

2003-1C2004

**Commercial Air Conditioner Division**  
**Midea Group**

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[cac.midea.com](http://cac.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.

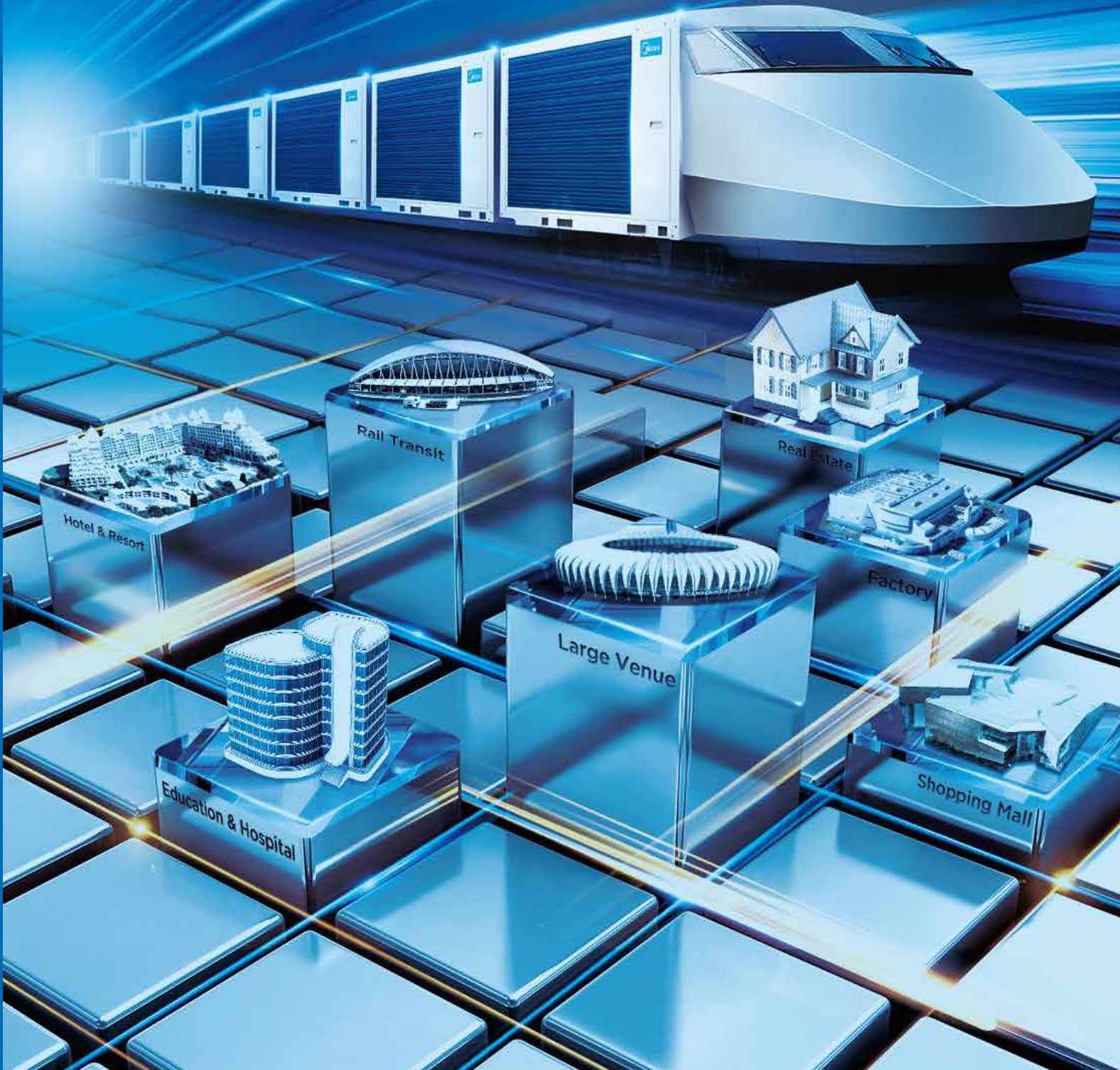
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Commercial Air Conditioners 2020



# Air Cooled Module Chiller & Mini Chiller







# Midea CAC

Midea CAC is a key division of the Midea Group, a leading producer of consumer appliances and provider of heating, ventilation and air conditioning solutions. Midea CAC has continued with the tradition of innovation upon which it was founded, and emerged as a global leader in the HVAC industry. A strong drive for advancement has created a groundbreaking R&D department that has placed Midea CAC at the forefront of a competitive field. Through these independent efforts and joint cooperation with other global enterprises, Midea has supplied thousands of innovative solutions to customers worldwide.

There are four production bases: Shunde, Chongqing, Hefei and Italy.

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

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

MCAC 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.

2018 >> Launched the new generation of R32 Aqua Tempo Super II Series DC Inverter Air-cooled Chiller.

2017 >> Developed the large capacity air cooled scroll chiller.

Launched the new generation of R410A Aqua Tempo Super II Series DC Inverter Air-cooled Chiller.

2016 >> Acquire an 80% stake in Clivet.

2015 >> Launched the inverter direct-drive centrifugal chiller and magnetic chiller.

An international strategic Platform has brought Midea Group, Carrier Corporation and Chongqing General Industry Group together in the chiller business.

2013 >> Launched the super high efficiency centrifugal chiller with dual-stage compressor and full falling film evaporator.

2008 >> Developed the Smart Star new-generation Semi-hermetic centrifugal chiller.

2007 >> Won the first Midea centrifugal chiller project overseas.

2006 >> Launched the first VFD (Variable Frequency Drive) centrifugal chiller.

2004 >> Acquired MGRE entered the chiller industry.

2001 >> The R134a (LC) series centrifugal chiller was named as a key national product.

1999 >> Entered the CAC field.



# MCAC Learning Academy



## Objective

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

## Training Centers

Our world class training centers provide knowledge and skills necessary to efficiently deploy Midea CAC 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 CAC Training Center

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

The Midea CAC 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 CAC 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 CAC 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.

### Main Courses Offered:

1. Introduction to main Selling points and Features
2. Installation and Commissioning
3. Control Systems
4. Selection Software



### Products: VRF, M-Thermal, Chillers and Terminals

**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 CAC products. Technical person and engineers from different parts of the world are invited to take part in these trainings.

### Main Courses Offered:

1. Product Electric Control and Refrigerant System
2. Control Systems
3. Installation and Commissioning Demonstration
4. Troubleshooting and Maintenance

### Products: VRF, M-Thermal, Chillers and Terminals

**Highly Skilled Trainers:** The trainers for various courses by Midea CAC 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 CAC 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 CAC 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.





# Reference Projects

## Sports



**2015 Youth Olympic Games  
PARASPORT**  
Country: Georgia  
City: Tbilisi  
Outdoor Units: Air-cooled modular chiller  
Indoor Units: FCU  
Total Capacity: 550kW



**2015 Youth Olympic Games  
Sports Palace**  
Country: Georgia  
City: Tbilisi  
Outdoor Units: Air-cooled modular chiller  
Indoor Units: FCU  
Total Capacity: 780kW



## Transportation



**Sulaymaniyah Airport**  
Country: Iraq  
City: Sulaymaniyah  
Outdoor Units: Tropical air-cooled scroll chiller  
Indoor Units: FCU  
Completion Year: 2017

## Hotels & Resorts



**Great Wall Plaza**  
Country: Vietnam  
City: Hai Duong  
Outdoor Units: Air-cooled modular chiller & ATW Heat Pump  
Indoor Units: FCU  
Total Capacity: 700HP

## Complex

Grand Comfort is the largest material market in middle Asia, the total area is 55,000 square meters. Midea CAC provided 21 air-cooled power and super modular chillers for the project. The total capacity is up to 5,780kW.



**Grand Comfort Material Market**  
Country: Kyrgyzstan  
Outdoor Units: Air-cooled modular chiller  
Indoor Units: FCU & AHU  
Total Capacity: 5,780kW  
Completion Year: 2015





Harvey Nichols Edinburgh

- 📍 Country: UK
- 📍 City: Edinburgh
- 🏢 Outdoor Units: Air-cooled modular chiller
- 🏠 Indoor Units: FCU
- 🔥 Total Capacity: 255HP



City Mall

- 📍 Country: Tanzania
- 📍 City: Dar es Salaam
- 🏢 Outdoor Units: Air-cooled modular chiller
- 🏠 Indoor Units: FCU & AHU
- 🔥 Total Capacity: 1,560kW

Industry



Alkaloida Chemical Company Exclusive Group in Hungary

- 📍 Country: Hungary
- 📍 City: Tiszavasvári
- 🏢 Outdoor Units: Air-cooled scroll chiller
- 🏠 Indoor Units: FCU & AHU
- 🔥 Total Capacity: 1,300kW



Hospitals & Healthcare



MRI Center Canovanas

- 📍 Country: Puerto Rico
- 📍 City: San Juan
- 🏢 Outdoor Units: Air-cooled modular chiller
- 🏠 Indoor Units: MAHU
- 🔥 Total Capacity: 360kW



# Introduction

Midea air-cooled chiller adopts air as the cooling/heating source and water as the cooling/heating medium to cooling/heating the indoor ambient temperatures through the indoor terminals. The chiller system always works at the most high efficiency stage thanks to the advanced technology. Also, the air cooled chiller system has a lower initial investment cost than water cooled system. It does not require cooling tower, condenser water pump and associated condenser water chemical treatment system.

Midea air-cooled scroll chillers are divided to Tempo Power series and Tempo Super series according to their structure and capacity. Single unit's capacity range is from 30kW to 250kW. Modular design concept makes the application from single unit to multiple units. Maximum combination air-cooled scroll system's cooling capacity ups to 2080kW. It is widely used in hotel, office building, shopping mall, theater, factory, hospital, etc.

Midea DC inverter air-cooled Mini Chiller has unitary structure design and hydraulic module is built in the outdoor unit. Their high energy efficiency and high reliability ensure low running cost. So they are widely applied in apartments, villas, small business office buildings as well as restaurants, etc.

Aqua Tempo Super II Series is Midea's latest DC inverter air-cooled chiller. Its compact design and excellent performance make it suitable for a wide range of applications. They are environment friendly products for R410A and R32 refrigerant adopted, which does no harm to ozone layer. The chiller system always works at the most high efficiency stage thanks to the advanced DC inverter technology. It is widely used in hotel, office building, shopping mall, theater, factory, hospital, etc.

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▶ 35	Aqua Tempo Super II Series
▶ 53	Aqua Mini Chiller Series



# Aqua Tempo Power Series

Midea Aqua Tempo Power chillers use V shape heat exchanger at air side and single unit’ s capacity from 30kW to 250kW. Power chillers are divided to PS and PS-LA series according to their operation ambient temperature range and inner components. PS-LA series are products with low ambient temperature cooling function. PS series are products with ambient temperature upper operating limit of 52°C in cooling mode, which are able to cope with the hottest of climates.

## Product Lineup

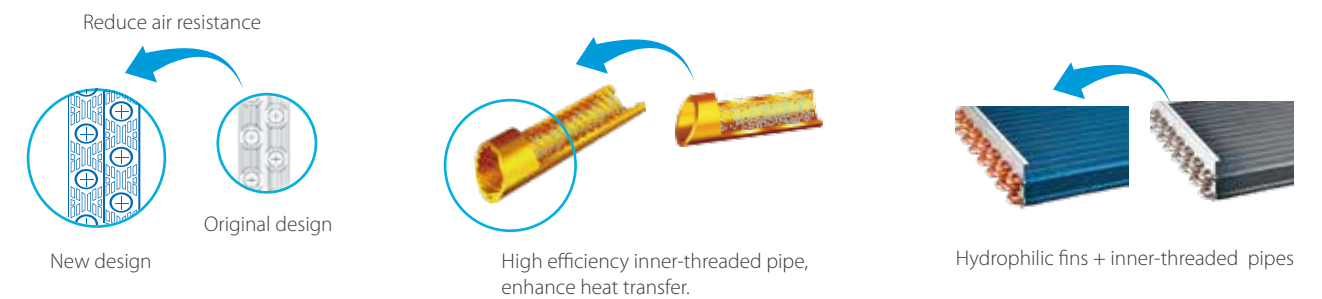
Series	Power supply						
PS	380V/3N/50Hz	30kW	60kW	120kW	180kW	/	250kW
PS	220V/3N/60Hz	30kW	60kW	120kW	180kW	/	/
PS-LA	380V/3N/50Hz	/	/	/	/	200kW	250kW

PS: Standard Power Series  
PS-LA: Power Series with low ambient temperature cooling function



## Advanced technology

### ● High performance heat exchanger



The new designed window fins enlarge the heat-exchanging area, decrease the air resistance, save more power and enhance heat exchange performance.

Hydrophilic film fins and inner-threaded copper pipes optimize heat exchange efficiency.

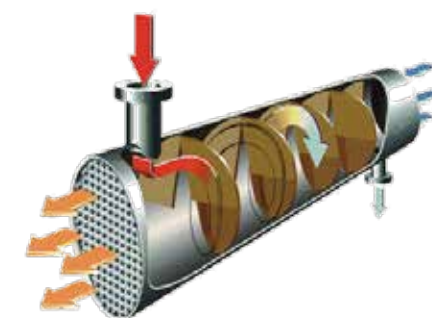
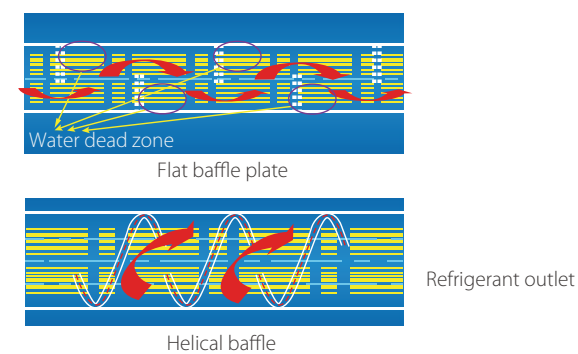
The specially coated blue fins enhance durability and protect against corrosion from air, water and other corrosive agents, assures a longer coil service life.

### ● Tube-in-tube & shell-tube heat exchanger



Inner grooved copper pipe, increase area of heat exchanger, improve efficient.

Anti-corrosion shell increases the useful life of heat exchanger.



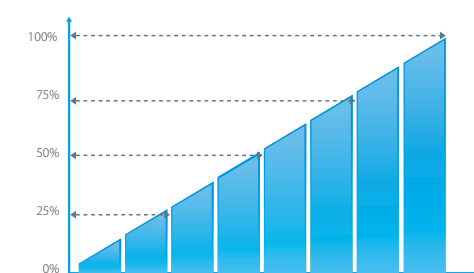
For shell-tube heat exchanger, the module adopts the new helical baffle design to avoid the rectangular place of water dead zone, greatly improve the heat exchange efficiency.

### ● EXV for more precisely flow control

Patented liquid distribution components to maximize performance and minimize defrost impact.

500 steps EXV plus capillary for stable and accurate gas flow control.

Fast respond resulting in higher efficiency and improved reliability.



## Features

### Wide application range

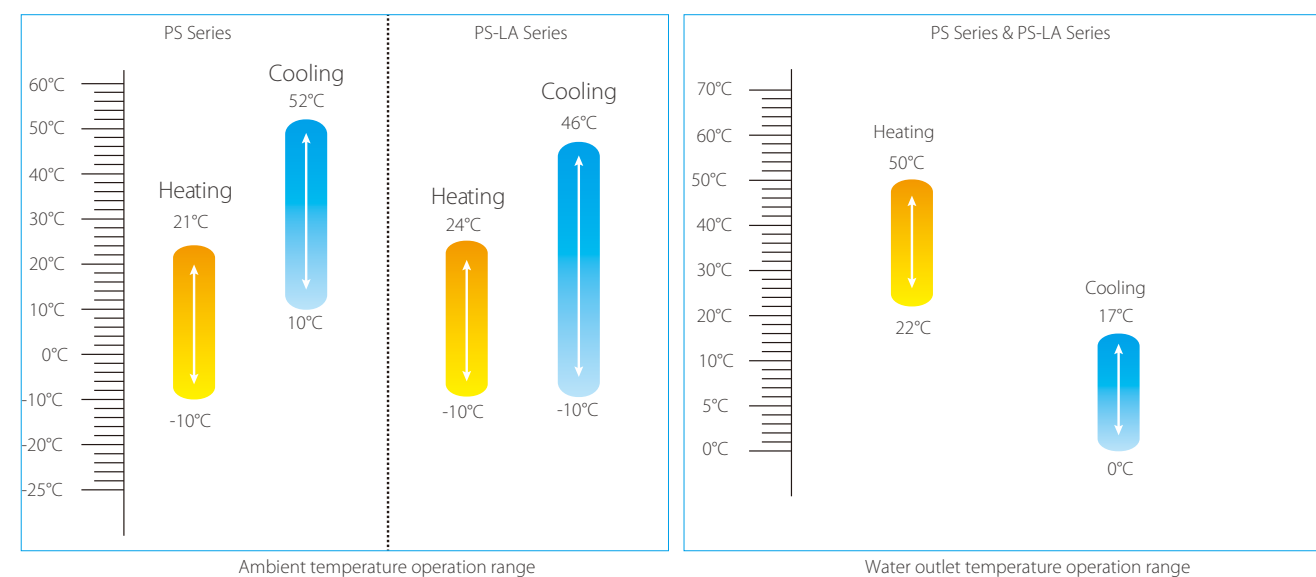
- Aqua Tempo Power Chillers with cooling capacity ranging from 30kW to 250kW, combination model's maximum capacity ups to 2000kW.



- Freely combine with fan coil units and air handling units. Project owners may choose the best types according to their design taste (for interior) or functional needs.



- Wide ambient temperature and water outlet temperature operation ranges

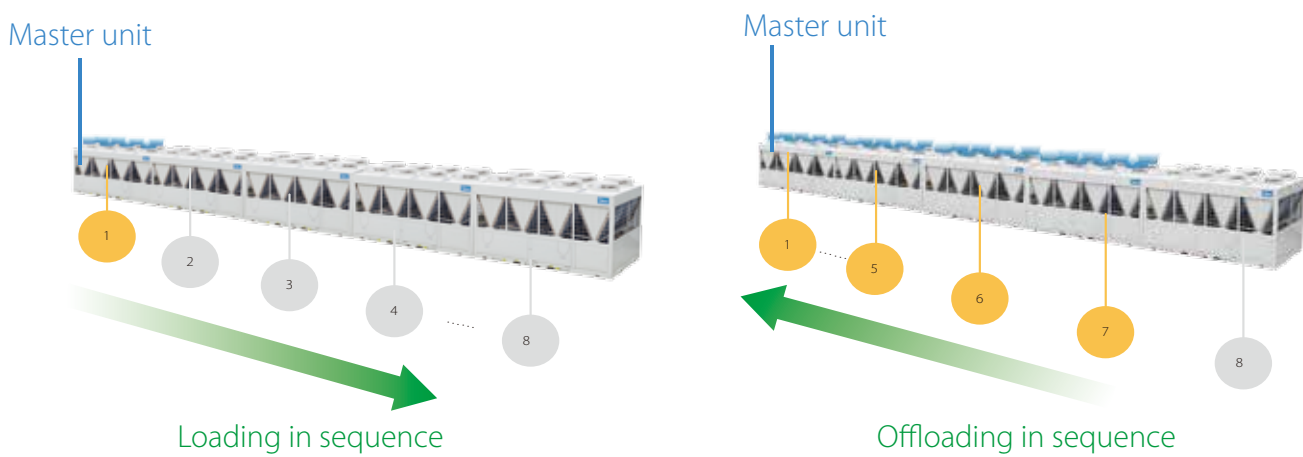




High reliability

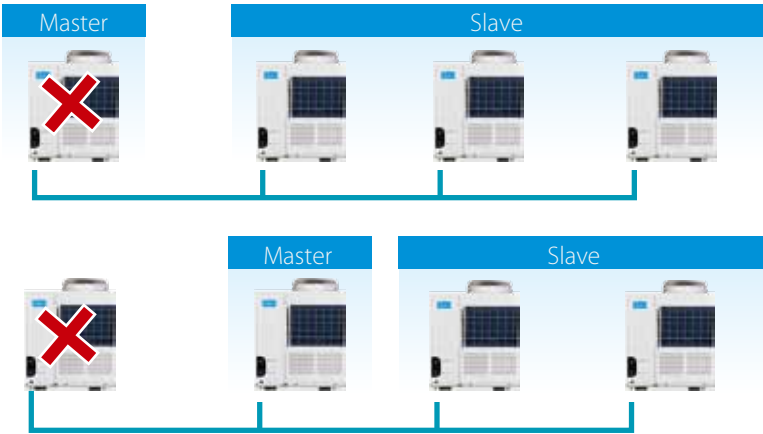
● Alternative cycle duty operation

In one combination module, all slave units operate as alternative in cycle duty to keep equal running time, realize higher stability, better reliability and longer lifespan.  
For example, five modules combination, no.1 is master unit, others are slave units.



● Back-up functions

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



● Reliable protections

Multiple protections are adopted to ensure system stable running.

High/low pressure protection of compressor

Power phases sequence protection

Evaporator low temperature protection in cooling

System anti-freezing protection in winter

Frequently ON/OFF protection of compressor

Over-current protection of compressor

Air discharge temperature protection of compressor

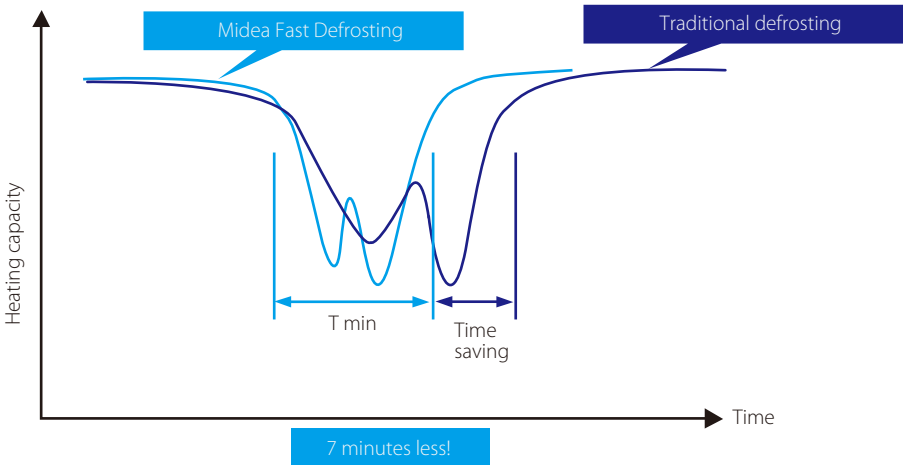
System high temperature protection

Water flow protection

Sensor malfunction protection

● Intelligent defrosting technology

Model alternative defrosting technology ensures little fluctuation on water temperature.  
Manual defrosting program is available for service purpose.



Easy control

- Touch key wire controller as standard accessory to control the chillers.

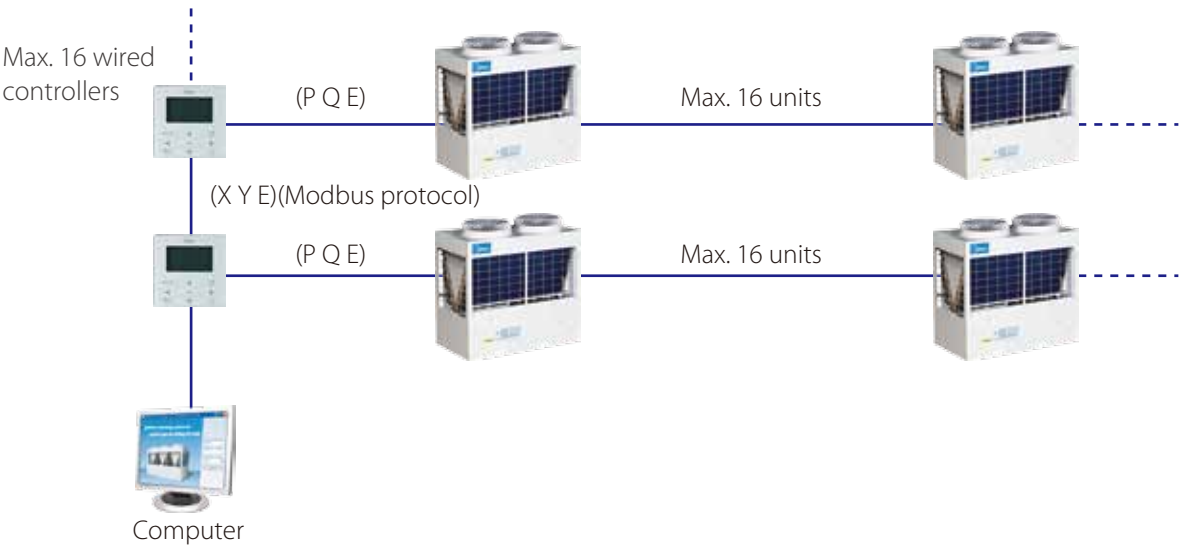


Model	KJRM-120D/BMK-E(standard)	KJR-120A/MBTE(optional)
Appearance		
Main Functions	Touch key operation Parameter setting and LCD display Real time clock control. Multiple timer Power-off memory function Modbus(Customized) Address setting Parallel function Buzzer prompt tone and alarm function	Mechanical butoon Parameter setting and LCD display Real time clock control. Multiple timer Power-off memory function Modbus(Customized) Address setting Parallel function Weekly timing function
Max. connection PCBs	16	16



● 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 KJRM-120D/BMK-E. It can connect Max. 16 wired controllers and each controller can control Max. 16 units.



● Remote control functions for convenient operation.

There are ON/OFF, Heat/Cool and 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 ON/OFF and mode selection.

Specifications

PS-LA series

Model			MGBL-F200W/RN1	MGBL-F250W/RN1
Power supply		V/Ph/Hz	380-415/3/50	380-415/3/50
Cooling <sup>1</sup>	Capacity	kW	185	250
	Input	kW	63.0	78.3
	EER		2.94	3.19
Heating <sup>2</sup>	Capacity	kW	200	270
	Input	kW	61.0	80.0
	COP		3.28	3.38
Max running current		A	150	200
Compressor	Type		Fixed Scroll	Fixed Scroll
	Quantity	Pieces	6	8
Air side heat exchanger	Type		Fin-coil	Fin-coil
	Fan motor type		AC Motor	AC Motor
	Quantity of fan motor	Pieces	6	8
Water side heat exchanger	Air flow	m³/h	72,000	96,000
	Type		Shell-tube	Shell-tube
	Water pressure drop	kPa	30	40
Refrigerant	Volume	L	99.5	127
	Water flow volume	m³/h	31.8	43
Refrigerant	Type		R410A	R410A
	Charged volume	kg	42.0	60.0
	Throttle type		EXV	EXV+Capillary
Sound pressure level <sup>3</sup>		dB(A)	74	74
Unit net dimension(D×H×W)		mm	2,850×2,110×2,000	3800×2130×2000
Packing dimension(D×H×W)		mm	2,980×2,260×2,135	3900×2200×2100
Net/ Gross weight		kg	1730/2,000	2,450/2,600
Pipe connections	Water inlet/outlet	mm	DN80	DN100
Controller			Wired controller	Wired controller
Ambient temperature range	Cooling	°C	-10~46	-10~46
	Heating	°C	-10~24	-10~24
Water outlet temperature range	Cooling	°C	5~17	5~17
	Heating	°C	40~50	40~50
Water outlet temperature range <sup>4</sup>	Cooling	°C	0~17	0~17
	Heating	°C	22~50	22~50

1. Cooling: Water inlet/outlet temperature: 12/7°C, outdoor ambient temperature 35°C DB.  
2. Heating: Water inlet/outlet temperature: 40/45°C, outdoor ambient temperature 7°C DB/6°C WB.  
3. 1m away in open field.  
4. The data is for low water outlet temperature function.Under the using condition of this function, the system must be added antifreeze agent.



50Hz PS series

Model			MGBT-F30W/RN1	MGBT-F60W/RN1	MGBT-F120W/RN1	MGBT-F180W/RN1	MGBT-F250W/RN1
Power supply		V/Ph/Hz	380-415/3/50	380-415/3/50	380-415/3/50	380-415/3/50	380-415/3/50
Cooling <sup>1</sup>	Capacity	kW	30	60	120	180	250
	Input	kW	10.0	19.3	38.5	57.9	78.3
	EER		3.00	3.11	3.12	3.11	3.19
Cooling <sup>2</sup>	Capacity	kW	26	52	104	156	216
	Input	kW	11.0	22.1	43.0	64.5	86.3
	EER		2.36	2.35	2.42	2.42	2.50
Heating <sup>3</sup>	Capacity	kW	32	64	128	195	270
	Input	kW	9.8	19.8	41.5	59.4	80.0
	COP		3.27	3.23	3.08	3.28	3.38
Max. running current		A	21.1	51.7	130.0	155.1	200.0
Compressor	Type		Fixed Scroll	Fixed Scroll	Fixed Scroll	Fixed Scroll	Fixed Scroll
	Quantity	Pieces	2	2	4	6	8
Air side heat exchanger	Type		Finned tube	Finned tube	Finned tube	Finned tube	Finned tube
	Fan motor type		AC Motor	AC Motor	AC Motor	AC Motor	AC Motor
	Quality of fan motor	Pieces	1	2	4	6	8
	Air flow	m³/h	12,000	24,000	48,000	72,000	96,000
Water side heat exchanger	Type		Tube-in-tube	Shell-tube	Shell-tube	Shell-tube	Shell-tube
	Water pressure drop	kPa	60	15	25	30	40
	Volume	L	10	42	64	99.5	127
	Water flow volume	m³/h	5.2	10.3	20.6	31	43
Refrigerant	Type		R410A	R410A	R410A	R410A	R410A
	Charged volume	kg	6.2	12.0	26.0	39.0	60.0
	Throttle type		EXV	EXV	EXV	EXV	EXV
Sound pressurer level <sup>4</sup>		dB(A)	65	67	70	74	74
Unit net dimension(DxHxW)		mm	1,514×1,865×841	2,000×1,880×900	2,000×2,090×1,685	2,850×2,110×2,000	3,800×2,130×2,000
Packing dimension(DxHxW)		mm	1,590×2,065×995	2,090×2,095×985	2,080×2,240×1,755	2,980×2,260×2,135	3,900×2,200×2,100
Net/ Gross weight		kg	380/405	580/650	1,090/1,270	1,730/2,000	2,450/2,600
Pipe connections	Water inlet/outlet	mm	DN40	DN100	DN65	DN80	DN100
Controller			Wired controller	Wired controller	Wired controller	Wired controller	Wired controller
Maximum combinations			16	16	8	5	8
Ambient temperature range	Cooling	°C	10~52	10~52	10~52	10~52	10~52
	Heating	°C	-10~21	-10~21	-10~21	-10~21	-10~21
Water outlet temperature range	Cooling	°C	5~17	5~17	5~17	5~17	5~17
	Heating	°C	45~50	45~50	45~50	45~50	45~50
Water outlet temperature range <sup>5</sup>	Cooling	°C	0~17(customized)	0~17(customized)	0~17(customized)	0~17(customized)	0~17
	Heating	°C	22~50(customized)	22~50(customized)	22~50(customized)	22~50(customized)	22~50

Note: Specifications are based on the following conditions:  
1. Cooling : Water inlet/outlet: 12°C/ 7°C, and outdoor ambient temp. of 35°C DB.  
2. Cooling : Water inlet/outlet: 12°C / 7°C, and outdoor ambient temp. of 46°C DB.  
3. Heating : Water inlet/outlet: 40°C/ 45°C, and outdoor ambient temp. 7°C DB/6°C WB.  
4. 1m away in open field.  
5. The data is for low water outlet temperature function. Under the using condition of this function, the system must be added antifreeze agent.

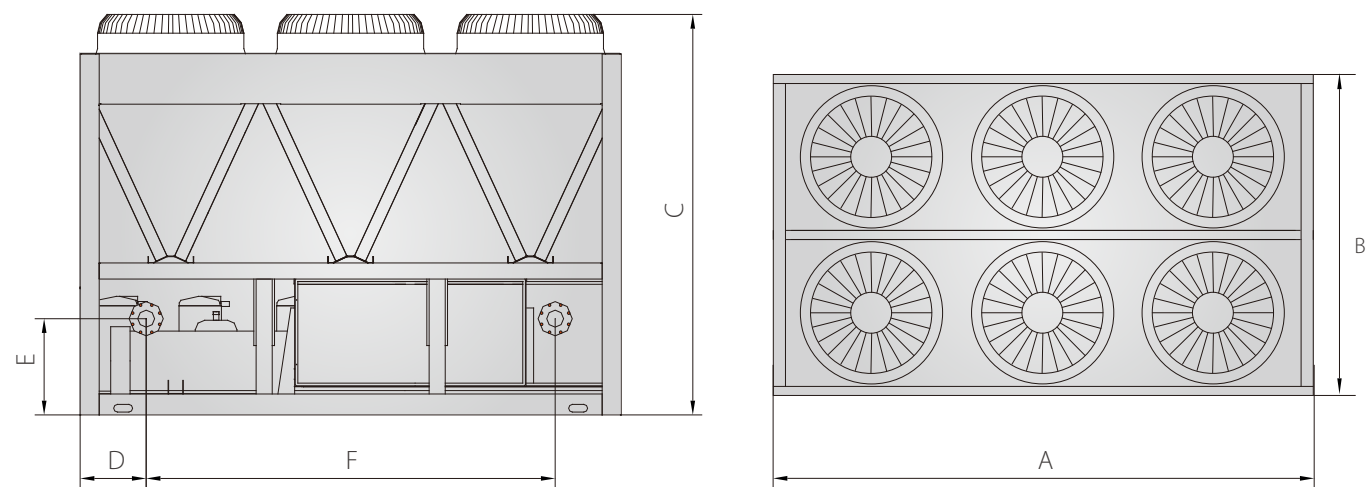
60Hz PS series

Model			MGBT-F30W/DN1	MGBT-F60W/DN1	MGBT-F120W/DN1	MGBT-F180W/DN1
Power supply		V/Ph/Hz	220/3/60	220/3/60	220/3/60	220/3/60
Cooling1	Capacity	kW	30	60	120	180
	Input	kW	10.0	19.5	39.0	58.5
	EER		3.00	3.08	3.08	3.08
Cooling2	Capacity	kW	26	52	104	156
	Input	kW	11.0	22.1	43.0	64.5
	EER		2.36	2.35	2.42	2.42
Heating3	Capacity	kW	32	65	130	195
	Input	kW	9.8	20.0	40.0	60.0
	COP		3.27	3.25	3.25	3.25
Max. running current		A	45.0	90.0	180.0	270.0
Compressor	Type		Fixed Scroll	Fixed Scroll	Fixed Scroll	Fixed Scroll
	Quantity	Pieces	2	2	4	6
Air side heat exchanger	Type		Fin-coil	Fin-coil	Fin-coil	Fin-coil
	Fan motor type		AC Motor	AC Motor	AC Motor	AC Motor
	Quality of fan motor	Pieces	1	2	4	6
	Air flow	m³/h	12,000	25,000	48,000	72,000
Water side heat exchanger	Type		Tube-in-tube	Shell-tube	Shell-tube	Shell-tube
	Water pressure drop	kPa	60	12	25	30
	Volume	L	10	42	64	99.5
	Water flow volume	m³/h	5.2	10.3	20.6	31
Refrigerant	Type		R410A	R410A	R410A	R410A
	Charged volume	kg	6	13	26	42
	Throttle type		EXV	EXV	EXV	EXV
Sound pressurer level <sup>4</sup>		dB(A)	65	67	70	74
Unit net dimension(DxHxW)		mm	1,514×1,865×841	2,000×1,880×900	2,000×2,080×1,685	2,850×2,110×2,000
Packing dimension(DxHxW)		mm	1,590×2,065×995	2,090×2,055×985	2,080×2,240×1,755	2,980×2,260×2,135
Net/ Gross weight		kg	380/400	580/650	1,180/1,300	1730/2,000
Pipe connections	Water inlet/outlet	mm	DN40	DN100	DN65	DN80
Controller			Wired controller	Wired controller	Wired controller	Wired controller
Maximum combinations			16	16	8	5
Ambient temperature range	Cooling	°C	10~52	10~52	10~52	10~52
	Heating	°C	-10~21	-10~21	-10~21	-10~21
Water outlet temperature range	Cooling	°C	5~17	5~17	5~17	5~17
	Heating	°C	45~50	45~50	45~50	45~50
Water outlet temperature range <sup>5</sup>	Cooling	°C	0~17(customized)	0~17(customized)	0~17(customized)	0~17(customized)
	Heating	°C	22~50(customized)	22~50(customized)	22~50(customized)	22~50(customized)

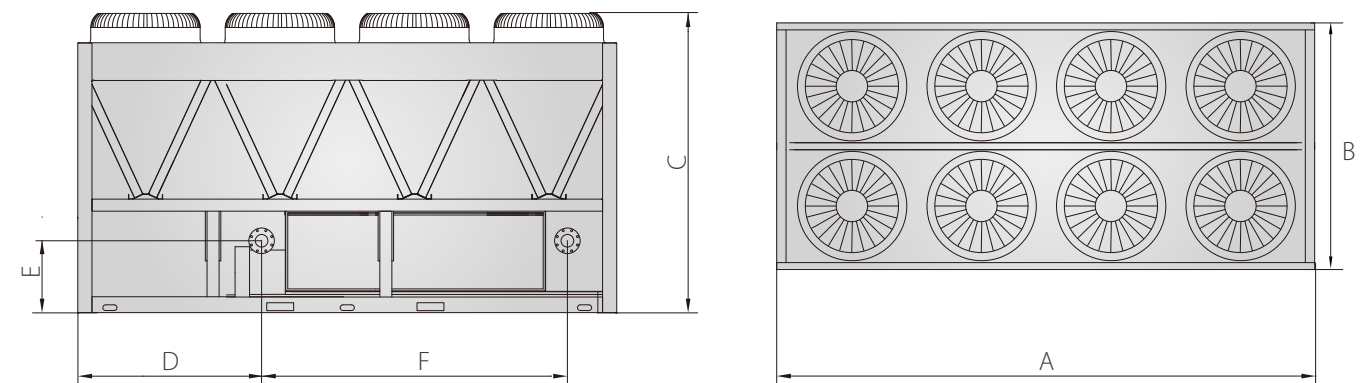
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2. Cooling : Water inlet/outlet: 12°C / 7°C, and outdoor ambient temp. of 46°C DB.  
3. Heating : Water inlet/outlet: 40°C/ 45°C, and outdoor ambient temp. 7°C DB/6°C WB.  
4. 1m away in open field.  
5. The data is for low water outlet temperature function. Under the using condition of this function, the system must be added antifreeze agent.



180/200kW module



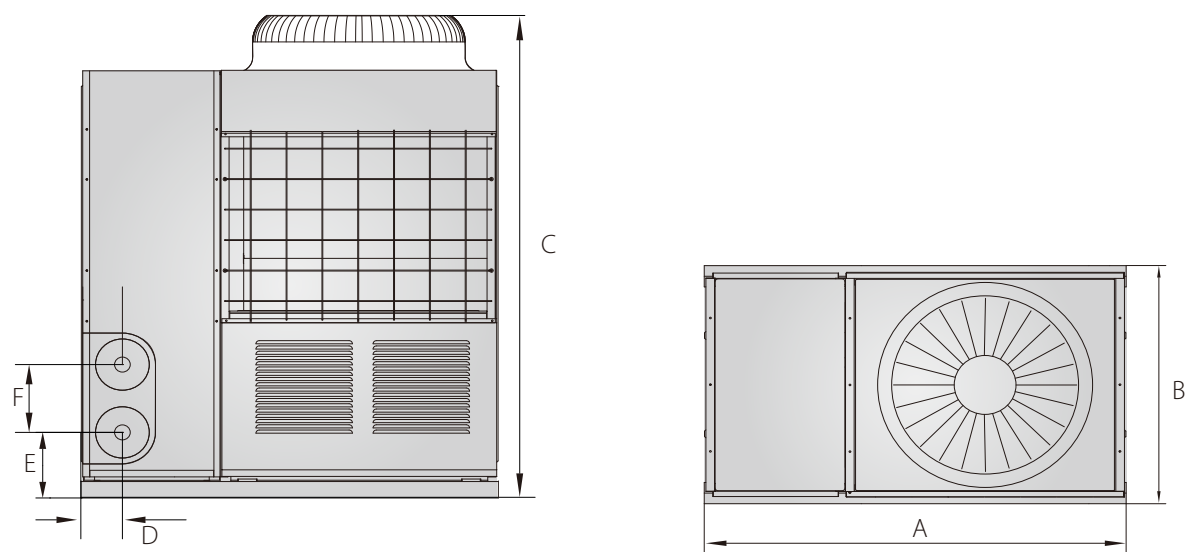
250kW module



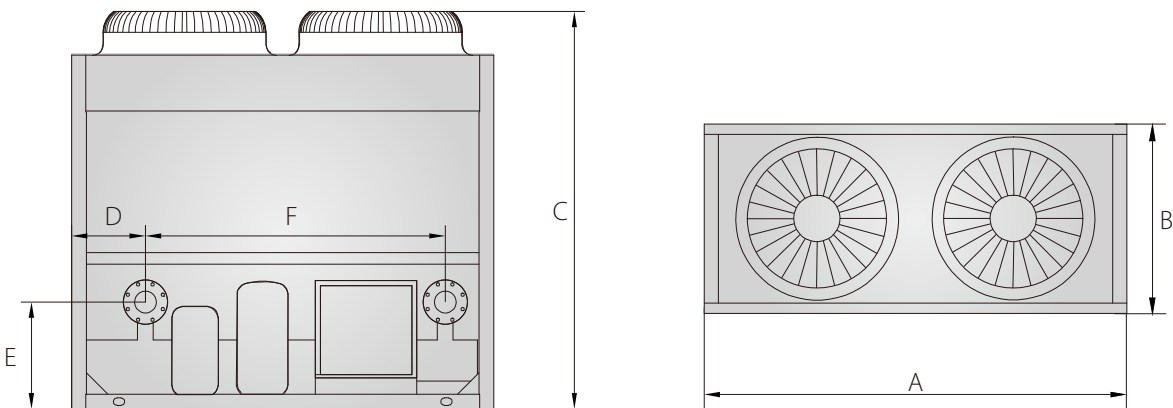
Model	A	B	C	D	E	F
MGBT-F30W/RN1 MGBT-F30W/DN1	1514	841	1865	115	315	172
MGBT-F60W/RN1 MGBT-F60W/DN1	2000	900	1880	350	506	1420
MGBT-F120W/RN1 MGBT-F120W/DN1	2000	1685	2080	350	506	1420
MGBT-F180W/RN1 MGBT-F180W/DN1	2850	2000	2110	347	506	2156
MGBL-F200W/RN1	2850	2000	2110	347	506	2156
MGBT-F250W/RN1 MGBL-F250W/RN1	3800	2000	2130	1235	573	2156

# Dimensions (Unit:mm)

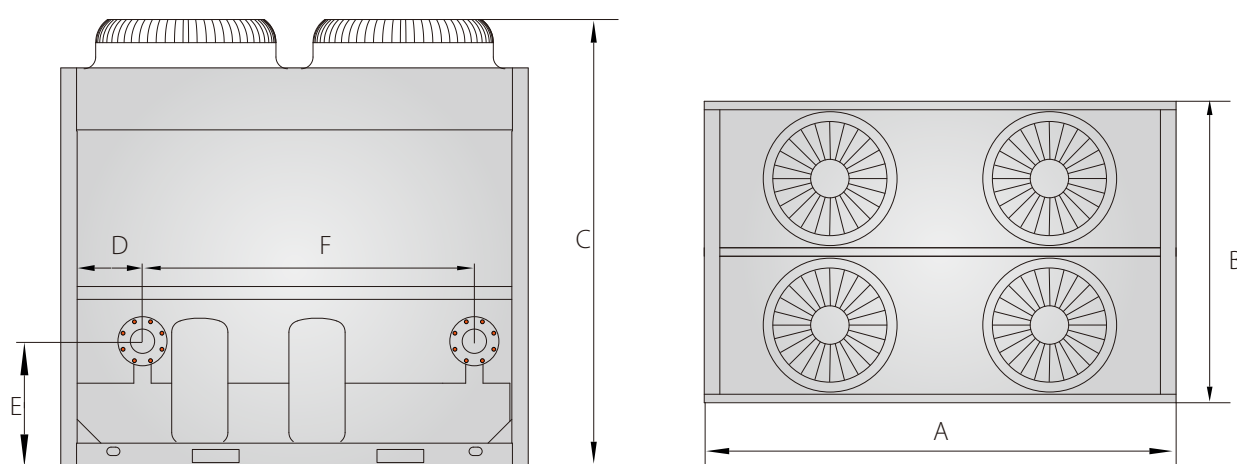
30kW module



60kW module



120kW module










# Aqua Tempo Super Series

Midea Aqua Tempo Super chillers use H shape heat exchanger at air side and single unit's capacity from 35kW to 130kW. Super chillers are divided to SS-LA and SP-HMLA series according to their inner components. SS-LA series use tube-in-tube or shell-tube heat exchanger and SP-HMLA series use plate type heat exchanger at water side. SP-HMLA series is product built-in with hydraulic module.

## Product Lineup

Capacity (kW)	35	65	80	130
Appearance				
Series				
SP-HMLA	●	/	/	/
SS-LA	●	●	●	●

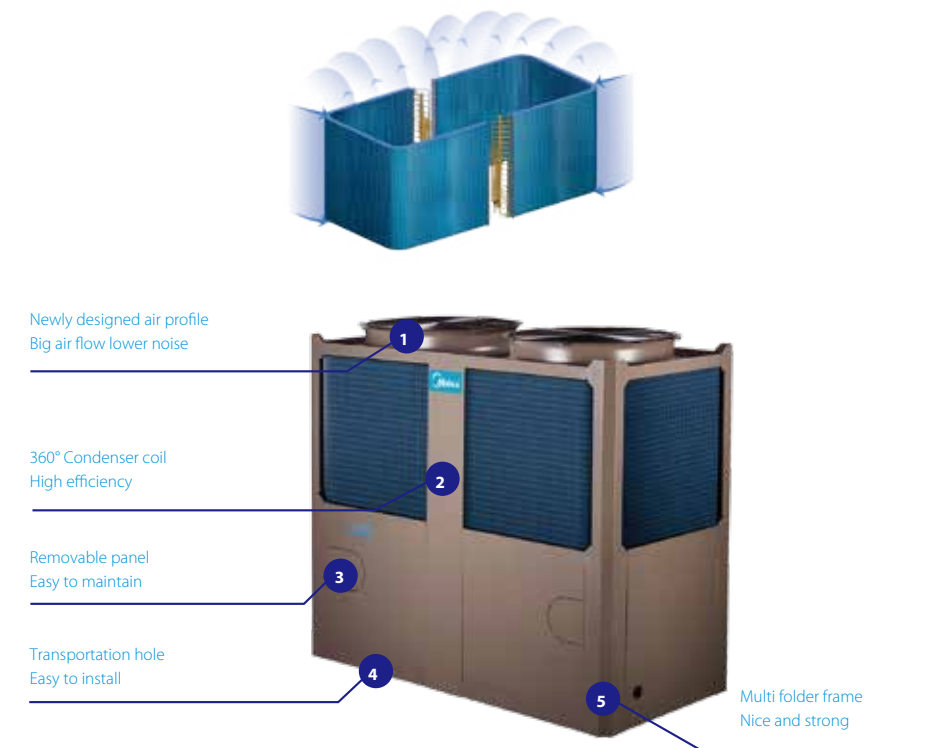
SP-HMLA: Super series built-in hydraulic module based on SP-LA series  
SS-LA: Super series with low ambient temperature cooling function



## Advanced technology

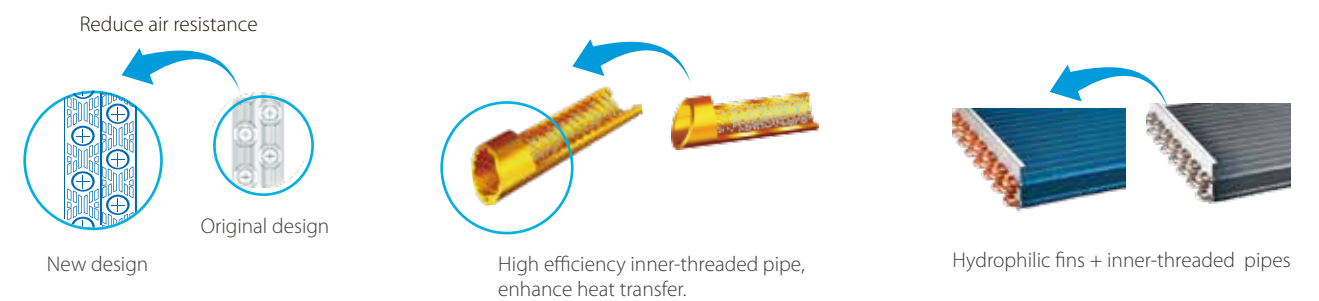
### ● H shape high performance heat exchanger

The chillers use new structure design, H shape condenser, 360° air intake, increase the heat exchanging area, efficiently enhance the heat exchange efficiency, and decrease the covering area.



H shape condenser uses inner grooved copper tube and hydrophilic aluminum foil, greatly improve the heat exchange efficiency.

### ● High performance heat exchanger



The new designed window fins enlarge the heat-exchanging area, decrease the air resistance, save more power and enhance heat exchange performance.

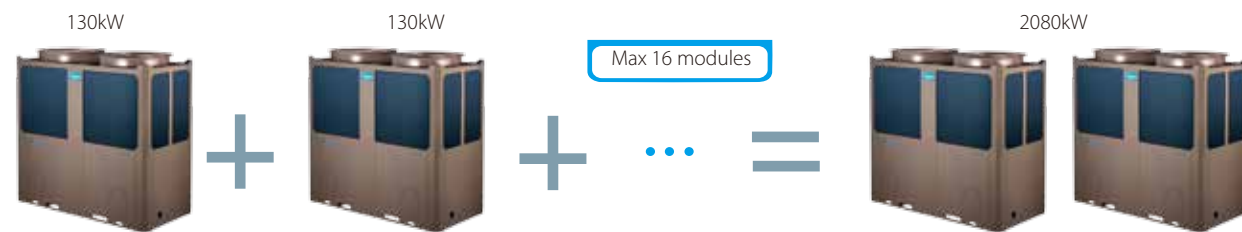
Hydrophilic film fins and inner-threaded copper pipes optimize heat exchange efficiency.

The specially coated blue fins enhance durability and protect against corrosion from air, water and other corrosive agents, assures a longer coil service life.

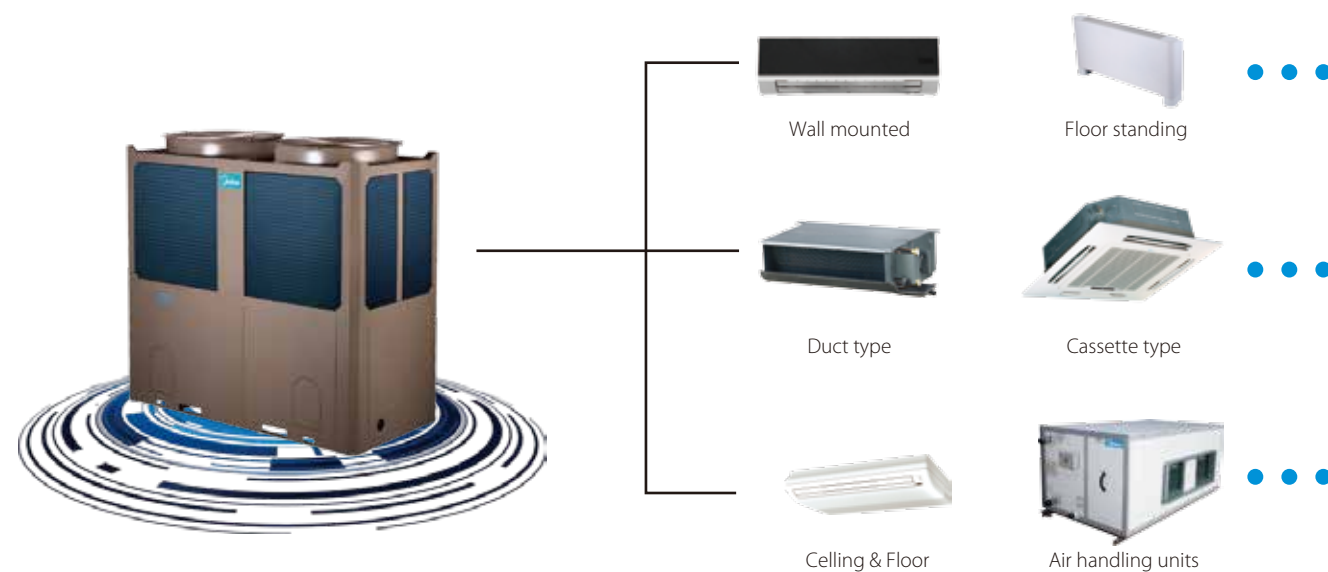
## Features

### Wide application range

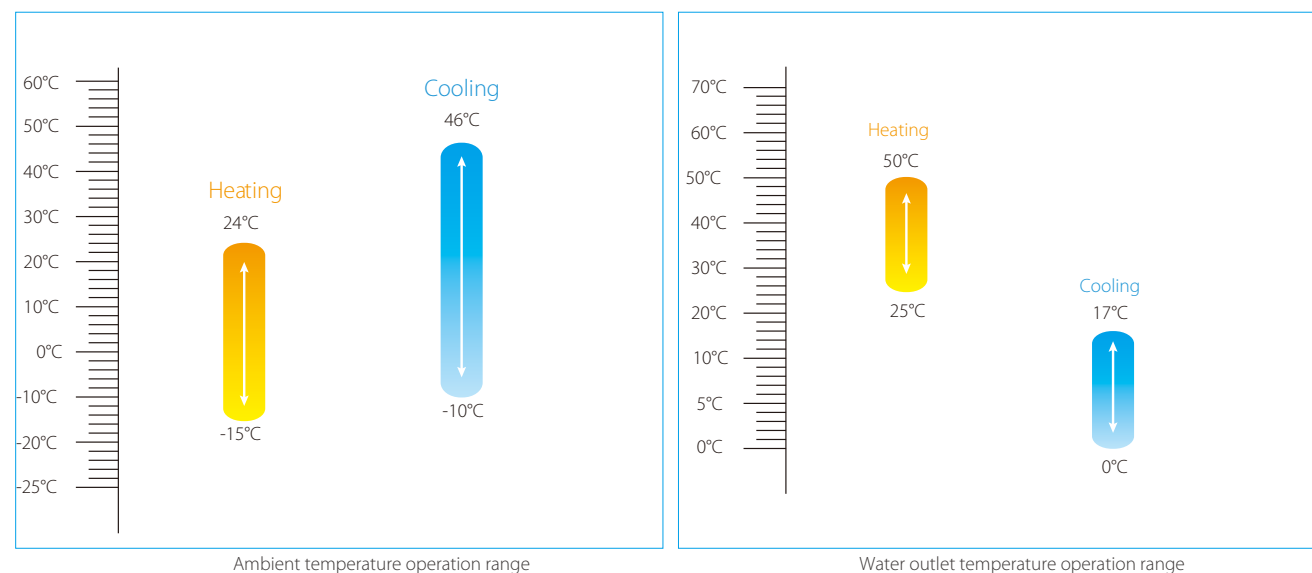
- Aqua Tempo Super chillers with cooling capacity ranging from 35kW to 130kW, combination model's maximum capacity ups to 2080kW.



- Freely combine with fan oil units and air handling units. Home owners may choose the best types according to their functional needs.



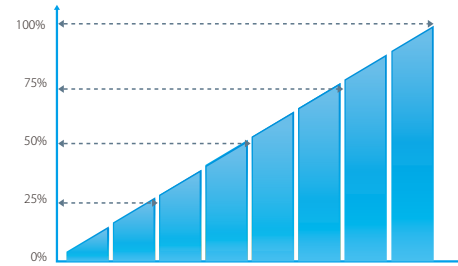
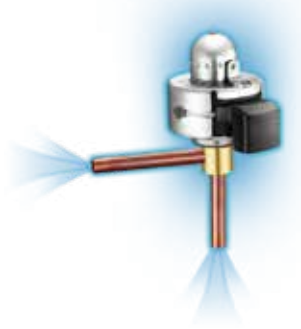
- Wide ambient temperature and water outlet temperature operation ranges





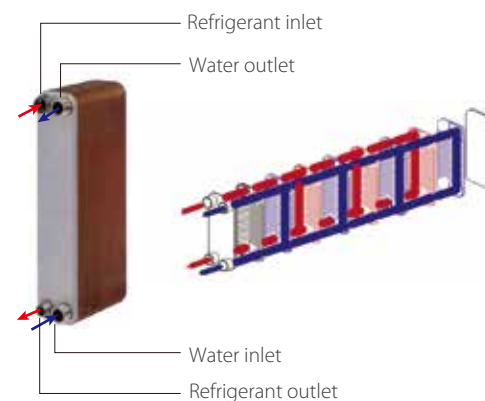
### ● EXV for more precisely flow control

Patented liquid distribution components to maximize performance and minimize defrost impact.  
500 steps EXV plus capillary for stable and accurate gas flow control.  
Fast respond resulting in higher efficiency and improved reliability.



### ● High efficiency plate heat exchanger (For SP-HMLA series)

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.

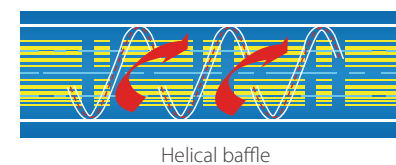
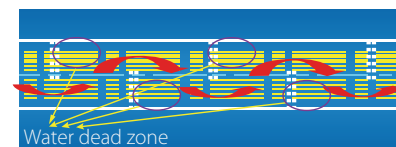


### ● Tube-in-tube & shell-tube heat exchanger

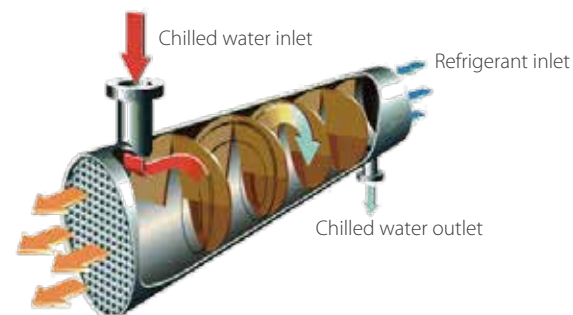


Inner grooved copper pipe, increase area of heat exchanger, improve efficient.

Anti-corrosion shell increases the useful life of heat exchanger.



Refrigerant outlet



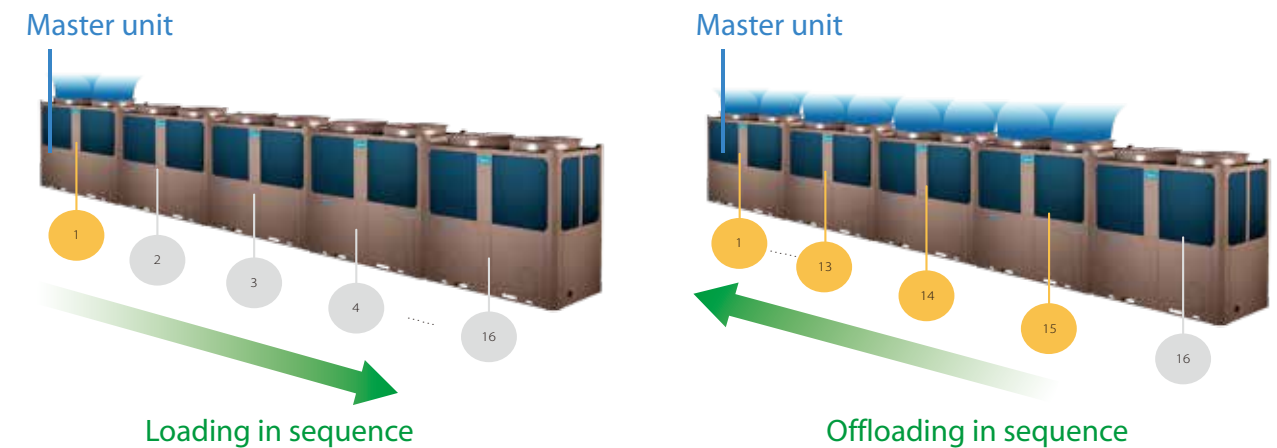
For shell-tube heat exchanger, the module adopts the new helical baffle design to avoid the rectangular place of water dead zone, greatly improve the heat exchange efficiency.

## High reliability

### ● Alternative cycle duty operation

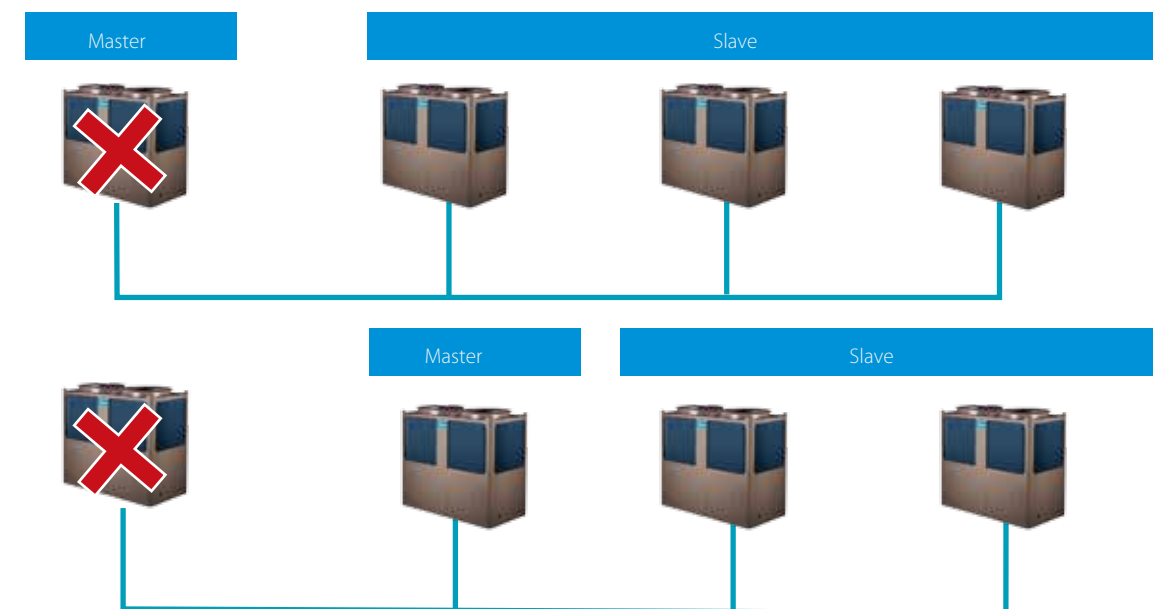
In one combination module, all slave units operate as alternative in cycle duty to keep equal running time, realize higher stability, better reliability and longer lifespan.

For example, five modules combination, no.1 is master unit, others are slave units.



### ● Back-up functions

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



### ● Reliable protections

Multiple protections are adopted to ensure system stable running.



High/low pressure protection of compressor



Power phases sequence protection



Evaporator low temperature protection in cooling



System anti-freezing protection in winter



Frequently ON/OFF protection of compressor



Over-current protection of compressor



Discharge temperature protection of compressor



System high temperature protection



Water flow protection

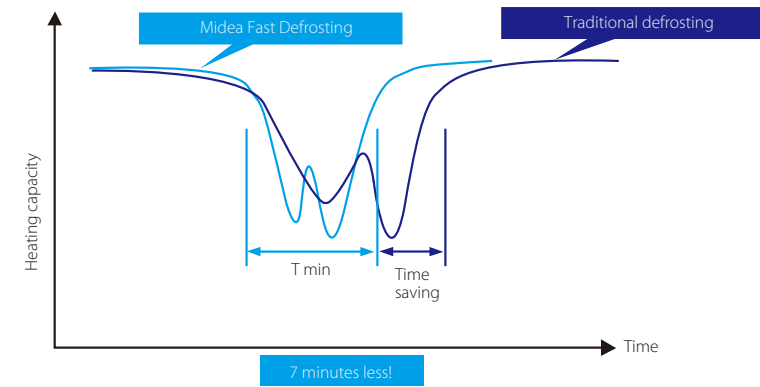


Sensor malfunction protection



● Intelligent defrosting technology

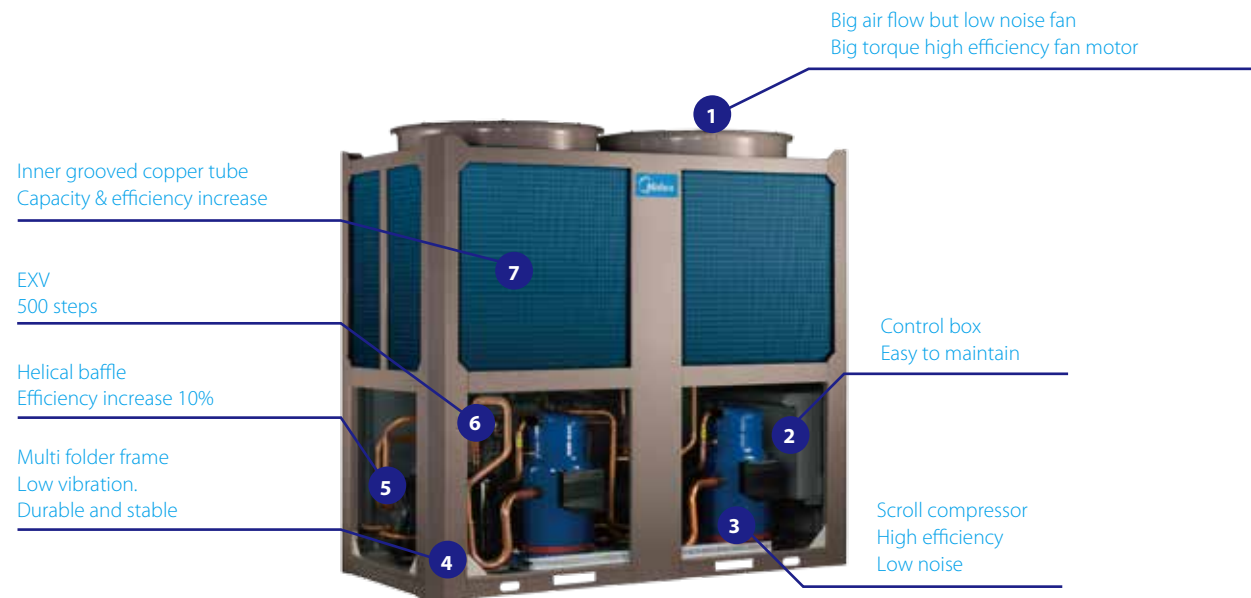
Model alternative defrosting technology ensures little fluctuation on water temperature. Manual defrosting program is available for service purpose.



Flexible installation

● Compact structure design

Super power chiller uses compact structure design, light weight, easy for transportation and installation.

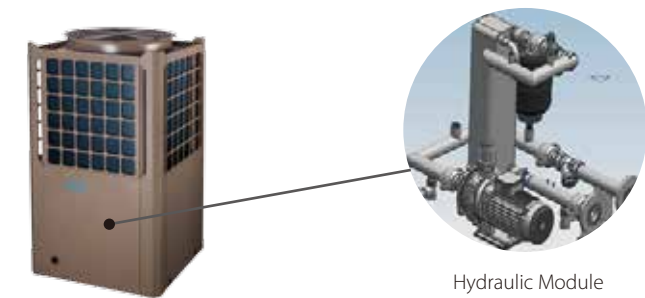


Compact design saves space and transportation cost.



● Built-in hydronic module

For SP-HMLA series, built-in hydraulic module products are available. The modules are fully integrated and built-in expansion tank, plate heat exchanger, water circulating pump, etc. It saves you much installation space and cost.



Easy control

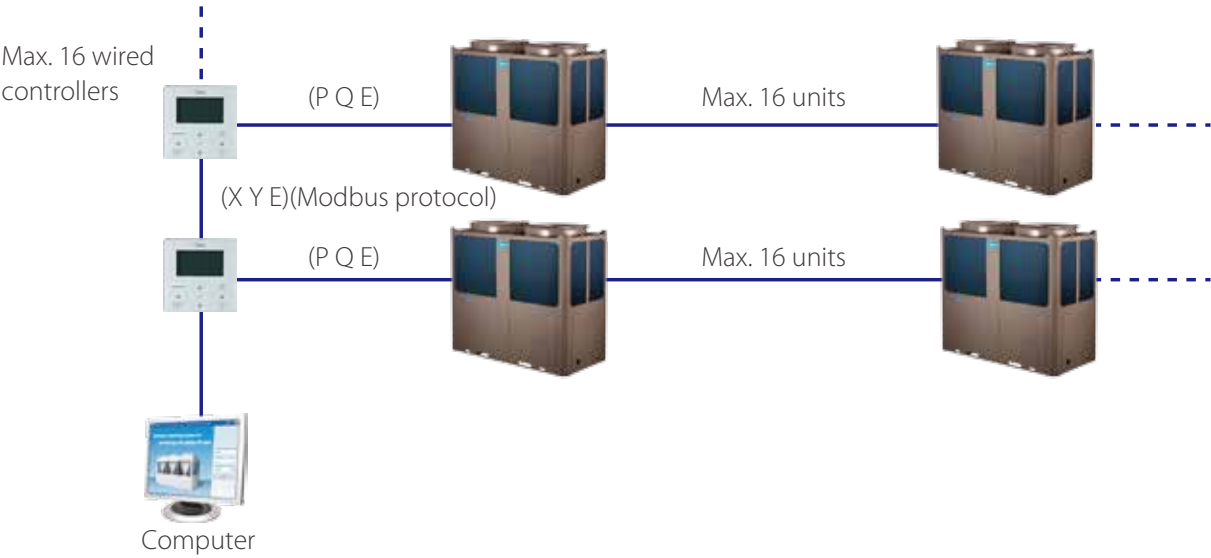
- Touch key wire controller as standard accessory to control the chillers.



Model	KJRM-120D/BMK-E(standard)	KJR-120A/MBTE(optional)
Appearance		
Main Functions	Touch key operation Parameter setting and LCD display Real time clock control. Multiple timer Power-off memory function Modbus(Customized) Address setting Parallel function Buzzer prompt tone and alarm function	Mechanical butoon Parameter setting and LCD display Real time clock control. Multiple timer Power-off memory function Modbus(Customized) Address setting Parallel function Weekly timing function
Max. connection PCBs	16	16

● 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 KJRM-120D/BMK-E. It can connect Max. 16 wired controllers and each controller can control Max. 16 units.



● Remote control functions for convenient operation

There are ON/OFF, Heat/Cool and 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 ON/OFF and mode selection.

Specifications

SP-HMLA & SS-LA series

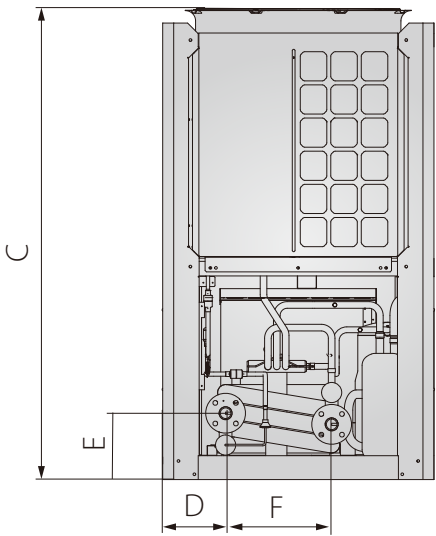
Model			MC-SP35M-RN1L	MC-SS35/RN1L	MC-SS65/RN1L	MC-SS80/RN1L	MC-SS130/RN1L
Series			SP-HMLA	SS-LA	SS-LA	SS-LA	SS-LA
Power supply		V/Ph/Hz	380-415/3/50	380-415/3/50	380-415/3/50	380-415/3/50	380-415/3/50
Cooling <sup>1</sup>	Capacity	kW	35	35	65	80	130
	Input	kW	12.7	11.5	20.4	25.8	42.3
	EER		2.76	3.04	3.19	3.10	3.07
Heating <sup>2</sup>	Capacity	kW	38	37	69	85	138
	Input	kW	12.5	11.3	21.5	26.5	43
	COP		3.04	3.27	3.21	3.21	3.21
Max. running current		A	32.1	27.0	54.5	65	109
Compressor	Type		Fixed Scroll	Fixed Scroll	Fixed Scroll	Fixed Scroll	Fixed Scroll
	Quantity	Pieces	1	1	1	2	2
Air side heat exchanger	Type		Finned tube	Finned tube	Finned tube	Finned tube	Finned tube
	Fan motor type		AC Motor	AC Motor	AC Motor	AC Motor	AC Motor
	Quality of fan motor	Pieces	1	1	2	2	2
	Air flow	m³/h	13,500	13,500	27,000	27,000	50,000
Water side heat exchanger	Type		Plate	Tube-in-tube	Shell-tube	Shell-tube	Shell-tube
	Water pressure drop	kPa	63	55	30	30	40
	Volume	L	2.77	10	35	47.5	60
	Water flow volume	m³/h	6	6	11.2	13.8	22.4
Refrigerant	Type		R410A	R410A	R410A	R410A	R410A
	Charged volume	kg	5.4	5.4	10.5	13	21
	Throttle type		EXV	EXV	EXV	EXV	EXV
Sound pressurer level <sup>3</sup>		dB(A)	64	65	67	67	68
Unit net dimension(DxHxW)		mm	1,020x1,770x980	1,020x1,770x980	2,000x1,770x960	2,000x1,770x960	2,200x2,060x1,120
Packing dimension(DxHxW)		mm	1,070x1,900x1,030	1,070x1,900x1,030	2,090x1,890x1,030	2,090x1,890x1,030	2,250x2,200x1,180
Net/Gross weight		kg	343/353	320/330	530/590	645/710	965/1,035
Pipe connections	Water inlet/outlet	mm	DN40	DN40	DN65	DN65	DN65
Controller			Wired controller	Wired controller	Wired controller	Wired controller	Wired controller
Ambient temperature range	Cooling	°C	-10~46	-10~46	-10~46	-10~46	-10~46
	Heating	°C	-15~24	-15~24	-15~24	-15~24	-15~24
Water outlet temperature range	Cooling	°C	5~17	5~17	5~17	5~17	5~17
	Heating	°C	40~50	40~50	40~50	40~50	40~50
Water outlet temperature range <sup>4</sup>	Cooling	°C	0~17	0~17	0~17	0~17	0~17
	Heating	°C	25~50	25~50	25~50	25~50	25~50

1. Cooling: Chilled water inlet/outlet temperature: 12/7°C, outdoor ambient temperature 35°C DB.  
2. Heating: Warm water inlet/outlet temperature: 40/45°C, outdoor ambient temperature 7°C DB/6°C WB.  
3. 1m away in open field.  
4. The data is for low water outlet temperature function

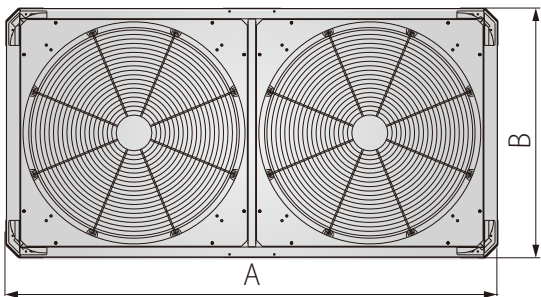
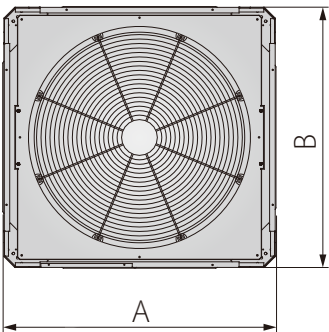
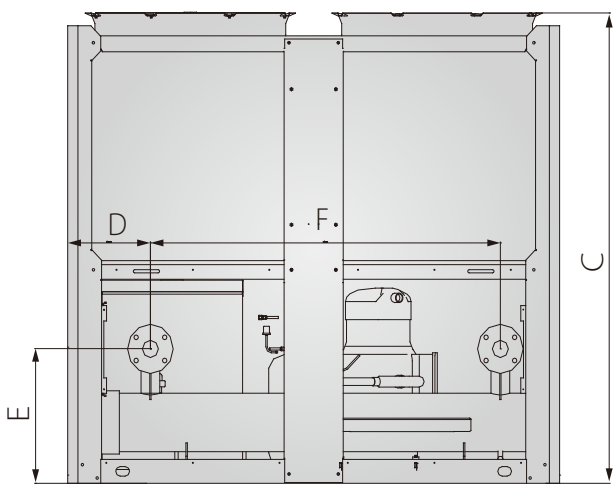


Dimensions (Unit:mm)

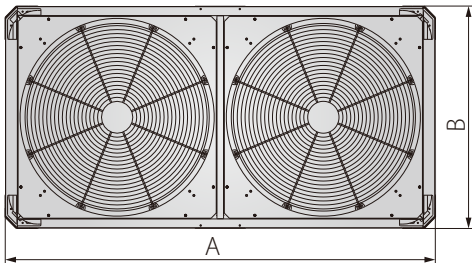
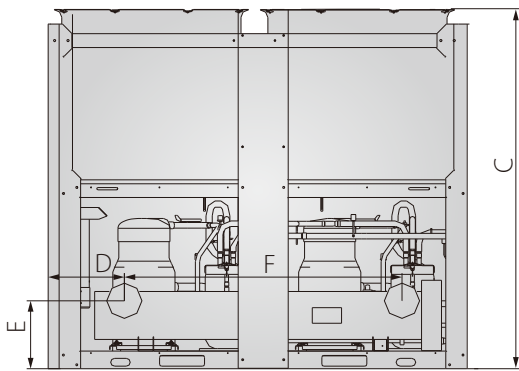
MC-SS35/RN1L



MC-SS65/RN1L  
MC-SS80/RN1L

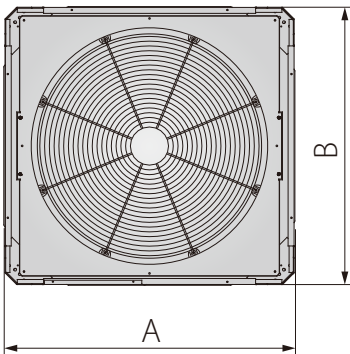
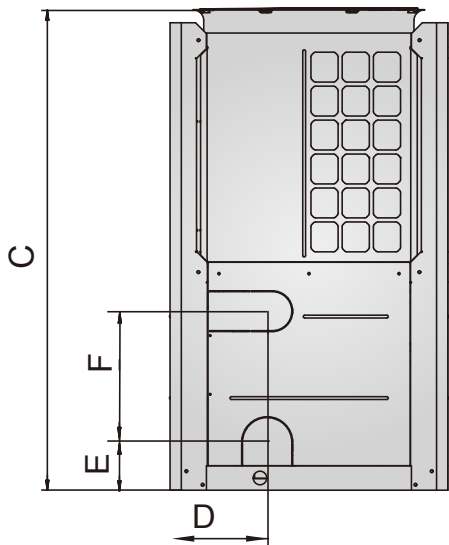


MC-SS130/RN1L



Model	A	B	C	D	E	F
MC-SS35/RN1L	1020	980	1770	237	250	400
MC-SS65/RN1L MC-SS80/RN1L	2000	960	1770	336	506	1420
MC-SS130/RN1L	2200	1120	2060	390	347	1420

MC-SP35M-RN1L



Model	A	B	C	D	E	F
MC-SP35(M)-RN1L	1020	980	1770	303	181	481





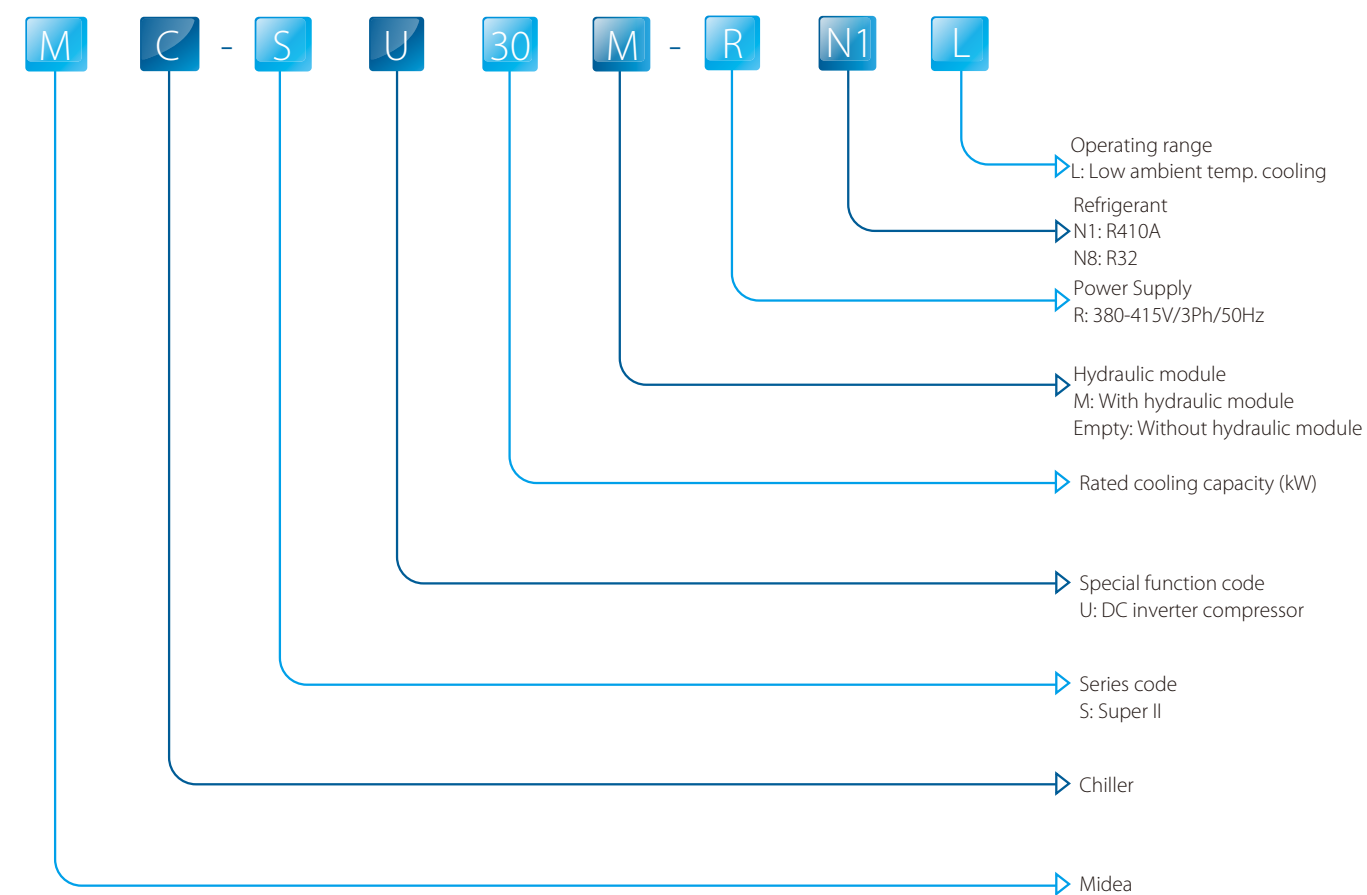
## Aqua Tempo Super II Series

Aqua Tempo Super II Series adopt R410A and R32 refrigerant, all of which can operate in cooling mode with ambient temperatures of up to 43° C and with outlet water temperature as low as 5° C. Modular design concept makes the application from single unit to multiple units. Maximum combination air-cooled scroll system's cooling capacity ups to 1440kW. The water flow switch and wired controller are both built-in, making installation more convenient. A hydraulic module with water pump can be added as a customization option to meet special installation situation requirements.

- High Efficiency
- Wide Application Range
- Advanced Technology
- Enhanced Comfort
- Easy Control
- High Reliability
- Easy Installation







Product lineup

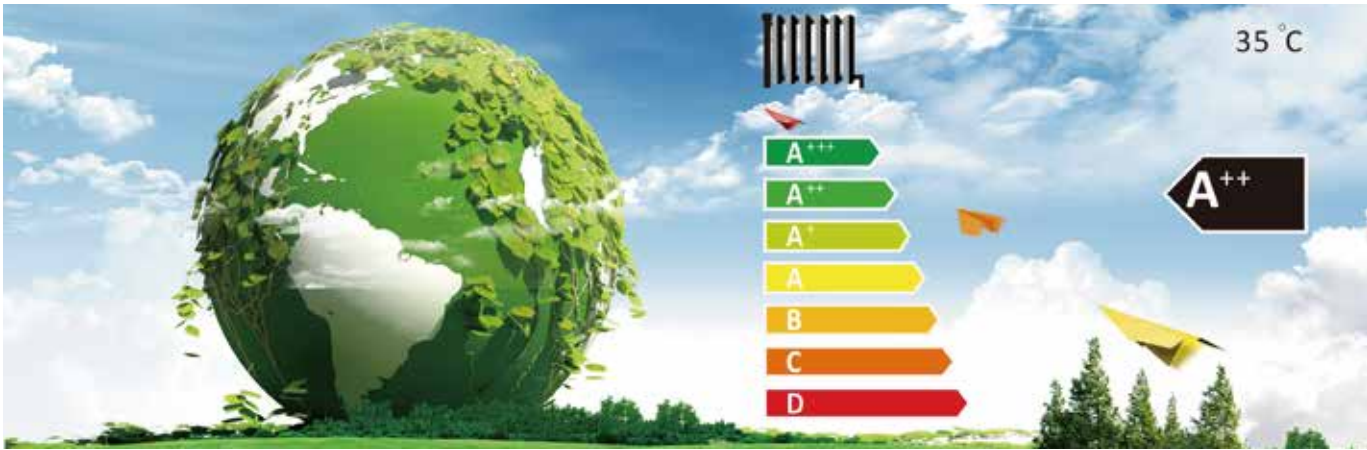
Capacity(kW)	30	60	90
Appearance			
380-415V/3Ph/50Hz	<div><div></div><div></div></div>	<div><div></div><div></div></div>	<div><div></div></div>

● R410A (With/Without hydraulic module)  
● R32 (With/Without hydraulic module)

High Efficiency

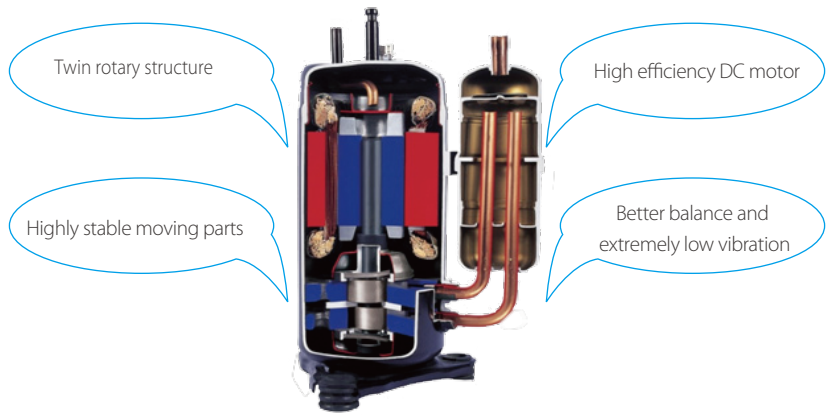
A++ rated energy efficiency

The Aqua Tempo Super II Series DC inverter air-cooled chillers are compliant with the EU’s Energy-Related Products Directive (2009/125/EC) and all have A++ or A+ seasonal space heating energy efficiency ratings.

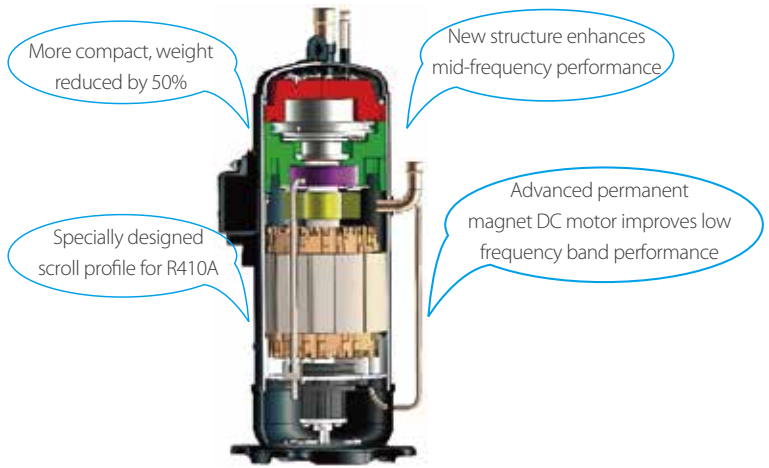


Compressor

At the heart of the chiller lies a world-leading DC inverter compressor. The compressor’s innovative design and numerous high performance features reduce power consumption by 25%.



Compressor for MC-SU30(M)-RN1L, MC-SU60(M)-RN1L, MC-SU30(M)-RN8L and MC-SU60(M)-RN8L

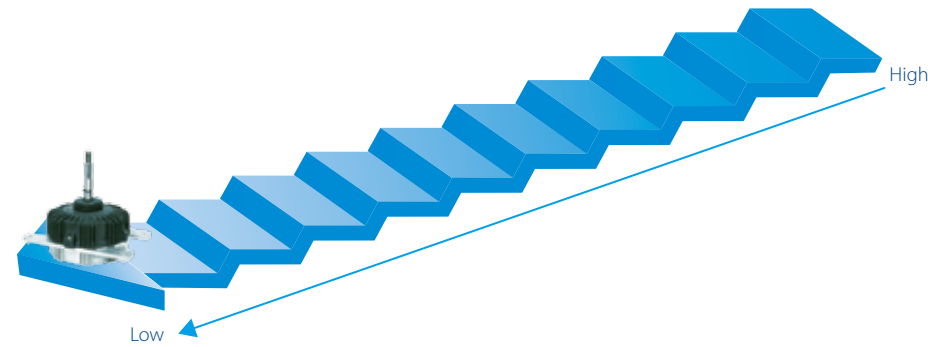


Compressor for MC-SU90(M)-RN1L

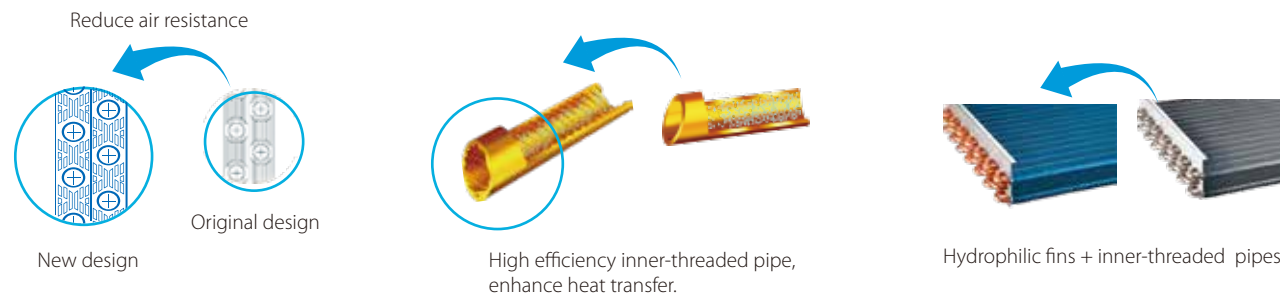


## DC fan motors

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



## High performance heat exchanger



Chillers use new structure design "I shape" condenser. The manufacturing process of I shape heat exchanger is simple, which increases production efficiency and product reliability.

The new designed window fins enlarge the heat-exchanging area, decrease the air resistance, save more power and enhance heat exchange performance.

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.

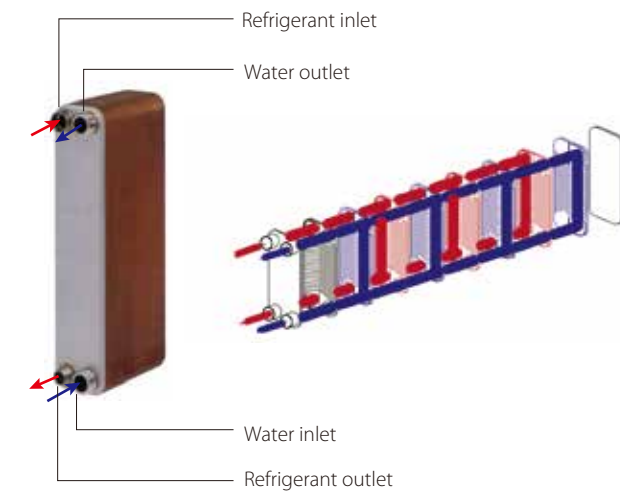
## High performance heat exchanger design



Efficient fan motor, well-designed air duct and uniform wind field make heat exchange of the whole system more thorough.

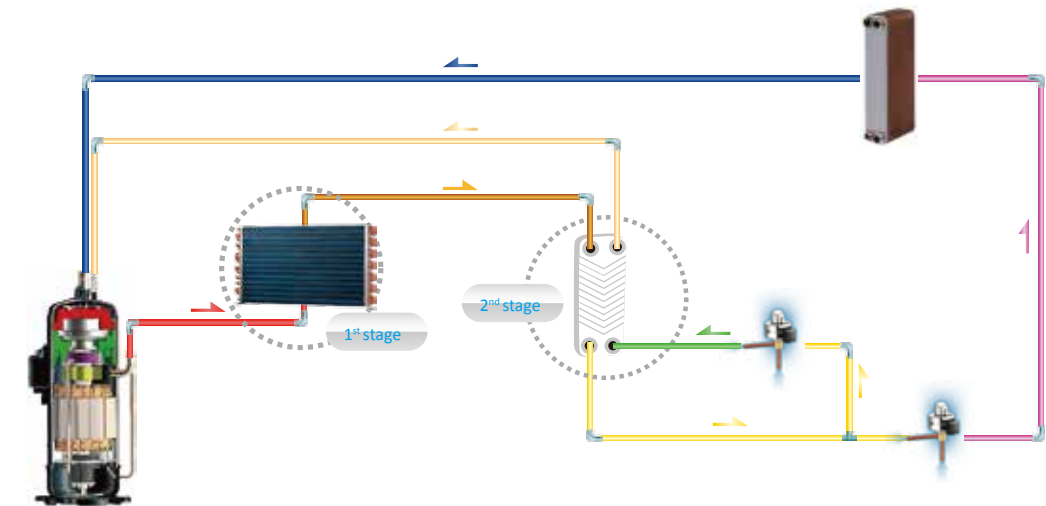
## High efficiency plate heat exchanger

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.



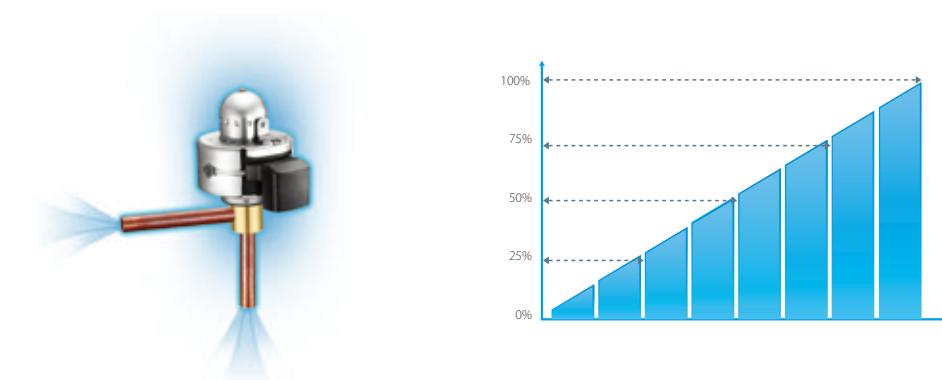
## Plate Heat Exchanger Subcooling

For MC-SU90(M)-RN1L, Plate Heat Exchanger as a secondary intercooler boosts up refrigerant subcooling and improves 10% energy efficiency.



## Precisely 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.

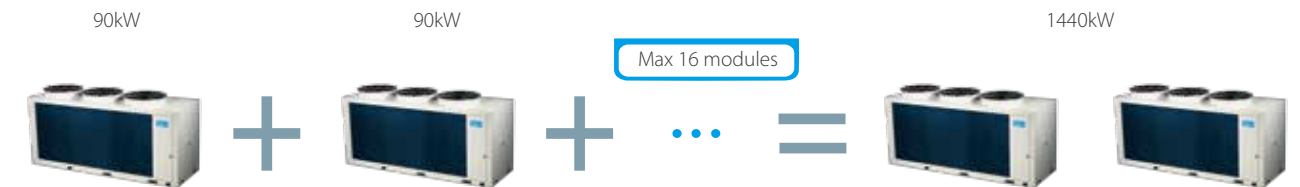




# Wide Application Range

## Flexibility

Modular design allows up to 16 units to be connected together, giving a system cooling/heating capacity range of 30kW to 1440kW.

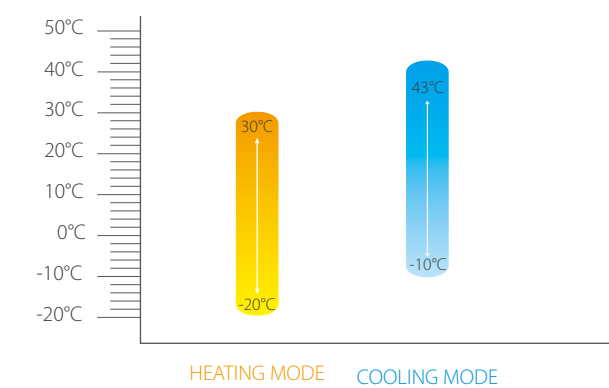


Compatible with fan coil units and air handling units.



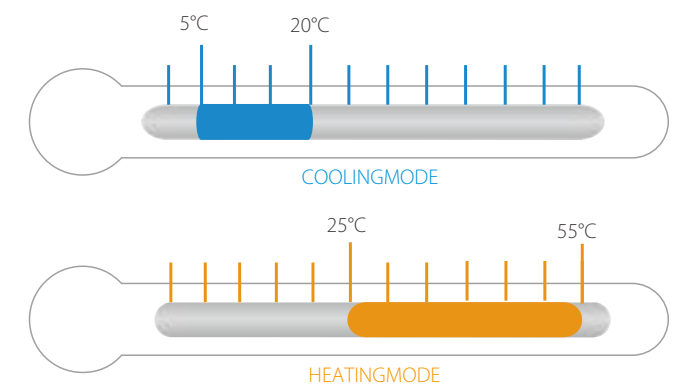
## Ambient temperature

Stable operation even under extreme conditions: -20°C to 43°C.



## Outlet water temperature

Wide outlet water temperature range with lowest outlet temperature in cooling mode of 5°C.



## Refrigerant

MC-SU30(M)-RN8L and MC-SU60(M)-RN8L use R32 refrigerant, which is a kind of environmentally friendly refrigerant.



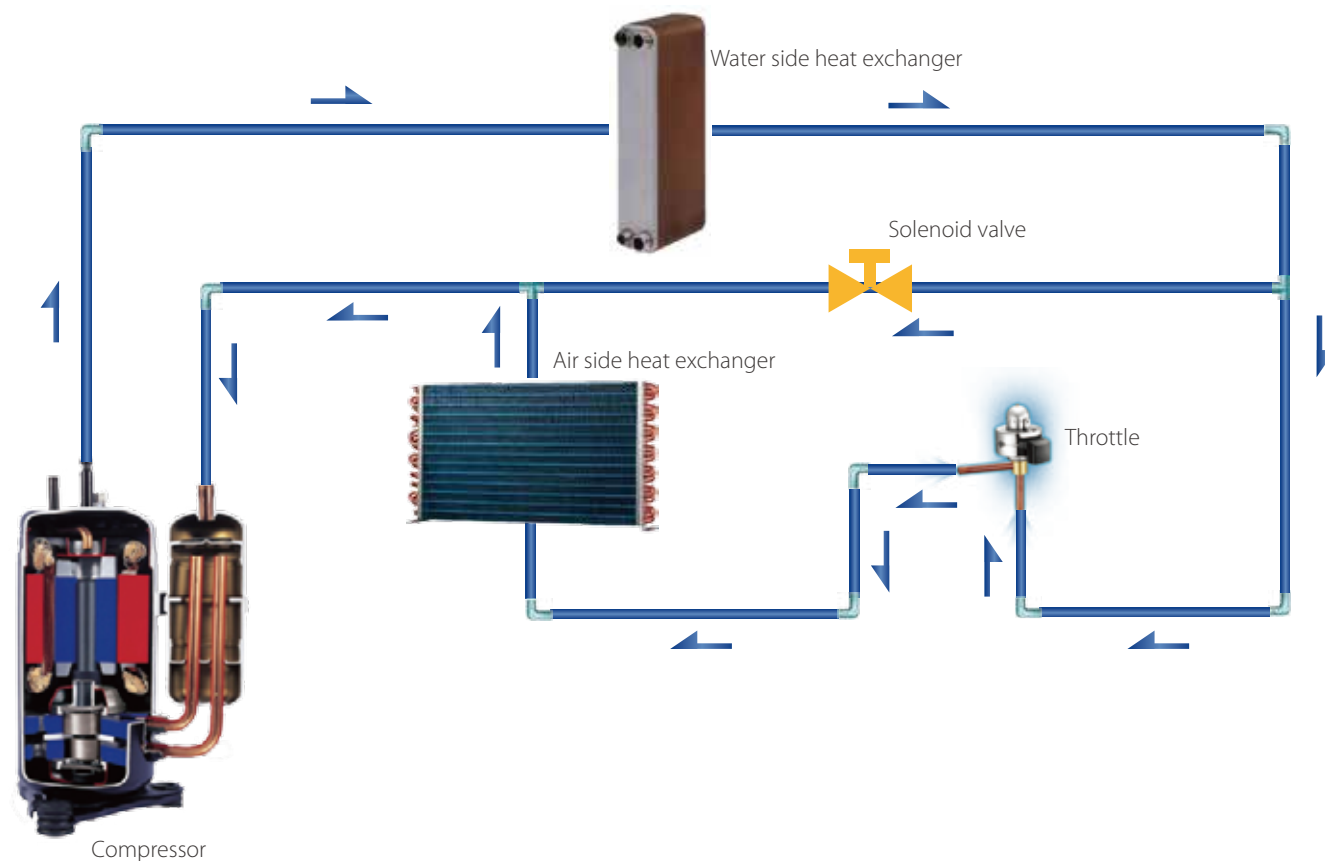
- Low GWP and carbon emission
- Better performance under severe conditions
- Less charged volume is needed in the system
- Lowcost and higher coefficient of heat transfer

Abbreviations:

GWP: Global warming potential

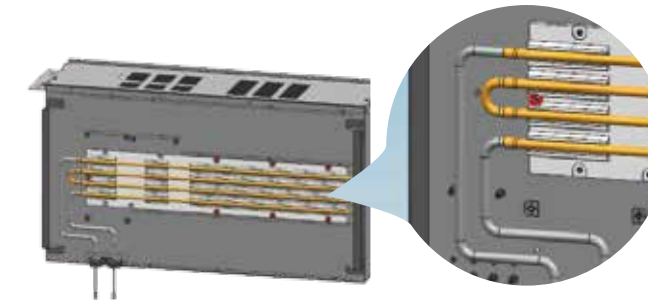
## Spray liquid cooling control

Spray liquid cooling control, which is used for enhancing heating capacity in low temperature condition, only applies to MC-SU30(M)-RN8L and MC-SU60(M)-RN8L.



## Refrigerant Cooling PCB

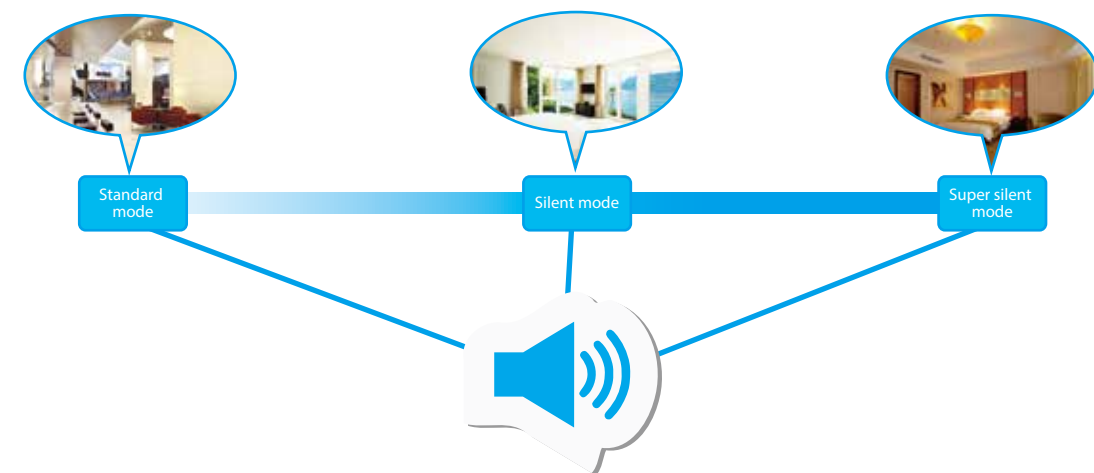
The MC-SU90(M)-RN1L uses refrigerant cooling technology to cool the electric control box. It decreases the average temperature of electrical control components by about 8 degrees, guaranteeing the stable and safe running of the control system.



## Enhanced Comfort

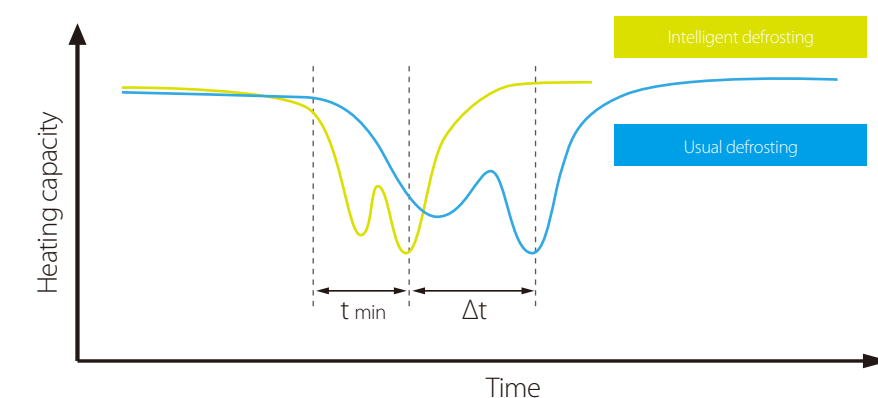
### Multiple silent modes

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



### 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.



## Advanced Technology

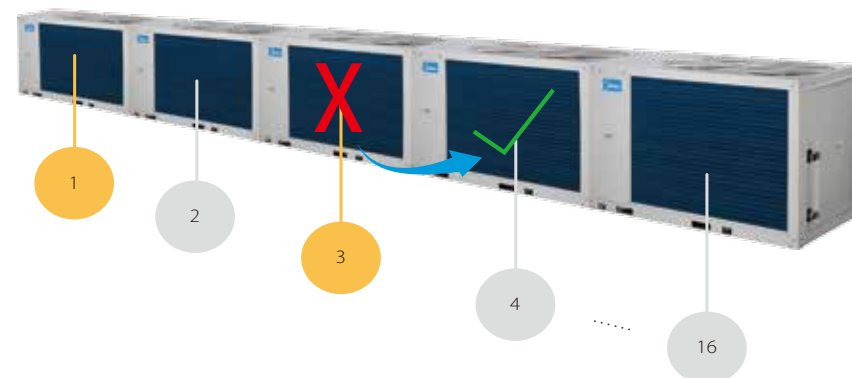
### Loading and offloading

Loading and offloading for multiple units system



### Back up

In a multi-unit system, if one module fails, the other modules provide backup so that the system can continue operating.

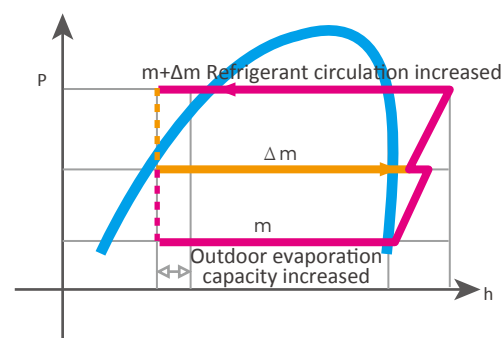


### Enhanced Vapor Injection (EVI) Compressor

Thanks to the vapor injection DC inverter compressor, the MC-SU90(M)-RN1L can run heating mode stably down to  $-20^{\circ}\text{C}$ , and the heating capacity can be improved greatly.



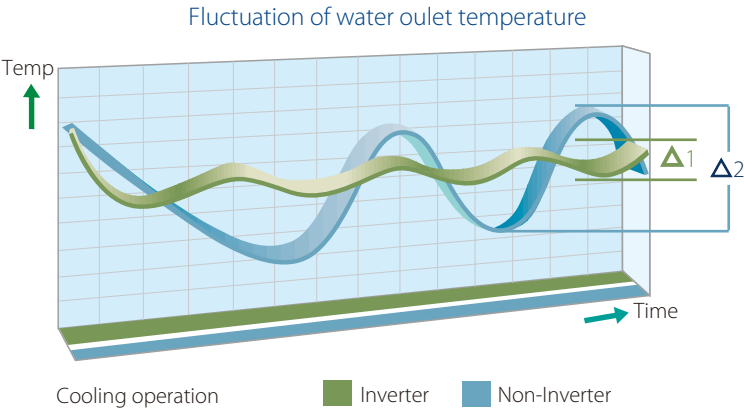
EVI compressor





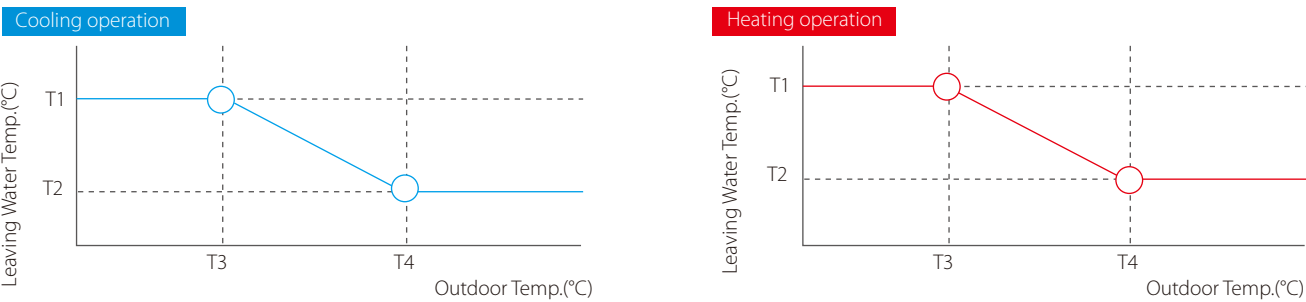
Rapid cooling or heating

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



Temperature Compensation

Weather dependent operation with climate correlation to ensure absolute comfort. Once parameters are selected, the unit set the outlet water temperature automatically according to the outdoor ambient temperature.



Easy Control

Easy control

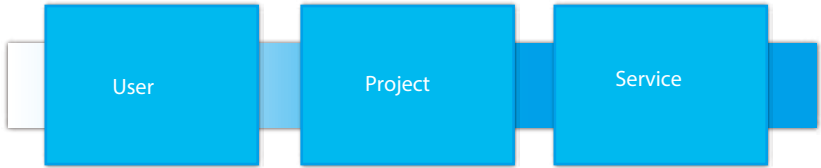
- Touch key wire controller as standard accessory to control the chillers.



Model	KJRM-120H/BMWK03-E
Appearance	
Main Functions	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
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.



Additional control

ON/OFF, Cool/Heat and Alarm ports on chiller PCBs allow switches to be connected to enable additional remote control functionality.



Note: When the additional control functionality is added, the ON/OFF control and mode selection functionality of the wired controller is disabled.

## 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 overall useful life. 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

### Electric control box case

Standard products:  
96h of neutral salt mist

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



Heat exchanger aluminum foil  
Standard products:  
72h 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:  
120h of neutral salt mist

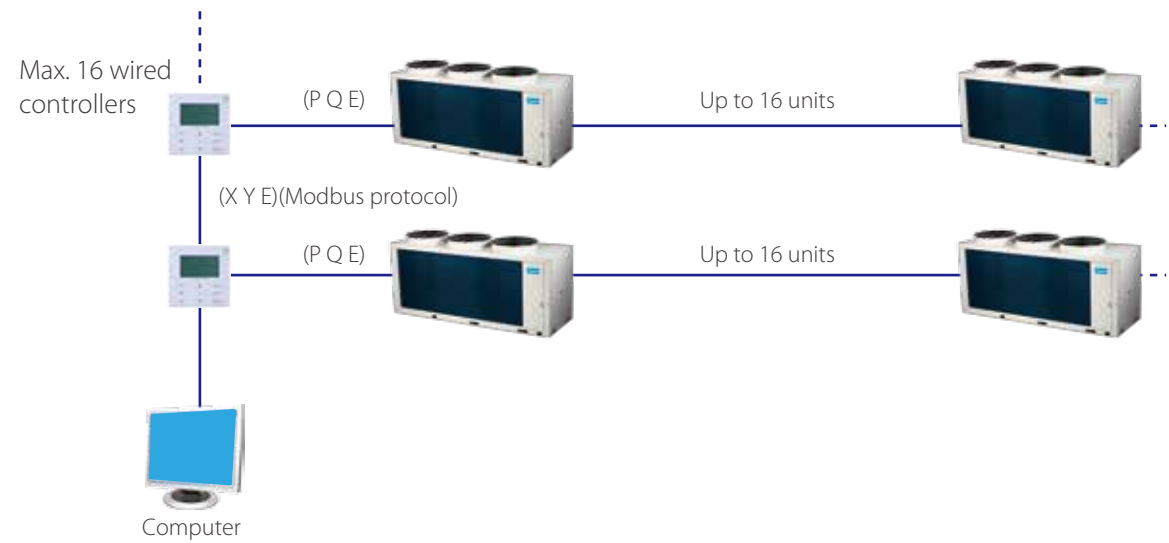
## Anti-snow mode (R32 Series only)

In snowy weather, with the help of Anti-snow mode, units intermittently turns on fans to stop snow from accumulating on the top of units to guarantee normal operation next time.



## Modbus function

Modbus is an open protocol that is widely used, especially in BMS building control systems. It can connect Max. 16 wired controllers and each controller can control Max. 16 units.

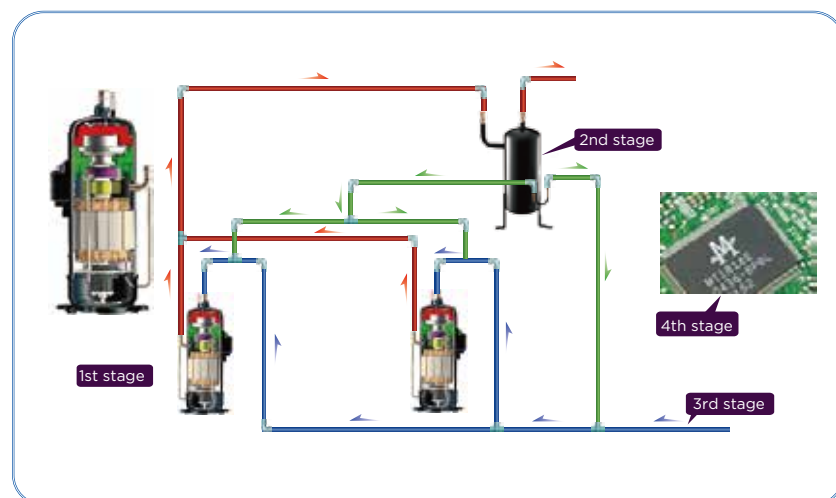


## High Reliability

### 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.





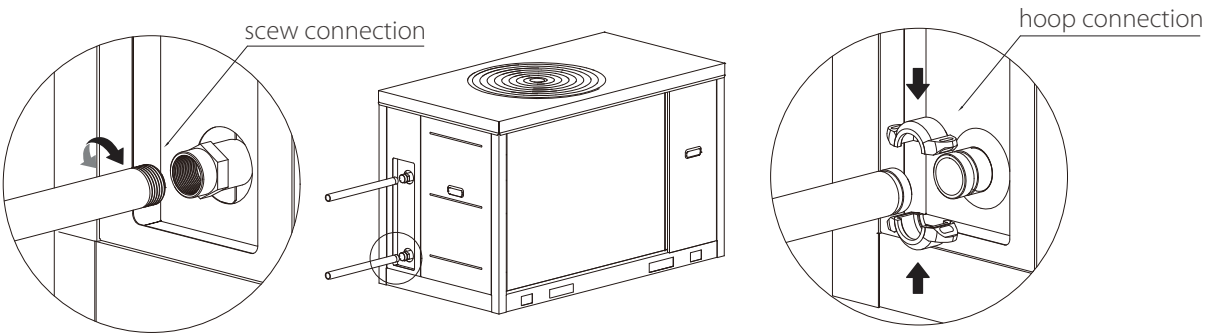
# Easy Installation & Maintaince

## Built-in components



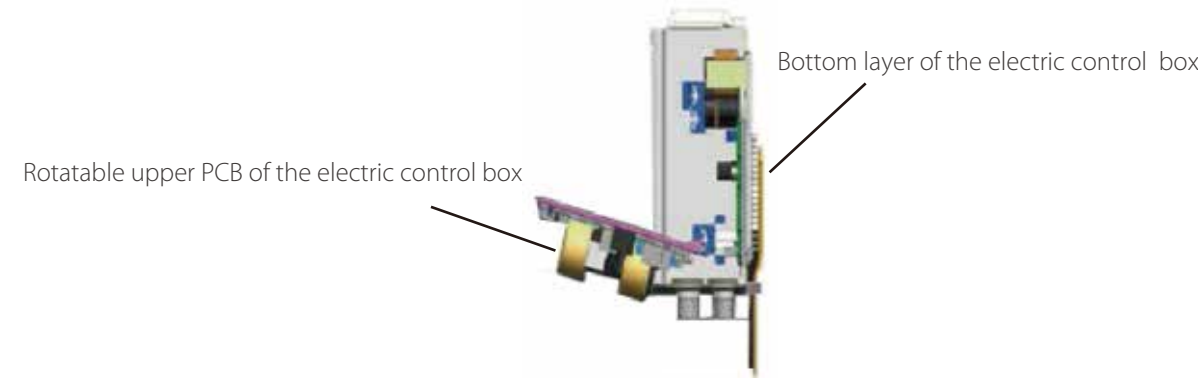
## Water pipe connection

Only water piping installation is needed, no need to install refrigerant piping. MC-SU30-RN1L and MC-SU30-RN8L use screwed connection, while MC-SU60-RN1L, MC-SU90-RN1L and MC-SU60-RN8L use hoop connection.



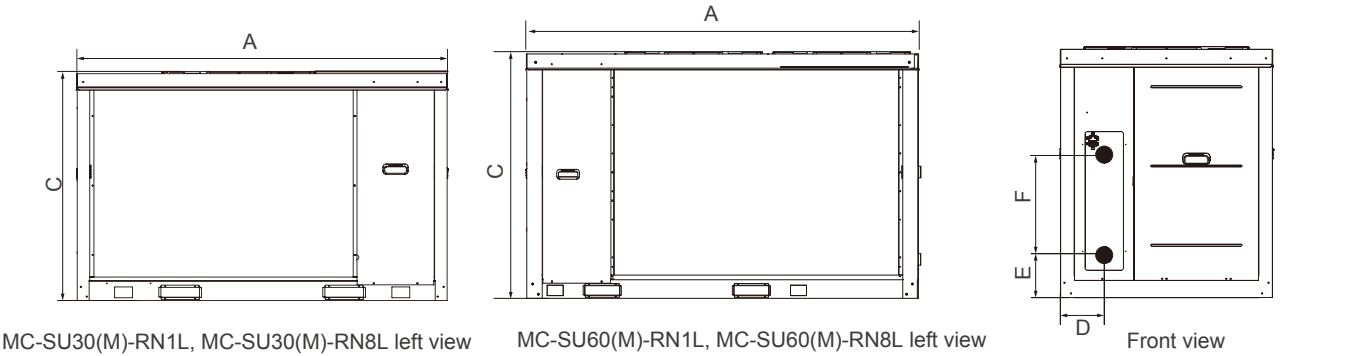
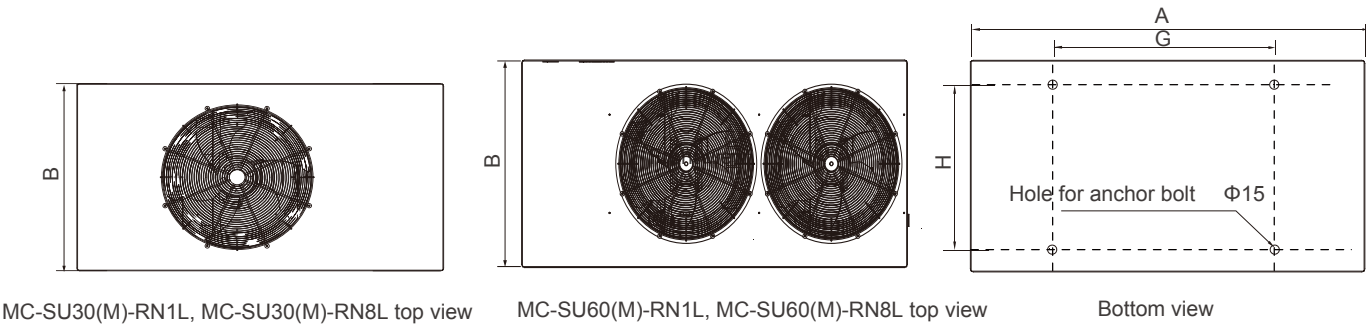
## Rotatable PCB

The bottom layer can be easily achieved through the rotatable upper PCB, making the maintenance easier. For R32 series, the electric control box uses explosion-proof design.

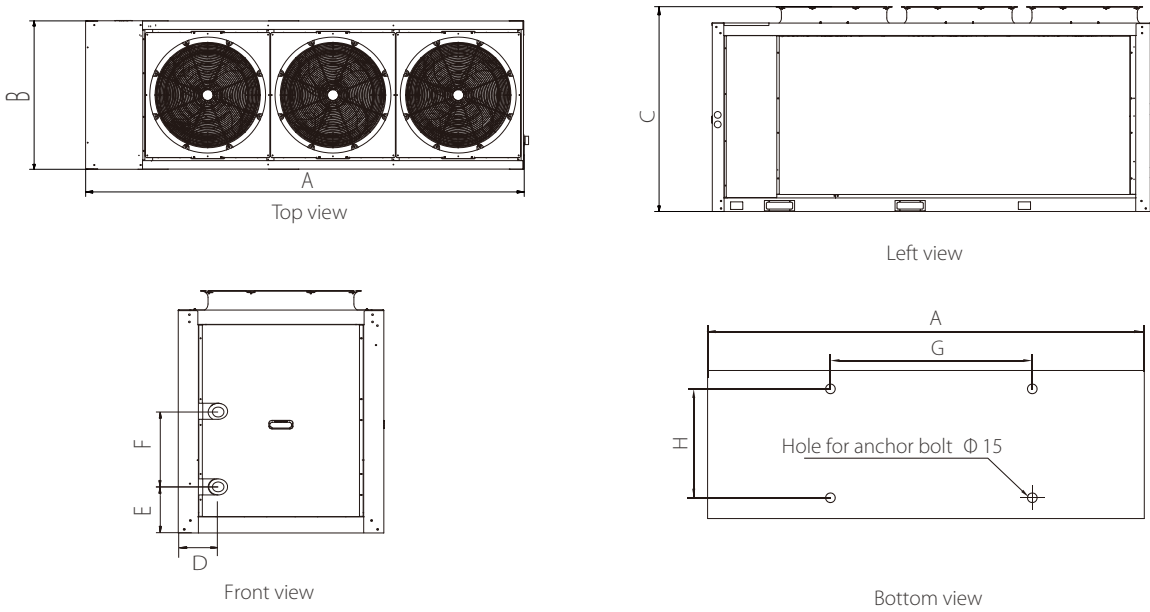


# Unit Dimensions (Unit: mm)

MC-SU30(M)-RN1L/MC-SU60(M)-RN1L  
MC-SU30(M)-RN8L/MC-SU60(M)-RN8L



## MC-SU90(M)-RN1L



Model	A	B	C	D	E	F	G	H
MC-SU30(M)-RN1L MC-SU30(M)-RN8L	1870	1000	1175	204	200	470	800	926
MC-SU60(M)-RN1L MC-SU60(M)-RN8L	2220	1055	1325	234	210	470	1105	958
MC-SU90(M)-RN1L	3220	1095	1513	286	210	470	2116	1008

# Specifications

## R410A Series

Model			MC-SU30-RN1L	MC-SU30M-RN1L	MC-SU60-RN1L	MC-SU60M-RN1L	MC-SU90-RN1L	MC-SU90M-RN1L
Power supply		V/Ph/Hz	380-415/3/50	380-415/3/50	380-415/3/50	380-415/3/50	380-415/3/50	380-415/3/50
Cooling <sup>1</sup>	Capacity	kW	27	27.6	55	55	82	82
	Rated input	kW	10.8	11.4	22	23.2	36.8	38
	EER		2.5	2.42	2.5	2.37	2.23	2.16
	SEER		4.08	3.93	3.93	4.28	4.08	3.83
Heating <sup>2</sup>	Capacity	kW	31	31	61	61	90	90
	Rated input	kW	10.5	11.2	20.3	21.5	32.8	34
	COP		2.95	2.77	3.00	2.84	2.74	2.65
	SCOP		4.01	3.28	3.85	3.45	3.99	3.75
Seasonal space heating energy efficiency class			A++	A+	A++	A+	A++	/
Max. running current		A	18.0	18.7	36.8	39.8	60	68.4
Compressor	Type		Rotary	Rotary	Rotary	Rotary	Scroll	Scroll
	Quantity		1	1	2	2	2	2
Airside heat exchanger		Type	Finned tube	Finned tube	Finned tube	Finned tube	Finned tube	Finned tube
Fan motor	Type		DC motor	DC motor	DC motor	DC motor	DC motor	DC motor
	Quantity		1	1	2	2	3	3
	Air flow rate	m³/h	12,500	12,500	24,000	24,000	38000	38000
Water side heat exchanger	Type		Plate	Plate	Plate	Plate	Plate	Plate
	Volume	L	2.44	2.44	5.17	5.17	7.05	7.05
	Water flow	m³/h	5	5	9.8	9.8	15	15
	Water pressure drop	kPa	55	55	61	61	75	75
Pump head		m	/	15	/	15	/	15
Refrigerant system	Type		R410A	R410A	R410A	R410A	R410A	R410A
	Charged volume	kg	10.5	10.5	17.0	17.0	27.0	27.0
Throttle		Type	EXV	EXV	EXV + Capillary	EXV + Capillary	EXV	EXV
Sound power level		dB(A)	78	78	87	86	89	89
Sound pressure level <sup>3</sup>		dB(A)	65.8	68	72.1	73	80.1	80.1
Net dimensions (WxHxD)		mm	1870x1175x1000	1870x1175x1000	2220x1325x1055	2220x1325x1055	3220x1513x1095	3220x1513x1095
Packed dimensions (WxHxD)		mm	1910x1225x1035	1910x1225x1035	2250x1370x1090	2250x1370x1090	3275x1540x1130	3275x1540x1130
Net/Gross weight		kg	300/310	315/325	480/490	515/525	710/739	710/739
Water pipe connections		mm	DN40	DN40	DN50	DN50	DN50	DN50
Wired Controller			KJRM-120H/BMWKO3-E	KJRM-120H/BMWKO3-E	KJRM-120H/BMWKO3-E	KJRM-120H/BMWKO3-E	KJRM-120H/BMWKO3-E	KJRM-120H/BMWKO3-E
Operating temperature range	Cooling	℃	-10 to 43	-10 to 43	-10 to 43	-10 to 43	-10 to 43	-10 to 43
	Heating	℃	-15 to 30	-15 to 30	-15 to 30	-15 to 30	-20 to 30	-20 to 30
Water outlet temperature range	Cooling <sup>4</sup>	℃	5 to 20	5 to 20	5 to 20	5 to 20	5 to 20	5 to 20
	Heating	℃	25 to 55	25 to 55	25 to 55	25 to 55	25 to 55	25 to 55

Note:

1. Cooling: Chilled water inlet/outlet temp.12/7°C; outdoor ambient temp. 35°C DB.

2. Heating: Warm water inlet/outlet temp. 40/45°C; outdoor ambient temp. 7°C DB/6°C WB.

3. Sound pressure level is measured at a position 1m in front of the unit and 1.1m above the floor in a semi-anechoic chamber.

4. Capacity and efficiency data calculated in accordance with EN14511; EN14825

## R32 Series

Model			MC-SU30-RN8L	MC-SU30M-RN8L	MC-SU60-RN8L	MC-SU60M-RN8L
Power supply		V/Ph/Hz	380-415/3/50	380-415/3/50	380-415/3/50	380-415/3/50
Cooling <sup>1</sup>	Capacity	kW	27.5	27.5	55	55
	Rated input	kW	10.3	11	21.5	23
	EER		2.67	2.5	2.56	2.39
	SEER		4.62	4.25	4	4.03
Heating <sup>2</sup>	Capacity	kW	32	32	62	62
	Rated input	kW	10	10.7	20	21.5
	COP		3.2	2.99	3.1	2.88
	SCOP		4.24	3.99	3.86	3.72
Seasonal space heating energy efficiency class			A++	A++	A++	A+
Max. running current		A	20	21.5	40.5	43.5
Compressor		Type	Rotary	Rotary	Rotary	Rotary
		Quantity	1	1	2	2
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		1	1	2	2
	Air flow rate	m³/h	12,500	12,500	24,000	24,000
Water side heat exchanger	Type		Plate	Plate	Plate	Plate
	Volume	L	2.44	2.44	5.17	5.17
	Water flow	m³/h	5	5	9.8	9.8
	Water pressure drop	kPa	55	55	61	61
Pump head		m	/	15	/	15
Refrigerant system		Type	R32	R32	R32	R32
		Charged volume <sup>3</sup>	kg	7.9	7.9	14
Throttle		Type	EXV	EXV	EXV + Capillary	EXV + Capillary
Sound power level		dB(A)	78	78	86	86
Sound pressure level <sup>4</sup>		dB(A)	64.8	65.1	71.3	71.4
Net dimensions (W×H×D)		mm	1870×1175×1000	1870×1175×1000	2220×1325×1055	2220×1325×1055
Packed dimensions (W×H×D)		mm	1910×1225×1035	1910×1225×1035	2250×1370×1090	2250×1370×1090
Net/Gross weight		kg	300/310	315/325	480/490	515/525
Water pipe connections		mm	DN40	DN40	DN50	DN50
Wired Controller			KJRM-120H/BMWKO3-E	KJRM-120H/BMWKO3-E	KJRM-120H/BMWKO3-E	KJRM-120H/BMWKO3-E
Operating temperature range	Cooling	℃	-10 to 43	-10 to 43	-10 to 43	-10 to 43
	Heating	℃	-14 to 30	-14 to 30	-14 to 30	-14 to 30
Water outlet temperature range	Cooling <sup>5</sup>	℃	5 to 20	5 to 20	5 to 20	5 to 20
	Heating	℃	25 to 54	25 to 54	25 to 54	25 to 54

Note:

1. Cooling: Chilled water inlet/outlet Temp.12/7°C, outdoor ambient Temp. 35°C DB.

2. Heating: Warm water inlet/outlet Temp. 40/45°C, outdoor ambient Temp. 7°C DB/6°C WB.

3. For MC-SU60-RN8L, MC-SU60M-RN8L the total amount of refrigerant is 14 kg, including the 11.5 kg already charged before delivery and the 2.5 kg to be charged.

4. Sound pressure level is measured at a position 1m in front of the unit and 1.1m above the floor in a semi-anechoic chamber.

5. Capacity and efficiency data in accordance with EN14511, EN14825.
















# Aqua Mini Chiller Series

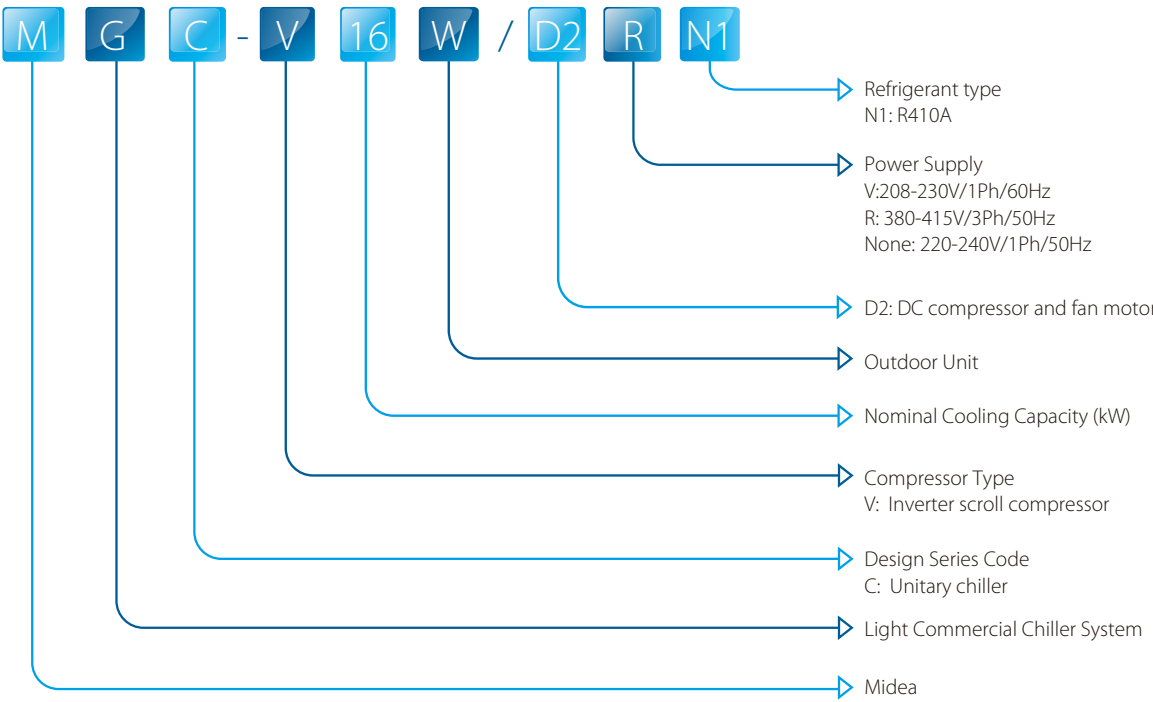
DC inverter Mini chillers' cooling capacity range is from 5kW to 18kW and it can freely combine with fan coil units and floor heating. These units are designed for residential applications or light commercial applications that require cold or hot water. They are silent and compact units, easy to install and maintain. All units' energy efficiency at part load is A+ rated.

## Product Lineup

Capacity (kW)	5	7	10	12	14	16	18
Appearance							
Power Supply							
220-240V/1Ph/50Hz					/	/	/
380-415V/3Ph/50Hz	/	/	/				/
208-230V/1Ph/60Hz	/	/		/	/	/	



## Nomenclature





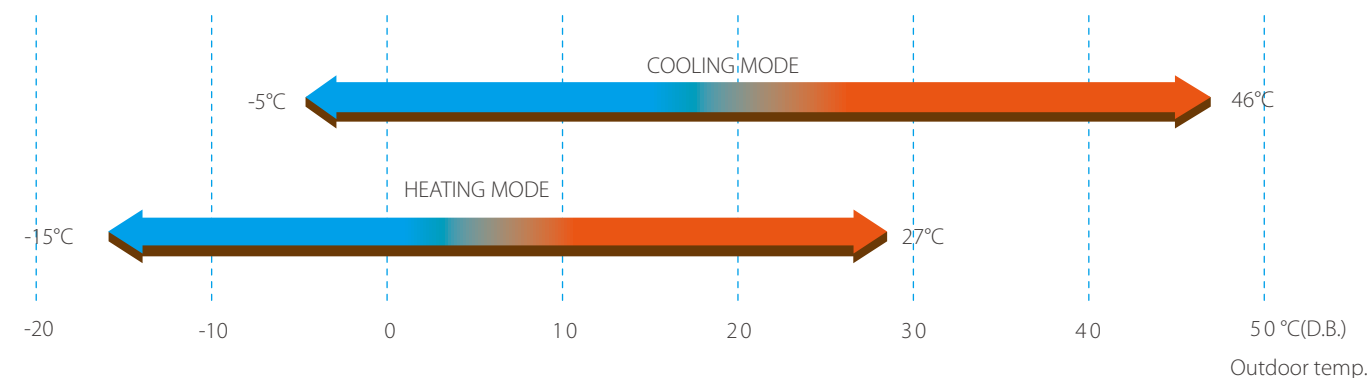
## Features

### Wide application range

- Nine models with wide range capacity.
- Multiple power supply options.
- Freely combine with fan coil units and floor coils. Home owners may choose the best types according to their design taste (for interior) or functional needs.



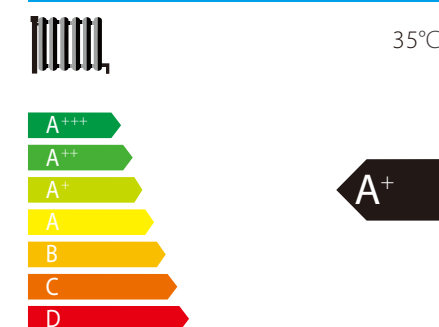
### ● Wide operation temperature range



- Wide range of outlet water temperature  
The water outlet temperature is 4-55°C.

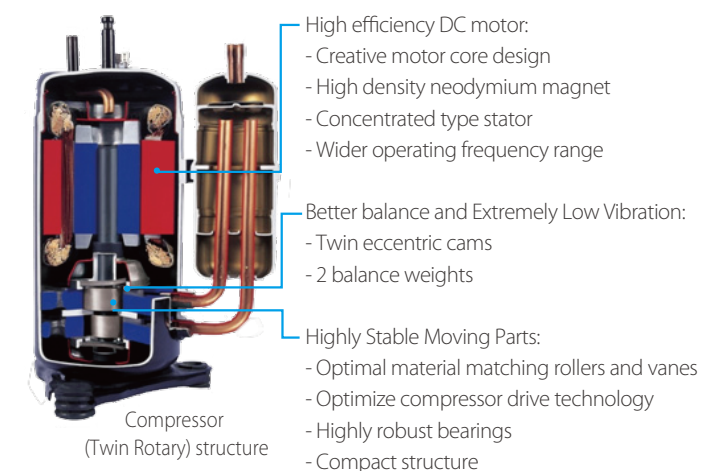
### A+ rated energy efficiency at part load(For 50Hz series)

The DC inverter chiller integrates the latest technological innovations and ensures precise temperature regulation and highly efficient energy usage, making a significant contribution to the limiting the impact on the environment.



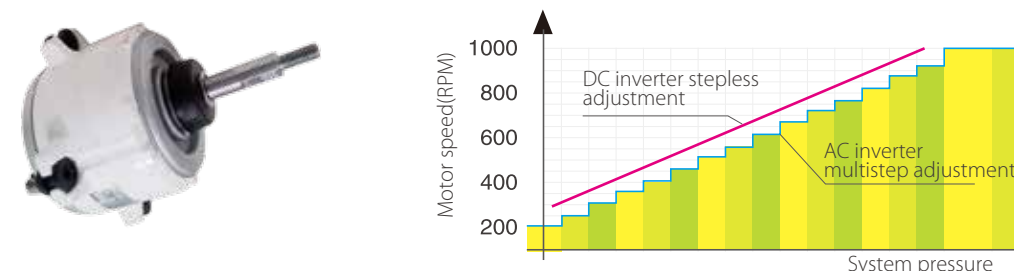
### ● DC inverter compressor

Twin rotary DC inverter compressor is used. The output of the outdoor unit can be adjusted precisely according to the energy demanded.

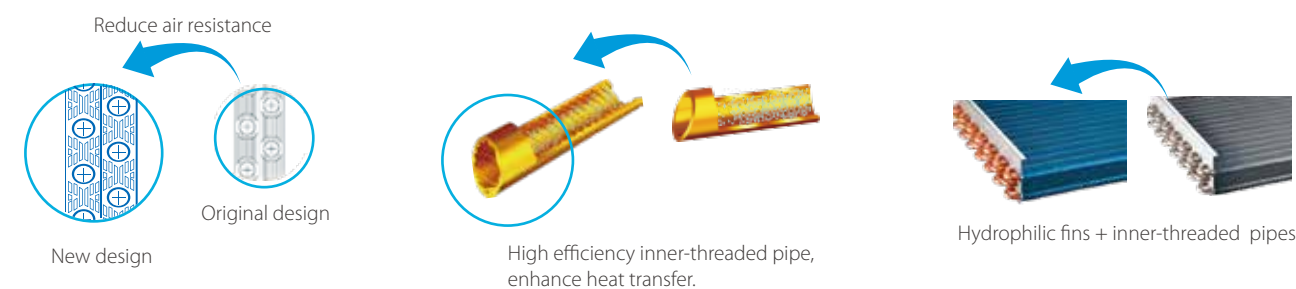


### ● DC fan motor

High efficiency DC fan motor saved power up to 50%.



### ● High performance heat exchanger



The new designed window fins enlarge the heat-exchanging area, decrease the air resistance, save more power and enhance heat exchange performance.

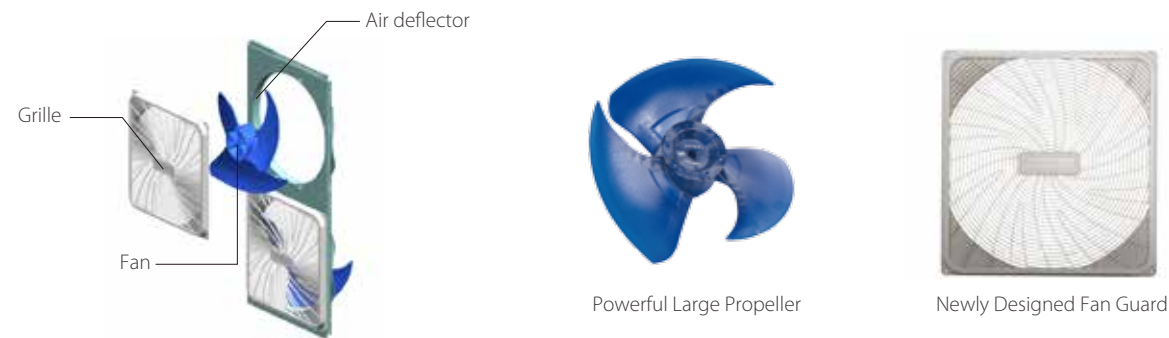
Hydrophilic film fins and inner-threaded copper pipes optimize heat exchange efficiency.

The specially coated blue fins enhance durability and protect against corrosion from air, water and other corrosive agents, assures a longer coil service life.



## Advanced technology

- DC inverter technology, optimally designed fan shape and air discharge grille ensure low sound values.

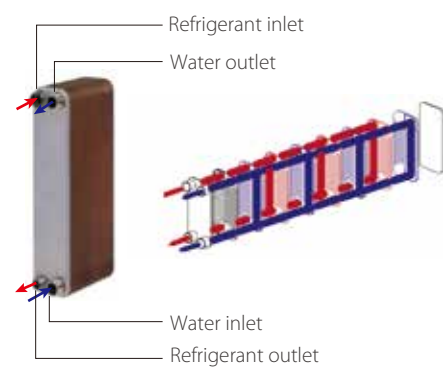


- EXV is used for stable and accurate gas flow control.

- 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.

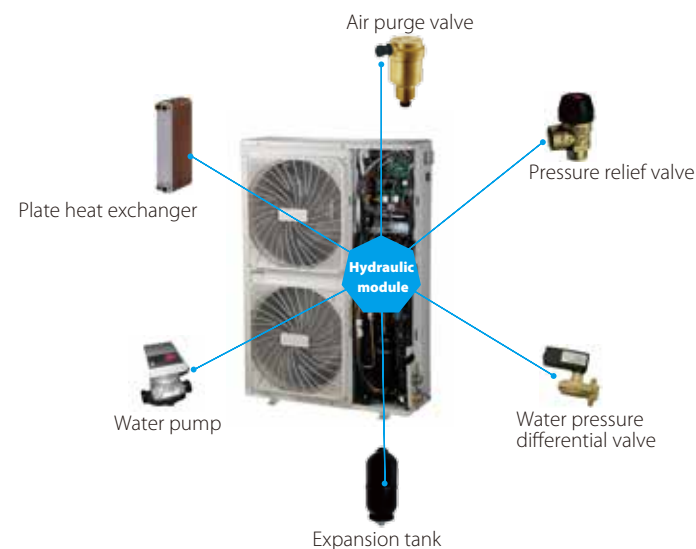
- High efficiency water pump

The water pump used is compliance with Erp directive, which is A degrade efficiency standard.



## Easy installation

- Compact structure design and leak-tight refrigerant circuit save you much installation labor.
- The chillers are equipped with a hydronic module integrated into the unit chassis, limiting the installation to straight-forward operations like connection of the power supply, the water supply and the air distribution FCUs.
- The units are equipped with axial fans so they can be installed directly outdoors.



## Easy control

- Remote ON/OFF and remote cool/heat functions.



- Controller built-in in unit panel used to perform all related operations as the user interface as well as fast diagnosis of possible incidents and their history.

- ON/OFF & Mode selection
- Temperature adjust
- Timer setting
- Fast diagnosis



- Optional wired controller for easy operation.
  - Touch key operation
  - LCD displays operation parameters
  - Multiple timers
  - Real-time clock



Note: When the wired controller is connected, the built-in controller is only for display, check and diagnosis functions.

Specifications

220-240V/1Ph/50Hz



Model			MGC-V5W/D2N1	MGC-V7W/D2N1	MGC-V10W/D2N1	MGC-V12W/D2N1
Power supply		V/Ph/Hz	220-240/1/50			
Cooling <sup>1</sup>	Capacity	kW	5.0	7.0	10.0	11.2
	Rated input	kW	1.55	2.25	2.95	3.50
	Rated current	A	6.8	9.9	13.0	15.4
	EER		3.23	3.11	3.39	3.20
Cooling <sup>2</sup>	Capacity	kW	5.6	8.0	10.6	12.2
	Rated input	kW	1.15	1.85	2.30	2.65
	EER		4.87	4.32	4.61	4.60
	SEER		6.23	6.63	6.00	6.70
Heating <sup>3</sup>	Capacity	kW	6.2	8.0	11.0	12.3
	Rated input	kW	1.90	2.5	3.14	3.78
	Rated current	A	8.3	11.0	13.8	16.6
	COP		3.26	3.20	3.50	3.25
Heating <sup>4</sup>	Capacity	kW	6.2	8.6	11.5	13.0
	Rated input	kW	1.35	2.10	2.65	2.92
	COP		4.59	4.10	4.34	4.45
	SCOP		3.55	3.46	3.34	3.46
Seasonal space heating energy efficiency (ηs)			139%	135%	131%	135%
Seasonal space heating energy efficiency class			A+	A+	A+	A+
Max. input current		A	14.6	15.6	25	26
Compressor	Type		Rotary			
Outdoor fan	Motor type		DC Motor			
	Air flow	m³/h	3,200	3,750	4,800	4,800
Air heat exchanger	Type		Fin-coil			
Water heat exchanger	Type		Plate heat exchanger			
	Water volume	L	0.53	0.53	0.7	0.78
	Water flow	m³/h	0.86	1.20	1.72	1.93
	Water pressure drop	kPa	15	15	18	18
Water pump	Pump head	m	6.2	6.2	7.0	7.0
	Water volume	L/min	4	4	4	4
Expansion tank volume		L	2	2	3	3
Refrigerant	Type		R410A			
	Charged volume	kg	2.5	2.5	2.8	2.8
Throttle type			Electronic expansion valve			
Sound power level		dB(A)	63	66	68	68
Sound pressure level <sup>5</sup>		dB(A)	58	58	59	59
Unit net dimension (WxHxD)		mm	1,008×963×396	1,008×963×396	970×1,327×400	970×1,327×400
Packing dimension (WxHxD)		mm	1,120×1,100×435	1,120×1,100×435	1,082×1,456×435	1,082×1,456×435
Net/ Gross weight		kg	81/91	81/91	110/121	110/121
Pipe connections	Water inlet/outlet	inch	1"	1"	1-1/4"	1-1/4"
Controller			Electronic controller (standard), wired controller (optional)			
Ambient temperature range	Cooling	°C	-5-46			
	Heating	°C	-15-27			
Water outlet temperature range	Cooling	°C	4-20			
	Heating	°C	35-54			

Nominal capacity is based on the following conditions:  
1. Condenser air in 35°C. Evaporator water in/out 12/7°C  
2. Condenser air in 35°C. Evaporator water in/out 23/18°C  
3. Evaporator air in 7°C °C85% R.H., Condenser water in/out 40/45°C  
4. Evaporator air in 7°C °C85% R.H., Condenser water in/out 30/35°C  
5. At 1m in open field fan side (sound pressure)  
6. The above data test reference standard EN14511; EN14825; EN50564; EN12102; (EU)No:811; (EU)No:813; OJ 2014/C 207/02



380-415V/3Ph/50Hz

Model			MGC-V12W/D2RN1	MGC-V14W/D2RN1	MGC-V16W/D2RN1
Power supply		V/Ph/Hz	380-415/ 3/50		
Cooling <sup>1</sup>	Capacity	kW	11.2	12.5	14.5
	Rated input	kW	3.38	3.90	4.70
	Rated current	A	5.5	6.4	7.7
	EER		3.31	3.20	3.10
Cooling <sup>2</sup>	Capacity	kW	12.2	14.2	15.6
	Rated input	kW	2.60	3.10	3.60
	EER		4.69	4.58	4.33
	SEER		6.58	7.03	7.10
Heating <sup>3</sup>	Capacity	kW	12.3	13.8	16.0
	Rated input	kW	3.72	4.25	4.85
	Rated current	A	6.1	7.0	8.0
	COP		3.31	3.25	3.30
Heating <sup>4</sup>	Capacity	kW	13.0	15.1	16.5
	Rated input	kW	2.85	3.35	3.92
	COP		4.56	4.51	4.21
	SCOP		3.66	3.78	3.39
Seasonal space heating energy efficiency (ηs)			143%	148%	133%
Seasonal space heating energy efficiency class			A+	A+	A+
Max. input current		A	8.9	9.6	10.1
Compressor	Type		Rotary		
Outdoor fan	Motor type		DC motor		
	Air flow	m³/h	4,800	4,800	6,200
Air heat exchanger	Type		Fin-coil		
Water heat exchanger	Type		Plate		
	Water volume	L	0.78	0.78	1.06
	Water flow	m³/h	1.92	2.15	2.49
	Water pressure drop	kPa	18	18	19
Water pump	Pump head	m	7.0	7.0	7.0
	Water volume	L/min	4	4	4
Expansion tank volume		L	3	3	3
Refrigerant	Type		R410A		
	Charged volume	kg	2.8	2.9	3.2
Throttle type			Electronic expansion valve		
Sound power level		dB(A)	68	70	72
Sound pressure level <sup>5</sup>		dB(A)	62	62	62
Unit net dimension (WxHxD)		mm	970×1,327×400		
Packing dimension (WxHxD)		mm	1,082×1,456×435		
Net/ Gross weight		kg	110/121	111/122	111/122
Pipe connections	Water inlet/outlet	inch	1-1/4"		
Controller			Electronic controller (standard), wired controller (optional)		
Ambient temperature range	Cooling	°C	-5-46		
	Heating	°C	-15-27		
Water outlet temperature range	Cooling	°C	4-20		
	Heating	°C	35-54		

Nominal capacity is based on the following conditions:  
1. Condenser air in 35°C, Evaporator water in/out 12/7°C  
2. Condenser air in 35°C, Evaporator water in/out 23/18°C  
3. Evaporator air in 7°C °C85% R.H., Condenser water in/out 40/45°C  
4. Evaporator air in 7°C °C85% R.H., Condenser water in/out 30/35°C  
5. At 1m in open field fan side (sound pressure)  
6. The above data test reference standard EN14511; EN14825; EN50564; EN12102; (EU)No:811; (EU)No:813; OJ 2014/C 207/02



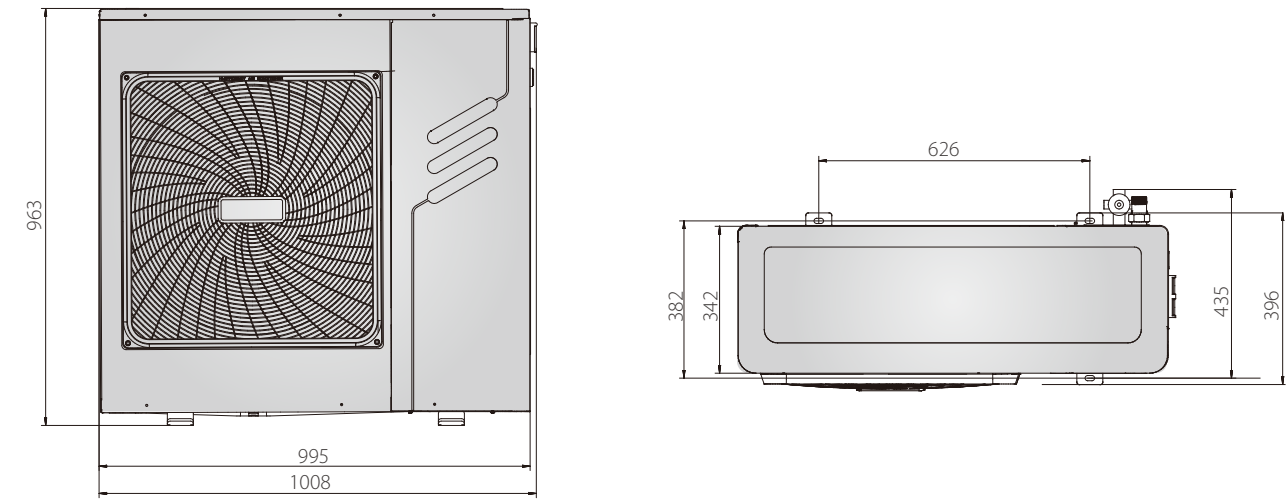
208-230V/1Ph/60Hz

Model			MGC-V10W/D2VN1	MGC-V18W/D2VN1
Power supply		V/Ph/Hz	208-230/1/60	
Cooling	Capacity	kBtu/h	36.0	58.0
		kW	10.5	17.0
	Input	kW	3.11	5.60
	EER		3.38	3.04
Heating	Capacity	kBtu/h	38.0	63.0
		kW	11.1	18.5
	Input	kW	3.14	5.78
	COP		3.54	3.20
Max input current		A	25.0	30.0
Compressor	Type		Rotary	
Outdoor fan	Motor type		DC motor	
	Air flow	CFM (m³/h)	4,120 (7,000)	4,120 (7,000)
Air heat exchanger	Type		Fin-coil	
Water heat exchanger	Type		Plate	
	Water volume	L	0.7	1.06
	Water flow	CFM (m³/h)	1.06 (1.81)	1.72 (2.92)
	Water pressure drop	kPa	18	23
Water pump	Pump head	m	7	7
	Water volume	L/min	4	4
Expansion tank volume		L	3	3
Refrigerant	Type		R410A	
	Charged volume	lbs/kg	6.2/2.8	7.5/3.4
Throttle type			Electronic expansion valve	
Sound pressure level³		dB(A)	56	60
Unit net dimension (WxHxD)	inch		38-3/16x52-1/4x31-1/2	
	mm		970x1,327x400	
Packing dimension (WxHxD)	inch		42-19/32x57-21/64x17-1/8	
	mm		1,082x1,456x435	
Net/ Gross weight	lbs		243/267	247/271
	kg		110/121	112/123
Pipe connections	Water inlet/outlet	inch	1-1/4"	
Controller			Electronic controller (standard), wired controller (optional)	
Ambient temperature range	Cooling	°C	-5-46	
	Heating	°C	-15-27	
Water outlet temperature range	Cooling	°C	4-20	
	Heating	°C	30-55	

1. Cooling: Chilled water inlet/outlet temperature: 12/7°C, outdoor ambient temperature 35°C DB.  
2. Heating: Warm water inlet/outlet temperature: 40/45°C, outdoor ambient temperature 7°C DB/6°C WB .  
3. At 1m in open field fan side (sound pressure).

Unit Dimensions (Unit: mm)

5/7kW



10-18kW

