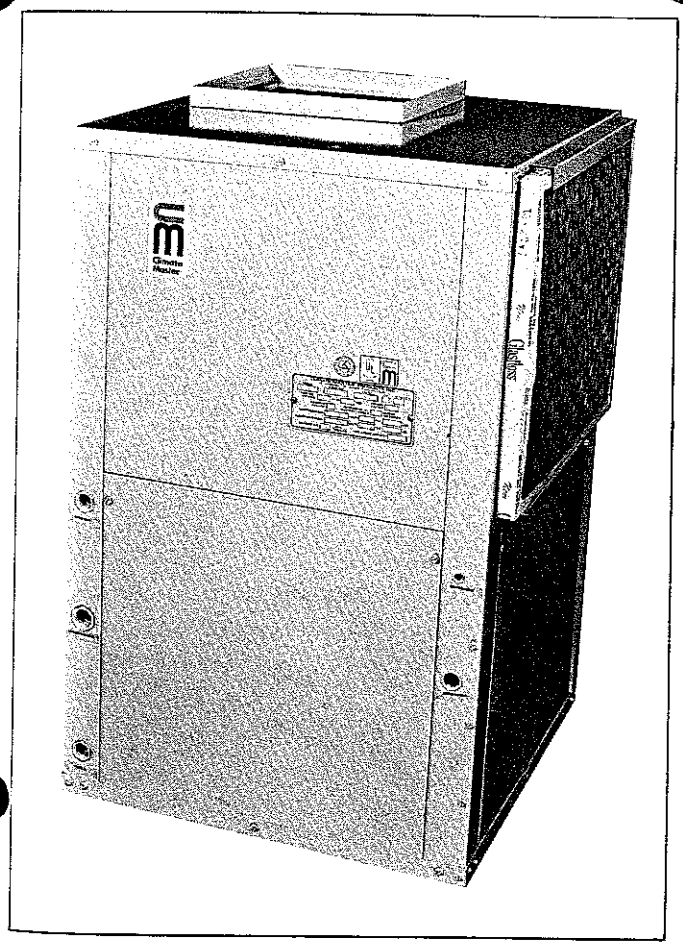
CLIMATE MASTER 14 Series

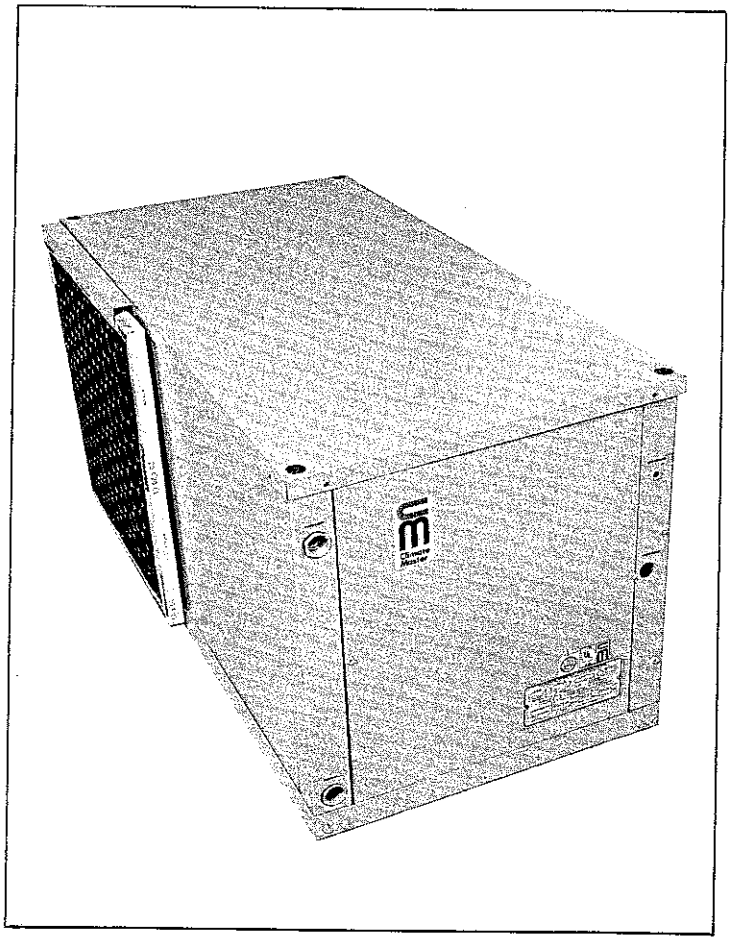
WATER TO AIR **HEAT PUMPS** VERTICAL MODEL HORIZONTAL MODEL

Better Cooling...Better Heating...Economically

CHOOSE FROM VERTICAL AND HORIZONTAL MODELS

- 2 Electrical Options
- Different Return Air Configurations
- Ease of Installation
- Versatility of Application
- Compact, Space-Saving Design
- Designed & Tested for High Efficiency
- Superior Accessibility
- Accoustically Improved





ADVANCED FEATURES and SPECIFICATIONS

MAKE CLIMATE MASTER YOUR BEST BUY IN ALL WEATHER COMFORT...

The Climate Master® is a complete factory-packaged water-to-air heat pump that provides total comfort. Each unit is designed and built per the specifications listed below:

Cabinet:

The cabinet is made of heavy gauge, galvanized steel, and painted electro-statically to prevent corrosion. The interior of the cabinet is lined with high density, coated insulation with improved thermal insulating and accoustical absorption characteristics. The units have access panels for ease of inspection and service to all components. The design incorporates externally stubbed water and drain (FPT) connections in the front of the unit for easy installation. The electrical power, control voltage wiring and control box are also accessible from the front of the unit. The supply air opening is provided with a duct collar and the return air incorporates a filter rack permitting removal of the filter in any direction (also optionally available is a flanged filter rack for ducted returns). The horizontal unit has threaded fasteners on the top for ceiling suspended installation.

Compressor:

The hermetic compressor is internally spring-mounted and mounted in the cabinet on rails with vibration isolators for quiet, smooth running operation. The compressor is furnished with external (line break) motor protection and features an anti-slug device for extended life.

Reversing Valve:

The reverse cycle feature is provided by a four way electro-magnetic reversing valve designed for low pressure drops and reliable operation.

Refrigerant-To-Water Heat Exchanger:

The heat exchanger is coaxial (tube-in-tube) spirally wound with booster fins on the refrigerant side to provide optimum heat transfer. The inner (water) tube is available in copper or 90/10 cupro-nickel construction designed to withstand water pressures of 500 psi. The outer (refrigerant) tube is made of primed and painted steel. Design working pressure on the refrigerant side is 450 psi.

Air-To-Refrigerant Heat Exchanger:

The large face area, fin coil heat exchanger utilizes 3/8" staggered copper tubes with rippled and corrugated aluminum fins for added heat transfer. The refrigerant circuiting is designed for optimum pressure drops and efficiency.

Refrigerant Control:

The optimum factory charge of Refrigerant 22 is metered by precisely designed capillary tubes. The critical charge and sizing of capillary tubes is laboratory researched for balancing on the cooling and heating modes at varied conditions. The refrigerant piping is factory pressure and leak tested. Abnormal pressures within the refrigerant circuit are prevented with safety high and low pressure switches.
Charging and service ports are provided on the high and low pressure sides of the unit as standard equipment.

Blower and Motor:

The centrifugal type blower wheel and housing is custom designed for quiet operation and efficient air delivery. The blower is close-coupled to the motor with inherent thermal overload protection. Each unit is provided with a high velocity type disposable filter.

Controls:

The control box, easily accessible from the front panel, includes a 24 volt control transformer, compressor contactor, blower and impedance relays. Completely factory wired, the circuit features a lock-out relay to provide a manual reset at the thermostat in case of interrupted operation by the safety controls. The individual control components are designed for ease of inspection and serviceability. A terminal block is provided for convenient field wiring to the thermostat. A remote thermostat for comfort control is furnished with the unit.

SUPERIOR COOLING CAPACITIES AND PERFORMANCE

COOLING

In accordance with ARI Standard 240-67
Cooling Capacity: 13,500 BTUH*.
Power Input: 1900 Watts.

*Basis: 450 CFM of 80° F DB/67° F WB entering air
2.0 GPM of Water entering at 75° F, leaving at 95° F.

APPLICATION DATA

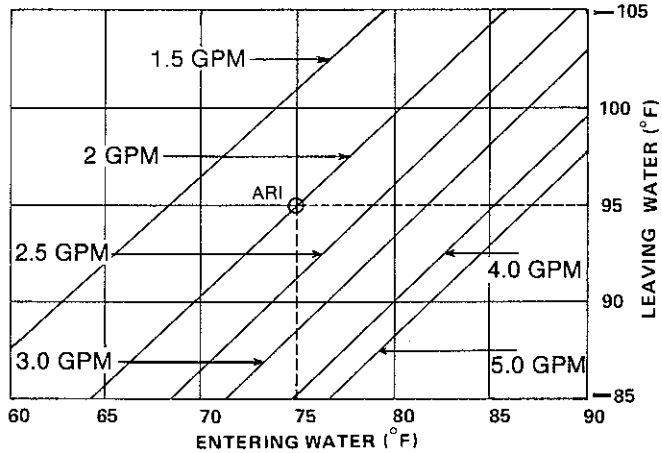
ENTERING AIR (°F) WET BULB	BASED ON 450 CFM & 95° F LEAVING WATER					
	TOTAL CAPACITY (BTUH)	SENSIBLE CAPACITY (BTUH) ENTERING AIR (°F) DRY BULB				HEAT OF REJECTION (BTUH)
		75	80	85	90	
61	11700	9180	10200	—	—	18000
64	12600	8500	9770	11460	—	19200
67	13500	7830	8950	10530	12080	20000
70	14400	—	8280	9650	11510	21050
73	15200	—	—	8670	10340	23000

CORRECTION FACTORS

(A) VARIATION OF AIRFLOW

CFM	610	580	540	500	450	400
TOTAL CAPACITY	1.081	1.071	1.057	1.031	1.000	.955
SENSIBLE CAPACITY	1.132	1.114	1.090	1.050	1.000	.942
HEAT OF REJECTION	1.184	1.165	1.140	1.077	1.000	.967

(B) VARIATION OF ENTERING WATER TEMP. AND FLOW RATE MULTIPLIER



TOTAL & SENSIBLE CAPACITY MULTIPLIER	HEAT OF REJECTION MULTIPLIER	POWER INPUT (WATTS)
0.919	0.955	2020
0.963	0.978	1950
1.000	1.000	1900
1.030	1.021	1850
1.057	1.038	1810

BLOWER PERFORMANCE (INCLUDES ALLOWANCE FOR WET COIL & FILTER)

SCFM @ AVAILABLE EXTERNAL STATIC PRESS (IWG)						
.1	.15	.2	.25	.3	.35	.4
640	610	580	540	500	450	400

SAMPLE PROBLEM (COOLING)

540 CFM AIR ENTERING AT 75° DB/61° WB
3 GPM OF 87° F ENTERING WATER

		AIRFLOW CORRECTION ▼		WATER FLOW CORRECTION ▼		
TOTAL CAPACITY	= 11700	x 1.057	x .963	=	11910 BTU
SENSIBLE CAPACITY	= 9180	x 1.090	x .963	=	9635 BTU
HEAT REJECTION	= 18000	x 1.140	x .978	=	20070 BTU

SUPERIOR HEATING CAPACITIES AND PERFORMANCE

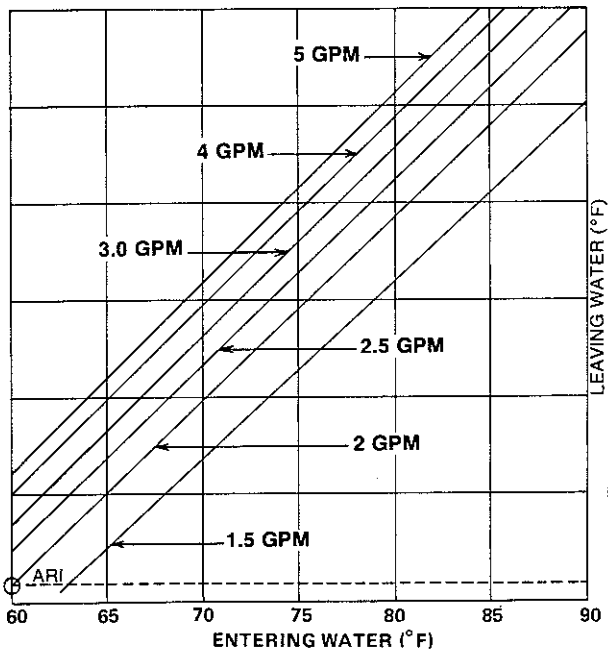
HEATING

In accordance with ARI Standard 240-67.
Heating Capacity: 15000 BTUH*.
Power Input: 1900 Watts.

*Basis: 450 CFM of 70° F entering air
2.0 GPM of 60° F entering water.

APPLICATION DATA

VARIATION OF ENTERING WATER TEMPERATURE AND FLOW RATE



HEATING CAPACITY (BTUH)	HEAT OF ABSORB-TION (BTUH)	POWER INPUT (WATTS)
21300	11900	2380
20000	11400	2280
18800	10900	2190
17700	10500	2110
16700	10100	2035
15800	9750	1960
15000	9500	1900

VARIATION OF ENTERING AIR TEMPERATURES

ENTERING AIR °F	60	65	70	75	80
HEATING CAPACITY MULTIPLIER	1.05	1.03	1.00	.97	.94
HEAT OF ABSORBTION MULTIPLIER	1.07	1.04	1.00	.95	.94
POWER INPUT MULTIPLIER	0.96	0.98	1.00	1.04	1.08

VARIATION OF AIRFLOW

CFM	610	580	540	500	450	400
HEATING CAPACITY MULTIPLIER	1.081	1.071	1.057	1.031	1.000	.955
HEAT OF ABSORBTION MULTIPLIER	1.125	1.105	1.078	1.043	1.000	.947
POWER INPUT MULTIPLIER	.931	.941	.953	.974	1.000	1.067

WATER PRESSURE DROP-PSIG.

WATER FLOW RATE (GPM)	1.5	2.0	2.5	3.0	4.0	5.0
PRESSURE DROP (PSIG)	1.3	1.8	2.5	3.3	5.2	7.4

SAMPLE PROBLEM (HEATING)

540 CFM OF AIR ENTERING @ 65° F
3 GFM OF 72° F ENTERING WATER

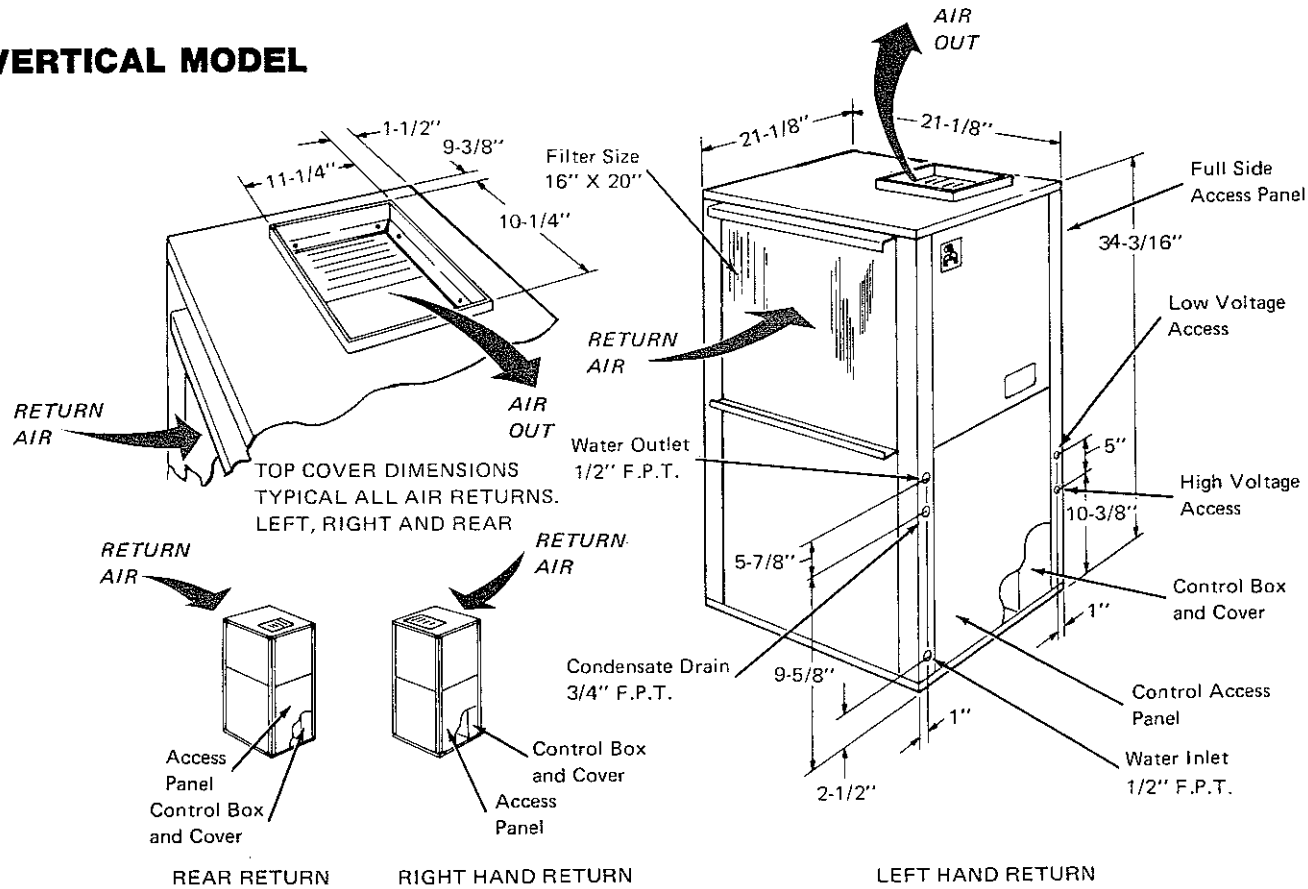
ENTERING AIR CORRECTION ▼ AIRFLOW CORRECTION ▼

HEATING CAPACITY = 17700 x 1.03 x 1.057 = 19270 BTUH
HEAT OF ABSORPTION = 10500 x 1.04 x 1.078 = 10410 BTUH
POWER INPUT (WATTS) = 2110 x 0.98 x 0.953 = 2060 WATTS

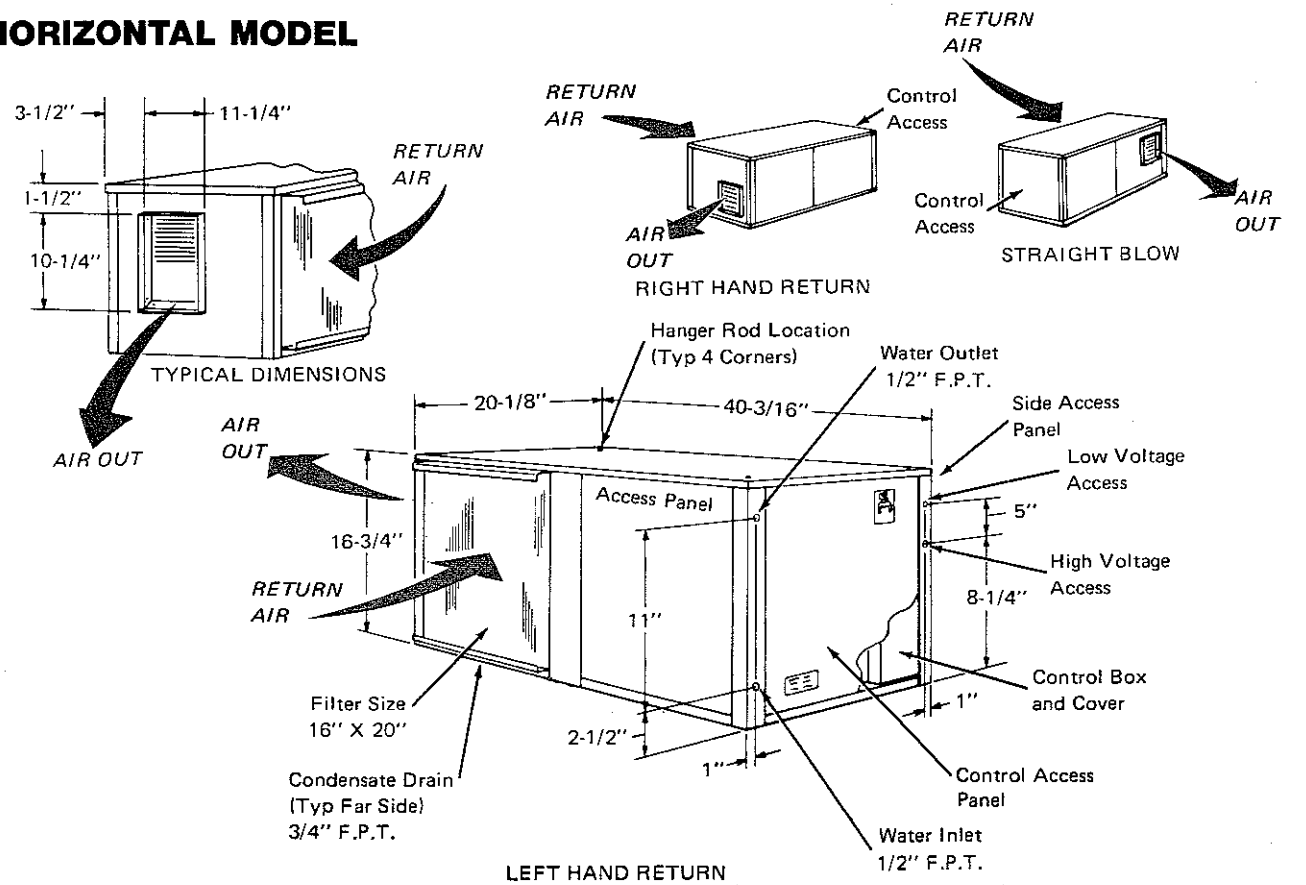
CHOOSE FROM VERTICAL AND HORIZONTAL STYLES

DIMENSIONAL DATA

VERTICAL MODEL



HORIZONTAL MODEL



CLIMATE MASTER FOR QUALITY AND ECONOMY

PHYSICAL DATA

SPECIFICATION CHART

FOR VERTICAL AND HORIZONTAL MODELS

MODEL		V14 - 12	H14 - 12	V14 - 13	H14 - 13
CONFIGURATION		VERTICAL	HORIZONTAL	VERTICAL	HORIZONTAL
VOLTAGE*		208/230	208/230	277	277
PHASE		1	1	1	1
MIN. CIRCUIT AMPACITY		12.9	12.9	8.9	8.9
MAX. FUSE SIZE**		15	15	15	15
COMPRESSOR F.L.A.		8.6	8.6	6.5	6.5
COMPRESSOR L.R.A.		41	41	42	42
BLOWER F.L.A.		2.1	2.1	68	68
BLOWER MOTOR-HP		1/12	1/12	1/8	1/8
BLOWER WHEEL DIA.		9-1/2	9-1/2	9-1/2	9-1/2
BLOWER WHEEL LEN.		7-1/4	7-1/4	7-1/4	7-1/4
REF. TO AIR HEAT EXCHANGER	ROWS	2	2	2	2
	FACE AREA	1.83	1.83	1.83	1.83
	FINS/INCH	12	12	12	12
WATER INLET (FPT)		1/2	1/2	1/2	1/2
WATER OUTLET (FPT)		1/2	1/2	1/2	1/2
DRAIN (FPT)		3/4	3/4	3/4	3/4
FILTER SIZE		16 x 20	16 x 20	16 x 20	16 x 20
OPERATING WT. (APPROX.)		210	220	210	220

* MIN. VOLTAGE ON 208/230 VOLT MODELS IS 197 VOLTS.

** TIME DELAY TYPE

NOTE: ALL UNITS ARE OPTIONALLY AVAILABLE WITH CONTROLS FOR AN AUTOMATIC CHANGEOVER THERMOSTAT.

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Climate Master

CLIMATE MASTER PRODUCTS

DIVISION OF WEIL - MC LAIN COMPANY, INC.

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