

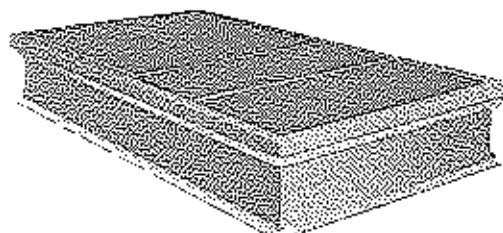
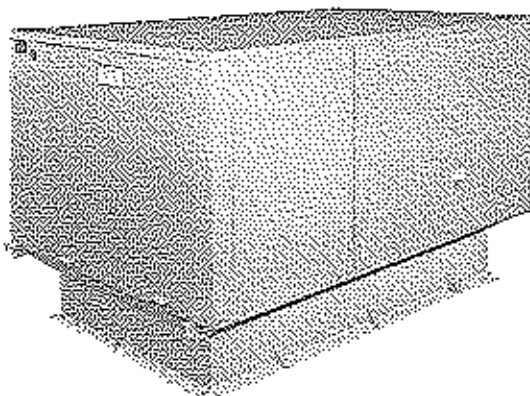
ClimateMaster

A COMBINATION OF CHP CORP. AND
FRIEDRICH™ CLIMATE MASTER, INC.

4 thru 20 Tons

Roof Top Units

Water-Air Heat Pump 802 Series — Cooling Only 903 Series



FACTORY BUILT STEEL CURB

STANDARD FEATURES

All 802 models are constructed of heavy gauge galvanized steel cabinets, with an acrylic lacquer paint finish. Each unit includes:

- Compressor with crankcase heat.
- Copper-tube, aluminum fin indoor coil
- Co-axial condenser with steel outer tube, copper or cupro-nickel inner tube.
- Belt-drive blower
- High and Low pressure safety controls
- Service Valves—both high and low pressure
- Reversing Valve to control refrigerant flow path for heating and cooling cycles (Except 902)
- Thermal expansion valve for refrigerant control
- Pressure Taps—Water Inlet and Outlet

HIGH PERFORMANCE-HIGH EFFICIENCY

Model 802 water-to-air heat pumps allow comfort cooling and heating from a single source...water. These roof-mounted units are normally used with a closed loop system utilizing a cooling tower and a boiler.

Water source heat pumps provide very efficient operation on both heating and cooling cycles, since water is normally maintained at a relatively constant temperature. High energy-efficiency

ratios associated with water-cooled operation provide lower operating costs, and heating coefficient of performance is unusually high.

Water-source models are highly reliable, since they have none of the problems often associated with defrosting controls on air cooled units.

FULL PERIMETER CURB

The factory-built curb is approved by National Roofer's Association. Shipped completely assembled, the curb is of all-welded, heavy gauge galvanized steel construction. Curb is insulated inside with 1" thick, 1½ lb. density glass fiber insulation, and a wood nailer strip is furnished on the outside.

The entire bottom of the 802 and 902 unit is covered with thick sheets of foamed plastic insulation, to serve as a thermal barrier as well as sound attenuator. In addition, it serves as a rain seal on the full curb perimeter.

The unit base channels form a 360 degree perimeter drip cap just outside the curb, so rain cannot drive under the unit and into the curb.

Water connections to the unit are made into the bottom of the unit, through the curb opening.

MODEL	COOLING CAPACITY, BTUH	HEATING CAPACITY, BTUH	MODEL	COOLING CAPACITY, BTUH	HEATING CAPACITY, BTUH
802 041	46,900	51,100	802 122	121,000	141,000
802 051	51,800	52,200	802 142	136,000	164,000
802 071	66,400	88,400	802 222	219,000	246,000
802 092	94,400	115,000	802 262	258,000	320,000

DESIGN AND PERFORMANCE

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These heavy duty 802 commercial water source heat pumps are intended for use on closed loop systems and on ground water systems where the ground water temperature is 60F or higher. They are also available in the 902 cooling only configuration with heat rejection accomplished thru a cooling tower or to ground water.

All of these models are optionally available with electric resistance heating factory installed, wired, and fused with single point electrical connections.

With EER's averaging 10.0 and COP's of 3.0 and higher, this product line offers the specifying engineer a logical, proven means of achieving his energy budget.

WEATHER-RESISTANT CABINET

All cabinet material is top grade zinc-coated steel, with heavy duty construction for longer life. Paint finish is acrylic lacquer. Cabinet parts are fabricated of rugged, heavier gauge steel for top quality and resistance to damage. Fasteners are stainless steel.

THERMOSTATIC EXPANSION VALVES

Each system uses expansion valve for refrigerant control.

LOW PRESSURE DROP REVERSING VALVE

New reversing valves with minimum pressure drop for improved efficiency.

PRESSURE CONTROLS

High and Low pressure safety controls, with lockout circuit allowing reset at thermostat.

SERVICES VALVES

Service valves on high and low sides to permit pressure readings.

WEATHER-STRIPPED PANELS

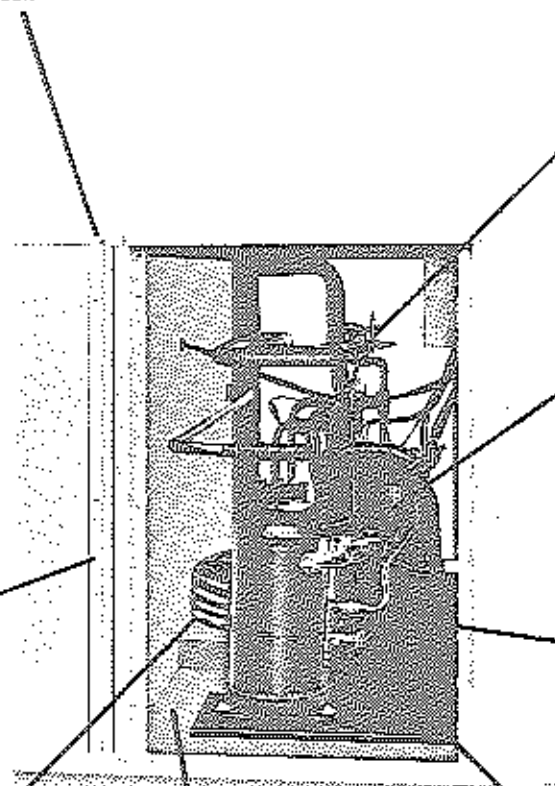
Air handler section panels furnished with individual weather strips to prevent rain leakage.

EFFICIENT CO-AXIAL CONDENSERS

Condenser has copper inner (water) tube and steel outer shell. Cupro-nickel inner tube available for corrosive water conditions.

COATED BASE

All bases have special coating to provide the finest corrosion protection and sound attenuation.



DUAL COMPRESSOR RELIABILITY

Dual compressor heat pumps have two completely separate refrigeration systems. Thus dual compressor models provide the added benefit of partial standby during both cooling and heat pump operation. Also during the air conditioning season they afford two stage compressor operation with each compressor being activated individually from the two stage space thermostat. During the heating cycle both compressors are activated simultaneously from the 1st heating stage of the space thermostat (electric resistance heating, if applied, is then activated from the 2nd heating stage.)

System No. 1 At the call of the first stage of thermostat, System No. 1 turns on. If the load is light this system carries the load and the compressor cycles on and off at the call of the thermostat. Examples...cool morning, late in the evening, office before the staff arrives, cloudy days with no sun load, etc.

System No. 2 If System No. 1 can't do the job, the room thermostat automatically turns on the second compressor. It will then cycle off and on, to carry the rest of the load, while compressor No. 1 runs constantly to remove moisture and carry its part of the load. As the load begins to drop, compressor No. 2 will shut down and compressor No. 1 then cycles to carry the reduced load.

POWER SUPPLY CONNECTION

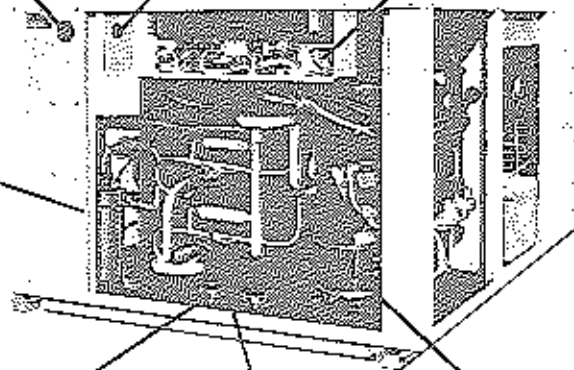
LOW VOLTAGE CONNECTION

ACCESSIBLE CONTROL PANEL

Panel has single point connection for electrical service, including accessory electric heaters.

SUCTION ACCUMULATOR

Every compressor has a suction accumulator to prevent compressor flooding and oil pumpout.



WATER CONNECTIONS THRU BOTTOM

Water connections are made up thru the steel curb, and thru the bottom of the unit.

SIGHT GLASS AND DRIER

Each system equipped with sight glass-moisture indicator and refrigerant drier.

HERMETIC COMPRESSORS

Full hermetic compressors, 3450 rpm, internally sprung, with internal protection and pressure relief.

All compressors equipped with crankcase heater to prevent flooding and loss of oil on startup.

SPECIFICATIONS

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802 & 902		041	051	071	092	122	142	222	262
Standard Cooling Rating	Nominal CFM	1,500	1,750	2,100	3,200	3,500	4,000	6,800	8,000
	Total Btuh	45,900	51,800	66,400	94,400	121,000	136,000	219,000	258,000
	Sensible Btuh	35,100	39,600	49,100	72,000	85,400	96,800	162,000	190,000
	EER	9.9	9.8	10.0	9.6	10.1	10.2	10.3	10.0
	Watts	4,760	5,300	6,670	9,680	12,000	13,300	21,300	25,800
* Std. Htg. Rating	Total Btuh	51,100	62,200	88,400	116,000	141,000	164,000	246,000	320,000
	COP	3.0	3.2	3.4	3.3	3.3	3.3	3.5	3.5
	Watts	5,030	5,700	7,650	11,300	12,500	14,600	20,600	26,900
Evaporator Fans	No. & Size	(1)10x10	(1)10x10	(1)10x10	(2)12x9	(2)12x9	(2)12x9	(2)15x11	(2)15x11
	Drive Range	830-1090	1030-1350	1090-1350	840-1090	930-1180	1050-1300	720-910	790-970
	Std. Mtr. H.P.	$\frac{1}{2}$	$\frac{3}{4}$	1	1 $\frac{1}{2}$	1 $\frac{1}{2}$	2	3	3
	Opt. Mtr. H.P.	$\frac{3}{4}$	1	1 $\frac{1}{2}$	2	2	3	5	5
Evaporator	Face Area - sq. ft.	3.8	3.8	3.8	7.8	7.8	7.8	14.6	14.6
	Rows Deep	4	4	4	3	4	4	4	4
	Fins Per Inch	12	12	12	14	12	12	12	12
	Condensate Size, FPT	(1) $\frac{1}{8}$	(1) $\frac{1}{8}$	(1) $\frac{1}{8}$	(2) $\frac{1}{8}$	(2) $\frac{1}{8}$	(2) $\frac{1}{8}$	(2) $\frac{1}{8}$	(2) $\frac{1}{8}$
Compressor	Type*	FH	FH	FH	FH	FH	FH	FH	FH
	Quantity	1	1	1	2	2	2	2	2
Condenser	Type	Coaxial	Coaxial	Coaxial	Coaxial	Coaxial	Coaxial	Coaxial	Coaxial
	Circuits	2	2	2	2	2	2	2	2
	Nominal GPM	12	14	18	28	32	36	50	60
	Nominal Press Drop-Psi	6.4	8.5	4.1	4.1	4.9	4.1	7.6	10.1
	Connections OD Cu	$\frac{3}{4}$	$\frac{3}{4}$	1 $\frac{1}{8}$	1 $\frac{1}{8}$	1 $\frac{1}{8}$	2 $\frac{1}{8}$	2 $\frac{1}{8}$	2 $\frac{1}{8}$
Filter—No. & Size	(1)22x28	(1)22x28	(1)22x28	(4)14x25	(4)14x25	(4)14x25	(5)15x30 $\frac{1}{2}$	(5)15x30 $\frac{1}{2}$	
Oper. Wgt. - Lbs.	450	500	600	1,225	1,275	1,285	1,475	1,560	
Curb Wgt. - Lbs.	77	77	77	122	122	122	159	159	

902 Multiplier For Capacity and Watts is 1.02.

*FH = Full Hermetic

*802 Only

STANDARD RATING CONDITIONS

These products are tested and rated in accordance with ARI Standard 320-81 For Water Source Heat Pumps.

The standard cooling rating conditions are 80F/67F entering air temperature, 85F entering water temperature, and 95F leaving water temperature.

The standard heating rating conditions are 70F entering air temperature, 70F entering water temperature, and the same gpm as determined in the Standard Rating Cooling Test.

Continuing engineering research results in steady improvements. Therefore, these specifications are subject to change without notice.

Friedrich Climate Master Inc.

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