

MHP0540R

Commercial Heat Pump Water Heating Systems

MODULAR WATER SOURCE HEAT PUMP



DESIGNED ★ ENGINEERED ★ ASSEMBLED

USA



MHP0540R

Specifications

Operating Conditions	Model Number	MHP0540R
	Nominal DOE Capacity*	557,600
	Nominal DOE Performance*	4.1 COP
	Recovery Rate ¹	1,328 Gal/hr
	Compressor Type	Scroll
	Refrigerant	R513A
	Factory Charge	38.5 lbs. x 2
	Max Water Temperature	175° F
	Source Water Range	35° F - 120° F
	Min. Ambient Exposure	33° F
	Max Working Water Pressure	150 psig (DHW); 300 psig (Source)



Multi-Pass Unit Sizing	DHW & Source Water Connections			2" FPT x 4	
	DHW Condenser Flow Rate			72 GPM	
	DHW Water Circuit Condenser Pressure Drop ²			7.4 ft Head	
	DHW Water Circuit Cv Value ²			20	
	Source Evaporator Water Flow Rate			96 GPM	
	Source Water Circuit Pressure Drop			11.1 ft. Head	
	Source Water Circuit Cv Value			22	
	External Head Pressure Allowed by Unit			18.7 ft Head	
	Min Cold Cycle Volume ⁵			119 Gallons	
	Min. Warm Cycle Volume ⁶			334 Gallons	
	Min. Tank Recovery ⁷			835 Gallons	
Single-Pass Unit Sizing	DHW & Source Water Connections			2" FPT x 4	
	DHW Condenser Water Flow Rate			44 GPM	
	DHW Water Circuit Condenser Pressure Drop ²			16.9 ft Head	
	DHW Water Circuit Cv Value ²			8	
	Source Evaporator Water Flow Rate			96 GPM	
	Source Evaporator Pressure Drop			11.1 ft Head	
	Source Water Circuit Cv Value			22	
	DHW External Head Pressure Allowed by Unit			19.5 ft Head	
	Min. Cold Water Cycle Volume ⁵			119 Gallons	
Unit Specifications	Dry Weight			2,342 lbs	
	Operating Weight			2,421 lbs	
	Sound Pressure ⁴			74.5 dB (Front), 73.4 dB (Left), 75.7 dB (Right), 73 dB (Rear)	
	Dimensions (L x D x H)			77 ¾" x 39" x 74 ¼"	
Power Requirements	Voltage	Compressor LRA	RLA Per Compressor	Wire and Disconnect Sizing	
				MCA	MOCP
	208-230/3/60	605	176	196	275
	440-480/3/60	272	89	99	125
	575/3/60	238	61	68	90

Legend
 LRA: Locked Rotor Amps
 RLA: Rated Load Amps
 MCA: Maximum Current Ampacity (used for wire sizing)
 MOCP: Minimum Overcurrent Protection (minimum disconnect size to be used)

Performance Data

Performance Test Conditions: 50 EWT, 140 LWT, 100% Water Source Side

Entering Source Water Temp(°F)	Supply Heating Capacity (Btu/hr)	Source Cooling Capacity (Btu/hr)	Power Input (kW)	Heating COP	Cooling COP	Combined COP
90°F	560,800	407,260	45	3.7	2.7	6.3
80°F	507,300	357,172	44	3.4	2.4	5.8
70°F	453,800	307,084	43	3.1	2.1	5.2
60°F	401,300	259,020	41.7	2.8	1.8	4.6
50°F	348,800	210,955	40.4	2.5	1.5	4.1
40°F	304,400	174,062	38.2	2.3	1.3	3.7

In view of ongoing product improvements, design and specification are subject to change without notice. Lochinvar Water Heating Systems can accept no responsibility for possible errors in catalogs, brochures or any other printed material.

Multi-pass Performance Test Data: 140 LWT, Design GPM, 100% Water Source Side

Entering Source Water	Supply Heating Capacity (Btu/hr)	Source Cooling Capacity (Btu/hr)	Power Input (KW)	Heating COP	Cooling COP	Combined COP
110°F	672,000	504,130	49.2	4	3	7
90°F	612,000	444,130	49.2	3.6	2.6	6.3
70°F	460,000	296,224	48	2.8	1.8	4.6
50°F	356,000	196,318	46.8	2.2	1.2	3.5
35°F	298,000	145,142	44.8	1.9	0.9	2.9

High Temperature Performance Test Data: 160 EWT, 175 LWT, 100% Water Source Side

Entering Source Water Range	Source Design GPM	Load Design GPM	Supply Heating Capacity (Btu/hr)	Source Cooling Capacity (Btu/hr)	Power Input (KW)	Heating COP	Cooling COP	Combined COP
90 - 104 °F	120	78	582,800	356,243	66.4	2.6	1.6	4.1

Note: Operation over 160 LWT requires the above adjustments to design flow rates, and restricts allowable source temperature ranges as shown. Requires Multipass HP. Source pressure drop increases to 17.2 Ft. Hd. Load side available head allowance drops to 17.4 Ft. Hd.

Notes: Certified to UL60335-1, UL60335-2-40, CSA C22.2 60335-1, CSA 60335-2-40 (LC16116-1) Control Panel: UL508A
Short Circuit Current Rating (SCCR) 100, Compressor Horsepower 25 HP, 1000 hrs. Salt Spray Resistance
Cabinet/Evap

*Nominal DOE specs at 70 EWT, 120 LWT, 80° F 100% water source

1. Recovery rate at 80° F source 100% water, DHW 70 EWT 120 LWT

2. Water Circuit Pressure Drop and Heat Pump Cv value apply to external pump applications

3. Pressure drop allowed by internal circulator for external piping, at design flow rate

4. Sound pressure recorded 3' from unit face, 3' from ground

5. Cold Cycle volume is the volume below the cold trigger sensor. Cold in water over 70° F will need more volume.

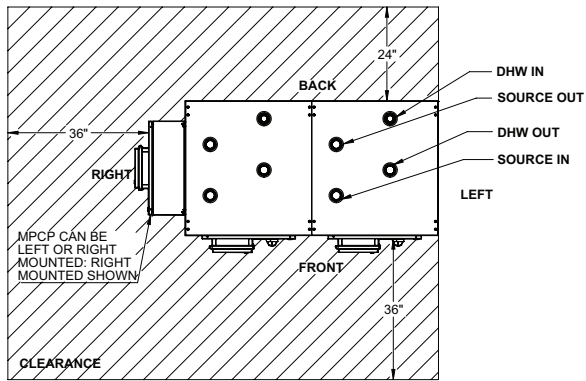
6. Warm Cycle volume is the volume of water below the warm/recirc trigger sensor.

7. Tank volume is based on individual project demands, but cannot be lower than minimum value.

Contact factory for accurate sizing.

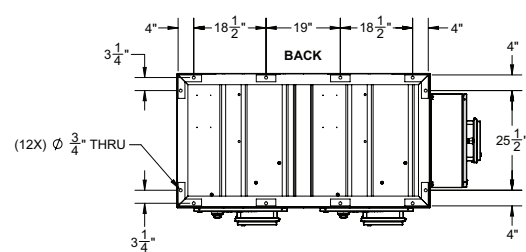
Dimensions

Water Connections and Required Clearances

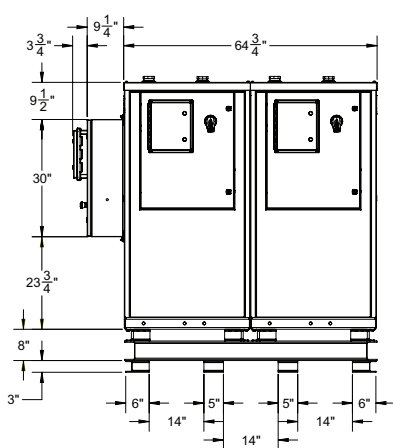


TOP

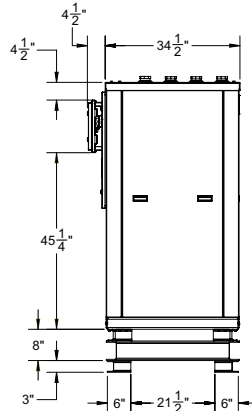
Anchor Locations



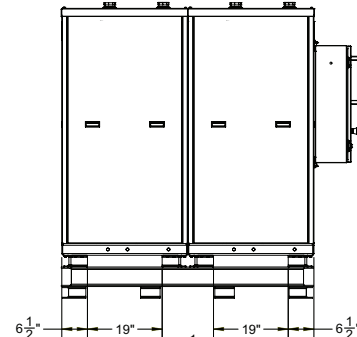
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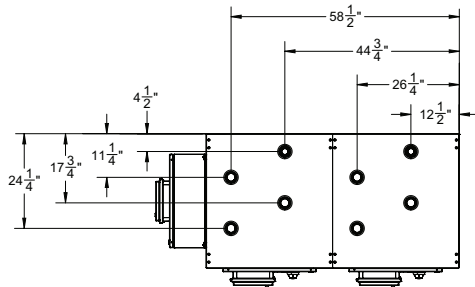
FRONT



LEFT



BACK



TOP

MPCP and PDC Power and Control Knockout Locations

