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# AIR COOLED SCROLL WATER CHILLER AND HEAT PUMP







**Hosa is one modern large-scale enterprise intergrating design, production, sales and installation of central air-conditioning products.**

With a total area of 5,369 m<sup>2</sup>, located in An Ha Industrial Park, Pham Van Hai Commune, Binh Chanh District, City. HCM. Is an industrial park using human resources with scientific and technical qualifications, trained from universities, colleges and vocational schools of Ho Chi Minh City.

Hosa is equipped with a chain system imported from abroad, ensuring a completely closed process, maximum automation and high efficiency. The products are also 100% tested by machines, bringing accuracy and stability to the entire product. It is expected that in 2020, Hosa Factory will launch optimal clean room equipment products, serve and enter the market.

### **Main business coverage:**

#### **1. Host series:**

· Water cooled series: centrifugal cold (hot) water unit, screw type cold water unit, screw type water (ground) source cooling and heating unit, scroll type water (ground) source cooling and heating unit.

· Air cooled series: screw type cold (hot) water unit, modular type cold (hot) water unit, mini type cold (hot) water unit, VRV series unit.

· Packaged Unitary unit: constant temperature and humidity unit, air (water) cooled unitary unit, dehumidification unit.

**2. Direct expansion series:** Rooftop packaged unit, ducted split unit.

**3. Terminal series:** Purification air handling unit, combined air handling unit, fresh air unit, fan coil unit series.





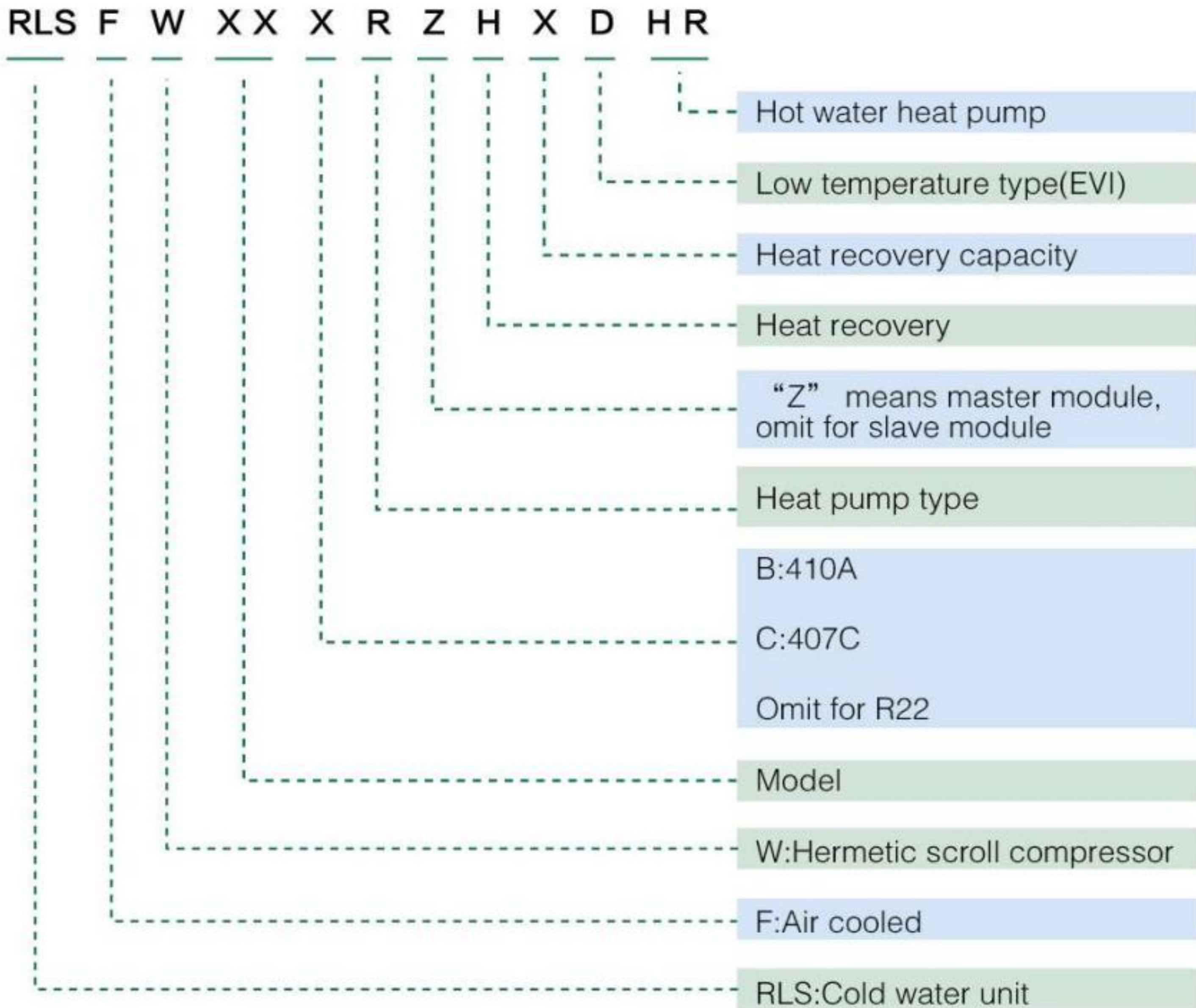
- 4. **Ventilation series:** Fire exhaust fan, roof fan, axial fan, diagonal fan, centrifugal fan, etc.
- 5. **Engine room equipment:** cyclone sand remover, water separator (separator), decontamination device, demineralized water device, plate heat exchange unit, constant pressure equipment, etc.
- 6. **Air conditioning accessories:** All kinds of fire valves, regulating valves, tuyere series.
- 7. **Other products:** Low-temperature industrial chillers, air-conditioning equipment for planting and breeding industries.

Hosa wishes you: Cooling air for propitious summer, spring returns with waem air from Hosa



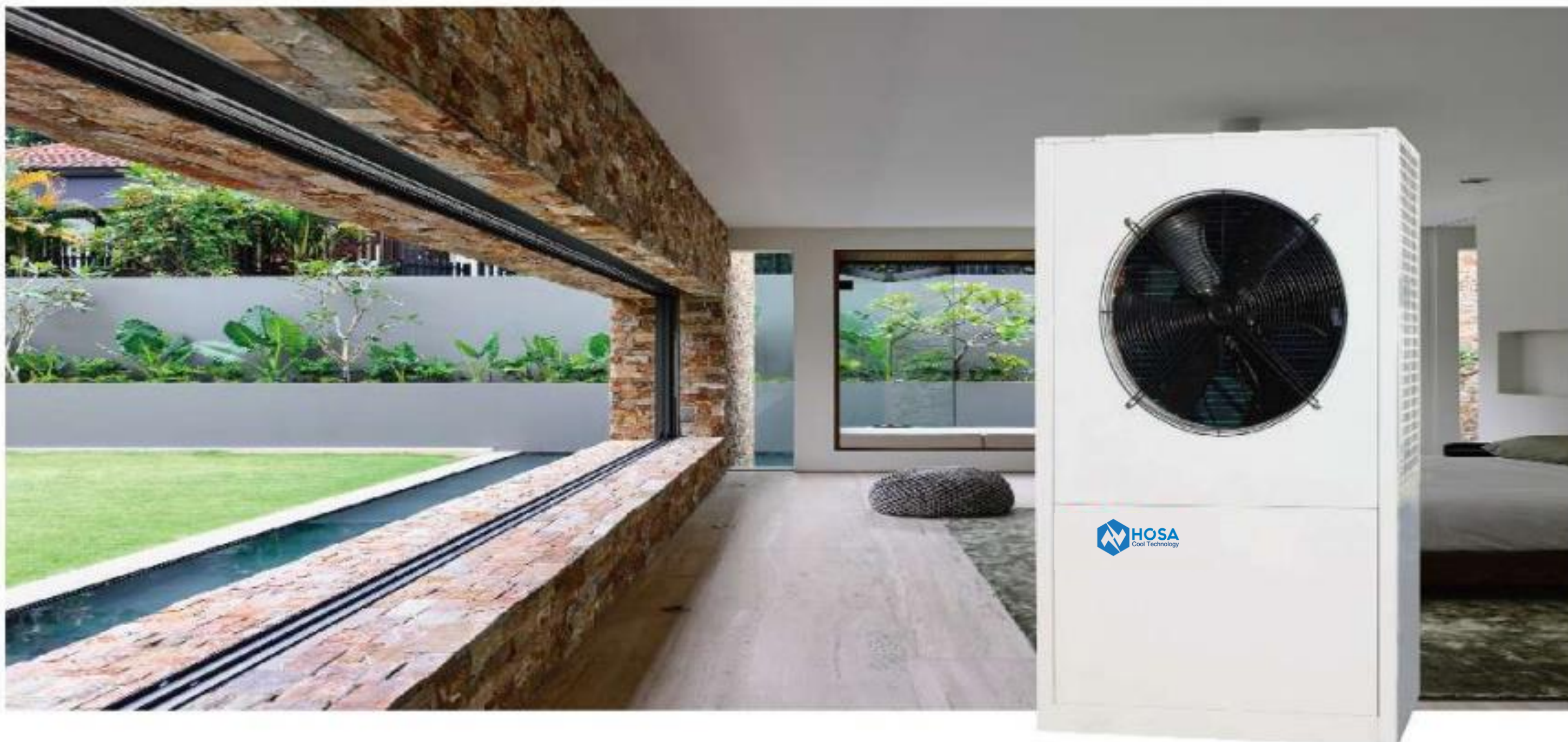
# 1. NAMING SCHEME

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## 2. BRIEF INTRODUCTION



Mini Type Air Cooled Water Chiller And Heat pump has the advantages of high efficiency, energy saving, low noise, reasonable structure, easy operation and easy maintenance. It is widely used in the comfortable central air-conditioning system of construction facilities such as villas, hotels, shopping malls, supermarkets, office buildings, workshops and business clubs. Can meet requirements of different technical air-conditioning and cooling systems.

Mini Type Air Cooled Water Chiller And Heat pump has cooling only type and heat pump type. Among them, the heat pump type unit integrates cooling and heating functions, which can achieve cooling in summer and heating in winter.

When the unit is equipped with a heat recovery device, while the unit is providing cold water, it can also provide domestic hot water, which can meet the needs of domestic hot water in villas, restaurants, clubs and other places.

Intelligent defrosting control, defrosting promptly and thoroughly to avoid extra loss of heat. At the same time, it has many automatic control and protection functions such as energy management, antifreeze detection, voltage detection and so on. The unit adopts well-known brand scroll compressor, which has the advantages of few moving parts and long life.



## 1. COMPRESSOR

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Well-known brand high efficiency scroll compressor, low noise, long life.

## 2. EVAPORATOR

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Stainless steel plate heat exchanger, small size, light weight, high heat transfer coefficient, space saving, simple maintenance.



## 3. CONDENSER

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High efficiency internal thread copper pipe and high quality aluminum fin, well made. New fins design, using a number of new technologies. The aluminum fins and copper tube are processed by mechanical expansion tube to ensure the close combination of the two, and the optimized pipeline flow can obtain the best heat transfer effect.

## 4. DISTRIBUTION CONTROL BOX

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Microcomputer control system, international famous brand electrical accessories, can be stable and reliable operation at -15 °C to 65 °C ambient temperature.

## 5. IMPORTED ACCESSORIES

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International famous brand refrigeration accessories, stable and reliable.

## 6. SPECIAL PURPOSE

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The unit can be equipped with heat recovery device to recover waste heat during cooling operation and provide hot water for residential, catering, shopping mall and office.

## 7. SAFETY FACILITIES

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Complete protection device, provide all-round protection to the equipment, ensure the unit operation safety.

Protection devices include: compressor high and low pressure protection, compressor overload protection, fan overload protection, water temperature over low protection, anti-freezing protection, water break protection.





## **2. Heat Recovery Type Modular Type Air Cooled Water Chiller And Heat pump (non-standard unit, please indicate when ordering)**

a> Heat recovery unit is one kind of unit that integrates two or three functions of refrigeration, heating and making domestic hot water. There are two types of heat recovery: 30% recovery and 100% recovery.

b> The cooling only unit can recover the originally discarded condensing heat while cooling in summer, and can also be cooled separately; the heat pump unit has three functions of cooling, heating and making domestic hot water.

c> The comprehensive performance coefficient of the heat recovery unit is as high as 3.5 ~ 3.9. The addition of the heat recovery unit is equivalent to increasing the heat exchange area of the unit and enhancing the heat exchange effect, thereby reducing the energy consumption of the unit.

## **3. Low Temperature Modular Type Air Cooled Water Chiller And Heat pump (non-standard unit, please specify when ordering)**

Adopting EVI scroll compressor and economizer, the unit can be used normally in low temperature environment, and greatly improve the heating operation efficiency of the unit in winter.

a> The compressor has added one gas filling port, the suction air of the unit is increased, the circulation flow is increased, the heat exchange heat of the unit on the condensing side is greatly increased, the heating capacity of the unit is increased by more than 30%, and the performance coefficient Also greatly improved.

b> By optimizing the matching of products, the amount of refrigerant evaporated in the evaporator at low ambient temperature is increased, which can effectively avoid the failure of the refrigerant to completely evaporate due to the poor evaporation effect and the return of the compressor.

c> Increase the enthalpy of the compressor by supplementing the air, increasing the displacement of the compressor, ensuring that the product still runs stably at low ambient temperature, the compressor will not exceed the compression ratio of the compressor, ensuring the safe performance of the compressor Reduce the compressor discharge temperature and extend the life of the compressor.



## 3.SPECIFICATION

### Air cooled scroll water chiller and heat pump

Unit model	RLSFW-(B) RLSFW-(B)R	RLSFW10	RLSFW15	RLSFW20	RLSFW25	RLSFW30	RLSFW40	
Nominal cooling capacity	kW	9.5	14.5	21.5	23.1	27	32	
Cooling input power	kW	3.5	5.2	7.5	7.9	9	10.4	
Running current	A	7.05	9.05	11.4	12.4	13.4	14.4	
Nominal heating capacity	kW	10.3	16.4	24.4	26.3	30	38.2	
Heating input power	kW	3.45	4.6	7.4	7.9	9	10.3	
Running current	A	6.75	8.65	11.2	12.0	13.7	15.6	
Max.running current	A	11.3	13.5	20.6	21.5	24	27	
Cable diameter (copper wire distance ≤ 20 meters)	mm <sup>2</sup>	2.5	2.5	3*6+2*4	3*6+2*4	3*6+2*4	3*6+2*4	
Power voltage	380V/50HZ							
Compressor qty	1							
Starting mode	Direct							
Refrigerant	R22/R410A							
Refrigerant charge	kg	2.4	2.8	8.5	10	10.5	11.5	
Refrigerant control device	Electronic expansion valve(EXV)							
Evaporator	Type	Plate type						
	Water pressure drop	kPa	70-90					
	Water pipe Dia.	DN	DN25	DN25	DN32	DN32	DN40	DN40
	Water flow	m <sup>3</sup> /h	1.6	2.6	3.4	3.6	4.3	5
Condenser type	Internally threaded copper tube & hydrophilic aluminum fins							
Condenser fan	Type	Axial type						
	Fan Qty	1	1	1	1	1	1	
	Noise	dB(A)	68	68	68	68	78	78
	Power	kW	0.55	0.55	0.55	0.55	0.75	0.75
	Air flow	m <sup>3</sup> /h	4000	6000	8000	10000	12000	14000
Air discharge	Side(Top)							
Protection device	High and low voltage protection, antifreeze protection, temperature control, reverse phase and phase loss protection, high and low voltage protection, high pressure exhaust temperature protection, built-in motor overheat protection, overcurrent protection, check valve, safety valve							
Dimensions ( mm )	L	840(1080)	840(1080)	1200 ( 1080 )	1200 ( 1080 )	1200 ( 1080 )	1200 ( 1080 )	
	W	600(1080)	600(1080)	720 ( 1080 )	720 ( 1080 )	720 ( 1080 )	720 ( 1080 )	
	H	1870(1890)	1870(1890)	1870 ( 1890 )	1870 ( 1890 )	1870 ( 1890 )	1870 ( 1890 )	
Net weight	kg	185	240	320	350	380	380	
Running weight	Kg	200	260	360	380	420	420	
Noise	dB(A)	65	66	69	69	70	71	

Remarks:

1. Cooling standard working conditions: ambient temperature 35°CDB / 24°CWB; cold water inlet temperature 12°C, outlet temperature 7°C.
2. Heating standard working conditions: ambient temperature 7 °CDB / 6°CWB; hot water inlet temperature 40°C, outlet temperature 45°C.
3. Optional accessories: Built-in expansion water tank& water pump.



Unit model	RLSFW-(B) RLSFW-(B)R	RLSFW45	RLSFW60	RLSFW90	RLSFW120	RLSFW240	RLSFW480	
Nominal cooling capacity	kW	43	56	86	116	232	464	
Cooling input power	kW	13.3	16.3	16	35.8	71.6	143.2	
Running current	A	15.4	16.4	17.4	18.4	19.4	20.4	
Nominal heating capacity	kW	46.2	59.4	92.4	124	248	496	
Heating input power	kW	13.2	16.1	15.8	35.1	70.2	140.4	
Running current	A	20.1	24.5	24.0	53.3	106.7	213.3	
Max.running current	A	35	41	71	86	172	345	
Cable diameter (copper wire distance ≤ 20 meters)	mm <sup>2</sup>	3*10+2*6	3*16+2*10	3*35+2*16	3*50+2*25	3*240+2*120	2*(3*185+2*95)	
Power voltage	380V/50HZ							
Compressor qty			2	1	2	4		
Starting mode	Direct							
Refrigerant	R22/R410A							
Refrigerant charge	kg	12	13	12*2	14	14*2	14*4	
Refrigerant control device	Electronic expansion valve(EXV)							
Evaporator	Type	Plate type						
	Water pressure drop	kPa	70-90					
	Water pipe Dia.	DN	DN50	DN50	DN65	DN65	DN100	DN150
	Water flow	m <sup>3</sup> /h	6.7	8.7	13.4	18.1	36.1	72.2
Condenser type	Internally threaded copper tube & hydrophilic aluminum fins							
Condenser fan	Type	Axial type						
	Fan Qty	2	2	2	2	4	8	
	Noise	dB(A)	68	66	79	79	79	79
	Power	kW	0.37*2	0.55*2	1.8*2	1.8*2	1.8*4	1.8*8
	Air flow	m <sup>3</sup> /h	16000	20000	40000	40000	80000	160000
Air discharge	Side(Top)	Side						
Protection device	High and low voltage protection, antifreeze protection, temperature control, reverse phase and phase loss protection, high and low voltage protection, high pressure exhaust temperature protection, built-in motor overheat protection, overcurrent protection, check valve, safety valve							
Dimensions ( mm )	L	2200(2110)	2110	2370	2370	2370	2370	
	W	720(1080)	1080	1190	1190	2380	4760	
	H	1920(1870)	1870	2270	2270	2270	2270	
Net weight	kg	650	700	900	1000	2000	4000	
Running weight	Kg	690	760	980	1120	2240	4480	
Noise	dB(A)	72	73	73	74	74	74	

Remarks:

1. Cooling standard working conditions: ambient temperature 35°CDB / 24°CWB; cold water inlet temperature 12°C, outlet temperature 7°C.
2. Heating standard working conditions: ambient temperature 7 °CDB / 6°CWB; hot water inlet temperature 40°C, outlet temperature 45°C.
3. Optional accessories: Built-in expansion water tank& water pump.



## EVI type air cooled scroll water chiller and heat pump

Unit model	RLSFW-(B) RLSFW-(B)R	RLSFW20	RLSFW25	RLSFW30	RLSFW40	RLSFW45	
Nominal cooling capacity	kW	21.5	23.1	27	32	43	
Cooling input power	kW	7.5	7.9	9	10.4	13.3	
Running current	A	11.4	12.0	13.7	15.8	20.2	
Heating capacity @ working condition I	kW	24.4	26.3	30	38.2	46.2	
Heating input power	kW	7.4	7.9	9	10.3	13.2	
Running current	A	11.2	12.0	13.7	15.6	20.1	
Heating capacity @ working condition II	kW	17.8	19.2	21.9	27.9	33.8	
Heating input power	kW	7.5	8.0	9.1	10.4	13.3	
Running current	A	11.3	12.1	13.8	15.8	20.2	
Max.running current	A	20.6	21.5	24	27	35	
Cable diameter (copper wire distance ≤ 20 meters)	mm <sup>2</sup>	3*6+2*4	3*6+2*4	3*6+2*4	3*6+2*4	3*10+2*6	
Power	380V/50HZ						
Compressor qty	1						
Starting mode	Direct						
Refrigerant	R22/R410A						
Refrigerant charge	kg	8.5	10	10.5	11.5	12	
Refrigerant control device	Electronic expansion valve(EXV)						
Evaporator	Type	Plate type				Shell & tube type	
	Water pressure drop	kPa	70-90				
	Water pipe Dia.	DN	DN32	DN32	DN40	DN40	DN50
	Water flow	m <sup>3</sup> /h	3.4	3.6	4.3	5	6.7
Condenser type	Internally threaded copper tube & hydrophilic aluminum fins						
Condenser fan	Type	Axial type					
	Fan	1	1	1	1	2	
	Noise	dB(A)	68	68	78	78	68
	Power	kW	0.55	0.55	0.75	0.75	0.37*2
	Qty	m <sup>3</sup> /h	8000	10000	12000	14000	16000
Air discharge	Side(Top)						
Protection device	High and low voltage protection, antifreeze protection, temperature control, reverse phase and phase loss protection, high and low voltage protection, high pressure exhaust temperature protection, built-in motor overheat protection, overcurrent protection, check valve, safety valve						
Dimensions ( mm )	L	1200(1080)	1200(1080)	1200(1080)	1200(1080)	2200(2110)	
	W	720(1080)	720(1080)	720(1080)	720(1080)	720(1080)	
	H	1870(1890)	1870(1890)	1870(1890)	1870(1890)	1920(1870)	
Net weight	kg	320	350	380	380	650	
Running weight	kg	360	380	420	420	690	
Noise	dB(A)	69	69	70	71	72	

Remarks:

- 1、Cooling standard working conditions: ambient temperature 35°CDB / 24°CWB; cold water inlet temperature 12°C, outlet temperature 7°C.
- 2、Working condition I : ambient temperature 7 °CDB / 6°CWB; hot water inlet temperature 40°C, outlet temperature 45°C.
- 3、Working condition II : ambient temperature -12°CDB/-13.5°CWB, outlet water 41°C
- 4、Optional accessories: Built-in expansion water tank& water pump.



Unit model	RLSFW-(B) RLSFW-(B)R	RLSFW 60	RLSFW 90	RLSFW 120	RLSFW 240	RLSFW 480	
Nominal cooling capacity	kW	56	86	116	232	464	
Cooling input power	kW	16.3	16	35.8	71.6	143.2	
Running current	A	24.8	24.3	54.4	108.8	217.6	
Heating capacity @ working condition I	kW	59.4	92.4	124	248	496	
Heating input power	kW	16.1	15.8	35.1	70.2	140.4	
Running current	A	24.5	24.0	53.3	106.7	213.3	
Heating capacity @ working condition II	kW	43.4	67.5	90.6	181.3	362.6	
Heating input power	kW	16.2	15.9	35.4	70.8	141.7	
Running current	A	24.7	24.2	53.8	107.6	215.2	
Max.running current	A	41	71	86	172	345	
Cable diameter (copper wire distance ≤ 20 meters)	mm <sup>2</sup>	3*16+2*10	3*35+2*16	3*50+2*25	3*240+2*120	2*(3*185+2*95)	
Power		380V/50HZ					
Compressor qty		1	2	1	2	4	
Starting mode		Direct					
Refrigerant		R410A					
Refrigerant charge	kg	13	12*2	14	14*2	14*4	
Refrigerant control device		Electronic expansion valve(EXV)					
Evaporator	Type	Shell&Tube type					
	Water pressure drop	kPa	70-90				
	Water pipe Dia.	DN	DN50	DN65	DN65	DN100	DN150
	Water flow	m <sup>3</sup> /h	8.7	13.4	18.1	36.1	72.2
Condenser type		Internally threaded copper tube & hydrophilic aluminum fins					
Condenser fan	Type	Axial type					
	Fan		2	2	2	4	8
	Noise	dB(A)	66	79	79	79	79
	Power	kW	0.55*2	1.8*2	1.8*2	1.8*4	1.8*8
	Qty	m <sup>3</sup> /h	20000	40000	40000	80000	160000
Air discharge		Top					
Protection device		High and low voltage protection, antifreeze protection, temperature control, reverse phase and phase loss protection, high and low voltage protection, high pressure exhaust temperature protection, built-in motor overheat protection, overcurrent protection, check valve, safety valve					
Dimensions ( mm )	L	2110	2370	2370	2370	2370	
	W	1080	1190	1190	2380	4760	
	H	1870	2270	2270	2270	2270	
Net weight	kg	700	900	1000	2000	4000	
Running weight	kg	760	980	1120	2240	4480	
Noise	dB(A)	73	73	74	74	74	

Remarks:

- 1、Cooling standard working conditions: ambient temperature 35°CDB / 24°CWB; cold water inlet temperature 12°C, outlet temperature 7°C.
- 2、Working condition I : ambient temperature 7 °CDB / 6°CWB; hot water inlet temperature 40°C, outlet temperature 45°C.
- 3、Working condition II :ambient temperature -12°CDB/-13.5°CWB,outlet water 41°C
- 4、Optional accessories: Built-in expansion water tank& water pump.



## Air cooled scroll hot water heat pump

Unit model	RLSFW-D	RLSFW10	RLSFW20	RLSFW30	RLSFW40	RLSFW80	
Heating capacity	kW	11.2	19.8	36.3	40.7	81.4	
Heating input power	kW	4.3	7.3	11	12.6	25.2	
Max.running current	A	19.5	11	16.7	19.1	38.3	
Max.running current	A	22	16	25	32	61	
Cable diameter (copper wire distance ≤ 20 meters)	mm <sup>2</sup>	3*6	3*4+2*2.5	3*6+2*2.5	3*10+2*6	3*25+2*16	
Power		220V/50HZ	380V/ 50HZ				
Compressor qty		1	1	1	1	2	
Start type		Directly					
Refrigerant		R22					
Refrigerant charge		4.5	6.5	10	10.5	10.5*2	
Refrigerant control device		Thermal expansion vave					
Evaporator	Type		Plate type				
	Water pressure drop	kPa					
	Water pipe Dia.	DN	DN32	DN 32	DN 40	DN 40	DN 50
	Water flow	m <sup>3</sup> /h	1.8	3.1	5.7	6.4	12.7
Water flow		Internally threaded copper tube & hydrophilic aluminum fins					
Condenser Fan	Type		Axial type				
	Fan qty		1	1	1	1	2
	Noise	dB(A)	69	69	69	69	69
	Power	kW	0.37/0.55	0.37/0.55	0.37/0.55	0.37/0.55	0.37/0.55
	Air flow	m <sup>3</sup> /h	8000	8000	10000	10000	20000
Air discharge		Top					
Protection device		High and low voltage protection, antifreeze protection, temperature control, reverse phase and phase loss protection, high and low voltage protection, high pressure exhaust temperature protection, built-in motor overheat protection, overcurrent protection,check valve, safety valve					
Dimensions ( mm )	L	1180	1180	1180	1180	2110	
	W	1080	1080	1080	1080	1080	
	H	1870	1870	1870	1870	1870	
Net weight	kg	300	320	350	380	700	
Running weight	kg	330	350	380	420	760	
Noise	dB(A)	69	70	72	72	73	

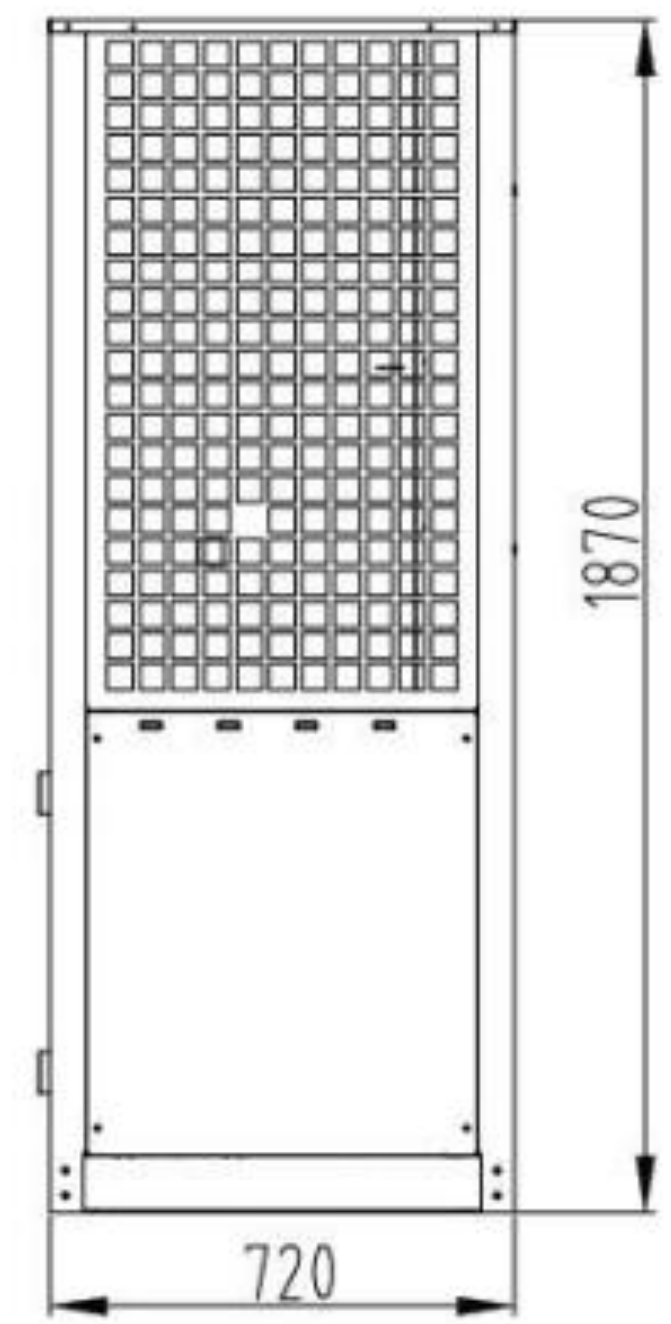
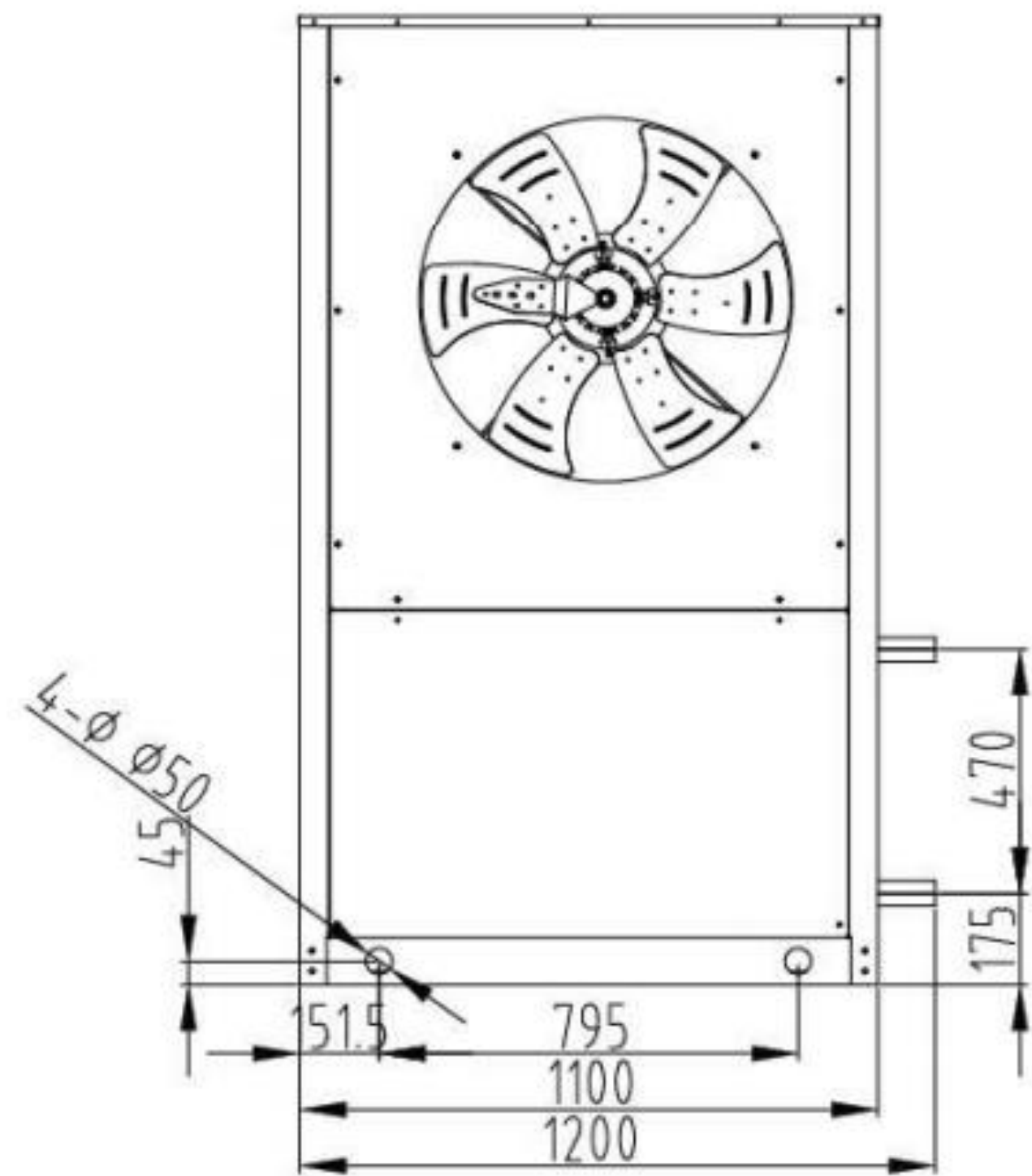
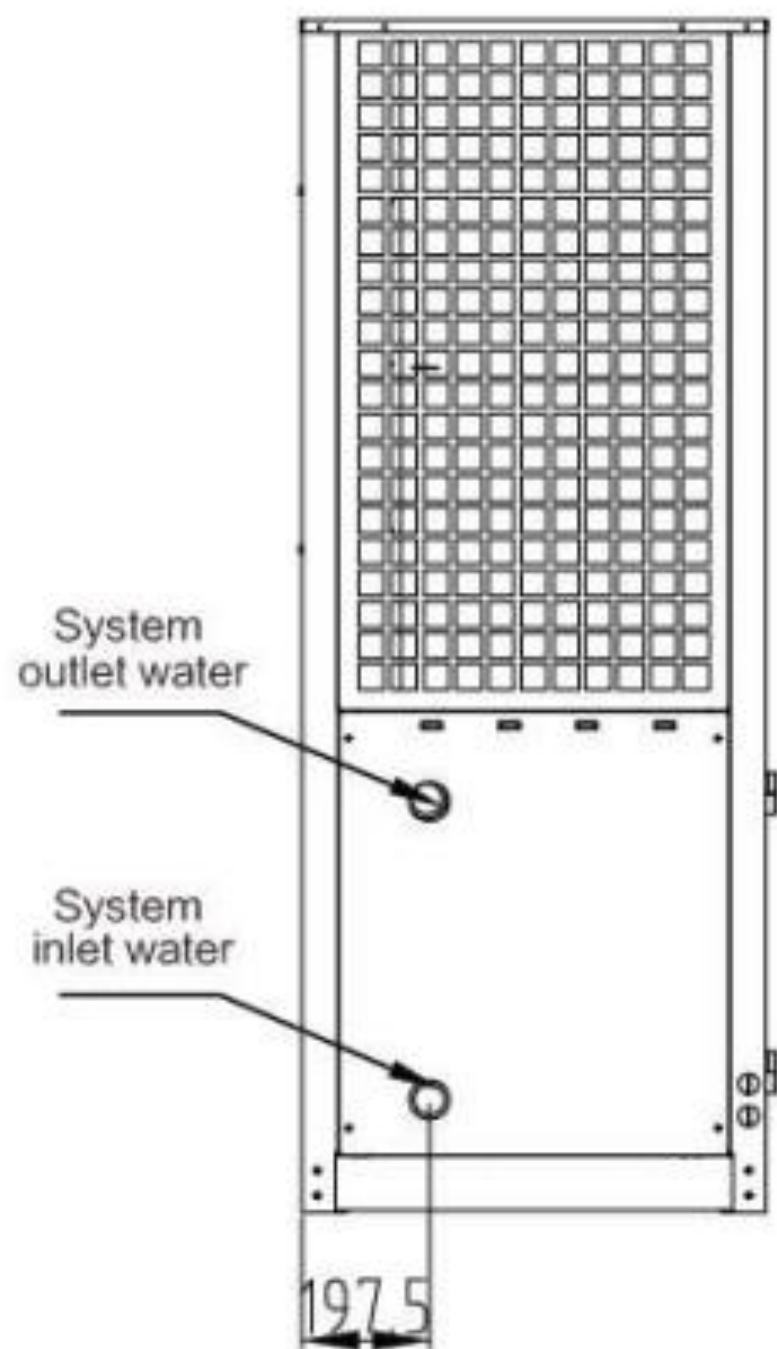
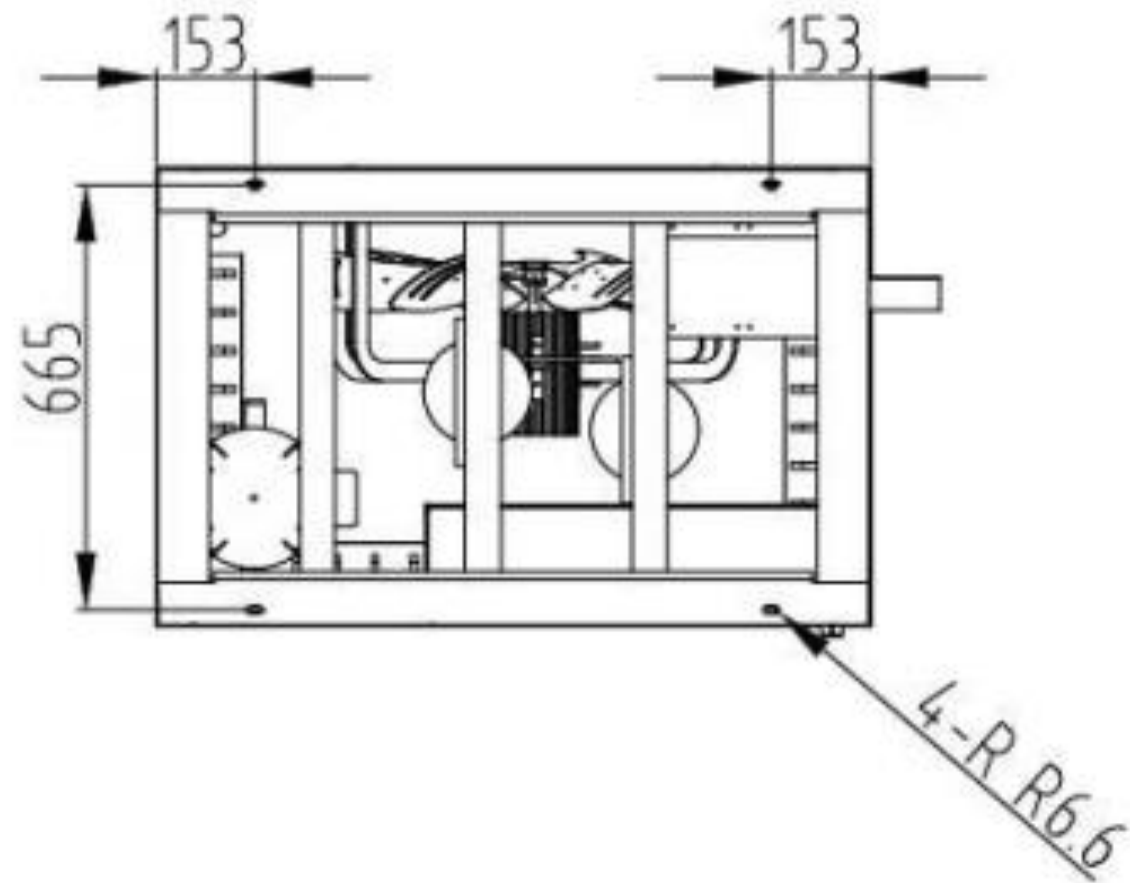
Note:

1. Test conditions: ambient temperature 20° C DB/15° C WB; the actual heating capacity will vary with the outdoor environment temperature and humidity.
2. The maximum outlet temperature of hot water can reach 60° C.
3. Operating environment temperature range: -25°C~46°C. Outlet water temperature 55°C



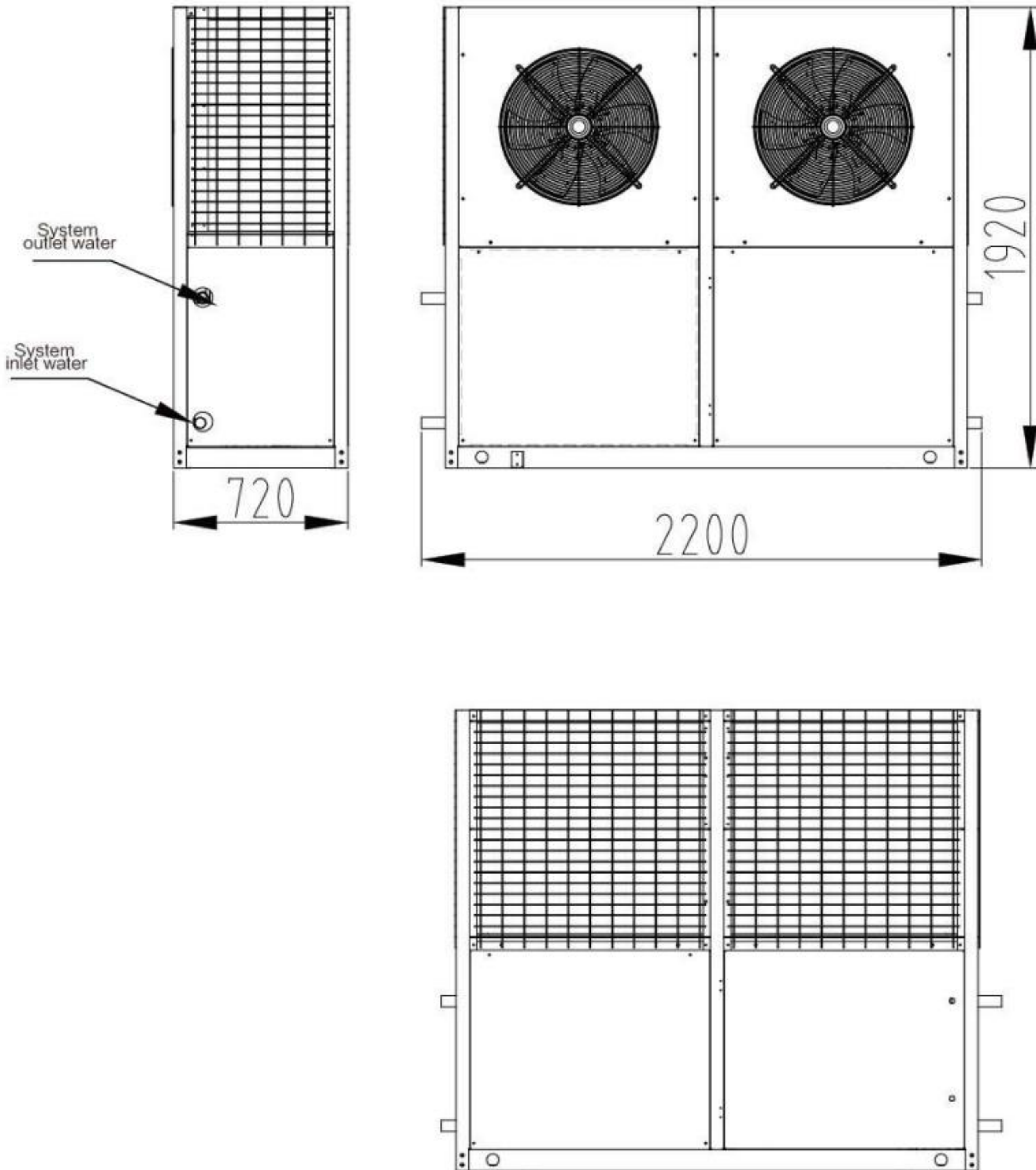
# 4.STRUCTURE DIAGRAM

## Side discharge type



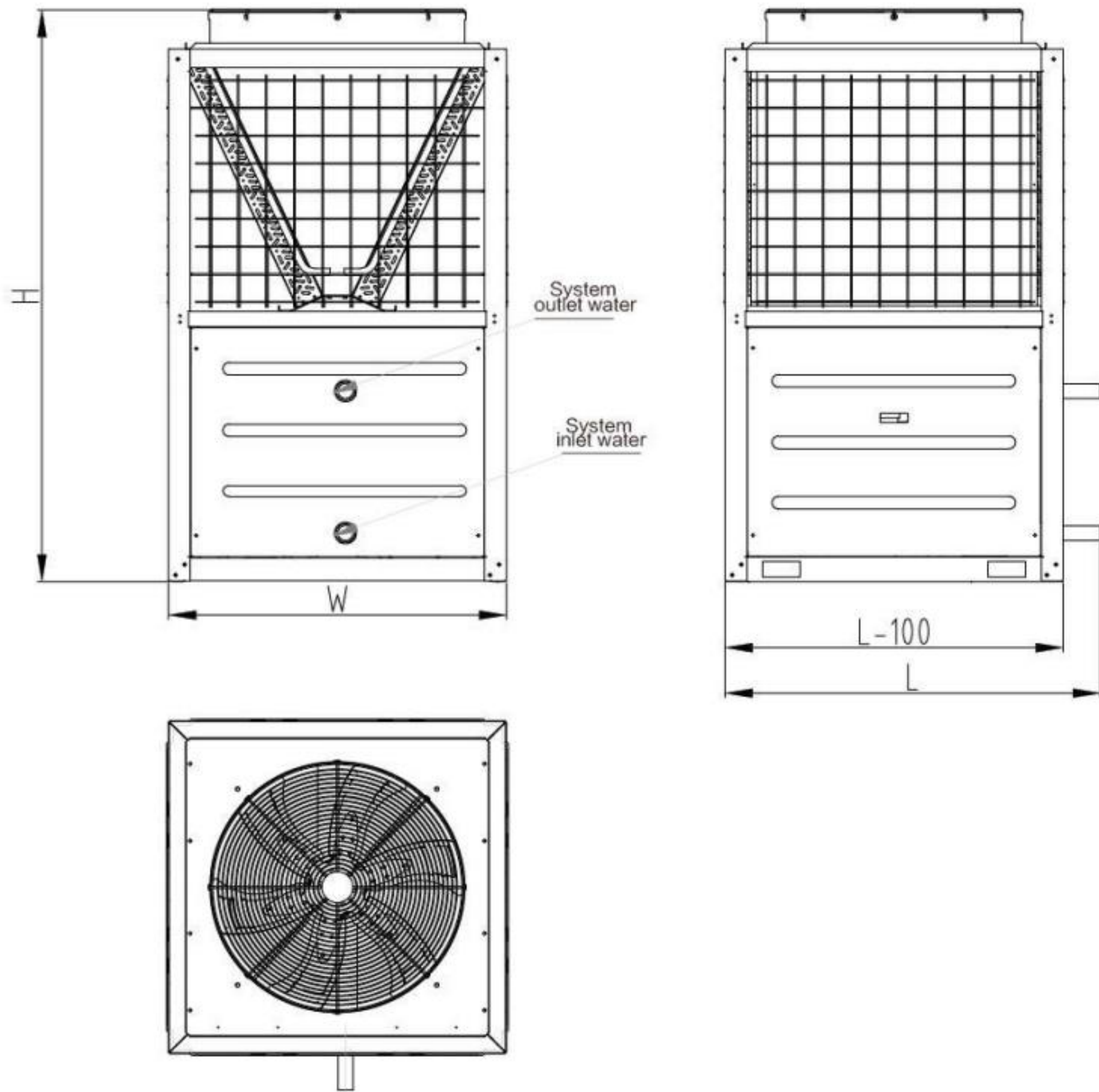


### Side discharge type



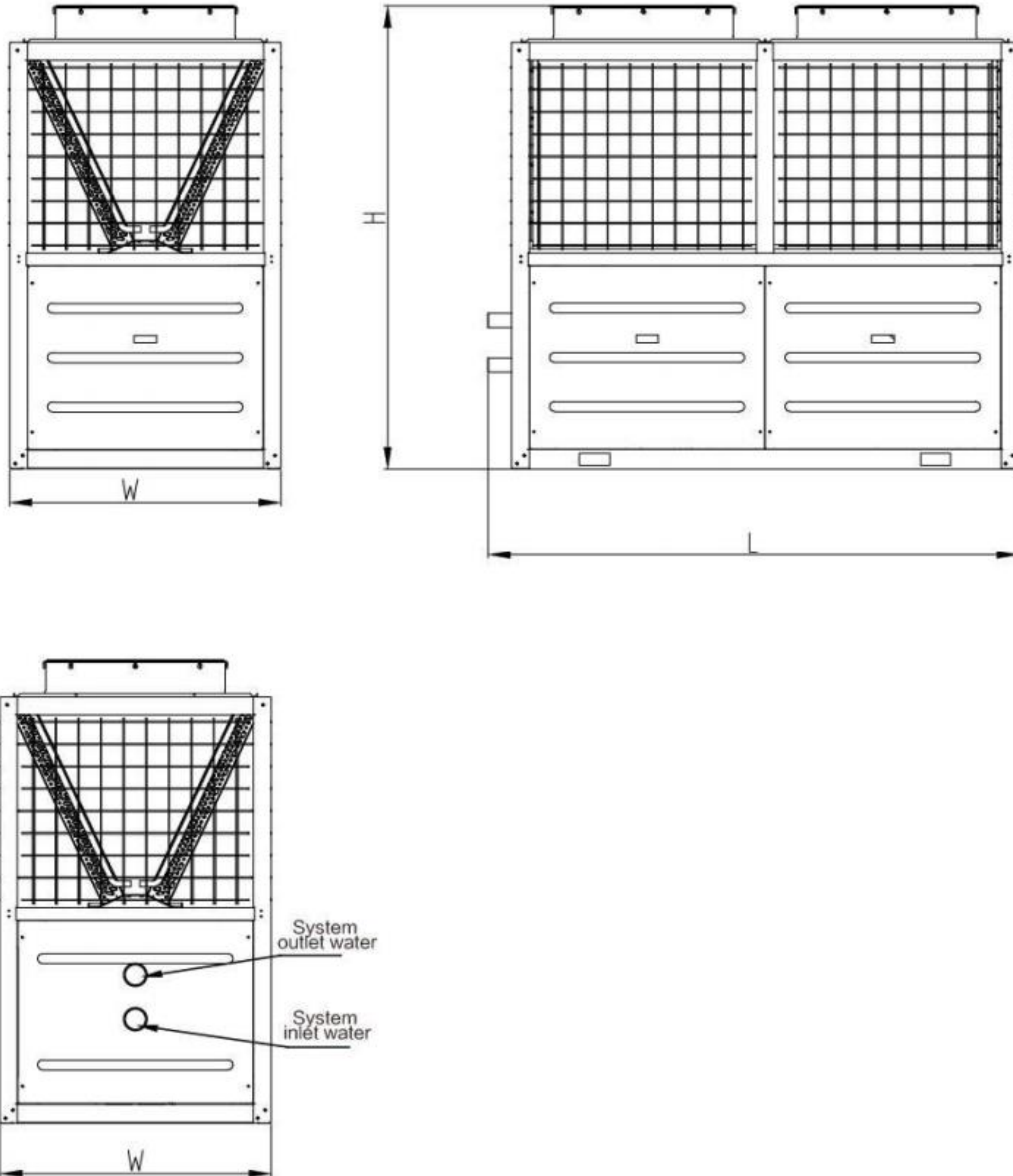


## Top discharge type





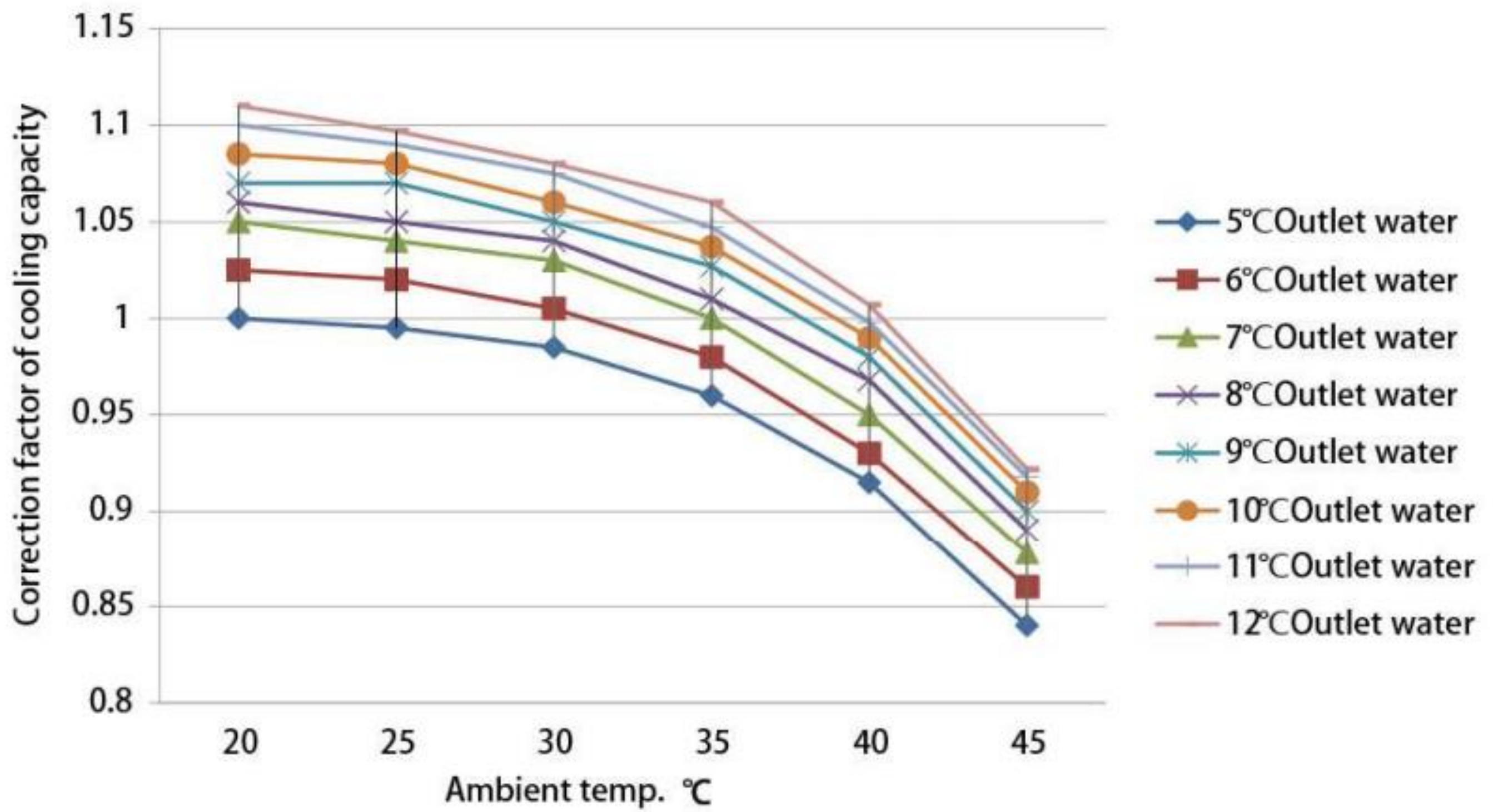
## Top discharge type





## 5. CORRECTION FACTOR

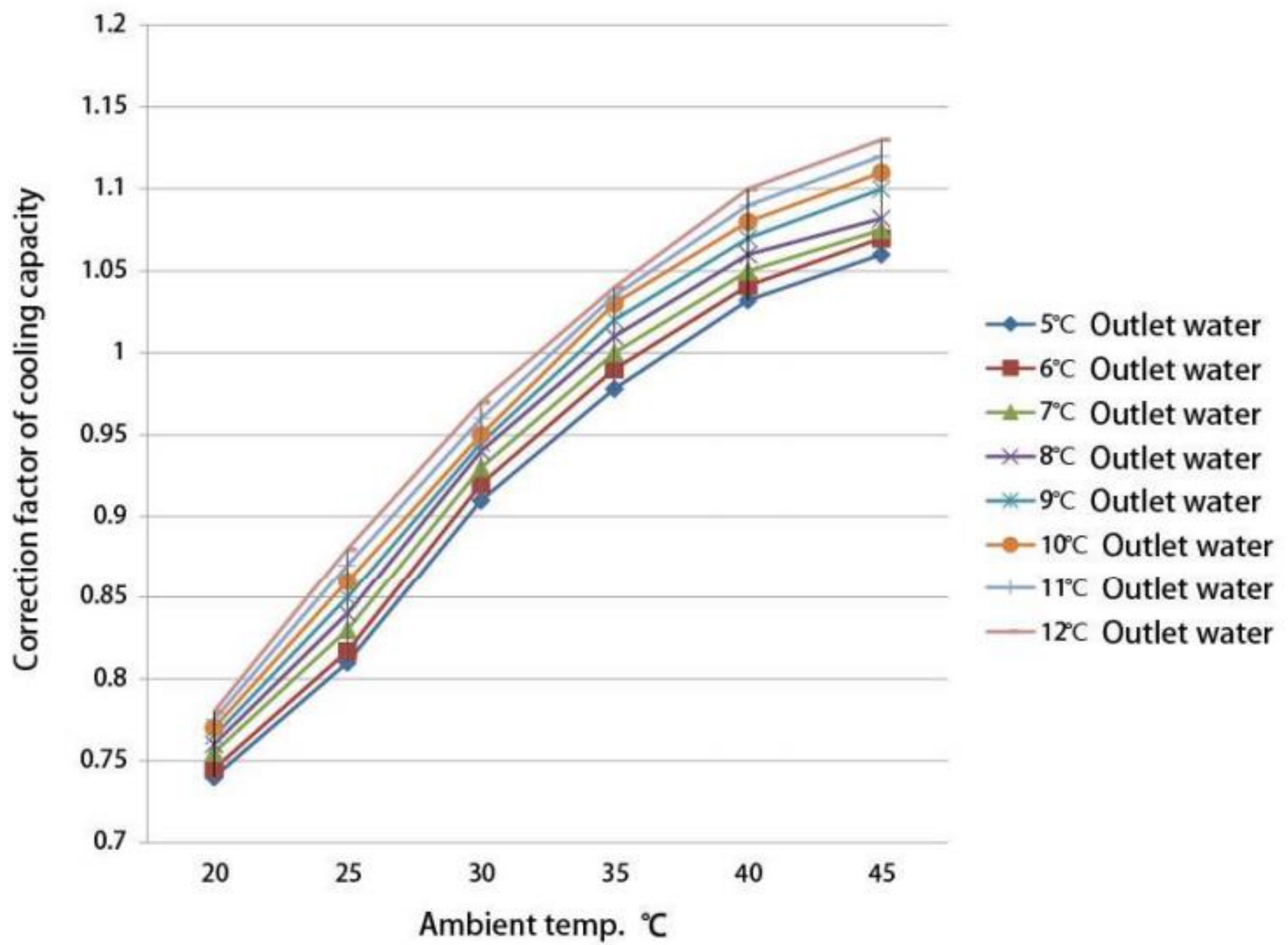
### Correction factor curve of cooling capacity



Ambient temp. / Outlet water temp.	20	25	30	35	40	45
5°C	1	0.995	0.985	0.96	0.915	0.84
6°C	1.025	1.02	1.005	0.98	0.93	0.86
7°C	1.05	1.04	1.03	1	0.95	0.878
8°C	1.06	1.05	1.04	1.01	0.968	0.89
9°C	1.07	1.07	1.05	1.027	0.98	0.9
10°C	1.085	1.08	1.06	1.037	0.99	0.91
11°C	1.1	1.09	1.075	1.047	0.998	0.918
12°C	1.11	1.097	1.08	1.06	1.007	0.922



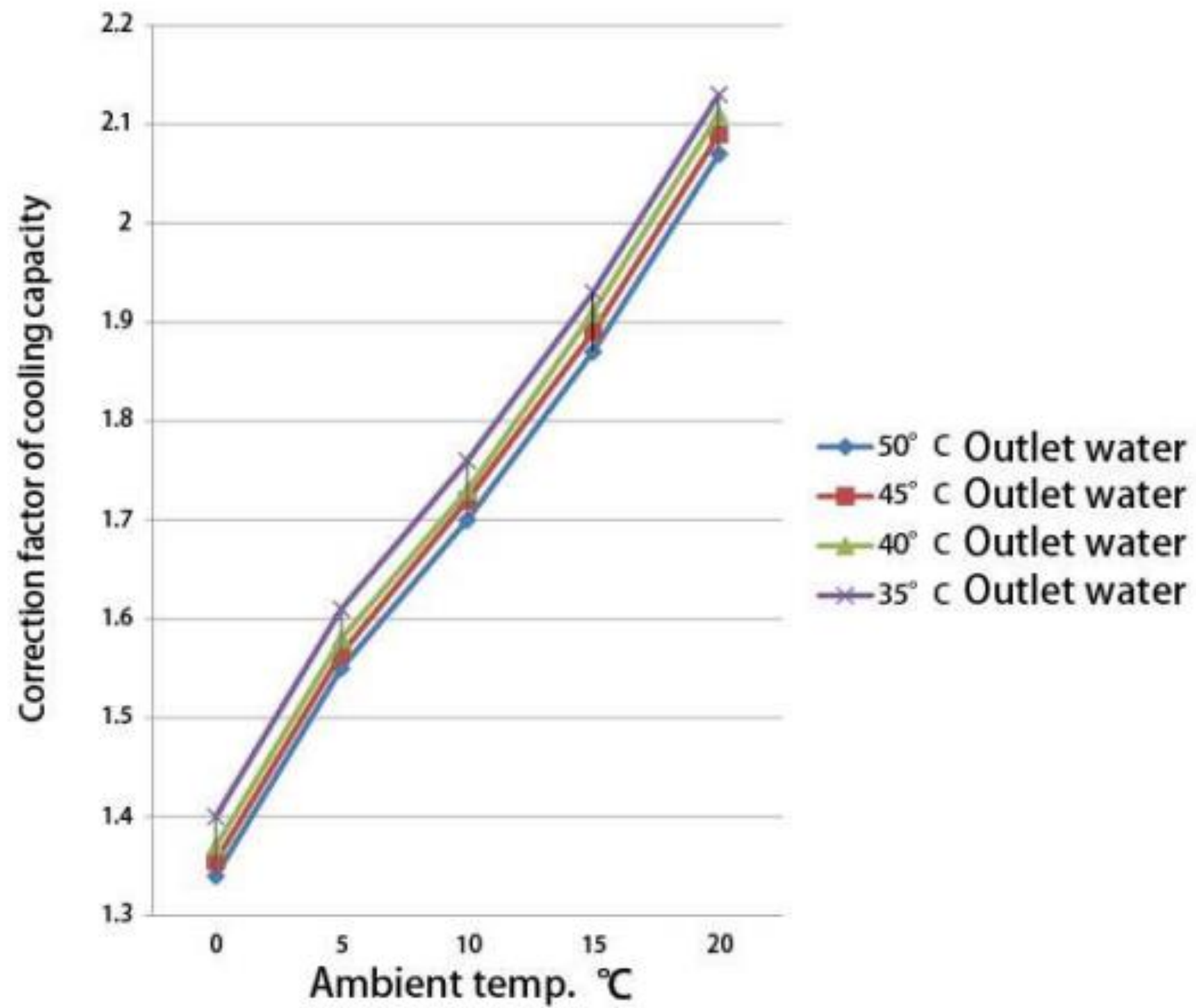
### Correction factor curve of input power of cooling



Ambient temp. / Outlet water temp.	20	25	30	35	40	45
5°C Outlet water	0.74	0.81	0.91	0.978	1.032	1.06
6°C Outlet water	0.745	0.817	0.92	0.99	1.041	1.07
7°C Outlet water	0.755	0.83	0.93	1	1.05	1.075
8°C Outlet water	0.76	0.84	0.94	1.01	1.06	1.082
9°C Outlet water	0.765	0.85	0.945	1.02	1.07	1.1
10°C Outlet water	0.77	0.86	0.95	1.03	1.08	1.11
11°C Outlet water	0.775	0.87	0.96	1.035	1.09	1.12
12°C Outlet water	0.78	0.88	0.97	1.04	1.1	1.13

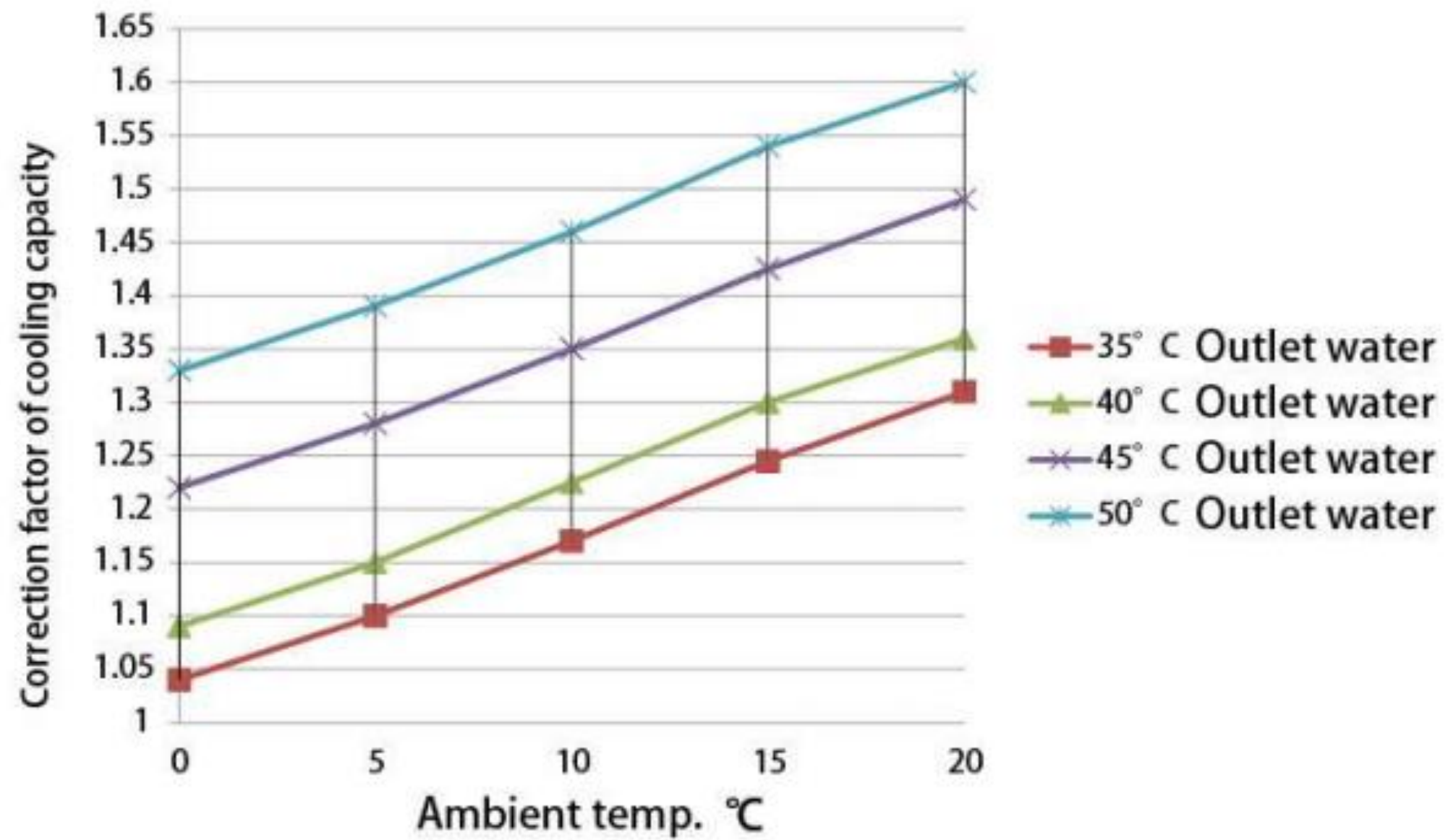


## Correction factor curve of heating capacity



Ambient temp. / Outlet water temp.	0	5	10	15	20	25
50°C Outlet water	1.34	1.55	1.7	1.87	2.07	
45°C Outlet water	1.355	1.565	1.72	1.89	2.09	
40°C Outlet water	1.37	1.58	1.73	1.91	2.11	
35°C Outlet water	1.4	1.61	1.76	1.93	2.13	

## Correction factor curve of input power of heating



Ambient temp. / Outlet water temp.	0	5	10	15	20	25
35°C Outlet water	1.04	1.1	1.17	1.245	1.31	
40°C Outlet water	1.09	1.15	1.225	1.3	1.36	
45°C Outlet water	1.22	1.28	1.35	1.425	1.49	
50°C Outlet water	1.33	1.39	1.46	1.54	1.6	





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