








# Air Cooled Scroll Chiller

## Aqua Tempo Power

Midea Aqua Tempo Power chillers use V shape heat exchanger and single unit's capacity from 30kW to 250kW. They are divided to PS, PS-LA, PS-HM and PS-HMLA series according to their operation ambient temperature range and inner components. PS-LA series are products with low ambient temperature cooling function and PS-HM series are products built-in with hydraulic module. PS-HMLA series are products built-in with hydraulic module based on PS-LA products.

## Product Lineup

Capacity (kW)	30	65	130	200	250
Appearance					
Series					
50Hz PS (F/D)	● / ●	● / ●	● /	● /	/
50Hz PS-LA (F/D)	● / ●	● / ●	● /	● /	● /
50Hz PS-HM (F/D)	● / ●	/	/	/	/
50Hz PS-HMLA (F/D)	● / ●	/	/	/	/
60Hz PS (F/D)	/	● /	● /	/	/

PS: Standard Power Series

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

PS-HMLA: Power Series with low ambient temperature cooling function and built-in with hydraulic module

PS-HM: Power Series built-in with hydraulic module

F: Product adopted fixed speed scroll compressor

D: Product adopted digital scroll compressor



## Features

### Wide application range >>

- ❖ 19 basic models with cooling capacity ranging from 30kW to 250kW, combination model's maximum capacity ups to 2000kW.



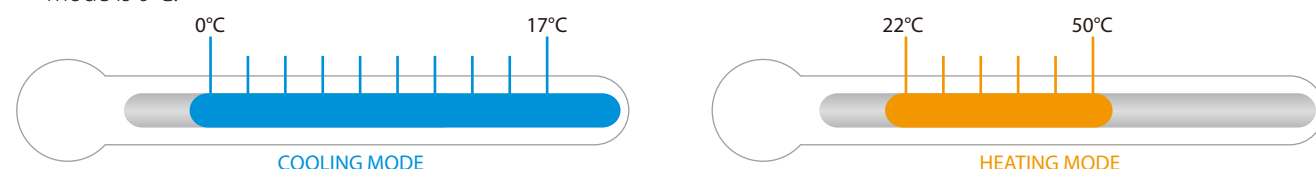
- ❖ Freely combine with fan coil units and air handling units. Project owners may choose the best types according to their design taste (for interior) or functional needs.



- ❖ Wide operation ambient temperature range  
For the Aqua Tempo Power chillers with low ambient temperature cooling function, the running ambient temperature down to -10°C both in cooling and heating.



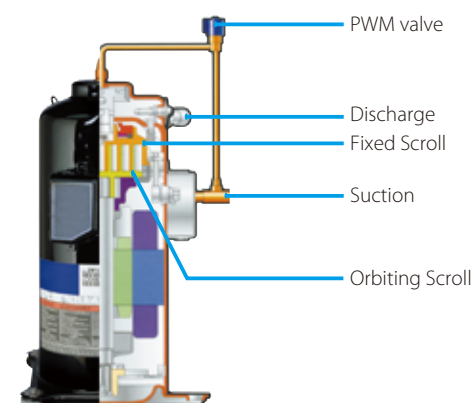
- ❖ Wide range of outlet water temperature  
For the Aqua Tempo Power chillers with low water outlet temperature function, the lowest outlet temperature in cooling mode is 0°C.



### Advanced technology >>

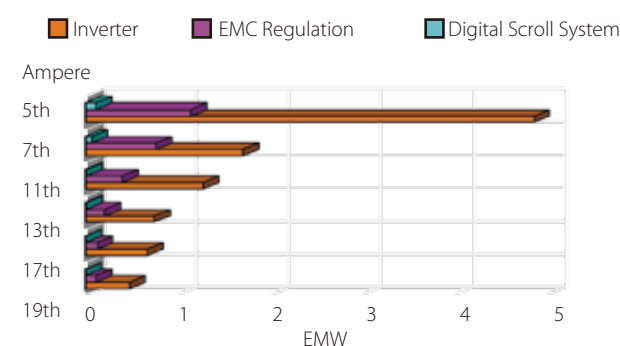
- ❖ Digital scroll technology

The digital scroll compressor utilizes axial compliant sealing technology to precisely adjust the axial motion range of the stator scroll pan. And there is an additional connecting by-pass between the suction inlet and the pressure bore at the floating sealing point of axial stator.

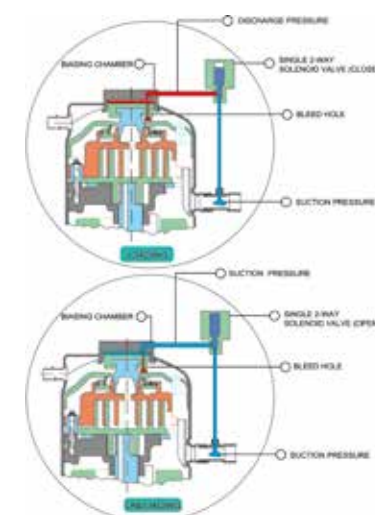


- Provides 10% to 100% stepless capacity output to precisely control room temperature.
- Less electromagnetic interference, no EMC problem.

- Provides 40 million times the average service life of PWM solenoid valves, making sure the long life of compressor.
- Guarantees high efficiency by applying axial-compliant sealing technology.

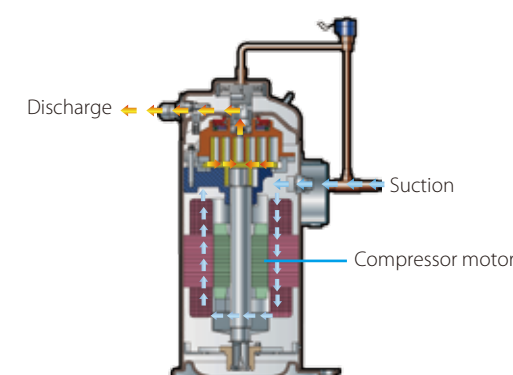


#### Operation Principle of Digital Scroll Compressor



- When the PWM solenoid valve is open, the pressure in the pressure bore is released. The pressure in the compression bore is higher than that top of the stator, then the stator axis of the compressor will move upward a little.
- So high pressure bore and low pressure inlet is connected and the unloading is achieved.
- When the PWM solenoid valve is closed, two stators engage to achieve an airtight state and loading functionality.
- The compressor can adjust the ratio of ON to OFF freely to control the refrigerant output of the compressor.

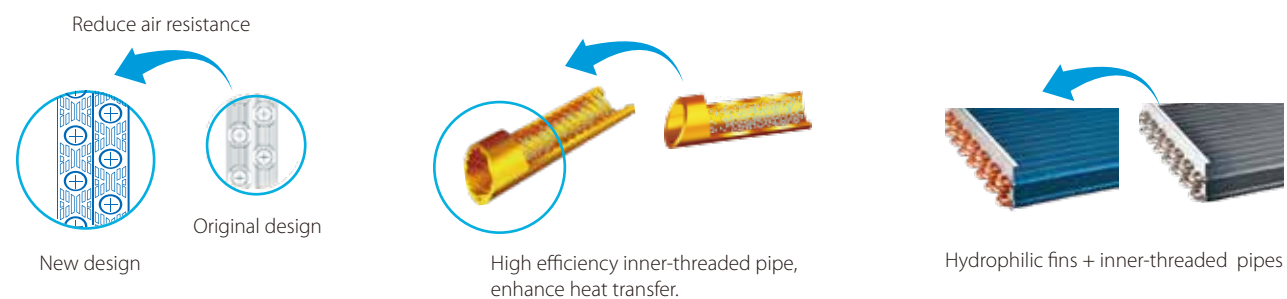
High reliability in high ambient temperatures is guaranteed by the low pressure design of the compressor motor.



- Effectively cools the compressor motor by suction gas.
- Creates stronger resistance to the compressor liquid hammer.
- Provides strong reliability in high ambient temperatures.



## ❖ 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.

## ❖ 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.



## Compliance with ErP directive &gt;&gt;

30kW and 65kW products are compliance with ErP directive, including both PS series and PS-LA series. The seasonal space heating energy efficiency classes for 30kW models are A rated and 65kW models are A+ rated.



## Flexible installation &gt;&gt;

## ❖ Built-in hydraulic module

MGCSL-F (D) 30W/RN1 and MGCS-F (D) 30W/RN1 are equipped with a hydraulic 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 terminals.



## ❖ Individual hydraulic module optional

Individual hydraulic module compatible with cooling capacity of 65kW and 130kW is optional. Water box, expansion water tank, two water pumps are built in the hydraulic box. The integral structure design saves you much installation labor and cost.



HM/II-65S  
HM/II-130S



## Easy control &gt;&gt;

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



## ❖ 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

### 50Hz PS & PS-LA series (Fixed type)

Model			MGC-F30W/RN1(B) MGCL-F30W/RN1	MGB-F65W/RN1(B) MGBL-F65W/RN1	MGB-F130W/RN1(B) MGBL-F130W/RN1	MGB-F200W/RN1(B) MGBL-F200W/RN1	MGBL-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	65	130	185	250
	Input	kW	10.0	20.4	40.8	63.0	78.3
	EER		3.00	3.18	3.18	2.93	3.19
Heating <sup>2</sup>	Capacity	kW	32	69	138	200	270
	Input	kW	9.8	21.5	43.0	61.0	80.0
	COP		3.27	3.21	3.21	3.27	3.38
Max running current		A	21.1	54.5	109	150	200
Compressor	Type		Finned tube	Finned tube	Finned tube	Finned tube	Finned tube
	Quantity	Pieces	2	2	4	6	8
Air side heat exchanger	Type		Fin-coil	Fin-coil	Fin-coil	Fin-coil	Fin-coil
	Fan motor type		AC Motor	AC Motor	AC Motor	AC Motor	AC Motor
	Quantity of fan motor	Pieces	1	2	4	6	8
	Air flow	m <sup>3</sup> /h	12,000	24,000	48,000	72,000	96,000
Water side heat exchanger	Type		Double-pipe	Shell-tube	Shell-tube	Shell-tube	Shell-tube
	Water pressure drop	kPa	60	15	25	30	40
	Volume	L	10	42	64	90	131
	Water flow volume	m <sup>3</sup> /h	5.2	11.2	22.4	31.8	43
Refrigerant	Type		R410A	R410A	R410A	R410A	R410A
	Charged volume	kg	7.0	14.0	28.0	42.0	60.0
	Throttle type		EXV	EXV	EXV	EXV	EXV+Capillary
Sound pressure level <sup>3</sup>		dB(A)	65	67	70	74	74
Unit net dimension(D×H×W)		mm	1,514×1,865×841	2,000×1,880×900	2,000×2,090×1,685	2,850×2,110×2,000	3800×2130×2000
Packing dimension(D×H×W)		mm	1,590×2,065×995	2,106×2,090×998	2,090×2,240×1,755	2,980×2,260×2,135	3900×2200×2100
Net/ Gross weight		kg	375/400	580/650	1,150/1,270	1730/2,000	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
Ambient temperature range	Cooling	°C	10~46	10~46	10~46	10~46	10~46
	Heating	°C	-10~24	-10~24	-10~24	-10~24	-10~24
Ambient temperature range <sup>4</sup>	Cooling	°C	-10~46	-10~46	-10~46	-10~46	-10~46
	Heating	°C	-10~24	-10~24	-10~24	-10~24	-10~24
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>5</sup>	Cooling	°C	0~17	0~17	0~17	0~17	0~17
	Heating	°C	22~50	22~50	22~50	22~50	22~50

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 PS-LA series.

5.The data is for low water outlet temperature function

### 50Hz PS & PS-LA series (Digital type)

Model			MGC-D30W/RN1(B) MGCL-D30W/RN1	MGB-D65W/RN1(B) MGBL-D65W/RN1
Power supply		V/Ph/Hz	380-415/3/50	380-415/3/50
Cooling <sup>1</sup>	Capacity	kW	30	65
	Input	kW	10.0	20.4
	EER		3.00	3.18
Heating <sup>2</sup>	Capacity	kW	32	69
	Input	kW	9.8	21.5
	COP		3.27	3.21
Max running current		A	21.1	54.5
Compressor	Type		Digital Scroll+Fixed Scroll	Digital Scroll+Fixed Scroll
	Quantity	Pieces	2	3
Air side heat exchanger	Type		Finned tube	Finned tube
	Fan motor type		AC Motor	AC Motor
	Quantity of fan motor	Pieces	1	2
	Air flow	m <sup>3</sup> /h	12,000	24,000
Water side heat exchanger	Type		Double-pipe	Shell-tube
	Water pressure drop	kPa	60	15
	Volume	L	10	42
	Water flow volume	m <sup>3</sup> /h	5.2	11.2
Refrigerant	Type		R410A	R410A
	Charged volume	kg	7.0	14.0
	Throttle type		EXV	EXV
Sound pressure level <sup>3</sup>		dB(A)	65	67
Unit net dimension(D×H×W)		mm	1,514×1,865×841	2,000×1,880×900
Packing dimension(D×H×W)		mm	1,590×2,065×995	2,106×2,090×998
Net/Gross weight		kg	375/400	610/680
Pipe connections	Water inlet/outlet	mm	DN40	DN100
Controller			Wired controller	Wired controller
Ambient temperature range	Cooling	°C	10~46	10~46
	Heating	°C	-10~24	-10~24
Ambient temperature range <sup>4</sup>	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>5</sup>	Cooling	°C	0~17	0~17
	Heating	°C	22~50	22~50

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 PS-LA series.

5.The data is for low water outlet temperature function.

## 50Hz PS-HM &amp; PS-HMLA series

Model			MGCS-F30W/RN1 MGCSL-F30W/RN1	MGCS-D30W/RN1 MGCSL-D30W/RN1
Power supply		V/Ph/Hz	380-415/3/50	380-415/3/50
Cooling <sup>1</sup>	Capacity	kW	30	30
	Input	kW	10+1.2(Pump)	10+1.2(Pump)
	EER		2.68	2.68
Heating <sup>2</sup>	Capacity	kW	32	32
	Input	kW	9.8+1.2(Pump)	9.8+1.2(Pump)
	COP		3.20	3.20
Max. running current		A	25.3	25.3
Compressor	Type		Fixed Scroll	Digital Scroll+Fixed Scroll
	Quantity	Pieces	2	2
Air side heat exchanger	Type		Finned tube	Finned tube
	Fan motor type		AC Motor	AC Motor
	Quality of fan motor	Pieces	1	1
	Air flow	m³/h	12,000	12,000
Water side heat exchanger	Type		Double-pipe	Double-pipe
	Volume	L	10	10
	Water flow volume	m³/h	5.2	5.2
Refrigerant	Type		R410A	R410A
	Charged volume	kg	7.0	7.0
	Throttle type		EXV	EXV
Sound pressurer level <sup>3</sup>		dB(A)	67	67
Unit net dimension(DxHxW)		mm	1,514×1,865×910	1,514×1,865×910
Packing dimension(DxHxW)		mm	1,590×2,065×995	1,590×2,065×995
Net/Gross weight		kg	430/450	430/450
Pipe connections	Water inlet/outlet	mm	DN40	DN40
Controller			Wired controller	Wired controller
Ambient temperature range	Cooling	°C	10~46	10~46
	Heating	°C	-10~24	-10~24
Ambient temperature range <sup>4</sup>	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>5</sup>	Cooling	°C	0~17	0~17
	Heating	°C	22~50	22~50

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 date is for PS-HMLA series

5.The data is for low water outlet temperature function

## 60Hz PS series

Model			MGB-F65W/PN1	MGB-F130W/PN1
Power supply		V/Ph/Hz	380/3/60	380/3/60
Cooling <sup>1</sup>	Capacity	kW	65	130
	Input	kW	21.3	42.6
	EER		3.20	3.21
Heating <sup>2</sup>	Capacity	kW	70	140
	Input	kW	21.9	43.8
	COP		3.20	3.21
Max running current		A	51.5	103
Compressor	Type		Fixed Scroll	Fixed Scroll
	Quantity	Pieces	2	4
Air side heat exchanger	Type		Finned tube	Finned tube
	Fan motor type		AC Motor	AC Motor
	Quantity of fan motor	Pieces	2	4
	Air flow	CFM(m³/h)	14,126(24,000)	28,253(48,000)
Water side heat exchanger	Type		Shell-tube	Shell-tube
	Water pressure drop	kPa	15	25
	Volume	L	42	64
	Water flow volume	CFM(m³/h)	6.6(11.2)	13.2(22.4)
Refrigerant	Type		R410A	R410A
	Charged volume	lbs(kg)	30.8(14.0)	61.6(28.0)
	Throttle type		EXV	EXV
Sound pressure level <sup>3</sup>		dB(A)	67	70
Unit net dimension(DxHxW)	inch		78-47/64×74-1/64×35-7/16	78-47/64×82-9/32×66-11/32
	mm		2,000×1,880×900	2,000×2,090×1,685
Packing dimension(DxHxW)	inch		82-9/32×80-29/32×38-25/32	82-9/32×88-3/16-69-3/32
	mm		2,090×2,055×985	2,090×2,240×1,755
Net/Gross weight	lbs		1,301/1,389	2,602/2,867
	kg		590/630	1,180/1,300
Pipe connections	Water inlet/outlet	mm	DN100	DN65
Controller			Wired controller	Wired controller
Ambient temperature range	Cooling	°F(°C)	50~118(10~48)	50~118(10~48)
	Heating	°F(°C)	14~75(-10~24)	14~75(-10~24)
Water outlet temperature range	Cooling	°F(°C)	41~63(5~17)	41~63(5~17)
	Heating	°F(°C)	113~122(45~50)	113~122(45~50)

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

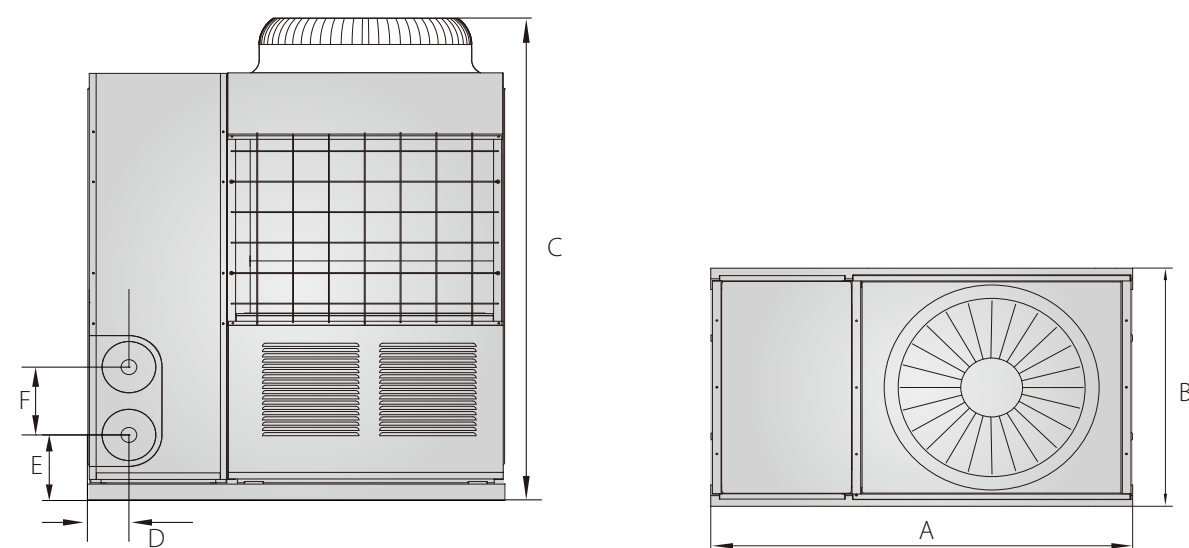
2. Heating: Warm water inlet/outlet temperature: 40/45°C, outdoor ambient temperature 7°C DB/6°C WB.

3. 1m away in open field.

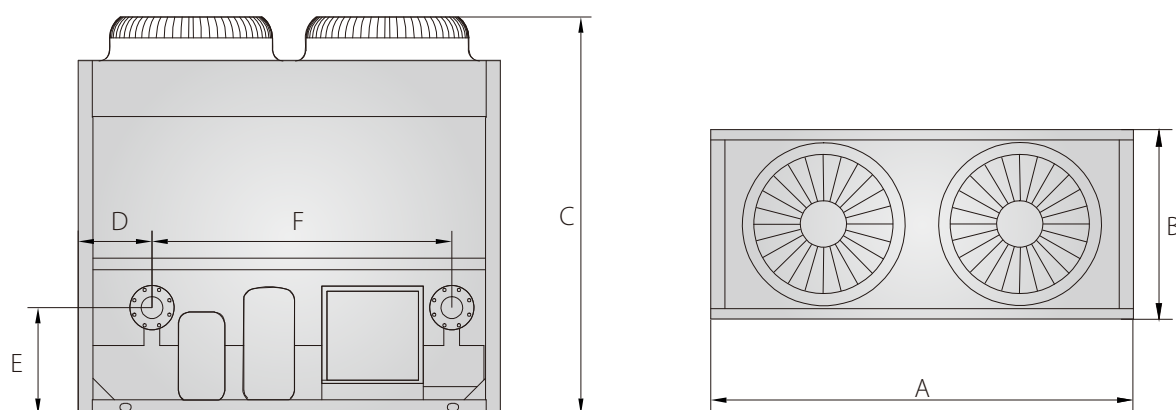


## Dimensions (Unit:mm)

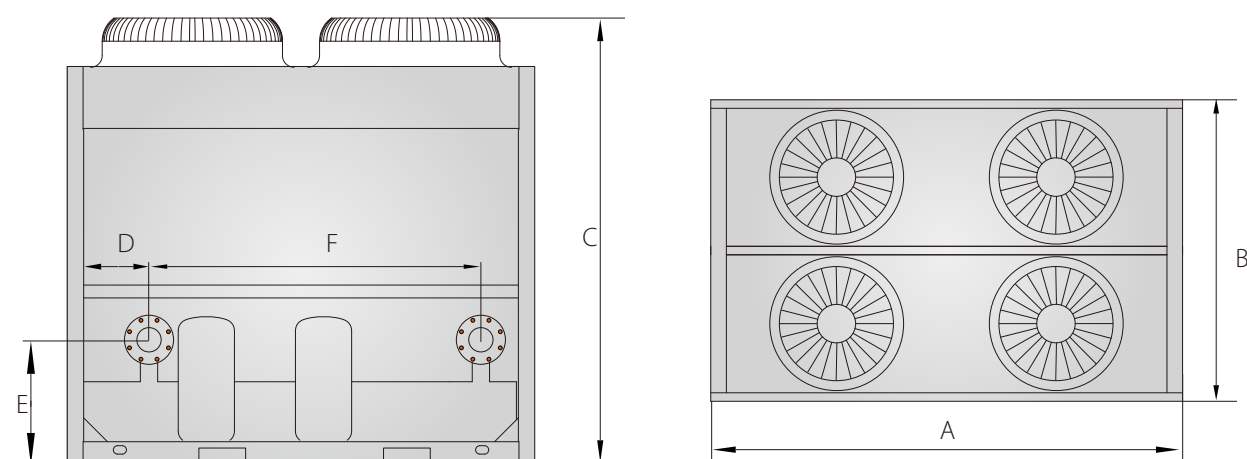
### 30kW module >>



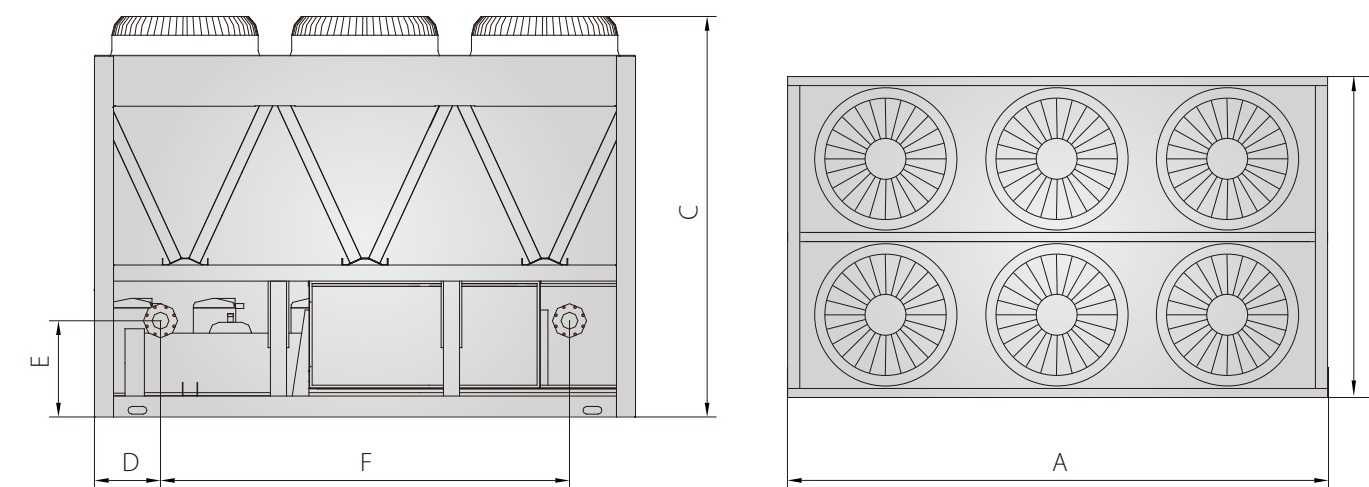
### 65kW module >>



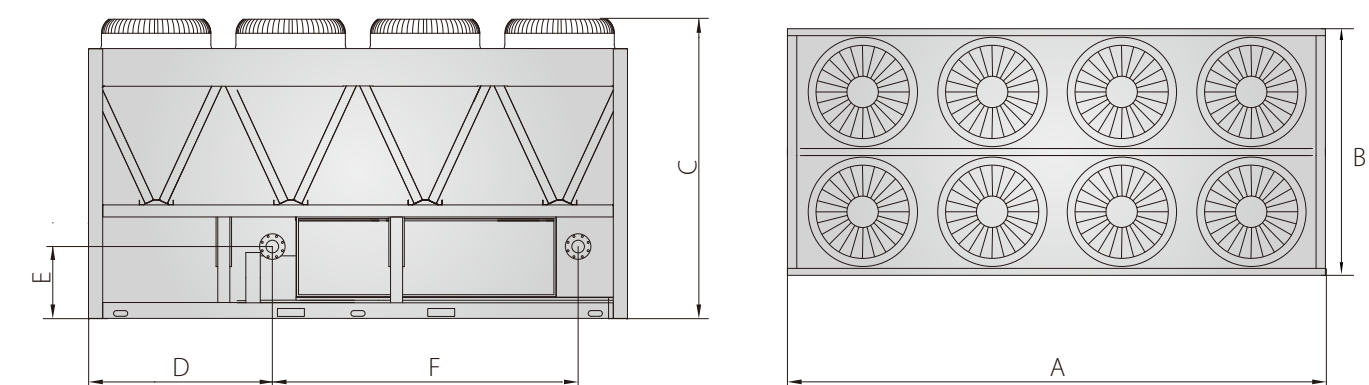
### 130kW module >>



### 200kW module >>



### 250kW module >>



Model	A	B	C	D	E	F
MGC-F(D)30W/RN1(B) MGCL-F(D)30W/RN1	1514	841	1865	115	315	172
MGCS-F(D)30W/RN1 MGCSL-F(D)30W/RN1	1514	910	1865	100	317	557
MGB-F(D)65W/RN1(B) MGBL-F(D)65W/RN1 MGB-F65W/PN1	2000	900	1880	350	506	1420
MGB-F130W/RN1(B) MGBL-F130W/RN1 MGB-F130W/PN1	2000	1685	2080	350	506	1420
MGB-F200W/RN1(B) MGBL-F200W/RN1	2850	2000	2110	347	506	2156
MGBL-F250W/RN1	3800	2000	2130	1235	573	2156