



Mini Heat Pump Water Chiller & Heater

Applicable for both Kitchen and Bathroom Application

Eco-Friendly Renewable Energy Solution to:

>> Sanitary Chilled Water

>> Sanitary Hot Water

ENERGY FROM THE NATURE

Blueway **Mini Heat Pump Water Chiller & Heater** (MHP) is specially designed for the need of sanitary chilled or hot water, applicable for kitchen and bathroom application. It uses CFC free refrigerant to absorb energy from the air, cooling and (or) heating the water to a temperature adjustable between 8°C to 60°C.

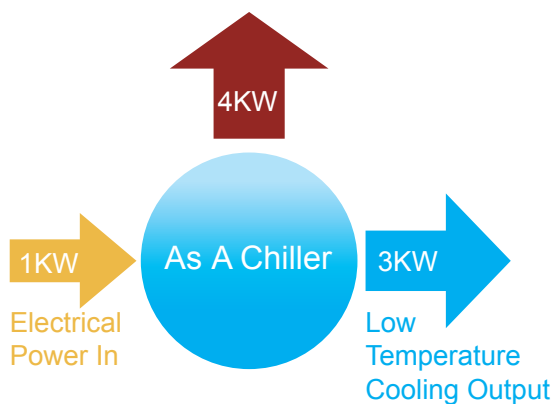
As a heater, the unit takes energy from outside air and converts it to heat for hot water production; while as a chiller, the unit works in a reverse cycle and removes heat from the water to the outside air, by which the water temperature is reduced.



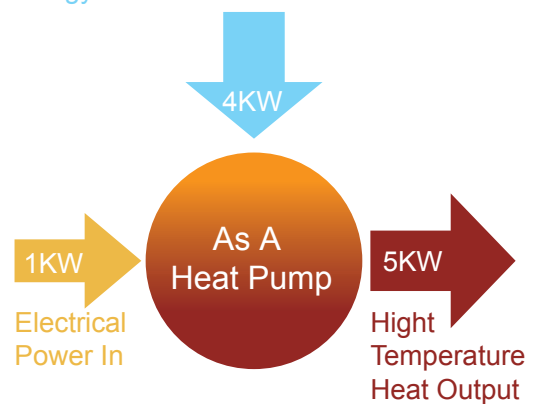
It consumes **70-80% less** electrical energy than a conventional electric water heater, as the electrical power it consumes is only to operate the compressor and fan.

Every 1kW electrical energy it consumes will drive the unit to generate 3-5kW heat energy. In addition, the unit can do cooling which is no way for conventional electrical water heaters can do.

High Temperature Heat Dumping to the Ambient Air



Low Temperature Renewable Heat Energy Recovered From the Environment



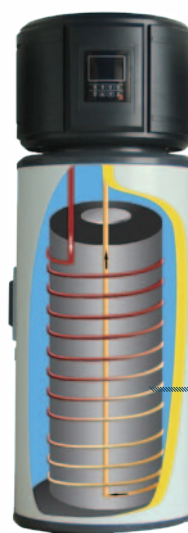
Blueway produces two types of designs and both designs ensure no potential risk of contamination to potable water.



TYPE A: WRAP-AROUND HEAT EXCHANGER

Instead of being immersed in the tank water, the copper pipe heat exchanger is wrapped around the outer wall of the inner stainless steel water tank, which means no direct contact with potable water.

This design ensures no potential risk of contamination to the tank water due to corrosion or refrigerant leakage, and therefore guarantees the water quality.



The copper pipe heat exchanger is wound around the outer wall of the inner stainless steel water tank.

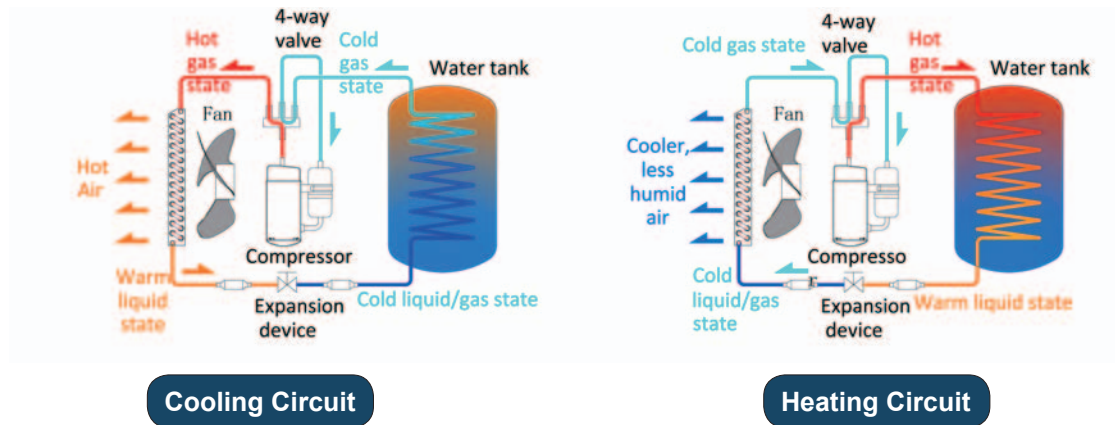
TYPE B: INTERNAL COIL HEAT EXCHANGER

This design adopts two internal SUS 316 pipe coil heat exchangers, one of which is for refrigerant (refrigerant heat exchanger), and the other one is for water (water heat exchanger) and is connected to tap or shower water. The refrigerant heat exchanger will first heat or cool the water stored in the water tank to the setting temperature.

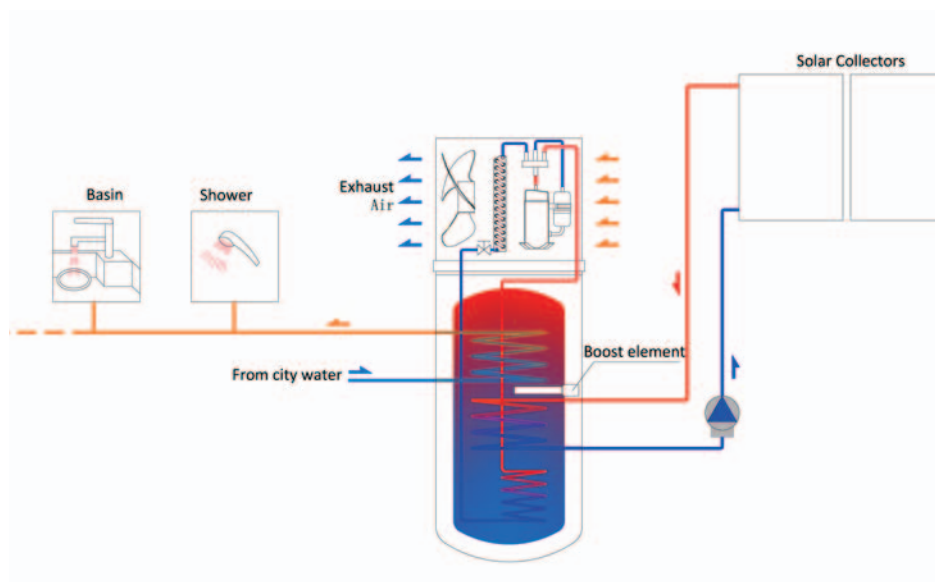
Then the heated or cooled water in the tank will act as a heat transfer medium and transfer heating or cooling to the water heat exchanger, in which the shower water or tap water is running through. For this design, the refrigerant heat exchanger does not contact potable water as well, thus ensures the safety of the water to be used in kitchen and bathroom.

DIAGRAM

Working Principle Diagram



Application Diagram



HEAT RECOVERY APPLICATION (not applicable for tropical regions)

When the unit is working on hot water mode, the exhaust cooling air from the top of the unit can be ducted to the kitchen.

By doing this, people can enjoy free comfortable cooling, if the temperature in kitchen is very hot.



Highlights

- Micro processor based digital controller with LCD display
- Cool/Heat mode selection:
Cool water temperature setting: 8-30°C
Hot water temperature setting: 30-60°C
- No potential risk of contamination to potable water
- Tropical design against the harsh weather conditions in the Gulf
- High efficiency rotary compressor ensures quiet operation
- CFC free R134A or R410A refrigerant, without ozone depletion
- Energy saving, the running cost is only 1/3 of the conventional electric water heaters
- **Safety:** complete isolation between water and electricity, no potential danger of any inflammable, gas poisoning, explosion, fire, electrical shock which are associated with other heating systems
- **Easy Installation:** be easily installed by a plumber or electrician, no need for a specialist refrigeration engineer
- **Easy Operation:** operates like a simple domestic appliance

APPLICATION

Hot Water Application



Chilled Water Application



Mini Heat Pump Water Chiller & Heater (TYPE A) Technical Specifications

Model			MHP12-200L	MHP12-250L
Power Supply	-	V/Hz/Ph	220/50/1, 220/60/1	
Chilled Water Performance (1)	Cooling capacity	BTU/Hr	12500	12500
	Power consumption	Watts	1308	1308
	EER	-	2.8	2.8
	Current	A	5.69	5.69
	Chilled water production	Gallon/hour	166	166
Chilled Water Performance (2)	Cooling capacity	BTU/Hr	10625	10625
	Power consumption	Watts	1544	1544
	EER	-	2.02	2.02
	Current	A	6.71	6.71
	Chilled water production	Gallon/hour	70	70
Hot Water Performance	Heating capacity	BTU/Hr	15000	15000
	Power consumption		1235	1235
	COP	-	3.6	3.6
	Current	A	5.37	5.37
	Hot water production	Gallon/hour	25	25
Tank capacity	Capacity	Litter	200	250
		Gallon	53	66
	Internal tank	Materials	SUS 304	SUS 304
	Insulation thickness	mm	50	50
Noise level	-	dB(A)	55	55
Controller	-	-	Micro processor based digital wire controller	
Compressor	Type		Rotary	
	Qty	Nos.	1	
	Refrigerant	-	R134A	
Heat exchanger (water side)	Type	-	Wrap around copper pipe coil	
	Qty	Nos.	1	
Condenser fan	Type	-	Axial	
	Airflow	CFM	900	
	Dia x Qty	mm x Nos.	φ300*50	
	Material	-	Plastic	
Condenser motor	Output Power	Watts	60	
	RPM	-	850	
	Qty	Nos.	1	
Condenser coil	Type		Fin-tube	
	Tube dia	mm	φ7.0	
	Row	-	3	
	FPI	-	16	
	Total face area	m2	9	
Water Connection	Inlet	Inch	G1"	
	Outlet	Inch	G1"	
Dimmension: W×H×D	Net	mm	φ570*1750	φ570*2100
	Shipping	mm	645*645*1850	645*645*2200
Weight	Net	Kg	47	55
	Shipping	Kg	52	60
Stack	-	Layer(s)	1	
Loading Qty	20'/40'/40'HQ	Set(s)	27/57/57	27/57/57

Test Conditions:

- 1.Chilled Water Performance (1): Air 35/24°C (DB/WB), Water 30/25°C (Inlet/Outlet);
- 2.Chilled Water Performance (2): Air 46/24°C (DB/WB), Water 40/30°C (Inlet/Outlet);
- 3.Hot Water Performance: Air 20/15°C (DB/WB), Water 15/55°C (Inlet/Outlet);



Technical Specifications

Mini Heat Pump Water Chiller & Heater (TYPE B)

Model			MHP12-250L
Power Supply	-	V/Hz/Ph	220/50/1, 220/60/1
Chilled Water Performance (1)	Cooling capacity	BTU/Hr	12500
	Power consumption	Watts	1242
	EER	-	2.95
	Current	A	5.40
	Chilled water production	Gallon/hour	166
Chilled Water Performance (2)	Cooling capacity	BTU/Hr	10625
	Power consumption	Watts	1465
	EER	-	2.13
	Current	A	6.37
	Chilled water production	Gallon/hour	70
Hot Water Performance	Heating capacity	BTU/Hr	15000
	Power consumption		1172
	COP	-	3.8
	Current	A	5.10
	Hot water production	Gallon/hour	25
Tank capacity	Capacity	Litter	250
		Gallon	66
	Internal tank	Materials	SUS 304
	Insulation thickness	mm	50
Noise level	-	dB(A)	55
Controller	-	-	Micro processor based digital wire controller
Compressor	Type		Rotary
	Qty	Nos.	1
	Refrigerant	-	R134A
Heat exchanger (water side)	Type	-	Internal SUS 316 piple coil
	Qty	Nos.	2
Condenser fan	Type	-	Axial
	Airflow	CFM	900
	Dia x Qty	mm x Nos.	φ300*50
	Material	-	Plastic
Condenser motor	Output Power	Watts	60
	RPM	-	850
	Qty	Nos.	1
Condenser coil	Type		Fin-tube
	Tube dia	mm	φ7.0
	Row	-	3
	FPI	-	16
Water Connection	Total face area	m2	9
	Inlet	Inch	G1"
	Outlet	Inch	G1"
Dimmension: W×H×D	Net	mm	Φ570*2100
	Shipping	mm	645*645*2200
Weight	Net	Kg	47
	Shipping	Kg	52
Stack	-	Layer(s)	1
Loading Qty	20'/40'/40'HQ	Set(s)	27/54/54

Test Conditions:

- 1.Chilled Water Performance (1): Air 35/24°C (DB/WB), Water 30/25°C (Inlet/Outlet);
- 2.Chilled Water Performance (2): Air 46/24°C (DB/WB), Water 40/30°C (Inlet/Outlet);
- 3.Hot Water Performance: Air 20/15°C (DB/WB), Water 15/55°C (Inlet/Outlet);

