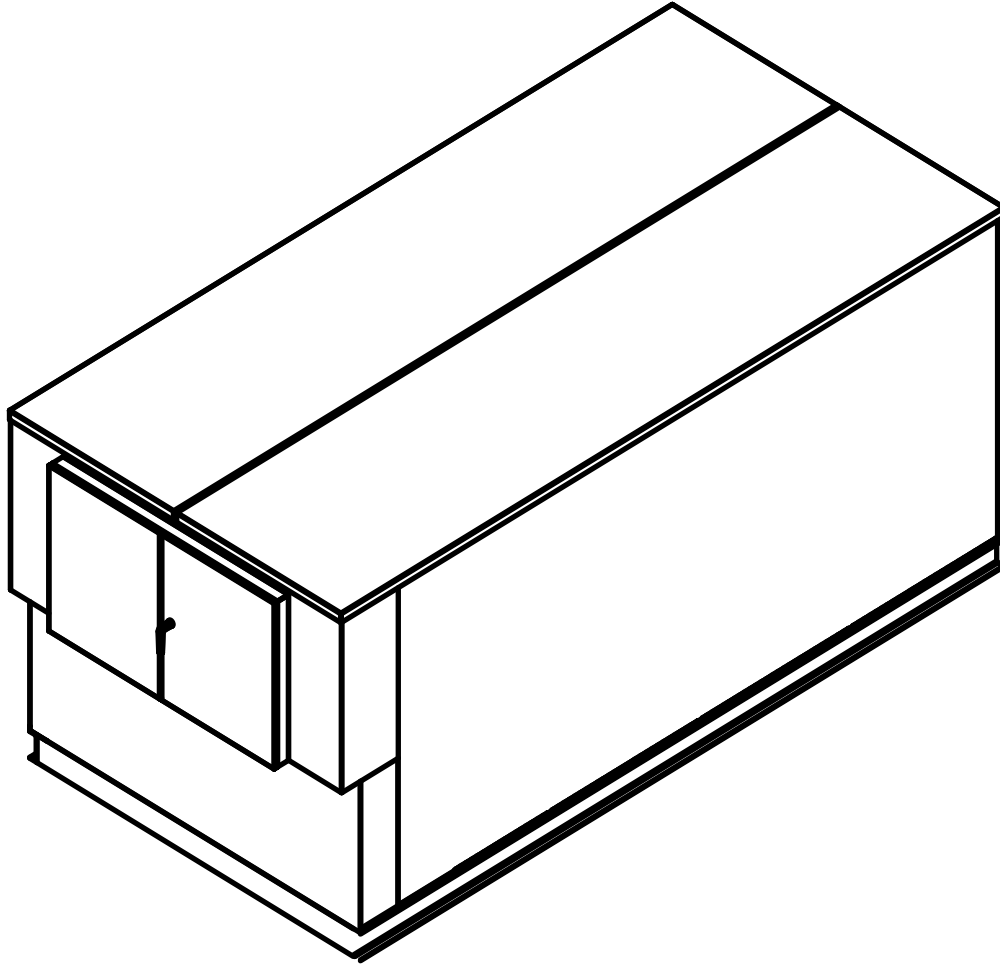




MORTEX PRODUCTS, INC.
501 TERMINAL ROAD
FORT WORTH, TEXAS 76106
Phone 817-624-0820 Fax 817-624-8581

**BICTECH™ WATER-TO-WATER HEAT PUMP CHILLER MODEL
MODEL "HPWW" 30 TO 200 TONS**

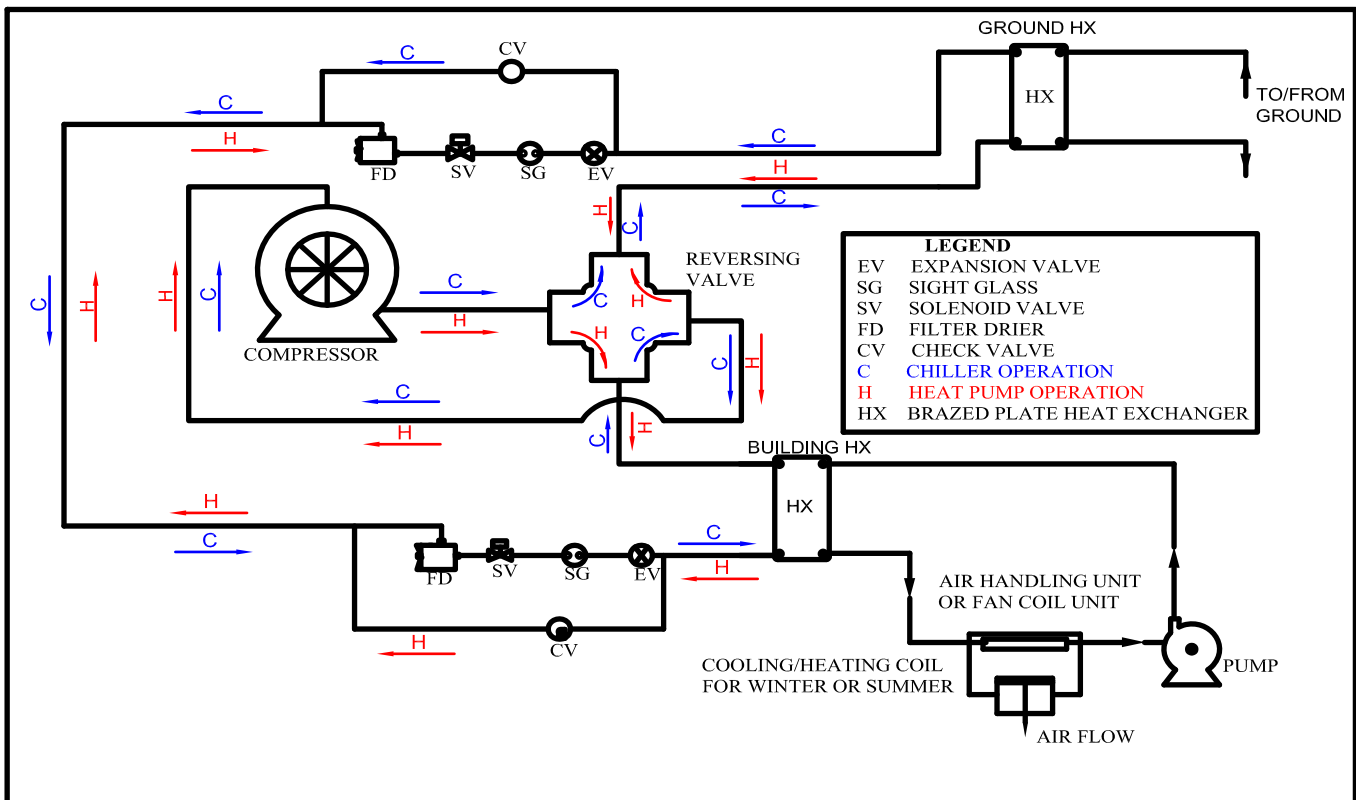


ALL YEAR ROUND OPERATION
CHILLED WATER IN SUMMER/HOT WATER IN WINTER
HIGHEST EFFICIENCY @ FULL & PART LOAD
MANY FACTORY MOUNTED OPTIONS

Form: HPWW-150(709)-1

BICTECH™ WATER-TO-WATER HEAT PUMP CHILLER MODEL “HPWW”

CAP’s BICTACH™ is a “green” and advanced technology water-to-water heat pump chiller model HPWW that delivers chilled water in cooling mode and hot water in heat pump mode. Models HPWW significantly reduce the overall energy use all year round by using high efficiency components and “Best In Class” technology. Models HPWW can eliminate the need for a separate boiler or reduce a major cost of heating. Large selection of 17 models cover a wide range from 30 to 200 tons.



HOW DOES IT WORK

Cooling Mode:

Upon demand for cooling the water circulates thru the building 316 SS heat exchanger and the indoor air handlers or fan coil units. The compressor(s) discharge hot gas to the ground source 316 SS heat exchanger, condensing the refrigerant and feeds the heat exchanger thru filter drier, sight glass, solenoid valve and finally the expansion valve. The refrigerant expands in the heat exchanger and chills the water flowing thru it; thus returning the cooled gas back to the compressor. The cycle repeats itself as long as the demand for cooling continues. The compressor(s) loads and unloads to match the varying cooling conditions. In this condition the system operates as an air cooled water chiller.

Heating Mode:

Upon demand for heating the water circulates thru the same 316 SS heat exchanger and the indoor air handlers or fan coil units. Now the compressor(s) discharges hot gas thru the reversing valve to the building heat exchanger.

This hot gas heats the water circulating thru the refrigerant-to-water heat exchanger, condenses the-refrigerant into liquid and is returned to the ground 316 SS heat exchanger, thru an expansion valve. In this case the ground heat exchanger acts as an evaporator and utilizes the ground as the heat source. The compressor(s) load and unload to match the heating requirements.

As an optional extra, an auxiliary hot water heater is available, which is factory mounted and wired in the water line. This can be activated in an emergency.

Optional-Year Round Free Hot Water-Heat Recovery Mode:

An optional feature “CAP” offers an all year round hot water heat recovery system. In this case during cooling or heating mode the heat recovery takes place thru a factory mounted heat exchanger. The pump and pump starter prewired in the panel further reduces the field installation costs and space requirements.



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ENGINEERING SPECIFICATIONS

GENERAL DESCRIPTION:

CAP'S BICTECH™ line are environmentally friendly-CFC Free-Non-Ozone depleting geothermal heat pump chillers utilize state of the art Screw compressors, 316 SS brazed plate heat exchangers and a single point electrical control panel all on a common skid.

TWIN ROTOR SCREW COMPRESSOR:

Industrial quality twin rotor screw compressor has a built in oil management system and is directly driven by a 2-pole 3500 rpm suction gas cooled oversized motor with solid-state overload protection. The rotors are made of precision ductile cast iron housed in reinforced double walled cast iron casing. Capacity control is infinitely variable and is achieved by modulating slide valve control in response to load demand. As an alternate, step capacity control (100/75/50/25) is also available. Compressor crankcase has oil, sight glass, lifetime pleated oil filter, oil heater, built in suction strainer, internal relief valve, suction and discharge service valves, and discharge check valve.

BUILDING WATER HEAT EXCHANGER:

UL Listed, 316 SS plates are copper brazed for use with building chilled or hot water.

GROUND SOURCE HEAT EXCHANGER:

UL Listed 316 SS plates are either Nickel or copper brazed for use with ground source.

REFRIGERANT PIPING:

Each refrigerant circuit includes:

- Filter Drier
- Sight Glass
- Solenoid Valve
- Expansion Valve
- Reversing Valve

CONTROL CENTER:

All power, starting, safety and operating controls are mounted in a built in, fully enclosed, indoor control panel.

Power Include:

- Single Point Electrical Terminal Block.
- Compressor-Motor Contactors.
- Control Transformer.
- Control Circuit Fuses.

Safety/Operating Controls Include:

- High Pressure Controls With Manual Reset.
- Low Pressure Controls With Auto Reset.
- Temperature Freezestat.
- Relays.
- Built-In Compressor-Motor Overloads.
- Anti Recycle Timers.
- Compressor Crankcase Heaters.
- Emergency Stop Switch.
- Summer/Winter Mode Control Switch.
- Operating Thermostat.

TESTING, EVACUATION, & REFRIGERANT CHARGING:

Each completed system is pressure tested with dry air, evacuated with a high capacity vacuum pump, charged with R-134A and fully tested for all operating and safety controls. Field adjustment may be required at startup.

ASSEMBLY:

All above components are assembled on a heavy duty industrial structural steel frame, as a single pre-engineered package. The complete unit is cleaned, primed, and painted with exclusive pewter grey finish for years of useful life.

FACTORY MOUNTED AVAILABLE OPTIONS:

- Sound Enclosure.
- Fused or Non-Fused Circuit Breaker.
- Choice of Flanged or Grooved Connections.
- Pump Module with Factory Mounted VFD.
- Flow Switch.
- Operating Gauges.
- Indicating Lights.
- Desuperheater.
- Compressor Cycle Counter/Hour Meter.
- All Stainless Steel Hardware.
- Micro Controller.



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**BICTECH™ WATER-TO-WATER HEAT PUMP CHILLERS
 MODEL HPWW 30 TO 200 TONS**

MECHANICAL DESIGN DATA:

MODEL NO.	NO. OF CIRCUITS	COOLING (1)			HEATING (2)		
		COOLING TONS	COOLING KW	COOLING EER	HEATING MBTU	HEATING KW	HEATING COP
HPWW-35	1	30.4	20.3	18.0	341	29.8	3.4
HPWW-40	1	37.8	25.3	17.9	427	36.7	3.4
HPWW-50	1	45.0	31.4	17.3	485	44.3	3.2
HPWW-60	1	52.8	34.0	18.7	580	50.4	3.4
HPWW-70	1	58.8	38.2	18.4	657	56.5	3.4
HPWW-80	1	74.0	46.0	19.3	761	66.9	3.3
HPWW-90	1	83.7	53.1	18.9	928	78.2	3.5
HPWW-110	1	96.9	60.1	19.4	1110	93.6	3.5
HPWW-120	1	110.0	70.7	18.7	1216	100.7	3.5
HPWW-702	2	60.8	40.6	18.0	682	59.6	3.4
HPWW-802	2	75.6	50.6	17.9	854	73.4	3.4
HPAW-1002	2	90.0	62.8	17.3	970	88.6	3.2
HPWW-1202	2	105.6	68.0	18.7	1160	100.8	3.4
HPWW-1402	2	117.6	76.4	18.4	1314	113.0	3.4
HPWW-1602	2	148.0	92.0	19.3	1522	133.8	3.3
HPWW-1802	2	167.4	106.2	18.9	1856	156.4	3.5
HPWW-2202	2	193.8	120.2	19.4	2220	187.2	3.5

1. Cooling tons are based on a condition of 54/44°F chilled water, 60/70°F ground source.
2. Heating MBTU is based on 40/50°F ground source and 120°F hot water supply.

ELECTRICAL DESIGN DATA:

MODEL NO.	COMPRESSOR QUANTITY	COMPRESSOR HP	COMPRESSOR RLA	UNIT MCA @ 460V
HPWW-35	1	35	56.1	71.0
HPWW-40	1	40	75.0	94.0
HPWW-50	1	50	103.0	129.0
HPWW-60	1	60	112.0	140.0
HPWW-70	1	70	120.0	150.0
HPWW-80	1	80	137.0	172.0
HPWW-90	1	90	145.0	182.0
HPWW-110	1	110	166.0	208.0
HPWW-120	1	120	203.0	254.0
HPWW-702	2	2 X 35	2 X 56.1	127.0
HPWW-802	2	2 X 40	2 X 75.0	169.0
HPWW-1002	2	2 X 50	2 X 103.0	232.0
HPWW-1202	2	2 X 60	2 X 112.0	252.0
HPWW-1402	2	2 X 70	2 X 120.0	270.0
HPWW-1602	2	2 X 80	2 X 137.0	309.0
HPWW-1802	2	2 X 90	2 X 145.0	327.0
HPWW-2202	2	2 X 110	2 X 166.0	374.0

For 208/230 or 575 , or 50 Hz. Contact Factory.