

1H202107



# 2021 HVAC BUILDING TECHNOLOGIES

## Heat pump solution

### HVAC & Building Technologies Division Midea Group

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[hbt.midea.com](http://hbt.midea.com) [www.midea-group.com](http://www.midea-group.com)



Note: Product specifications change from time to time as product improvements and developments are released and may vary from those in this document.

GD MIDEA Heating & Ventilating Equipment Co. Ltd participates in the ECP programme for LCP-HP. Check ongoing validity of certificate: [www.eurovent-certification.com](http://www.eurovent-certification.com)





# Midea HBT

Midea HBT (HVAC & Building Technologies) is a key division of the Midea Group, a leading provider of comprehensive solutions of intelligent building, involving energy sources, elevators, control systems, and heating, ventilation & air conditioning. Midea HBT has continued with the tradition of innovation upon which it was founded and emerged as a global leader in the HVAC and building management industry. A strong drive for advancement has resulted in an extensive R&D department that has placed Midea HBT at the forefront of a competitive edge. Through these independent projects and joint-cooperation with other global enterprises, Midea has supplied thousands of innovative solutions to customers worldwide.



Several production bases are situated on Shunde, Chongqing, Hefei, and Italy.

MHBT Shunde: 38 product lines focusing on VRF, Split Products, Heat Pump Water Heaters and AHU/FCU.

MHBT Chongqing: 14 product lines focusing on Water Cooled Centrifugal/Screw/Scroll Chillers, Air Cooled Screw/Scroll Chillers and AHU/FCU.

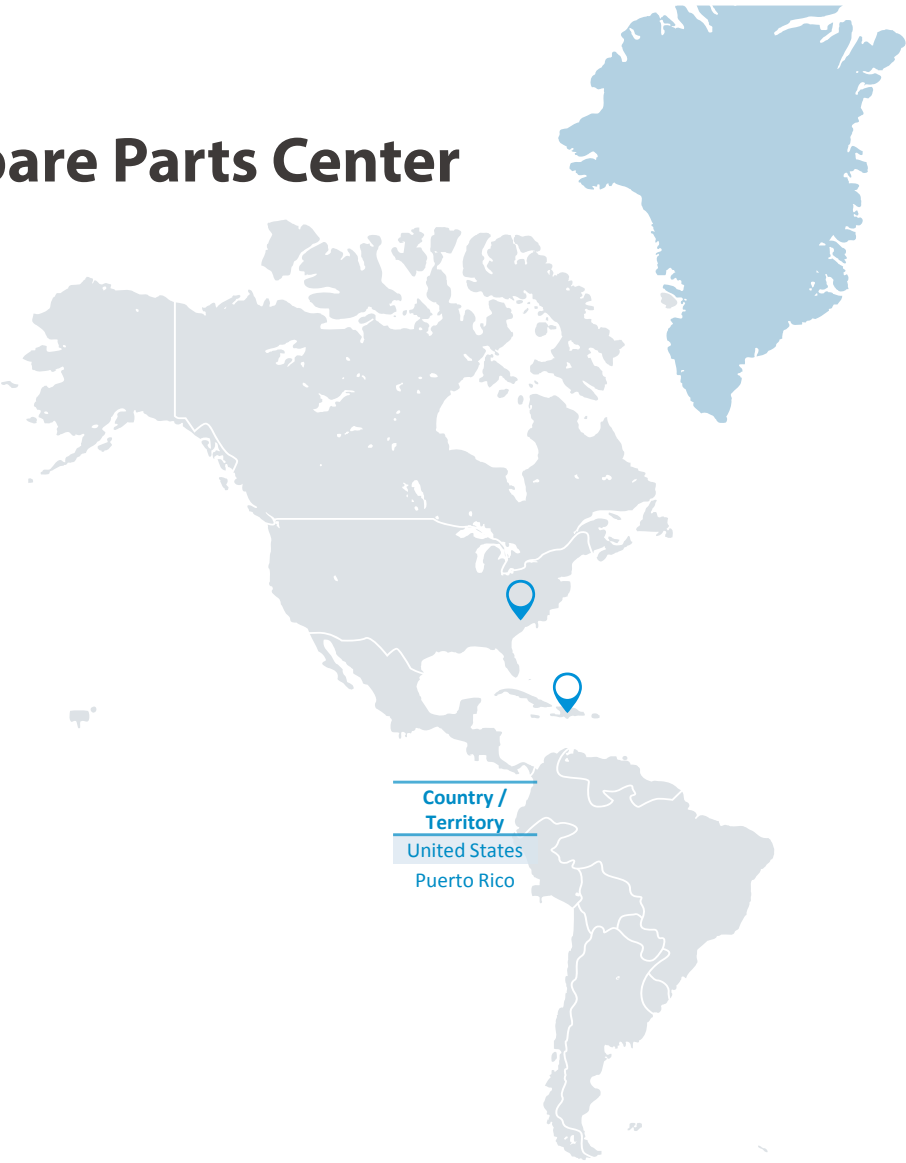
MHBT Hefei: 11 product lines focusing on VRF, Chillers and Heat Pump Water Heaters.

Clivet S.p.A: 50,000m2 workshop in Feltre and Verona, covering products such as ELFO system, hydronic, WHLP, packaged, split and close control and so on.



# Midea Global Spare Parts Center

The global spare parts center provides high quality and fast spare parts supply. Midea online system (<https://tsp.midea.com>) can query and purchase spare parts with one click, further shortening the supply time of spare parts.





# MHBT Learning Academy



## Objective

Midea HBT Learning Academy aims to provide training to the sales personnel as well as technical personnel in order to increase the utilization for your Midea HBT equipment. Once you have purchased equipment from Midea HBT, taking care of the equipment is topmost priority. Midea HBT Learning Academy offers training courses to learn firsthand from the manufacturer what it takes to get the best out of your Midea HBT product. The goal of Midea HBT Learning Academy is to provide product specific training, safe work procedures and expertise in carrying out the installation and maintenance of Midea HBT products as well as teaching the main selling points in order to help the sales people sell the Midea HBT products with ease.

## Training Centers

Our world class training centers provide knowledge and skills necessary to efficiently deploy Midea HBT technologies. The training centers include dedicated laboratories to provide hands-on experiences with various systems, components and controls to refresh and enhance the skills of your sales, design and installation and service teams. Right now we operate our trainings from the below two locations:

### 1. Midea HBT Training Center

**Address:** Midea HBT Training Center, 2nd Floor, Building 6, Midea Global Innovation Center, Beijiao, Shunde, Foshan, China  
Pin- 528311

The Midea HBT Training Center is situated 70 kilometers from Baiyun Guangzhou International Airport.

**Products:** VRF, M thermal

### 2. Chongqing Midea Training Center

**Address:** No. 15, Qiangwei Road, Nan'an District, Chongqing, China

Chongqing Midea Training Center is 35 kilometers from Chongqing International Airport.

**Products:** Centrifugal Chiller, Screw/Scroll Chiller and Terminals



VRF training



M thermal training



Chiller training

## Global Technical Trainings

The training courses by Midea HBT Learning Academy are divided into the following two categories with different targeted audiences for each.

**Design and Application Trainings:** The design and application trainings for various products are basically for the sales personnel selling Midea HBT products in order to give them basic understanding about the main features. The trainings are conducted on a global level inviting sales engineers, technical engineers, consultants and project designers from different parts of the world.

**After Sales- Service Trainings:** These trainings are dedicated for the After Sales/ Service personnel in order for them to better carry out the installation, commissioning and maintenance of Midea HBT products. Technical person and engineers from different parts of the world are invited to take part in these trainings.

**ZOOM Online Trainings:** The trainings to the Global customers can also be done online with the help of ZOOM software. This way, the customers do not need to be physically present for the training. Amid the COVID-19 pandemic, Midea HBT Learning Academy has conducted a lot of online trainings. The training videos are available on the TSP system and can be downloaded by using QR codes.

**Products:** VRF, M thermal, Chillers and Terminals

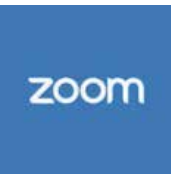
**Highly Skilled Trainers:** The trainers for various courses by Midea HBT Learning Academy are expert people with vast experiences in their field. Most of them have a deep insight about the global HVAC market and help the attendees to better understand the HBT products.

### Training Certificates:

The attendees for Global trainings are provided a training certificate highlighting the courses discussed in the training, signed by Mr. Jason Zhao, General Manager of Midea HBT Overseas Sales Company.

### Registration:

You can contact your respective Midea contact point to provide you with the complete schedule about the global technical trainings as well as how to register for these trainings.



M thermal Arctic Series



M thermal Eco Series



Reference projects



Aston Kuta Bali Hotel (Five Star)

📍 Country: Indonesia  
📍 City: Bali  
📅 Completion Year: 2010  
🏠 Unit: ATW heat pump



Sheraton Bandara Resort Hotel (Five Star)

📍 Country: Indonesia  
📍 City: Jakarta  
📅 Completion Year: 2011  
🏠 Unit: ATW heat pump



Grand Aston Tunjungan (Five Star)

📍 Country: Indonesia  
📍 City: Surabaya  
📅 Completion Year: 2013  
🏠 Unit: ATW heat pump



The Royale Springhill Residences

📍 Country: Indonesia  
📍 City: Jakarta  
📅 Completion Year: 2010  
🏠 Unit: ATW heat pump



# Heat pump solution

- ▶ 19 M thermal Eco Series
- ▶ 34 M thermal Arctic Series
- ▶ 53 Commercial water heater
- ▶ 61 Swimming pool application
- ▶ 63 Sanitary hot water Split type



# M thermal



**ONE** system  
for **ALL** your needs



# What is M thermal?

M thermal is one kind of air source heat pump. It is capable of extracting heat from the surrounding air and transferring this heat indoors for space heating and domestic hot water.



## 1 Stage One

With the temperature of the refrigerant being lower than the ambient temperature, heat passes from the air flowing over the air side heat exchanger to the refrigerant and the refrigerant evaporates.

## 2 Stage Two

When the refrigerant vapor passes through the compressor, refrigerant pressure increases and temperature rises above that of the water in hydronic system.

## 3 Stage Three

As the hot vapor refrigerant passes through the water side heat exchanger it heats the water in the hydronic system, which is then pumped indoors to the space heating terminals or hot water tank. The refrigerant cools and condenses and returns to the expansion valve to start the cycle again.

## 4 Stage Four

As the refrigerant passes through the expansion valve and expands, its temperature and pressure both drop.

# Why is M thermal?

We are always working on it



2020  
Arctic Series



2018  
Eco Series



2016  
Standard Series



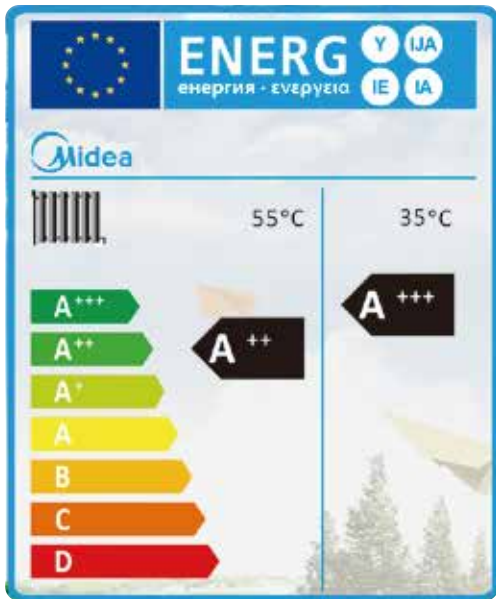
2011  
Initial generation





# We are widely recognized

Heat pump solution



ERP Directive\*  
ηs. Seasonal space heating energy efficiency

ηs average up to **A+++** at 35°C

ηs average up to **A++** at 55°C

\*It indicates the highest possible grade for M thermal product lineup. For specific grade of different models, please refer to the specifications.



Note:  
MCS is available for A Series.

# We are friendly to environment

Eco friendly refrigerant R32  
Lower GWP 675 (GWP: Global Warming Potential)  
Zero impact on the ozone layer  
Less carbon emission

Higher heat transfer coefficient  
Better performance in poor conditions  
Less pressure loss  
No temperature glide

Easier to get  
Less charged volume  
Less cost



**R32**



## We are reliable

### DC Inverter fan motor

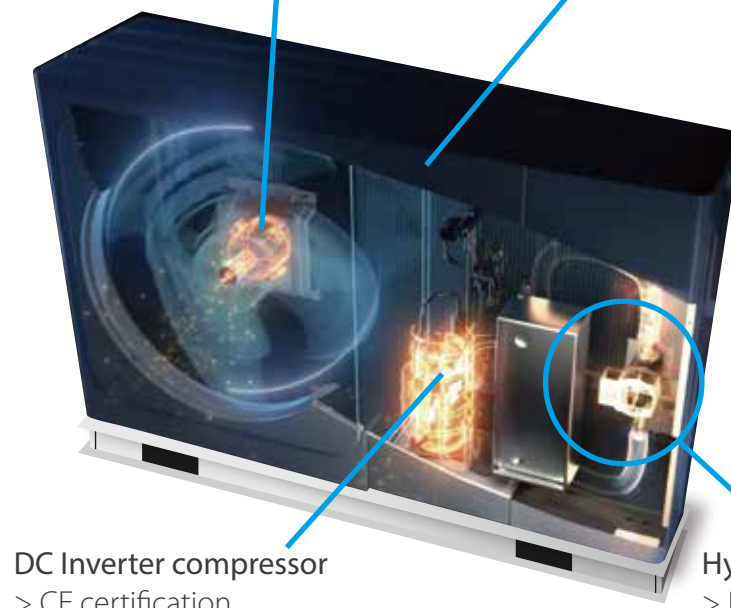
- > CE/CCC certification
- > BLDC fan motor with stepless control
- > Quiet operation
- > Low power consumption
- > 8 poles
- > Insulation grade E

### Heat exchanger aluminum foil

- > Standard products:  
200h of neutral salt mist
- > Heavy anti-corrosion products:  
1000h of neutral salt mist  
140h of acid salt mis

### Heat exchanger copper pipe

- > Standard products:  
24h of neutral salt mist
- > Heavy anti-corrosion products:  
150h of neutral salt mist for ODU



### DC Inverter compressor

- > CE certification
- > Wide working frequency
  - High efficiency
  - Six poles
  - Insulation grade E
- > Twin eccentric cams
  - 2 balance weights
  - Better balance
  - Low vibration
- > Spray liquid cooling control
  - Decrease discharge temperature
  - High reliability
- > Compact structure
  - Highly robust bearings
  - Highly stable moving parts

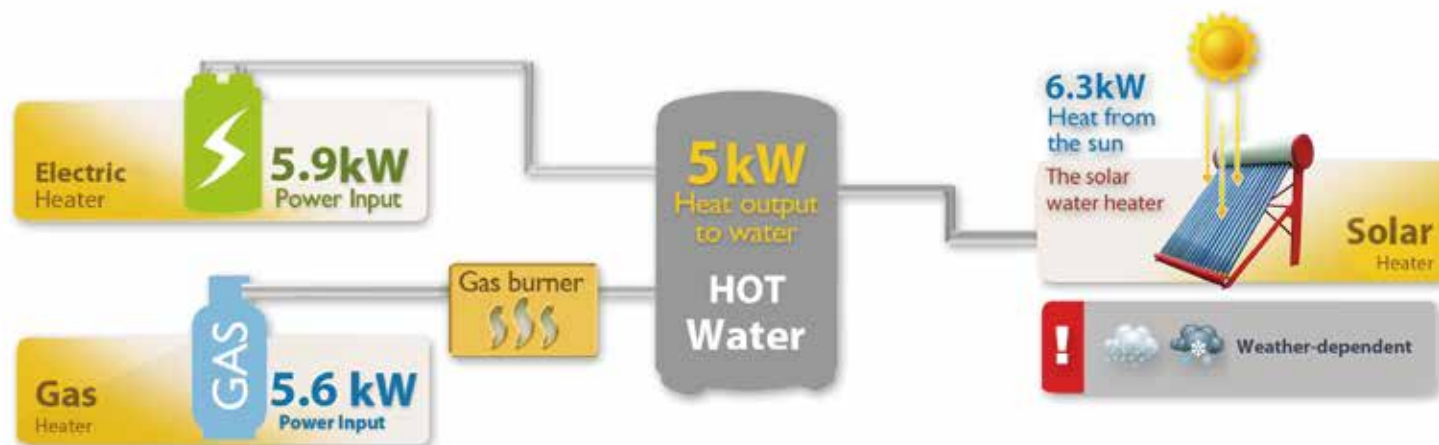
### Hydraulic components from famous manufactures

- > Plate heat exchanger
  - > Expansion tank
  - > Water pump
    - DC Inverter design\*
    - CE certification
    - High efficiency
    - Big pump head
    - Insulation grade F
    - Level of protection IPX4D
- \*For E Series Mono and A Series Mono(18~30kW), water pump has three speed options, but units only use one of them.

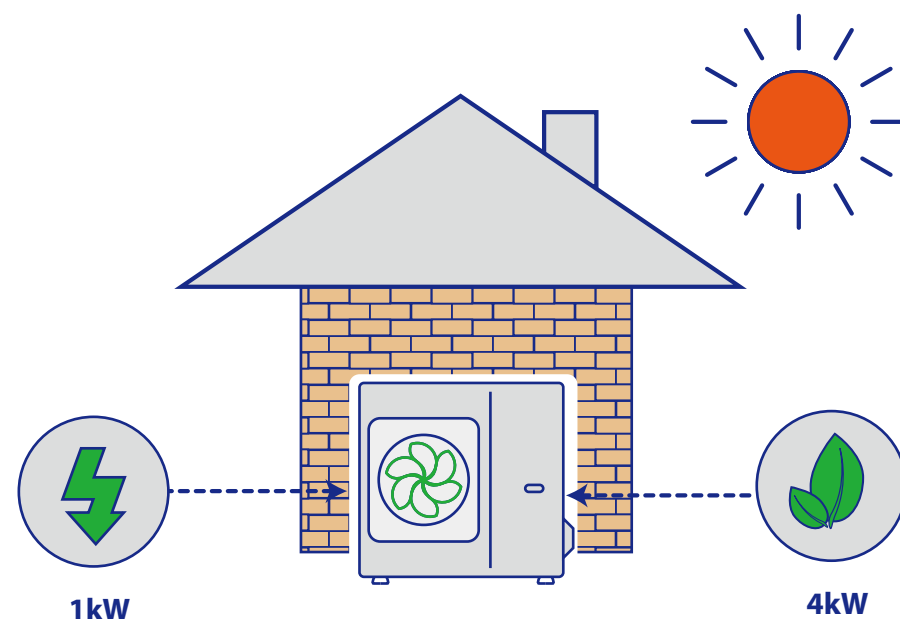
## We are energy efficient



Typically around 4kWh of energy can be captured for every 1kWh of electrical energy expended, giving almost 5kWh of heat energy for only 1kWh of electrical input and giving efficiency of almost 500%.



Note: The data above is just for reference only.



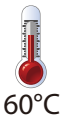


Product lineup

Mono	Capacity (kW)	5	7	9	12	14	16
	220~240V-1N-50Hz	●	●	●	●	●	●
	380~415V-3N-50Hz				●	●	●
Split Outdoor unit	Capacity (kW)	4	6	8	10		
	220~240V-1N-50Hz	●	●	●	●		
Split Hydronic box	Model	60			80		
	220~240V-1N-50Hz	●			●		

Overview

Refrigerant R32 75% less impact on global warming;  
DC Inverter technology allows precise consumption on real load;  
Maximum water temperature up to 60°C by heat pump;  
Minimum operation ambient temperature down to -25°C;  
COP up to 5.15(Split 4kW model);  
High energy efficiency level A+++ for energy saving (Water outlet temperature at 35°C);  
Offers heating capacity of 100% at -7°C(Water outlet temperature at 35°C; Mono 5kW model);  
Provide space heating, cooling and domestic hot water, total heat solution;  
Compatible with other heat sources such as solar panels and boilers.



M thermal Eco Series

Make life smart

Split 4~10kW



Mono 5~16kW



Compatible with different kinds of terminals

Fan coil unit



Radiator



Water tank



Floor heating loop

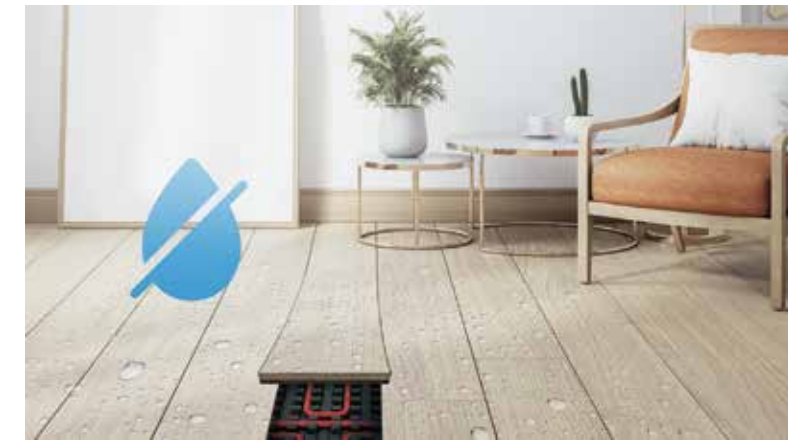




## High reliability

### Preheating and drying up for floor

Before floor heating, if a large amount of water remains on the floor, the floor may be warped or even ruptured during floor heating operation. We provide two modes for heating floor, one is drying up mode which is used after the initial installation of floor loops and the other one is preheating mode for the first heating during seasonal heating. Both of the modes are in order to protect the floor. During the process, the water temperature would be increased gradually.



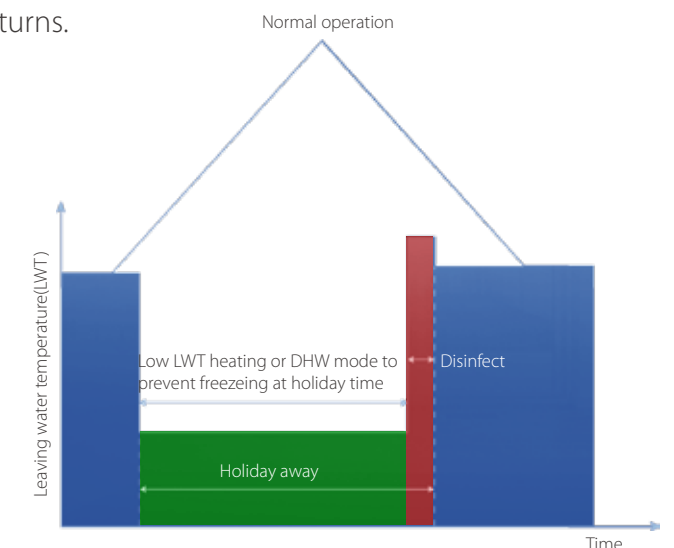
### Power limitation function

Power limitation function makes the machine suitable for a variety of current supplies. There are 8 configurations for user to choose according to the maximum allowable access current. Only easy setting on the wired controller is needed, the units can suit more application.

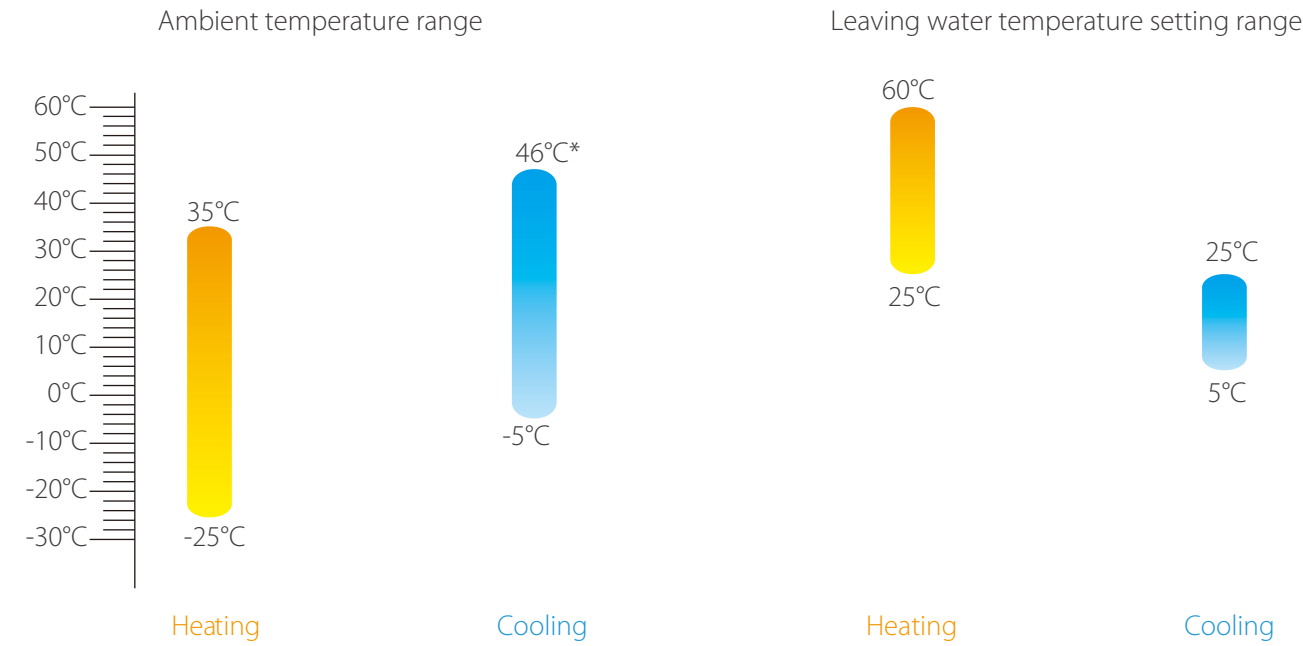


### Holiday away

Holiday away function is a mode for improving system reliability and saving energy. Unit operates in heating mode and/or DHW mode with low water temperature to prevent water from freezing in the winter during holiday outside. The user can pre-set, the disinfection mode before he returns home to make sure that germ free water is available to be used when he returns.



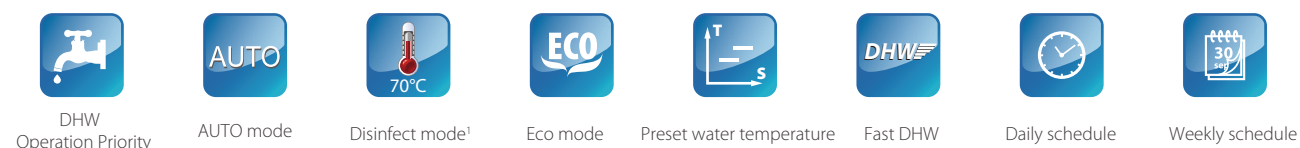
## Wide operation range



\* For Mono 5~9kW and Split models, the ambient temperature range for cooling mode is -5°C~43°C.



## Multiple function

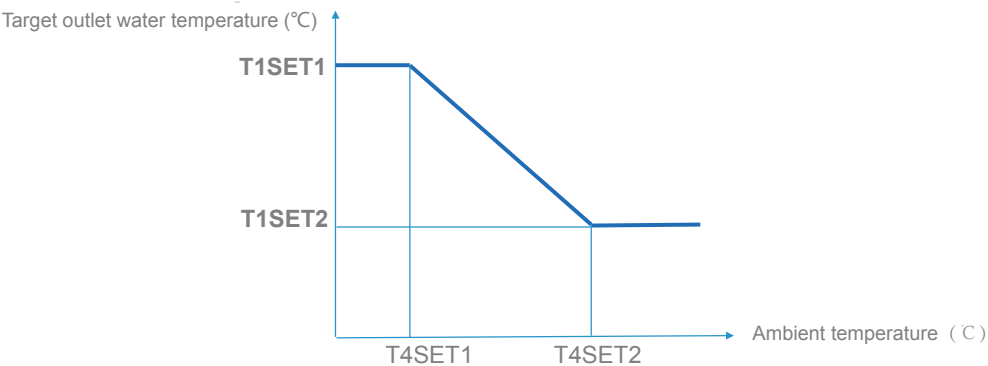


Note :  
1. Only when the immersion heater of tank is available can the disinfection water temperature reaches 70°C.



### Weather temperature curve

With the help of weather temperature curve function, water temperature will automatically change as outside air temperature changes. When outdoor air temperature increases/decreases, the heating load will decrease/increase and water temperature will decrease/increase automatically. When outdoor air temperature decreases/increases, the cooling load will decrease/increase and water temperature will increase/decrease automatically. Totally 32 weather temperature curve are already set by experienced engineer and one customized curve is available, which meets the diversified requirements of temperature.



### Smart Grid

Heat pump adjusts the operation according to different electrical signals. Power consumption of the system can be automatically adjusted according to the peak and valley power to reduce the power consumption to a great extent.

Cheap electrical signal: DHW mode will be effective to produce hot water.

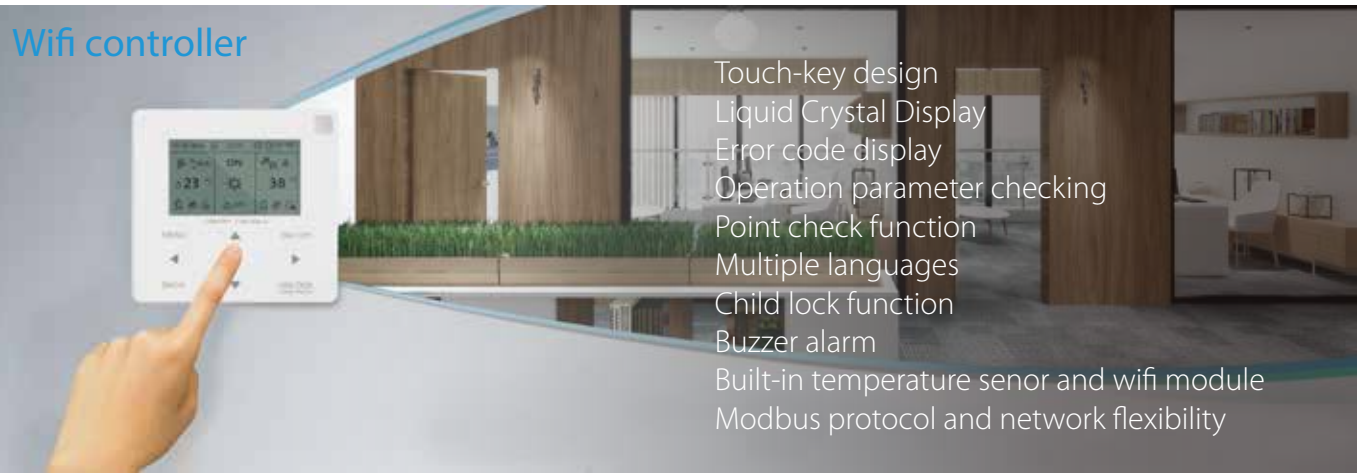
Normal electrical signal: Operates according to users' need.

Expensive electrical signal: Set the maximum operating time for heating mode and cooling mode.



### Convenient

#### Wifi controller

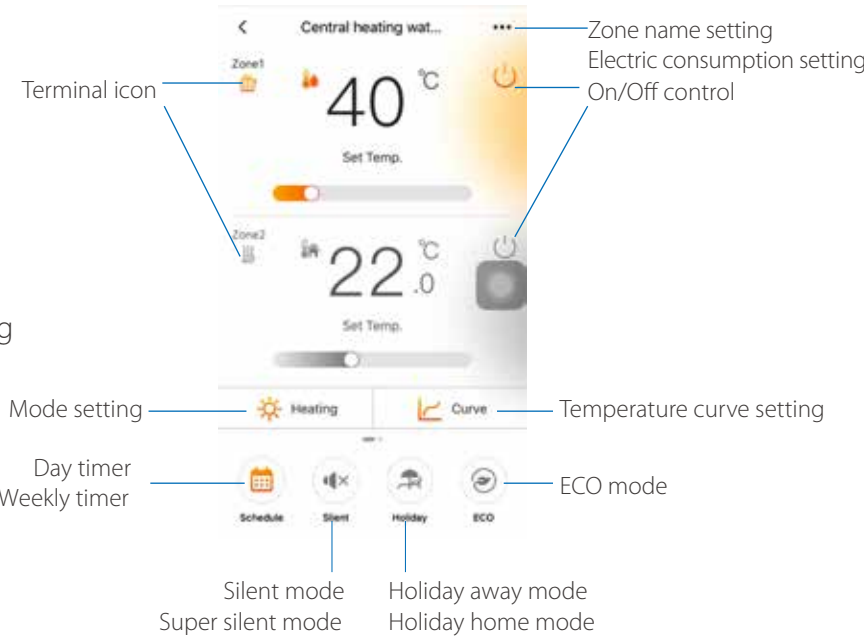


### APP control



MSmartLife APP

- Easy setting
- Double zones control
- Monitor system status
- Know power consumption
- Convenient remote control
- Suggestion for energy saving
- Schedule function and timer setting



Note: APP interface changes from time to time as APP is updated and may change slightly vary from those in this document.



Holiday home

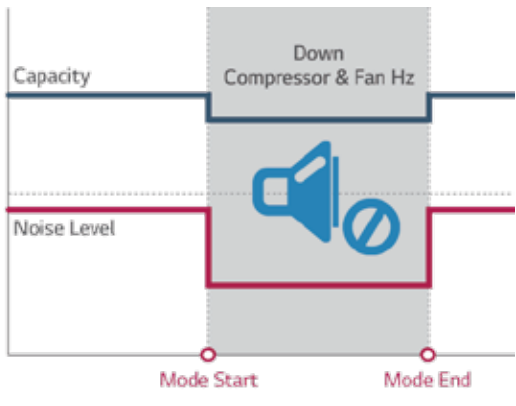
Holiday home function is used to deviate from the normal schedules without having to change them during the holiday at home.



Comfort

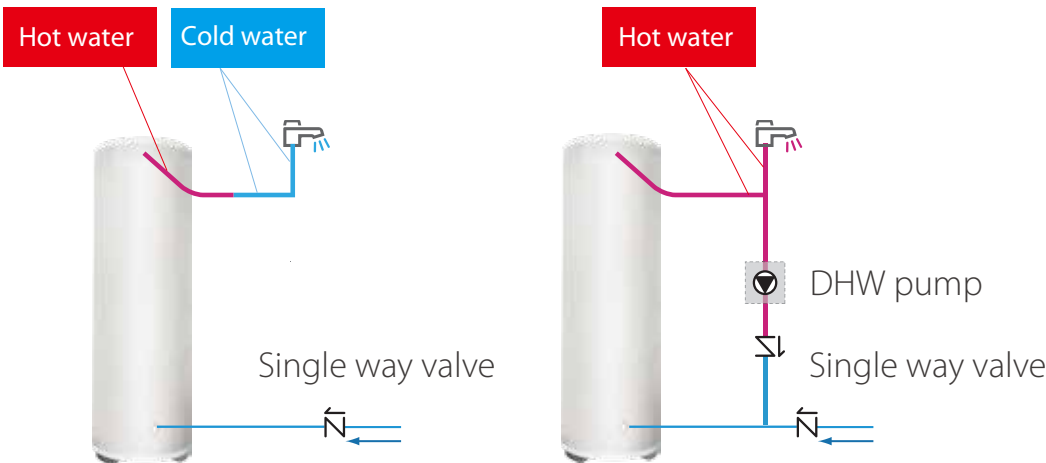
Silent modes makes comfort

The silent mode is used to decrease the sound of the unit. There are two silent mode levels. Level 2 is more silent than level 1.



DHW pump function

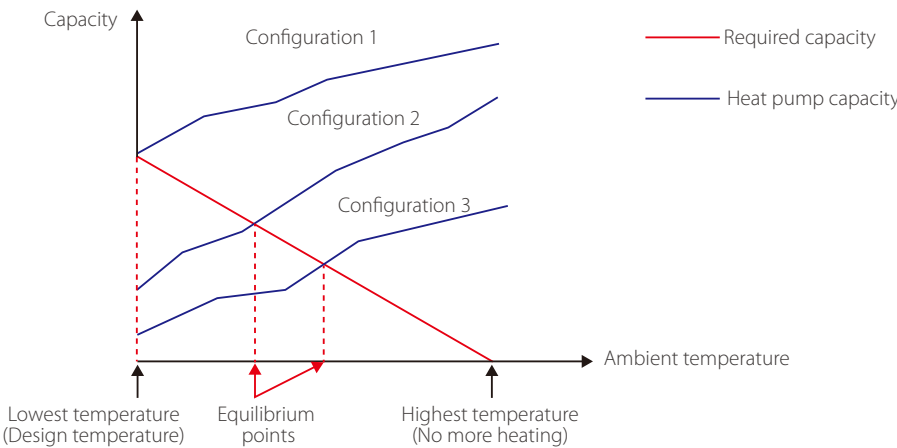
The DHW pump function is used to return water in the water pipe net to the hot water tank according to set timer. Total 12 timers for one day can be set, which allows users to set the DHW pump operation time according to using habit to guarantee using hot water without waiting for a long time.



Typical Applications

System configurations

M thermal system can be configured to run with the electric heater either enabled or disabled and can also be used in conjunction with an auxiliary heat source such as a boiler. The chosen configuration affects the size of heat pump that is required. Three typical configurations are described below.



Configuration 1: Heat pump only

- ❖ The heat pump covers the required capacity and no extra heating capacity is necessary.
- ❖ Requires selection of larger capacity heat pump and implies higher initial investment.
- ❖ Ideal for new construction in projects where energy efficiency is paramount.

Configuration 2: Heat pump and backup electric heater

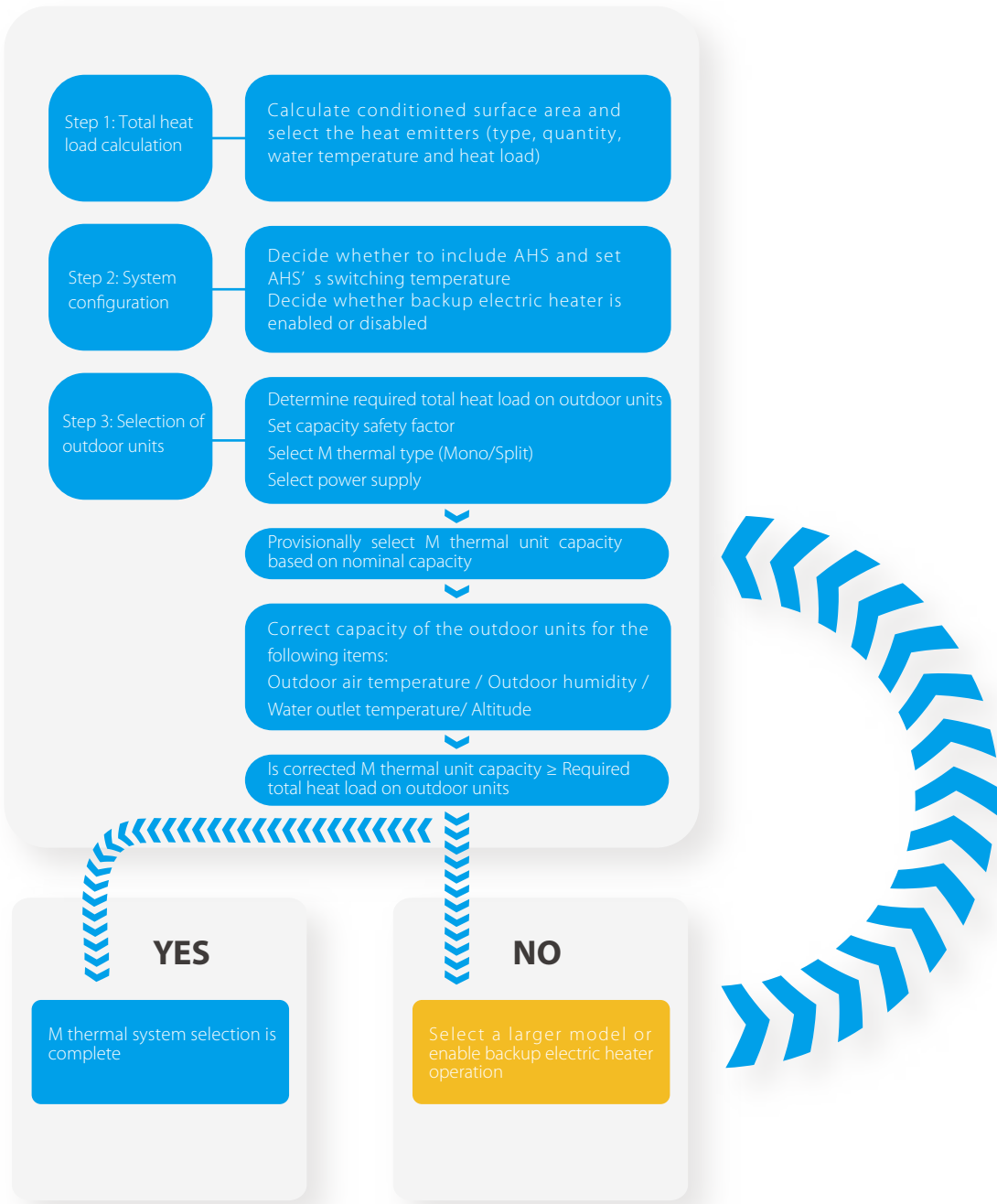
- ❖ Heat pump covers the required capacity until the ambient temperature drops below the point at which the heat pump is able to provide sufficient capacity. When the ambient temperature is below this equilibrium point, the backup electric heater supplies the required additional heating capacity.
- ❖ Best balance between initial investment and running costs, results in lowest lifecycle cost.
- ❖ Ideal for new construction.

Configuration 3: Heat pump with auxiliary heat source

- ❖ Heat pump covers the required capacity until the ambient temperature drops below the point at which the heat pump is able to provide sufficient capacity. When the ambient temperature is below this equilibrium point, depending on the system settings, either the auxiliary heat source supplies the required additional heating capacity or the heat pump does not run and the auxiliary heat source covers the required capacity.
- ❖ Enables selection of lower capacity heat pump.
- ❖ Ideal for refurbishments and upgrades.



Selection Procedure



Leaving Water Temperature (LWT)

- The recommended design LWT ranges for different types of heat emitter are:
- ❖ For floor heating: 30°C to 35°C
  - ❖ For fan coil units: 40°C to 45°C
  - ❖ For low temperature radiators: 40°C to 50°C

One-stop solution - Heating, cooling and domestic hot water in one system

M thermal is an integrated system that provides space heating and cooling as well as domestic hot water, offering a complete, all-year-round solution which can remove the need for traditional gas or oil boilers, or work together with them. M thermal can be combined with floor heating loops, fan coil units, radiators and domestic water tank. It can also be connected to solar collectors, gas furnace, boiler and other heat sources.



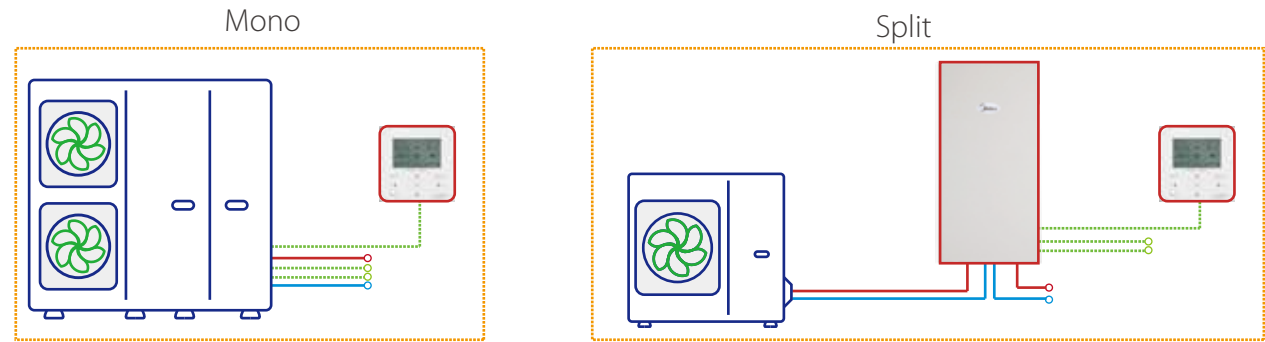
Smart Grid certification indicates M thermal can fully utilize electricity from different sources or different price levels, which means like photovoltaic, and the peak valley of urban electricity supply to satisfy different modes operation, which is benefit for cost saving.





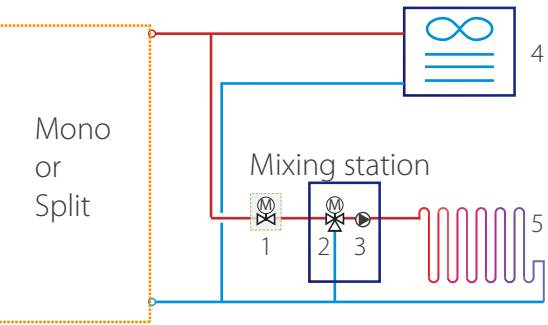
Typical application

Practical applications are various, including but not limited to the following applications. The application examples given below are for illustration only.



Heating and cooling

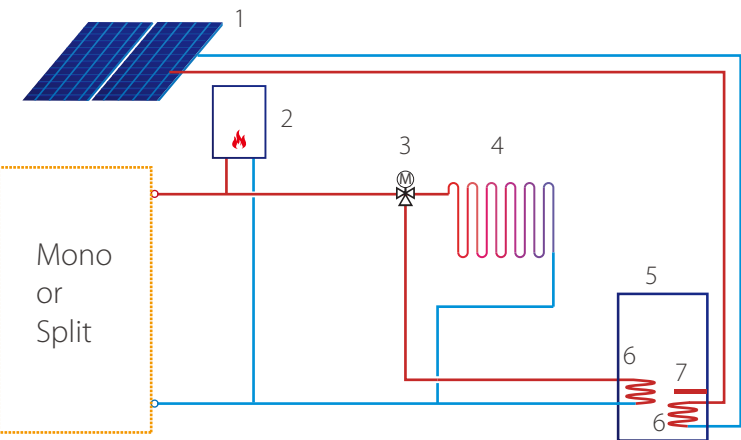
Floor heating loops is used for space heating and fan coil unit is used for both space heating and cooling. For heating mode, floor heating loops and fan coil unit require different operating water temperature. To achieve these two temperature, a mixing station(field supplied) which consists of 3-way valve and water pump is used to adapt the water temperature according to requirements of the floor heating loops. The mixing station is controlled by the unit. For cooling mode, 2-way valve is used to prevent cool water from entering floor heating loops then result in condensation during cooling.



- Notes:
- 1. 2-way valve(field supplied)
  - 2. 3-way valve(field supplied)
  - 3. Water pump(field supplied)
  - 4. Fan coil unit(Midea can supply)
  - 5. Floor heating loop(field supplied)

Heating, DHW and hybrid heat source

Backup electric heater(customized)\* and AHS provide additional heating to raise the water temperature for unit outlet temperature. TBH and solar system provide additional heating to raise the domestic hot water temperature. 3-way valve is used to switch between heating mode and DHW mode.



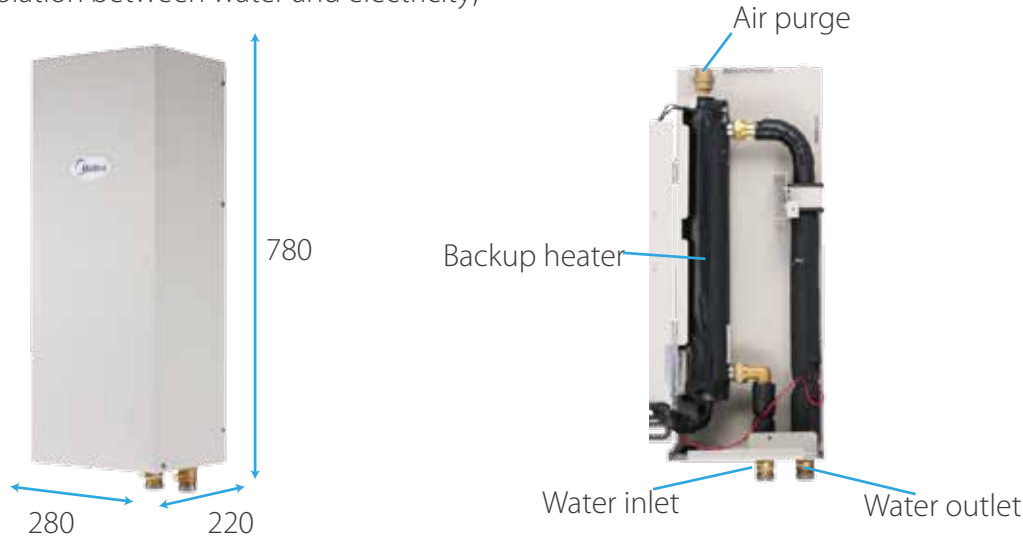
- Notes:
- 1. Solar panel(field supplied)
  - 2. AHS: Additional heating source(field supplied)
  - 3. 3-way valve(field supplied)
  - 4. Floor heating loop(field supplied)
  - 5. Water tank(field supplied)
  - 6. Heat exchanger coil(field supplied)
  - 7. TBH: Tank booster heater(field supplied)

\* For Split model, 3kW backup electric heater is installed in the hydraulic box.  
For Mono 5/7/9kW models, 3kW backup electric heater is installed in an external backup heater kit which model is BH30A.  
For Mono 12/14/16kW single phase models, 3kW backup electric heater can be installed in units or installed in an external backup electric heater kit which model is BH30A and 4.5kW backup electric heater is installed in an external backup electric heater kit which model is BH45B.  
For Mono 12/14/16kW three phase models, 4.5kW backup electric heater can be installed in units or installed in an external backup electric heater kit which model is BH45B/R.

External backup electric heater kit(Optional)

Model	Capacity (kW)	Power supply	Match with
BH30A	3.0	220~240V-1N-50Hz	Mono 5/7/9/12/14/16 single phase models
BH45B	4.5	220~240V-1N-50Hz	Mono 12/14/16 single phase models
BH45B/R	4.5	380~415V-3N-50Hz	Mono 12/14/16 three phase models

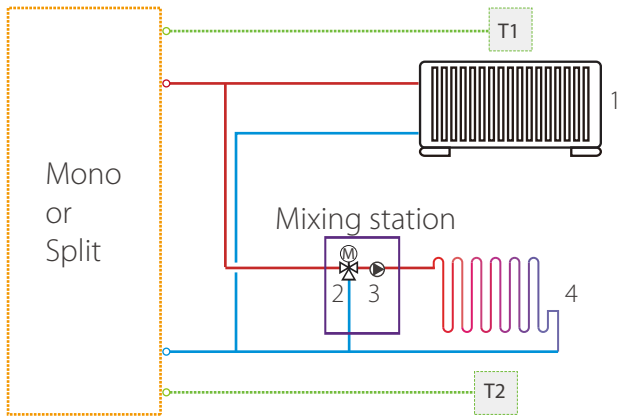
- Features:
- Easy installation;
  - Compact structure;
  - No fuel tubes and storage;
  - Supply additional heating capacity;
  - Complete isolation between water and electricity;



Double zones control

Double zones control is only available for heating mode. It can control different areas to reach different temperature to meet various needs of daily use.

- 1. Using wired controller only  
Wired controller sets the mode, temperature and on/off. Zone 1 is controlled based on the leaving water temperature. Zone 2 is controlled based on the leaving water temperature or built-in sensor integrated in the wired controller.
- 2. Using wired controller and thermostat  
Wired controller sets the mode and water temperature. Both Zone 1 and Zone 2 are controlled by thermostat.



- Notes:
- 1. Radiator(field supplied)
  - 2. 3-way valve(field supplied)
  - 3. Water pump(field supplied)
  - 4. Floor heating loop(field supplied)
- Abbreviation  
T: Room thermostat(field supplied)



Eco Series Mono



Model MHC-			V5W/D2N8	V7W/D2N8	V9W/D2N8	V12W/D2N8	V14W/D2N8	V16W/D2N8	V12W/D2RN8	V14W/D2RN8	V16W/D2RN8
Power supply		V/Ph/Hz	220-240/1/50			220-240/1/50			380-415/3/50		
Heating <sup>1</sup>	Capacity	kW	4.65	6.65	8.60	12.30	14.10	16.30	12.30	14.10	16.30
	Rated input	kW	0.93	1.35	1.87	2.56	3.07	3.66	2.54	3.05	3.63
	COP		5.00	4.94	4.60	4.81	4.60	4.45	4.84	4.63	4.49
Heating <sup>2</sup>	Capacity	kW	4.80	6.70	8.60	12.40	14.10	16.20	12.40	14.10	16.20
	Rated input	kW	1.33	1.88	2.50	3.52	4.06	4.72	3.45	3.99	4.70
	COP		3.60	3.57	3.44	3.53	3.47	3.43	3.59	3.54	3.45
Heating <sup>3</sup>	Capacity	kW	4.65	6.80	8.60	11.90	14.20	16.10	11.90	14.20	16.10
	Rated input	kW	1.77	2.42	3.13	4.28	5.17	5.91	4.24	5.10	5.83
	COP		2.63	2.81	2.75	2.78	2.75	2.73	2.81	2.79	2.76
Cooling <sup>4</sup>	Capacity	kW	4.60	6.45	8.00	12.20	14.00	15.50	12.20	14.00	15.50
	Rated input	kW	0.95	1.39	1.92	2.55	3.10	3.64	2.53	3.11	3.63
	EER		4.82	4.65	4.16	4.78	4.52	4.26	4.83	4.50	4.27
Cooling <sup>5</sup>	Capacity	kW	4.85	6.30	7.95	10.90	12.90	13.80	10.90	12.90	13.80
	Rated input	kW	1.63	2.27	3.15	3.74	4.62	5.21	3.72	4.62	5.19
	EER		2.98	2.77	2.53	2.92	2.80	2.65	2.93	2.80	2.66
Seasonal space heating energy efficiency class <sup>6</sup>	LWT at 35°C	class	A+++	A+++	A+++	A++	A++	A++	A++	A++	A++
	LWT at 55°C	class	A++	A++	A++	A++	A++	A++	A++	A++	A++
Refrigerant	Type		R32			R32			R32		
	Charged volume	kg	2.0			2.8			2.8		
Sound power level <sup>7</sup>		dB	61	64	67	68	71	71	68	71	71
Net dimensions (WxHxD)		mm	1210x945x402			1404x1414x405			1404x1414x405		
Packing dimension (WxHxD)		mm	1280x1090x435			1475x1570x440			1475x1570x440		
Net/Gross weight		kg	92/111			158/178			172/193		
Water pump	Max. pump head	m	6			7.5			7.5		
Water piping connection		inch	1" Male BSP			1-1/4" Male BSP			1-1/4" Male BSP		
Backup electric heater	Standard mounted	kW	/	/	/	/	/	/	/	/	/
	Optional	kW	3	3	3	3/4.5	3/4.5	3/4.5	4.5	4.5	4.5
	Capacity steps		1	1	1	1	1	1	1	1	1
Ambient temperature range	Cooling	°C	-5-43			-5-46			-5-46		
	Heating	°C	-25-35			-25-35			-25-35		
	DHW	°C	-25-43			-25-43			-25-43		
LWT setting range	Cooling	°C	5-25			5-25			5-25		
	Heating	°C	25-60			25-60			25-60		
	DHW	°C	40-60			40-60			40-60		

Notes:

1. Evaporator air in 7°C, 85% R.H., Condenser water in/out 30/35°C

2. Evaporator air in 7°C, 85% R.H., Condenser water in/out 40/45°C

3. Evaporator air in 7°C, 85% R.H., Condenser water in/out 47/55°C

4. Condenser air in 35°C. Evaporator water in/out 23/18°C

5. Condenser air in 35°C. Evaporator water in/out 12/7°C

6. Seasonal space heating energy efficiency class testes in average climate general conditions.

7.Testing standard: EN12102-1

8. Relevant EU standards and legislation: EN14511; EN14825; EN50564; EN12102; (EU) No 811/2013; (EU) No 813/2013; OJ 2014/C 207/02:2014.

Eco Series Split

Outdoor unit model MHA-			V4W/D2N8	V6W/D2N8	V8W/D2N8	V10W/D2N8
Hydronic box model SMK-			-60/CGN8		-80/CGN8	
Heating <sup>1</sup>	Capacity	kW	4.2	6.5	8.4	10
	Rated input	kW	0.82	1.34	1.73	2.15
	COP		5.15	4.85	4.85	4.65
Heating <sup>2</sup>	Capacity	kW	4.2	6.35	8.05	9.85
	Rated input	kW	1.15	1.74	2.16	2.72
	COP		3.65	3.64	3.73	3.62
Heating <sup>3</sup>	Capacity	kW	4.1	5.75	7.5	9.3
	Rated input	kW	1.44	1.98	2.49	3.25
	COP		2.85	2.9	3.01	2.86
Cooling <sup>4</sup>	Capacity	kW	4.3	6.45	8.35	10.2
	Rated input	kW	0.77	1.32	1.79	2.4
	EER		5.6	4.88	4.67	4.25
Cooling <sup>5</sup>	Capacity	kW	4.5	6.5	7.38	8.15
	Rated input	kW	1.36	2.2	2.44	2.76
	EER		3.32	2.95	3.02	2.95
Seasonal space heating energy efficiency class <sup>6</sup>	Water outlet at 35°C	class	A+++	A+++	A+++	A+++
	Water outlet at 55°C	class	A++	A++	A++	A++

Notes:

1.Evaporator air in 7°C, 85% R.H., Condenser water in/out 30/35°C

2.Evaporator air in 7°C, 85% R.H., Condenser water in/out 40/45°C

3.Evaporator air in 7°C, 85% R.H., Condenser water in/out 47/55°C

4.Condenser air in 35°C. Evaporator water in/out23/18°C

5.Condenser air in 35°C. Evaporator water in/out 12/7°C

6. Seasonal space heating energy efficiency class testes in average climate general

7. Relevant EU standards and legislation: EN14511; EN14825; EN50564; EN12102; (EU) No 811/2013; (EU) No 813/2013; OJ 2014/C 207/02:2014.

Eco Series Split outdoor unit



Outdoor unit model MHA-			V4W/D2N8	V6W/D2N8	V8W/D2N8	V10W/D2N8
Power supply			220-240/1/50			
Refrigerant	Type(GWP)		R32(675)			
	Charged volume	kg	1.55		1.65	
Sound power level <sup>1</sup>		dB	61	62	63	65
Net dimension (W×H×D)		mm	960×860×380		1075×965×395	
Packing dimension (W×H×D)		mm	1040×1000×430		1120×1100×435	
Net/Gross weight		kg	57/68		67/79	
Pipe size O.D.	Liquid	mm	6.35		9.52	
	Gas	mm	15.9		15.9	
Connection method			Flared			
Between indoor and outdoor unit	Height difference	m	Max.20		Max.20	
	Pipe length	m	2-30		2-30	
Additional refrigerant	Chargment	g/m	20		38	
	Min. pipe length	m	15			
Ambient temperature range	Cooling	°C	-5~43			
	Heating	°C	-25~35			
	DHW	°C	-25~43			

Notes:

1.Testing standard: EN12102-1





Hydronic box model SMK-			SMK-60/CGN8	SMK-80/CGN8
Power supply		V/Ph/Hz	220-240/1/50	220-240/1/50
Sound power level <sup>1</sup>		dB	43	43
Net dimension (W×H×D)		mm	400×850×427	400×850×427
Packing dimension (W×H×D)		mm	495×1040×495	495×1040×495
Net/Gross weight		kg	47/53	47/53
Water pump	Max. pump head	m	8.5	8.5
	Water side	inch	1"	1"
	Refrigerant liquid	mm	6.35	9.52
	Refrigerant gas	mm	15.88	15.88
Backup E-heater	Standard mounted	kW	/	/
	Optional	kW	3	3
	Power supply	V/Ph/Hz	220-240/1/50	220-240/1/50
LWT setting range	Cooling	°C	25 -50	
	Heating	°C	40 -60	
	DHW	°C	40 -60	

Note: 1.Testing standard: EN12102-1.



# M thermal Arctic Series

## Focus on your comfort

Split 4~16kW



Mono 4~30kW





Product lineup

Mono	Capacity (kW)	4	6	8	10	12	14	16	18	22	26	30
	220~240V-1N-50Hz	●	●	●	●	●	●	●				
	380~415V-3N-50Hz					●	●	●	●	●	●	●

Split Outdoor unit	Capacity (kW)	4	6	8	10	12	14	16
	220~240V-1N-50Hz	●	●	●	●	●	●	●
	380~415V-3N-50Hz					●	●	●

Split Hydronic box	Model	60	100	160
	220~240V-1N-50Hz	●	●	●



Overview

Refrigerant R32 75% less impact on global warming  
DC Inverter technology allows precise consumption on real load  
Maximum water temperature up to 60°C by heat pump  
Minimum operation ambient temperature down to -25°C  
COP up to 5.20(Split 4/8kW model)  
High energy efficiency level A+++ for energy saving (Water outlet temperature at 35°C)  
Offers heating capacity of 100% at -7°C(Water outlet temperature at 35°C; Mono/Split 4kW model)  
Provide space heating, cooling and domestic hot water, total heat solution  
Compatible with other heat sources such as solar panels and boilers

DC Inverter

-25°C

60°C

R32

A+++

Compatible with different kinds of terminals

Fan coil unit



Radiator



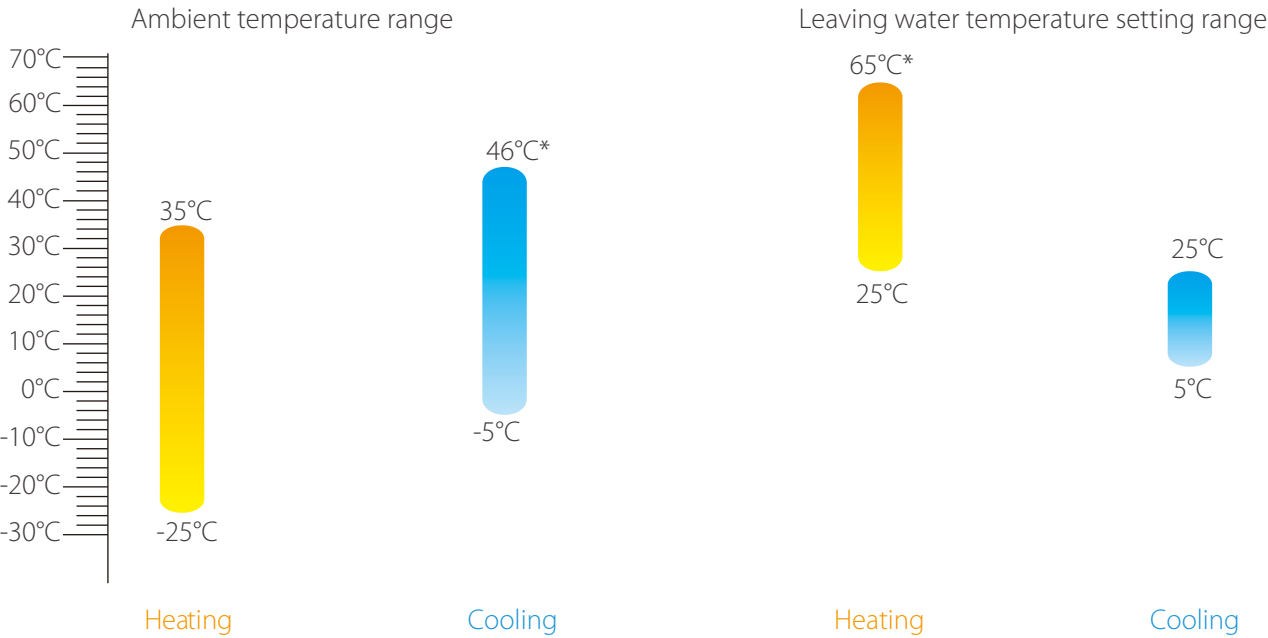
Water tank



Floor heating loop



Wide operation range



\* For Mono 4~16kW and Split models, the ambient temperature range for cooling mode is -5°C~43°C.  
For Mono 18~30kW models, the leaving water setting temperature range for heating mode is 25°C ~60°C.



Multiple function

DHW Operation Priority

AUTO mode

Disinfect mode<sup>1</sup>

Eco mode

Preset water temperature

Fast DHW

Day schedule

Weekly schedule

Note :  
1. Only when the immersion heater of tank is available can the disinfection water temperature reaches 70°C.



## High reliability

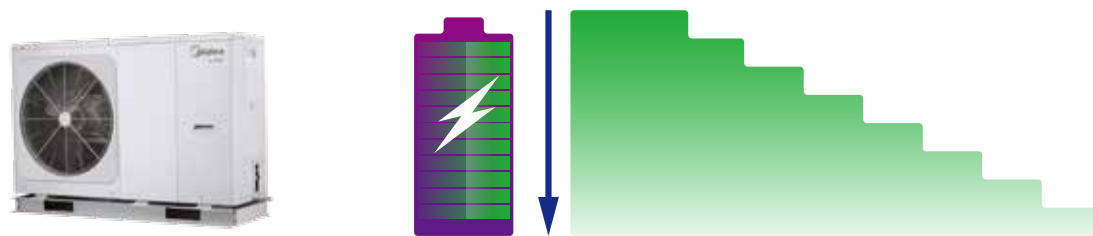
### Preheating and drying up for floor

Before floor heating, if a large amount of water remains on the floor, the floor may be warped or even ruptured during floor heating operation. We provide two modes for heating floor, one is drying up mode which is used after the initial installation of floor loops and the other one is preheating mode for the first heating during seasonal heating. Both of the modes are in order to protect the floor. During the process, the water temperature would be increased gradually.



### Power limitation function

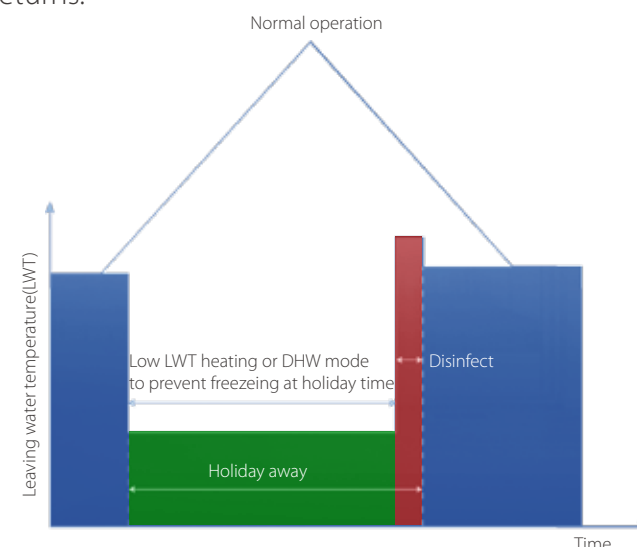
Power limitation function makes the machine suitable for a variety of current supplies. There are 8 configurations for user to choose according to the maximum allowable access current. Only easy setting on the wired controller is needed, the units can suit more application.



### Holiday function

#### Holiday away

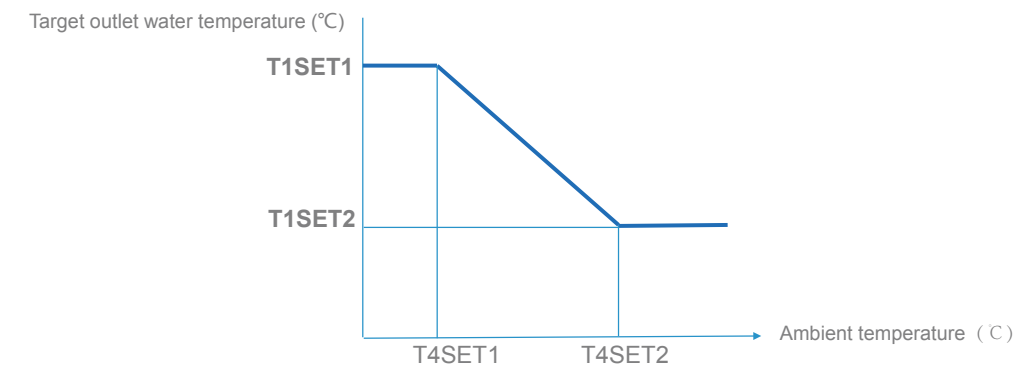
Holiday away function is a mode for improving system reliability and saving energy. Unit operates in heating mode and/or DHW mode with low water temperature to prevent water from freezing in the winter during holiday outside. The user can pre-set, the disinfection mode before he returns home to make sure that germ free water is available to be used when he returns.



## Smart control

### Weather temperature curve

With the help of Weather temperature curve function, water temperature will automatically change as outside air temperature changes. When outdoor air temperature increases/decreases, the heating load will decrease/increase and water temperature will decrease/increase automatically. When outdoor air temperature decreases/increases, the cooling load will decrease/increase and water temperature will increase/decrease automatically. Totally 32 fixed Weather temperature curve and one custom curve is available, which meets the diversified requirements of temperature.



### Smart Grid

Heat pump adjusts the operation according to different electrical signals. Power consumption of the system can be automatically adjusted according to the peak and valley power to reduce the power consumption to a great extent.

Cheap electrical signal: DHW mode will be effective to produce hot water

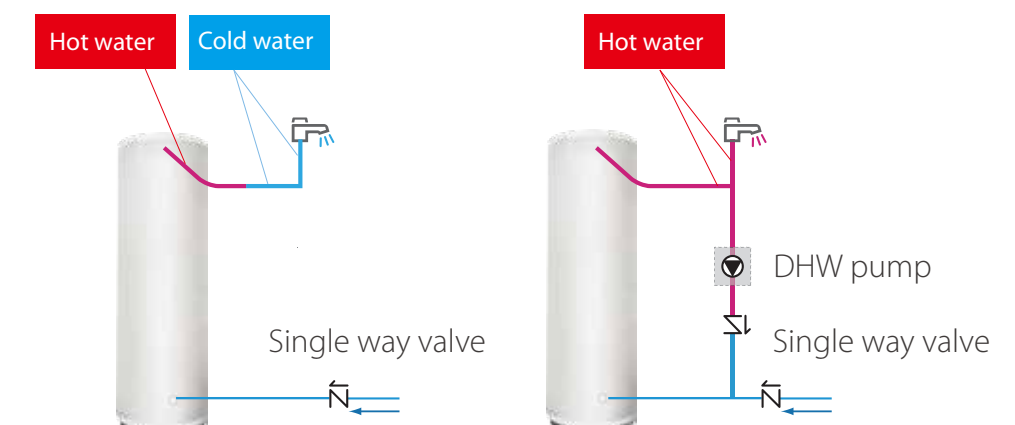
Normal electrical signal: Operates according to users' need.

Expensive electrical signal: Set the maximum operating time for heating mode and cooling mode.



### DHW pump function

The DHW pump function is used to return water in the water pipe net to the hot water tank according to set timer. Total 12 timers for one day can be set, which allows users to set the DHW pump operation time according to using habit to guarantee using hot water without waiting for a long time.





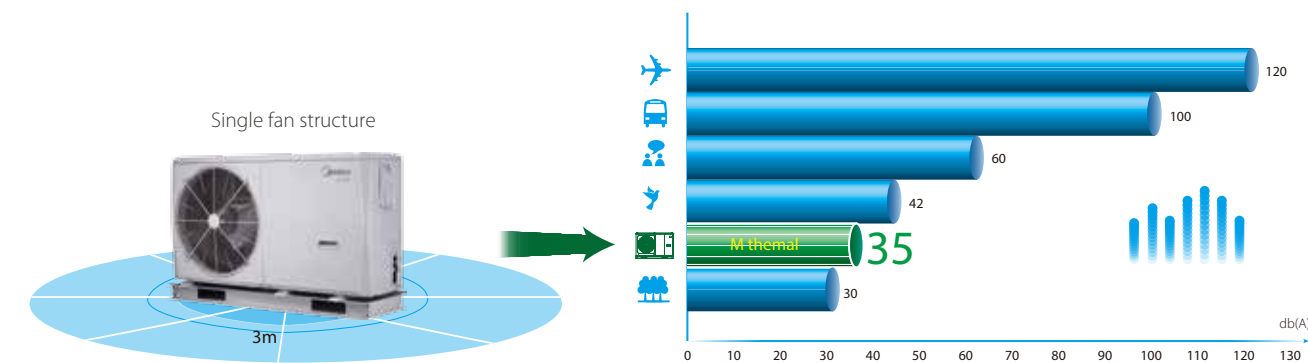
## Comfort

### Silent mode

Mono 4kW model produces 35dB(A) sound pressure level at 3 meters thanks to multiple optimization design.

Test condition:

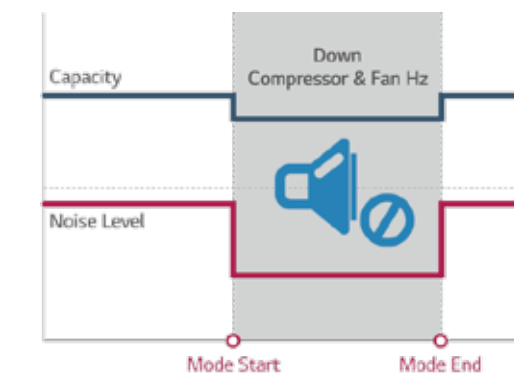
1. Evaporator air in 7°C, 85% R.H., Condenser water in/out 30/35°C
2. Condenser air in 35°C. Evaporator water in/out 23/18°C



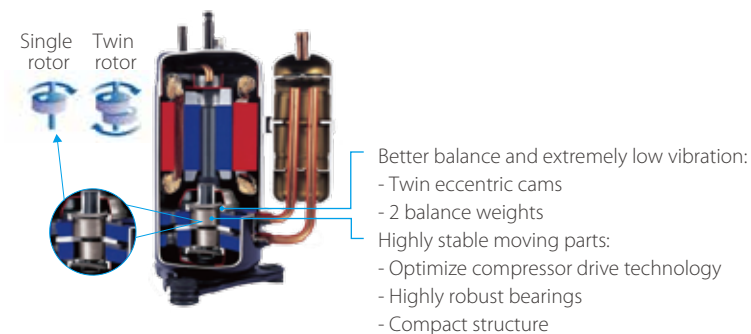
Multiple optimization design makes noise reduction:

### Triple noise reduction

Silent mode decrease the sound effectively  
Level 2 is more silent than level 1.



### Twin rotary compressor

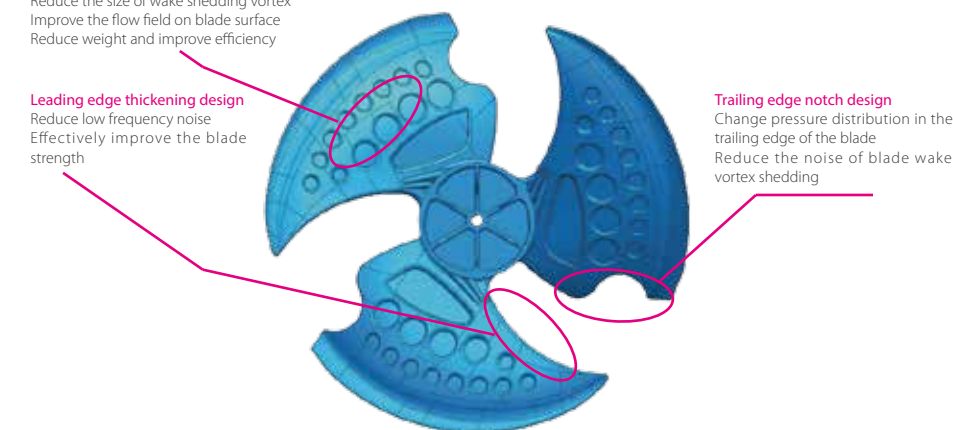


### Bionic fan design

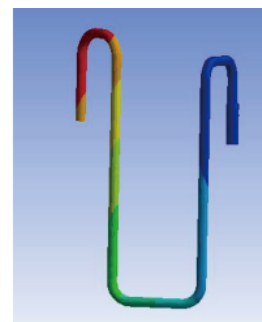
**Suction surface concave design**  
Reduce the size of wake shedding vortex  
Improve the flow field on blade surface  
Reduce weight and improve efficiency

**Leading edge thickening design**  
Reduce low frequency noise  
Effectively improve the blade strength

**Trailing edge notch design**  
Change pressure distribution in the trailing edge of the blade  
Reduce the noise of blade wake vortex shedding



### Optimized piping distribution



## Convenient

### USB function

Convenient program upgrade

No need to carry any other heavy equipments but only USB can realize program upgrade of indoor unit and outdoor unit.

Parameter setting transmission between wired controllers

Installer can quickly copy the setting from one controller to another via USB, which save the time of on-site installation.

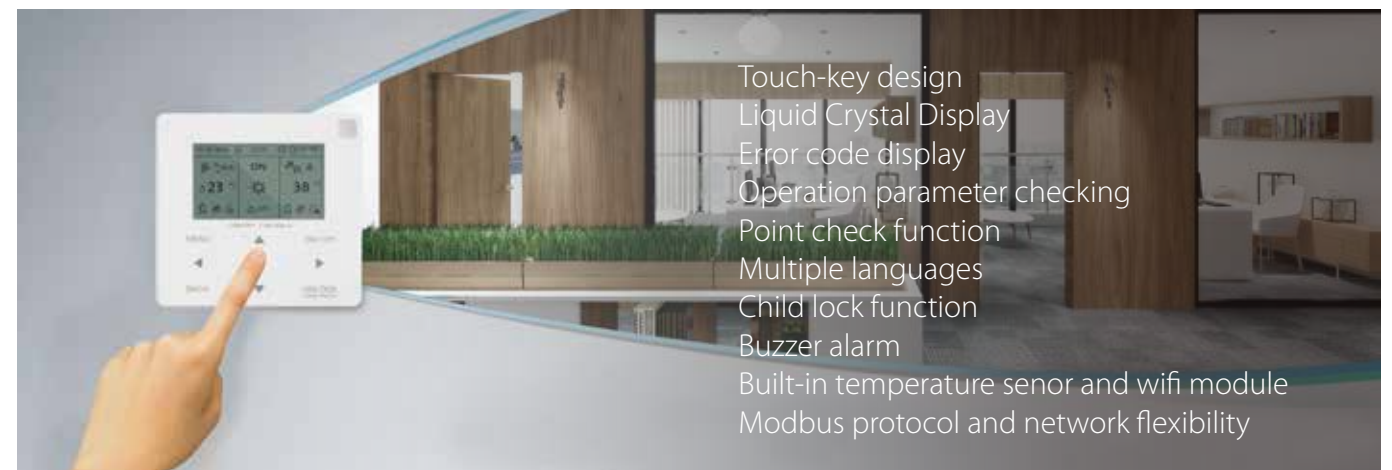


### Holiday home

Holiday home function is used to deviate from the normal schedules without having to change them during the holiday at home.



### Wifi controller

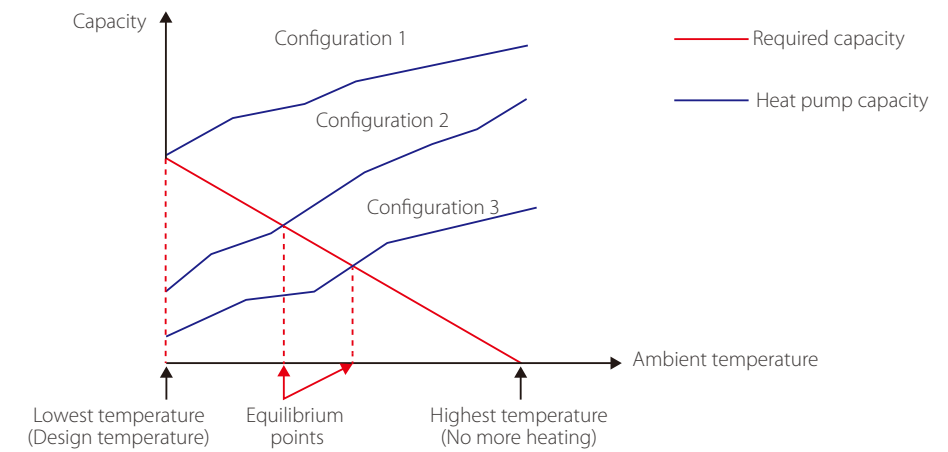


# Typical Applications

## System configurations

M thermal system can be configured to run with the electric heater either enabled or disabled and can also be used in conjunction with an auxiliary heat source such as a boiler.

The chosen configuration affects the size of heat pump that is required. Three typical configurations are described below.



### Configuration 1: Heat pump only

- ❖ The heat pump covers the required capacity and no extra heating capacity is necessary.
- ❖ Requires selection of larger capacity heat pump and implies higher initial investment.
- ❖ Ideal for new construction in projects where energy efficiency is paramount.

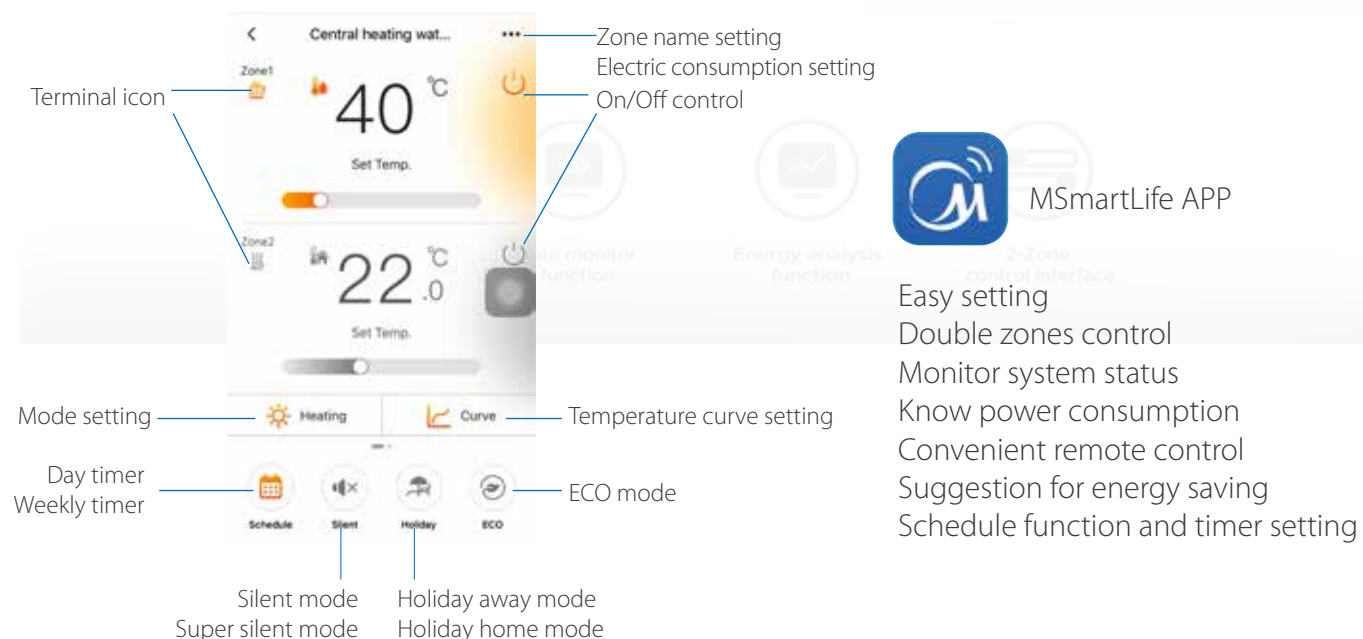
### Configuration 2: Heat pump and backup electric heater

- ❖ Heat pump covers the required capacity until the ambient temperature drops below the point at which the heat pump is able to provide sufficient capacity. When the ambient temperature is below this equilibrium point, the backup electric heater supplies the required additional heating capacity.
- ❖ Best balance between initial investment and running costs, results in lowest lifecycle cost.
- ❖ Ideal for new construction.

### Configuration 3: Heat pump with auxiliary heat source

- ❖ Heat pump covers the required capacity until the ambient temperature drops below the point at which the heat pump is able to provide sufficient capacity. When the ambient temperature is below this equilibrium point, depending on the system settings, either the auxiliary heat source supplies the required additional heating capacity or the heat pump does not run and the auxiliary heat source covers the required capacity.
- ❖ Enables selection of lower capacity heat pump.
- ❖ Ideal for refurbishments and upgrades.

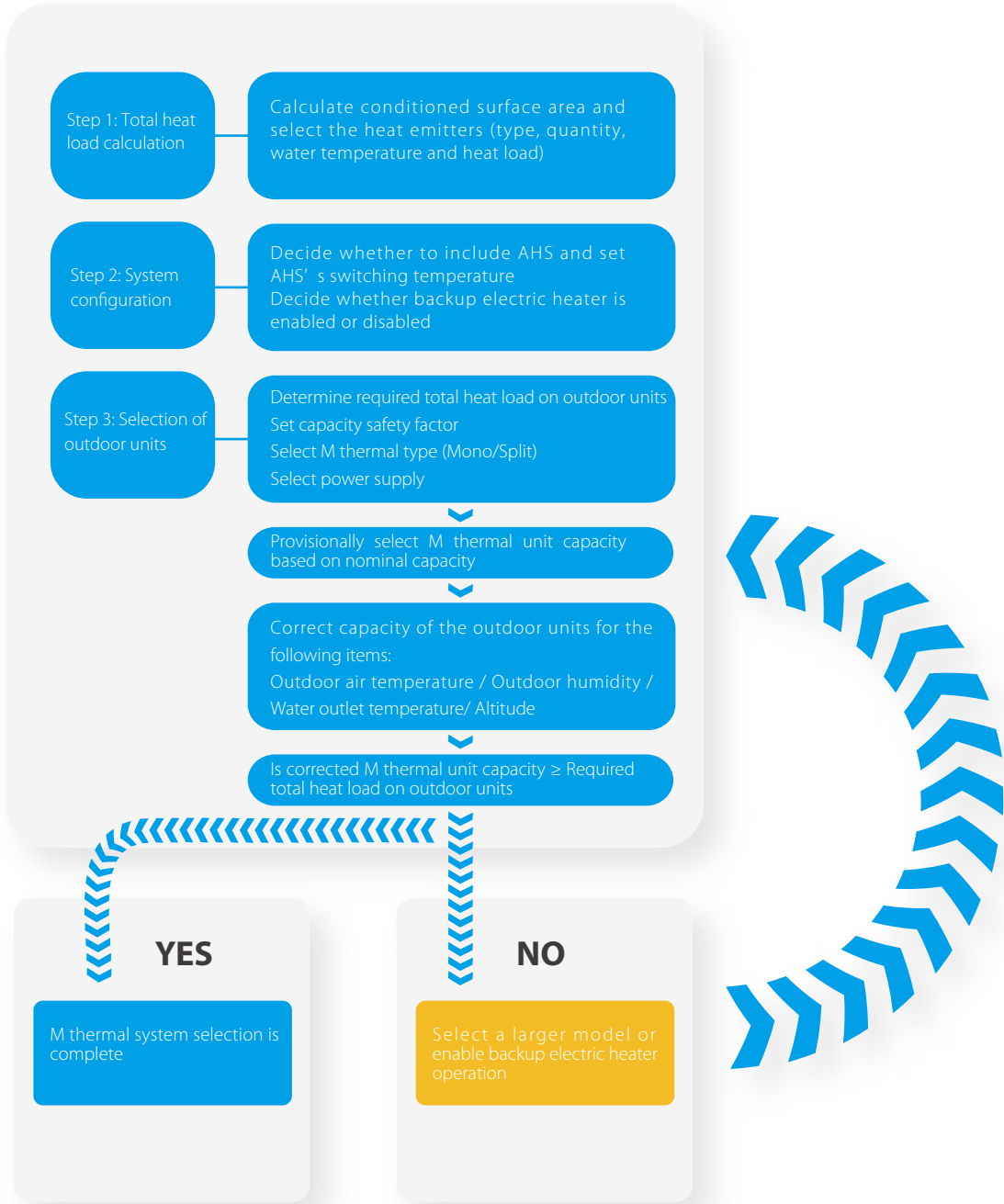
## APP control



Note: APP interface changes from time to time as APP is updated and may change slightly vary from those in this document.



Selection Procedure



Leaving Water Temperature (LWT)

The recommended design LWT ranges for different types of heat emitter are:

- ❖ For floor heating: 30°C to 35°C
- ❖ For fan coil units: 40°C to 45°C
- ❖ For low temperature radiators: 40°C to 50°C

One-stop solution - Heating, cooling and domestic hot water in one system

M thermal is an integrated system that provides space heating and cooling as well as domestic hot water, offering a complete, all-year-round solution which can remove the need for traditional gas or oil boilers, or work together with them. M thermal can be combined with floor heating loops, fan coil units, radiators and domestic water tank. It can also be connected to solar collectors, gas furnace, boiler and other heat sources.

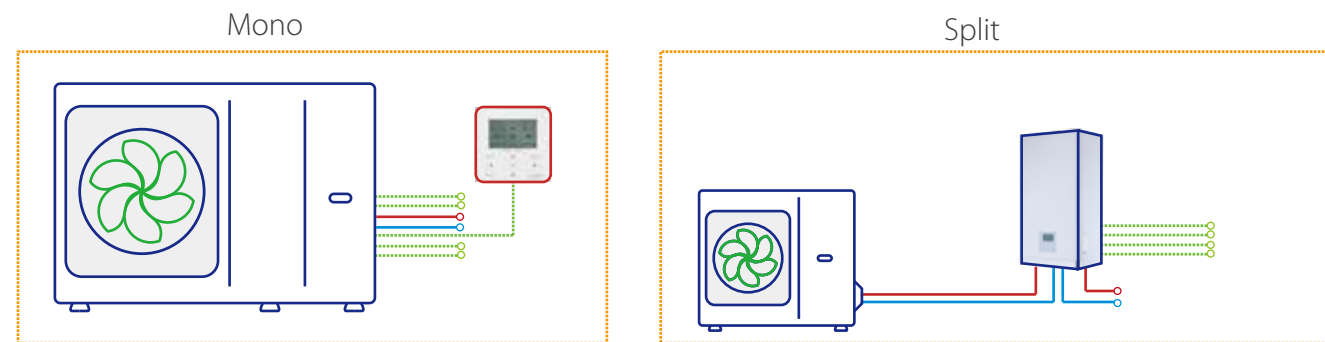


Smart Grid certification indicates M thermal can fully utilize electricity from different sources or different price levels, which means like photovoltaic, and the peak valley of urban electricity supply to satisfy different modes operation, which is benefit for cost saving.



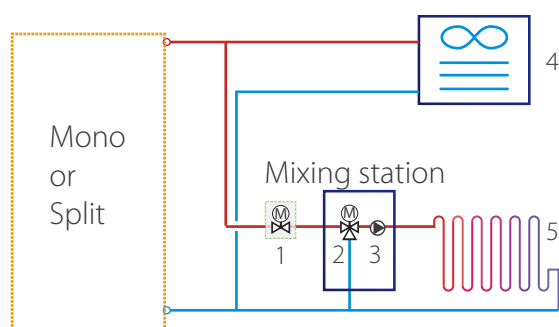
## Typical application

Practical applications are various, including but not limited to the following applications. The application examples given below are for illustration only.



## Heating and cooling

Floor heating loops are used for space heating and fan coil unit is used for both space heating and cooling. For heating mode, floor heating loops and fan coil unit require different operating water temperature. To achieve these two temperatures, a mixing station (field supplied) which consists of a 3-way valve and water pump is used to adapt the water temperature according to requirements of the floor heating loops. The mixing station is controlled by the unit. For cooling mode, a 2-way valve is used to prevent cool water from entering floor heating loops, which then results in condensation during cooling.

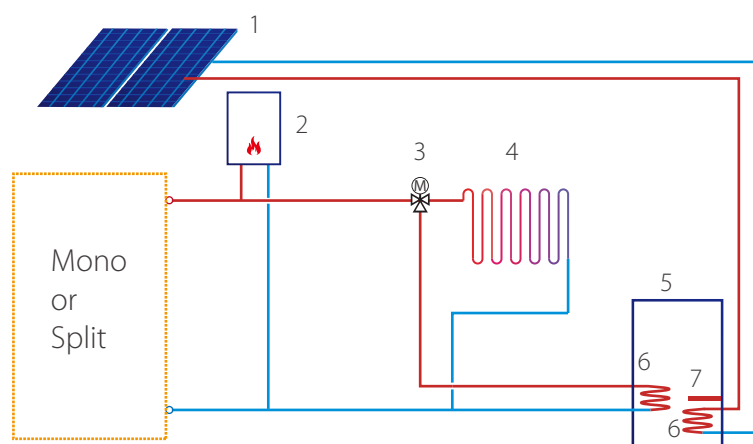


Notes:

1. 2-way valve(field supplied)
2. 3-way valve(field supplied)
3. Water pump(field supplied)
4. Fan coil unit(Midea can supply)
5. Floor heating loop(field supplied)

## Heating, DHW and hybrid heat source

Backup electric heater(customized)\* and AHS provide additional heating to raise the water temperature for unit outlet temperature. TBH and solar system provide additional heating to raise the domestic hot water temperature. A 3-way valve is used to switch between heating mode and DHW mode.



Notes:

1. Solar panel(field supplied)
2. AHS: Additional heating source(field supplied)
3. 3-way valve(field supplied)
4. Floor heating loop(field supplied)
5. Water tank(field supplied)
6. Heat exchanger coil(field supplied)
7. TBH: Tank booster heater(field supplied)

\* For Split model, backup electric heater can be installed in the hydraulic box.  
For Mono 4~16kW models, backup electric heater can be installed in the unit.

## Double zones control

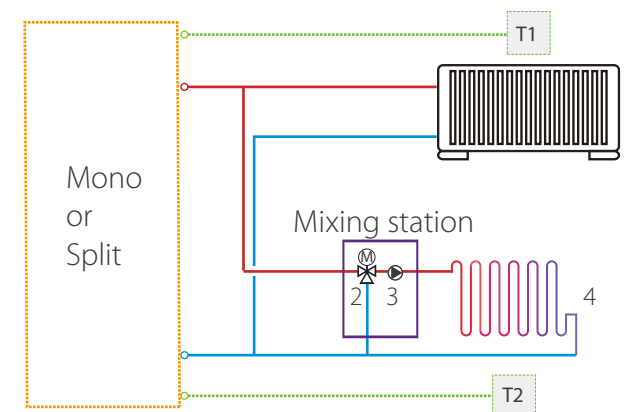
Double zones control is only available for heating mode. It can control different areas to reach different temperatures to meet various needs of daily use.

1. Using wired controller only

Wired controller sets the mode, temperature and on/off. Zone 1 is controlled based on the leaving water temperature. Zone 2 is controlled based on the leaving water temperature or built-in sensor integrated in the wired controller.

2. Using wired controller and thermostat

Wired controller sets the mode and water temperature. Both Zone 1 and Zone 2 are controlled by thermostat.



Notes:

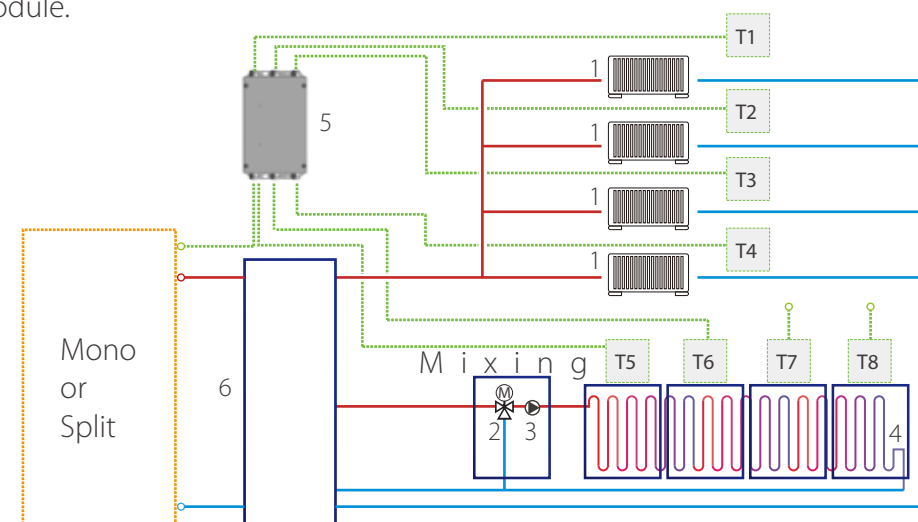
1. Radiator(field supplied)
2. 3-way valve(field supplied)
3. Water pump(field supplied)
4. Floor heating loop(field supplied)

Abbreviation

T: Room thermostat(field supplied)

## Multiple rooms control(customized)

Maximum 6 room thermostats are available to be connected with M-kit and 2 thermostats are connected to hydraulic box, which realizes maximum 8 rooms can be controlled. M-kit is connected to the hydraulic module.



Notes:

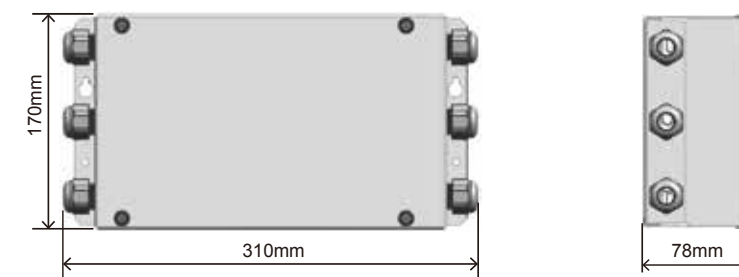
1. Radiator(field supplied)
2. 3-way valve(field supplied)
3. Water pump(field supplied)
4. Floor heating loop
5. M-kit(customized)
6. Balance tank(field supplied)

Abbreviation

T: Room thermostat(field supplied)

## M-kit

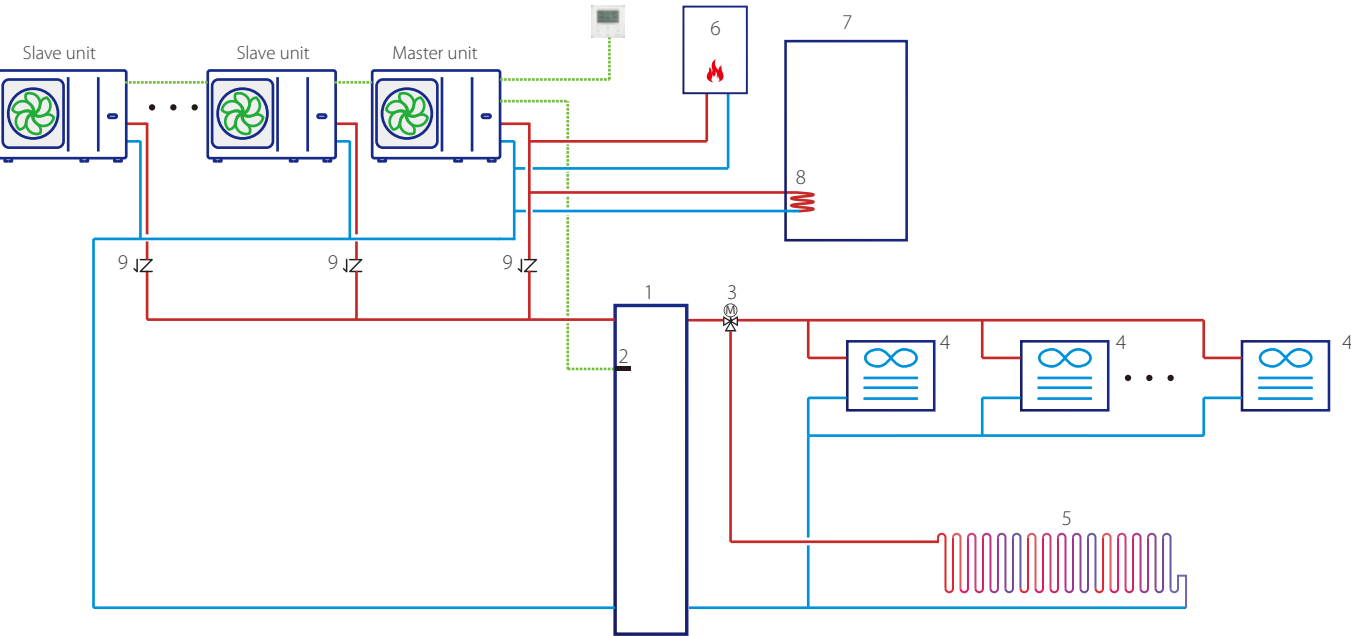
Wall-mounted  
Simple structure  
Mini size  
Flexible installation  
Connect up to maximum 6 thermostats





Cascade system\*

Cascade system design is perfect when an extension of capacity becomes required as the building cooling/heating demand evolves. Maximum 6 units can be controlled in group with one controller. Balance tank temperature control makes water temperature more accurate. Water tank can only be connected to the master unit water circuit through a three-way valve, and controlled by the master unit. AHS can only be connected to the master waterway and controlled by the master unit.



- Notes:
- 1. Balance tank(field supplied)
  - 2. Balance tank temperature sensor(Midea can supply)
  - 3. 3-way valve(field supplied)
  - 4. Fan coil unit(Midea can supply)
  - 5. Floor heating loop(field supplied)
  - 6.AHS: Additional heating source(field supplied)
  - 7.Water tank(field supplied)
  - 8.Heat exchanger coil(field supplied)
  - 9.Single way valve

\* 1. 4~16kW modes can only combine with each other to reach a larger system capacity from 4~96kW.  
2. 18~30kW models can only combine with each other to reach a larger system capacity from 18~180kW.

Arctic Series Mono



Outdoor unit model MHC-			V4W/ D2N8-B	V6W/ D2N8-B	V8W/ D2N8-B	V10W/ D2N8-B	V12W/ D2N8-B	V14W/ D2N8-B	V16W/ D2N8-B	V12W/ D2RN8-B	V14W/ D2RN8-B	V16W/ D2RN8-B
Power supply		V/Ph/Hz	220-240/1/50							380-415/3/50		
Heating <sup>1</sup>	Capacity	kW	4.20	6.35	8.40	10.0	12.1	14.5	15.9	12.1	14.5	15.9
	Rated input	kW	0.82	1.28	1.63	2.02	2.44	3.15	3.53	2.44	3.15	3.53
	COP		5.10	4.95	5.15	4.95	4.95	4.60	4.50	4.95	4.60	4.50
Heating <sup>2</sup>	Capacity	kW	4.30	6.30	8.10	10.0	12.3	14.1	16.0	12.3	14.1	16.0
	Rated input	kW	1.13	1.70	2.10	2.67	3.32	3.92	4.57	3.32	3.92	4.57
	COP		3.80	3.70	3.85	3.75	3.70	3.60	3.50	3.70	3.60	3.50
Heating <sup>3</sup>	Capacity	kW	4.40	6.00	7.50	9.50	11.9	13.8	16.0	11.9	13.8	16.0
	Rated input	kW	1.49	2.03	2.36	3.06	3.90	4.68	5.61	3.90	4.68	5.61
	COP		2.95	2.95	3.18	3.10	3.05	2.95	2.85	3.05	2.95	2.85
Cooling <sup>4</sup>	Capacity	kW	4.50	6.50	8.30	9.90	12.00	13.50	14.90	12.00	13.50	14.90
	Rated input	kW	0.82	1.35	1.64	2.18	3.04	3.75	4.38	3.04	3.75	4.38
	EER		5.50	4.80	5.05	4.55	3.95	3.60	3.40	3.95	3.60	3.40
Cooling <sup>5</sup>	Capacity	kW	4.70	7.00	7.45	8.20	11.5	12.4	14.0	11.5	12.4	14.0
	Rated input	kW	1.36	2.33	2.22	2.52	4.18	4.96	5.60	4.18	4.96	5.60
	EER		3.45	3.00	3.35	3.25	2.75	2.50	2.50	2.75	2.50	2.50
Seasonal space heating energy efficiency class <sup>6</sup>	Water outlet at 35°C	class	A+++									
	Water outlet at 55°C	class	A++									
Refrigerant	Type(GWP)		R32(675)									
	Charged volume	kg	1.40		1.40		1.75					
Sound power Level <sup>7</sup>		dB	55	58	59	60	65	65	68	65	65	68
Net dimension (WxHxD)		mm	1295x792x429				1385x945x526					
Packing dimension (WxHxD)		mm	1375x965x475				1465x1120x560					
Net/Gross weight		kg	98/121		121/148		144/170			160/188		
Water pump	Max. pump head	m	9									
Water piping connection		mm	R1"		R5/4"							
Ambient temperature range	Cooling	°C	-5~43									
	Heating	°C	-25~35									
	DHW	°C	-25~43									
LWT setting range	Cooling	°C	5~25									
	Heating	°C	25~65									
	DHW	°C	30~60									
Backup E-heater <sup>8</sup>	Standard mounted	kW	/									
	Optional	kW	3	3	3/9	3/9	3/9	3/9	3/9	3/9	3/9	3/9
	Capacity steps		1	1	1/3	1/3	1/3	1/3	1/3	1/3	1/3	1/3
	Power supply	3kW 9kW	V/Ph/Hz	220-240/1/50								
380-415/3/50												

- Notes:
- 1. Evaporator air in 7°C, 85% R.H., Condenser water in/out 30/35°C
  - 2. Evaporator air in 7°C, 85% R.H., Condenser water in/out 40/45°C
  - 3. Evaporator air in 7°C, 85% R.H., Condenser water in/out 47/55°C
  - 4. Condenser air in 35°C. Evaporator water in/out 23/18°C
  - 5. Condenser air in 35°C. Evaporator water in/out 12/7°C
  - 6. Seasonal space heating energy efficiency class testes in average climate general conditions.
  - 7. Testing standard: EN12102-1.
  - 8. Backup electric heater is built into all models.  
For three phase type backup electric heater, 3/6kW can be achieved by changing DIP switch when heat pump is equipped with 9kW. In this case, three phase power supply is needed.
  - 9. Relevant EU standards and legislation: EN14511; EN14825; EN50564; EN12102; (EU) No 811/2013; (EU) No 813/2013; OJ 2014/C 207/02:2014.

Arctic Series Mono



Model			MHC-V18W/D2RN8	MHC-V22W/D2RN8	MHC-V26W/D2RN8	MHC-V30W/D2RN8
Power supply		V/Ph/Hz	380-415/3/50			
Heating <sup>1</sup>	Capacity	kW	18.00	22.00	26.00	30.10
	Rated input	kW	3.83	5.00	6.37	7.70
	COP		4.70	4.40	4.08	3.91
Heating <sup>2</sup>	Capacity	kW	18.00	22.00	26.00	30.00
	Rated input	kW	5.14	6.47	8.39	10.35
	COP		3.50	3.40	3.10	2.90
Heating <sup>3</sup>	Capacity	kW	18.00	22.00	26.00	30.00
	Rated input	kW	6.55	8.30	10.61	13.04
	COP		2.75	2.65	2.45	2.30
Cooling <sup>4</sup>	Capacity	kW	18.50	23.00	27.00	31.00
	Rated input	kW	3.90	5.00	6.28	7.75
	EER		4.75	4.60	4.30	4.00
Cooling <sup>5</sup>	Capacity	kW	17.00	21.00	26.00	29.50
	Rated input	kW	5.57	7.12	9.63	11.57
	EER		3.05	2.95	2.70	2.55
Seasonal space heating energy efficiency class <sup>6</sup>	Water outlet at 35°C	class	A+++	A+++	A+++	A++
	Water outlet at 55°C	class	A++	A++	A+	A+
Refrigerant	Type(GWP)		R32(675)			
	Charged volume		5.0			
Sound power level <sup>7</sup>		dB	71	73	75	77
Net dimension (WxHxD)		mm	1129x1558x440			
Packing dimension (WxHxD)		mm	1220x1735x565			
Net/Gross weight			177/206			
Water pump	Max. pump head	m	12.0	12.0	12.0	12.0
Water piping connection		inch	1-1/4" BSP	1-1/4" BSP	1-1/4" BSP	1-1/4" BSP
Ambient temperature range	Cooling	°C	-5-46			
	Heating	°C	-25-35			
	DHW	°C	-25-43			
LWT setting range	Cooling	°C	5-25			
	Heating	°C	25-60			
	DHW	°C	30-60			

Notes:  
1.Evaporator air in 7°C, 85% R.H., Condenser water in/out 30/35°C.  
2.Evaporator air in 7°C, 85% R.H., Condenser water in/out 40/45°C.  
3.Evaporator air in 7°C, 85% R.H., Condenser water in/out 47/55°C.  
4.Condenser air in 35°C. Evaporator water in/out23/18°C.  
5.Condenser air in 35°C. Evaporator water in/out 12/7°C.  
6. Seasonal space heating energy efficiency class testes in average climate general.  
7.Testing standard: EN12102-1.  
8. Relevant EU standards and legislation: EN14511; EN14825; EN50564; EN12102; (EU) No 811/2013; (EU) No 813/2013; OJ 2014/C 207/02:2014.

Arctic Series Split

Outdoor unit model MHA-			V4W/ D2N8-B	V6W/ D2N8-B	V8W/ D2N8-B	V10W/ D2N8-B	V12W/ D2N8-B	V14W/ D2N8-B	V16W/ D2N8-B	V12W/ D2RN8-B	V14W/ D2RN8-B	V16W/ D2RN8-B
Hydronic box model HB-A			60/CGN8-B		100/CGN8-B		160/CGN8-B					
Heating <sup>1</sup>	Capacity	kW	4.25	6.20	8.30	10.0	12.1	14.5	16.0	12.1	14.5	16.0
	Rated input	kW	0.82	1.24	1.60	2.00	2.44	3.09	3.56	2.44	3.09	3.56
	COP		5.20	5.00	5.20	5.00	4.95	4.70	4.50	4.95	4.70	4.50
Heating <sup>2</sup>	Capacity	kW	4.35	6.35	8.20	10.0	12.3	14.2	16.0	12.3	14.2	16.0
	Rated input	kW	1.14	1.69	2.08	2.63	3.24	3.89	4.44	3.24	3.89	4.44
	COP		3.80	3.75	3.95	3.80	3.80	3.65	3.60	3.80	3.65	3.60
Heating <sup>3</sup>	Capacity	kW	4.40	6.00	7.50	9.50	12.0	13.8	16.0	12.0	13.8	16.0
	Rated input	kW	1.49	2.00	2.36	3.06	3.87	4.60	5.52	3.87	4.60	5.52
	COP		2.95	3.00	3.18	3.10	3.10	3.00	2.90	3.10	3.00	2.90
Cooling <sup>4</sup>	Capacity	kW	4.50	6.55	8.40	10.00	12.00	13.50	14.90	12.00	13.50	14.90
	Rated input	kW	0.81	1.34	1.66	2.08	3.00	3.75	4.38	3.00	3.75	4.38
	EER		5.55	4.90	5.05	4.80	4.00	3.60	3.40	4.00	3.60	3.40
Cooling <sup>5</sup>	Capacity	kW	4.70	7.00	7.40	8.20	11.6	12.7	14.0	11.6	12.7	14.0
	Rated input	kW	1.36	2.33	2.19	2.48	4.22	4.98	5.71	4.22	4.98	5.71
	EER		3.45	3.00	3.38	3.30	2.75	2.55	2.45	2.75	2.55	2.45
Seasonal space heating energy efficiency class <sup>6</sup>	Water outlet at 35°C	class	A+++									
	Water outlet at 55°C	class	A++									

Arctic Series Split outdoor unit



Outdoor unit model MHA-			V4W/ D2N8-B	V6W/ D2N8-B	V8W/ D2N8-B	V10W/ D2N8-B	V12W/ D2N8-B	V14W/ D2N8-B	V16W/ D2N8-B	V12W/ D2RN8-B	V14W/ D2RN8-B	V16W/ D2RN8-B
Power supply		V/Ph/Hz	220-240/1/50							380-415/3/50		
Refrigerant	Type(GWP)		R32(675)									
	Charged volume	kg	1.50		1.65		1.84					
Sound power Level <sup>1</sup>		dB	56	58	59	60	64	65	68	64	65	68
Net dimension (WxHxD)		mm	1008×712×426				1118×865×523					
Packing dimension (WxHxD)		mm	1065×800×485				1180×890×560					
Net/Gross weight		kg	58/64		77/88		96/110			112/125		
Pipe size O.D.	Liquid	mm	6.35				9.52					
	Gas	mm	15.88				15.88					
Connection method			Flared									
Between indoor and outdoor unit	Height difference	m	Max.20									
	Pipe length	m	2-30									
Additional refrigerant	Chargment	g/m	20		38							
	Max. pipe length for no additional refrigerant	m	15									
Ambient temperature range	Cooling	°C	-5~43									
	Heating	°C	-25~35									
	DHW	°C	-25~43									

Note: 1.Testing standard: EN12102-1.



Arctic Series Split hydronic box



Hydronic box model HB-A			60/CGN8-B	100/CGN8-B	160/CGN8-B
Power supply		V/Ph/Hz	220-240/1/50		
Sound power level <sup>1</sup>		dB	38	42	43
Unit dimension (W×H×D)		mm	420×790×270		
Packing dimension (W×H×D)		mm	525×1050×360		
Net/Gross weight		kg	37/43	37/43	39/45
Water pump	Max. pump head	m	9		
	Water side	mm	R1"		
	Refrigerant liquid	mm	6.35	9.52	
	Refrigerant gas	mm	15.88	15.88	
Backup E-heater <sup>2</sup>	Standard mounted		kW	/	
	Optional		kW	3/9	3/9
	Capacity steps			1/3	1/3
	Power supply	3kW	V/Ph/Hz	220-240/1/50	
		9kW		380-415/3/50	
LWT setting range	Cooling		°C	5~25	
	Heating		°C	25~65	
	DHW		°C	30~60	

Note: 1.Testing standard: EN12102-1.  
2. For three phase type backup electric heater, 3/6kW can be achieved by changing DIP switch when hydronic box is equipped with 9kW.





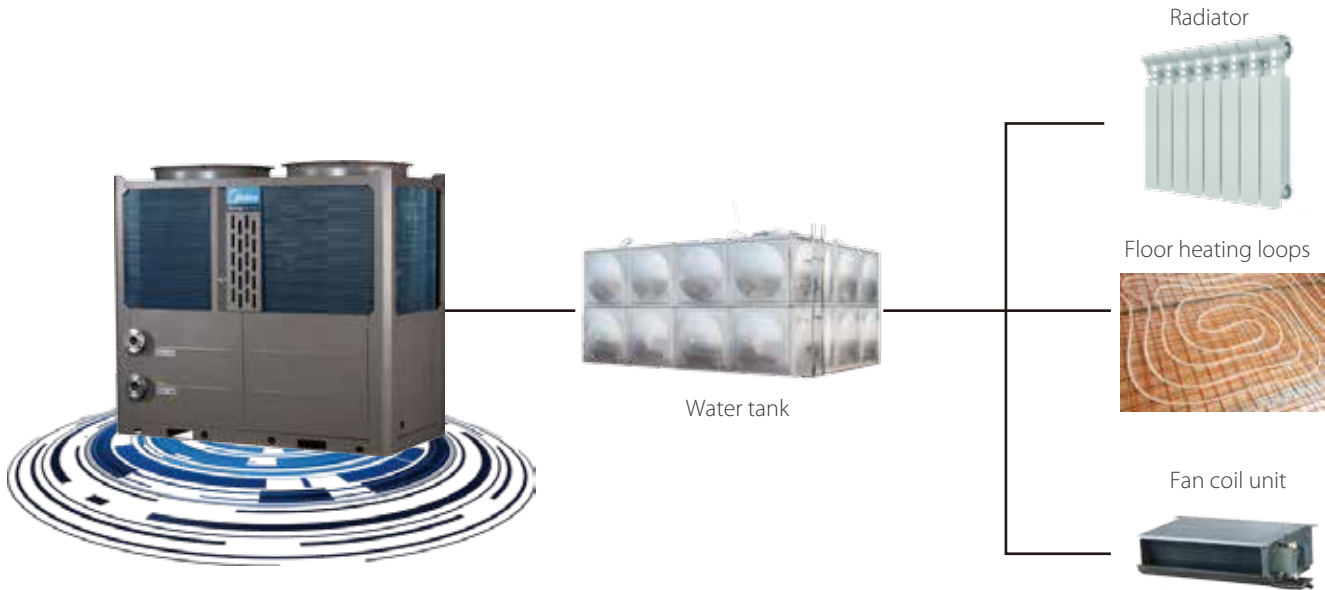
# Commercial Heat Pump Water Heater



## Product lineup

Model	120	200	420	800
Apperanace Series				
220~240V-1Ph-50Hz	●			
380~415V-3Ph-50Hz		●	●	●

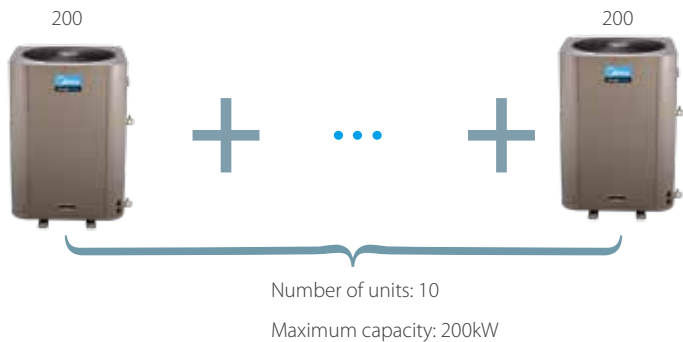
## Compatible with different kinds of terminals



## Features

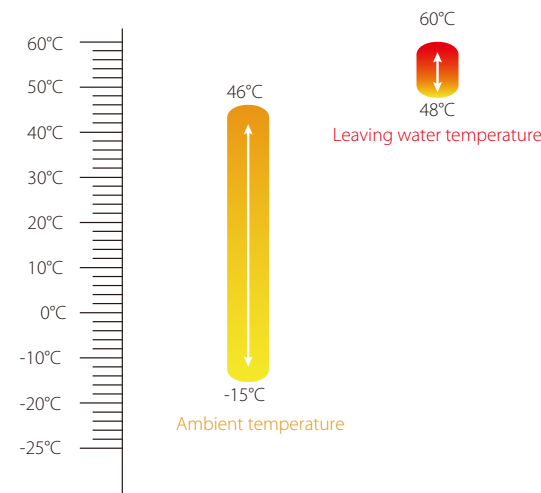
### Wide application range

- 4 basic models with multiple power supply options;
- Free modular combination;
- Maximum 10 units combination(for 120/200 model) and controlled by one controller;
- Maximum 200kW combination capacity.



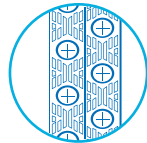


- ❖ Wide operation ambient temperature range.  
Operates stably under extreme conditions, ranging from -15°C to 46°C.



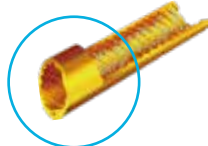
High performance heat exchanger

Enlarge heat-exchanging area



Fin

Enhance heat transfer



Inner-threaded pipe

High efficiency



Fin + inner-threaded pipes

Hydrophilic film fins and inner-threaded copper pipes optimize heat exchange efficiency. The specially coated blue fins enhance durability and protect against corrosion from air, water and other corrosive agents, assures a longer coil service life.

Heat exchanger aluminum foil

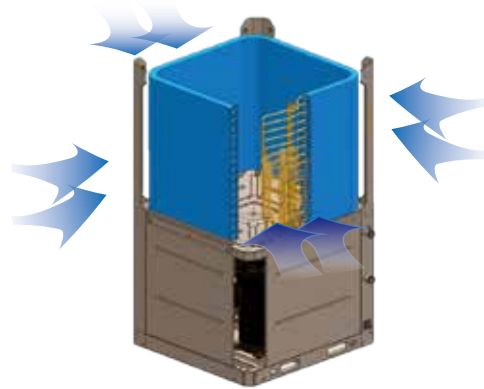
- > Standard products:  
200h of neutral salt mist

- > Heavy anti-corrosion products:  
1000h of neutral salt mist  
140h of acid salt mis

Heat exchanger copper pipe

- > Standard products:  
24h of neutral salt mist

- > Heavy anti-corrosion products:  
150h of neutral salt mist



"G shape" air side heat exchanger(for 420 model);  
360° air intake;  
Increase the heat exchanging are  
Efficiently enhance heat exchange efficiency

- High efficiency tube-in-tube heat exchanger  
Inner grooved copper pipe, increased area of heat exchange, improved efficiency.  
Anti-corrosion shell increases the life span of heat exchanger.



Advanced technology

- Direct heating type
- Unique defrosting flow path.  
Air side reserved special defrosting flow path, when the system is defrosting, the four-way valve is reversing, the system will absorb energy from special defrosting flow path, the defrosting progress will have no impact on water temperature.
- Electric water flow valve supplies hot water at a stable temperature and expands the life of compressor.
- Optimized fan blade edge by CFD programs with analyzing air pressure distribution.
- Reliable protections  
Multiple protections are adopted to ensure system stable running.

High/low pressure protection of compressor

Power phases sequence protection

System anti-freezing protection in winter

Frequent compressor ON/OFF protection

System high temperature protection

Over-current protection of compressor

Discharge temperature protection of compressor

Water flow protection

Sensor malfunction protection

Easy control  
Wired controller



Model	KJR-51/BMKE-A
Appearance	
Main Functions	Touch key operation Parameter setting an LCD display Real-time clock function Multiple timer Power-off memory function Modbus(Customized)
Max. connection PCBs	16

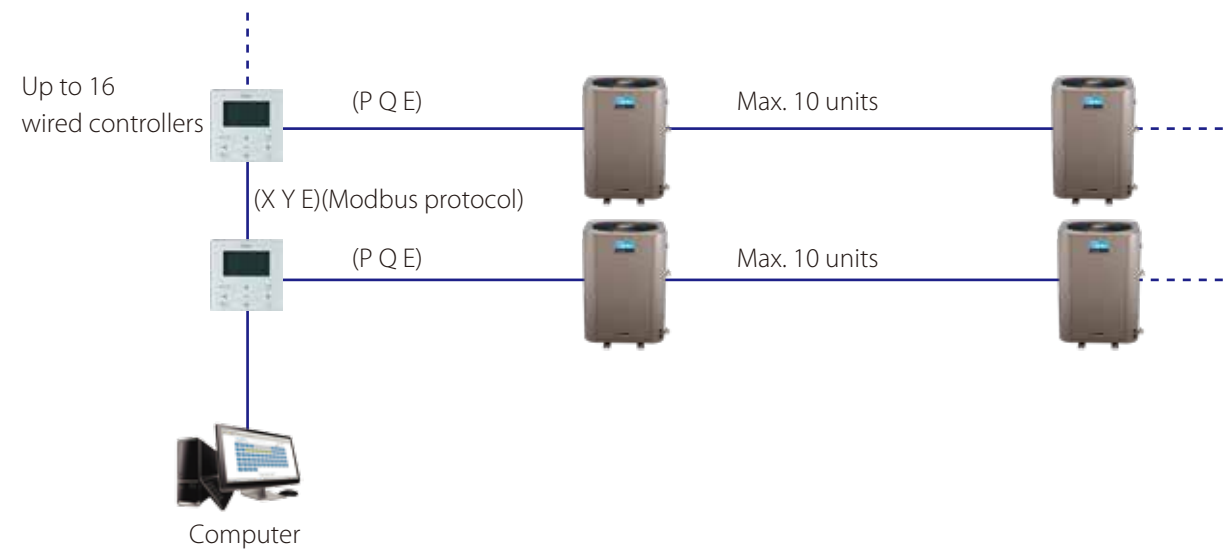
## Group control

Group control for up to maximum 10 units(for 120/200 models) with one wired controller.



## Modbus function

Modbus is an open protocol that is widely used, especially in BMS building control systems. Modbus function can be customized by adding X, Y, E ports on wired controller. It can connect Max. 16 wired controllers and each controller can control Max. 10 units.



## Remote control functions for convenient operation.

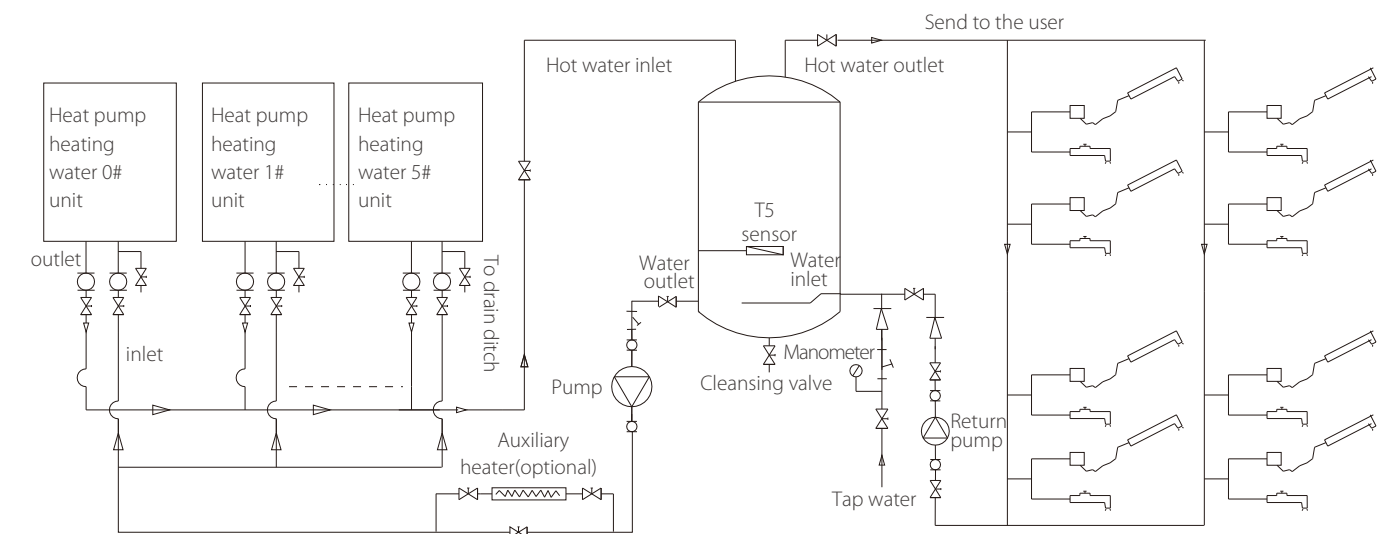
There are ON/OFF, Alarm terminals ports on PCB, connect switches from these terminal ports and remote control functions can be easily realized.



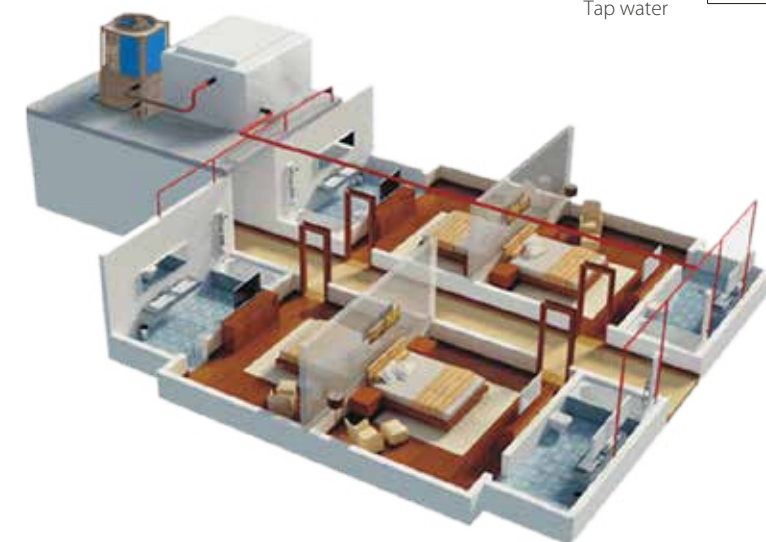
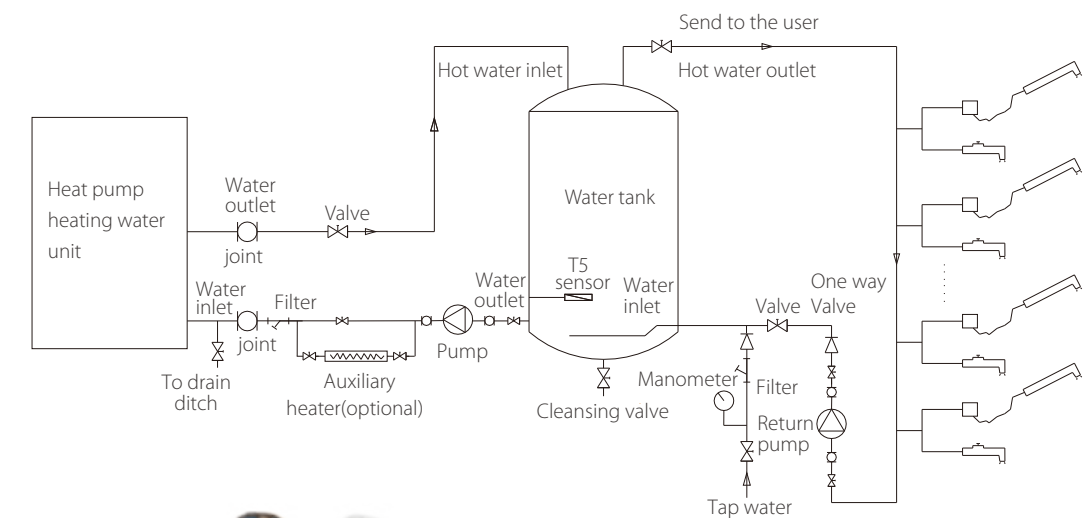
Note: When use the remote control function, the wired controller will be invalid for OFF and mode selection.

## Simple refrigerating system diagram

### Parallel connected heat pump system



### Single connected heat pump system





Specifications

Model			RSJ-120/ZN1-540V1	RSJ-200/SZN1-540V1
Power supply		V/Ph/Hz	220-240/1/50	380-415/3 / 50
Ambient temperature range		℃	-15~46	-15~46
LWT setting range		℃	Default 56℃, 48℃~60℃	
Water Heating	Capacity	kW	11.8	20.4
	Input	kW	2.95	5.23
	COP		4.00	3.90
Unit dimension (W×H×D)		mm	790×1100×810	790×1100×810
Packing dimension (W×H×D)		mm	860×1220×885	860×1220×885
Net/Gross weight		kg	125/145	157/172
Outdoor noise level		dB(A)	59	63
Max. combination quantity		Pieces	6	6
Compressor	Type		Scroll	Scroll
	Quantity	Pieces	1	1
Fan motor	Type		AC motor	AC motor
	Quantity	Pieces	1	1
Air side heat exchanger	Type		Fin-coil	Fin-coil
Warer side heat exchanger	Type		Tube-in-tube	Tube-in-tube
Refrigerant	Refrigerant Type /Quantity	kg	R410A/1.55	R410A/2.9
	Throttle type		Electric expansion valve	
Water pipe	water inlet pipe	mm	DN25	DN25
	water outlet pipe	mm	DN25	DN25
Hot Water Yield <sup>3</sup>		m <sup>3</sup> /h	0.25	0.45

Remark:  
1. The test conditions: outdoor temperature 20/15℃(DB/WB), inlet water temperature 15℃, outlet water temperature 55℃.  
2. The specifications may be changed for product improvement, please refer to the nameplate.  
3. The value is calculated based on the capability value and capability test condition.

Specifications

Model			RSJ-420/SZN1-H	RSJ-800/SZN1-H
Power supply		V/Ph/Hz	380-415/3 / 50	380-415/3 / 50
Ambient temperature range		℃	-15~46	-15~46
LWT setting range		℃	Default 56℃, 48℃~60℃	
Water Heating	Capacity	kW	39.0	80.0
	Input	kW	9.65	20.00
	COP		4.04	4.00
Unit dimension (W×H×D)		mm	1015×1775×1026	1995×1770×1025
Packing dimension (W×H×D)		mm	1070×1900×1030	2080×1895×1120
Net/Gross weight		kg	323/343	599/627
Outdoor noise level		dB(A)	66	68
Max. combination quantity		Pieces	4	2
Compressor	Type		Scroll	Scroll
	Quantity	Pieces	1	2
Fan motor	Type		AC motor	AC motor
	Quantity	Pieces	1	2
Air side heat exchanger	Type		Fin-coil	Fin-coil
Warer side heat exchanger	Type		Tube-in-tube	Tube-in-tube
Refrigerant	Refrigerant Type /Quantity	kg	R410A/4.5	R410A/2×4.4
	Throttle type		Electric expansion valve	
Water pipe	water inlet pipe	mm	DN32	DN50
	water outlet pipe	mm	DN32	DN50
Hot Water Yield <sup>3</sup>		m <sup>3</sup> /h	0.85	1.72

Remark:  
1. The test conditions: outdoor temperature 20/15℃(DB/WB), inlet water temperature 15℃, outlet water temperature 55℃.  
2. The specifications may be changed for product improvement, please refer to the nameplate.  
3. The value is calculated based on the capability value and capability test condition.

# Swimming pool application



## Features

- R410A refrigerant zero impact on the ozone layer
- Max. water output temperature: 35°C
- Automatic defrosting function
- Automatic start-up and shut-down functions
- Anti-corrosion titanium heat exchanger increase service life
- Convenient remote On/Off control
- 3 minute protection for compressor



Anti-corrosion titanium heat exchanger

## Wired Controller

- Keypad
- LCD displays operation parameters
- Indicator light
- Heating, cooling and pump mode
- Shut-off memory function for saving the current operating status automatically



KJRH-90B/E

## Specifications

Model			LRSJ-80/NYN1-A1	LRSJ-120/NYN1-A1	LRSJ-140/NYN1-A1
Power supply			220-240/1/50		
Heating	Capacity	kW	8.00	11.70	13.60
	Input	kW	1.518	2.350	2.550
	COP		5.27	4.98	5.33
	Ambient temperature range	°C	-7~38	-7~38	-7~38
	LWT setting range	°C	Default 28°C, 20°C~35°C		
Cooling	Capacity	kW	5.80	8.25	10.35
	Input	kW	1.50	2.50	2.90
	EER		3.87	3.30	3.57
	Ambient temperature	°C	15~43	15~43	15~43
	Output water temperature	°C	Default 28°C, 10°C~30°C		
Dimension (WxHxD)		mm	1,015×705×385	1,050×855×315	1,050×855×315
Packing (WxHxD)		mm	1,095×840×445	1,160×980×410	1,160×980×410
Net/Gross weight		kg	66/75	75/85	75/85
Outdoor noise level		dB(A)	58	58	58
Compressor	Type		Rotary	Rotary	Rotary
Fan motor	Type		AC motor	AC motor	AC motor
Water side heat exchanger	Type		Titanium-tube	Titanium-tube	Titanium-tube
Air side heat exchanger	Type		Fin-coil	Fin-coil	Fin-coil
Refrigerant	Type		R410A	R410A	R410A
	Quantity	kg	1.25	1.6	1.85
Throttle type			Capillary	Capillary	Capillary
Water pipeline	Water inlet pipe	mm	Φ50	Φ50	Φ50
	Water outlet pipe	mm	Φ50	Φ50	Φ50
	Drainage pipe	mm	Φ25	Φ25	Φ25
Applicable range		m³	50	60~85	75~100

Notes:

1. Outdoor temperature 24/19°C(DB/WB); Inlet water temperature 27°C, outlet water temperature 29°C
2. Outdoor temperature 35/24°C(DB/WB); Inlet water temperature 27°C
3. The water flow volume is same in both cooling and heating mode.



# Sanitary Hot Water Split Type

## Features

- R410A refrigerant
- Max. water output temperature: 60°C
- Automatic startup and shutdown
- Four-way valve for automatic defrosting
- Sealed refrigerant circuit, easy for plumber installation
- Built-in water pump.
- Single-wall tube in tube heat exchanger
- Different starting modes: Automatic mode, Manual mode, Timing mode
- 3 minute protection for compressor



## Wired Controller

- Touch key operation
- Parameter setting an LCD display
- Multiple timers
- Real-time clock function
- Shut-off memory function for saving the current operation status automatically



KJR-51/BMKE-A

## Specifications

Model			RSJF-32/CN1-C	RSJF-50/CN1-C	RSJF-72/CN1-C
Power supply		V/Ph/Hz	220-240/1/50		
Ambient temperature range		°C	-7~43	-7~43	-7~43
LWT setting range		°C	Default 50°C, 40°C~60°C		
Water heating	Capacity	kW	3.00	4.30	6.50
	Input	kW	0.87	1.22	1.72
	COP		3.45	3.53	3.78
	Max. current	A	6.8	8.5	12.4
Dimension (WxHxD)		mm	790x765x275	790x765x275	845x945x335
Packing (WxHxD)		mm	905x807x355	905x807x355	965x1,009x395
Net/gross weight		kg	48/52	55/58	68.5/74
Outdoor noise level		dB(A)	53	55	55
Compressor	Type		Rotary		
Fan motor	Type		AC Motor		
Water side heat exchanger	Type		Single-wall heat exchanger		
Air side heat exchanger	Type		Fin-coil		
Water pump	Pump head	m	5.5	5.5	5.5
Refrigerant	Type/Quantity	kg	R410A	R410A	R410A
	Type/Quantity	kg	0.7	0.9	1.0
Throttle type			Electric expansion valve		
Water pipeline	Water inlet pipe	mm	DN20	DN20	DN20
	Water outlet pipe	mm	DN20	DN20	DN20
Hot water yield <sup>3</sup>		m <sup>3</sup> /h	0.516	0.74	1.12
Storage size of optional tank(recommend)		L	100~250	150~300	250~500

Remark:

1. The test conditions: outdoor temperature 7/6°C(DB/WB), inlet water temperature 30°C, outlet water temperature 35°C.

2. The specifications may be changed for product improvement, please refer to the nameplate.

3. The value is calculated based on the capability value and capability test condition.