acceptance by Mammoth Inc. 13200 Pioneer Trail, Ste 150, Eden Prairie, MN 55347.

#### **General Specifications**

CABINET - Outer casing of G-60 galvanized steel.

REFRIGERANT CIRCUIT - Hermetically sealed 410A circuitry with reversing valve (HP only), TX metering device, and high/low side access valve.

COMPRESSOR - Hermetic type with PSC or three phase motor, overload protection and mounted on neoprene isolators.

AIR COIL - Seamless copper tubes and aluminum fins.

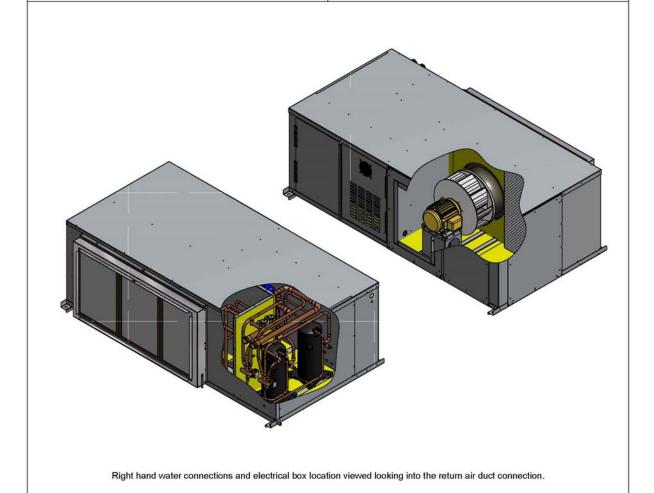
HEAT EXCHANGER - Coaxial water to refrigerant with steel outer tube and convoluted copper inner tube.

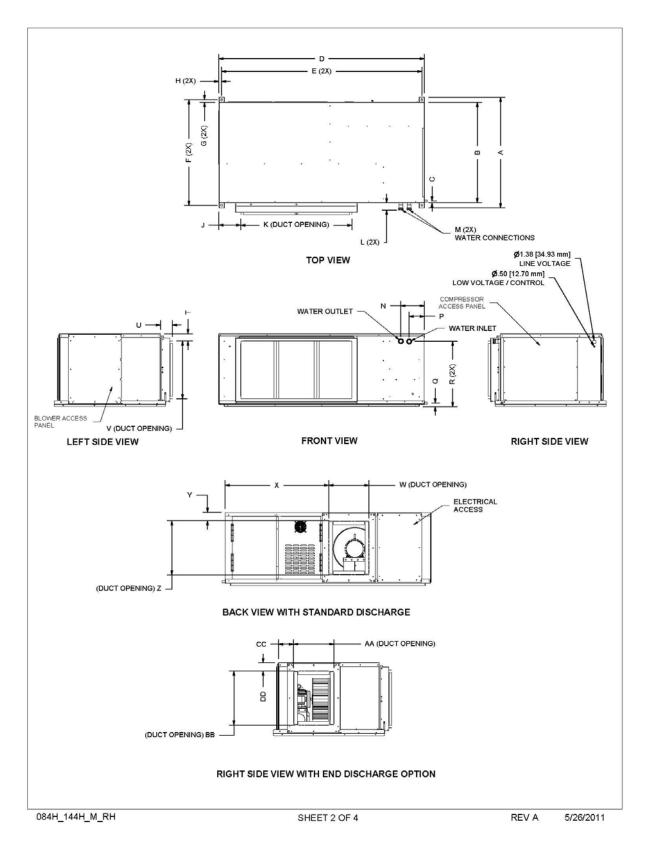
FILTER - 1-inch thick disposable

INSULATION - Thermally and acoustically optimized 3/4 inch thick, 1 1/2 lb. density faced.

FAN - Direct drive, dynamically balanced, airfoil shaped plug fan. FAN MOTOR - Premium efficiency TEAO with sealed, locked bearings, and overload protection.

ELECTRICAL - 24-volt microprocessor control system with fan relay, compressor contactor, reversing valve coil (HP only). CONTROL - Standard CAV operation by field mounted, wall type thermostat. Optional VAV operation with MDDC.





DIMENSION	UNIT SIZE								
INCHES [CM]	084	096	120	144					
Α	44 [111]	44 [111]	44 [111]	44 [111]					
В	40 [101]	40 [101]	40 [101]	40 [101]					
С	.6 [2]	.6 [2]	.6 [2]	.6 [2]					
D	81.5 [207]	81.5 [207]	81.5 [207]	81.5 [207]					
E	79.4 [201.6]	79.4 [201.6]	79.4 [201.6]	79.4 [201.6]					
F	42 [106.7]	42 [106.7]	42 [106.7]	42 [106.7]					
G	1 [2.5]	1 [2.5]	1 [2.5]	1 [2.5]					
Н	1.1 [2.8]	1.1 [2.8]	1.1 [2.8]	1.1 [2.8]					
J	8.8 [22.4]	8.8 [22.4]	6.8 [17.5]	4.6 [11.6]					
K	44 [111.8]	44 [111.8]	50 [127]	56 [142.2]					
L	3 [7.6]	3 [7.6]	3 [7.6]	3 [7.6]					
М	1-1/4 [3.2] FNPT	1-1/4 [3.2] FNPT	1-1/4 [3.2] FNPT	1-1/4 [3.2] FNPT					
N	9.4 [23.9]	9.4 [23.9]	9.4 [23.9]	9.4 [23.9]					
Р	6 [15.2]	6 [15.2]	6 [15.2]	6 [15.2]					
Q	1.4 [3.5]	1.4 [3.5]	1.4 [3.5]	1.4 [3.5]					
R	25.9 [65.7]	25.9 [65.7]	25.9 [65.7]	25.9 [65.7]					
S	29 [73.7]	29 [73.7]	29 [73.7]	29 [73.7]					
Т	2.9 [7.3]	2.9 [7.3]	1.8 [4.7]	1.8 [4.7]					
U	4.8 [12]	4.8 [12]	4.8 [12]	4.8 [12]					
V	23 [58.4]	23 [58.4]	24 [61]	24 [61]					
W	16 [40.6]	16 [40.6]	16 [40.6]	16 [40.6]					
Х	25.6 [65]	25.6 [65]	25.6 [65]	25.6 [65]					
Y	3.3 [8.3]	3.3 [8.3]	3.3 [8.3]	3.3 [8.3]					
Z	21.5 [54.6]	21.5 [54.6]	21.5 [54.6]	21.5 [54.6]					
AA	16 [40.6]	16 [40.6]	16 [40.6]	16 [40.6]					
BB	21.5 [54.6]	21.5 [54.6]	21.5 [54.6]	21.5 [54.6]					
CC	6.8 [17.1]	6.8 [17.1]	6.8 [17.1]	6.8 [17.1]					
DD	3.4 [8.6]	3.4 [8.6]	3.4 [8.6]	3.4 [8.6]					

WEIGHTS	UNIT SIZE							
LBS [Kg]	084	096	120	144				
SHIPPING	970 [440]	970 [440]	1,150 [522]	1,170 [531]				

FILTER SIZE & QTY'S.						
UNIT SIZE	084	096	120	144		
FILTER SIZE	16 x 25 x 1 (3)	16 x 25 x 1 (3)	18-1/4 x 27-1/2 x 1 (3)	18-1/4 x 27-1/2 x 1 (1) 20 x 27-1/5 x 1 (2)		

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Unit Size	Voltage	Compr	essor	Blower Motor HP	Blower Motor FLA	VFD Input Current	Total Amps	Min/Max Voltages	Minimum Circuit Amps	Maximum Overcurrent Protection (MOPD)
084	208-230/60/3	12.2	101	1.5 2	6.9 7.8	10.8	35.2	187/253	38.3	50
084	460/60/3	5.4	44	1.5 2	3 3.4	4.3	15.1	414/506	16.5	25
084	380-415/50/3	5.5	46	1.5	2.5 3.5	4.3	13.1	342/456	16.7	25
084	575/60/3	4.4	34	1.5 2	2.4 2.7	4.3	13.1	518/633	14.2	25
Unit	Veltore	Compr	essor	Blower	Blower	VFD Input	Total	Min/Max	Minimum Circuit	Maximum
Size	Voltage	RLA	LRA	Motor HP	Motor FLA	Current	Amps	Voltages	Amps	Overcurrent Protection (MOPD)
096	208-230/60/3	13	127	1.5 2	6.9 7.8	10.8	36.8	187/253	40.1	60
				3	11	13.9	39.9		43.2	
096	460/60/3	5.5	52	1.5	3 3.4	4.3	15.3	414/506	16.7	25
				3	4.8	5.9	16.9		18.3	
096	380-415/50/3	5.6	43	1.5	2.5 3.5	4.3	15.5	342/456	16.9	25
				3 1.5	5.4 2.4	5.9	17.1		18.5	
096	575/60/3	4.9	33	2	2.7	4.3	13.1	518/633	15.3	25
		0								••
Unit	Voltage	Compr	essor	Blower	Blower	VFD Input	Total	Min/Max	Minimum Circuit	Maximum Overcurrent
Size	Voltage	RLA	LRA	Motor HP	Motor FLA	Current	Amps	Voltages	Amps	Protection (MOPD)
120	208-230/60/3	16.7	127	3 	11 17.5	13.9 24	47.3 57.4	187/253	51.5 61.2	70 80
120	460/60/3	7.2	62	3 5	4.8 7.6	5.9 9.4	20.3	414/506	22.1 25.6	35
120	380-415/50/3	7	51.5	3 5	5.4	5.9 9.4	19.9	342/456	21.7 25.2	30 35
120	575/60/3	5.7	39	3 5	3.9 6.1	4.3	15.7	518/633	17.1 21.6	25 30
Unit	,, ,,	Compr	essor	Blower	Blower	VFD Input	Total	Min/Max	Minimum	Maximum
Size	Voltage	RLA	LRA	Motor HP	Motor FLA	Current	Parent Services	Voltages	Amps	Overcurrent Protection (MOPD)
144	208-230/60/3	19.3	179	3 5	11 17.5	13.9 24	52.5 62.6	187/253	57.3 67.4	80 90
144	460/60/3	8.3	62	3 5	4.8 7.6	5.9 9.4	22.5 26	414/506	24.6 28.1	35 40
4				3	5.4	5.9	22.5		24.6	35
144	380-415/50/3	8.3	64	5	8.6	9.4	26	342/456	28.1	40
144	575/60/3	6.8	50	3	3.9	4.3	17.9	518/633	19.6	30
				5	6.1	9.4	23		24.7	35

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HORIZONTAL M VINTAGE TWIN CIRCUIT w / WATER SIDE ECONOMIZER SUBMITTAL PACKAGE

084H\_144H\_M\_RH\_WSE

RIGHT HAND

Mammoth Inc. certifies that it will furnish equipment in accordance with this drawing and specifications, and subject to its published warranty. Purchaser's approval of this drawing signifies that the equipment is acceptable under the provisions of the job specifications. Any change made hereon by any person whomever is subject to acceptance by Mammoth Inc. 13200 Pioneer Trail, Ste 150, Eden Prairie, MN 55347.

#### General Specifications

CABINET - Outer casing of G-60 galvanized steel.

REFRIGERANT CIRCUIT - Hermetically sealed 410A circuitry with reversing valve (HP only), TX metering device, and high/low side access valve.

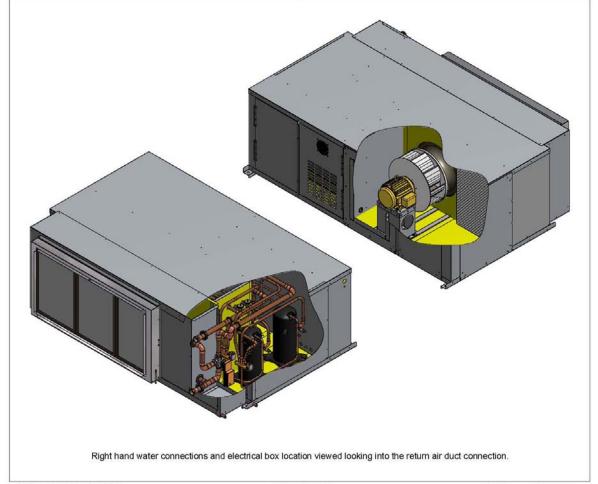
COMPRESSOR - Hermetic type with PSC or three phase motor, overload protection and mounted on neoprene isolators. AIR COIL - Seamless copper tubes and aluminum fins. HEAT EXCHANGER - Coaxial water to refrigerant with steel outer tube and convoluted copper inner tube. FILTER - 1-inch thick disposable

FILTER - 1-inch thick disposable
INSULATION - Thermally and acoustically optimized
3/4 inch thick, 1 1/2 lb. density faced.

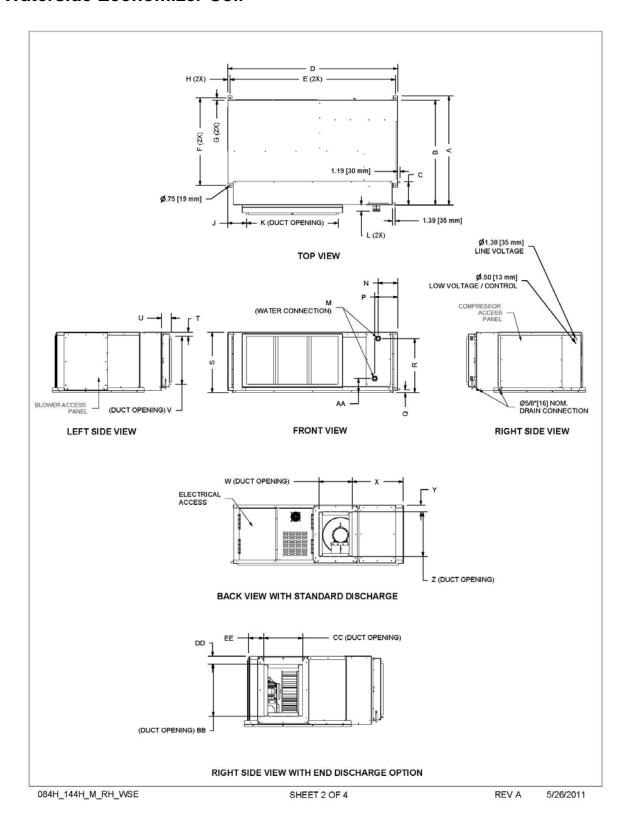
FAN - Direct drive, dynamically balanced, airfoil shaped plug fan.
FAN MOTOR - Premium efficiency TEAO with sealed,
locked bearings, and overload protection.

ELECTRICAL - 24-volt microprocessor control system with
fan relay, compressor contactor, reversing valve coil (HP only).

CONTROL - Standard CAV operation by field mounted,
wall type thermostat. Optional VAV operation with MDDC.



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DIMENSION		UNIT	SIZE	
INCHES [CM]	084	096	120	144
Α	52.3 [132.7]	52.3 [132.7]	52.3 [132.7]	52.3 [132.7]
В	51.3 [130]	51.3 [130]	51.3 [130]	51.3 [130]
С	11 [27.9]	11 [27.9]	11 [27.9]	11 [27.9]
D	81.5 [207]	81.5 [207]	81.5 [207]	81.5 [207]
E	79.4 [201.6]	79.4 [201.6]	79.4 [201.6]	79.4 [201.6]
F	42 [106.7]	42 [106.7]	42 [106.7]	42 [106.7]
G	1 [2.5]	1 [2.5]	1 [2.5]	1 [2.5]
Н	1.1 [2.8]	1.1 [2.8]	1.1 [2.8]	1.1 [2.8]
J	8.8 [22.4]	8.8 [22.4]	9.2 [23.4]	5.5 [14]
K	44 [111.8]	44 [111.8]	50 [127]	56 [142.2]
L	3 [7.6]	3 [7.6]	3 [7.6]	3 [7.6]
М	1-1/4 [3.2] FNPT	1-1/4 [3.2] FNPT	1-1/4 [3.2] FNPT	1-1/4 [3.2] FNPT
N	9.4 [23.9]	9.4 [23.9]	9.4 [23.9]	9.4 [23.9]
Р	11 [27.9]	11 [27.9]	11 [27.9]	11 [27.9]
Q	1.4 [3.5]	1.4 [3.5]	1.4 [3.5]	1.4 [3.5]
R	25.9 [65.7]	25.9 [65.7]	25.9 [65.7]	25.9 [65.7]
S	29 [73.7]	29 [73.7]	29 [73.7]	29 [73.7]
Т	4.7 [11.9]	2.3 [5.8]	1.8 [4.6]	1.8 [4.6]
U	4.7 [11.9]	4.3 [10.9]	5 [12.7]	5 [12.7]
V	23 [58.4]	23 [58.4]	23 [58.4]	23 [58.4]
W	16 [40.6]	16 [40.6]	16 [40.6]	16 [40.6]
X	25.6 [65]	25.6 [65]	25.6 [65]	25.6 [65]
Υ	3.3 [8.3]	3.3 [8.3]	3.3 [8.3]	3.3 [8.3]
Z	21.5 [54.6]	21.5 [54.6]	21.5 [54.6]	21.5 [54.6]
AA	6.8 [17.2]	6.8 [17.2]	6.8 [17.2]	6.8 [17.2]
BB	21.5 [54.6]	21.5 [54.6]	21.5 [54.6]	21.5 [54.6]
CC	16 [40.6]	16 [40.6]	16 [40.6]	16 [40.6]
DD	3.2 [8.1]	3.2 [8.1]	3.2 [8.1]	3.2 [8.1]

WEIGHTS		UNIT	SIZE	
LBS [Kg]	084	096	120	144
SHIPPING	1030 [467]	1230 [556]	1300 [590]	1320 [600]

FILTER SIZE & QTY'S.							
UNIT SIZE	084	096	120	144			
FILTER SIZE	16 x 25 x 1 (3)	16 x 25 x 1 (3)	18-1/4 x 27-1/2 x 1 (3)	18-1/4 x 27-1/2 x 1 (1) 20 x 27-1/5 x 1 (2)			

048H\_144H\_M\_RH\_WSE

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084 084 084	208-230/60/3	RLA	LRA	Blower Motor HP	Blower Motor FLA	VFD Input Current	Total Amps	Min/Max Voltages	Minimum Circuit Amps	Maximum Overcurrent
084		12.2	101	1.5	6.9	10.8	35.2	187/253	38.3	Protection 50
084	460/60/3	5.4	44	2 1.5	7.8 3	4.3	15.1	414/506	16.5	25
1550 15	380-415/50/3	5.5	46	2 1.5	3.4 2.5	4.3	13.1	342/456	16.7	25
084				2 1.5	3.5 2.4		10401-01	100000000000000000000000000000000000000	190704	
	575/60/3	4.4	34	2	2.7	4.3	13.1	518/633	14.2	25
Unit Size	Voltage	Comp	ressor	Blower Motor HP	Blower Motor FLA	VFD Input Current	Total Amps	Min/Max Voltages	Minimum Circuit Amps	Maximum Overcurrent
096	208-230/60/3	13	127	1.5 2	6.9 7.8	10.8	36.8	187/253	40.1	60
				3	11	13.9	39.9		43.2	
096	460/60/3	5.5	52	1.5 2	3.4	4.3	15.3	414/506	16.7	25
				3	4.8	5.9	16.9	When Andrew Helpschafter	18.3	
096	380-415/50/3	5.6	43	1.5 2	2.5 3.5	4.3	15.5	342/456	16.9	25
				3	5.4	5.9	17.1		18.5	
096	575/60/3	4.9	33	1.5	2.4	4.3	13.1	518/633	15.3	25
				3	3.9					
		Comp	ressor	Blower	Blower	VFD Input	Total	Min/Max	Minimum	Maximum
Unit Size	Voltage	RLA	LRA	Motor HP	Motor FLA	Current	Amps	Voltages	Circuit Amps	Overcurrent Protection
120	208-230/60/3	16.7	127	3	11	13.9	47.3	187/253	51.5	70
				5	17.5	24	57.4	V-1/1-0-1	61.2	80
120					4.0	5.0				
120	460/60/3	7.2	62	3	4.8 7.6	5.9	20.3	414/506	22.1	35
120				5	7.6	9.4	23.8	10001000 (CAPA)	22.1 25.6	
	460/60/3 380-415/50/3	7.2	62 51.5					414/506 342/456	22.1	35 30 35
120				5 3 5 3	7.6 5.4 8.6 3.9	9.4 5.9 9.4 4.3	23.8 19.9 23.4 15.7	10001000 to 0000000000000000000000000000	22.1 25.6 21.7 25.2 17.1	30 35 25
120 120	380-415/50/3	7	51.5	5 3 5	7.6 5.4 8.6	9.4 5.9 9.4	23.8 19.9 23.4	342/456	22.1 25.6 21.7 25.2	30 35
120 120 120	380-415/50/3 575/60/3	7 5.7	51.5	5 3 5 3 5	7.6 5.4 8.6 3.9 6.1	9.4 5.9 9.4 4.3 8.8	23.8 19.9 23.4 15.7 20.2	342/456 518/633	22.1 25.6 21.7 25.2 17.1 21.6	30 35 25 30 Maximum
120 120 120	380-415/50/3 575/60/3	7 5.7	51.5 39	5 3 5 3	7.6 5.4 8.6 3.9	9.4 5.9 9.4 4.3	23.8 19.9 23.4 15.7	342/456	22.1 25.6 21.7 25.2 17.1	30 35 25 30 Maximum
120 120 120 Unit Size	380-415/50/3 575/60/3 Voltage	7 5.7 Comp	51.5 39 ressor LRA	5 3 5 3 5 Blower Motor HP	7.6 5.4 8.6 3.9 6.1 Blower Motor FLA	9.4 5.9 9.4 4.3 8.8 VFD Input Current	23.8 19.9 23.4 15.7 20.2 Total Amps 52.5	342/456 518/633 Min/Max Voltages	22.1 25.6 21.7 25.2 17.1 21.6 Minimum Circuit Amps	30 35 25 30 Maximum Overcurrent Protection 80
120 120 120	380-415/50/3 575/60/3	7 5.7 Comp	51.5 39 ressor	5 3 5 3 5 Blower Motor HP 3 5	7.6 5.4 8.6 3.9 6.1 Blower Motor FLA 11 17.5	9.4 5.9 9.4 4.3 8.8 VFD Input Current 13.9 24	23.8 19.9 23.4 15.7 20.2 Total Amps 52.5 62.6	342/456 518/633 Min/Max	22.1 25.6 21.7 25.2 17.1 21.6 Minimum Circuit Amps 57.3 67.4	30 35 25 30 Maximum Overcurrent Protection 80 90
120 120 120 Unit Size	380-415/50/3 575/60/3 Voltage	7 5.7 Comp	51.5 39 ressor LRA	5 3 5 3 5 Blower Motor HP 3 5	7.6 5.4 8.6 3.9 6.1 Blower Motor FLA 11 17.5 4.8	9.4 5.9 9.4 4.3 8.8 VFD Input Current 13.9 24 5.9	23.8 19.9 23.4 15.7 20.2 Total Amps 52.5 62.6 22.5	342/456 518/633 Min/Max Voltages	22.1 25.6 21.7 25.2 17.1 21.6 Minimum Circuit Amps 57.3 67.4 24.6	30 35 25 30 Maximum Overcurrent Protection 80 90 35
120 120 120 Unit Size	380-415/50/3 575/60/3 Voltage 208-230/60/3 460/60/3	7 5.7 Comp RLA 19.3 8.3	51.5 39 ressor LRA 179	5 3 5 3 5 Blower Motor HP 3 5	7.6 5.4 8.6 3.9 6.1 Blower Motor FLA 11 17.5	9.4 5.9 9.4 4.3 8.8 VFD Input Current 13.9 24	23.8 19.9 23.4 15.7 20.2 Total Amps 52.5 62.6	342/456 518/633 Min/Max Voltages 187/253 414/506	22.1 25.6 21.7 25.2 17.1 21.6 Minimum Circuit Amps 57.3 67.4 24.6 28.1 24.6	30 35 25 30 Maximum Overcurrent Protection 80 90
120 120 120 120 Unit Size	380-415/50/3 575/60/3 Voltage 208-230/60/3	7 5.7 Comp RLA 19.3	51.5 39 ressor LRA 179	5 3 5 3 5 5 Blower Motor HP 3 5 3	7.6 5.4 8.6 3.9 6.1 Blower Motor FLA 11 17.5 4.8 7.6	9.4 5.9 9.4 4.3 8.8 VFD Input Current 13.9 24 5.9 9.4	23.8 19.9 23.4 15.7 20.2 Total Amps 52.5 62.6 22.5 26	342/456 518/633 Min/Max Voltages 187/253	22.1 25.6 21.7 25.2 17.1 21.6 Minimum Circuit Amps 57.3 67.4 24.6 28.1	30 35 25 30 Maximum Overcurrent Protection 80 90 35 40

084H\_144H\_M\_RH\_WSE

SHEET 4 OF 4

REV A

5/26/2011



HORIZONTAL M VINTAGE TWIN CIRCUIT SUBMITTAL PACKAGE

084H\_144H\_M\_LH

**LEFT HAND** 

Mammoth Inc. certifies that it will furnish equipment in accordance with this drawing and specifications, and subject to its published warranty. Purchaser's approval of this drawing signifies that the equipment is acceptable under the provisions of the job specifications. Any change made hereon by any person whomever is subject to acceptance by Mammoth Inc. 13200 Pioneer Trail, Ste 150, Eden Prairie, MN 55347.

#### General Specifications

CABINET - Outer casing of G-60 galvanized steel.

REFRIGERANT CIRCUIT - Hermetically sealed 410A circuitry with reversing valve (HP only), TX metering device, and high/low side access valve.

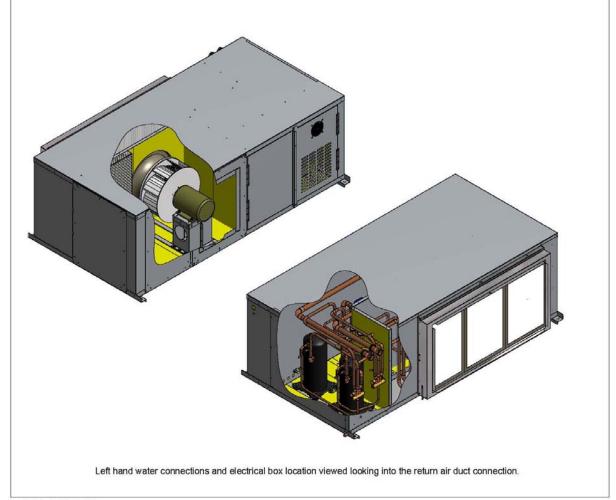
COMPRESSOR - Hermetic type with PSC or three phase motor, overload protection and mounted on neoprene isolators. AIR COIL - Seamless copper tubes and aluminum fins. HEAT EXCHANGER - Coaxial water to refrigerant with steel outer tube and convoluted copper inner tube.

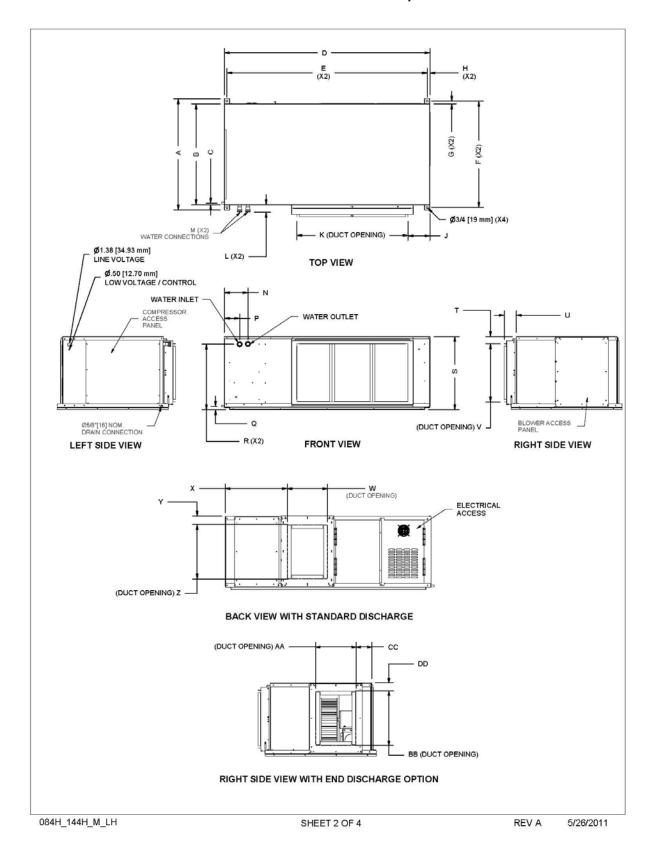
FILTER - 1-inch thick disposable

INSULATION - Thermally and acoustically optimized 3/4 inch thick, 1 1/2 lb. density faced.

FAN - Direct drive, dynamically balanced, airfoil shaped plug fan. FAN MOTOR - Premium efficiency TEAO with sealed, locked bearings, and overload protection.

ELECTRICAL - 24-volt microprocessor control system with fan relay, compressor contactor, reversing valve coil (HP only). CONTROL - Standard CAV operation by field mounted, wall type thermostat. Optional VAV operation with MDDC.





DIMENSION		UNIT	SIZE	
INCHES [CM]	084	096	120	144
Α	44 [111]	44 [111]	44 [111]	44 [111]
В	40 [101]	40 [101]	40 [101]	40 [101]
С	.6 [2]	.6 [2]	.6 [2]	.6 [2]
D	81.5 [207]	81.5 [207]	81.5 [207]	81.5 [207]
E	79.4 [201.6]	79.4 [201.6]	79.4 [201.6]	79.4 [201.6]
F	42 [106.7]	42 [106.7]	42 [106.7]	42 [106.7]
G	1 [2.5]	1 [2.5]	1 [2.5]	1 [2.5]
Н	1.1 [2.8]	1.1 [2.8]	1.1 [2.8]	1.1 [2.8]
J	8.8 [22.4]	8.8 [22.4]	6.8 [17.5]	4.6 [11.6]
K	44 [111.8]	44 [111.8]	50 [127]	56 [142.2]
L	3 [7.6]	3 [7.6]	3 [7.6]	3 [7.6]
М	1-1/4 [3.2] FNPT	1-1/4 [3.2] FNPT	1-1/4 [3.2] FNPT	1-1/4 [3.2] FNPT
N	9.4 [23.9]	9.4 [23.9]	9.4 [23.9]	9.4 [23.9]
Р	6 [15.2]	6 [15.2]	6 [15.2]	6 [15.2]
Q	1.4 [3.5]	1.4 [3.5]	1.4 [3.5]	1.4 [3.5]
R	25.9 [65.7]	25.9 [65.7]	25.9 [65.7]	25.9 [65.7]
S	29 [73.7]	29 [73.7]	29 [73.7]	29 [73.7]
Т	2.9 [7.3]	2.9 [7.3]	1.8 [4.7]	1.8 [4.7]
U	4.8 [12]	4.8 [12]	4.8 [12]	4.8 [12]
V	23 [58.4]	23 [58.4]	24 [61]	24 [61]
W	16 [40.6]	16 [40.6]	16 [40.6]	16 [40.6]
X	25.6 [65]	25.6 [65]	25.6 [65]	25.6 [65]
Υ	3.3 [8.3]	3.3 [8.3]	3.3 [8.3]	3.3 [8.3]
Z	21.5 [54.6]	21.5 [54.6]	21.5 [54.6]	21.5 [54.6]
AA	16 [40.6]	16 [40.6]	16 [40.6]	16 [40.6]
BB	21.5 [54.6]	21.5 [54.6]	21.5 [54.6]	21.5 [54.6]
CC	6.8 [17.1]	6.8 [17.1]	6.8 [17.1]	6.8 [17.1]
DD	3.4 [8.6]	3.4 [8.6]	3.4 [8.6]	3.4 [8.6]

WEIGHTS	UNIT SIZE					
LBS [Kg]	084	096	120	144		
SHIPPING	970 [440]	970 [440]	1,150 [522]	1,170 [531]		

	FILTER SIZE & QTY'S.						
UNIT SIZE	084	096	120	144			
FILTER SIZE	16 x 25 x 1 (3)	16 x 25 x 1 (3)	18-1/4 x 27-1/2 x 1 (3)	18-1/4 x 27-1/2 x 1 (1) 20 x 27-1/5 x 1 (2)			

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Unit	Voltage	Comp	ressor	Blower Motor	Blower Motor	VFD Input	Total	Min/Max	Minimum Circuit	Maximum Overcurrent
Size	Voltage	RLA	LRA	HP	FLA	Current	Amps	Voltages	Amps	Protection (MOPD
084	208-230/60/3	12.2	101	1.5 2	6.9 7.8	10.8	35.2	187/253	38.3	50
084	460/60/3	5.4	44	1.5	3 3.4	4.3	15.1	414/506	16.5	25
084	380-415/50/3	5.5	46	1.5	2.5 3.5	4.3	13.1	342/456	16.7	25
084	575/60/3	4.4	34	1.5 2	2.4 2.7	4.3	13.1	518/633	14.2	25
Unit				Blower	Blower	VFD Input	Total	Min/Max	Minimum	Maximum
Size	Voltage		ressor	Motor	Motor	Current	Amps	Voltages	Circuit	Overcurrent
Size		RLA	LRA	HP	FLA	Current	Allips	Voltages	Amps	Protection (MOPD)
096	208-230/60/3	13	127	1.5 2	6.9 7.8	10.8	36.8	187/253	40.1	60
		8.5		3	11	13.9	39.9		43.2	
096	460/60/3	5.5	52	1.5	3 3.4	4.3	15.3	414/506	16.7	25
000	100/00/0	0.0	02	3	4.8	5.9	16.9	11 2000	18.3	- <del> </del>
				1.5	2.5			342/456	1	
096	380-415/50/3	5.6	43	2	3.5	4.3	15.5		16.9	25
				3	5.4	5.9	17.1		18.5	
				1.5	2.4					
096	575/60/3	4.9	33	2	2.7	4.3	13.1	518/633	15.3	25
				3	3.9					
Unit	0.000	Comm	raccar	Blower	Blower	VFD Input	Total	Min/Max	Minimum	Maximum
Size	Voltage	•	ressor	Motor	Motor	Current	Amps	Voltages	Circuit	Overcurrent
Size		RLA	LRA	HP	FLA	Ourient	Ampa	voltages	Amps	Protection (MOPD)
			407	3	11	13.9	47.3	187/253	51.5	70
120	208-230/60/3	16.7					57.4	10//255	61.2	80
120	208-230/60/3	16.7	127	5	17.5	24				
99.0.40000	10-07-080-090-1 Out-04-010-080-100-04		1 100,073,04	3	4.8	5.9	20.3	414/506	22.1	35
120 120	208-230/60/3 460/60/3	16.7 7.2	62	3 5	4.8 7.6	5.9 9.4	20.3 23.8	414/506	25.6	35
99.0.40000	10-07-080-090-1 Out-04-010-080-100-04		1 100,073,04	3 5 3	4.8 7.6 5.4	5.9 9.4 5.9	20.3 23.8 19.9	414/506 342/456	25.6 21.7	30
120	460/60/3	7.2	62	3 5 3 5	4.8 7.6 5.4 8.6	5.9 9.4 5.9 9.4	20.3 23.8 19.9 23.4	342/456	25.6 21.7 25.2	30 35
120	460/60/3	7.2	62	3 5 3	4.8 7.6 5.4	5.9 9.4 5.9	20.3 23.8 19.9		25.6 21.7	30
120 120 120	460/60/3 380-415/50/3	7.2 7 5.7	62 51.5 39	3 5 3 5 3 5	4.8 7.6 5.4 8.6 3.9 6.1	5.9 9.4 5.9 9.4 4.3 8.8	20.3 23.8 19.9 23.4 15.7 20.2	342/456 · 518/633 ·	25.6 21.7 25.2 17.1 21.6	30 35 25 30
120 120 120 Unit	460/60/3 380-415/50/3 575/60/3	7.2 7 5.7	62 51.5	3 5 3 5 3	4.8 7.6 5.4 8.6 3.9	5.9 9.4 5.9 9.4 4.3 8.8	20.3 23.8 19.9 23.4 15.7 20.2	342/456 - 518/633 - Min/Max	25.6 21.7 25.2 17.1	30 35 25
120 120 120 Unit	460/60/3 380-415/50/3	7.2 7 5.7	62 51.5 39	3 5 3 5 3 5	4.8 7.6 5.4 8.6 3.9 6.1	5.9 9.4 5.9 9.4 4.3 8.8	20.3 23.8 19.9 23.4 15.7 20.2	342/456 · 518/633 ·	25.6 21.7 25.2 17.1 21.6 <b>Minimum</b>	30 35 25 30 <b>Maximum</b>
120 120 120 Unit Size	460/60/3 380-415/50/3 575/60/3 Voltage	7.2 7 5.7 Comp	62 51.5 39 ressor LRA	3 5 3 5 3 5 5 Blower Motor HP	4.8 7.6 5.4 8.6 3.9 6.1 Blower Motor FLA	5.9 9.4 5.9 9.4 4.3 8.8 VFD Input Current	20.3 23.8 19.9 23.4 15.7 20.2 <b>Total</b> Amps	342/456 · 518/633 · Min/Max Voltages	25.6 21.7 25.2 17.1 21.6 Minimum Circuit Amps	30 35 25 30 Maximum Overcurrent Protection (MOPD)
120 120 120 Unit	460/60/3 380-415/50/3 575/60/3	7.2 7 5.7 Comp	62 51.5 39	3 5 3 5 3 5 Blower Motor	4.8 7.6 5.4 8.6 3.9 6.1 Blower Motor FLA	5.9 9.4 5.9 9.4 4.3 8.8	20.3 23.8 19.9 23.4 15.7 20.2	342/456 - 518/633 - Min/Max	25.6 21.7 25.2 17.1 21.6 Minimum Circuit	30 35 25 30 Maximum Overcurrent
120 120 120 Unit Size	460/60/3 380-415/50/3 575/60/3  Voltage 208-230/60/3	7.2 7 5.7 Comp RLA 19.3	62 51.5 39 ressor LRA 179	3 5 3 5 3 5 5 <b>Blower</b> <b>Motor</b> <b>HP</b> 3 5	4.8 7.6 5.4 8.6 3.9 6.1 Blower Motor FLA	5.9 9.4 5.9 9.4 4.3 8.8 <b>VFD Input</b> <b>Current</b>	20.3 23.8 19.9 23.4 15.7 20.2 <b>Total</b> Amps	342/456 - 518/633 - Min/Max Voltages 187/253 -	25.6 21.7 25.2 17.1 21.6 Minimum Circuit Amps 57.3	30 35 25 30 Maximum Overcurrent Protection (MOPD
120 120 120 Unit Size	460/60/3 380-415/50/3 575/60/3 Voltage	7.2 7 5.7 Comp	62 51.5 39 ressor LRA	3 5 3 5 3 5 8 Blower Motor HP 3 5	4.8 7.6 5.4 8.6 3.9 6.1 Blower Motor FLA 11 17.5 4.8 7.6	5.9 9.4 5.9 9.4 4.3 8.8 <b>VFD Input</b> <b>Current</b> 13.9 24 5.9 9.4	20.3 23.8 19.9 23.4 15.7 20.2 Total Amps 52.5 62.6 22.5 26	342/456 · 518/633 · Min/Max Voltages	25.6 21.7 25.2 17.1 21.6 Minimum Circuit Amps 57.3 67.4 24.6 28.1	30 35 25 30 Maximum Overcurrent Protection (MOPD 80 90 35 40
120 120 120 Unit Size 144 144	460/60/3 380-415/50/3 575/60/3  Voltage 208-230/60/3 460/60/3	7.2 7 5.7 <b>Comp</b> <b>RLA</b> 19.3 8.3	62 51.5 39 ressor LRA 179 62	3 5 3 5 3 5 8 Blower Motor HP 3 5 3	4.8 7.6 5.4 8.6 3.9 6.1 Blower Motor FLA 11 17.5 4.8 7.6 5.4	5.9 9.4 5.9 9.4 4.3 8.8 <b>VFD Input</b> <b>Current</b> 13.9 24 5.9 9.4 5.9	20.3 23.8 19.9 23.4 15.7 20.2 Total Amps 52.5 62.6 22.5 26 22.5	342/456 - 518/633 - Min/Max Voltages 187/253 - 414/506 -	25.6 21.7 25.2 17.1 21.6 Minimum Circuit Amps 57.3 67.4 24.6 28.1 24.6	30 35 25 30 Maximum Overcurrent Protection (MOPD 80 90 35 40 35
120 120 120 Unit Size	460/60/3 380-415/50/3 575/60/3  Voltage 208-230/60/3	7.2 7 5.7 Comp RLA 19.3	62 51.5 39 ressor LRA 179	3 5 3 5 3 5 8 8 8 8 8 9 8 9 9 9 9 9 9 9 9 9 9 9 9	4.8 7.6 5.4 8.6 3.9 6.1 Blower Motor FLA 11 17.5 4.8 7.6 5.4 8.6	5.9 9.4 5.9 9.4 4.3 8.8 <b>VFD Input</b> <b>Current</b> 13.9 24 5.9 9.4 5.9 9.4	20.3 23.8 19.9 23.4 15.7 20.2 Total Amps 52.5 62.6 22.5 26 22.5 26	342/456 - 518/633 - Min/Max Voltages 187/253 -	25.6 21.7 25.2 17.1 21.6 Minimum Circuit Amps 57.3 67.4 24.6 28.1 24.6 28.1	30 35 25 30 Maximum Overcurrent Protection (MOPD 80 90 35 40 35 40
120 120 120 Unit Size 144 144	460/60/3 380-415/50/3 575/60/3  Voltage 208-230/60/3 460/60/3	7.2 7 5.7 <b>Comp</b> <b>RLA</b> 19.3 8.3	62 51.5 39 ressor LRA 179 62	3 5 3 5 3 5 8 Blower Motor HP 3 5 3	4.8 7.6 5.4 8.6 3.9 6.1 Blower Motor FLA 11 17.5 4.8 7.6 5.4	5.9 9.4 5.9 9.4 4.3 8.8 <b>VFD Input</b> <b>Current</b> 13.9 24 5.9 9.4 5.9	20.3 23.8 19.9 23.4 15.7 20.2 Total Amps 52.5 62.6 22.5 26 22.5	342/456 - 518/633 - Min/Max Voltages 187/253 - 414/506 -	25.6 21.7 25.2 17.1 21.6 Minimum Circuit Amps 57.3 67.4 24.6 28.1 24.6	30 35 25 30 Maximum Overcurrent Protection (MOPD 80 90 35 40 35



**HORIZONTAL M VINTAGE** TWIN CIRCUIT w / WATER SIDE ECONOMIZER SUBMITTAL PACKAGE

084H 144H M LH WSE

LEFT HAND

Mammoth Inc. certifies that it will furnish equipment in accordance with this drawing and specifications, and subject to its published warranty. Purchaser's approval of this drawing signifies that the equipment is acceptable under the provisions of the job specifications. Any change made hereon by any person whomever is subject to acceptance by Mammoth Inc. 13200 Pioneer Trail, Ste 150, Eden Prairie, MN 55347.

#### **General Specifications**

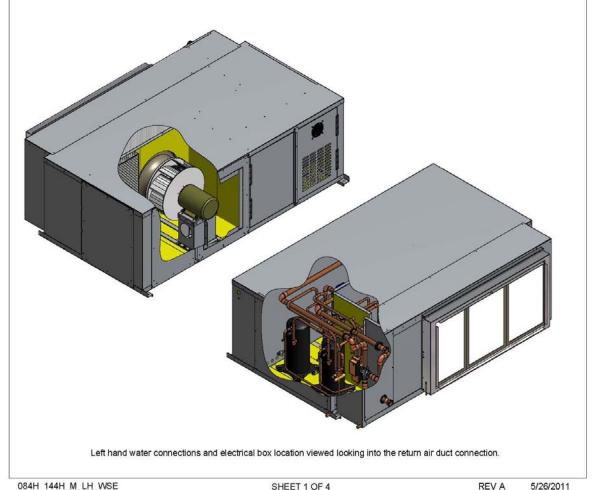
CABINET - Outer casing of G-60 galvanized steel. REFRIGERANT CIRCUIT - Hermetically sealed 410A circuitry with reversing valve (HP only), TX metering device, and high/low side access valve.

COMPRESSOR - Hermetic type with PSC or three phase motor, overload protection and mounted on neoprene isolators. AIR COIL - Seamless copper tubes and aluminum fins. HEAT EXCHANGER - Coaxial water to refrigerant with steel outer tube and convoluted copper inner tube.

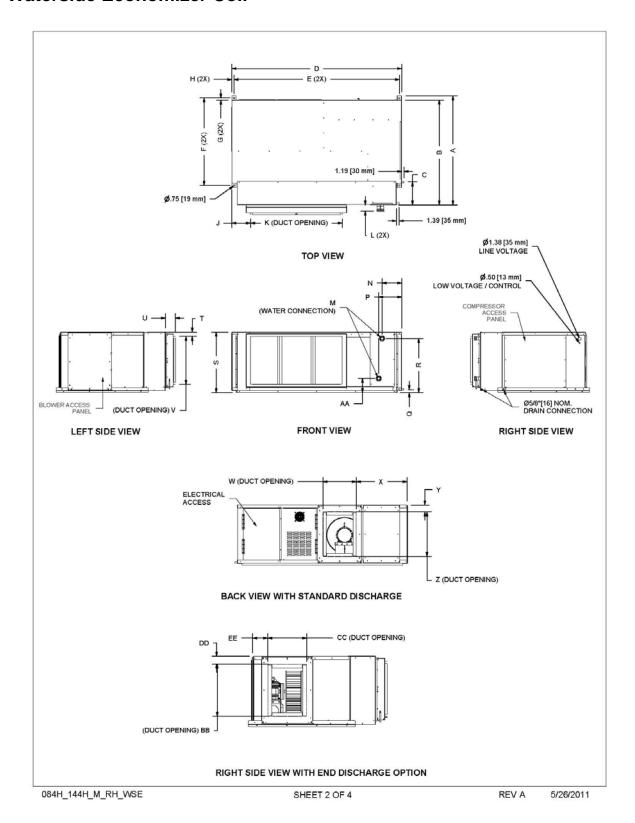
FILTER - 1-inch thick disposable INSULATION - Thermally and acoustically optimized 3/4 inch thick, 1 1/2 lb. density faced.

FAN - Direct drive, dynamically balanced, airfoil shaped plug fan. FAN MOTOR - Premium efficiency TEAO with sealed, locked bearings, and overload protection. ELECTRICAL - 24-volt microprocessor control system with

fan relay, compressor contactor, reversing valve coil (HP only). CONTROL - Standard CAV operation by field mounted, wall type thermostat. Optional VAV operation with MDDC.



084H 144H M LH WSE SHEET 1 OF 4 REV A



DIMENSION		UNIT	SIZE	
INCHES [CM]	084	096	120	144
Α	52.3 [132.7]	52.3 [132.7]	52.3 [132.7]	52.3 [132.7]
В	51.3 [130]	51.3 [130]	51.3 [130]	51.3 [130]
С	11 [27.9]	11 [27.9]	11 [27.9]	11 [27.9]
D	81.5 [207]	81.5 [207]	81.5 [207]	81.5 [207]
E	79.4 [201.6]	79.4 [201.6]	79.4 [201.6]	79.4 [201.6]
F	42 [106.7]	42 [106.7]	42 [106.7]	42 [106.7]
G	1 [2.5]	1 [2.5]	1 [2.5]	1 [2.5]
Н	1.1 [2.8]	1.1 [2.8]	1.1 [2.8]	1.1 [2.8]
J	8.8 [22.4]	8.8 [22.4]	9.2 [23.4]	5.5 [14]
K	44 [111.8]	44 [111.8]	50 [127]	56 [142.2]
L	3 [7.6]	3 [7.6]	3 [7.6]	3 [7.6]
М	1-1/4 [3.2] FNPT	1-1/4 [3.2] FNPT	1-1/4 [3.2] FNPT	1-1/4 [3.2] FNPT
N	9.4 [23.9]	9.4 [23.9]	9.4 [23.9]	9.4 [23.9]
Р	11 [27.9]	11 [27.9]	11 [27.9]	11 [27.9]
Q	1.4 [3.5]	1.4 [3.5]	1.4 [3.5]	1.4 [3.5]
R	25.9 [65.7]	25.9 [65.7]	25.9 [65.7]	25.9 [65.7]
S	29 [73.7]	29 [73.7]	29 [73.7]	29 [73.7]
T	4.7 [11.9]	2.3 [5.8]	1.8 [4.6]	1.8 [4.6]
U	4.7 [11.9]	4.3 [10.9]	5 [12.7]	5 [12.7]
V	23 [58.4]	23 [58.4]	23 [58.4]	23 [58.4]
W	16 [40.6]	16 [40.6]	16 [40.6]	16 [40.6]
X	25.6 [65]	25.6 [65]	25.6 [65]	25.6 [65]
Υ	3.3 [8.3]	3.3 [8.3]	3.3 [8.3]	3.3 [8.3]
Z	21.5 [54.6]	21.5 [54.6]	21.5 [54.6]	21.5 [54.6]
AA	6.8 [17.2]	6.8 [17.2]	6.8 [17.2]	6.8 [17.2]
BB	21.5 [54.6]	21.5 [54.6]	21.5 [54.6]	21.5 [54.6]
CC	16 [40.6]	16 [40.6]	16 [40.6]	16 [40.6]
DD	3.2 [8.1]	3.2 [8.1]	3.2 [8.1]	3.2 [8.1]

١	WEIGHTS		UNIT	SIZE	
l	LBS [Kg]	084	096	120	144
	SHIPPING	1030 [467]	1230 [556]	1300 [590]	1320 [600]

FILTER SIZE & QTY'S.										
UNIT SIZE	084	096	120	144						
FILTER SIZE	16 x 25 x 1 (3)	16 x 25 x 1 (3)	18-1/4 x 27-1/2 x 1 (3)	18-1/4 x 27-1/2 x 1 (1) 20 x 27-1/5 x 1 (2)						

	Voltage	Comp	LRA	Blower Motor HP	Blower Motor FLA	VFD Input Current	Total Amps	Min/Max Voltages	Minimum Circuit	Maximum Overcurren
084	208-230/60/3	12.2	101	1.5	6.9 7.8	10.8	35.2	187/253	Amps 38.3	Protection 50
084	460/60/3	5.4	44	1.5	3 3.4	4.3	15.1	414/506	16.5	25
084	380-415/50/3	5.5	46	1.5	2.5	4.3	13.1	342/456	16.7	25
084	575/60/3	4.4	34	1.5	2.4	4.3	13.1	518/633	14.2	25
Unit Size		Compressor						22222222222	Minimum	Maximum
	Voltage	RLA	LRA	Blower Motor HP	Blower Motor FLA	VFD Input Current	Total Amps	Min/Max Voltages	Circuit Amps	Overcurren
096	208-230/60/3	13	127	1.5	6.9 7.8	10.8	36.8	187/253	40.1	60
				3	11	13.9	39.9		43.2	
096	460/60/3	5.5	52	1.5	3.4	4.3	15.3	414/506	16.7	25
				3	4.8	5.9	16.9		18.3	
096	380-415/50/3	5.6	43	1.5	2.5 3.5	4.3	15.5	342/456	16.9	25
	1			1.5	5.4 2.4	5.9	17.1		18.5	
096	575/60/3	4.9	33	2	2.7	4.3	13.1	518/633	15.3	25
					5.5					
Unit Size	Voltage	Compressor RLA LRA		Blower Motor HP	Blower Motor FLA	VFD Input Current	Total Amps	Min/Max Voltages	Minimum Circuit	Maximum Overcurren
		NEA	LNA				47.0		Amps	Protection
	200 200/00/0	407	127	3	11	13.9	47.3	187/253	51.5	70
120	208-230/60/3	16.7	121	5	17.5	24	1 57.4 1	1011200	61.2	80
120	460/60/3	7.2	62	5 3	17.5 4.8	5.9	57.4 20.3	414/506	22.1	- 35
120	460/60/3	7.2	62	3 5	4.8 7.6	5.9 9.4	20.3 23.8	414/506	22.1 25.6	35
			87856	3 5 3 5	4.8 7.6 5.4 8.6	5.9 9.4 5.9 9.4	20.3 23.8 19.9 23.4		22.1 25.6 21.7 25.2	35 30 35
120	460/60/3	7.2	62	3 5 3	4.8 7.6 5.4	5.9 9.4 5.9	20.3 23.8 19.9	414/506	22.1 25.6 21.7	- 35 30
120 120	460/60/3 380-415/50/3	7.2 7 5.7	62 51.5 39	3 5 3 5 3	4.8 7.6 5.4 8.6 3.9	5.9 9.4 5.9 9.4 4.3	20.3 23.8 19.9 23.4 15.7	414/506 342/456	22.1 25.6 21.7 25.2 17.1 21.6	35 30 35 25 30
120 120	460/60/3 380-415/50/3	7.2 7 5.7 Comp	62 51.5 39	3 5 3 5 3 5	4.8 7.6 5.4 8.6 3.9 6.1	5.9 9.4 5.9 9.4 4.3 8.8	20.3 23.8 19.9 23.4 15.7	414/506 342/456 518/633 Min/Max	22.1 25.6 21.7 25.2 17.1	35 30 35 25
120 120 120	460/60/3 380-415/50/3 575/60/3	7.2 7 5.7	62 51.5 39	3 5 3 5 3 5 5 Blower Motor HP	4.8 7.6 5.4 8.6 3.9 6.1 Blower Motor FLA	5.9 9.4 5.9 9.4 4.3 8.8 VFD Input Current	20.3 23.8 19.9 23.4 15.7 20.2	414/506 342/456 518/633	22.1 25.6 21.7 25.2 17.1 21.6 Minimum Circuit Amps	35 30 35 25 30 Maximum Overcurrer Protection
120 120 120	460/60/3 380-415/50/3 575/60/3	7.2 7 5.7 Comp	62 51.5 39	3 5 3 5 3 5 5 Motor HP	4.8 7.6 5.4 8.6 3.9 6.1 Blower Motor FLA	5.9 9.4 5.9 9.4 4.3 8.8 VFD Input Current 13.9	20.3 23.8 19.9 23.4 15.7 20.2 Total Amps	414/506 342/456 518/633 Min/Max	22.1 25.6 21.7 25.2 17.1 21.6 Minimum Circuit Amps 57.3	35 30 35 25 30 Maximum Overcurrer Protection 80
120 120 120 Unit Size	460/60/3 380-415/50/3 575/60/3 Voltage 208-230/60/3	7.2 7 5.7 Comp RLA 19.3	62 51.5 39 ressor LRA 179	3 5 3 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	4.8 7.6 5.4 8.6 3.9 6.1 Blower Motor FLA 11 17.5 4.8	5.9 9.4 5.9 9.4 4.3 8.8 VFD Input Current 13.9 24 5.9	20.3 23.8 19.9 23.4 15.7 20.2 Total Amps 52.5 62.6 22.5	414/506 342/456 518/633 Min/Max Voltages 187/253	22.1 25.6 21.7 25.2 17.1 21.6 Minimum Circuit Amps 57.3 67.4 24.6	35 30 35 25 30 Maximum Overcurrer Protection 80 90 35
120 120 120 Unit Size	460/60/3 380-415/50/3 575/60/3 Voltage	7.2 7 5.7 Comp	62 51.5 39	3 5 3 5 5 Blower Motor HP 3 5 5 3 5 5	4.8 7.6 5.4 8.6 3.9 6.1 Blower Motor FLA 11 17.5 4.8 7.6	5.9 9.4 5.9 9.4 4.3 8.8 VFD Input Current 13.9 24 5.9 9.4	20.3 23.8 19.9 23.4 15.7 20.2 Total Amps 52.5 62.6 22.5 26	414/506 342/456 518/633 Min/Max Voltages	22.1 25.6 21.7 25.2 17.1 21.6 Minimum Circuit Amps 57.3 67.4 24.6 28.1	35 30 35 25 30 Maximum Overcurrer Protection 80 90 35
120 120 120 Unit Size	460/60/3 380-415/50/3 575/60/3 Voltage 208-230/60/3	7.2 7 5.7 Comp RLA 19.3	62 51.5 39 ressor LRA 179	3 5 3 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	4.8 7.6 5.4 8.6 3.9 6.1 Blower Motor FLA 11 17.5 4.8	5.9 9.4 5.9 9.4 4.3 8.8 VFD Input Current 13.9 24 5.9	20.3 23.8 19.9 23.4 15.7 20.2 Total Amps 52.5 62.6 22.5	414/506 342/456 518/633 Min/Max Voltages 187/253	22.1 25.6 21.7 25.2 17.1 21.6 Minimum Circuit Amps 57.3 67.4 24.6	35 30 35 25 30 Maximum Overcurrer Protection 80 90 35



VERTICAL M VINTAGE TWIN CIRCUIT SUBMITTAL PACKAGE

084V\_144V\_M\_RH

RIGHT HAND

Mammoth Inc. certifies that it will furnish equipment in accordance with this drawing and specifications, and subject to its published warranty. Purchaser's approval of this drawing signifies that the equipment is acceptable under the provisions of the job specifications. Any change made hereon by any person whomever is subject to acceptance by Mammoth Inc. 13200 Pioneer Trail, Ste 150, Eden Prairie, MN 55347.

#### General Specifications

CABINET - Outer casing of G-60 galvanized steel.

REFRIGERANT CIRCUIT - Hermetically sealed 410A circuitry with reversing valve (HP only), TX metering device, and high/low side access valve.

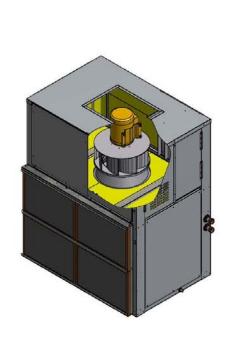
COMPRESSOR - Hermetic type with PSC or three phase motor, overload protection and mounted on neoprene isolators. AIR COIL - Seamless copper tubes and aluminum fins. HEAT EXCHANGER - Coaxial water to refrigerant with steel outer tube and convoluted copper inner tube.

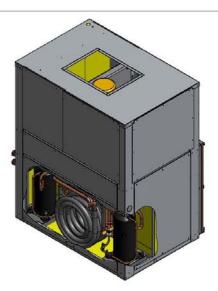
FILTER - 1-inch thick disposable

INSULATION - Thermally and acoustically optimized 3/4 inch thick, 1 1/2 lb. density faced.

FAN - Direct drive, dynamically balanced, airfoil shaped plug fan. FAN MOTOR - Premium efficiency TEAO with sealed, locked bearings, and overload protection.

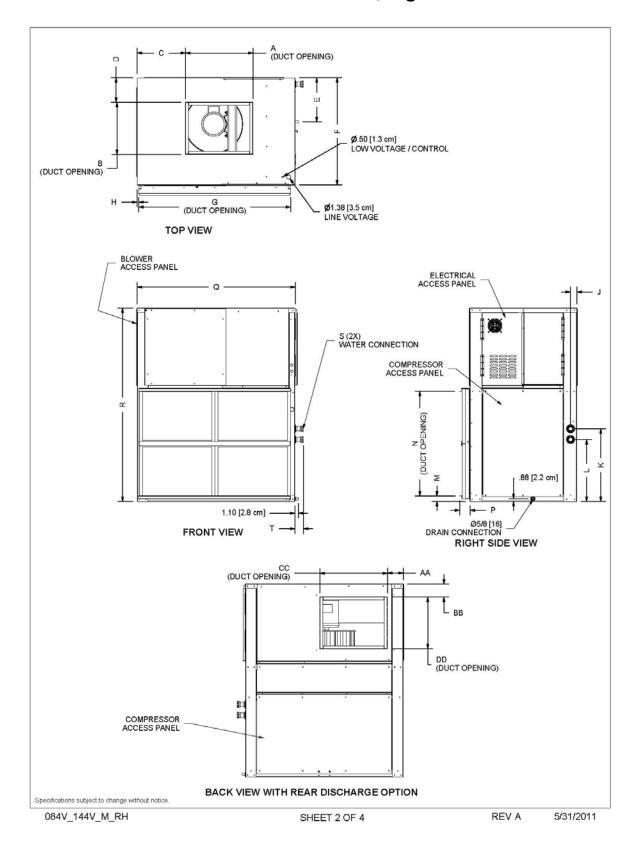
ELECTRICAL - 24-volt microprocessor control system with fan relay, compressor contactor, reversing valve coil (HP only). CONTROL - Standard CAV operation by field mounted, wall type thermostat. Optional VAV operation with MDDC.





Right hand water connections and electrical box location viewed looking into the return air duct connection.

084V\_144V\_M\_RH SHEET 1 OF 4 REV A 5/31/2011



DIMENSIONS		UNIT	SIZE	
INCH [CM]	084	096	120	144
Α	22 [55.9]	22 [55.9]	22 [55.9]	22 [55.9]
В	17 [43.2]	17 [43.2]	17 [43.2]	17 [43.2]
С	15.8 [40]	15.8 [40]	15.8 [40]	15.8 [40]
D	8 [20.3]	8 [20.3]	8 [20.3]	8 [20.3]
E	14.4 [36.6]	14.4 [36.6]	14.4 [36.6]	14.4 [36.6]
F	35 [89]	35 [89]	35 [89]	35 [89]
G	49.5 [125.7]	49.5 [125.7]	49.5 [125.7]	49.5 [125.7]
Н	1.5 [3.8]	1.5 [3.8]	1.5 [3.8]	1.5 [3.8]
J	2.1 [5.4]	2.1 [5.4]	2.1 [5.4]	2.1 [5.4]
K	23.8 [60.5]	23.8 [60.5]	23.8 [60.5]	23.8 [60.5]
L	20.3 [51.6]	20.3 [51.6]	20.3 [51.6]	20.3 [51.6]
М	1.8 [4.6]	1.8 [4.6]	1.8 [4.6]	1.8 [4.6]
N	24 [61]	24 [61]	34.2 [86.9]	34.2 [86.9]
Р	2.6 [6.6]	2.6 [6.6]	1.8 [4.4]	1.8 [4.4]
Q	51.5 [130.8]	51.5 [130.8]	51.5 [130.8]	51.5 [130.8]
R	63 [160]	63 [160]	63 [160]	63 [160]
S	1-1/4 [3.2]FNPT	1-1/4 [3.2]FNPT	1-1/4 [3.2]FNPT	1-1/4 [3.2]FNPT
T	2.4 [6]	2.4 [6]	2.4 [6]	2.4 [6]
AA	6.6 [16.8]	6.6 [16.8]	6.6 [16.8]	6.6 [16.8]
BB	4.3 [10.8]	4.3 [10.8]	4.3 [10.8]	4.3 [10.8]
СС	22 [55.9]	22 [55.9]	22 [55.9]	22 [55.9]
DD	17 [43.2]	17 [43.2]	17 [43.2]	17 [43.2]

	FILTE	R SIZE &	QTY'S.	
UNIT SIZE	084	096	120	144
FILTER SIZE	25 X 25 X 1 (2)	16 x 25 x 1 (3)	18 x 25 x 1 (4)	18 x 25 x 1 (4)

WEIGHTS		UNIT	SIZE	
Lbs [Kg]	084	096	120	144
SHIPPING	950 [431]	990 [450]	1060 [481]	1090 [495]

084V\_144V\_M\_RH SHEET 3 OF 4 REV A 5/31/2011

Unit Size	Voltage .	Comp	ressor	Blower Motor HP	<b>⊟ower</b> Motor FLA	VFD Input Current	Total Amps	Min/Max Voltages	Minimum Circuit Amps	Maximum Overcurrent Protection (M OPD)
084	208-230/60/3	12.2	101	1.5	6.9	10.8	35.2	187/253	38.3	50
1-210121	the second secon	12.1110.24		2	7.8			ASSAULT CONTROL OF THE CONTROL OF TH	V. Alexandria	1
084	460/60/3	5.4	44	1.5	3.4	4.3	15.1	414/506	16.5	25
			_	1.5	2.5			_		
084	380-415/50/3	5.5	46	2	3.5	4.3	13.1	342/456	16.7	25
				1.5	2.4					
084	575/60/3	4.4	34	2	2.7	4.3	13.1	518/633	14.2	25
Unit	Voltage	Comp	ressor	Blower	Bower	VFD Input	Total	Min/Max	Minimum	Maximum Overcurren
Size	Voltage	RLA	LRA	Motor HP	Motor FLA	Current	Amps	Voltages	Circuit Amps	Protection (M OPD)
Lanes		820	822	1.5	6.9	10.8	36.8		40.1	128
096	208-230/60/3	13	127	2	7.8			187/253		60
			_	3	11	13.9	39.9		43.2	
096	460/60/3	5.5	52	1.5	3	4.3	15.3	414/506	16.7	25
080	400/00/3	5.5	32	3	3.4 4.8	5.9	16.9	414/300	18.3	23
	9			1.5	2.5	1-1/201	185-5%		0.0000000000000000000000000000000000000	1
096	380-415/50/3	5.6	43	2	3.5	4.3	15.5	342/456	16.9	25
				3	5.4	5.9	17.1		18.5	
				1.5	2.4	1 100100				
096	575/60/3	4.9	33	2	2.7	4.3	13.1	518/633	15.3	15.3 25
				3	3.9					
1116		0			<b>—</b>	VED book	Total	B4:(B4	8811	N
Unit Size	Voltage	RLA	LRA	Blower Motor HP	Hower Motor FLA	VFD Input Current	Total Amps	Min/Max Voltages	Minimum Circuit Amps	Maximum Overcurren Protection (M OPD)
JZE				3	11	13.9	47.3		51.5	70
120	208-230/60/3	16.7	127	5	17.5	24	57.4	187/253	61.2	80
				3	4.8	5.9	20.3		22.1	
120	460/60/3	7.2	62	5	7.6	9.4	23.8	414/506	25.6	35
120	380-415/50/3	7	51.5	3	5.4	5.9	19.9	342/456	21.7	30
120	360-413/30/3	,	51.5	5	8.6	9.4	23.4	342/400	25.2	35
120	575/60/3	5.7	39	3	3.9	4.3	15.7	518/633	17.1	25
120	373/30/3	5.7		5	6.1	8.8	20.2	310/000	21.6	30
l luit		C		Blower	Bower	VFD Input	Total	Min/Max	Minimum	Maximum Overcurren
Unit Size	Voltage	RLA	LRA	Motor HP	Motor FLA	Current	Amps	Voltages	Circuit Amps	Protection (M OPD)
Windself.	Contraction and Contraction	Lateral Dec	77777447	3	11	13.9	52.5	7 20 0 m 2 m 2 m 2 m 2 m 2 m 2 m 2 m 2 m	57.3	80
144	208-230/60/3	19.3	179	5	17.5	24	62.6	187/253	67.4	90
	10010010			3	4.8	5.9	22.5	44.4/500	24.6	35
144	460/60/3	8.3	62	5	7.6	9.4	26	414/506	28.1	40
144	380-415/50/3	8.3	64	3	5.4	5.9	22.5	342/456	24.6	35
144	360-413/30/3	0.5	04	5	8.6	9.4	26	342/400	28.1	40
144	575/60/3	6.8	50	3	3.9	4.3	17.9	518/633	19.6	30
000000	MC8120220050	- Add 5 4	450000	5	6.1	9.4	23		24.7	35

084V\_144V\_M\_RH SHEET 4 OF 4 REV A 5/31/2011



VERTICAL
M VINTAGE
TWIN CIRCUIT
W/ WATER SIDE ECONOMIZER

SUBMITTAL PACKAGE

084V\_144V\_M\_RH\_WSE

RIGHT HAND

Mammoth Inc. certifies that it will furnish equipment in accordance with this drawing and specifications, and subject to its published warranty. Purchaser's approval of this drawing signifies that the equipment is acceptable under the provisions of the job specifications. Any change made hereon by any person whomever is subject to acceptance by Mammoth Inc. 13200 Pioneer Trail, Ste 150, Eden Prairie, MN 55347.

#### **General Specifications**

CABINET - Outer casing of G-60 galvanized steel.

REFRIGERANT CIRCUIT - Hermetically sealed 410A circuitry with reversing valve (HP only), TX metering device, and high/low side access valve.

COMPRESSOR - Hermetic type with PSC or three phase motor, overload protection and mounted on neoprene isolators. AIR COIL - Seamless copper tubes and aluminum fins. HEAT EXCHANGER - Coaxial water to refrigerant with steel

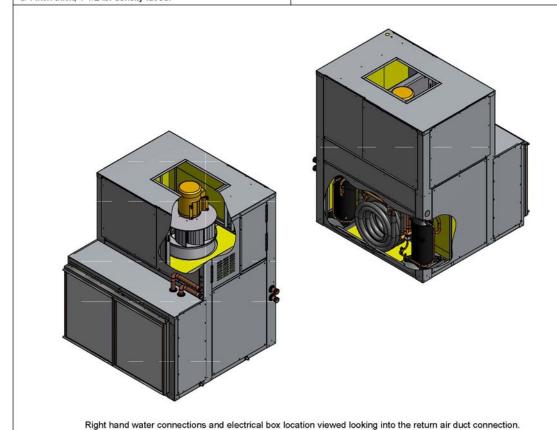
FILTER - 1-inch thick disposable

INSULATION - Thermally and acoustically optimized 3/4 inch thick, 1 1/2 lb. density faced.

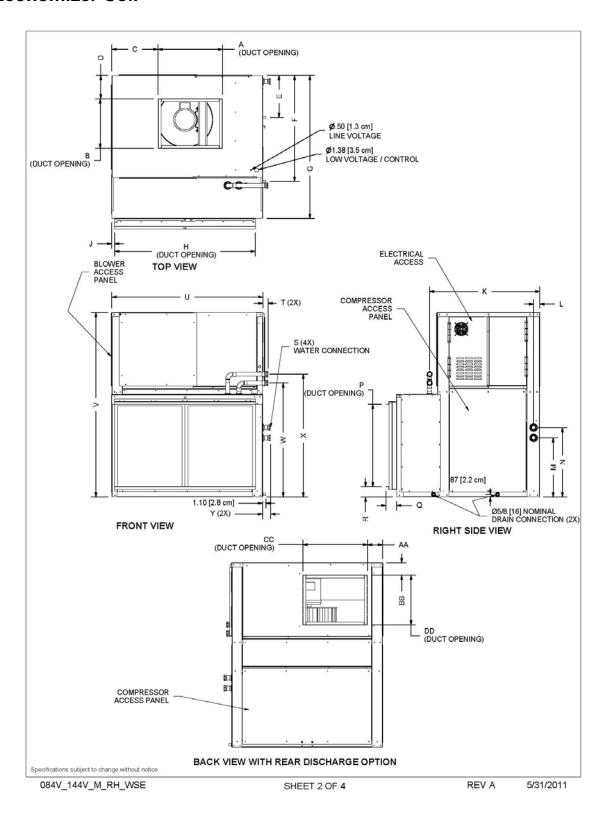
outer tube and convoluted copper inner tube.

FAN - Direct drive, dynamically balanced, airfoil shaped plug fan. FAN MOTOR - Premium efficiency TEAO with sealed, locked bearings, and overload protection.

ELECTRICAL - 24-volt microprocessor control system with fan relay, compressor contactor, reversing valve coil (HP only). CONTROL - Standard CAV operation by field mounted, wall type thermostat. Optional VAV operation with MDDC.



084V\_144V\_M\_RH\_WSE SHEET 1 OF 4 REV A 5/31/2011



BIMENIOLONIO		LINUT	OIZE	
DIMENSIONS			SIZE	
INCH [CM]	084	096	120	144
Α	22 [55.9]	22 [55.9]	22 [55.9]	22 [55.9]
В	17 [43.2]	17 [43.2]	17 [43.2]	17 [43.2]
С	15.8 [40]	15.8 [40]	15.8 [40]	15.8 [40]
D	8 [20.3]	8 [20.3]	8 [20.3]	8 [20.3]
E	14.4 [36.6]	14.4 [36.6]	14.4 [36.6]	14.4 [36.6]
F	36.3 [92.1]	36.3 [92.1]	36.3 [92.1]	36.3 [92.1]
G	48.8 [123.8]	48.8 [123.8]	48.8 [123.8]	48.8 [123.8]
Н	47 [119.4]	47 [119.4]	47 [119.4]	47 [119.4]
J	1.4 [3.5}	1.4 [3.5]	1.4 [3.5}	1.4 [3.5}
K	37.6 [95.6]	37.6 [95.6]	37.6 [95.6]	37.6 [95.6]
L	2.1 [5.4]	2.1 [5.4]	2.1 [5.4]	2.1 [5.4]
М	20.3 [51.6]	20.3 [51.6]	20.3 [51.6]	20.3 [51.6]
N	23.8 [60.5]	23.8 [60.5]	23.8 [60.5]	23.8 [60.5]
Р	22.3 [56.5]	22.3 [56.5]	22.3 [56.5]	22.3 [56.5]
Q	4.4 [11.2]	4.4 [11.2]	4.4 [11.2]	4.4 [11.2]
R	3.5 [8.6]	3.5 [8.6]	3.5 [8.6]	3.5 [8.6]
S	1-1/4 [3.2]FNPT	1-1/4 [3.2]FNPT	1-1/4 [3.2]FNPT	1-1/4 [3.2]FNPT
Т	2.4 [6]	2.4 [6]	2.4 [6]	2.4 [6]
U	51.5 [130.8]	51.5 [130.8]	51.5 [130.8]	51.5 [130.8]
V	63 [160]	63 [160]	63 [160]	63 [160]
W	39.5 [100]	39.5 [100]	39.5 [100]	39.5 [100]
X	42.3 [107]	42.3 [107]	42.3 [107]	42.3 [107]
Υ	2.4 [6]	2.4 [6]	2.4 [6]	2.4 [6]
AA	6.6 [16.8]	6.6 [16.8]	6.6 [16.8]	6.6 [16.8]
BB	4.3 [10.8]	4.3 [10.8]	4.3 [10.8]	4.3 [10.8]
CC	22 [55.9]	22 [55.9]	22 [55.9]	22 [55.9]
DD	17 [43.2]	17 [43.2]	17 [43.2]	17 [43.2]

	FJL	TER SIZE &	QTY'S.	
UNIT SIZE	084	096	120	144
FILTER SIZE	25 X 25 X 1 (2)	25 X 25 X 1 (2)	24 X 29.5 X 1 (2)	24 X 29.5 X 1 (2)

WEIGHTS		UNIT	SIZE	
Lbs [Kg]	084	096	120	144
SHIPPING	1050 [477]	1215 [552]	1270 [577]	1295 [588]

Unit Size	Voltage	Comp	LRA	Blower Motor HP	Blower Motor FLA	VFD Input Current	Total Amps	Min/Max Voltages	Minimum Circuit Amps	Maximum Overcurren
084	208-230/60/3	12.2	101	1.5	6.9	10.8	35.2	187/253	38.3	Protection 50
7.5.1		3.77	17.0	2	7.8	2.525				
084	460/60/3	5.4	44	1.5 2	3.4	4.3	15.1	414/506	16.5	25
084	380-415/50/3	5.5	46	1.5	2.5	4.3	13.1	342/456	16.7	25
		2500		2 1.5	3.5 2.4	2000	200211011	101117 (101 MC1910)		2 2000 C
084	575/60/3	4.4	34	2	2.7	4.3	13.1	518/633	14.2	25
		_								
Unit Size	Voltage	Comp		Blower	Blower	VFD Input	Total	Min/Max	Minimum	Maximum
EN HONOLET COM-	514500 (MARIO - 0-0)	RLA	LRA	Motor HP	Motor FLA	Current	Amps	Voltages	Circuit Amps	Overcurrer
096	208-230/60/3	13	127	1.5	6.9 7.8	10.8	36.8	187/253	40.1	60
100,000	CONTRACTOR CONTRACTOR	10%	30,000	3	11	13.9	39.9	An extended states	43.2	2.000
096	460/60/3	5.5	52	1.5	3.4	4.3	15.3	414/506	16.7	25
000	400/00/0	0.0	- 02	3	4.8	5.9	16.9	414,000	18.3	20
				1.5	2.5	4.3	15.5		16.9	
096	380-415/50/3	5.6	43	3	3.5 5.4	5.9	17.1	342/456	1703801713	25
			i)	1.5	2.4	5.9	17.1		18.5	
096	575/60/3	4.9	33	2	2.7	4.3	13.1	518/633	15.3	25
					0.0					
		Comp	ressor	Blower	Blower	VFD Input	Total	Min/Max	Minimum	Maximum
Unit Size	Voltage	RLA	LRA	Motor HP	Motor FLA	Current	Amps	Voltages	Circuit Amps	Overcurrer Protection
120	208-230/60/3	16.7	127	3	11	13.9	47.3	187/253	51.5	70
120	200-230/00/3	10.7	127	5	17.5	24	57.4	1077200	61.2	80
120	460/60/3	7.2	62	3	4.8	5.9	20.3	414/506	22.1	35
10.0000	112.312.30	1.30/00/	17.77	5	7.6	9.4	23.8	020000-20023	25.6	38956.10
120	380-415/50/3	7	51.5	3	5.4	5.9	19.9	342/456	21.7	30
				5	8.6 3.9	9.4 4.3	23.4 15.7		25.2 17.1	35 25
120	575/60/3	5.7	39	5	6.1	8.8	20.2	518/633	21.6	30
Unit Size	Valta na	Comp	ressor	Blower	Blower	VFD Input	Total	Min/Max	Minimum	Maximum
Unit Size	Voltage	RLA	LRA	Motor HP	Motor FLA	Current	Amps	Voltages	Circuit Amps	Overcurrer Protection
200.000	revoles consistences	30.2055		3	11	13.9	52.5	2000000000000	57.3	80
144	208-230/60/3	19.3	179	5	17.5	24	62.6	187/253	67.4	90
	450/50/0	0.0		3	4.8	5.9	22.5	444/500	24.6	35
144	460/60/3	8.3	62	5	7.6	9.4	26	414/506	28.1	40
144	380-415/50/3	8.3	64	3	5.4	5.9	22.5	342/456	24.6	35
• • • •	000 110/00/0	0.0		5	8.6	9.4	26	0127100	28.1	40
144	575/60/3	6.8	50	3 5	3.9 6.1	4.3 9.4	17.9 23	518/633	19.6 24.7	30 35
				Q	0.1	9.4	23		24.1	35



VERTICAL M VINTAGE TWIN CIRCUIT SUBMITTAL PACKAGE

084V\_144V\_M\_LH

LEFT HAND

Mammoth Inc. certifies that it will furnish equipment in accordance with this drawing and specifications, and subject to its published warranty. Purchaser's approval of this drawing signifies that the equipment is acceptable under the provisions of the job specifications. Any change made hereon by any person whomever is subject to acceptance by Mammoth Inc. 13200 Prioneer Trail, Ste 150, Eden Prairie, MN 55347.

#### General Specifications

CABINET - Outer casing of G-60 galvanized steel.

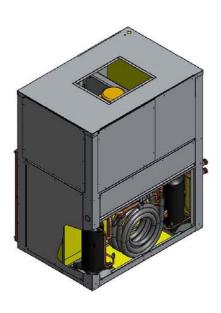
REFRIGERANT CIRCUIT - Hermetically sealed 410A circuitry with reversing valve (HP only), TX metering device, and high/low side access valve.

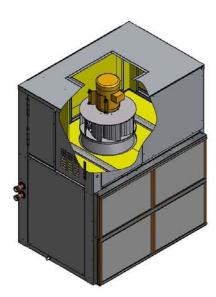
COMPRESSOR - Hermetic type with PSC or three phase motor, overload protection and mounted on neoprene isolators. AIR COIL - Seamless copper tubes and aluminum fins. HEAT EXCHANGER - Coaxial water to refrigerant with steel outer tube and convoluted copper inner tube.

FILTER - 1-inch thick disposable
INSULATION - Thermally and acoustically optimized
3/4 inch thick, 1 1/2 lb. density faced.

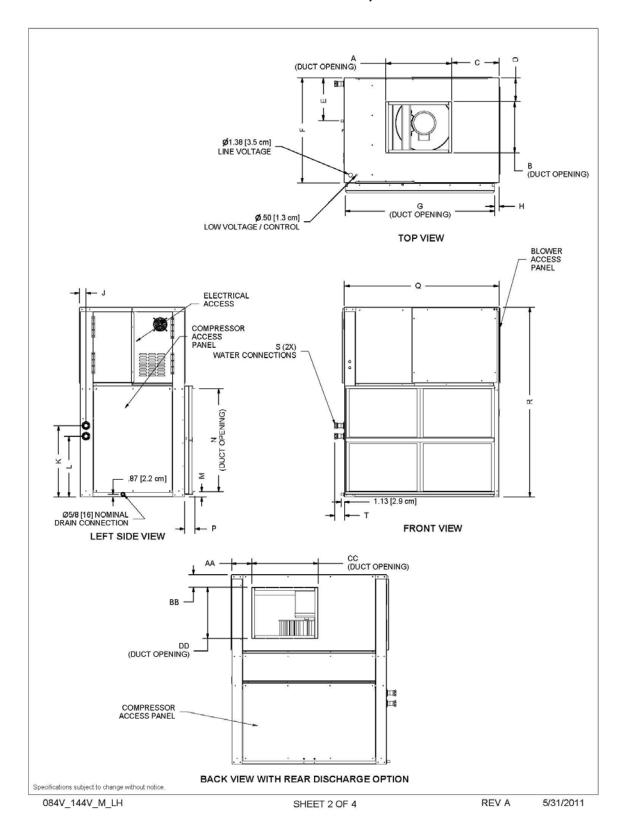
FAN - Direct drive, dynamically balanced, airfoil shaped plug fan. FAN MOTOR - Premium efficiency TEAO with sealed, locked bearings, and overload protection.

ELECTRICAL - 24-volt microprocessor control system with fan relay, compressor contactor, reversing valve coil (HP only). CONTROL - Standard CAV operation by field mounted, wall type thermostat. Optional VAV operation with MDDC.





Left hand water connections and electrical box location viewed looking into the return air duct connection.



DIMENSIONS		UNIT	SIZE	
INCH [CM]	084	096	120	144
Α	22 [55.9]	22 [55.9]	22 [55.9]	22 [55.9]
В	17 [43.2]	17 [43.2]	17 [43.2]	17 [43.2]
С	15.8 [40]	15.8 [40]	15.8 [40]	15.8 [40]
D	8 [20.3]	8 [20.3]	8 [20.3]	8 [20.3]
E	14.4 [36.6]	14.4 [36.6]	14.4 [36.6]	14.4 [36.6]
F	35 [89]	35 [89]	35 [89]	35 [89]
G	49.5 [125.7]	49.5 [125.7]	49.5 [125.7]	49.5 [125.7]
Н	1.5 [3.8]	1.5 [3.8]	1.5 [3.8]	1.5 [3.8]
J	2.1 [5.4]	2.1 [5.4]	2.1 [5.4]	2.1 [5.4]
K	23.8 [60.5]	23.8 [60.5]	23.8 [60.5]	23.8 [60.5]
L	20.3 [51.6]	20.3 [51.6]	20.3 [51.6]	20.3 [51.6]
M	2.6 [6.6]	2.6 [6.6]	1.8 [4.6]	1.8 [4.6]
N	24 [61]	24 [61]	34.2 [86.9]	34.2 [86.9]
Р	3.8 [9.5]	3.8 [9.5]	3.8 [9.5]	3.8 [9.5]
Q	51.5 [130.8]	51.5 [130.8]	51.5 [130.8]	51.5 [130.8]
R	63 [160]	63 [160]	63 [160]	63 [160]
S	1-1/4 [3.2]FNPT	1-1/4 [3.2]FNPT	1-1/4 [3.2]FNPT	1-1/4 [3.2]FNPT
T	2.4 [6]	2.4 [6]	2.4 [6]	2.4 [6]
AA	6.6 [16.8]	6.6 [16.8]	6.6 [16.8]	6.6 [16.8]
BB	4.3 [10.8]	4.3 [10.8]	4.3 [10.8]	4.3 [10.8]
CC	22 [55.9]	22 [55.9]	22 [55.9]	22 [55.9]
DD	17 [43.2]	17 [43.2]	17 [43.2]	17 [43.2]

	FILTE	R SIZE &	QTY'S.	
UNIT SIZE	084	096	120	144
FILTER SIZE	25 X 25 X 1 (2)	16 x 25 x 1 (3)	18 x 25 x 1 (4)	18 x 25 x 1 (4)

WEIGHTS		UNIT	SIZE	
Lbs [Kg]	084	096	120	144
SHIPPING	950 [431]	990 [450]	1060 [481]	1090 [495]

084V\_144V\_M\_LH SHEET 3 OF 4 REV A 5/31/2011

Unit	Valtaria	Comp	ressor	Blower	Bower	VFD Input	Total	Min/Max	Minimum	Maximum Overcurrent
Size	Voltage	RLA	LRA	Motor HP	Motor FLA	Current	Amps	Voltages	Circuit Amps	Protection (MOPD)
004	200 220/20/2		101	1.5	6.9	40.0	25.2	187/253	20.2	50
084	208-230/60/3	12.2	101	2	7.8	10.8	35.2	10//203	38.3	50
084	460/60/3	5.4	44	1.5	3	4.3	15.1	414/506	16.5	25
				2	3.4		1000			
084	380-415/50/3	5.5	46	1.5	2.5 3.5	4.3	13.1	342/456	16.7	25
				1.5	2.4			<del>                                     </del>		
084	575/60/3	4.4	34	2	2.7	4.3	13.1	518/633	14.2	25
Unit	Voltage	Comp	ressor	Blower	Bower	VFD Input	Total	Min/Max	Minimum	Maximum Overcurrent
Size	voitage	RLA	LRA	Motor HP	Motor FLA	Current	Amps	Voltages	Circuit Amps	Protection (MOPD)
				1.5	6.9	10.8	36.8		40.1	65
096	208-230/60/3	13	127	2	7.8	ACT 105%	207670000	187/253	55/572	60
	-			3	11	13.9	39.9		43.2	4
000	460/60/2		-50	1.5	3	4.3	15.3	44.4/E0G	16.7	25
096	460/60/3	5.5	52	2	3.4 4.8	50	16.9	414/506	40.0	25
	<del> </del>			3 1.5	2.5	5.9	0.00		18.3	
096	380-415/50/3	5.6	43	2	3.5	4.3	15.5	342/456	16.9	25
000	100 110 00 0	0.0	10	3	5.4	5.9	17.1	0121100	18.5	20
	1			1.5	2.4	0.0	171		10.0	
096	575/60/3	4.9	33	2	2.7	4.3	13.1	518/633	15.3	25
				3	3.9					
Unit	Voltage		ressor	Blower	Bower	VFD Input	Total	Min/Max	Minimum	Maximum Overcurrent
	1 0.11.90	RLA	LRA	Motor HP	Motor FLA	Current	Amps	Voltages	Circuit Amps	Protection (MOPD)
Size						1 120	47.3	Terror and the second	51.5	70
	208-230/60/3	16.7	127	3	11	13.9		187/253		
120	208-230/60/3	16.7	127	5	17.5	24	57.4	187/253	61.2	80
	208-230/60/3 460/60/3	16.7 7.2	127 62	5	17.5 4.8	24 5.9	57.4 20.3	187/253 414/506	61.2 22.1	
120	A 623, 2 823, 33 J	17.0000		5 3 5	17.5 4.8 7.6	24 5.9 9.4	57.4 20.3 23.8		61.2 22.1 25.6	80 35
120	A 623, 2 823, 33 J	17.0000		5 3 5 3	17.5 4.8 7.6 5.4	24 5.9 9.4 5.9	57.4 20.3 23.8 19.9		61.2 22.1 25.6 21.7	80 35 30
120 120 120	460/60/3 380-415/50/3	7.2	62 51.5	5 3 5 3 5	17.5 4.8 7.6 5.4 8.6	24 5.9 9.4 5.9 9.4	57.4 20.3 23.8 19.9 23.4	- 414/506 - 342/456	61.2 22.1 25.6 21.7 25.2	80 35 30 35
120 120	460/60/3	7.2	62	5 3 5 3	17.5 4.8 7.6 5.4 8.6 3.9	24 5.9 9.4 5.9 9.4 4.3	57.4 20.3 23.8 19.9 23.4 15.7	414/506	61.2 22.1 25.6 21.7 25.2 17.1	80 35 30 35 25
120 120 120	460/60/3 380-415/50/3	7.2	62 51.5	5 3 5 3 5 3	17.5 4.8 7.6 5.4 8.6	24 5.9 9.4 5.9 9.4	57.4 20.3 23.8 19.9 23.4	- 414/506 - 342/456	61.2 22.1 25.6 21.7 25.2	80 35 30 35
120 120 120	460/60/3 380-415/50/3 575/60/3	7.2 7 5.7	62 51.5	5 3 5 3 5 3	17.5 4.8 7.6 5.4 8.6 3.9	24 5.9 9.4 5.9 9.4 4.3	57.4 20.3 23.8 19.9 23.4 15.7	- 414/506 - 342/456	61.2 22.1 25.6 21.7 25.2 17.1	80 35 30 35 25
120 120 120 120	460/60/3 380-415/50/3	7.2 7 5.7	62 51.5 39	5 3 5 3 5 3 5	17.5 4.8 7.6 5.4 8.6 3.9 6.1	24 5.9 9.4 5.9 9.4 4.3 8.8	57.4 20.3 23.8 19.9 23.4 15.7 20.2	- 414/506 - 342/456 - 518/633	61.2 22.1 25.6 21.7 25.2 17.1 21.6	80 35 30 35 25 30
120 120 120 120 Unit Size	460/60/3 380-415/50/3 575/60/3 Voltage	7.2 7 5.7 Comp	62 51.5 39 ressor LRA	5 3 5 3 5 3 5 Blower Motor HP	17.5 4.8 7.6 5.4 8.6 3.9 6.1	24 5.9 9.4 5.9 9.4 4.3 8.8 VFD Input Current 13.9	57.4 20.3 23.8 19.9 23.4 15.7 20.2 <b>Total</b> Amps 52.5	414/506 342/456 518/633 Min/Max Voltages	61.2 22.1 25.6 21.7 25.2 17.1 21.6 Minimum Circuit Amps 57.3	80 35 30 35 25 30 Maximum Overcurren Protection (MOPD)
120 120 120 120 Unit	460/60/3 380-415/50/3 575/60/3	7.2 7 5.7 Comp	62 51.5 39	5 3 5 3 5 5 8 Blower Motor HP 3 5	17.5 4.8 7.6 5.4 8.6 3.9 6.1 Blower Motor FLA 11 17.5	24 5.9 9.4 5.9 9.4 4.3 8.8 VFD Input Current 13.9 24	57.4 20.3 23.8 19.9 23.4 15.7 20.2 <b>Total</b> <b>Amps</b> 52.5 62.6	414/506 - 342/456 - 518/633 Min/Max	61.2 22.1 25.6 21.7 25.2 17.1 21.6 <b>Minimum</b> <b>Circuit Amps</b> 57.3 67.4	80 35 30 35 25 30 Maximum Overcurrent Protection (MOPD) 80 90
120 120 120 120 <b>Unit</b> <b>Size</b> 144	460/60/3 380-415/50/3 575/60/3  Voltage 208-230/60/3	7.2 7 5.7 Comp RLA 19.3	62 51.5 39 ressor LRA 179	5 3 5 3 5 3 5 8 Blower Motor HP 3 5	17.5 4.8 7.6 5.4 8.6 3.9 6.1 Blower Motor FLA 11 17.5 4.8	24 5.9 9.4 5.9 9.4 4.3 8.8 VFD Input Current 13.9 24 5.9	57.4 20.3 23.8 19.9 23.4 15.7 20.2 <b>Total</b> <b>Amps</b> 52.5 62.6 22.5	- 414/506 - 342/456 - 518/633 Min/Max Voltages - 187/253	61.2 22.1 25.6 21.7 25.2 17.1 21.6 <b>Minimum</b> <b>Circuit Amps</b> 57.3 67.4 24.6	80 35 30 35 25 30 Maximum Overcurrent Protection (MOPD) 80 90 35
120 120 120 120 Unit Size	460/60/3 380-415/50/3 575/60/3 Voltage	7.2 7 5.7 Comp	62 51.5 39 ressor LRA	5 3 5 3 5 5 8 8 8 9 Motor HP 3 5 3	17.5 4.8 7.6 5.4 8.6 3.9 6.1 Blower Motor FLA 11 17.5 4.8 7.6	24 5.9 9.4 5.9 9.4 4.3 8.8 VFD Input Current 13.9 24 5.9 9.4	57.4 20.3 23.8 19.9 23.4 15.7 20.2 <b>Total</b> Amps 52.5 62.6 22.5 26	414/506 342/456 518/633 Min/Max Voltages	61.2 22.1 25.6 21.7 25.2 17.1 21.6 <b>Minimum</b> <b>Circuit Amps</b> 57.3 67.4 24.6 28.1	80 35 30 35 25 30 Maximum Overcurrent Protection (MOPD) 80 90 35 40
120 120 120 120 <b>Unit</b> <b>Size</b> 144	460/60/3 380-415/50/3 575/60/3  Voltage 208-230/60/3	7.2 7 5.7 Comp RLA 19.3	62 51.5 39 ressor LRA 179	5 3 5 3 5 5 8 8 8 8 9 8 9 9 9 9 9 9 9 9 9 9 9 9	17.5 4.8 7.6 5.4 8.6 3.9 6.1  Bower Motor FLA 11 17.5 4.8 7.6 5.4	24 5.9 9.4 5.9 9.4 4.3 8.8 VFD Input Current 13.9 24 5.9 9.4 5.9	57.4 20.3 23.8 19.9 23.4 15.7 20.2 <b>Total</b> Amps 52.5 62.6 22.5 26 22.5	- 414/506 - 342/456 - 518/633 Min/Max Voltages - 187/253	61.2 22.1 25.6 21.7 25.2 17.1 21.6 <b>Minimum</b> <b>Greuit Amps</b> 57.3 67.4 24.6 28.1 24.6	80 35 30 35 25 30 Maximum Overcurrent Protection (MOPD) 80 90 35 40 35
120 120 120 120 Unit Size 144	460/60/3 380-415/50/3 575/60/3  Voltage 208-230/60/3 460/60/3	7.2 7 5.7 Comp RLA 19.3 8.3	62 51.5 39 ressor LRA 179	5 3 5 3 5 3 5 Blower Motor HP 3 5 3 5	17.5 4.8 7.6 5.4 8.6 3.9 6.1  Bower Motor FLA 11 17.5 4.8 7.6 5.4 8.6	24 5.9 9.4 5.9 9.4 4.3 8.8 VFD Input Current 13.9 24 5.9 9.4 5.9 9.4	57.4 20.3 23.8 19.9 23.4 15.7 20.2 <b>Total</b> <b>Amps</b> 52.5 62.6 22.5 26 22.5	414/506 - 342/456 - 518/633 - Min/Max Voltages - 187/253 - 414/506	61.2 22.1 25.6 21.7 25.2 17.1 21.6 <b>Minimum</b> <b>Greuit Amps</b> 57.3 67.4 24.6 28.1 24.6 28.1	80 35 30 35 25 30  Maximum Overcurrent Protection (MOPD) 80 90 35 40 35 40
120 120 120 120 Unit Size 144	460/60/3 380-415/50/3 575/60/3  Voltage 208-230/60/3 460/60/3	7.2 7 5.7 Comp RLA 19.3 8.3	62 51.5 39 ressor LRA 179	5 3 5 3 5 5 8 8 8 8 9 8 9 9 9 9 9 9 9 9 9 9 9 9	17.5 4.8 7.6 5.4 8.6 3.9 6.1  Bower Motor FLA 11 17.5 4.8 7.6 5.4	24 5.9 9.4 5.9 9.4 4.3 8.8 VFD Input Current 13.9 24 5.9 9.4 5.9	57.4 20.3 23.8 19.9 23.4 15.7 20.2 <b>Total</b> Amps 52.5 62.6 22.5 26 22.5	414/506 - 342/456 - 518/633 - Min/Max Voltages - 187/253 - 414/506	61.2 22.1 25.6 21.7 25.2 17.1 21.6 <b>Minimum</b> <b>Greuit Amps</b> 57.3 67.4 24.6 28.1 24.6	80 35 30 35 25 30 Maximum Overcurrent Protection (MOPD) 80 90 35 40 35

SHEET 4 OF 4

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REV A

5/31/2011

084V\_144V\_M\_LH



VERTICAL
M VINTAGE
TWIN CIRCUIT
W/ WATER SIDE ECONOMIZER

SUBMITTAL PACKAGE

084V\_144V\_M\_LH\_WSE

LEFT HAND

Mammoth Inc. certifies that it will furnish equipment in accordance with this drawing and specifications, and subject to its published warranty. Purchaser's approval of this drawing signifies that the equipment is acceptable under the provisions of the job specifications. Any change made hereon by any person whomever is subject to acceptance by Mammoth Inc. 13200 Pioneer Trail, Ste 150, Eden Prairie, MN 55347.

#### **General Specifications**

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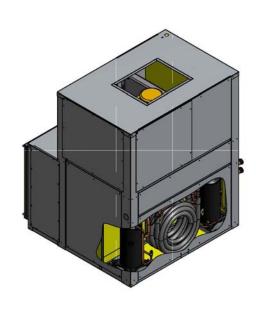
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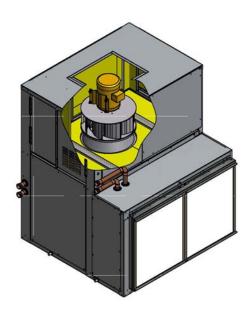
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FILTER - 1-inch thick disposable INSULATION - Thermally and acoustically optimized 3/4 inch thick, 1 1/2 lb. density faced.

FAN - Direct drive, dynamically balanced, airfoil shaped plug fan. FAN MOTOR - Premium efficiency TEAO with sealed, locked bearings, and overload protection.

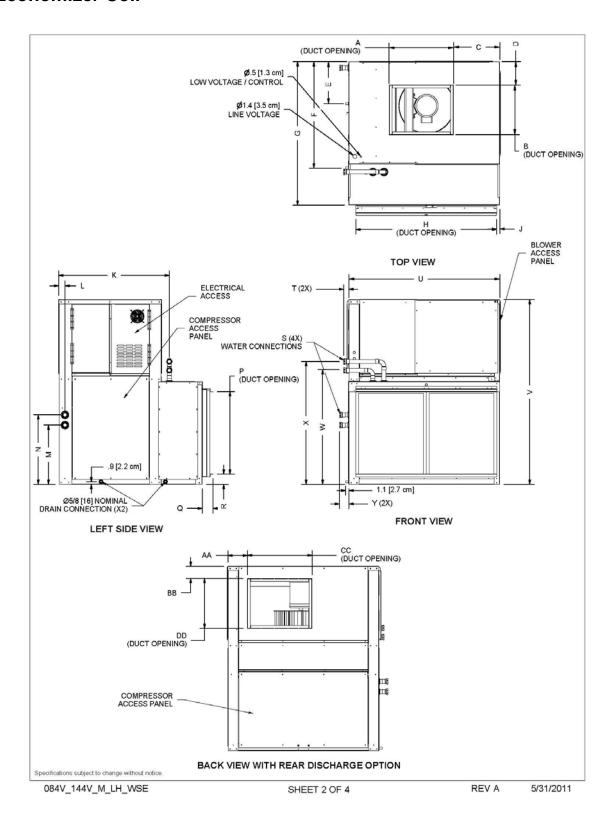
ELECTRICAL - 24-volt microprocessor control system with fan relay, compressor contactor, reversing valve coil (HP only). CONTROL - Standard CAV operation by field mounted, wall type thermostat. Optional VAV operation with MDDC.





Left hand water connections and electrical box location viewed looking into the return air duct connection.

084V\_144V\_M\_LH\_WSE SHEET 1 OF 4 REV A 5/31/2011



DIMENSIONS		LIMIT	SIZE	
man noticed in transportations	221			
INCH [CM]	084	096	120	144
A	22 [55.9]	22 [55.9]	22 [55.9]	22 [55.9]
В	17 [43.2]	17 [43.2]	17 [43.2]	17 [43.2]
С	15.8 [40]	15.8 [40]	15.8 [40]	15.8 [40]
D	8 [20.3]	8 [20.3]	8 [20.3]	8 [20.3]
E,	14.4 [36.6]	14.4 [36.6]	14.4 [36.6]	14.4 [36.6]
F	36.3 [92.1]	36.3 [92.1]	36.3 [92.1]	36.3 [92.1]
G	48.8 [123.8]	48.8 [123.8]	48.8 [123.8]	48.8 [123.8]
Н	47 [119.4]	47 [119.4]	47 [119.4]	47 [119.4]
J	1.4 [3.5]	1.4 [3.5]	1.4 [3.5]	1.4 [3.5]
K	37.6 [95.6]	37.6 [95.6]	37.6 [95.6]	37.6 [95.6]
L	2.1 [5.4]	2.1 [5.4]	2.1 [5.4]	2.1 [5.4]
М	20.3 [51.6]	20.3 [51.6]	20.3 [51.6]	20.3 [51.6]
N	23.8 [60.5]	23.8 [60.5]	23.8 [60.5]	23.8 [60.5]
Р	23.6 [60]	23.6 [60]	28.2 [71.6]	28.2 [71.6]
Q	4.4 [11.2]	4.4 [11.2]	4.4 [11.2]	4.4 [11.2]
R	3 [7.6]	3 [7.6]	3.5 [8.6]	3.5 [8.6]
S	1-1/4 [3.2]FNPT	1-1/4 [3.2]FNPT	1-1/4 [3.2]FNPT	1-1/4 [3.2]FNPT
Т	2.4 [6]	2.4 [6]	2.4 [6]	2.4 [6]
U	51.5 [130.8]	51.5 [130.8]	51.5 [130.8]	51.5 [130.8]
V	63 [160]	63 [160]	63 [160]	63 [160]
W	39.5 [100]	39.5 [100]	39.5 [100]	39.5 [100]
X	42.3 [107]	42.3 [107]	42.3 [107]	42.3 [107]
Υ	2.4 [6]	2.4 [6]	2.4 [6]	2.4 [6]
AA	6.6 [16.8]	6.6 [16.8]	6.6 [16.8]	6.6 [16.8]
BB	4.3 [10.8]	4.3 [10.8]	4.3 [10.8]	4.3 [10.8]
CC	22 [55.9]	22 [55.9]	22 [55.9]	22 [55.9]
DD	17 [43.2]	17 [43.2]	17 [43.2]	17 [43.2]

	FILT	ER SIZE &	QTY'S.	
UNIT SIZE	084	096	120	144
FILTER SIZE	25 X 25 X 1 (2)	25 X 25 X 1 (2)	24 x 29.5 x 1 (2)	24 x 29.5 x 1 (2)

WEIGHTS		UNIT	SIZE	
Lbs [Kg]	084	096	120	144
SHIPPING	1050 [477]	1215 [552]	1270 [577]	1295 [588]

084V\_144V\_M\_LH\_WSE

SHEET 3 OF 4

REV A

5/31/2011

Voltage	Comm	ressor	Blower	Blower	VFD Input	Total	Min/Max	Minimum	Maximum
	RLA	LRA	Motor HP	Motor FLA	Current	Amps	Voltages	Circuit Amps	Overcurrent Protection (MOPD
208-230/60/3	12.2	101	1.5	6.9 7.8	10.8	35.2	187/253	38.3	50
460/60/3	5.4	44	1.5	3.4	4.3	15.1	414/506	16.5	25
380-415/50/3	5.5	46	1.5	2.5 3.5	4.3	13.1	342/456	16.7	25
575/60/3	4.4	34	1.5	2.4	4.3	13.1	518/633	14.2	25
								Minimum	Maximum
Voltage	RLA	LRA			VFD Input Current	Total Amps	Min/Max Voltages	Circuit Amps	Overcurrent Protection (MOPD
208-230/60/3	13	127	1.5 2	6.9 7.8	10.8	36.8	187/253	40.1	60
			3	11	13.9	39.9		43.2	2
460/60/3	5.5	52		3.4	4.3	15.3	414/506	16.7	25
			3	4.8	5.9	16.9		18.3	
380-/15/50/3	56	13	1.5	2.5	4.3	15.5	3/2//56	16.9	25
360-413/30/3	5.6	43			5.0	17.1	342/436	18.5	25
575/60/3	4.9	33	1.5	2.4 2.7	4.3	13.1	518/633	15.3	25
Voltage	Comp	ressor	Blower Motor HP	Blower Motor FLA	VFD Input Current	Total Amps	Min/Max Voltages	Minimum Circuit Amps	Maximum Overcurrent Protection (MOPE
200 200 (200 (2	40.7	407	3	11	13.9	47.3	107/050		70
208-230/60/3	16.7	127	5	17.5	24	57.4	1877253	61.2	80
460/60/3	7.2	62	3	4.8	5.9	20.3	414/506	22.1	35
			5	7.6	9.4	23.8		25.6	
	1		2	5.4	5.0	100		217	30
380-415/50/3	7	51.5	3 5	5.4 8.6	5.9 9.4	19.9 23.4	342/456	21.7 25.2	30 35
380-415/50/3			3 5 3	5.4 8.6 3.9	5.9 9.4 4.3	19.9 23.4 15.7		21.7 25.2 17.1	30 35 25
	7 5.7	51.5 39	5	8.6	9.4	23.4	342/456 518/633	25.2	35
380-415/50/3 575/60/3		39	5 3	8.6 3.9	9.4 4.3	23.4 15.7		25.2 17.1 21.6 Minimum	35 25 30 Maximum
380-415/50/3	5.7	39	5 3 5	8.6 3.9 6.1	9.4 4.3 8.8	23.4 15.7 20.2	518/633	25.2 17.1 21.6 Minimum Circuit	35 25 30 Maximum Overcurrent
380-415/50/3 575/60/3 Voltage	5.7  Comp	39 ressor LRA	5 3 5 Blower Motor HP	8.6 3.9 6.1 Blower Motor FLA	9.4 4.3 8.8 VFD Input Current	23.4 15.7 20.2 <b>Total</b> Amps	518/633 Min/Max Voltages	25.2 17.1 21.6 Minimum Circuit Amps	35 25 30 Maximum Overcurrent Protection (MOPE
380-415/50/3 575/60/3	5.7	39 ressor	5 3 5	8.6 3.9 6.1	9.4 4.3 8.8 VFD Input	23.4 15.7 20.2 <b>Total</b>	518/633 Min/Max	25.2 17.1 21.6 Minimum Circuit	35 25 30 Maximum Overcurrent
380-415/50/3 575/60/3 Voltage 208-230/60/3	5.7 Comp RLA 19.3	39 ressor LRA 179	5 3 5 8lower Motor HP	8.6 3.9 6.1 Blower Motor FLA 11 17.5 4.8	9.4 4.3 8.8 VFD Input Current 13.9 24 5.9	23.4 15.7 20.2 <b>Total</b> <b>Amps</b> 52.5 62.6 22.5	518/633 Min/Max Voltages	25.2 17.1 21.6 Minimum Circuit Amps 57.3 67.4 24.6	35 25 30  Maximum Overcurrent Protection (MOPE 80 90 35
380-415/50/3 575/60/3 Voltage	5.7  Comp	39 ressor LRA	5 3 5 Blower Motor HP 3 5 3	8.6 3.9 6.1 Blower Motor FLA 11 17.5 4.8 7.6	9.4 4.3 8.8 VFD Input Current 13.9 24 5.9 9.4	23.4 15.7 20.2 <b>Total</b> <b>Amps</b> 52.5 62.6 22.5 26	Min/Max Voltages	25.2 17.1 21.6 Minimum Circuit Amps 57.3 67.4 24.6 28.1	35 25 30 Maximum Overcurrent Protection (MOPE 80 90 35 40
380-415/50/3 575/60/3 Voltage 208-230/60/3	5.7 Comp RLA 19.3	39 ressor LRA 179	5 3 5 8lower Motor HP	8.6 3.9 6.1 Blower Motor FLA 11 17.5 4.8	9.4 4.3 8.8 VFD Input Current 13.9 24 5.9	23.4 15.7 20.2 <b>Total</b> <b>Amps</b> 52.5 62.6 22.5	Min/Max Voltages	25.2 17.1 21.6 Minimum Circuit Amps 57.3 67.4 24.6	35 25 30  Maximum Overcurrent Protection (MOPE 80 90 35
	Voltage  208-230/60/3  460/60/3  380-415/50/3  575/60/3	Voltage Comp RLA 208-230/60/3 13 460/60/3 5.5 380-415/50/3 5.6 575/60/3 4.9 Voltage Comp RLA	Voltage         Compressor           RLA         LRA           208-230/60/3         13         127           460/60/3         5.5         52           380-415/50/3         5.6         43           575/60/3         4.9         33           Compressor           RLA         LRA	Compressor         Blower Motor HP           Compressor         Blower Motor HP           208-230/60/3         13         127         2         3         1.5         3         1.5         2         3         1.5         3         1.5         3         1.5         3         1.5         3         1.5         3         1.5         3         1.5         3         1.5         3         1.5         3         2         3         1.5         3         2         3         1.5         3         2         3         3         2         3         3         2         3         3         2         3         3         2         3         3         2         3         3         2         3         3         2         3         3         2         3         3         2         3         3         2         3         3         3         2         3         3         3         2         3         3         4         9         3         3         2         3         3         3         3         3         3         3         4         9         3         3         4	Compressor         Blower Motor HP         Blower Motor FLA           208-230/60/3         13         127         2         7.8         3         11           460/60/3         5.5         52         2         3.4         3         4.8           380-415/50/3         5.6         43         2         3.5         3         5.4           575/60/3         4.9         33         2         2.7         3         3.9           Voltage         Compressor RLA         Blower Motor HP         Motor HP         Blower Motor FLA           208-230/60/3         16.7         13.7         3         11	Voltage         Compressor RLA         Blower Motor HP Motor FLA         VFD Input Current           208-230/60/3         13         127         2         7.8         10.8           3         11         13.9         4.3         4.3           460/60/3         5.5         52         2         3.4         5.9           380-415/50/3         5.6         43         2         3.5         4.3           575/60/3         4.9         33         2         2.7         4.3           Voltage         Compressor RLA         Blower Motor HP Motor FLA         VFD Input Current           208-230/60/2         16.7         127         3         11         13.9	Voltage         Compressor         Blower Motor HP Motor FLA         VFD Input Current         Total Current           208-230/60/3         13         127         2         7.8         10.8         36.8           460/60/3         5.5         52         2         3.4         4.3         15.3           380-415/50/3         5.6         43         2         3.5         4.3         15.5           575/60/3         4.9         33         2         3.5         4.3         15.5           575/60/3         4.9         33         2         2.7         4.3         13.1           Voltage         Compressor RLA         Blower Motor HP Motor FLA         VFD Input Current         Total Amps           208.230/60/3         16.7         127         3         11         13.9         47.3	Total Current         Min/Max           Voltage         Compressor RLA         Blower Motor HP Motor FLA         VFD Input Current         Total Amps         Min/Max Voltages           208-230/60/3         13         127         2         7.8         10.8         36.8         187/253           460/60/3         5.5         52         2         3.4         4.3         15.3         414/506           380-415/50/3         5.6         43         2         3.5         4.3         15.5         342/456           575/60/3         4.9         33         2         2.7         4.3         13.1         518/633           Voltage           Compressor RLA         Blower Motor HP Motor FLA         VFD Input Current         Min/Max Motor HP Motor FLA         Min/Max Motor HP Current         Min/Max Motor HP Current <td< td=""><td>Voltage         Compressor         Blower Motor HP         WFD Input Current         Total Amps         Min/Max Voltages         Min/max</td></td<>	Voltage         Compressor         Blower Motor HP         WFD Input Current         Total Amps         Min/Max Voltages         Min/max

084V\_144V\_M\_LH\_WSE

SHEET 4 OF 4

REV A

5/31/2011



VERTICAL M VINTAGE QUAD SUBMITTAL PACKAGE

168V 288V M QUAD

Mammoth Inc. certifies that it will furnish equipment in accordance with this drawing and specifications, and subject to its published warranty. Purchaser's approval of this drawing signifies that the equipment is acceptable under the provisions of the job specifications. Any change made hereon by any person whomever is subject to acceptance by Mammoth Inc. 13200 Pioneer Trail. Ste 150, Eden Prairie, MN 55347.

#### General Specifications

CABINET - Outer casing of G-60 galvanized steel.

REFRIGERANT CIRCUIT - Hermetically sealed 410A circuitry with reversing valve (HP only), TX metering device, and high/low side access valve.

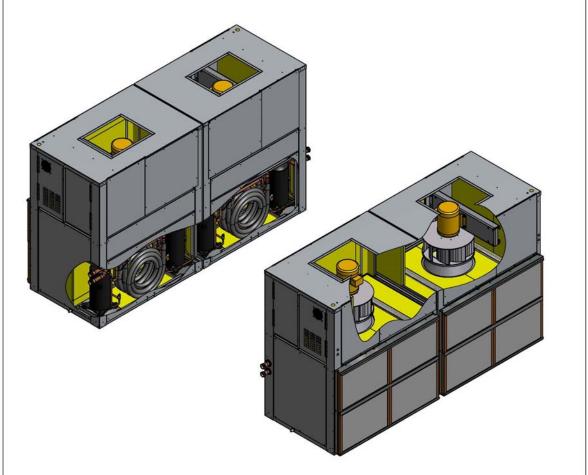
COMPRESSOR - Hermetic type with PSC or three phase motor, overload protection and mounted on neoprene isolators. AIR COIL - Seamless copper tubes and aluminum fins. HEAT EXCHANGER - Coaxial water to refrigerant with steel outer tube and convoluted copper inner tube.

FILTER - 1-inch thick disposable

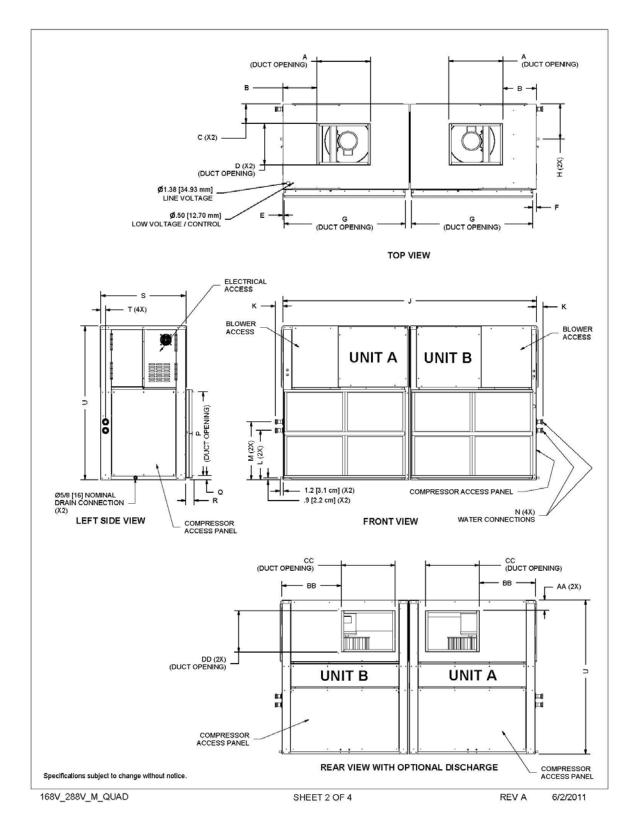
INSULATION - Thermally and acoustically optimized 3/4 inch thick, 1 1/2 lb. density faced.

FAN - Direct drive, dynamically balanced, airfoil shaped plug fan. FAN MOTOR - Premium efficiency TEAO with sealed, locked bearings, and overload protection.

ELECTRICAL - 24-volt microprocessor control system with fan relay, compressor contactor, reversing valve coil (HP only). CONTROL - Standard CAV operation by field mounted, wall type thermostat. Optional VAV operation with MDDC.



168V\_288V\_M\_QUAD SHEET 1 OF 4 REV A 6/2/2011



DIMENSION		UNIT	SIZE	
INCHES [CM]	168	192	240	288
Α	22 [55.9]	22 [55.9]	22 [55.9]	22 [55.9]
В	13.8 [34.9]	13.8 [34.9]	13.8 [34.9]	13.8 [34.9]
С	8 [20.3]	8 [20.3]	8 [20.3]	8 [20.3]
D	17 [43.2]	17 [43.2]	17 [43.2]	17 [43.2]
E	.4 [1]	.4 [1]	.4 [1]	.4 [1]
F	1.5 [3.8]	1.5 [3.8]	1.5 [3.8]	1.5 [3.8]
G	49.5 [125.7]	49.5 [125.7]	49.5 [125.7]	49.5 [125.7]
Н	14.4 [36.6]	14.4 [36.6]	14.4 [36.6]	14.4 [36.6]
J	103 [261.6]	103 [261.6]	103 [261.6]	103 [261.6]
K	1.9 [4.8]	1.9 [4.8]	1.9 [4.8]	1.9 [4.8]
Ĺ	20.1 [51]	20.1 [51]	20.1 [51]	20.1 [51]
М	23.1 [58.7]	23.1 [58.7]	23.1 [58.7]	23.1 [58.7]
N	1-1/4 [3.2] FNPT	1-1/4 [3.2] FNPT	1-1/4 [3.2] FNPT	1-1/4 [3.2] FNPT
Р	24 [61]	24 [61]	34.2 [86.9]	34.2 [86.9]
Q	2.6 [6.6]	2.6 [6.6]	1.8 [4.4]	1.8 [4.4]
R	3.4 [8.6]	3.4 [8.6]	3.4 [8.6]	3.4 [8.6]
S	37.5 [95.3]	37.5 [95.3]	37.5 [95.3]	37.5 [95.3]
Т	2.1 [5.4]	2.1 [5.4]	2.1 [5.4]	2.1 [5.4]
Ü	63 [160]	63 [160]	63 [160]	63 [160]
AA	4.2 [10.7]	4.2 [10.7]	4.2 [10.7]	4.2 [10.7]
BB	22.8 [57.9]	22.8 [57.9]	22.8 [57.9]	22.8 [57.9]
CC	22 [55.9]	22 [55.9]	22 [55.9]	22 [55.9]
DD	17 [43.2]	17 [43.2]	17 [43.2]	17 [43.2]

	FILT	ER SIZE & C	TY'S.	
UNIT SIZE	168	192	240	288
FILTER SIZE	25 X 25 X 1 (4)	16 X 25 X 1 (6)	18 X 25 X 1 (8)	18 X 25 X 1 (8)

WEIGHTS		UNIT	SIZE	
Lbs [Kg]	168	192	240	288
SHIPPING	1900 [862]	1980 [900]	2120 [962]	2180 [990]

168V\_288V\_M\_QUAD SHEET 3 OF 4 REV A 6/2/2011

11		Comp	essor	Blower	Blower	VED 1	Tabal	NA: (NA	Minimum	Maximum
Unit Size	Voltage	RLA	LRA	Motor HP	Motor FLA	VFD Input Current	Total Amps	Min/Max Voltages	Circuit Amps	Overcurrent Protection (MOPD)
168	208-230/60/3	12.2	101	2@1.5	13.8 15.6	21.6	70.4	187/253	76.6	100
168	460/60/3	5.4	44	2@1.5	6 6.4	8.6	30.2	414/506	33	45
168	380-415/50/3	5.5	46	2@1.5	5 7	8.6	26.2	342/456	33.4	40
168	575/60/3	4.4	34	2@1.5 2@2	4.8 5.4	8.6	26.2	518/633	28.4	40
				D1	-					
Unit	Voltage	Comp	essor	Blower Motor	Blower Motor	VFD Input	Total	Min/Max	Minimum Circuit	Maximum Overcurrent
Size	voitage	RLA	LRA	HP	FLA	Current	Amps	Voltages	Amps	Protection (MOPD)
192	208-230/60/3	13	127	2@1.5	13.8 15.6	21.6	73.6	187/253	76.9	125
				2@3	22	27.8	74.8		83.1	
192	460/60/3	5.5	52	2@1.5	6.8	8.6	30.6	414/506	32	45
				2@3	9.6	11.8	33.8		35.2	
192	380-415/50/3	5.6	43	2@1.5	5 7	8.6	31	342/456	32.4	40
				2@3	10.8	10.8	33.2		34.6	45
192	575/60/3	4.9	33	2@1.5	4.8 5.4	7.2 7.2	28.2	518/633	29.4	45
				2@3	7.8	10.2	31.2		31	
Unit	Voltage	Comp	essor	Blower Motor	Blower Motor	VFD Input	Total	Min/Max	Minimum Circuit	Maximum Overcurrent
Size	Voltage	RLA	LRA	HP	FLA	Current	Amps	Voltages	Amps	Protection (MOPD
240	208-230/60/3	16.7	127	2@3	22	27.8	94.6	187/253	98.8	150
240	206-230/60/3	10.7	127	2@5	35	48	114.8	10//253	119.1	150
240	460/60/3	7.2	62	2@3	9.6	11.8	40.6	414/506	42.4	70
240	400/00/0	1.2	- 02	2@5	15.2	18.8	47.6	414,000	49.4	1157
240	380-415/50/3	7	51.5	2@3	10.4	10.8	38.8	342/456	40.6	50
9500000				2@5	17.2	18.8	46.8		48.6	60
240	575/60/3	5.7	39	2@3	3.9 6.1	4.3 8.8	15.7 20.2	518/633	32.8 37.2	45
				2@5	0.1	0.0	20.2		31.2	
Unit	Voltage	Comp		Blower	Blower	VFD Input	Total	Min/Max	Minimum Circuit	Maximum Overcurrent
Size		RLA	LRA	HP	FLA	Current	Amps	Voltages	Amps	Protection (MOPD
200	208 220/60/2	40.2	170	2@3	22	27.8	105	407/050	109.8	
288	208-230/60/3	19.3	179	2@5	35	48	125.2	187/253	139.9	175
288	460/60/3	8.3	62	2@3	9.6	11.8	45	414/506	47.1	70
200	400,000	0.0	UZ.	2@5	15.2	18.8	52	414/000	54.1	0
288	380-415/50/3	8.3	64	2@3	10.4	10.8	44	342/456	46.1	60
				2@5	17.2	18.8	52		54.1	70
288	575/60/3	6.8	50	2@3 2@5	7.8 12.2	8.6 18.8	35.8 46	518/633	37.5 47.7	50 60

168V\_288M\_M\_QUAD SHEET 4 OF 4 REV A 6/2/2011

## Submittal Data – Vertical Sizes 168 to 288 with Waterside Economizer Coil



VERTICAL
M VINTAGE
QUAD
W/ WATER SIDE ECONOMIZER

SUBMITTAL PACKAGE

168V\_288V\_M\_QUAD\_WSE

Mammoth Inc. certifies that it will furnish equipment in accordance with this drawing and specifications, and subject to its published warranty. Purchaser's approval of this drawing signifies that the equipment is acceptable under the provisions of the job specifications. Any change made hereon by any person whomever is subject to acceptance by Mammoth Inc. 13200 Pioneer Trail, Ste 150, Eden Prairie, MN 55347.

#### General Specifications

CABINET - Outer casing of G-60 galvanized steel.

REFRIGERANT CIRCUIT - Hermetically sealed 410A circuitry with reversing valve (HP only), TX metering device, and high/low side access valve.

COMPRESSOR - Hermetic type with PSC or three phase motor, overload protection and mounted on neoprene isolators. AIR COIL - Seamless copper tubes and aluminum fins. HEAT EXCHANGER - Coaxial water to refrigerant with steel outer tube and convoluted copper inner tube.

FILTER - 1-inch thick disposable

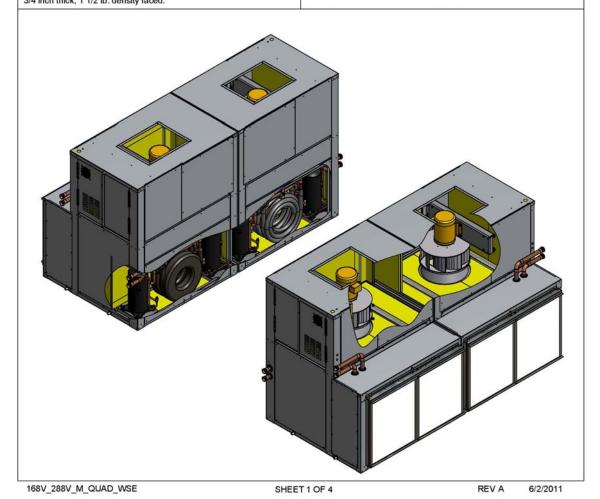
INSULATION - Thermally and acoustically optimized 3/4 inch thick, 1 1/2 lb. density faced.

FAN - Direct drive, dynamically balanced, airfoil shaped plug fan.
FAN MOTOR - Premium efficiency TEAO with sealed,
locked bearings, and overload protection.

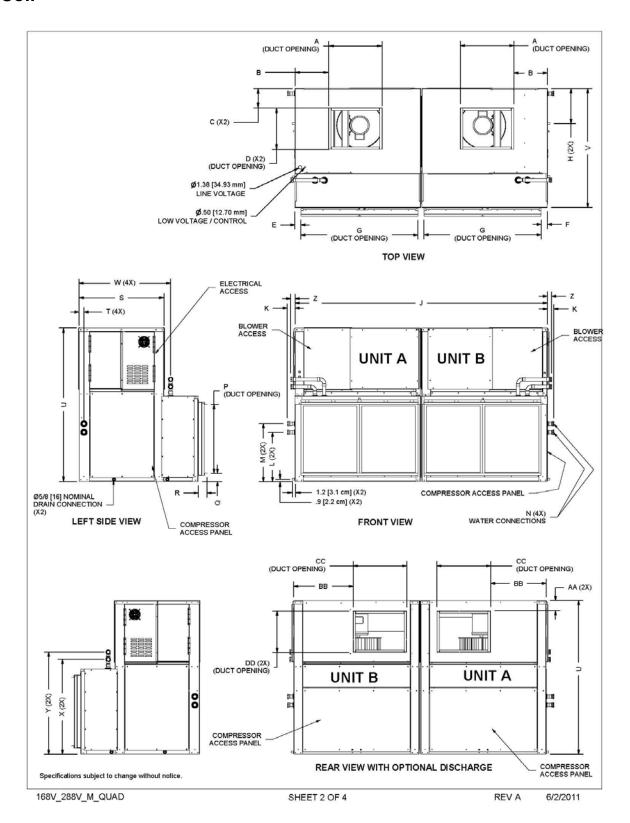
ELECTRICAL - 24-volt microprocessor control system with
fan relay, compressor contactor, reversing valve coil (HP only).

CONTROL - Standard CAV operation by field mounted,

wall type thermostat. Optional VAV operation with MDDC.



## Submittal Data – Vertical Sizes 168 to 288 with Waterside Economizer Coil



# **Submittal Data – Vertical Sizes 168 to 288 with Waterside Economizer Coil**

DIMENSION		UNIT	SIZE	
INCHES [CM]	168	192	240	288
Α	22 [55.9]	22 [55.9]	22 [55.9]	22 [55.9]
В	13.8 [34.9]	13.8 [34.9]	13.8 [34.9]	13.8 [34.9]
С	8 [20.3]	8 [20.3]	8 [20.3]	8 [20.3]
D	17 [43.2]	17 [43.2]	17 [43.2]	17 [43.2]
E	.4 [1]	.4 [1]	.4 [1]	.4 [1]
F	1.5 [3.8]	1.5 [3.8]	1.5 [3.8]	1.5 [3.8]
G	49.5 [125.7]	49.5 [125.7]	49.5 [125.7]	49.5 [125.7]
Н	14.4 [36.6]	14.4 [36.6]	14.4 [36.6]	14.4 [36.6]
J	103 [261.6]	103 [261.6]	103 [261.6]	103 [261.6]
K	1.9 [4.8]	1.9 [4.8]	1.9 [4.8]	1.9 [4.8]
L	20.1 [51]	20.1 [51]	20.1 [51]	20.1 [51]
М	23.1 [58.7]	23.1 [58.7]	23.1 [58.7]	23.1 [58.7]
N	1-1/4 [3.2] FNPT	1-1/4 [3.2] FNPT	1-1/4 [3.2] FNPT	1-1/4 [3.2] FNPT
Р	23.6 [60]	23.6 [60]	28.2 [71.6]	28.2 [71.6]
Q	3 [7.6]	3 [7.6]	3.5 [8.6]	3.5 [8.6]
R	4.4 [11.2]	4.4 [11.2]	4.4 [11.2]	4.4 [11.2]
S	37.5 [95.3]	37.5 [95.3]	37.5 [95.3]	37.5 [95.3]
Т	2.1 [5.4]	2.1 [5.4]	2.1 [5.4]	2.1 [5.4]
U	63 [160]	63 [160]	63 [160]	63 [160]
V	48.9 [124.2]	48.9 [124.2]	48.9 [124.2]	48.9 [124.2]
W	37.6 [95.5]	37.6 [95.5]	37.6 [95.5]	37.6 [95.5]
X	38.9 [98.8]	38.9 [98.8]	38.9 [98.8]	38.9 [98.8]
Υ	41.9 [106.4]	41.9 [106.4]	41.9 [106.4]	41.9 [106.4]
Z	19 [48.3]	19 [48.3]	19 [48.3]	19 [48.3]
AA	4.2 [10.7]	4.2 [10.7]	4.2 [10.7]	4.2 [10.7]
BB	22.8 [57.9]	22.8 [57.9]	22.8 [57.9]	22.8 [57.9]
CC	22 [55.9]	22 [55.9]	22 [55.9]	22 [55.9]
DD	17 [43.2]	17 [43.2]	17 [43.2]	17 [43.2]

	FIL	TER SIZE &	QTY'S.	
UNIT SIZE	168	192	240	288
FILTER SIZE	25 X 25 X 1 (4)	25 X 25 X 1 (4)	24 X 29.5 X 1 (4)	24 X 29.5 X 1 (4)

WEIGHTS		UNI	SIZE	
Lbs [Kg]	168	192	240	288
SHIPPING	1900 [862]	1980 [900]	2120 [962]	2180 [990]

168V\_288V\_M\_QUAD SHEET 3 OF 4 REV A 6/2/2011

# **Submittal Data – Vertical Sizes 168 to 288 with Waterside Economizer Coil**

Unit Size 168		Comp	ressor	Blower	Blower	VFD Input	Total	Min/Max	Minimum	Maximum
168	Voltage	RLA	LRA	Motor HP	Motor FLA	Current	Amps	Voltages	Circuit Amps	Overcurrent Protection (MOPD)
	208-230/60/3	12.2	101	2@1.5	13.8 15.6	21.6	70.4	187/253	76.6	100
168	460/60/3	5.4	44	2@1.5	6 6.4	8.6	30.2	414/506	33	45
168	380-415/50/3	5.5	46	2@1.5	5 7	8.6	26.2	342/456	33.4	40
168	575/60/3	4.4	34	2 @ 1.5 2 @ 2	4.8 5.4	8.6	26.2	518/633	28.4	40
		Comp	ressor	Blower	Blower				Minimum	Maximum
Unit	Voltage	2.2	7850000	Motor	Motor	VFD Input	Total	Min/Max	Circuit	Overcurrent
Size	vollage	RLA	LRA	HP	FLA	Current	Amps	Voltages	Amps	Protection (MOPD
192	208-230/60/3	13	127	2@1.5	13.8 15.6	21.6	73.6	187/253	76.9	125
				2@3	22	27.8	74.8		83.1	
192	460/60/3	5.5	52	2@1.5	6 6.8	8.6	30.6	414/506	32	45
102	400/00/3	5.5	52	2@3	9.6	11.8	33.8	414/300	35.2	45
192	380-415/50/3	5.6	43	2@1.5	5 7	8.6	31	342/456	32.4	40
102	10/00/0	0.0	,,,	2@3	10.8	10.8	33.2	0.2.,00	34.6	45
400	575/60/3	4.9	33	2 @ 1.5 2 @ 2	4.8 5.4	7.2 7.2	28.2	518/633	29.4	45
192										
192				2@3	7.8	10.2	31.2		31	
192		_				10.2	31.2			
192 Unit	Voltage	Comp	ressor	Blower	Blower	VFD Input	31.2	Min/Max	Minimum	Maximum
	Voltage	Comp	ressor	Blower Motor	Blower Motor			Min/Max Voltages	Minimum Circuit	Overcurrent
Unit Size		RLA	LRA	Blower Motor HP	Blower	VFD Input	Total	Voltages	Minimum	Overcurrent Protection (MOPD
Unit	Voltage 208-230/60/3			Blower Motor HP 2@3 2@5	Blower Motor FLA 22 35	VFD Input Current	Total Amps	200000000000000000000000000000000000000	Minimum Circuit Amps 98.8 119.1	Overcurrent
Unit Size	208-230/60/3	<b>RLA</b> 16.7	127	Blower Motor HP 2@3 2@5 2@3	Blower Motor FLA 22 35 9.6	VFD Input Current 27.8 48 11.8	Total Amps 94.6 114.8 40.6	Voltages 187/253	Minimum Circuit Amps 98.8 119.1 42.4	Overcurrent Protection (MOPD 150
Unit Size		RLA	LRA	Blower Motor HP 2@3 2@5 2@3 2@5	Blower Motor FLA 22 35 9.6 15.2	VFD Input Current 27.8 48 11.8 18.8	Total Amps 94.6 114.8 40.6 47.6	Voltages	Minimum Circuit Amps 98.8 119.1 42.4 49.4	Overcurrent Protection (MOPD  150  70
Unit Size	208-230/60/3	<b>RLA</b> 16.7	127	Blower Motor HP 2@3 2@5 2@3 2@5 2@3	Blower Motor FLA 22 35 9.6 15.2 10.4	VFD Input Current 27.8 48 11.8 18.8 10.8	Total Amps 94.6 114.8 40.6 47.6 38.8	Voltages 187/253	Minimum Circuit Amps 98.8 119.1 42.4 49.4 40.6	Overcurrent Protection (MOPD  150  70  50
Unit Size 240 240 240	208-230/60/3 460/60/3 380-415/50/3	RLA 16.7 7.2 7	127 62 51.5	Blower Motor HP 2@3 2@5 2@3 2@5 2@3 2@5	Blower Motor FLA 22 35 9.6 15.2 10.4 17.2	VFD Input Current 27.8 48 11.8 18.8 10.8	Total Amps 94.6 114.8 40.6 47.6 38.8 46.8	Voltages - 187/253 - 414/506 - 342/456 -	Minimum Circuit Amps 98.8 119.1 42.4 49.4 40.6 48.6	Overcurrent Protection (MOPD  150  70  50  60
Unit Size 240 240	208-230/60/3	RLA 16.7 7.2	127 62	Blower Motor HP 2@3 2@5 2@3 2@5 2@3	Blower Motor FLA 22 35 9.6 15.2 10.4	VFD Input Current 27.8 48 11.8 18.8 10.8	Total Amps 94.6 114.8 40.6 47.6 38.8	Voltages 187/253 414/506	Minimum Circuit Amps 98.8 119.1 42.4 49.4 40.6	Overcurrent Protection (MOPD  150  70  50
Unit Size 240 240 240	208-230/60/3 460/60/3 380-415/50/3	RLA 16.7 7.2 7 5.7	127 62 51.5 39	Blower Motor HP 2@3 2@5 2@3 2@5 2@3 2@5 2@3 2@5 2@3	Blower Motor FLA 22 35 9.6 15.2 10.4 17.2 3.9 6.1	VFD Input Current 27.8 48 11.8 18.8 10.8 18.8 4.3 8.8	Total Amps 94.6 114.8 40.6 47.6 38.8 46.8 15.7	Voltages - 187/253 - 414/506 - 342/456 -	Minimum Circuit Amps 98.8 119.1 42.4 49.4 40.6 48.6 32.8 37.2	Overcurrent Protection (MOPD  150  70  50  60  45
Unit Size 240 240 240	208-230/60/3 460/60/3 380-415/50/3 575/60/3	RLA 16.7 7.2 7 5.7	127 62 51.5	Blower Motor HP 2@3 2@5 2@3 2@5 2@3 2@5 2@3 2@5 2@3 2@5	Blower Motor FLA 22 35 9.6 15.2 10.4 17.2 3.9 6.1	VFD Input Current 27.8 48 11.8 18.8 10.8 18.8 4.3	Total Amps 94.6 114.8 40.6 47.6 38.8 46.8 15.7	Voltages - 187/253 - 414/506 - 342/456 -	Minimum Circuit Amps 98.8 119.1 42.4 49.4 40.6 48.6 32.8 37.2	Overcurrent Protection (MOPD  150  70  50  60  45  Maximum
Unit Size 240 240 240 240	208-230/60/3 460/60/3 380-415/50/3	RLA 16.7 7.2 7 5.7	127 62 51.5 39	Blower Motor HP 2@3 2@5 2@3 2@5 2@3 2@5 2@3 2@5 2@3 2@5	Blower Motor FLA 22 35 9.6 15.2 10.4 17.2 3.9 6.1 Blower Motor	VFD Input Current 27.8 48 11.8 18.8 10.8 18.8 4.3 8.8	Total Amps 94.6 114.8 40.6 47.6 38.8 46.8 15.7 20.2	Voltages  - 187/253 - 414/506 - 342/456 - 518/633 -	Minimum Circuit Amps 98.8 119.1 42.4 49.4 40.6 48.6 32.8 37.2 Minimum Circuit	Overcurrent Protection (MOPD  150  70  50  60  45  Maximum Overcurrent
Unit Size 240 240 240 240 Unit Size	208-230/60/3 460/60/3 380-415/50/3 575/60/3 Voltage	RLA 16.7 7.2 7 5.7 Comp	127 62 51.5 39 ressor LRA	Blower Motor HP 2@3 2@5 2@5 2@3 2@5 2@3 2@5 2@3 2@5 Blower Motor HP	Blower Motor FLA 22 35 9.6 15.2 10.4 17.2 3.9 6.1 Blower Motor FLA	VFD Input Current 27.8 48 11.8 18.8 10.8 18.8 4.3 8.8 VFD Input Current	Total Amps 94.6 114.8 40.6 47.6 38.8 46.8 15.7 20.2 Total Amps	Voltages  187/253 - 414/506 - 342/456 - 518/633 - Min/Max Voltages	Minimum Circuit Amps 98.8 119.1 42.4 49.4 40.6 48.6 32.8 37.2 Minimum Circuit Amps	Overcurrent Protection (MOPD  150  70  50  60  45  Maximum Overcurrent Protection (MOPD
Unit Size 240 240 240 240 Unit	208-230/60/3 460/60/3 380-415/50/3 575/60/3	RLA 16.7 7.2 7 5.7	127 62 51.5 39	Blower Motor HP 2@3 2@5 2@3 2@5 2@3 2@5 2@3 2@5 2@3 2@5	Blower Motor FLA 22 35 9.6 15.2 10.4 17.2 3.9 6.1 Blower Motor	VFD Input Current 27.8 48 11.8 18.8 10.8 18.8 4.3 8.8	Total Amps 94.6 114.8 40.6 47.6 38.8 46.8 15.7 20.2	Voltages  187/253  414/506  342/456  518/633  Min/Max	Minimum Circuit Amps 98.8 119.1 42.4 49.4 40.6 48.6 32.8 37.2 Minimum Circuit	Overcurrent Protection (MOPD  150  70  50  60  45  Maximum Overcurrent
240 240 240 240 Unit Size 288	208-230/60/3 460/60/3 380-415/50/3 575/60/3 Voltage	RLA 16.7 7.2 7 5.7 Comp RLA 19.3	127 62 51.5 39 ressor LRA	Blower Motor HP 2 @ 3 2 @ 5 2 @ 3 2 @ 5 2 @ 3 2 @ 5 2 @ 3 2 @ 5 Blower Motor HP 2 @ 3 2 @ 5 2 @ 3	Blower Motor FLA 22 35 9.6 15.2 10.4 17.2 3.9 6.1 Blower Motor FLA 22 35 9.6	VFD Input Current  27.8  48  11.8  18.8  10.8  4.3  8.8  VFD Input Current  27.8  48  11.8	Total Amps 94.6 114.8 40.6 47.6 38.8 46.8 15.7 20.2 Total Amps 105 125.2 45	Voltages  187/253 - 414/506 - 342/456 - 518/633 - Min/Max Voltages  187/253 -	Minimum Circuit Amps 98.8 119.1 42.4 49.4 40.6 48.6 32.8 37.2 Minimum Circuit Amps 109.8 139.9 47.1	Overcurrent Protection (MOPD  150  70  50  60  45  Maximum Overcurrent Protection (MOPD  175
Unit Size 240 240 240 240 Unit Size	208-230/60/3 460/60/3 380-415/50/3 575/60/3 Voltage	RLA 16.7 7.2 7 5.7 Comp	127 62 51.5 39 ressor LRA	Blower Motor HP 2@3 2@5 2@3 2@5 Blower Motor HP 2@3 2@5 2@3 2@5 5	Blower Motor FLA 22 35 9.6 15.2 10.4 17.2 3.9 6.1 Blower Motor FLA 22 35 9.6 15.2	VFD Input Current  27.8  48  11.8  18.8  10.8  4.3  8.8  VFD Input Current  27.8  48  11.8  18.8	Total Amps 94.6 114.8 40.6 47.6 38.8 46.8 15.7 20.2 Total Amps 105 125.2 45	Voltages  187/253 - 414/506 - 342/456 - 518/633 - Min/Max Voltages	Minimum Circuit Amps 98.8 119.1 42.4 49.4 40.6 48.6 32.8 37.2 Minimum Circuit Amps 109.8 139.9 47.1 54.1	Overcurrent Protection (MOPD  150  70  50  60  45  Maximum Overcurrent Protection (MOPD  175  70
240 240 240 240 Unit Size 288	208-230/60/3 460/60/3 380-415/50/3 575/60/3 Voltage	RLA 16.7 7.2 7 5.7 Comp RLA 19.3	127 62 51.5 39 ressor LRA	Blower Motor HP 2 @ 3 2 @ 5 2 @ 3 2 @ 5 2 @ 3 2 @ 5 Blower Motor HP 2 @ 3 2 @ 5 2 @ 3 2 @ 5 2 @ 3 2 @ 5 2 @ 3 2 @ 5 2 @ 3 2 @ 5 2 @ 3 2 @ 5 2 @ 3	Blower Motor FLA 22 35 9.6 15.2 10.4 17.2 3.9 6.1 Blower Motor FLA 22 35 9.6 15.2	VFD Input Current  27.8  48  11.8  18.8  10.8  4.3  8.8  VFD Input Current  27.8  48  11.8  18.8  10.8	Total Amps 94.6 114.8 40.6 47.6 38.8 46.8 15.7 20.2 Total Amps 105 125.2 45 52 44	Voltages  187/253 - 414/506 - 342/456 - 518/633 - Min/Max Voltages  187/253 -	Minimum Circuit Amps 98.8 119.1 42.4 49.4 40.6 48.6 32.8 37.2 Minimum Circuit Amps 109.8 139.9 47.1 54.1	Overcurrent Protection (MOPD  150  70  50  60  45  Maximum Overcurrent Protection (MOPD  175  70  60
240 240 240 240 240 240 240 240 288	208-230/60/3 460/60/3 380-415/50/3 575/60/3 Voltage 208-230/60/3 460/60/3	RLA 16.7 7.2 7 5.7 Comp RLA 19.3	127 62 51.5 39 ressor LRA 179 62	Blower Motor HP 2@3 2@5 2@3 2@5 Blower Motor HP 2@3 2@5 2@3 2@5 5	Blower Motor FLA 22 35 9.6 15.2 10.4 17.2 3.9 6.1 Blower Motor FLA 22 35 9.6 15.2	VFD Input Current  27.8  48  11.8  18.8  10.8  4.3  8.8  VFD Input Current  27.8  48  11.8  18.8	Total Amps 94.6 114.8 40.6 47.6 38.8 46.8 15.7 20.2 Total Amps 105 125.2 45	Voltages  187/253 - 414/506 - 342/456 - 518/633 - Min/Max Voltages - 187/253 - 414/506 -	Minimum Circuit Amps 98.8 119.1 42.4 49.4 40.6 48.6 32.8 37.2 Minimum Circuit Amps 109.8 139.9 47.1 54.1	Overcurrent Protection (MOPD  150  70  50  60  45  Maximum Overcurrent Protection (MOPD  175  70

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