

# High Efficiency Water-to-Water Heat Pumps

*Product Catalog*



**Sizes:** 064 to 480 – Water-to-Water  
**Model:** K Vintage



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## Nomenclature

F

**Voltage**

F = 208-230/3/60  
G = 460/3/60  
J = 380-415/3/50  
K = 575/3/60  
S = 380/3/60

120

**Size (BTUH Cooling)**

064 = 58,437  
120 = 127,792  
170 = 172,906  
270 = 257,319  
360 = 350,047  
480 = 459,580

W

**Unit Type**

W = Water-to-Water

H

**Temperature Range**

H = Standard Range  
L = Low Temperature

K

**Vintage**



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## General Description

K-vintage water-to-water units are floor-mounted in closets or small mechanical rooms and are intended to provide hot or cold water to air handler, fan coil or radiant floor heating systems within a building. In some instances, units are built into an air handler unit to conserve space while combining the efficiency of water source heat pump operation with a larger airside system.

Units contain one or more scroll compressors, R-410A refrigerant, and two brazed plate heat exchangers – one for the condenser water loop, and one for the air handler water loop. The piping connections for the source water loop and the load loop are on the same side of the unit. The piping can be located on the left or right side of the unit. The control box is located on the opposite side of the unit from the water connections.

### Basic Features:

- Six sizes from 5 to 40 tons
- R-410A refrigerant
- EER up to 15.9 and COP rating to 4.3
- Standard or geothermal operation
- Available in heating-only, cooling-only and heating/cooling configurations
- Fully run-tested with water in both heating and cooling modes
- ETL listed for product safety
- Scroll compressor(s) on all units



- Available with left or right hand water connections to match application requirements
- Insulated cabinet with removable access panels for easy service
- Standard on-board electronic water temperature controller
- Standard HP 5 microprocessor control system
- Optional EPiC™ DDC controls provide for optimum performance using the control scheme or building management system and protocol of your choice

## Benefits

### High Efficiency

Components are selected for high efficiency, up to 15.9 EER and 4.3 COP, to conserve energy and reduce operating costs. Units can help a project obtain LEED® certification.

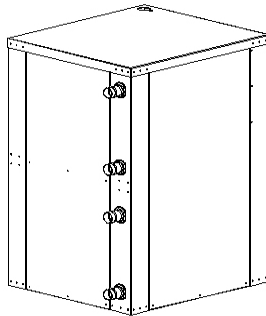
### Application Flexibility

Boiler/tower or geothermal selections provide design flexibility to meet project performance criteria and budget requirements. Heating-only, cooling-only and heating/cooling configurations allow you to meet your specific application requirements.

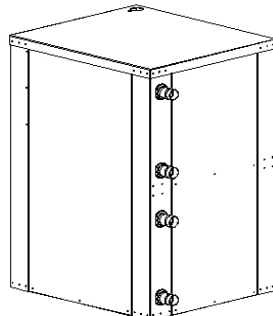
### Easy Installation

Units are available in right or left hand configurations to aid designers in avoiding obstructions and simplify installation. The control panel is located on the opposite side from the water connections.

*Left Hand*



*Right Hand*



### 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

Multiple access panels allow easy access to the compressor(s) and control box. Each refrigerant circuit has high and low side access valves for easy servicing.

### Controls Flexibility

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

### Durable and Reliable Operation

Mammoth units are engineered and components are selected for long-life and reliable operation. Optional cupro-nickel inner tubes of the heat exchanger provide additional protection in applications using well water and city water. Ease of service access encourages routine maintenance for peak operation and unit longevity.

## 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 1-inch, 1 ½ pound density, skin-coated fiberglass.

Source and load side water connections are located on the same side of the unit for easy installation and access. Water connections are 1 ¼" to 2 ½" NPT copper fittings (female for sizes 064-120 and male for sizes 170-480) located outside the cabinet for easy connection to flexible hose or rigid piping.

### Refrigeration System

The refrigeration system for each circuit consists of a scroll compressor, brazed plate water to refrigerant heat exchangers (load and source), thermal expansion valve, access valves, reversing valve and safety controls.

The compressor(s) 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.

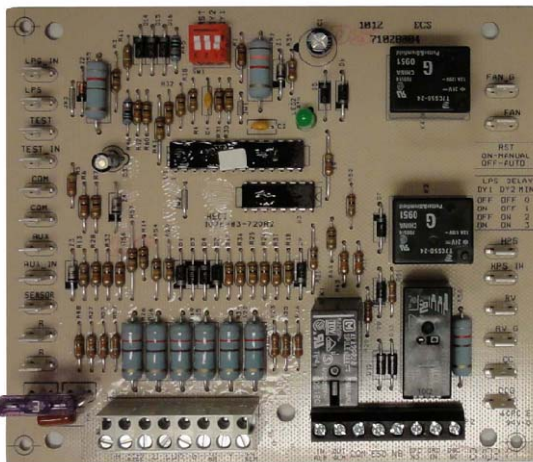
The water-to-refrigerant heat exchangers are a brazed plate design with copper and stainless steel plates and rated at 650 psig on the refrigerant side and 450 psig on the water side.

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 circuit prevents the compressor from operating if any safety switch trips.

## Controls

### HP 5 Microprocessor Control Board

The standard HP 5 microprocessor control board provides complete control of the compressor and reversing valve, and offers numerous safety features and troubleshooting fault indicators. The HP 5 unit is designed to operate with Mammoth's existing series of temperature controllers and arrives factory-installed and wired. For more information and a wiring diagram, see the HP 5 Installation, Operation and Maintenance instructions (MAMM-WHSP-IOM-1HP5A). For a copy of this document, visit [www.mammoth-inc.com](http://www.mammoth-inc.com).



### Key Features and Benefits

- Low and high voltage protection
- Check microprocessor at startup – self-diagnostic
- Random start time delay from 5 to 35 seconds
- Compressor anti-short cycle protection for 300 seconds (5 minutes)
- Compressor and reversing valve control
- Compressor lockout with selectable intelligent/manual reset
- LED status on the board
- Lockout alarm signal to the temperature controller in the event of a safety circuit fault
- Operable on 50 and 60 cycle power
- Emergency shutdown from a field-supplied signal
- Unoccupied (night setback and night setup) mode from a field-supplied signal
- Dry contact alarm signal for connection of a fault signal to a DDC controller.
- Auxiliary dry contact for tie-in of a motorized valve when the compressor is on (or optional compressor status)
- Night heating or cooling operation from temperature controller
- Override of the unoccupied mode from the temperature controller
- Low and high pressure compressor protection
- Low pressure bypass with 0, 1, 2 and 3 minute selections

## I/O 560 Controller

Mammoth I/O Zone 560 controller delivers powerful control and communications features, all in a compact, economical package. Fully capable of operating in a 100% stand-alone control mode, the I/O Zone 560 can connect to a Building Automation System (BAS) using any of today's most popular protocols, such as BACnet, Modbus, N2, LonTalk. The I/O Zone 560 also supports communication to the Mammoth line of intelligent space sensors and keypad/display units.

### Key Features and Benefits

- I/O point count: 5 digital outputs (relayed), and 6 universal inputs.
- Built-in protocol support: BACnet (ARCNET and MS/TP), Modbus RTU, and N2. Optional plug-in communications board for LonTalk
- On-board battery-backed real-time clock is standard, thus enabling full stand-alone scheduling capabilities as well as historical trend data storage and alarm event time-stamping.
- Powerful, high-speed 16-bit processor with 1MB Flash memory and 512KB of battery-backed RAM - plenty of room for even demanding and complex applications.

### I/O 560 Controller



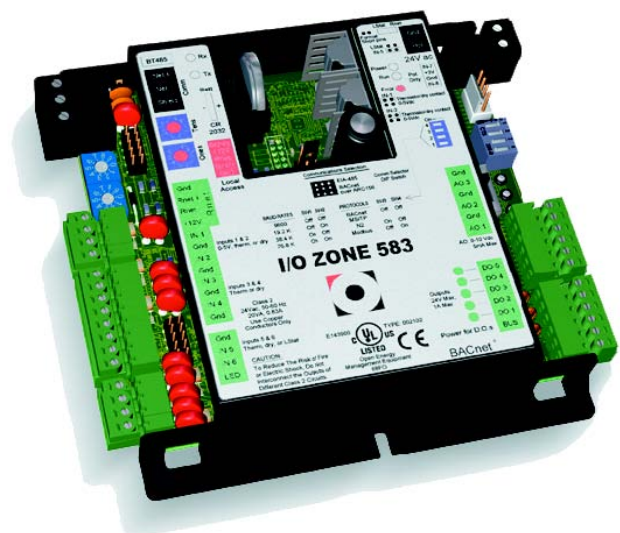
## I/O 583 Controller

Mammoth I/O Zone 583 controller delivers powerful control and communications features all in a compact, economical package. Fully capable of operating in a 100% stand-alone control mode, the I/O Zone 583 can connect to a Building Automation System (BAS) using any of today's most popular protocols, such as BACnet, Modbus, N2, and LonTalk. The I/O Zone 583 also supports communication to Mammoth's line of intelligent space sensors and keypad/display units.

### Key Features and Benefits

- I/O point count: 5 digital outputs (relayed), 8 inputs and 3 analog outputs.
- Built-in protocol support: BACnet (ARCNET and MS/TP), Modbus RTU, and N2. Optional plug-in communications boards for LonTalk
- On-board battery-backed real-time clock is standard, thus enabling full stand-alone scheduling capabilities as well as historical trend data storage and alarm event time-stamping.
- Powerful, high-speed 16-bit processor with 1MB Flash memory and 512KB of battery-backed RAM - plenty of room for even demanding and complex applications.

### I/O 583 Controller



I/O 560 and 583 – Example of Inputs/Outputs

INPUTS				
Point	Description			
UI #1	Thermistor/ Dry Contact	Load Supply Water Temperature (Outlet)		
UI #2		Load Return Water Temperature (Inlet)		
UI #3	Thermistor/ Dry Contact	Source Leaving Water Temperature (Outlet)		
UI #4		Source Entering Water Temperature (Inlet)		
UI #5		Compr Lockout (Waterflow )	Compr #1 HP4 Alarm	Compr #2 HP4 Alarm
UI #6		Emergency Shut Down	Remote Start (External Clock)	Htg/Clg Changeover ****
OUTPUTS				
Point	Description			
DO #1	Dry Contact for 24VAC	Pump Start*		
DO #2		Compressor Call #1		
DO #3		Compressor Call #2		
DO #4		Reversing Valve*		
DO #5		Common Alarm		

Notes:

1. Multiplexed inputs 5, 6 use 10K/4.99K/2.49K resistors for contact inputs. 1.24K resistor not used.

\* Could do more stages if cooling call and pump started externally.

\*\* A minimum of one keypad display must be ordered per project to set required set-points (Part #71027956).

\*\*\* A protocol will be a cost add option.

\*\*\*\* Load Shed will be a cost add option.

## Options

Code	Description
A1	QB sound package
A2	QB sound package / Compressor Sound blanket
C2	Hot gas bypass
CO	Cooling only
FC	Factory-mounted DDC (by others); Includes mounting controller & 2 sensors (additional items extra)
FL	Load side co-axial flow switch
FS	Source side co-axial flow switch
HO	Heating only
MDDC K1	EPiC 560 I/O; Includes 4 sensors, load and source EWT and LWT
MDDC KP	Mammoth DDC keypad / required 1 minimum per job W/MDDC control
MV1K	064 / Motorized valve, opens on compressor start
PP	Phase protection
Protocol 1	BACnet MSTP 9600 or 38.4 or 76.6 Baud rate
Protocol 2	BACnet ethernet 10 base T (additional hardware required)
Protocol 3	BACnet IP (additional hardware required)
Protocol 4	ModBus / RTU or ASCII / non-sequential numbers
Protocol 5	ModBus / RTU or ASCII / with sequential register numbers
Protocol 6	Johnson N2... 9600 Baud
Protocol 7	Serial LonTalk communication / includes SLTA for each unit
Protocol 8	If protocol 2 or 3 is selected, extra hardware is required / this option must be selected
Protocol 9	If protocol 7 is selected, extra hardware is required / this option must be selected
RH	Right hand water connections & electrical box location
TL	Low temperature package; Includes insulated suction lines & water temperature switches

## Engineering Specification

**General:** Furnish and install water-source heat pumps as indicated on the plans and listed in the unit schedule. All units must be factory run-tested in both the heating and cooling modes with full water flow. All equipment must be certified for capacity and efficiency by AHRI and be safety agency listed with ETL.

**Unit Construction:** The cabinet walls, access doors, roof and floor shall be constructed of 18 gauge interior panels with 1-inch, 1 ½ lb. density fiberglass as the interior core. All openings through the casing shall be grommeted.

**Water Connections:** Supply and return water connections shall have NPT copper fittings located outside the cabinet for connection to flexible hoses. A 30 mesh wire strainer (by others) must be provided prior to the supply water connections.

**Refrigeration System:** Each unit shall have a sealed refrigerant circuit including an hermetic compressor, reversing valve, thermal expansion

valve, water-to-refrigerant heat exchangers, high side and low side access ports and safety controls.

The hermetic compressor shall have thermal overload protection and shall be mounted on neoprene isolators as recommended by the compressor manufacturer.

**Heat Exchangers:** The water-to-refrigerant heat exchangers shall be brazed plate design with copper and stainless steel plates and rated at 650 psig on the refrigerant side and 450 psig on the water side.

Safety controls include a high refrigerant pressure switch and a low refrigerant pressure switch for protection against loss of charge and extreme low temperature operation. Each unit shall be capable of starting with 50°F entering water side temperature and 60°F load side temperature in the heating mode.

## 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 drilled 150 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 aquifer. 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)

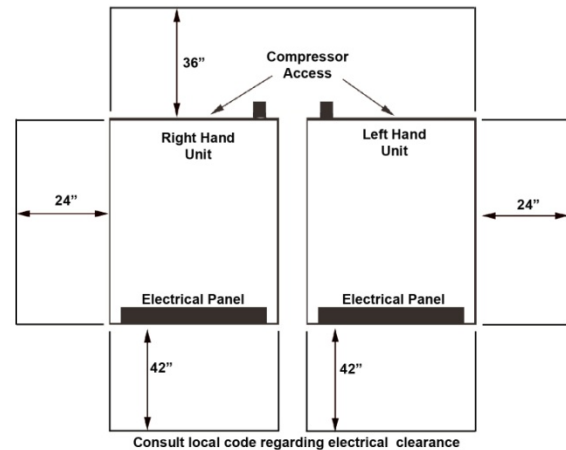
## Unit Design Considerations

**Unit Location and Installation:** Units are intended for installation in a small mechanical room or closet. Units should be positioned to provide enough clearance for routine maintenance or service.

**Clearance Requirements:** The diagram below shows minimum suggested clearances. Any additional clearances would be beneficial, but not always necessary. 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. The electrical connections are accessible from the front. The compressor can be accessed from either side. There are no air filter, ductwork or ventilation air requirements for K-Vintage water-to-water units.

## 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.

## Nominal Capacity

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

Size	SGPM	LGPM	Model WHK					
			Cooling			Heating		
			Q <sub>t</sub>	kW	EER	Q <sub>t</sub>	kW	COP
064	16	16	58,400	4.3	13.8	77,100	5.3	4.3
120	33	33	127,700	9.0	14.1	168,100	11.8	4.2
170	45	45	172,900	12.3	14.0	227,200	15.6	4.3
270	72	72	257,300	18.1	14.3	338,000	23.6	4.2
360	92	92	350,000	24.6	14.2	457,900	31.1	4.3
480	120	120	459,500	32.2	14.3	593,100	41.0	4.2

Notes:

Source is a boiler/tower loop. Load is the building water loop, fan coil units, air handlers, etc.

Cooling load capacity is based on 85°F source entering water temp and 55°F load entering water temperature.

GPM = Gallons Per Minute, Q<sub>t</sub> = Capacity Total (BTUH), EER = Energy Efficiency Ratio, COP = Coefficient of Performance

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

Size	SGPM	LGPM	Model WLK					
			Cooling			Heating		
			Q <sub>t</sub>	kW	EER	Q <sub>t</sub>	kW	COP
064	16	16	59,300	3.9	15.3	45,100	4.4	3.0
120	33	33	129,600	8.2	15.8	98,300	9.9	2.9
170	45	45	175,400	11.2	15.7	132,800	13.1	3.0
270	72	72	261,000	16.4	15.9	197,500	19.8	2.9
360	92	92	355,100	22.3	15.9	267,600	26.1	3.0
480	120	120	466,200	29.3	15.9	346,600	34.4	3.0

Notes:

Source is a geothermal loop. Load is the building water loop, fan coil units, air handlers, etc.

Cooling load capacity is based on 85°F source entering water temp and 55°F load entering water temperature.

GPM = Gallons Per Minute, Q<sub>t</sub> = Capacity Total (BTUH), EER = Energy Efficiency Ratio, COP = Coefficient of Performance


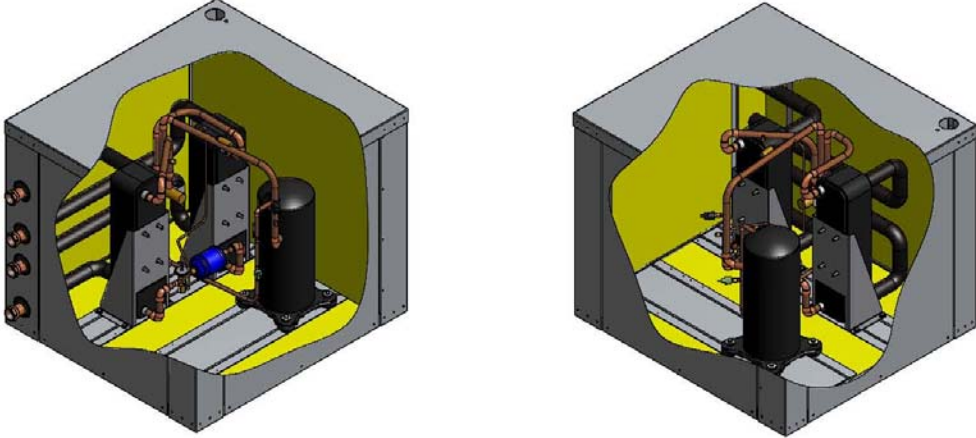
\* Please refer to Mammoth's WSHP selection software for accurate performance at the precise entering conditions of your project. The capacity data above is provided using minimum and maximum entering water temperatures as an example only.

## Application Limits

### Water Temperature (°F)

	Standard Range		Low Temperature Geothermal	
	COOLING	HEATING	COOLING	HEATING
MINIMUM WATER TEMPERATURE	50 <sup>0</sup> F	40 <sup>0</sup> F	25 <sup>0</sup> F	25 <sup>0</sup> F
MAXIMUM WATER TEMPERATURE	110 <sup>0</sup> F	110 <sup>0</sup> F	110 <sup>0</sup> F	110 <sup>0</sup> F

## Submittal Data – Sizes 064 to 480, Right Hand

	<p>WATER TO WATER K - VINTAGE</p>	SUBMITTAL PACKAGE
		064W_480W_K_RH
		RIGHT HAND
<p><small>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.</small></p>		
<p><b>General Specifications</b></p>		
<p>CABINET - Outer casing of G-60 galvanized steel.</p> <p>REFRIGERANT CIRCUIT(S) - Hermetically sealed 410A circuitry with reversing valve (HP only), TX metering device, and high/low side access valve.</p> <p>COMPRESSOR(S) - Hermetic type with PSC or three phase motor, overload protection and mounted on neoprene isolators.</p> <p>WATER-TO-REFRIGERANT LOAD SIDE - Brazed flat plate style with stainless steel embossed plate construction.</p> <p>WATER-TO-REFRIGERANT SOURCE SIDE - Brazed flat plate style with stainless steel embossed plate construction.</p>	<p>INSULATION - Thermally and acoustically optimized 1 inch thick, 1 1/2 lb. density faced.</p> <p>ELECTRICAL - 24-volt control system with compressor contactor, reversing valve coil (HP only), 75 VA transformer, safety lockout circuit, and high pressure and low refrigerant pressure safety switches.</p> <p>CONTROL - Field-mounted 24-volt wall mount type thermostat with automatic or manual changeover control.</p>	
		
<p><b><u>SIZES 064-170</u></b></p>		
<p>Right hand water connections and electrical box location viewed looking into electrical control panel. Image shown represents 064-170W_K vintage Water to Water unit.</p>		

064-480W\_k

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REV A

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## Submittal Data – Sizes 064 to 480, Right Hand

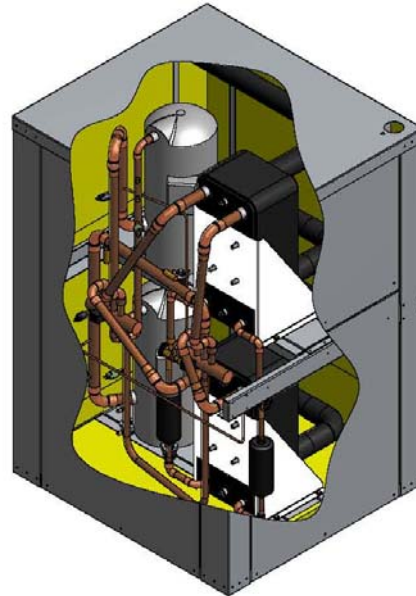
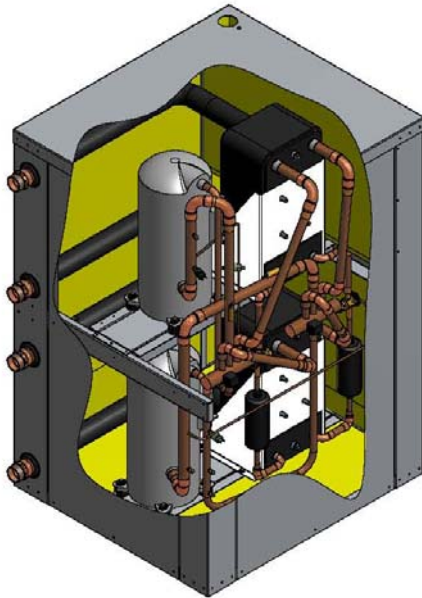
	WATER TO WATER K - VINTAGE	SUBMITTAL PACKAGE
		064W_480W_K_RH
		RIGHT HAND

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(S)** - Hermetically sealed 410A circuitry with reversing valve (HP only), TX metering device, and high/low side access valve.  
**COMPRESSOR(S)** - Hermetic type with PSC or three phase motor, overload protection and mounted on neoprene isolators.  
**WATER-TO-REFRIGERANT LOAD SIDE** - Brazed flat plate style with stainless steel embossed plate construction.  
**WATER-TO-REFRIGERANT SOURCE SIDE** - Brazed flat plate style with stainless steel embossed plate construction.

**INSULATION** - Thermally and acoustically optimized 1 inch thick, 1 1/2 lb. density faced.  
**ELECTRICAL** - 24-volt control system with compressor contactor, reversing valve coil (HP only), 75 VA transformer, safety lockout circuit, and high pressure and low refrigerant pressure safety switches.  
**CONTROL** - Field-mounted 24-volt wall mount type thermostat with automatic or manual changeover control.



### SIZES 270-480

Right hand water connections and electrical box location viewed looking into electrical control panel.  
 Image shown represents 270-480W\_K vintage Water to Water unit.

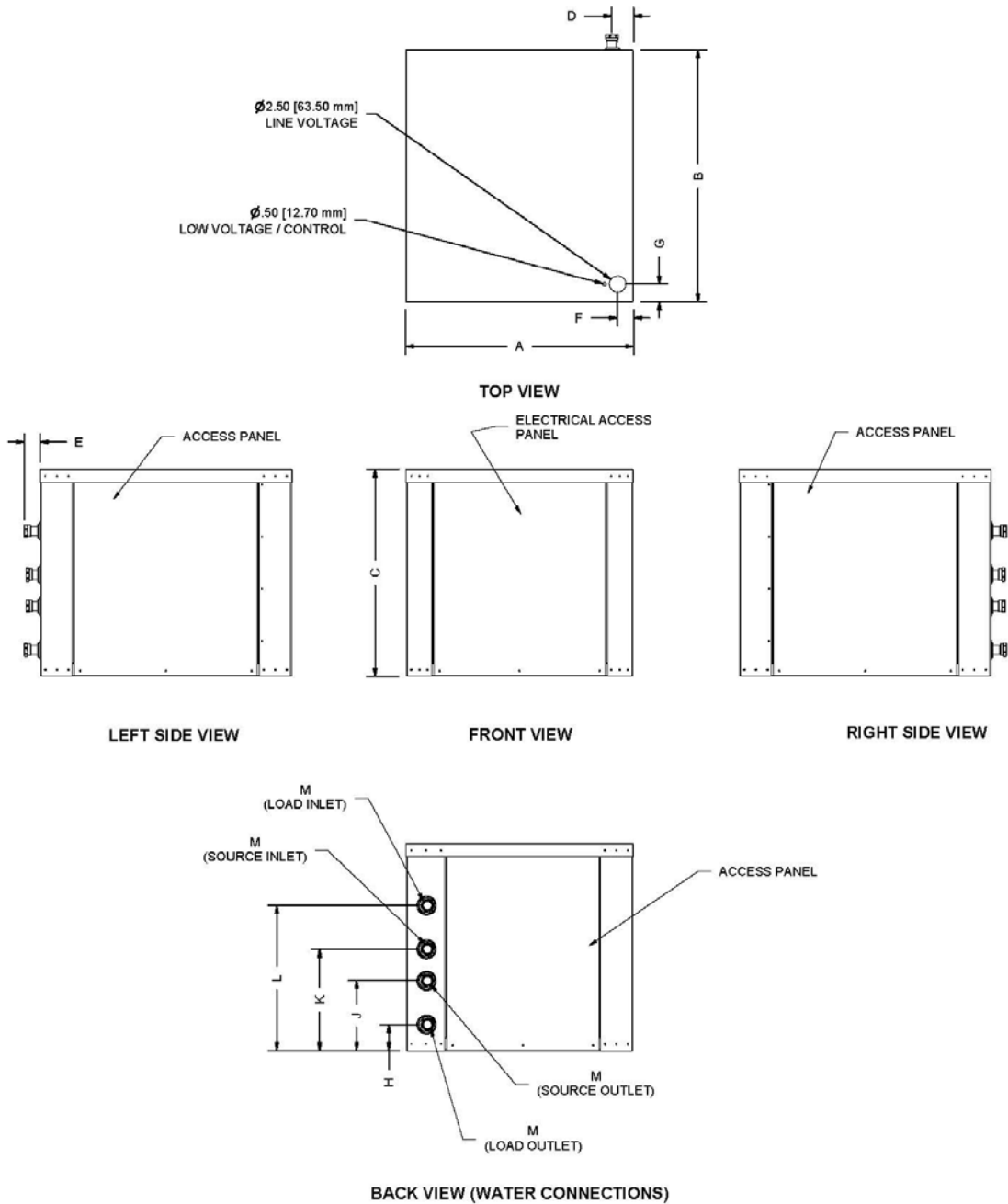
064-480w\_K

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# Submittal Data – Sizes 064 to 480, Right Hand

## SIZES 064-170



Specifications subject to change without notice.

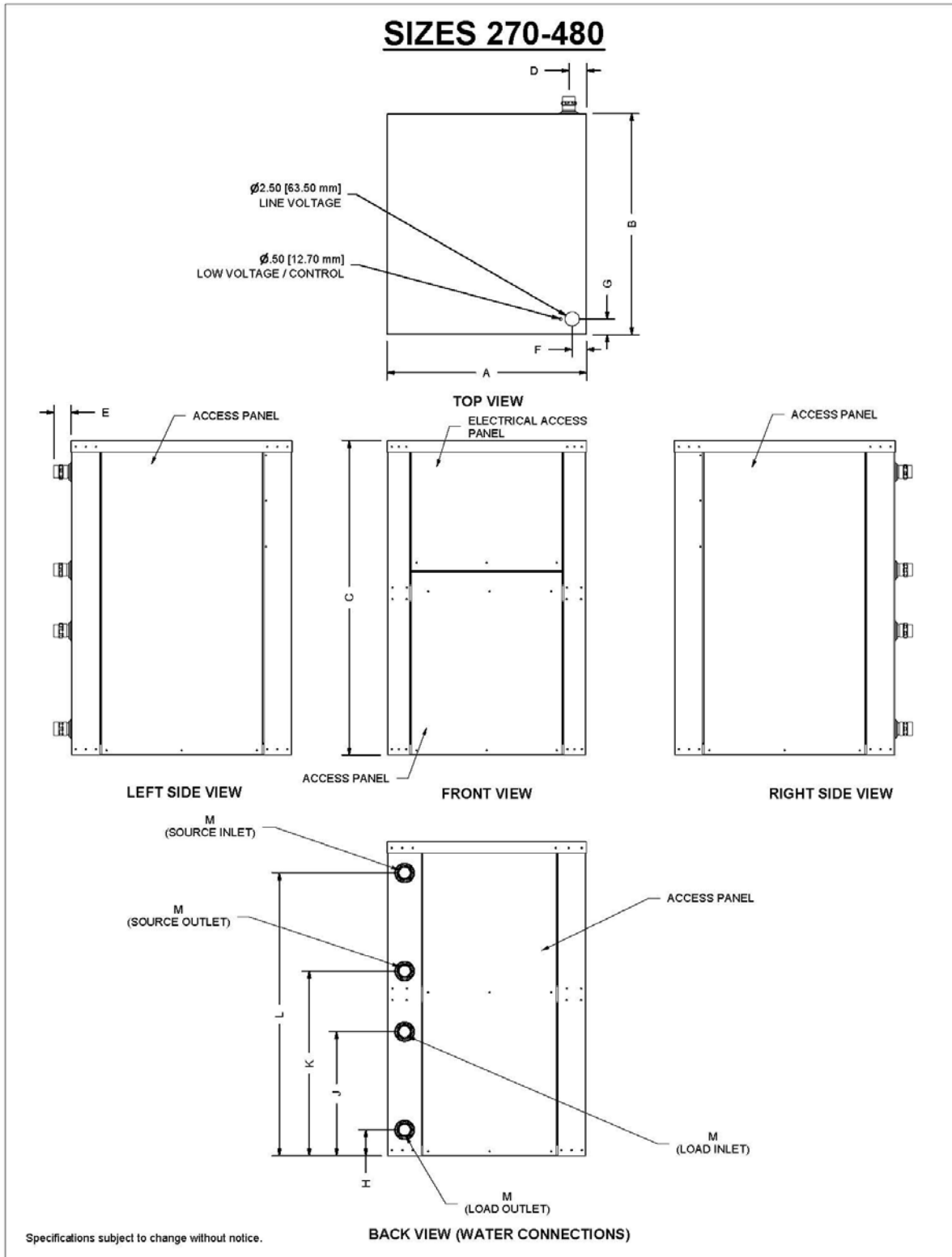
064-480W\_K

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REV A

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# Submittal Data – Sizes 064 to 480, Right Hand



064-480W\_K

SHEET 4 OF 6

REV A 5-17-2011

## Submittal Data – Sizes 064 to 480, Right Hand

### DIMENSIONAL DATA

DIMENSIONS INCHES [CM]	UNIT SIZE					
	064	120	170	270	360	480
A	34.6 [88]	34.6 [88]	34.6 [88]	34.6 [88]	34.6 [88]	34.6 [88]
B	38.4 [97]	38.4 [97]	38.4 [97]	38.4 [97]	38.4 [97]	38.4 [97]
C	31.5 [80]	31.5 [80]	31.5 [80]	54.5 [14]	54.5 [14]	66.5 [17]
D	3.1 [8]	3.1 [8]	3.1 [8]	3.1 [8]	3.1 [8]	3.1 [8]
E	2.3 [6]	2.3 [6]	2.3 [6]	3 [8]	4 [10]	4 [10]
F	2.5 [6]	2.5 [6]	2.5 [6]	2.5 [6]	2.5 [6]	2.5 [6]
G	2.8 [7]	2.8 [7]	2.8 [7]	2.8 [7]	2.8 [7]	2.8 [7]
H	4 [10]	4 [10]	4 [10]	4.5 [11]	4.5 [11]	4.5 [11]
J	10.6 [27]	10.6 [27]	10.6 [27]	21.5 [55]	21.5 [55]	21.5 [55]
K	15.5 [39]	15.5 [39]	15.5 [39]	32 [81]	32 [81]	37.6 [96]
L	22.1 [56]	22.1 [56]	22.1 [56]	49 [124]	49 [124]	55 [140]
M	1-1/4" [32] FNPT	1-1/2" [38] FNPT	2" [51] MNPT	2" [51] MNPT	2-1/2" [63.5] MNPT	2-1/2" [63.5] MNPT

UNIT SIZE	Shipping Weight lbs. [Kg.]	Operating Weight lbs. [Kg.]
	064	545 [247]
120	610 [277]	580 [263]
170	660 [299]	640 [290]
270	925 [420]	900 [408]
360	1100 [499]	1080 [490]
480	1550 [703]	1540 [699]

## Submittal Data – Sizes 064 to 480, Right Hand

### ELECTRICAL DATA

Unit Size	Voltage	Per Compressor # of compressors:		Total Amps	Min/Max Voltages	Minimum Circuit Amps	Maximum Overcurrent Protection (MOPD)
		RLA	LRA				
064	208-230/60/3	19.3	142	19.3	187/253	24.1	40
	460/60/3	8.3	62	8.3	414/506	10.4	20
	380-415/50/3	8.3	64	8.3	342/456	10.4	20
	575/60/3	6.8	50	6.8	518/633	8.5	20
120	208-230/60/3	44	282	44.0	187/253	55.0	90
	460/60/3	18	125	18.0	414/506	22.5	40
	380-415/50/3	17.8	118	17.8	342/456	22.3	30
	575/60/3	15.1	100	15.1	518/633	18.9	30
170	208-230/60/3	60	391	60	187/253	75.0	125
	460/60/3	26	173	26	414/506	32.5	50
	380-415/50/3	26	173	26	342/456	32.5	50
	575/60/3	22	132	22	518/633	27.5	45
270	208-230/60/3	44	282	88	187/253	99.0	125
	460/60/3	18	125	36	414/506	40.5	50
	380-415/50/3	17.8	118	35.6	342/456	40.1	50
	575/60/3	15.1	100	30.2	518/633	34.0	45
360	208-230/60/3	60	391	120	187/253	135.0	175
	460/60/3	26	173	52	414/506	58.5	80
	380-415/50/3	26	173	52	342/456	58.5	80
	575/60/3	22	132	30.2	518/633	49.5	70
480	208-230/60/3	74	581	148	187/253	166.5	225
	460/60/3	31	225	62	414/506	69.8	100
	380-415/50/3	30	225	60	342/456	67.5	90
	575/60/3	24	180	48	518/633	54.0	70


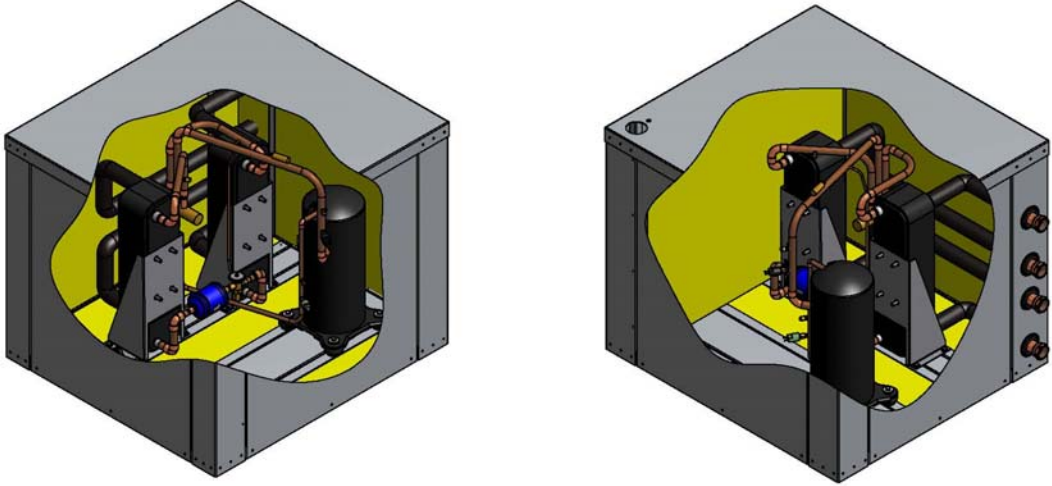
064-480W\_K

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## Submittal Data – Sizes 064 to 480, Left Hand

	WATER TO WATER K - VINTAGE	SUBMITTAL PACKAGE
		064W_480W_K_LH
		LEFT HAND
<small>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.</small>		
<b>General Specifications</b>		
CABINET - Outer casing of G-60 galvanized steel. REFRIGERANT CIRCUIT(S) - Hermetically sealed 410A circuitry with reversing valve (HP only), TX metering device, and high/low side access valve. COMPRESSOR(S) - Hermetic type with PSC or three phase motor, overload protection and mounted on neoprene isolators. WATER-TO-REFRIGERANT LOAD SIDE - Brazed flat plate style with stainless steel embossed plate construction. WATER-TO-REFRIGERANT SOURCE SIDE - Brazed flat plate style with stainless steel embossed plate construction.	INSULATION - Thermally and acoustically optimized 1 inch thick, 1 1/2 lb. density faced. ELECTRICAL - 24-volt control system with compressor contactor, reversing valve coil (HP only), 75 VA transformer, safety lockout circuit, and high pressure and low refrigerant pressure safety switches. CONTROL - Field-mounted 24-volt wall mount type thermostat with automatic or manual changeover control.	
		
<h3><u>SIZES 064-170</u></h3>		
Left hand water connections and electrical box location viewed looking into electrical control panel. Image shown represents 064-170W_K vintage Water to Water unit.		

064-480W\_k

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## Submittal Data – Sizes 064 to 480, Left Hand

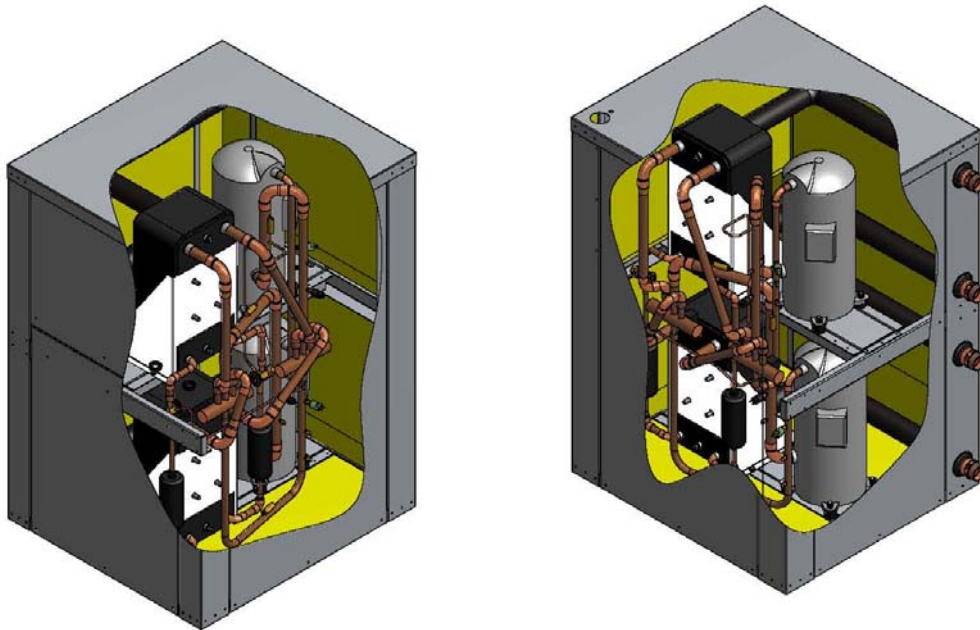
	WATER TO WATER K - VINTAGE	SUBMITTAL PACKAGE
		064W_480W_K_LH
		LEFT HAND

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(S)** - Hermetically sealed 410A circuitry with reversing valve (HP only), TX metering device, and high/low side access valve.  
**COMPRESSOR(S)** - Hermetic type with PSC or three phase motor, overload protection and mounted on neoprene isolators.  
**WATER-TO-REFRIGERANT LOAD SIDE** - Brazed flat plate style with stainless steel embossed plate construction.  
**WATER-TO-REFRIGERANT SOURCE SIDE** - Brazed flat plate style with stainless steel embossed plate construction.

**INSULATION** - Thermally and acoustically optimized 1 inch thick, 1 1/2 lb. density faced.  
**ELECTRICAL** - 24-volt control system with compressor contactor, reversing valve coil (HP only), 75 VA transformer, safety lockout circuit, and high pressure and low refrigerant pressure safety switches.  
**CONTROL** - Field-mounted 24-volt wall mount type thermostat with automatic or manual changeover control.



## SIZES 270-480

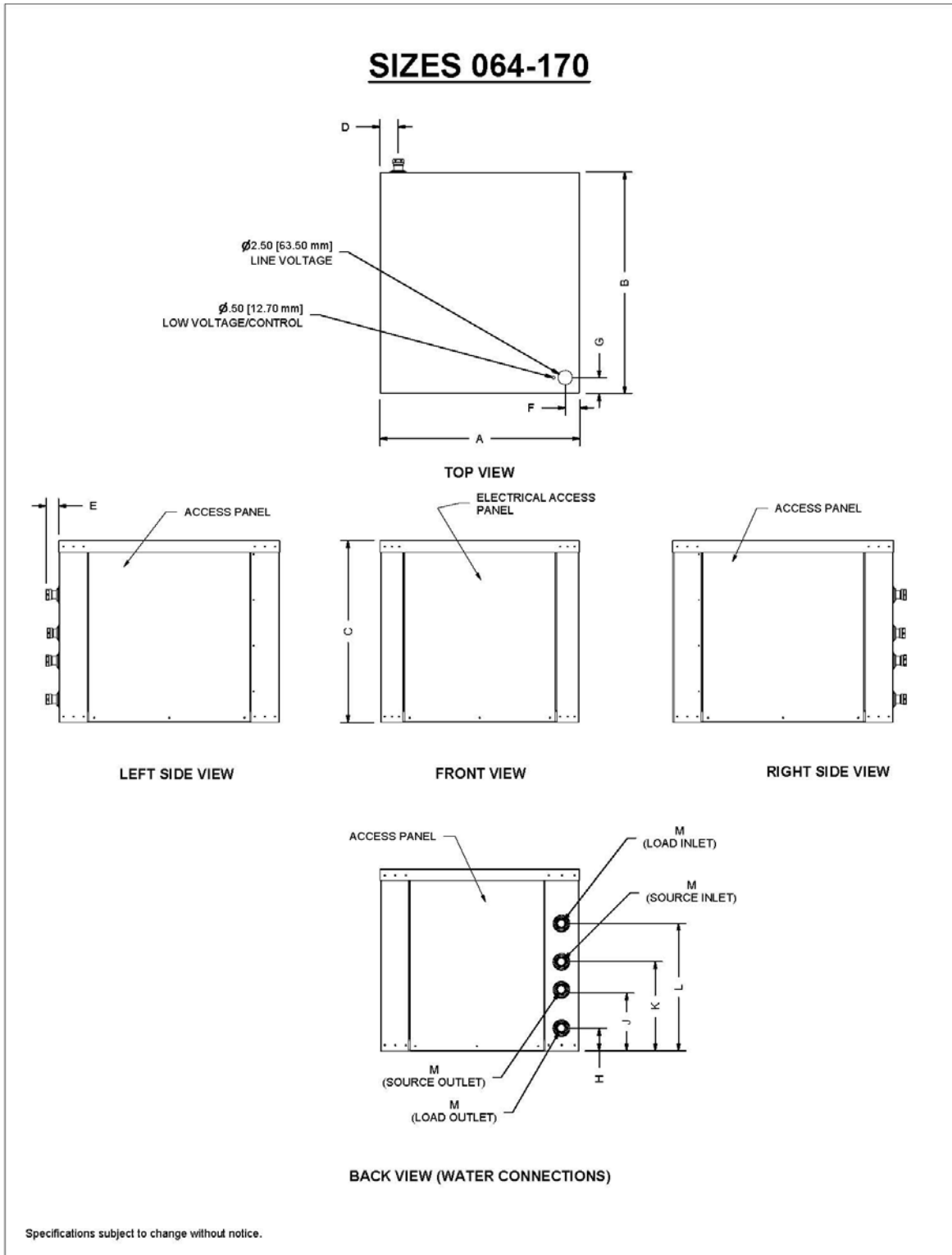
Left hand water connections and electrical box location viewed looking into electrical control panel.  
 Image shown represents 270-480W\_K vintage Water to Water unit.

064-480w\_K

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# Submittal Data – Sizes 064 to 480, Left Hand



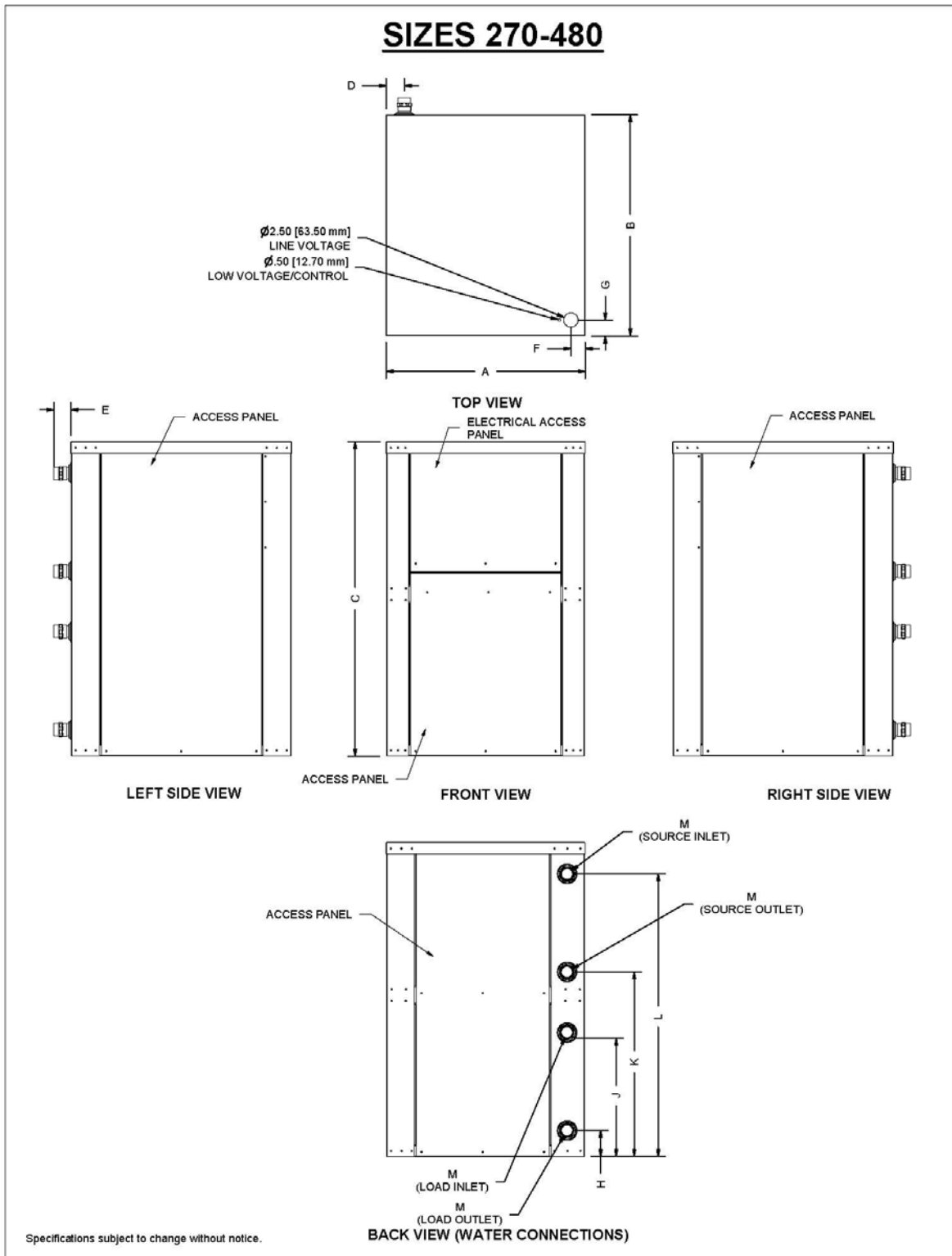
064-480W\_K

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# Submittal Data – Sizes 064 to 480, Left Hand



064-480W\_K

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## Submittal Data – Sizes 064 to 480, Left Hand

### DIMENSIONAL DATA

DIMENSION S INCHES [CM]	UNIT SIZE					
	064	120	170	270	360	480
A	34.6 [88]	34.6 [88]	34.6 [88]	34.6 [88]	34.6 [88]	34.6 [88]
B	38.4 [97]	38.4 [97]	38.4 [97]	38.4 [97]	38.4 [97]	38.4 [97]
C	31.5 [80]	31.5 [80]	31.5 [80]	54.5 [14]	54.5 [14]	66.5 [17]
D	3.1 [8]	3.1 [8]	3.1 [8]	3.1 [8]	3.1 [8]	3.1 [8]
E	2.3 [6]	2.3 [6]	2.3 [6]	3 [8]	4 [10]	4 [10]
F	2.5 [6]	2.5 [6]	2.5 [6]	2.5 [6]	2.5 [6]	2.5 [6]
G	2.8 [7]	2.8 [7]	2.8 [7]	2.8 [7]	2.8 [7]	2.8 [7]
H	4 [10]	4 [10]	4 [10]	4.5 [11]	4.5 [11]	4.5 [11]
J	10.6 [27]	10.6 [27]	10.6 [27]	21.5 [55]	21.5 [55]	21.5 [55]
K	15.5 [39]	15.5 [39]	15.5 [39]	32 [81]	32 [81]	37.6 [96]
L	22.1 [56]	22.1 [56]	22.1 [56]	49 [124]	49 [124]	55 [140]
M	1-1/4" [32] FNPT	1-1/2" [38] FNPT	2" [51] MNPT	2" [51] MNPT	2-1/2" [63.5] MNPT	2-1/2" [63.5] MNPT

UNIT SIZE	Shipping Weight lbs. [Kg.]	Operating Weight lbs. [Kg.]
	064	545 [247]
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## Submittal Data – Sizes 064 to 480, Left Hand

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	460/60/3	31	225	62	414/506	69.8	100
	380-415/50/3	30	225	60	342/456	67.5	90
	575/60/3	24	180	48	518/633	54.0	70

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## Notes



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