

Aqua thermal Series

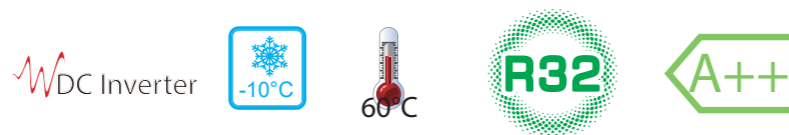


Product lineup

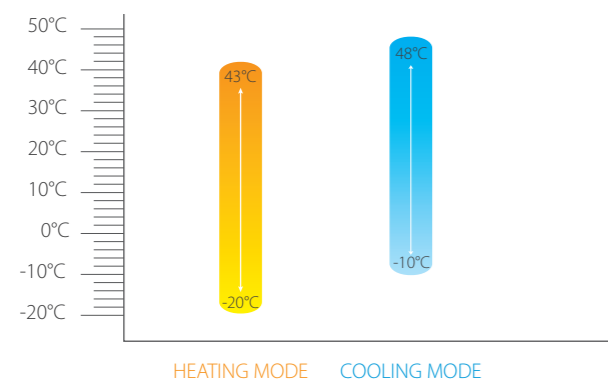
Capacity(kW)	75	90	140	180
Appearance				
380-415V/3Ph/50Hz	●	●	●	●

Overview

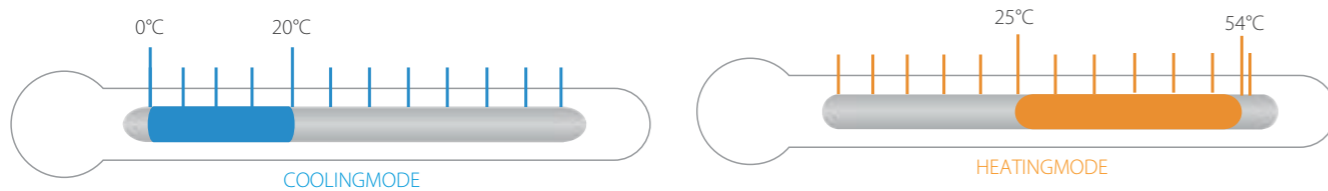
- Refrigerant R32 75% less impact on global warming;
- DC Inverter technology allows precise consumption on real load;
- One-stop solution for heating, cooling and domestic hot water(Customization);
- Maximum water temperature up to 60°C for DHW mode(Customization);
- Minimum operation ambient temperature down to -10 C for cooling mode;
- High energy efficiency level A++ for energy saving (Water outlet temperature at 35°C);
- Space saving;
- Maximum 2240kW combination capacity;
- Maximum 256 units controlled through Modbus;
- Hydraulic model for customization;



Ambient temperature



Outlet water temperature

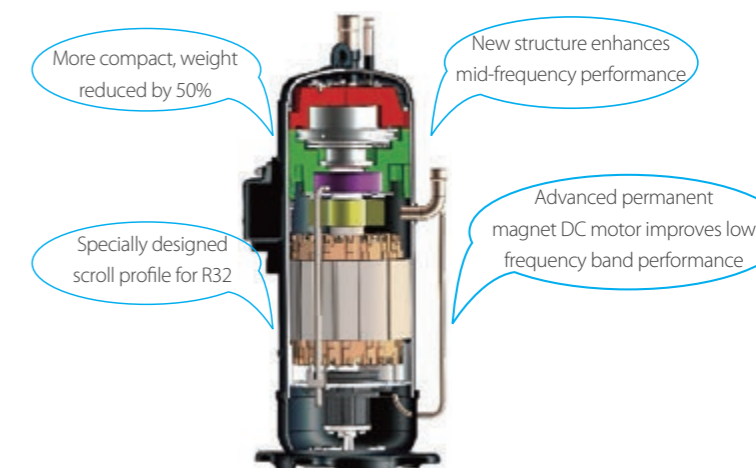


Note: For cooling mode, if outlet water temperature is less than 5°C, anti-freeze liquid is needed. 0°C water temperature can be reached by changing DIP switch setting.



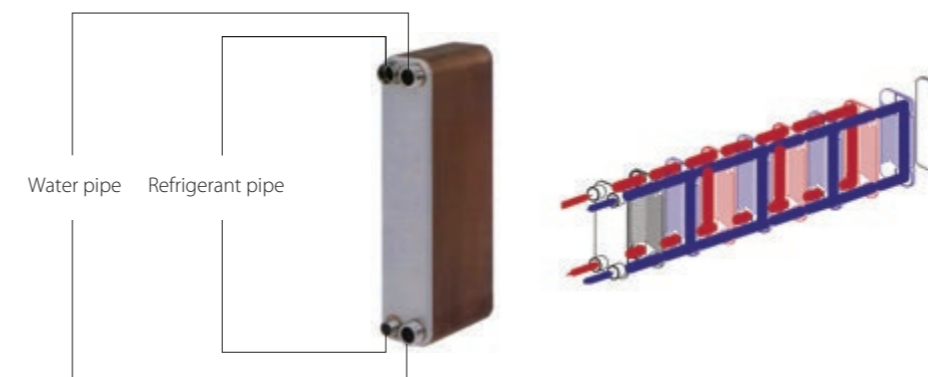
High quality components

DC Inverter compressor



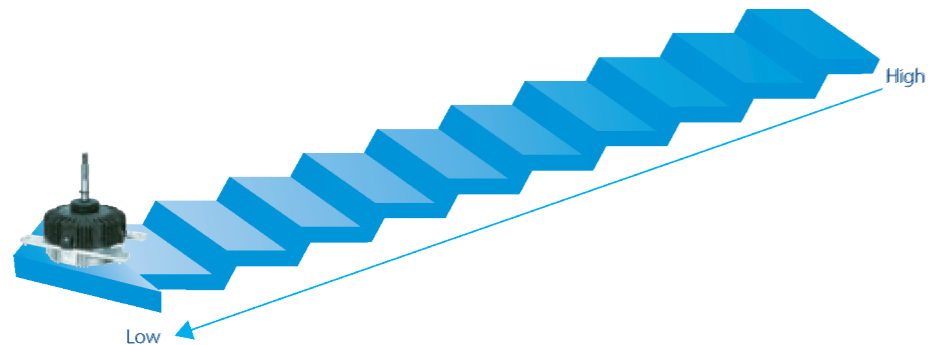
High efficiency plate heat exchanger

Plate heat exchanger uses metal plates to transfer heat between refrigerant and water. The fluids are exposed to a much larger surface area because the fluids spread out over the plates, so both heat transfer efficiency and heat exchanger speed are greatly improved. Multi protections including voltage protection, current protection, anti-freezing protection and water flow protection ensure system safety running.



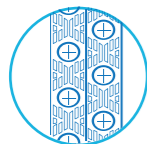
DC fan motors

Fan speed is controlled according to the system pressure and system load, reducing power consumption by 30%. There are 32-step vector control.



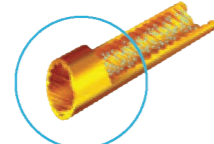
High performance heat exchanger

Enlarge heat-exchanging area



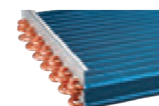
Fin

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

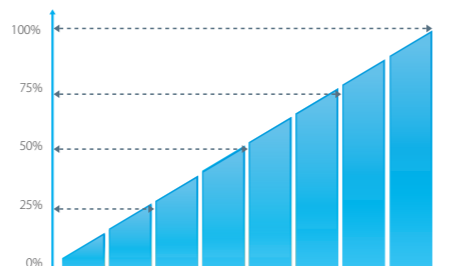
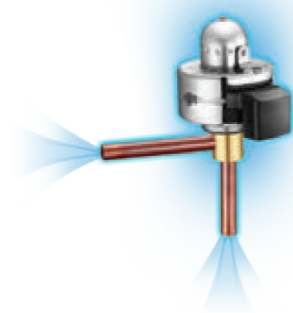
Heat exchanger copper pipe

> Standard products:
24h of neutral salt mist

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

Precise flow control

Patented liquid distribution components maximize performance and minimize impact of defrosting operation. 500-step EXV with capillary tube allows stable and accurate gas flow control. Fast response results in higher efficiency and improved reliability.



Advanced technology

Enhanced Vapor Injection (EVI) Compressor

Thanks to the vapor injection DC inverter compressor, unit can run heating mode stably down to -20 °C, and the heating capacity can be improved greatly.



EVI compressor

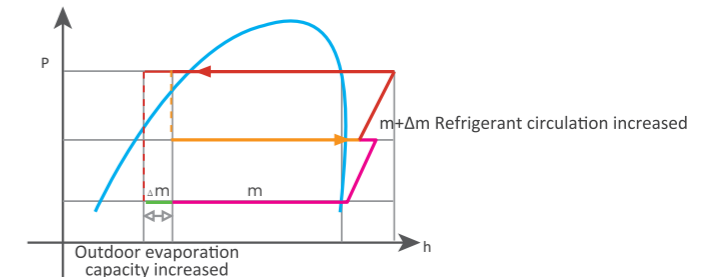
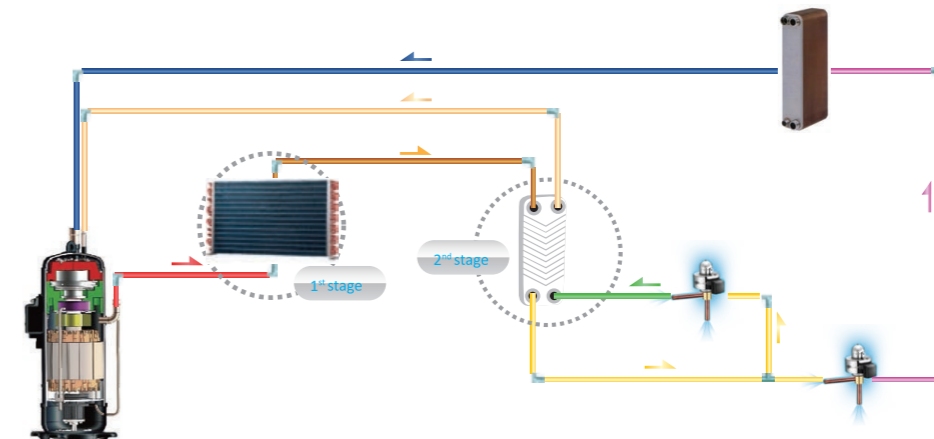


Plate Heat Exchanger Subcooling

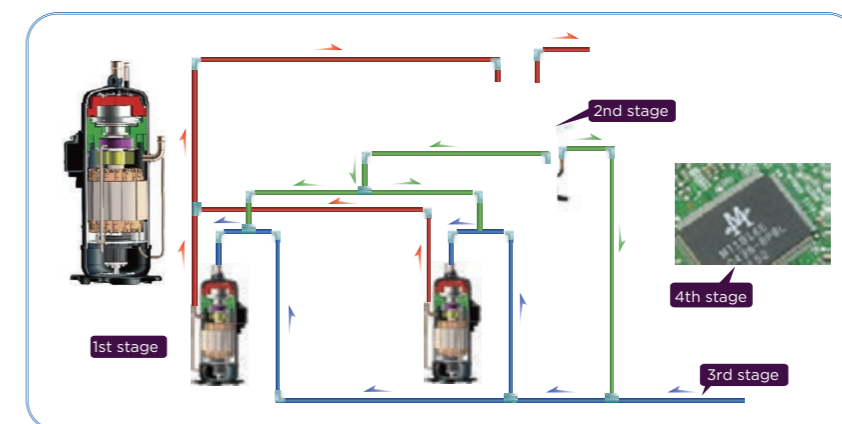
Plate Heat Exchanger as a secondary intercooler boosts up refrigerant subcooling and improves 10% energy efficiency.



Precise Oil Control Technology

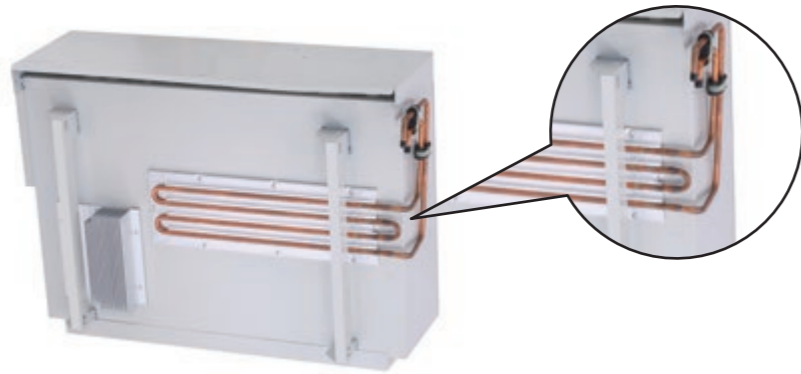
Four stages of oil control technology ensure all outdoor compressor oil is always kept at a safe level, eliminating any compressor oil shortage problems.

- Compressor internal oil separation.
- High-efficiency centrifugal oil separator (with separation efficiency of up to 99%) ensures that oil is separated from the discharge gas and returned to the compressors in a timely fashion.
- Oil balance pipe ensures oil distribution to keep compressor running normally.
- Auto oil return program monitors the running time and system status to ensure reliable oil return.



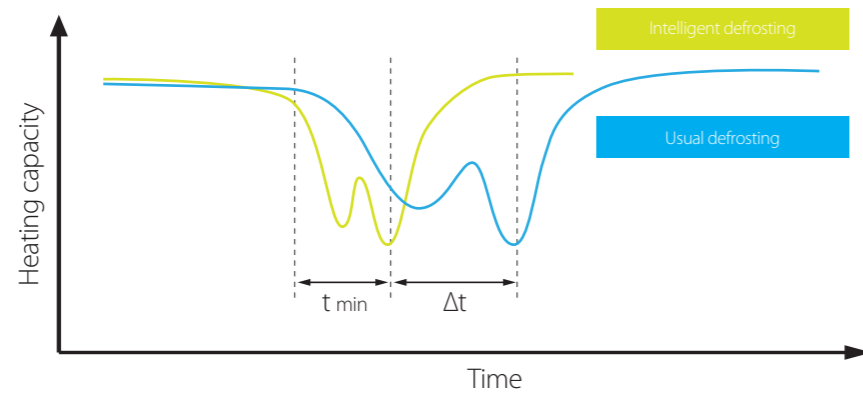
Refrigerant Cooling PCB

Refrigerant cooling PCB technology reduces electric control heating under harsh working conditions, effectively reduce the temperature of electronic control components, ensure the stable and safe operation of the unit control system.



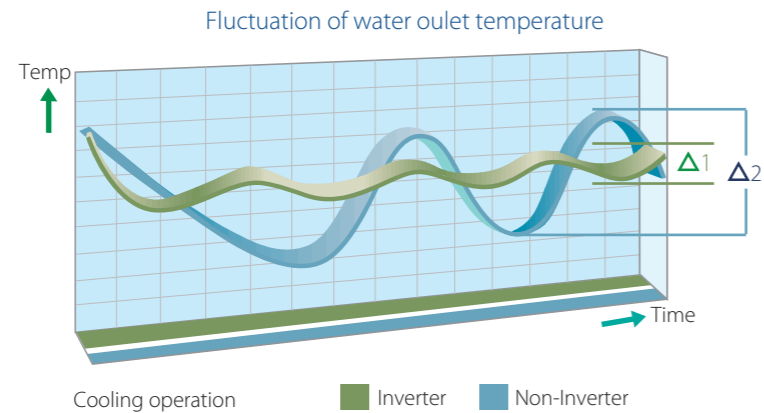
Intelligent defrosting technology

The intelligent defrosting program calculates the time required for defrosting according to the actual system status, eliminating heat losses from unnecessary defrosting. A specialized defrosting valve reduces time required for defrosting to as little as four minutes.



Rapid cooling or heating

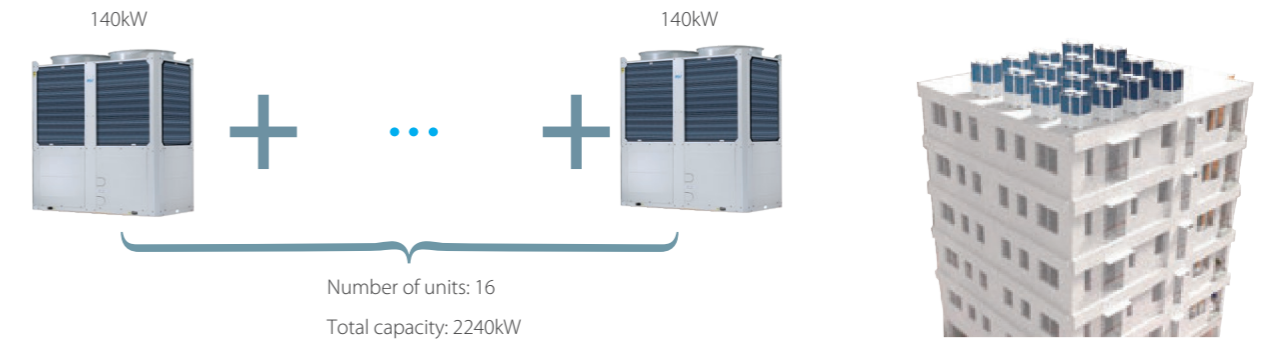
The DC inverter compressor reaches full capacity rapidly, providing quicker cooling or heating with lower levels of temperature fluctuation during the cooling/heating operation.



Flexibility

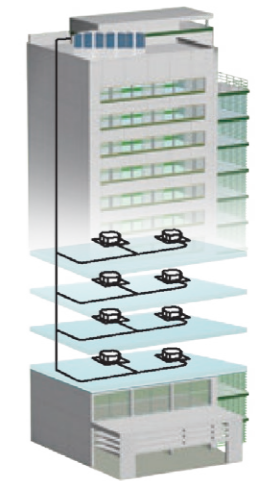
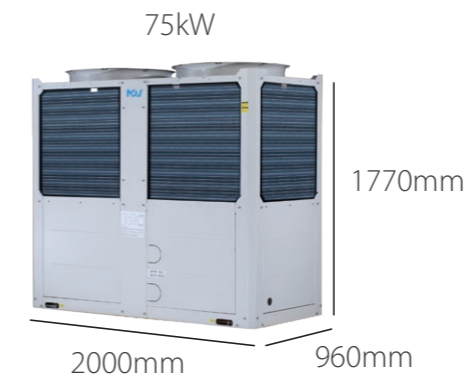
Modular design

Modularity is perfect when an extension of capacity becomes required as the building load range from 75kW to 2240kW.



Space saving and simplified installation

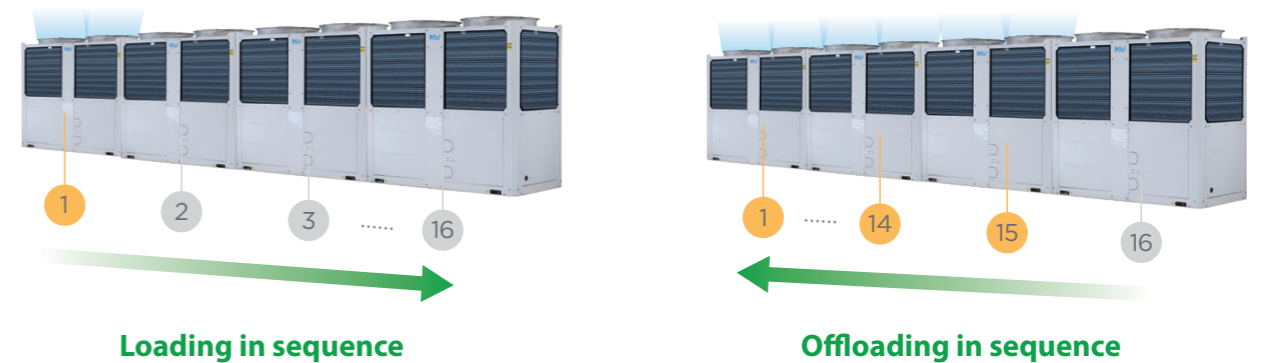
Single unit covers an area of only 1.92m², which greatly saves lots of space for group control. The hydraulic models (customized) has the water pump components inside the unit, which can save the installation cost and time and make installation easier.



High reliability

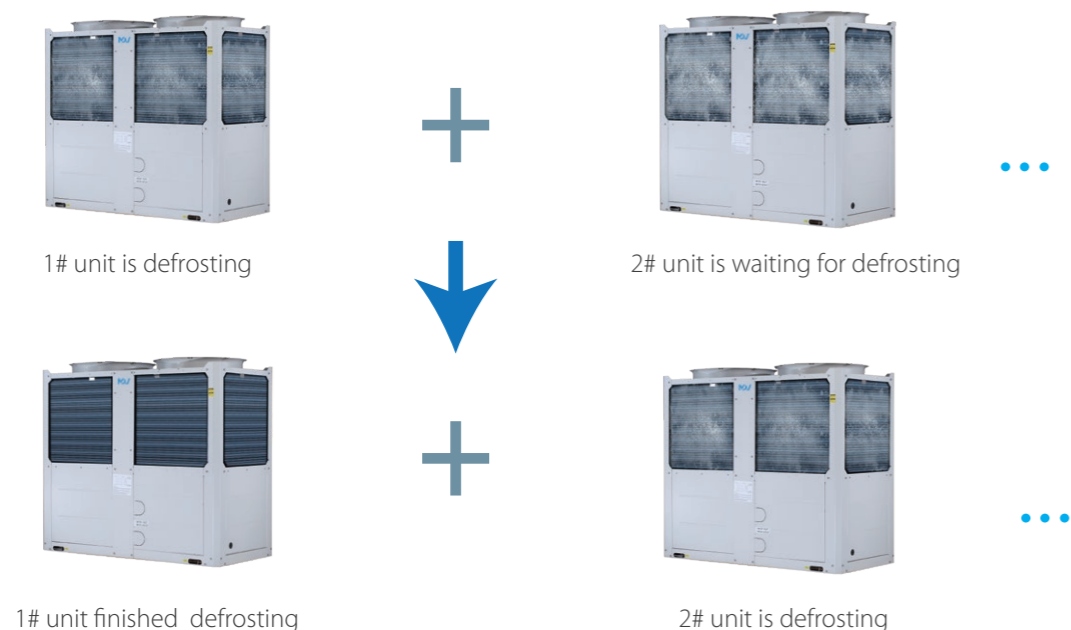
Alternative cycle duty operation

In one combination system, all units operate as alternative in cycle duty to keep equal running time, realize higher stability, better reliability and longer lifespan.



Alternate defrost operation

By detecting the water temperature, the proportion of defrosting unit can be determined intelligently so as to realize small water temperature fluctuation during the alternate defrosting period.



Back-up function

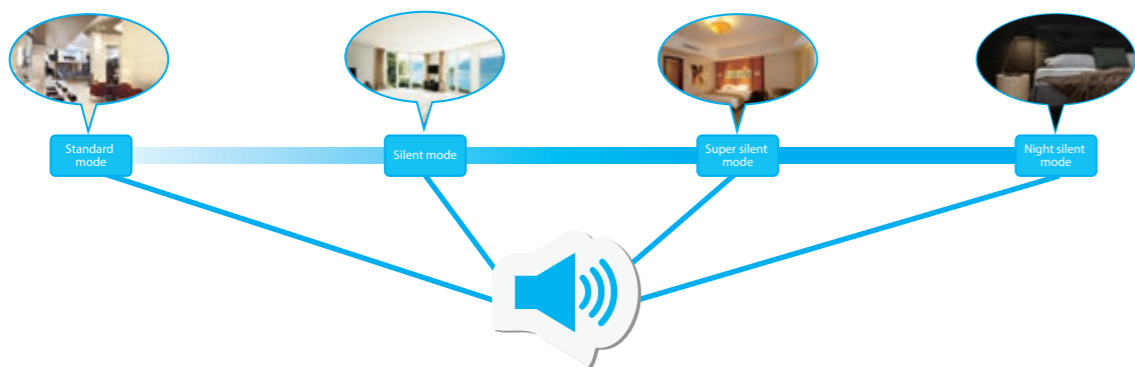
In a combination system, if one unit failed, other units can be back-up instead of the failed one for continuing operation.



Multiple function

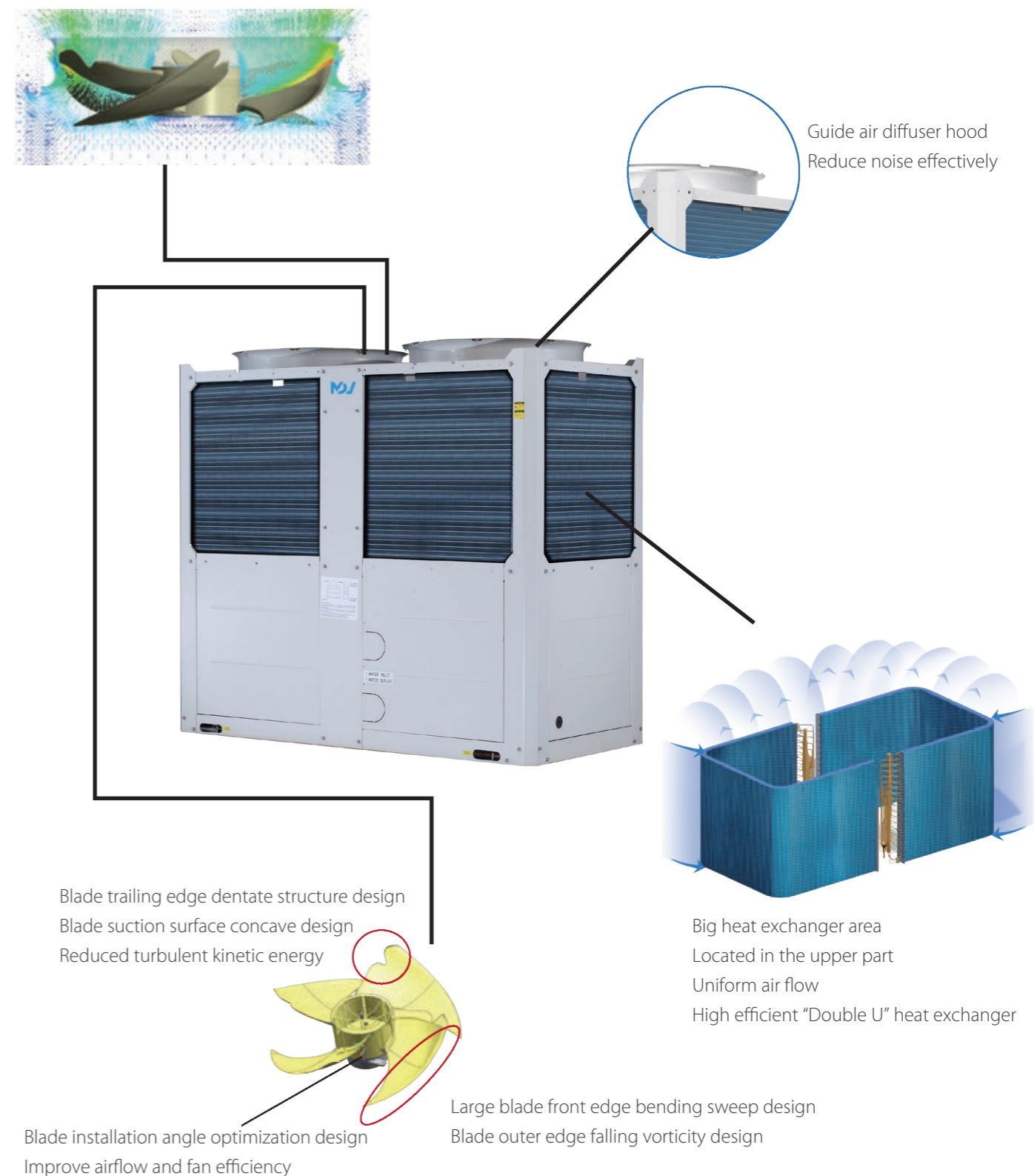
Multiple silent modes

Different silent modes enable noise reduction to suit time of day and ambient noise levels.



Multiple optimization design makes noise reduction

Optimized fan blade edge by CFD programs with analyzing air pressure distribution
Realize higher air volume, lower noise level.



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.



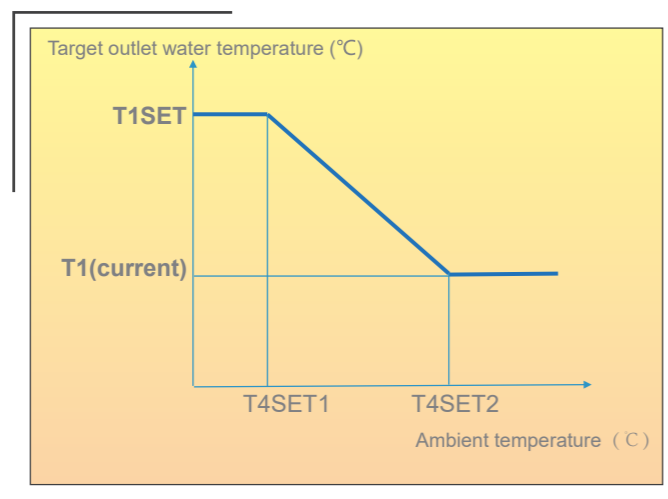
7 Levels of energy saving

For projects with temporary electricity supply restrictions, the outdoor unit supports 7 levels of energy management which can be set to output 40-100% capacity. It prevents tripping during electricity supply restriction conditions and remains system continue to operate.

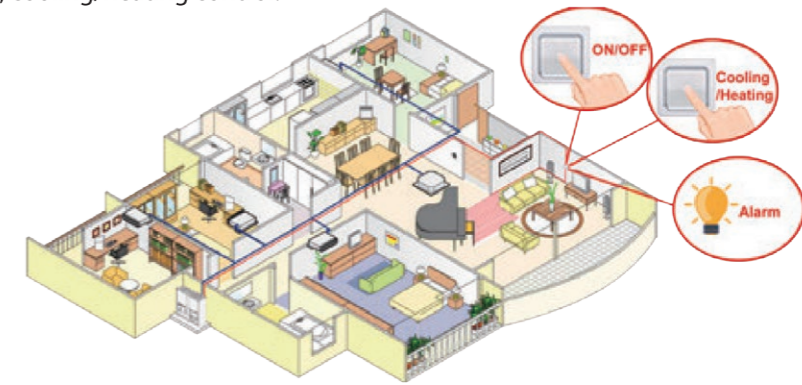


Weather temperature curve

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.

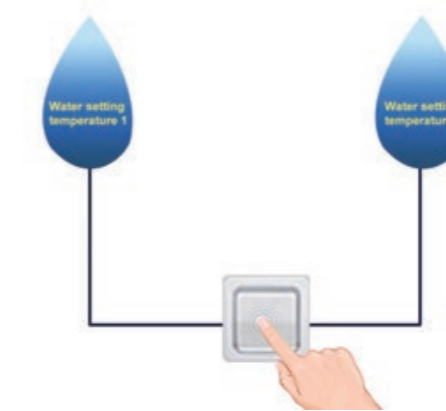


Remote alarm, on/off control, cooling/heating control.



One-touch water temperature switching

For cooling and heating mode, different water temperatures can be switched just by one-touch.



Anti-corrosion Protection

Outdoor units are given anti-corrosion treatment for non-extreme conditions as standard and can also be customized with heavy anti-corrosion treatment on main components for surface protection against corrosive air, acid rain and saline air (for installations in coastal regions) to extend machine life span. The integrity of the anti-corrosion treatment is ensured by subjecting major components and parts to salt mist testing, moisture and heating testing and light aging testing.

Fan motor

Standard products:
72h of neutral salt mist

Heavy anti-corrosion products:
240h of neutral salt mist



Painted sheet metal

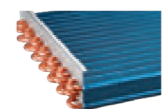
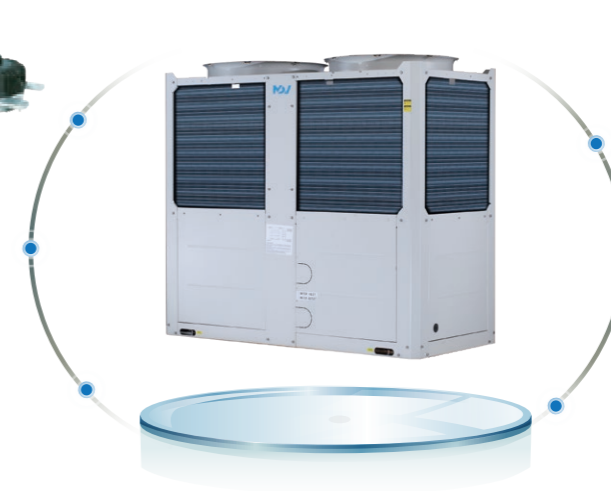
Standard products:
500h of neutral salt mist
1000h of moisture and heating test
500h of light aging test

Heavy anti-corrosion products:
1000h of neutral salt mist
2000h of moisture and heating test
720h of light aging test



Screws / bolts / gaskets
Standard products:
300h of neutral salt mist

Heavy anti-corrosion products:
720h of neutral salt mist



Heat exchanger aluminum foil
Standard products:
200h of neutral salt mist

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

Heat exchanger copper pipe

Standard products:
24h of neutral salt mist

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



Electric control box case
Standard products:
96h of neutral salt mist

Heavy anti-corrosion products:
240h of neutral salt mist

Convenient control

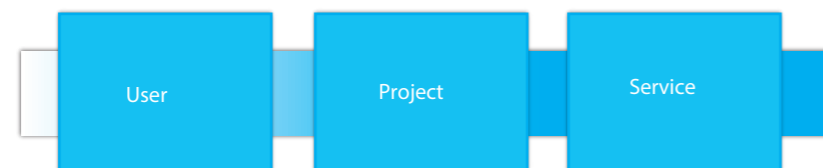
Touch key wired controller as standard accessory to control the chillers



Model	KJRM-120H2/BMWKO-E
Appearance	
Main Functions	<ul style="list-style-type: none"> Touch key operation Parameter setting an LCD display Real-time clock function Multiple timer Power-off memory function Modbus Address setting Parallel function Buzzer prompt tone and alarm functions Weekly schedule Double set point function Energy saving function
Max. connection PCBs	16

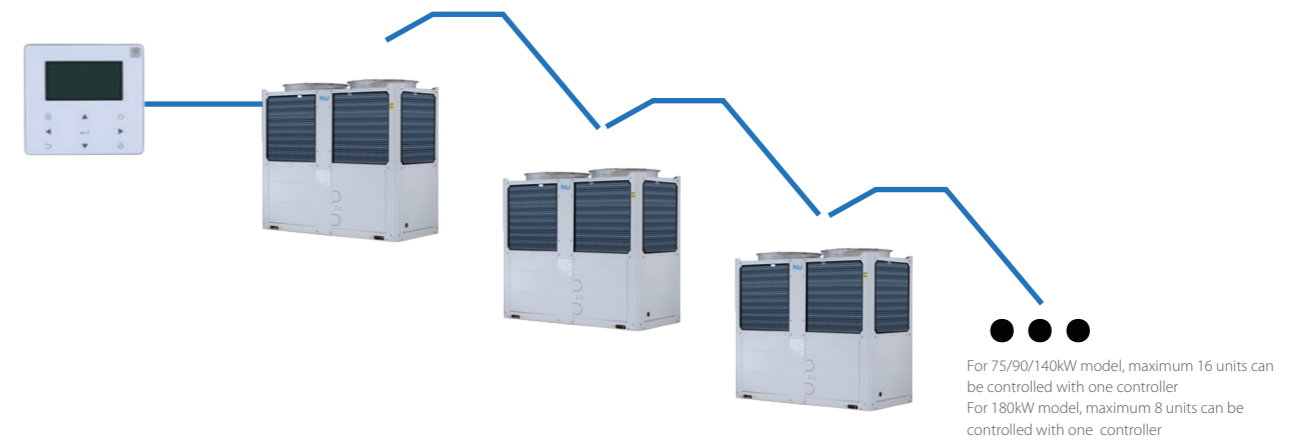
Three user levels

Three different user levels ensure users can easily access control functions and allow engineers convenient access to operating parameters.

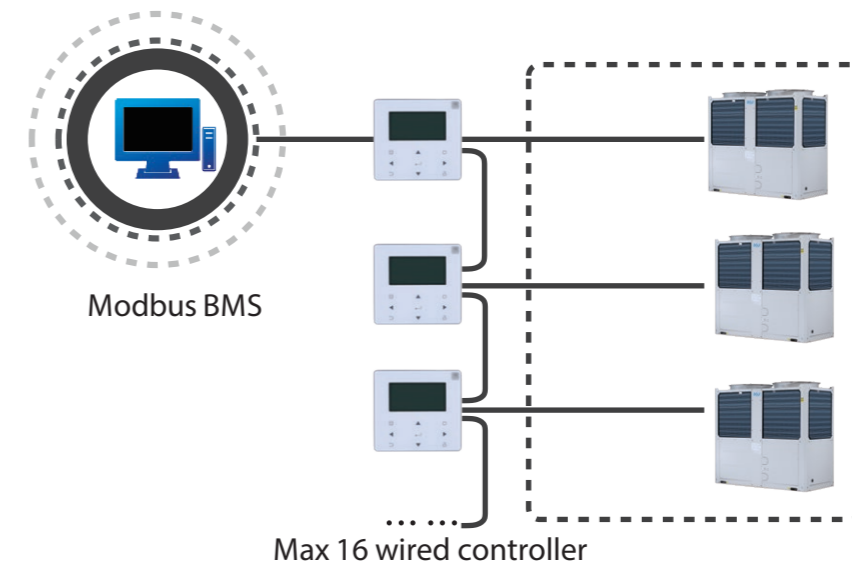


Group control for up to maximum 16 units with one wired controller

Each unit can connect with one controller for setting and one controller for monitoring.



Multilingual wired controller using Modbus communication protocol



Easy installation

Built-in components



hydraulic module
(customization option)



water flow switch



wired controller



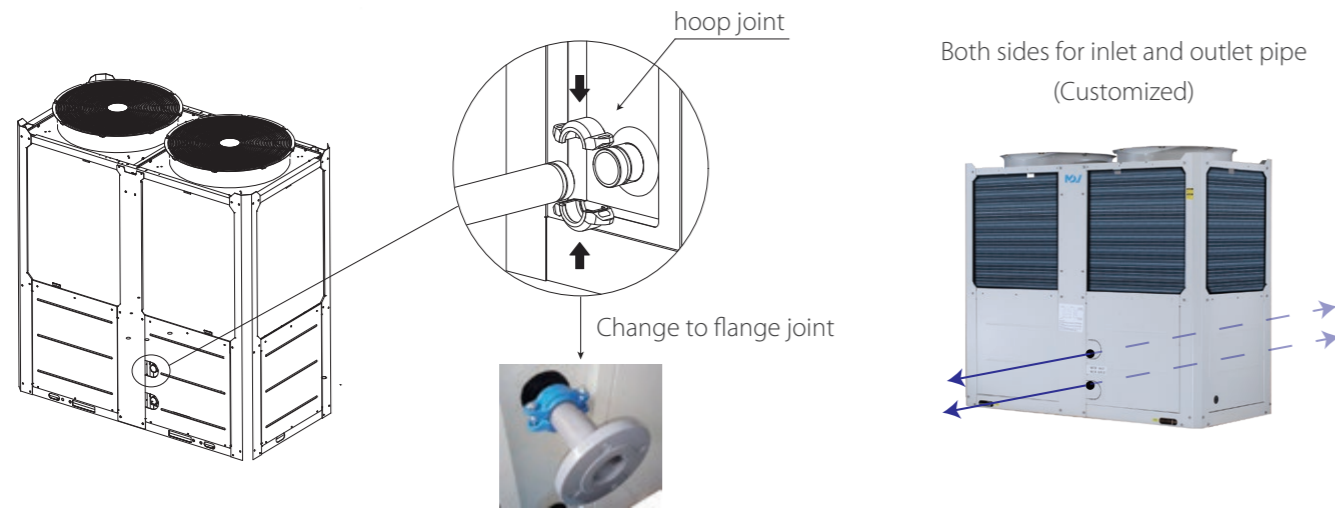
Air purge valve



Pressure relief valve

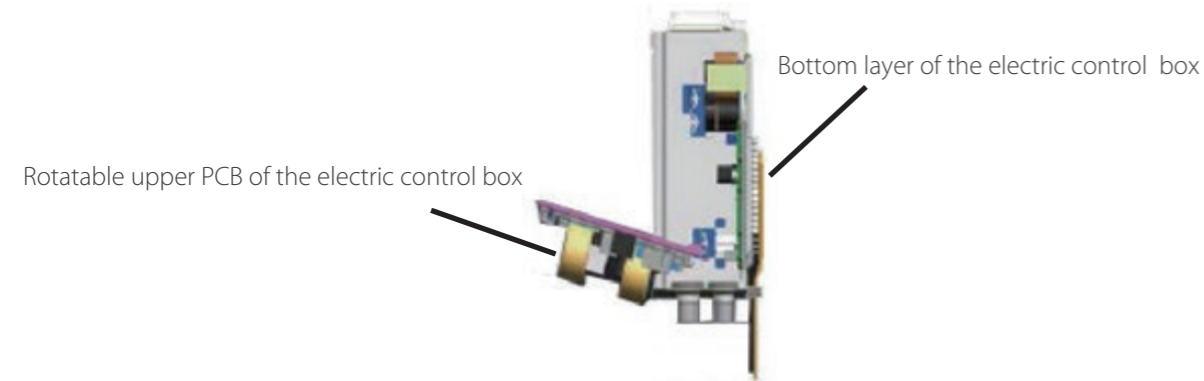
Water pipe connection

Only water piping installation is needed, no need to install refrigerant piping. Unit uses hoop connection which can be changed to flange connection by using Midea accessory in order to suit more application.

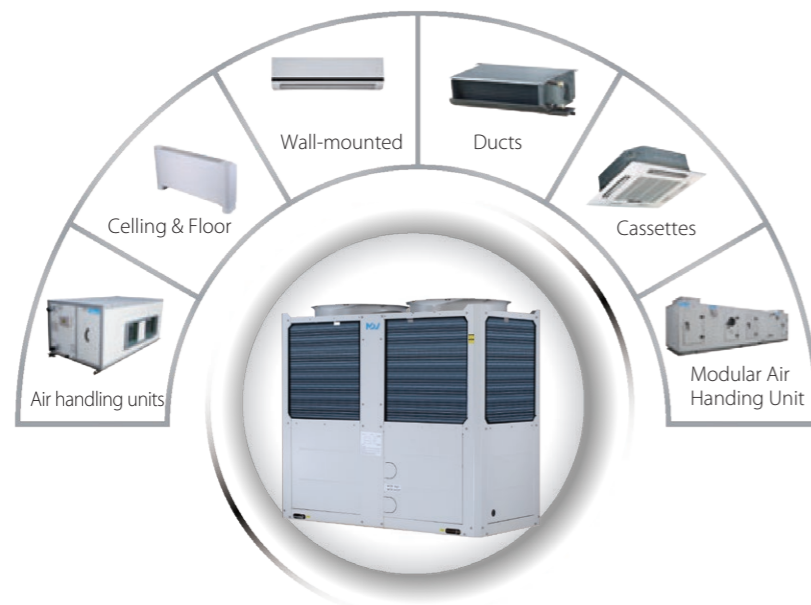


Rotatable electric control box(Only for 90/180kW model)

The bottom layer can be easily achieved through the rotatable upper PCB, making the maintenance easier. Due to the micro combustibility of R32, the electric control box adopts explosion-proof design to ensure safety and reliability



Application scenarios



Specifications



Model			MDVM-V75D2BR8-A	MDVM-V90D2BR8-A	MDVM-V140D2BR8-A	MDVM-V180D2BR8-A
Power supply		V/Ph/Hz	380~415/3/50	380~415/3/50	380~415/3/50	380~415/3/50
Cooling ¹	Capacity	kW	70	82	130	164
	Rated input	kW	26.8	27.8	50.5	56
	EER		2.61	2.95	2.57	2.93
Heating ²	Capacity	kW	75	90	138	180
	Rated input	kW	23.7	28.1	44.5	57
	COP		3.16	3.20	3.10	3.16
Seasonal space heating energy efficiency class (LWT at 35°C)			A++	A++	A++	A+
Compressor	Type		Scroll	Scroll	Scroll	Scroll
	Quantity		1	2	2	4
Air side heat exchanger	Type		Finned tube	Finned tube	Finned tube	Finned tube
Fan motor	Type		DC motor	DC motor	DC motor	DC motor
	Quantity		2	2	2	4
Water side heat exchanger	Type		Plate	Plate	Plate	Plate
Refrigerant system	Type		R32	R32	R32	R32
	Charged volume ³	kg	9	16[11.5+4.5]	15.5[11.5+4]	32[(10.5+5.5)*2]
Throttle	Type		EXV	EXV	EXV	EXV
Sound power level	dB		86	83	92	92
Net dimensions (WxHxD)	mm		2000*1770*960	2200*2315*1135	2220*2300*1135	2752*2413*2220
Packing dimensions (WxHxD)	mm		2085*1890*1030	2250*2445*1180	2250*2425*1180	2810*2446*2245
Net/Gross weight	kg		440/455	635/660	670/690	1400/1420
Water pipe connection	mm		DN50	DN50	DN65	DN80
Ambient temperature range	Cooling	°C	-10~48	-10 ~ 48	-10~48	-10~48
	Heating	°C	-20~43	-20 ~ 43	-20~43	-20~43
	DHW(Customization)	°C	-20~43	-20 ~ 43	-20~43	-20~43
LWT setting range	Cooling	°C	0~20	0 ~ 20	0~20	0~20
	Heating	°C	25~54	25 ~ 54	25~54	25~54
	DHW(Customization)	°C	30~60	30 ~ 60	30~60	30~60

Notes:

1. Water inlet/outlet temperature 12/7°C; Outdoor ambient temperature 35°C DB.
2. Water inlet/outlet temperature 40/45°C; outdoor ambient temperature 7°C DB/6°C WB.
3. [A+B], A means refrigerant volume charged in factory, B means refrigerant volume charged on site.
4. Capacity and efficiency data calculated in accordance with EN14511; EN14825
5. For cooling mode, if water temperature reaches 0C, anti-freeze liquid is needed.