

Air Cooled Water Chiller And Heat pump

Product Display



Air Cooled Screw Type Water Chiller And Heat Pump

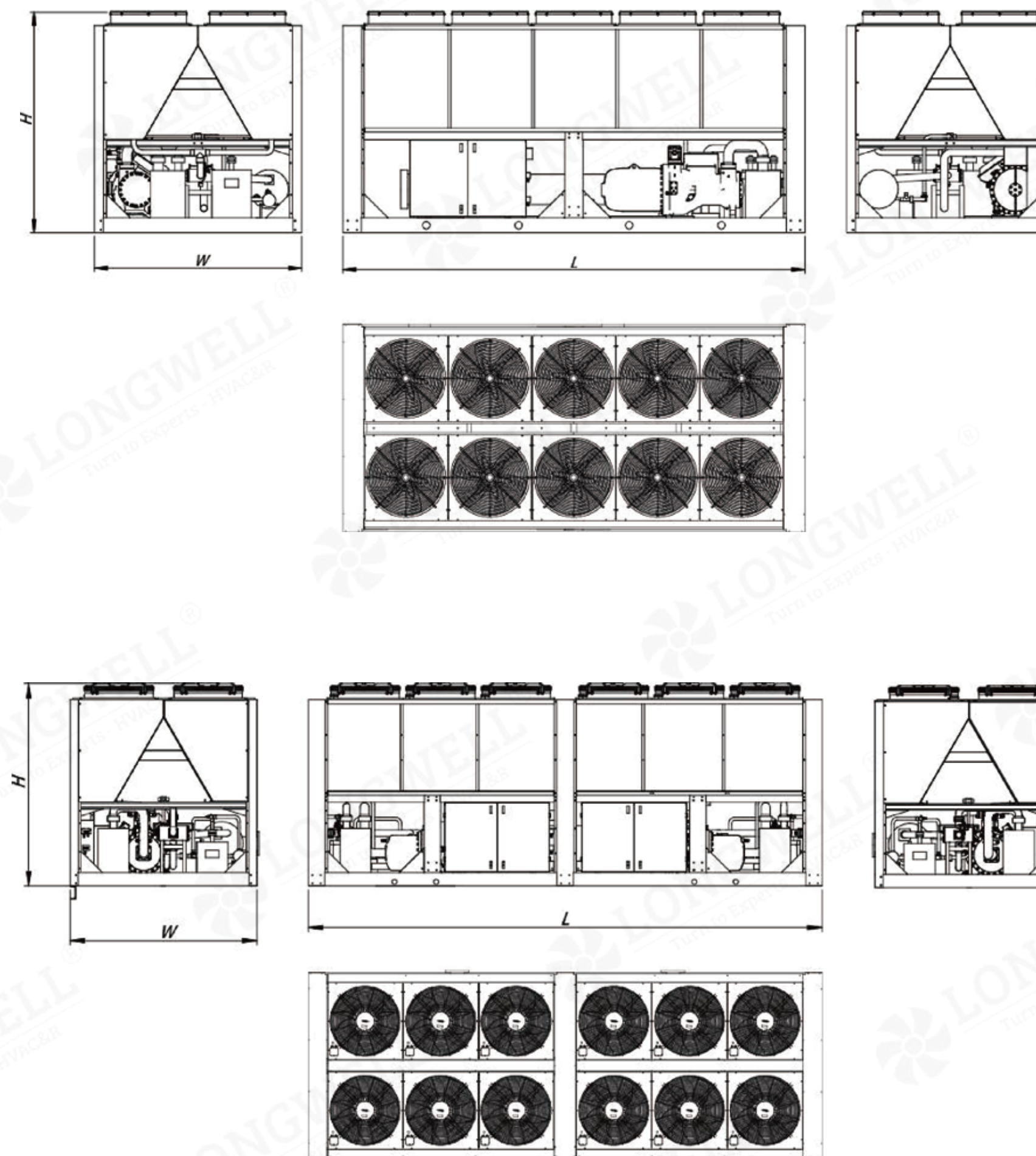
Product Characteristic

The main components of the air-cooled screw chiller heat pump include the screw compressor, condenser, evaporator, and electrical control system. The screw compressor is responsible for compressing and heating the gas, the condenser is used to cool and condense the high-temperature and high-pressure gas discharged from the compressor into liquid form, the evaporator absorbs heat from the air and evaporates the refrigerant into gas, and the electrical control system controls the operation and parameter settings of the unit. The air-cooled screw chiller heat pump has the following characteristics:

1. Abundant heat source: using air as the heat source, it is not limited by geothermal resources and is suitable for a wide range of applications.
2. Environmentally friendly and energy-saving: no fuel combustion is required, no smoke, dust, or exhaust emissions, reducing environmental pollution; at the same time, heating is achieved by utilizing the heat energy in the air, making it more energy-efficient than other conventional heat pumps.
3. Strong independence: the heat source and hot water system can operate independently, unaffected by external conditions, and operate stably.
4. Convenient control: adopts advanced electrical control system, realizing precise temperature control and automation operation.



Structure Diagram



Air Cooled Screw Type Water Chiller And Heat Pump

Model	RLSFC RLSFCR	280	320	360	460	500	560
Nominal cooling capacity(kW)		270	308	365	458	502	545
Input power(kW)		87	99	121	144	158	171
Running current(A)		172	194	236	279	308	338
Nominal heating capacity(kW)		271	318	374	470	522	563
Input power(kW)		85	97	118	140	153	166
Running current(A)		157	176	214	252	278	305
Max.running current(A)		197	222	270	320	355	376
Cable diameter(copper wire distance ≤20 meters)mm²		3×95+2×50	3×120+2×50	3×150+2×70	3×185+2×95	3×185+2×95	3×240+2×120
Compressor type		Semi-hermetic screw					
Compressor qty		1					
Energy steps		25%-50%-75%-100%					
Power voltage		3N-380V-50HZ					
Starting mode		Y-Δor by winding					
Refrigerant		R407C/R22					
Refrigerant charge		85	85	100	125	140	150
Refrigerant control device		Electronic expansion valve(EXV)					
Condenser type	Type	Internally threaded copper tube & hydrophilic aluminum fins					
	Fan type	Axial type fan					
	Qty	6	6	8	10	10	10
	Input power(kW)	2.2×6	2.2×6	2.2×8	2.2×10	2.2×10	2.2×10
Evaporator	Shell & tube type						
	Water pressure drop(kPa)	70					
	Water pipe DiaDN	100	100	100	125	125	125
	Water flow(m³h)	46	53	63	79	86	94
Heat recovery device	Type	Shell & tube type					
	Qty	30%					
	Water pressure drop(kPa)	70					
	Water pipe DiaDN	65	65	80	80	80	80
	Water flow(m³h)	18	21	25	31	34	37
Heat recovery device	Type	Shell & tube type					
	Qty	100%					
	Water pressure drop(kPa)	70					
	Water pipe DiaDN	80	100	100	100	100	125
	Water flow(m³h)	37	42	50	62	68	74
Protection device	Hich and low volage protection,antfreeze protection,temperature control,reverse phase and phase loss protection high and lowrotage protection,hiah pressure exhaus temperature protection,buit-in motor overheat protecton,overcurrent protection,check valve,saety valve						
Noise(dB(A))		79	79	79	81	81	82
Dimensions	L	3190	3190	4100	5010	5010	5310
	W	2250	2250	2250	2250	2250	2250
	H	2480	2480	2480	2480	2480	2480
Net weight	kg	2500	3000	3500	4700	5400	5800
Running weight	kg	3100	3500	4000	5100	5800	6200

Remarks:

- Cooling standard working conditions: ambient temperature 35℃ DB/24℃ WB; cold water inlet temperature 12℃, outlet temperature 7℃.
- Heating standard working conditions: ambient temperature 7℃ DB/6℃ WB; hot water inlet temperature 40℃, outlet temperature 45℃.

Air Cooled Screw Type Water Chiller And Heat Pump

Model	RLSFC RLSFCR	560	640	720	920	1000	1120
Nominal cooling capacity(kW)		540	616	730	916	1004	1090
Input power(kW)		174	199	242	288	316	342
Running current(A)		344	366	427	535	593	631
Nominal heating capacity(kW)		542	636	748	940	1044	1126
Input power(kW)		169	193	235	280	307	332
Running current(A)		314	353	427	504	555	610
Max.running current(A)		393	445	539	640	709	751
Cable diameter(copper wire distance ≤20 meters)mm²		2×(3×95+2×50)	2×(3×120+2×50)	2×(3×150+2×70)	2×(3×185+2×95)	2×(3×185+2×95)	2×(3×240+2×120)
Compressor type		Semi-hermetic screw					
Compressor qty		2					
Energy steps		25%-50%-75%-100%					
Power voltage		3N-380V-50HZ					
Starting mode		Y-Δor by winding					
Refrigerant		R407C/R22					
Refrigerant charge		170	170	200	250	280	300
Refrigerant control device		Electronic expansion valve(EXV)					
Condenser type	Type	Internally threaded copper tube & hydrophilic aluminum fins					
	Fan type	Axial type fan					
	Qty	12	16	16	20	20	20
	Input power(kW)	2.2×12	2.2×1.6	2.2×1.6	2.2×20	2.2×20	2.2×20
Evaporator	Shell & tube type						
	Water pressure drop(kPa)	70					
	Water pipe DiaDN	150	150	150	150	150	150
	Water flow(m³h)	93	106	126	158	173	187
Heat recovery device	Type	Shell & tube type					
	Qty	30%					
	Water pressure drop(kPa)	70					
	Water pipe DiaDN	80	80	100	100	100	125
	Water flow(m³h)	37	42	50	62	68	74
Heat recovery device	Type	Shell & tube type					
	Qty	100%					
	Water pressure drop(kPa)	70					
	Water pipe DiaDN	125	125	125	150	150	150
	Water flow(m³h)	74	84	100	124	136	148
Protection device	Hich and low volage protection,antfreeze protection,temperature control,reverse phase and phase loss protection high and lowrotage protection,hiah pressure exhaus temperature protection,buit-in motor overheat protecton,overcurrent protection,check valve,saety valve						
Noise(dB(A))		79	81	83	83	84	84
Dimensions	L	6186	8006	8006	9826	9826	10620
	W	2250	2250	2250	2250	2250	2250
	H	2480	2480	2480	2480	2480	2480
Net weight	kg	5400	6000	6600	9000	10000	11500
Running weight	kg	600	6600	7200	9600	16000	12100

Remarks:

- Cooling standard working conditions: ambient temperature 35℃ DB/24℃ WB; cold water inlet temperature 12℃, outlet temperature 7℃.
- Heating standard working conditions: ambient temperature 7℃ DB/6℃ WB; hot water inlet temperature 40℃, outlet temperature 45℃.

Air Cooled Screw Type Water Chiller And Heat Pump

Model	RLSFC RLSFCR	260	280	320	360	460	500	560
Nominal cooling capacity(kW)		252	280	321	356	458	496	562
Input power(kW)		82	90	108	122	148	163	182
Running current(A)		162	179	214	234	290	323	360
Nominal heating capacity(kW)		246	280	328	368	465	503	583
Input power(kW)		80	89	92	120	145	160	179
Running current(A)		147	162	194	211	263	293	354
Max.running current(A)		199	222	265	290	361	398	452
Cable diameter(copper wire distance ≤20 meters)mm²		3×95+2×50	3×120+2×50	3×150+2×70	3×185+2×95	3×185+2×95	3×240+2×120	3×240+2×120
Compressor type		Semi-hermetic screw						
Compressor qty		1						
Energy steps		25%-50%-75%-100%						
Power voltage		3N-380V-50HZ						
Starting mode		Y-Δor by winding						
Refrigerant		R134a						
Refrigerant charge		70	80	95	110	135	150	170
Refrigerant control device		Electronic expansion valve(EXV)						
Condenser type	Type	Internally threaded copper tube & hydrophilic aluminum fins						
	Fan type	Axial type fan						
	Qty	6	6	8	10	10	10	10
	Input power(kW)	2.2×6	2.2×6	2.2×8	2.2×10	2.2×10	2.2×12	2.2×12
Evaporator	Shell & tube type							
	Water pressure drop(kPa)	70						
	Water pipe DiaDN	100	100	100	125	125	125	150
	Water flow(m³h)	43	48	55	61	79	85	97
Heat recovery device	Type	Shell & tube type						
	Qty	30%						
	Water pressure drop(kPa)	70						
	Water pipe DiaDN	65	65	80	80	80	80	100
	Water flow(m³h)	17	19	22	25	31	34	38
Heat recovery device	Type	Shell & tube type						
	Qty	100%						
	Water pressure drop(kPa)	70						
	Water pipe DiaDN	80	100	100	100	125	125	125
	Water flow(m³h)	34	38	44	49	63	68	77
Protection device	Hich and low volage protection,antfreeze protection,temperature control,reverse phase and phase loss protection high and lowrotage protection,hiah pressure exhaus temperature protection,buit-in motor overhear protection,overcurrent protection,check valve,saety valve							
Noise(dB(A))		79	79	79	79	81	83	83
Dimensions	L	3190	3190	4100	5010	5010	6186	6186
	W	2250	2250	2250	2250	2250	2250	2250
	H	2480	2480	2480	2480	2480	2480	2480
Net weight	kg	2500	3000	3500	5800	6000	6200	6400
Running weight	kg	3100	3500	4000	6200	6600	7000	7400

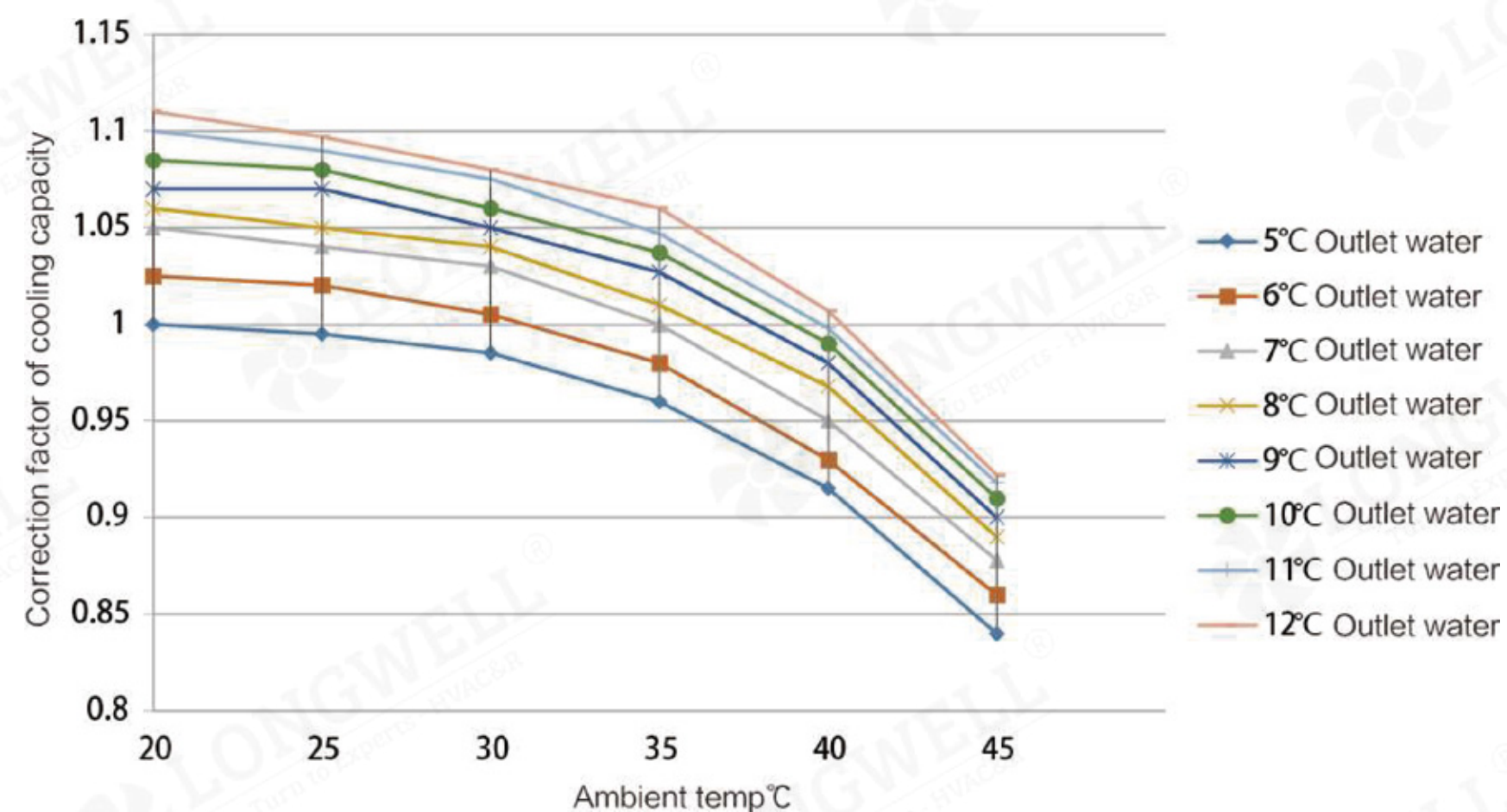
Remarks:
1.Cooling standard working conditions: ambient temperature 35℃DB/24℃WB; cold water inlet temperature 12℃, outlet temperature 7℃.
2.Heating standard working conditions: ambient temperature 7℃DB/6℃WB; hot water inlet temperature 40℃, outlet temperature 45℃.

Air Cooled Screw Type Water Chiller And Heat Pump

Model	RLSFC RLSFCR	520	560	640	720	920	1000	1120
Nominal cooling capacity(kW)		504	560	642	712	916	992	1124
Input power(kW)		163	181	215	245	295	325	364
Running current(A)		324	358	428	467	579	646	720
Nominal heating capacity(kW)		492	560	656	736	930	1006	1166
Input power(kW)		160	177	185	240	290	320	357
Running current(A)		293	323	387	422	526	586	708
Max.running current(A)		399	445	530	579	723	796	904
Cable diameter(copper wire distance ≤20 meters)mm²		3×95+2×50	3×120+2×50	3×150+2×70	3×185+2×95	3×185+2×95	3×240+2×120	3×240+2×120
Compressor type		Semi-hermetic screw						
Compressor qty		2						
Energy steps		25%-50%-75%-100%						
Power voltage		3N-380V-50HZ						
Starting mode		Y-Δor by winding						
Refrigerant		R134a						
Refrigerant charge		140	160	190	220	270	300	340
Refrigerant control device		Electronic expansion valve(EXV)						
Condenser type	Type	Internally threaded copper tube & hydrophilic aluminum fins						
	Fan type	Axial type fan						
	Qty	12	12	16	20	20	24	24
	Input power(kW)	2.2×12	2.2×12	2.2×16	2.2×20	2.2×20	2.2×24	2.2×24
Evaporator	Shell & tube type							
	Water pressure drop(kPa)	70						
	Water pipe DiaDN	125	150	150	150	150	150	200
	Water flow(m³h)	87	96	110	122	158	171	193
Heat recovery device	Type	Shell & tube type						
	Qty	30%						
	Water pressure drop(kPa)	70						
	Water pipe DiaDN	80	80	100	100	100	125	125
	Water flow(m³h)	34	38	44	49	63	68	77
Heat recovery device	Type	Shell & tube type						
	Qty	100%						
	Water pressure drop(kPa)	70						
	Water pipe DiaDN	100	100	100	100	125	125	125
	Water flow(m³h)	69	76	88	99	125	136	154
Protection device	Hich and low volage protection,antfreeze protection,temperature control,reverse phase and phase loss protection high and lowrotage protection,hiah pressure exhaus temperature protection,buit-in motor overhear protection,overcurrent protection,check valve,saety valve							
Noise(dB(A))		79	79	81	83	83	84	84
Dimensions	L	6186	6186	8006	9826	9826	12372	12372
	W	2250	2250	2250	2250	2250	2250	2250
	H	2480	2480	2480	2480	2480	2480	2480
Net weight	kg	5400	6000	6600	11500	12500	13500	14500
Running weight	kg	6000	6600	7200	12100	13100	14300	14400

Remarks:
1.Cooling standard working conditions: ambient temperature 35℃DB/24℃WB; cold water inlet temperature 12℃, outlet temperature 7℃.
2.Heating standard working conditions: ambient temperature 7℃DB/6℃WB; hot water inlet temperature 40℃, outlet temperature 45℃.

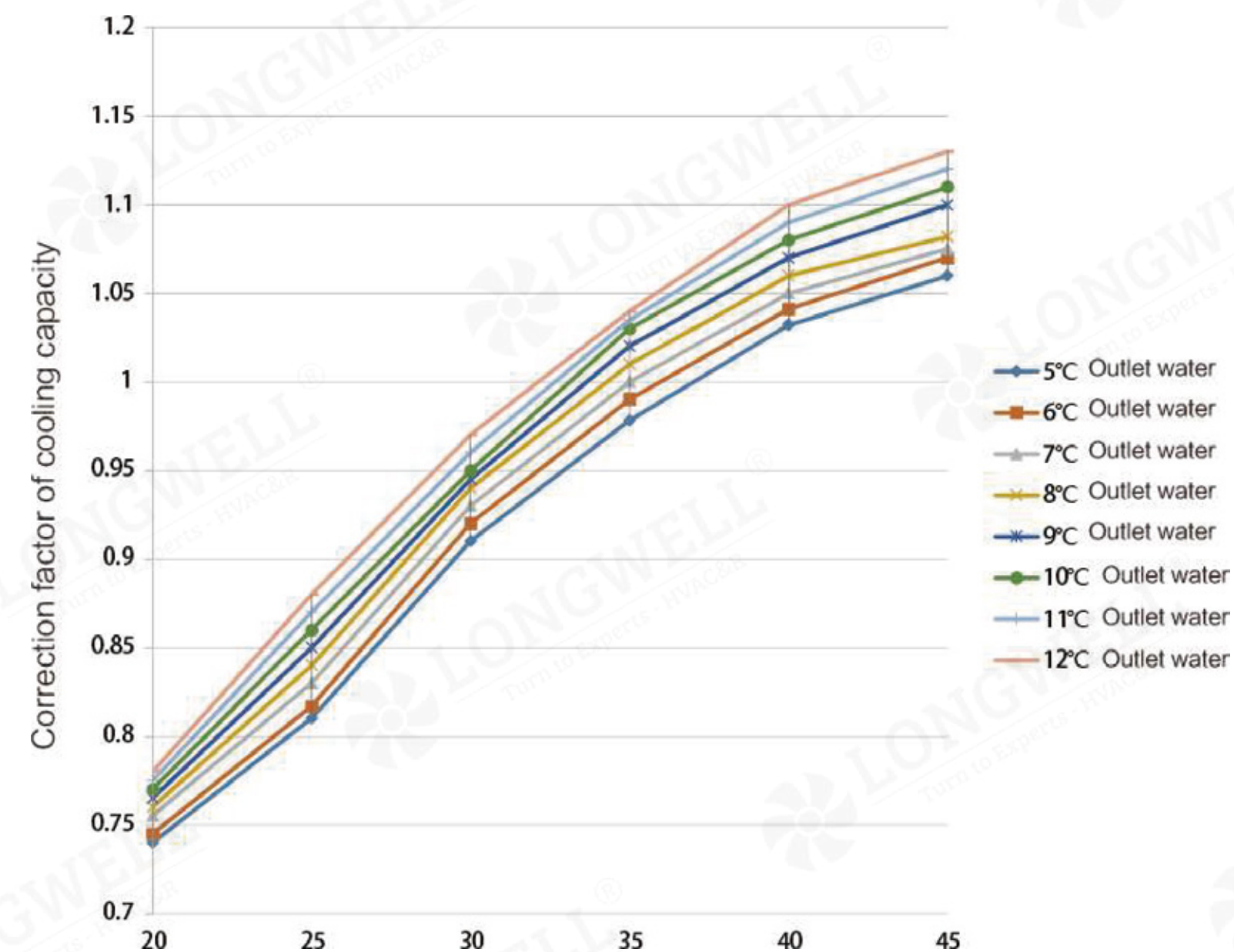
Correction factor curve of cooling capacity



Technical Parameters

Outlet water temp \ Ambient temp	Ambient temp					
	20°C	25°C	30°C	35°C	40°C	45°C
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

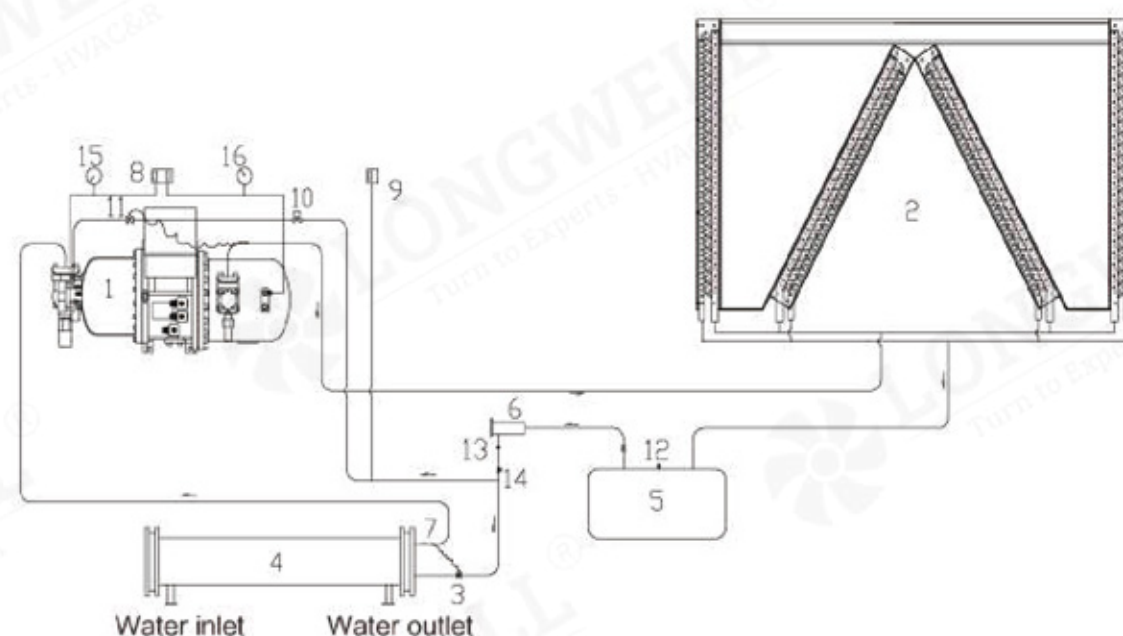


Technical Parameters

Outlet water temp \ Ambient temp	Ambient temp					
	20°C	25°C	30°C	35°C	40°C	45°C
5°C	0.74	0.81	0.91	0.978	1.032	1.06
6°C	0.745	0.817	0.92	0.98	1.041	1.07
7°C	0.755	0.83	0.93	1	1.05	1.075
8°C	0.76	0.84	0.94	1.01	1.06	1.082
9°C	0.765	0.85	0.945	1.027	1.07	1.1
10°C	0.77	0.86	0.95	1.037	1.08	1.11
11°C	0.775	0.87	0.96	1.047	1.09	1.12
12°C	0.78	0.88	0.97	1.04	1.1	0.13

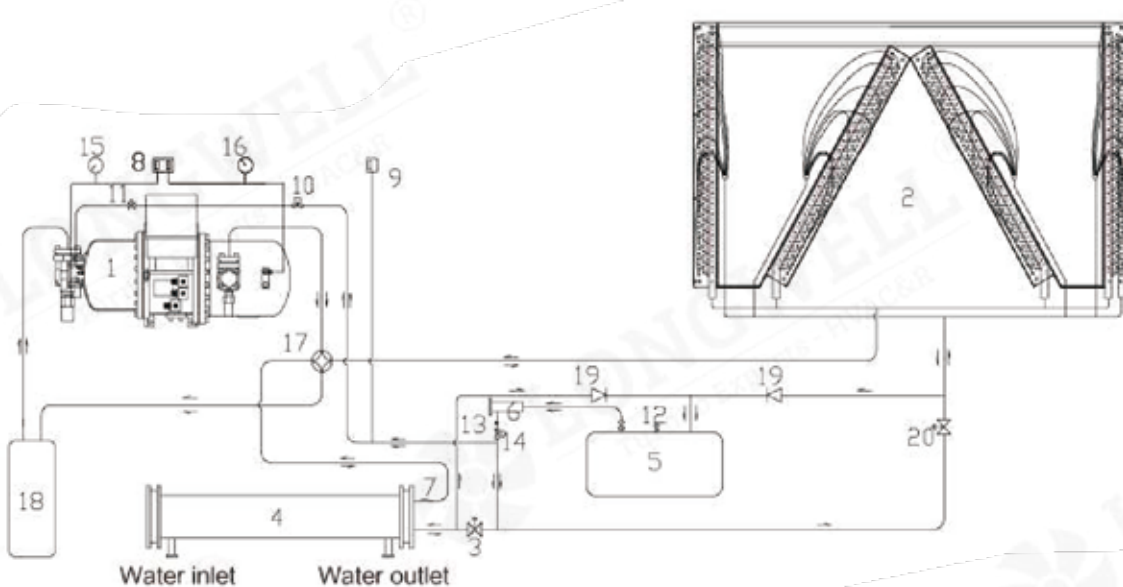
Flow Diagram

Cooling flow diagram



1. Chiller
2. Soft connection
3. Water flow switch
4. Auxiliary electric heater
5. Check valve
6. Detachable dry filter
7. Thermal bulb
8. Pressure controller
9. Condensing pressure controller expansion valve
10. Spray solenoid valve
11. In jecton expansion valve
12. Safety valve
13. Sight glass
14. Solenoid valve
15. Low pressure gauge
16. High pressure gauge

Heating flow diagram



1. Chiller
2. Soft connection
3. Water flow switch
4. Auxiliary electric heater
5. Check valve
6. Detachable dry filter
7. Thermal bulb
8. Pressure controller
9. Condensing pressure controller expansion valve
10. Spray solenoid valve
11. In jecton expansion valve
12. Safety valve
13. Sight glass
14. Solenoid valve
15. Low pressure gauge
16. High pressure gauge
17. Four-way valve
18. Gas-liquid separator
19. One-way valve
20. Heating expansion valve

Structure of auxiliary electric heater

Auxiliary electric heater adopts stainless steel structure as a whole, which is small in size, small in area, easy to install, and has a waterproof design, which has strong corrosion resistance. A high-density thick insulation layer is used between the stainless steel inner tank and the stainless steel shell to maintain the hot water temperature and save electricity.

Main components of the high-quality stainless steel electric heating tube adopt imported materials, and the advanced production equipment and technology are used in the processing process to match the voltage of different regions to achieve the highest efficiency. Its insulation performance, pressure resistance, and moisture resistance are better than national standards, and it is safe and reliable to use.

The design of the water flow direction is reasonable, the heating is uniform, there is no high and low temperature dead angle and the thermal efficiency is high.

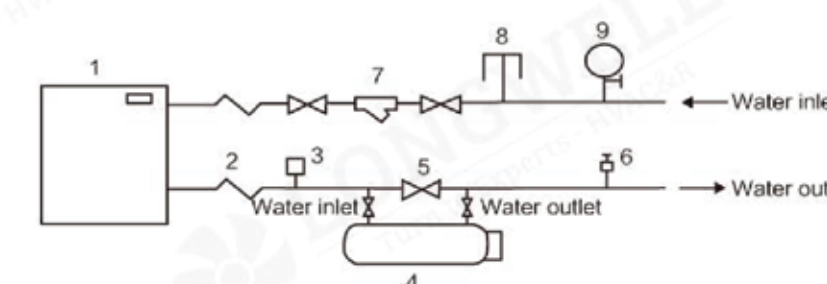
Auxiliary electric heater is equipped with a thermostat of a well-known domestic brand, and the user can freely set the temperature. All are equipped with overheating protectors to control the water temperature and over-temperature protection of water shortage to avoid damage to components and systems. Repair and maintenance are very convenient, as long as the sealing end cover is removed and the stainless steel nut on the flange is unscrewed, the electric heating tube can be drawn out. The auxiliary electric heater can adopt two or more heating methods according to customer requirements, which is safe and reliable to achieve the purpose of energy saving.

Selection instructions

1. The table below shows the power coefficient of the auxiliary electric heater that needs to be selected for each kW of heating capacity under the corresponding indoor and outdoor temperature conditions.
2. From the perspective of energy balance theory, the auxiliary electric heater is not required for the conditions in the left space in the table: but in order to ensure the smooth operation of the host and increase the service life of the host, it is recommended that the outdoor temperature $< 3^{\circ}\text{C}$, all must be configured Auxiliary electric heater.
3. When the auxiliary electric heater is selected, the specification should not be less than 0.2 kW/kW, and the heat loss of the water system may be large enough to offset the heat of the heater, causing the heater to fail to achieve the expected effect.
4. The heater power should be selected according to the operating conditions according to the coefficients in the table below.

Technical Parameters

Outdoor temperature $\leq 3^{\circ}\text{C}$ Indoor required temperature	8	6	4	2	0	-2	-4	-6	-8
20					0.2	0.25	0.35		
18						0.2	0.25	0.35	
16							0.2	0.25	0.35
14								0.2	0.25



1. Chiller
2. Soft connection
3. Water flow switch
4. Auxiliary electric heater
5. Check valve
6. Automatic exhaust valve
7. Y type water filter
8. Thermometer
9. Pressure gauge

During the engineering installation, the auxiliary electric heater is installed in parallel on the pipe on the outletside of the unit. During the cooling operation in summer, the chilled water does not flow through the auxiliaryelectric heater; during the heating operation in winter, the hot water from the unit flows through the auxiliaryelectric heater. Electric heater, the auxiliary electric heater supplements heat to the hot water and heats it up.and then sends it to the end of the user, The power cord of the auxiliary electric heater should be directly introduced from the correspondina AC contactor in the main power control cabinet of the unit , The user actuallyneeds to design a circuit to control it.

Relationship table between cross-sectional area of conductor and safe current

Rated current		6	8	10	12	16	20	25	32	40	63	80	100	125	160	200	250	315
Conductor cross sectional area	Min	1	1.5	1.5	1.5	2.5	2.5	4	6	10	10	16	25	35	50	75	95	120
	Max	1.5	2.5	2.5	2.5	4	6	6	10	16	25	35	50	70	95	120	150	240

Example: When the running current is 32A, the minimum cross-sectional area of the wre is 6mm*, and the maximum cross-sectional area is 10mm2

When the running current is 160A, the minimum cross-sectional area of the wire is 50mm%, and the maximum cross-sectional area is 95mm² You can also choose 70mm² in the middle

Note: The selection of the above conductor cross-sectional area is based on the national standard line

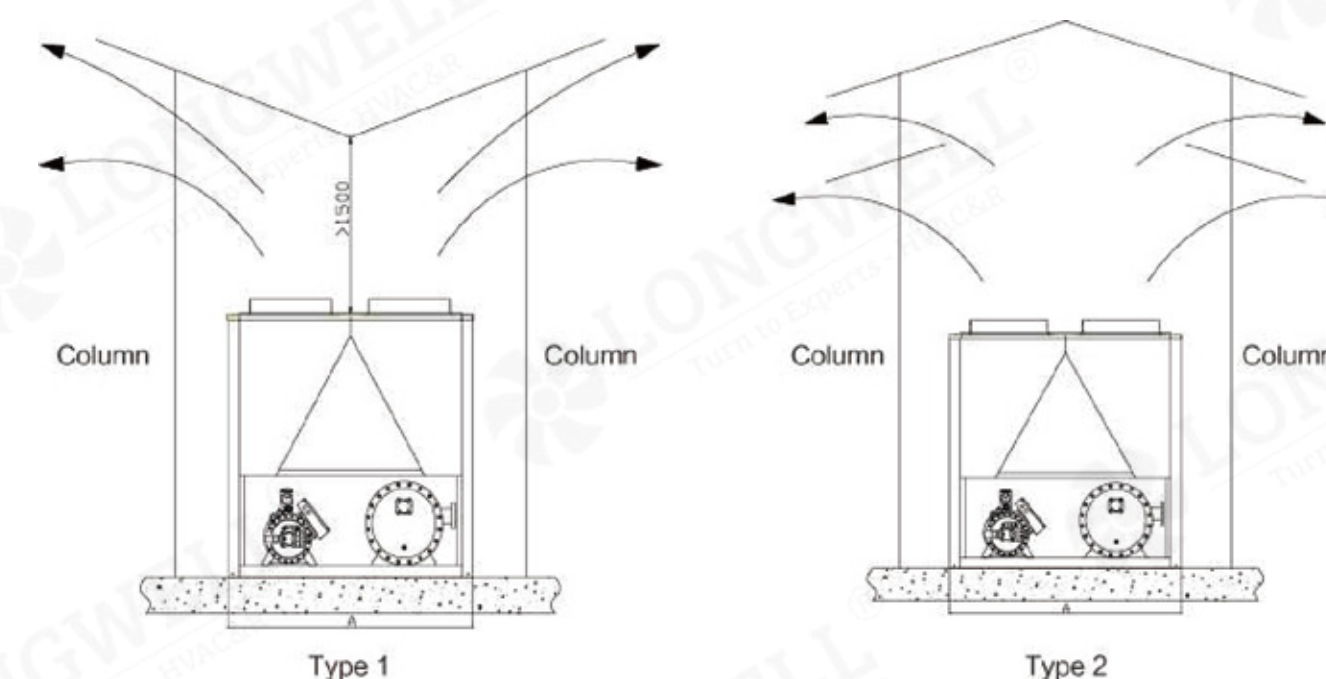
Installation Requirements

Choice of installation location

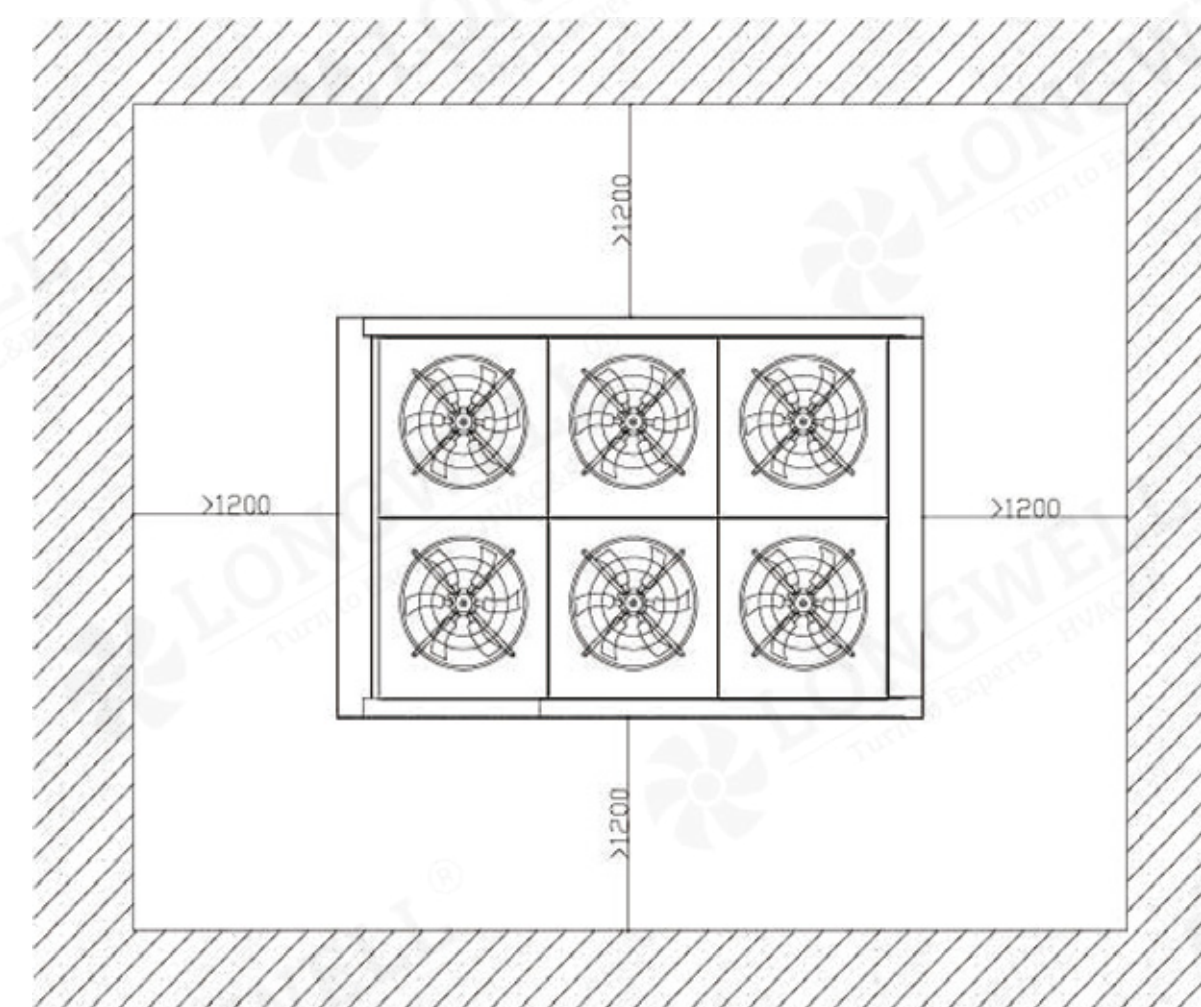
The installation should be caried out by professionals. Pay attention to the following matters during installa-tion:

The unit should be installed outdoors in a well-ventilated and open place, The air intake and maintenance spaceshould be left around the unit (see picture). When the installation position of the unit is hiaher than the parapetor wall of the unit the spacing should be increased appropriately. The discharged air should be guaranteed notto be sucked in by the unit itself or other units, so as not to affect the normal operation of the unit. When the unitis installed on the top of a building,the load-bearing capacity of the building should fully consider the weiaht oithe unit during operation and the additional stress caused by other reasons. The unit itself does not need acomputer room. but if it is necessary to add shadina facilities, the above precautions must be fully consideredThe chilled water of the unit should be clean and free of oil and corrosive substances. When the water qualityis too hard, you should consider installing a softening device to avoid scaling inside the unit and affecting theuse of the unit. The inlet side of the air-cooled heat exchanger should be considered to avoid the direction of themonsoon, The bottom foundation of the unit can be a cement foundation or a steel structure foundation. Thefoundation should be level. firm. and strona enough to bear the weicht of the unit. When the unit is placed orthe foundation, the unit should be fixed so that the unit is firmly connected to the foundation. In order to preventthe vibration of the unit from beina transmitted through the builcdind structure. dampina materials should beplaced under the unitDrainage ditch shall be left around the foundation of the unit. the slope of the groove shalbe areater than 5% and the slope shall be towards the drainage outlet

Installation space diagram



Unit with above rain shed



Space around the unit