



CLIMATE MASTER

52 Series

WATER TO AIR

HEAT PUMPS

VERTICAL MODEL
HORIZONTAL MODEL

Better Cooling... Better Heating... Economically

CHOOSE FROM VERTICAL AND HORIZONTAL MODELS

3 Electrical Options

Different Return Air Configurations

Multi-Speed Blower

Versatility of Application

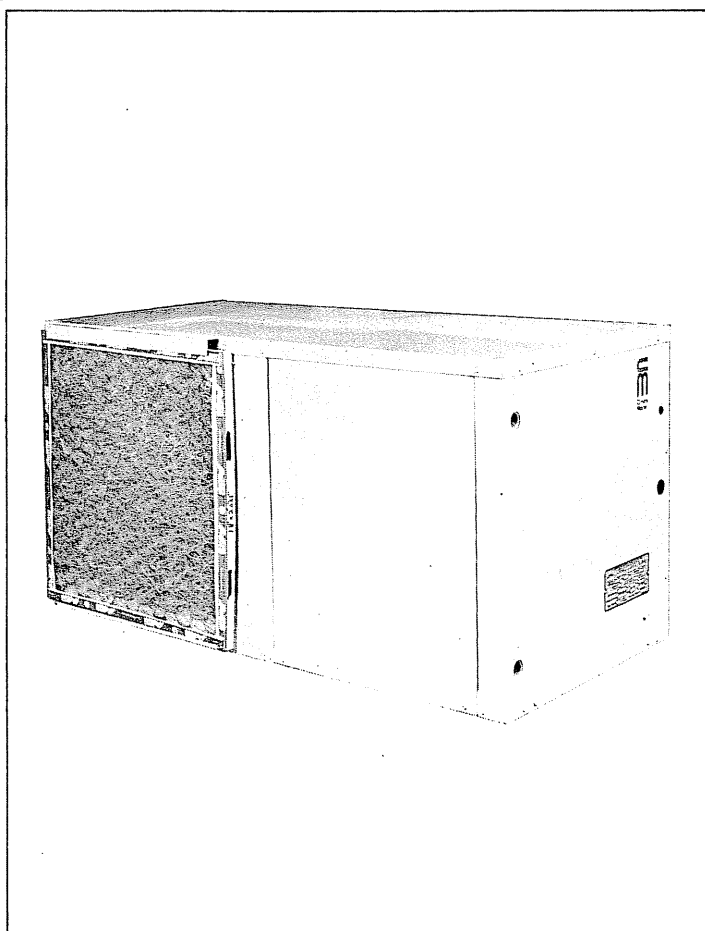
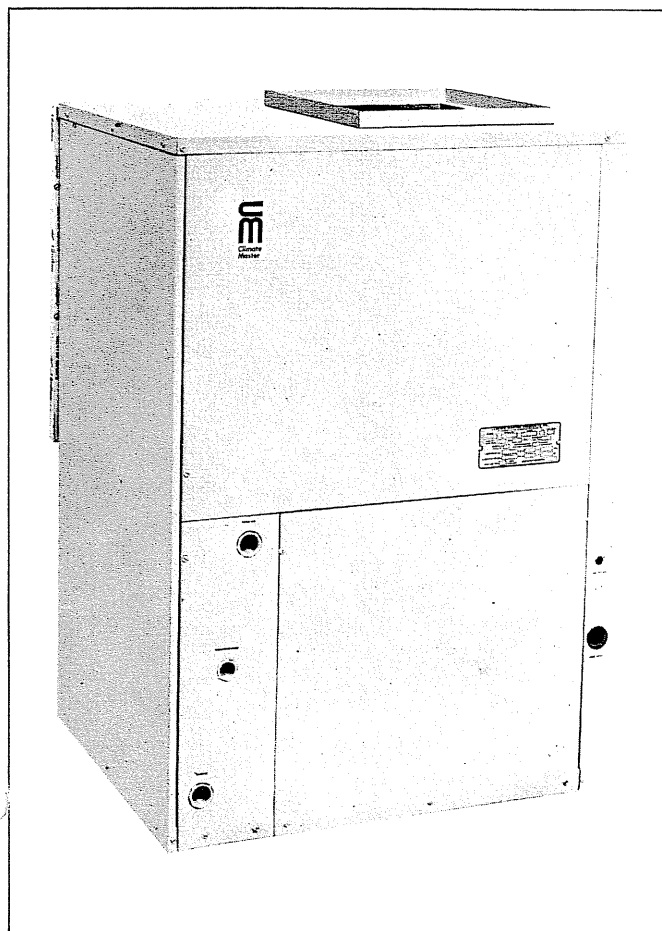


Compact, Space-Saving Design

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 absorbtion 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 motor protection and features an anti-slug device for extended life.

Reversing Valve:

The reverse cycle feature is provided by a four way electromagnetic 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 1/2" 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 a multi-speed PSC motor with inherent thermal overload protection. The speed taps are designed for adequate air delivery at varied external static pressure requirements. 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. The single phase model is furnished with a run capacitor. 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: 52,000 BTUH*.
Power Input: 5900 Watts.

*Basis: 1700 CFM of 80° F DB/67° F WB entering air
7.0 GPM of Water entering at 75° F, leaving at 95° F.

APPLICATION DATA

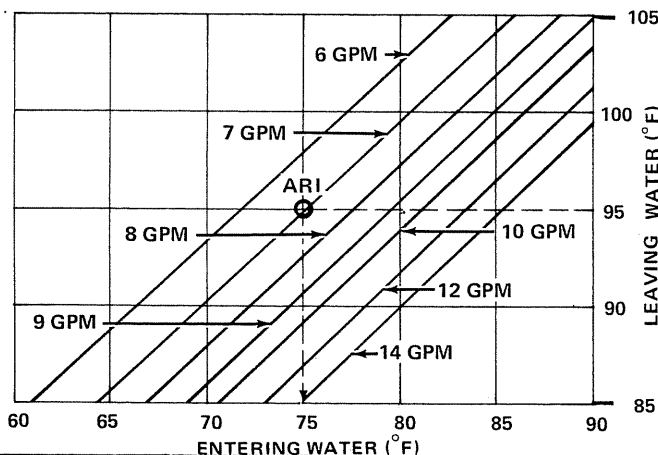
ENTERING AIR (°F) WET BULB	BASED ON 1700 CFM & 95°F LEAVING WATER					
	TOTAL CAPACITY (BTUH)	SENSIBLE CAPACITY (BTUH) ENTERING AIR (°F) DRY BULB				HEAT OF REJECTION (BTUH)
		75	80	85	90	
61	45800	36200	41200	—	—	62600
64	49000	33800	38700	44600	—	66200
67	52000	31200	36000	41300	47800	70000
70	55000	—	32500	38200	44000	74200
73	57900	—	—	34200	40500	78500

CORRECTION FACTORS

(A) VARIATION OF AIRFLOW

CFM	1500	1550	1600	1650	1700	1750	1800	1850
TOTAL CAPACITY	.952	.964	.976	.988	1.000	1.008	1.016	1.025
SENSIBLE CAPACITY	.938	.953	.969	.984	1.000	1.013	1.026	1.039
HEAT OF REJECTION	.964	.973	.982	.991	1.000	1.020	1.041	1.062

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



TOTAL & SENSIBLE CAPACITY MULTIPLIER	HEAT OF REJECTION MULTIPLIER	POWER INPUT (WATTS)
0.923	0.962	6280
0.965	0.983	6080
1.000	1.000	5900
1.029	1.021	5750
1.054	1.044	5610

BLOWER PERFORMANCE (INCLUDES ALLOWANCE FOR WET COIL & FILTER)

BLOWER SPEED	SCFM @ AVAILABLE EXTERNAL STATIC PRESSURE (IWG)					
	.1	.2	.3	.4	.5	.6
HIGH	—	—	1870	1800	1665	1490
MEDIUM	—	1760	1710	1650	1560	—
LOW	1725	1700	1650	1600	—	—

SAMPLE PROBLEM (COOLING)

1750 CFM AIR ENTERING AT 80° DB/61° WB
9 GPM OF 85° F ENTERING WATER

AIRFLOW
CORRECTION

WATER FLOW
CORRECTION

TOTAL CAPACITY = 45800 X 1.008 X 0.965 = 44550 BTUH
SENSIBLE = 41200 X 1.013 X 0.965 = 40270 BTUH
HEAT REJECTION = 62600 X 1.020 X 0.983 = 62770 BTUH

SUPERIOR HEATING CAPACITIES AND PERFORMANCE

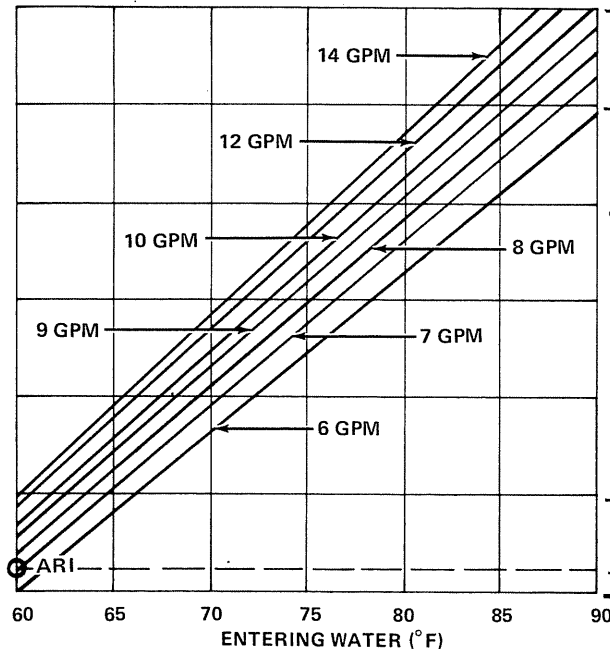
HEATING

In accordance with ARI Standard 240-67.
 Heating Capacity: 51,000 BTUH*.
 Power Input: 5700 Watts.

*Basis: 1700 CFM of 70°F entering air
 7 GPM of 60°F entering water.

APPLICATION DATA

VARIATION OF ENTERING WATER TEMPERATURE AND FLOW RATE



HEATING CAPACITY (BTUH)	HEAT OF ABSORPTION (BTUH)	POWER INPUT (WATTS)
73500	49400	7350
69000	46400	6900
65000	43400	6550
61000	40300	6200
57000	37000	5950
53500	33500	5800
51000	31000	5700

VARIATION OF ENTERING AIR TEMPERATURES CORRECTION FACTOR

ENTERING AIR (°F)	60	65	70	75	80
HEATING CAPACITY MULTIPLIER	1.05	1.03	1.00	0.97	0.94
HEAT OF ABSORPTION MULTIPLIER	1.07	1.04	1.00	0.95	0.94
POWER INPUT MULTIPLIER	0.96	0.98	1.00	1.04	1.08

VARIATION OF AIRFLOW CORRECTION FACTOR

CFM	1500	1550	1600	1650	1700	1750	1800	1850
HEATING CAPACITY MULTIPLIER	.952	.964	.976	.988	1.000	1.008	1.016	1.025
HEAT OF ABSORPTION MULTIPLIER	.943	.958	.972	.986	1.000	1.011	1.022	1.034
POWER INPUT MULTIPLIER	1.077	1.059	1.035	1.017	1.000	0.993	0.986	0.979

WATER PRESSURE DROP-PSIG.

WATER FLOW RATE (GPM)	6	7	8	9	10	12	14
PRESSURE DROP (PSIG)	2.2	2.8	3.4	4.0	4.6	6.8	8.4

SAMPLE PROBLEM (HEATING)

1750 CFM OF AIR ENTERING @ 75°F
 9 GPM OF 74°F ENTERING WATER

ENTERING AIR
 CORRECTION

AIRFLOW
 CORRECTION

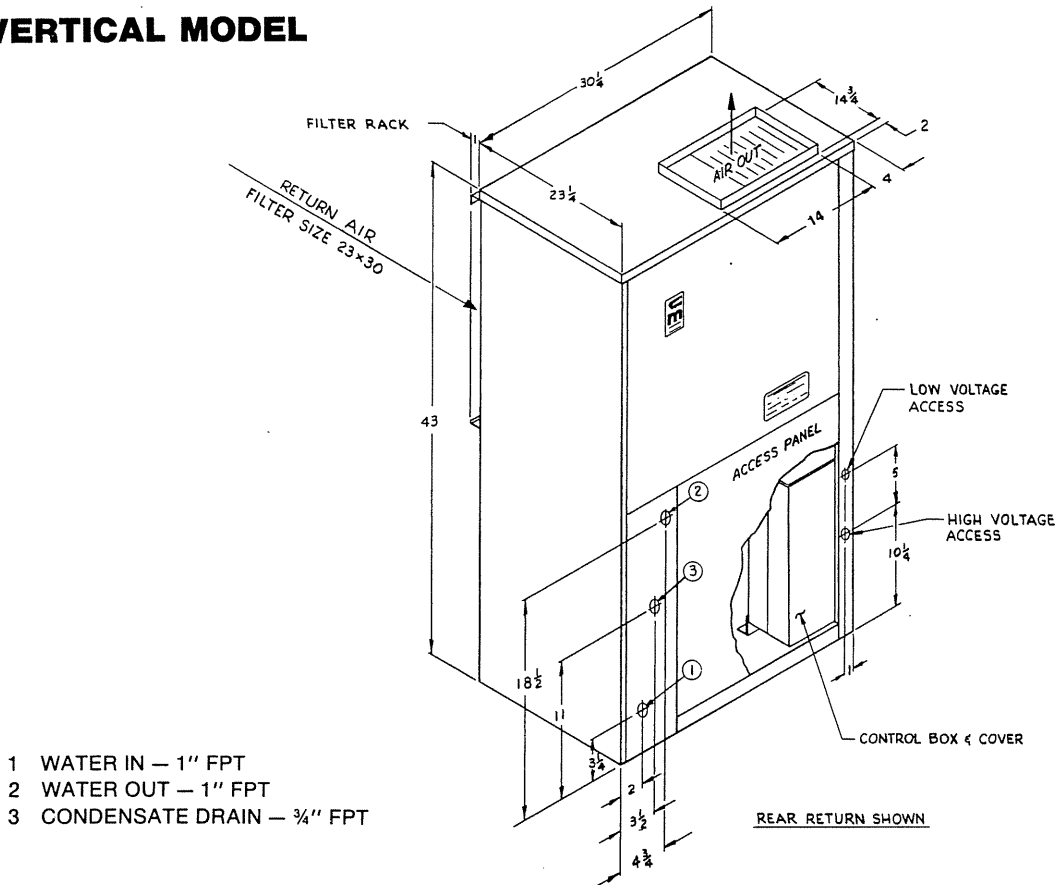
HEATING CAPACITY = 61000 X 0.97 X 1.008 = 59640 BTUH
 HEAT OF ABSORPTION = 40300 X 0.95 X 1.011 = 38710 BTUH
 POWER INPUT (WATTS) = 6200 X 1.04 X 0.993 = 6400 WATTS

Seasons Comfort At Less Cost

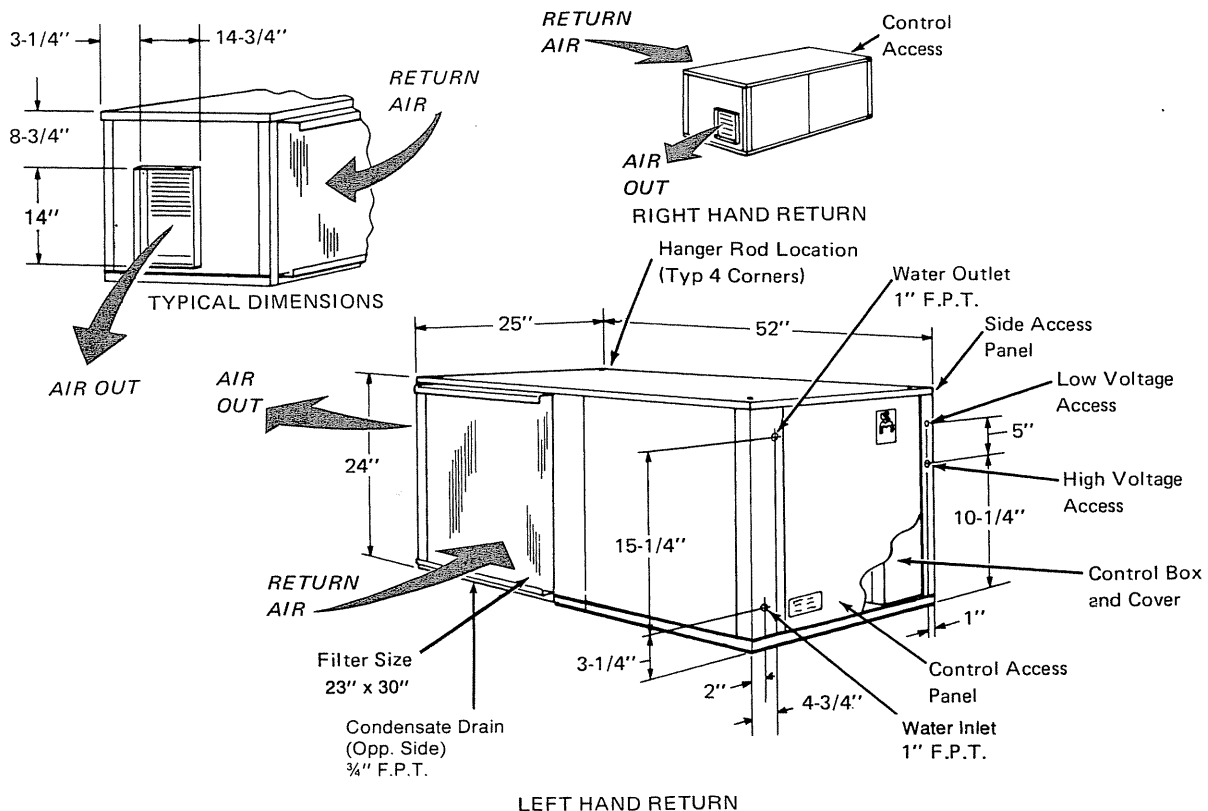
CHOOSE FROM VERTICAL AND HORIZONTAL STYLES

DIMENSIONAL DATA

VERTICAL MODEL



HORIZONTAL MODEL



CLIMATE MASTER FOR QUALITY AND ECONOMY

PHYSICAL DATA

SPECIFICATION CHART FOR VERTICAL AND HORIZONTAL MODELS

MODEL		V52-12	H52-12	V52-32	H52-32	V52-34	H52-34
CONFIGURATION		VERTICAL	HORIZONTAL	VERTICAL	HORIZONTAL	VERTICAL	HORIZONTAL
VOLTAGE *		208/230	208/230	208/230	208/230	480	480
PHASE		1	1	3	3	3	3
MIN. CIRCUIT AMPACITY		37.3	37.3	25.2	25.2	12.2	12.2
MAX. FUSE SIZE **		60	60	35	35	20	20
COMPRESSOR F.L.A.		25.5	25.5	15.8	15.8	7.4	7.4
COMPRESSOR L.R.A.		140	140	104	104	45	45
BLOWER F.L.A.		5.4	5.4	5.4	5.4	2.9	2.9
BLOWER MOTOR-HP		1/2	1/2	1/2	1/2	1/2	1/2
NO. OF SPEEDS		3	3	3	3	2	2
BLOWER WHEEL DIA.		10-13/16	10-13/16	10-13/16	10-13/16	10-13/16	10-13/16
BLOWER WHEEL LEN.		9-11/16	9-11/16	9-11/16	9-11/16	9-11/16	9-11/16
REF. TO AIR HEAT EXCHANGER	ROWS	2	2	2	2	2	2
	FACE AREA	4.14	4.14	4.14	4.14	4.14	4.14
	FINS/INCH	14	14	14	14	14	14
WATER INLET (FPT)		1"	1"	1"	1"	1"	1"
WATER OUTLET (FPT)		1"	1"	1"	1"	1"	1"
DRAIN (FPT)		3/4	3/4	3/4	3/4	3/4	3/4
FILTER SIZE		23 x 30	23 x 30	23 x 30	23 x 30	23 x 30	23 x 30
OPERATING, WT. (APPROX.)		430	450	430	450	430	450

* 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 PRODUCTS

DIVISION OF WEIL - MC LAIN COMPANY, INC.

2000 WEST COMMERCIAL BLVD./FORT LAUDERDALE, FLORIDA 33309 / 776-1961

In line with its policy of product improvement, Climate Master reserves the right to make reasonable changes without notice.

