



CLIMATE MASTER

18 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

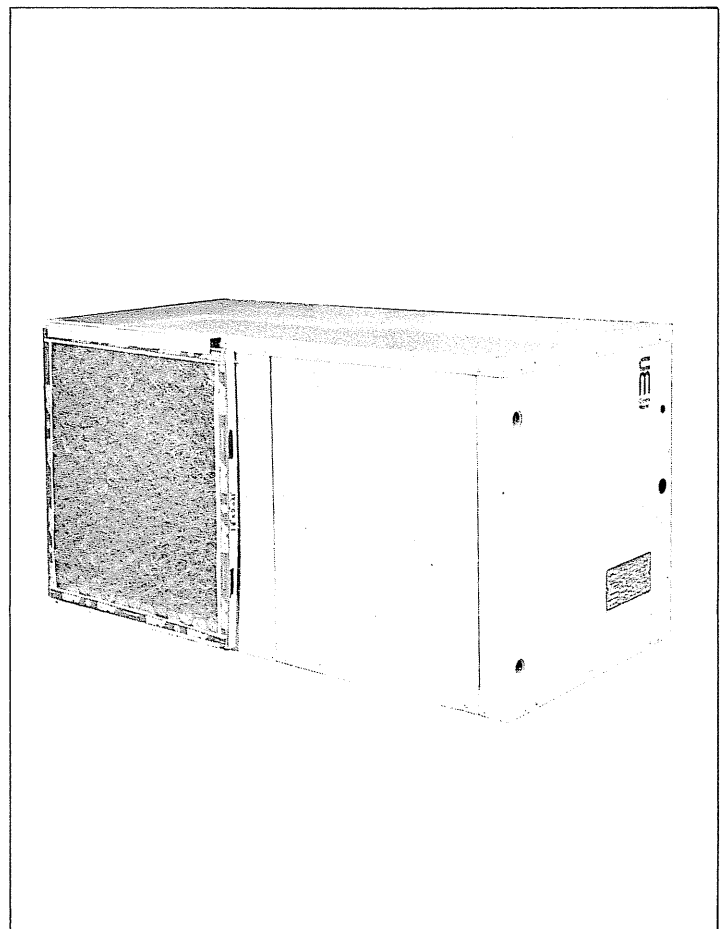
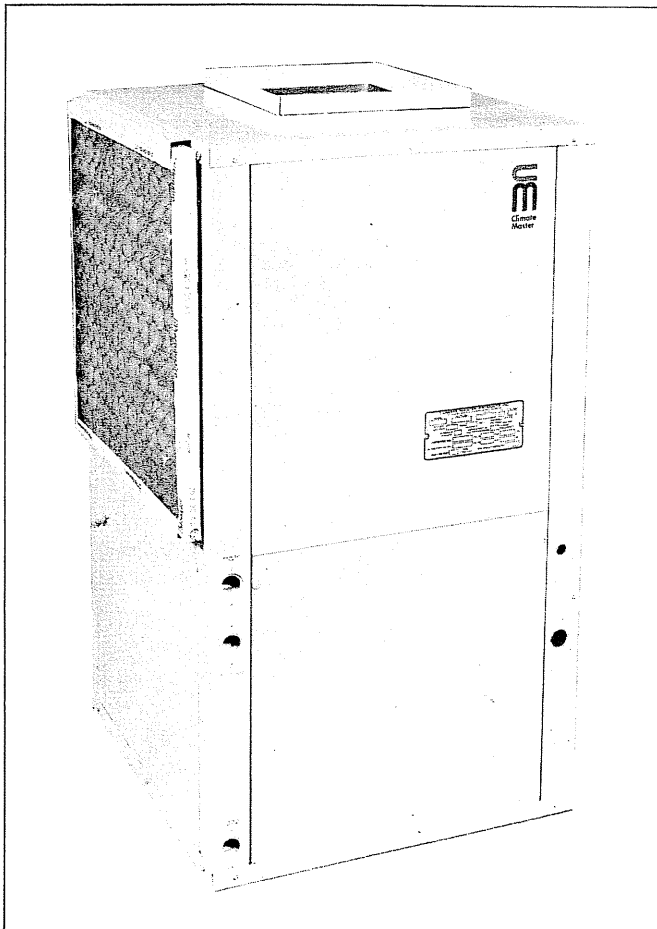


Compact, Space-Saving Design

Designed & Tested for High Efficiency

Superior Accessibility

Acoustically 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 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 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. 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: 18,500 BTUH*.
Power Input: 2300 Watts.

*Basis: 600 CFM of 80°F DB/67°F WB entering air
2.6 GPM of Water entering at 75°F, leaving at 95°F.

APPLICATION DATA

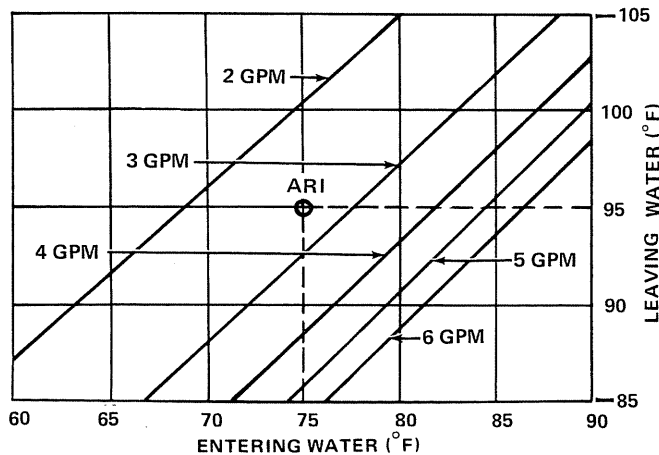
ENTERING AIR (° F) WET BULB	BASED ON 600 CFM & 95°F LEAVING WATER					
	TOTAL CAPACITY (BTUH)	SENSIBLE CAPACITY (BTUH) ENTERING AIR (° F) DRY BULB				HEAT OF REJECTION (BTUH)
		75	80	85	90	
61	16500	13050	14500	—	—	22300
64	17600	11950	13700	15650	—	24200
67	18500	10750	12400	14450	16650	26000
70	19500	—	11200	12950	15000	27700
73	20700	—	—	11800	13650	29400

CORRECTION FACTORS

(A) VARIATION OF AIRFLOW

CFM	660	640	615	600	590	565	535	500
TOTAL CAPACITY	1.028	1.019	1.007	1.000	0.993	0.977	0.956	0.933
SENSIBLE CAPACITY	1.045	1.030	1.011	1.000	0.991	0.969	0.943	0.912
HEAT OF REJECTION	1.070	1.048	1.018	1.000	0.995	0.983	0.967	0.950

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



TOTAL & SENSIBLE CAPACITY MULTIPLIER	HEAT OF REJECTION MULTIPLIER	POWER INPUT (WATTS)
0.925	0.946	2430
0.964	0.975	2360
1.000	1.000	2300
1.030	1.024	2340
1.059	1.046	2190

BLOWER PERFORMANCE (INCLUDES ALLOWANCE FOR WET COIL & FILTER)

SCFM @ AVAILABLE EXTERNAL STATIC PRESSURE (IWG)							
.05	.10	.15	.18	.20	.25	.3	.35
660	640	615	600	590	565	535	500

SAMPLE PROBLEM (COOLING)

640 CFM AIR ENTERING AT 75°F DB/64°F WB
5.5 GPM OF 80°F ENTERING WATER

	AIRFLOW CORRECTION	WATER FLOW CORRECTION	
TOTAL CAPACITY	= 17600 X 1.019	X 1.030	= 18470 BTUH
SENSIBLE CAPACITY	= 11950 X 1.030	X 1.030	= 12680 BTUH
HEAT REJECTION	= 24200 X 1.048	X 1.024	= 25970 BTUH

Climate Master Gives You Quiet. A

SUPERIOR HEATING CAPACITIES AND PERFORMANCE

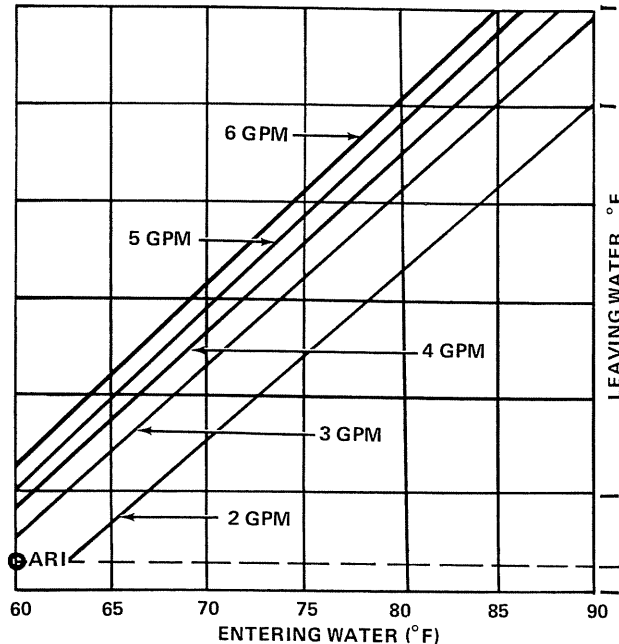
HEATING

In accordance with ARI Standard 240-67.
 Heating Capacity: 18,500 BTUH*.
 Power Input: 2200 Watts.

*Basis: 600 CFM of 70°F entering air
 2.6 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)
27000	16050	2730
25100	15400	2610
23300	14500	2490
21600	13600	2390
20800	12700	2310
19000	11450	2230
18500	11050	2200

VARIATION OF ENTERING AIR TEMPERATURES CORRECTION FACTOR

ENTERING AIR (°F)	60	65	70	75	80
HEATING CAPACITY MULTIPLIER	1.05	1.03	1.00	.97	.94
HEAT OF ABSORPTION 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 CORRECTION FACTOR

CFM	660	640	615	600	590	565	535	500
HEATING CAPACITY MULTIPLIER	1.028	1.019	1.007	1.000	0.993	0.977	0.956	0.933
HEAT OF ABSORPTION MULTIPLIER	1.039	1.026	1.009	1.000	0.992	0.972	0.948	0.920
POWER INPUT MULTIPLIER	0.976	0.983	0.994	1.000	1.010	1.034	1.066	1.099

WATER PRESSURE DROP-PSIG.

WATER FLOW RATE (GPM)	2	3	4	5	6
PRESSURE DROP (PSIG)	1.1	1.7	2.4	3.0	3.8

SAMPLE PROBLEM (HEATING)

640 CFM OF AIR ENTERING @ 75°F
 5.5 GPM OF 65°F ENTERING WATER

ENTERING AIR
 CORRECTION

AIRFLOW
 CORRECTION

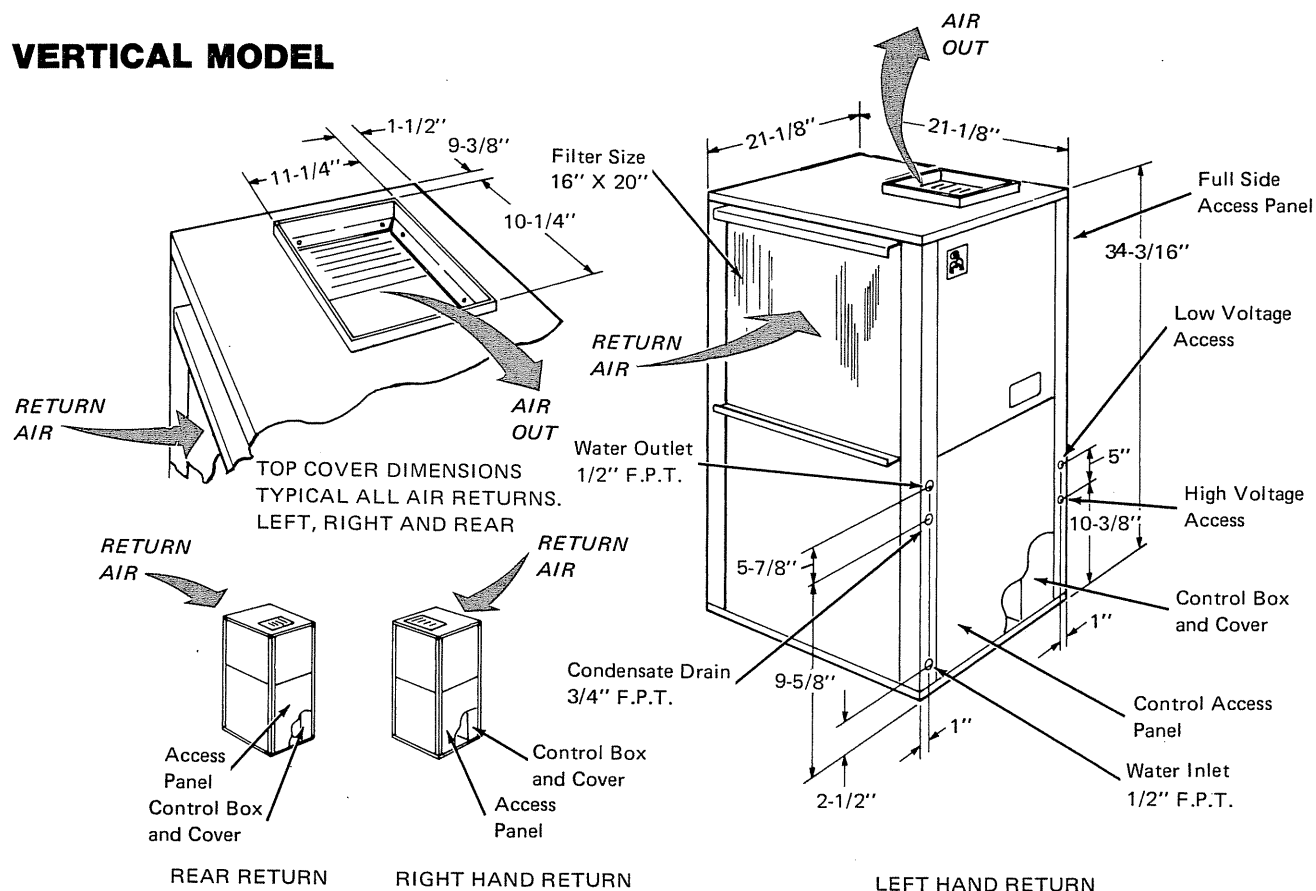
HEATING CAPACITY = 20800 X .97 X 1.019 = 20560 BTUH
 HEAT OF ABSORPTION = 12700 X .95 X 1.026 = 12380 BTUH
 POWER INPUT (WATTS) = 2310 X 1.04 X 0.983 = 2362 WATTS

Seasons Comfort At Less Cost

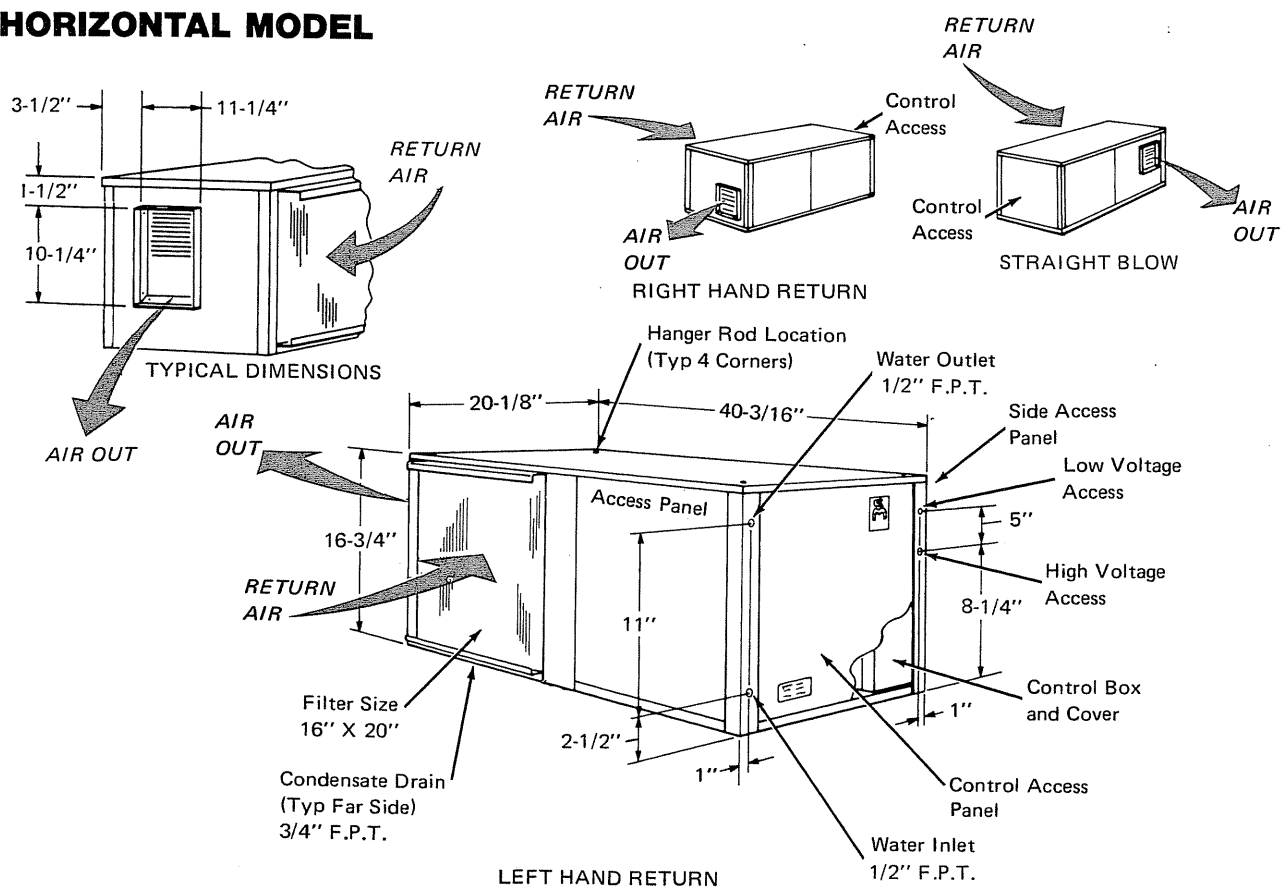
CHOOSE FROM VERTICAL AND HORIZONTAL STYLES

DIMENSIONAL DATA

VERTICAL MODEL



HORIZONTAL MODEL



CLIMATE MASTER FOR QUALITY AND ECONOMY

PHYSICAL DATA

SPECIFICATION CHART FOR VERTICAL AND HORIZONTAL MODELS

MODEL		V18 - 12	H18 - 12	V18 - 13	H18 - 13
CONFIGURATION		VERTICAL	HORIZONTAL	VERTICAL	HORIZONTAL
VOLTAGE		208/230	208/230	277	277
PHASE		1	1	1	1
MIN. CIRCUIT AMPACITY		13.6	13.6	10.5	10.5
MAX. FUSE SIZE*		15	15	15	15
COMPRESSOR F.L.A.		9.2	9.2	7.8	7.8
COMPRESSOR L.R.A.		54	54	47	47
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	3	3	3	3
	FACE AREA	1.83	1.83	1.83	1.83
	FINS/INCH	10	10	10	10
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.)		230	240	230	240

*TIME DELAY TYPE

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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.

