

## Product Description

### Product Description

The rooftop air conditioning unit is a central air conditioning product that integrates cold (heat) source and air treatment. It consists of a compression condensing section and an air treatment section. Compression condensation section

Generally installed outdoors or on the roof, the cooling method is usually air cooling (water cooling is also possible). The air treatment section can be installed outdoors or on the roof together with the compressed condensing section, or it can be installed indoors. The air treatment section combines air supply, refrigeration, heating, dehumidification, humidification, noise reduction, air purification, electrical control, etc. into a box, and the air sent out is the required setting requirements. Rooftop air-conditioning units use the heat exchanger in the refrigeration system to directly exchange heat and moisture with the air. There is no heat loss caused by the secondary exchange of the traditional central air-conditioning air-water system. Energy consumption is lower.

The company has mature technology, perfect technology and advanced testing equipment in the manufacturing of rooftop air-conditioning units, coupled with selected first-class accessories, to ensure the stable and efficient operation of the unit. Before leaving the factory, the unit has completed the performance test under standard working conditions, and will be allowed to leave the factory if it is qualified.

### Application Scope

Rooftop air conditioning units are particularly suitable for air conditioning systems in large spaces such as stadiums, convention and exhibition centers, theaters, conference rooms, shopping malls, and waiting rooms. Through the air

The combination of various functions and advanced control systems in the management section are also widely used in technological air-conditioning in industries such as medicine, electronics, food, machinery, and textiles.

### Features

1. Multi-loop design: dual-unit, dual-unit parallel, and multi-system design have higher partial load efficiency;
2. Economizer: The fresh air valve and return air valve adopt analog or switch design, which can realize the best ratio of fresh return air, and can realize free cooling or heating in excessive seasons;
3. Patented partial exhaust air energy harvesting technology: twice recovery, 100% recovery of exhaust air energy is achieved, achieving the most energy-saving operation;
4. Patented exhaust energy recovery technology: the exhaust energy can be recovered through the refrigeration system to realize how much exhaust energy and how much energy is recovered. The energy recovery refrigeration system realizes frost-free operation in winter, stable operation, good working conditions and best performance.

## Patented partial exhaust air energy harvesting technology

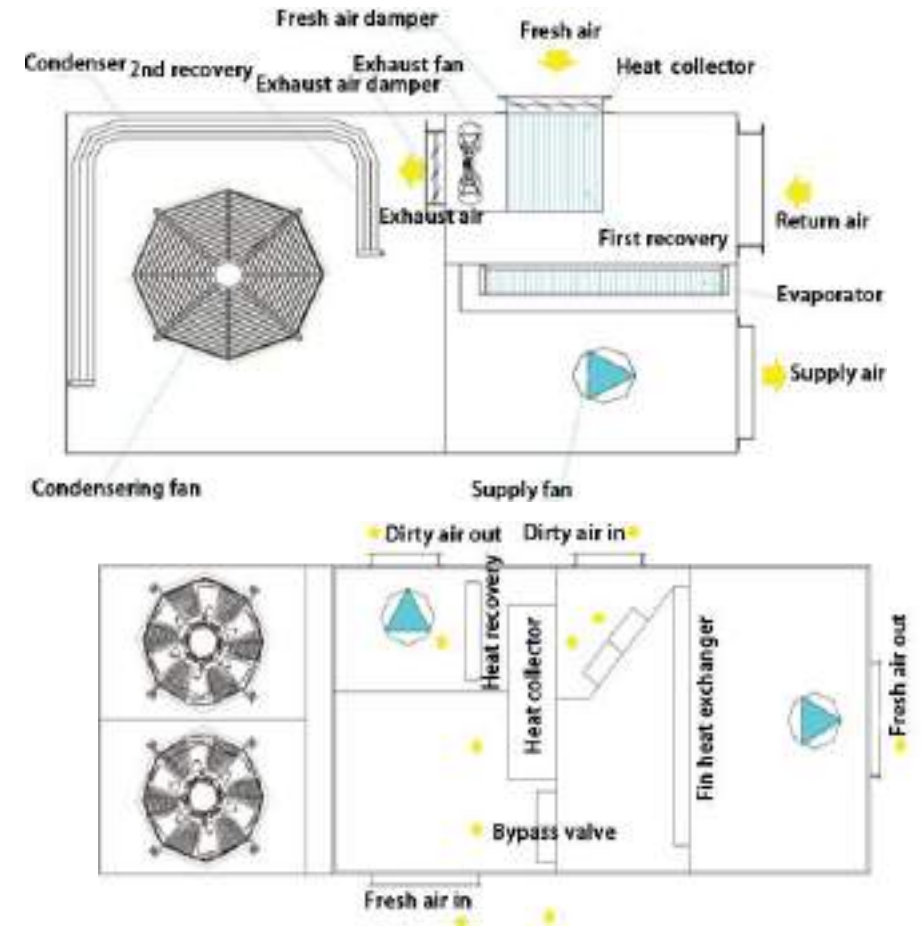
Two-stage recovery of exhaust air cooling (heat), the first stage of fresh air recovery exhaust air cooling (Heat) quantity, the cold (heat) quantity of the second-stage outdoor side exhaust, realize 100% recovery of the exhaust cold (heat) quantity, and achieve the best part of the fresh air heat recovery when the energy is increased.

## Patented exhaust energy recovery technology

The heat exhaust energy is recovered through the refrigeration system to achieve cooling in summer and heat in winter, how much exhaust energy and how much to recover, and the recovery of the refrigeration system is in good working condition, stable in operation, and frost-free operation in winter.

## Product Advantages

- ▼ The connecting pipe is short, and there is no trouble of performance degradation, oil return, etc.;
- ▼ The construction period is short, the project cost is low, and the commissioning is simple;
- ▼ The energy loss in the refrigerant-water-air exchange process in the waterless air conditioning system;
- ▼ No water pumps, cooling towers, wind pans and other equipment are needed, and there is no risk of water leakage;
- ▼ There are no air supply fans and motors in the room, and it runs quietly;
- ▼ It is placed on the roof, no computer room is needed, saving installation space and improving the utilization rate of the building;
- ▼ Ensure the consistency of product quality and improve customer satisfaction;
- ▼ The introduction of fresh air is convenient to meet the indoor air quality.



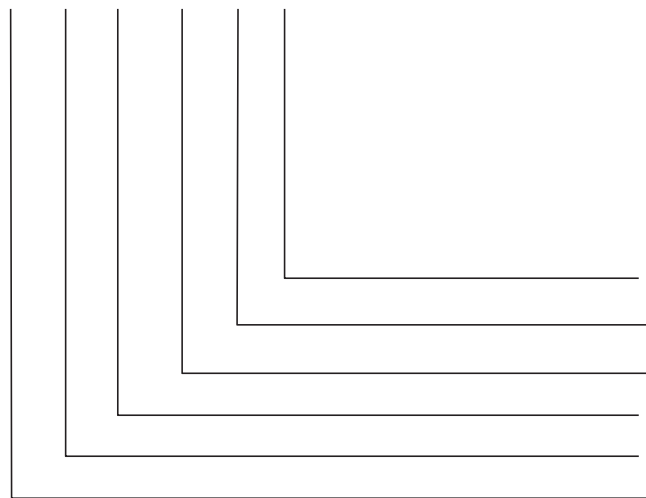
## Product Form

Integral structure-placed outdoors, easy to install

## Unit Name



W R F 12 Z A



Refrigeration: A: R410A; C: R407C; R22 does not mean integral

integral

Heat exchange kW

Air cooled

R means heat pump, cooling alone does not mean

Rooftop unit

## Unit Performance Parameters (Fixed Frequency)

Model		WRF12ZA	WRF15ZA	WRF18ZA	WRF24ZA	WRF30ZA	WRF35ZA	
		WF12ZA	WF15ZA	WF18ZA	WF24ZA	WF30ZA	WF35ZA	
Cooling Cap.	kW	12	15.2	17.5	24	30.3	35.6	
Heating Cap.	kW	13.2	16.6	18.4	26.5	33.3	37.7	
Energy Control	%	0、100%			0、50、100%			
Power Supply		380V / 3Ph / 50HZ						
Cooling Power Input	kW	4.1	5.3	5.5	8.8	11.3	12.3	
Heating Power Input	kW	3.8	4.8	5.1	8.2	10.4	11.3	
Unit Starting Current	A	48	62	63	63	74	76	
Cooling Operating Current	A	7.4	9.7	10.2	16.1	21.2	23.3	
Heating Operating Current	A	6.9	9.2	9.7	15.1	20.1	22.2	
Throttling Method		Thermal Expansion Valve						
Refrigerating System		1	1	1	1	2	2	
Refrigeration		R410a						
Compressor	Form	Hermetic Scroll Compressor						
	Qty.	1	1	1	1	2	2	
Condensing Side								
Condensor	Form	Copper Tube and Aluminum Fin						
	Qty.	1	1	1	1	1	1	
	Drive Form		Direct Drive					
	Motor Power	kW	0.25	0.37	0.37	0.55	0.75	0.75
	Air Flow	m <sup>3</sup> /h	4600	7800	7800	9000	12600	12600
Evaporation Side								
Evaporator	Form	Copper Tube and Aluminum Fin						
	Qty.	1	1	1	1	1	1	
	Motor Power	kW	0.32	0.37	0.45	1.1	1.5	2.2
	Air Flow	m <sup>3</sup> /h	2100	2600	3400	4100	5200	6300
	Drive Form		Direct Drive			Belt Drive		
ESP (Pa)		100	100	100	200	200	250	
Filter		Aluminum Filter G3						
Noise dB(A)		67	67	68	71	72	72	
Refrigerant Charge (kg)		3.1	3.1	4.3	2x3.1	2x3.1	2x4.3	
Dimension	L	mm	1410	1410	1410	1978	1978	
	W	mm	1100	1100	1100	1175	1175	
	H	mm	1095	1095	1095	1095	1095	
Weight		kg	240	260	290	420	480	

### NOTE:

1. The unit cooling capacity and power consumption calibration conditions: outdoor environment dry/wet bulb temperature 35/24°C, indoor dry/wet bulb temperature 27/19°C;
2. The unit heating and power consumption calibration conditions: outdoor environment dry/wet bulb temperature 7/6°C, indoor dry/wet bulb temperature 20/15°C;
3. The specifications listed in this table are subject to change without notice.

Model		WRF45ZA	WRF50ZA	WRF60ZA	WRF72ZA	WRF90ZA	WRF105ZA
		WF45ZA	WF50ZA	WF60ZA	WF72ZA	WF90ZA	WF105ZA
Cooling Cap.	kW	44.5	50	60	70	90	105
Heating Cap.	kW	48.7	54.3	64	75.4	96.2	113.2
Energy Regulation		0、33、66、100	0、30、70、100	0、50、100		0、33、66、100	
Power Supply		380V/ 3Ph /50HZ					
Cooling Power Input	kW	17	19.5	22.8	26.7	32.9	39.7
Heating Power Input	kW	15.6	18	21	24.8	30.4	36.7
Unit Starting Current	A	168	186	175	199	197	266
Cooling Operating Current	A	31.7	35.6	39.9	48.3	61	70.6
Heating Operating Current	A	29.9	33.5	37.5	45.4	57.3	66.3
Throttling Method		Thermal Expansion Valve					
Refrigerating System		1				2	
Refrigeration		R410A					
Compressor	Form	Hermetic Scroll Compressor					
	Qty.	2	2	2	2	3	3
Condensing Side							
Condensor	Form	Copper Tube and Aluminum Fin					
	Qty.	1	1	1	1	2	2
	Drive Form	Direct Drive					
	Motor Power	1.1	1.5	1.5	2.2	2X1.1	2X1.5
	Air Flow	16500	21000	21000	27000	33000	42000
Evaporation Side							
Evaporator	Form	Copper Tube and Aluminum Fin					
	Qty.	1	1	1	1	1	1
	Motor Power	3	3	4	4	5.5	5.5
	Air Flow	7600	8500	10900	12500	16000	19500
	Drive Form	Belt Drive					
ESP (Pa)		250	250	300	300	300	300
Filter		Aluminum Filter G3					
Noise dB(A)		73	73	73	75	74	75
Refrigerant Charge (kg)		4.3+	4.3+8.5	2x7.5	2x8.5	3x7.5	3x8.5
Dimension	L	2268	2268	2298	2298	2878	2878
	W	1440	1440	1650	1650	2140	2270
	H	1167	1167	1400	1400	1964	1964
Weight		750	770	830	860	1160	1350

NOTE:

1. The unit cooling capacity and power consumption calibration conditions: outdoor environment dry/wet bulb temperature 35/24°C, indoor dry/wet bulb temperature 27/19°C;
2. The unit heating and power consumption calibration conditions: outdoor environment dry/wet bulb temperature 7/6°C, indoor dry/wet bulb temperature 20/15°C;
3. The specifications listed in this table are subject to change without notice.

Model		WRF120ZA	WRF140ZA	WRF150ZA	WRF190ZA	WRF230ZA	WRF300ZA
		WF120ZA	WF140ZA	WF150ZA	WF190ZA	WF230ZA	WF300ZA
Cooling Cap.	kW	120	140	149	186	226	298
Heating Cap.	kW	128.3	150	159.2	198.4	241	318
Energy Regulation		0、25、50、75、100		0、50、100	0、19、40、59、80、100	0、33、66、100	0、25、50、75、100
Power Supply		380V/ 3Ph /50HZ					
Cooling Power Input	kW	45.1	55.7	55.1	69.9	88.5	106.7
Heating Power Input	kW	41.7	51.8	51.5	64.8	82.9	100
Unit Starting Current	A	218	252	323	232	330	415
Cooling Operating Current	A	82.4	101.4	100.2	130.9	165	192.3
Heating Operating Current	A	77.4	95.7	95.1	123.5	155.6	184.3
Throttling Method		Thermal Expansion Valve					
Refrigerating System		4	4	2	3	3	4
Refrigeration		R410A					
Compressor	Form	Hermetic Scroll Compressor					
	Qty.	4	4	2	3	3	4
Condensing Side							
Condensor	Form	Copper Tube Sleeve Aluminum Fin					
	Qty.	2	2	2	4	4	4
	Drive Form	Direct Drive					
	Motor Power	2X1.5	2X2.2	2X2.2	4X1.1	4X1.5	4X2.2
	Air Flow	42000	54000	54000	66000	84000	108000
Evaporation Side							
Evaporator	Form	Copper Tube Sleeve Aluminum Fin					
	Qty.	1	1	1	1	1	1
	Motor Power	7.5	11	11	15	15	18.5
	Air Flow	21000	25000	26000	32000	41000	54000
	Drive Form	Belt Drive					
ESP (Pa)		400	400	450	500	500	500
Filter		Aluminum Filter G3					
Noise dB(A)		75	79	79	80	81	82
Refrigerant Charge (kg)		4x7.5	4x8.5	2x17	2X17+8.5	3X17	4X17
Dimension	L	3626	3626	3626	4690	4690	5660
	W	2200	2200	2200	2330	2330	2330
	H	2047	2047	2047	2055	2055	2427
Weight		1710	1820	1850	2180	2560	2860

**NOTE:**

1. The unit cooling capacity and power consumption calibration conditions: outdoor environment dry/wet bulb temperature 35/24°C, indoor dry/wet bulb temperature 27/19°C;
2. The unit heating and power consumption calibration conditions: outdoor environment dry/wet bulb temperature 7/6°C, indoor dry/wet bulb temperature 20/15°C;
3. The specifications listed in this table are subject to change without notice.

## Unit Performance Parameters (Inverter type)

Model		BWRF12ZA	BWRF15ZA	BWRF18ZA	BWRF24ZA	BWRF30ZA	BWRF35ZA	
		BWF12ZA	BWF15ZA	BWF18ZA	BWF24ZA	BWF30ZA	BWF35ZA	
Cooling Cap.	kW	12	15.2	17.5	24	30.3	35.6	
Heating Cap.	kW	13.2	16.6	18.4	26.5	33.3	37.7	
Energy Regulation	%	30~100%						
Power Supply		380V / 3Ph / 50HZ						
Cooling Power Input	kW	4.1	5.3	5.5	8.8	11.3	12.3	
Heating Power Input	kW	3.8	4.8	5.1	8.2	10.4	11.3	
Cooling Operating Current	A	7.4	9.7	10.2	16.1	21.2	23.3	
Heating Operating Current	A	6.9	9.2	9.7	15.1	20.1	22.2	
Throttling Method		Thermal Expansion Valve						
Refrigerating System		1	1	1	1	1	1	
Refrigeration		R410a						
Compressor	Form	Hermetic Scroll Compressor						
	Qty.	1	1	1	1	1	1	
Condensing Side								
Condensor	Form	Copper Tube Sleeve Aluminum Fin						
	Qty.	1	1	1	1	1	1	
	Drive Form	Direct Drive						
	Motor Power	kW	0.25	0.37	0.37	0.55	0.75	0.75
Air Flow	m <sup>3</sup> /h	4600	7800	7800	9000	12600	12600	
Evaporation Side								
Evaporator	Form	Copper Tube Sleeve Aluminum Fin						
	Qty.	1	1	1	1	1	1	
	Motor Power	kW	0.32	0.37	0.45	1.1	1.5	2.2
	Air Flow	m <sup>3</sup> /h	2100	2600	3400	4100	5200	6300
Drive Form		Direct Drive			Belt Drive			
ESP (Pa)		100	100	100	200	200	250	
Filter		Aluminum Filter G3						
Noise dB(A)		67	67	68	71	72	72	
Refrigerant Charge (kg)		3.1	3.1	4.3	5.6	6.2	8.6	
Dimension	L	mm	1498	1498	1498	2028	2028	
	W	mm	1100	1100	1100	1245	1245	
	H	mm	1095	1095	1095	1170	1170	
Weight		kg	240	260	290	420	500	

### NOTE:

1. The unit cooling capacity and power consumption calibration conditions: outdoor environment dry/wet bulb temperature 35/24°C, indoor dry/wet bulb temperature 27/19°C;
2. The unit heating and power consumption calibration conditions: outdoor environment dry/wet bulb temperature 7/6°C, indoor dry/wet bulb temperature 20/15°C;
3. The specifications listed in this table are subject to change without notice.

Model		BWRF45ZA	BWRF50ZA	BWRF60ZA	BWRF72ZA	BWRF90ZA	BWRF105ZA
		BWF45ZA	BWF50ZA	BWF60ZA	BWF72ZA	BWF90ZA	BWF105ZA
Cooling Cap.	kW	44.5	50	60	70	90	105
Heating Cap.	kW	48.7	54.3	64	75.4	96.2	113.2
Energy Regulation		30~100%			15~100%		
Power Supply		380V/ 3Ph /50HZ					
Cooling Power Input	kW	17	19.5	22.8	26.7	32.9	39.7
Heating Power Input	kW	15.6	18	21	24.8	30.4	36.7
Cooling Operating Current	A	31.7	35.6	39.9	48.3	61	70.6
Heating Operating Current	A	29.9	33.5	37.5	45.4	57.3	66.3
Throttling Method		Thermal Expansion Valve					
Refrigerating System		1			2		
Refrigeration		R410A					
Compressor	Form	Hermetic Scroll Inverter Compressor					
	Qty.	1			2		
Condensing Side							
Condensor	Form	Copper Tube and Aluminum Fin					
	Qty.	1			2		
	Drive Form	Direct Drive					
	Motor Power	1.1	1.5	1.5	2.2	2X1.1	2X1.5
	Air Flow	16500	21000	21000	27000	33000	42000
Evaporation Side							
Evaporator	Form	Copper Tube and Aluminum Fin					
	Qty.	1	1	1	1	1	1
	Motor Power	3	3	4	4	5.5	5.5
	Air Flow	7600	8500	10900	12500	16000	19500
	Drive Form	Belt Drive					
ESP (Pa)		250	250	300	300	300	300
Filter		Aluminum Filter G3					
Noise dB(A)		73	73	73	75	74	75
Refrigerant Charge (kg)		10.5	11.9	14.1	16.5	2X10.5	2X14.2
Dimension	L	2278	2278	2308	2308	2878	2878
	W	1470	1470	1650	1650	2140	2270
	H	1167	1167	1478	1478	1964	1964
Weight		750	770	830	860	1160	1350

NOTE:

1. The unit cooling capacity and power consumption calibration conditions: outdoor environment dry/wet bulb temperature 35/24°C, indoor dry/wet bulb temperature 27/19°C;
2. The unit heating and power consumption calibration conditions: outdoor environment dry/wet bulb temperature 7/6°C, indoor dry/wet bulb temperature 20/15°C;
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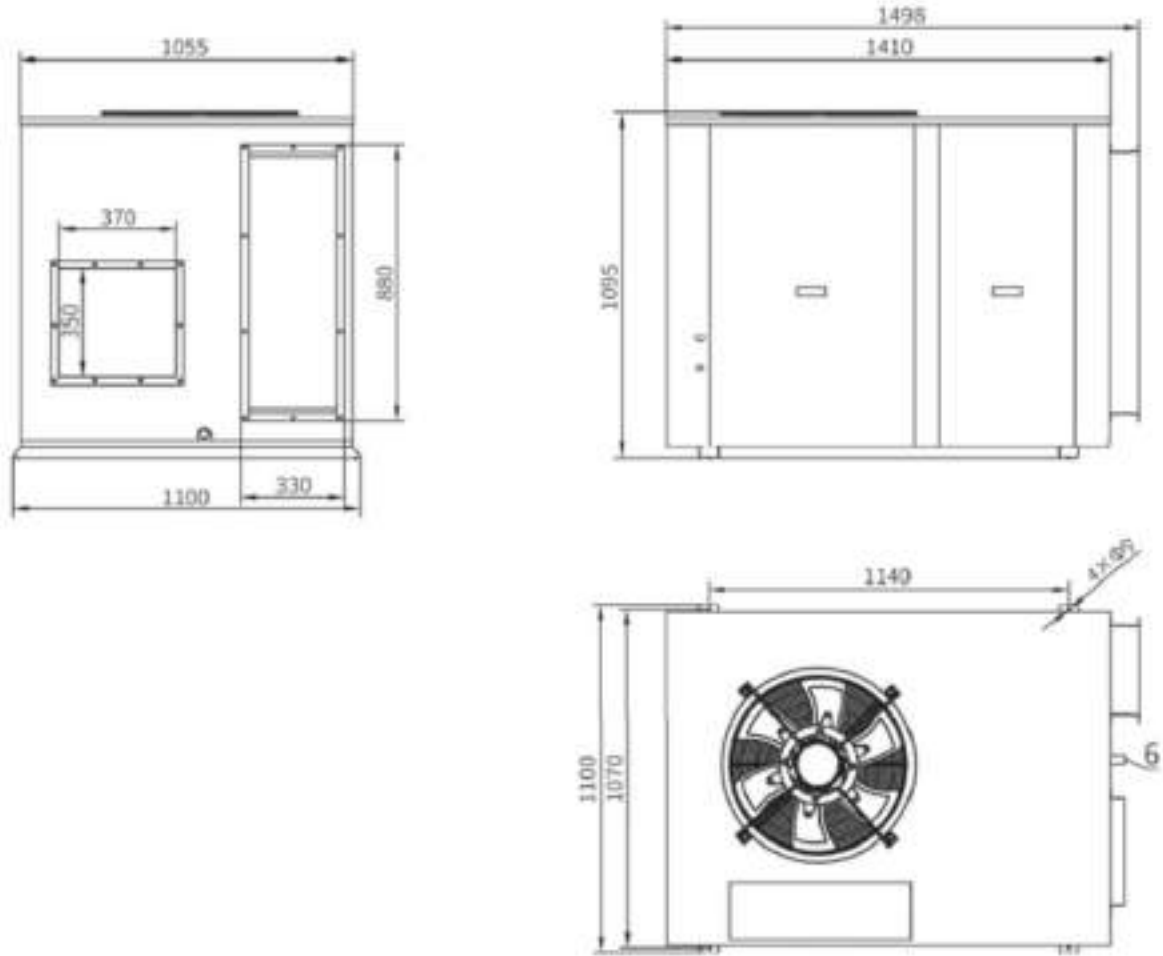


Model		BWRF120ZA	BWRF150ZA	BWRF230ZA	BWRF300ZA
		BWF120ZA	BWF150ZA	BWF230ZA	BWF300ZA
Cooling Cap.	kW	120	149	228	298
Heating Cap.	kW	128.3	159.2	242	318
Energy Regulation		15~100%	10~100%		
Power Supply		380V/ 3Ph /50HZ			
Cooling Power Input	kW	45.1	55.1	88.5	106.7
Heating Power Input	kW	41.7	51.5	82.9	100
Cooling Operating Current	A	82.4	100.2	165	192.3
Heating Operating Current	A	77.4	95.1	155.6	184.3
Throttling Method		Thermal Expansion Valve			
Refrigerating System		2	3	4	
Refrigeration		R410A			
Compressor	Form	Hermetic Scroll Inverter Compressor			
	Qty.	2	3	4	
Condensing Side					
Condensor	Form	Copper Tube and Aluminum Fin			
	Qty.	2	4	4	
	Drive Form	Direct Drive			
	Motor Power	2X1.5	2X2.2	4X1.5	4X2.2
	Air Flow	42000	54000	84000	108000
Evaporation Side					
Evaporator	Form	Copper Tube and Aluminum Fin			
	Qty.	1	1	1	1
	Motor Power	7.5	11	15	18.5
	Air Flow	21000	26000	41000	54000
	Drive Form	Belt Drive			
ESP (Pa)		400	400	500	500
Filter		Aluminum Filter G3			
Noise dB(A)		75	79	81	82
Refrigerant Charge (kg)		2X14.1	2x16.5	3X16.5	4X16.5
Dimension	L	3626	3626	4690	5660
	W	2200	2200	2330	2330
	H	2047	2047	2055	2427
Weight		1710	1850	2560	2860

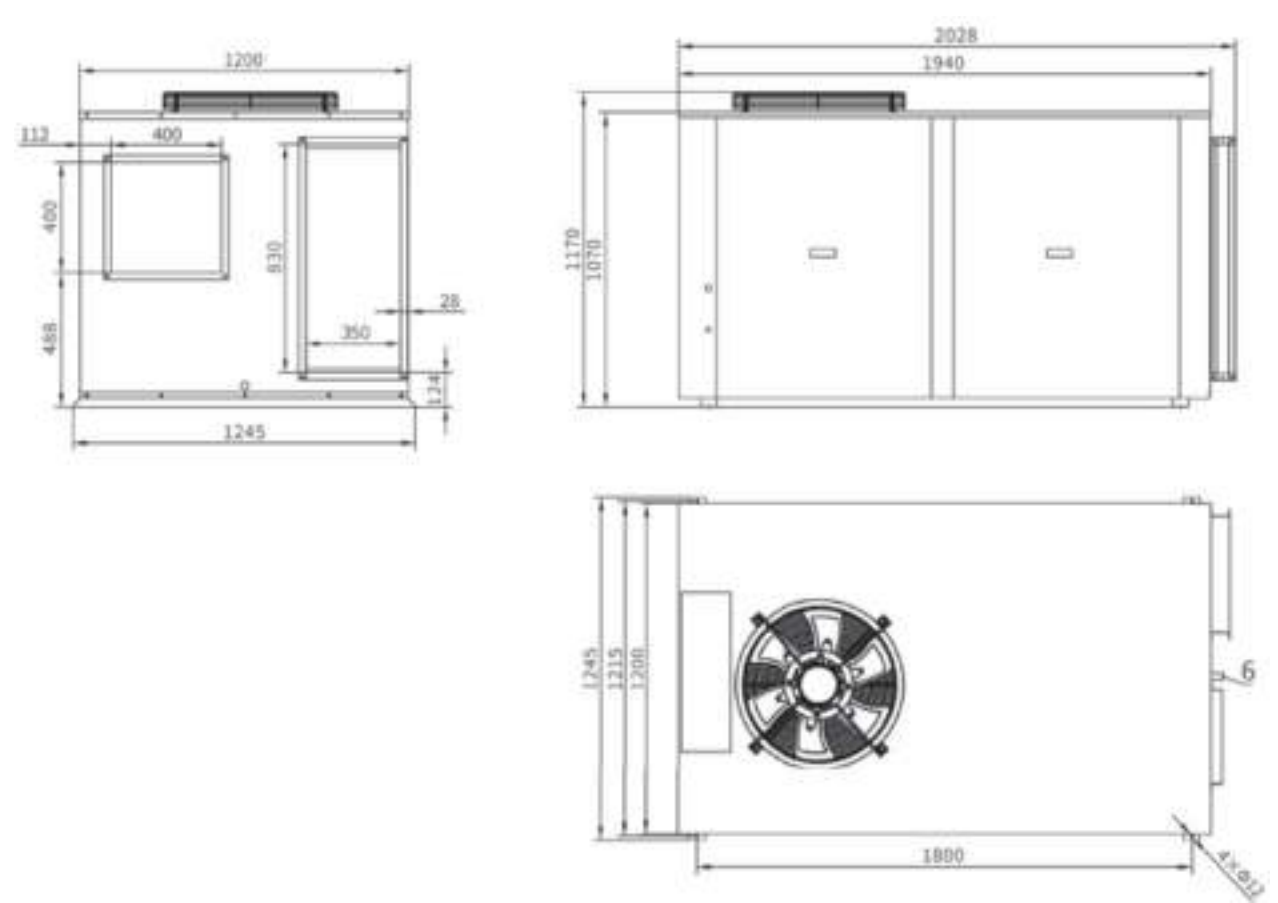
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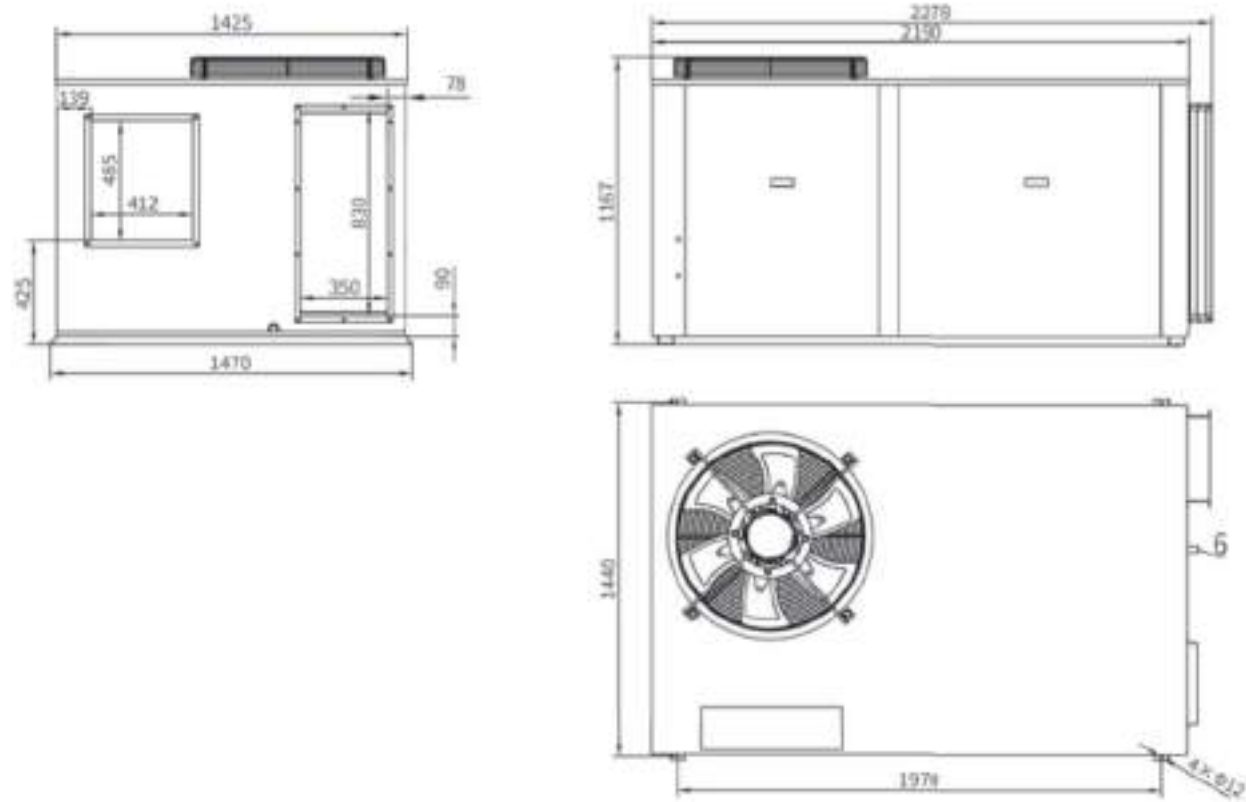
Size Drawing of (B)W(R)F12/15/18Z



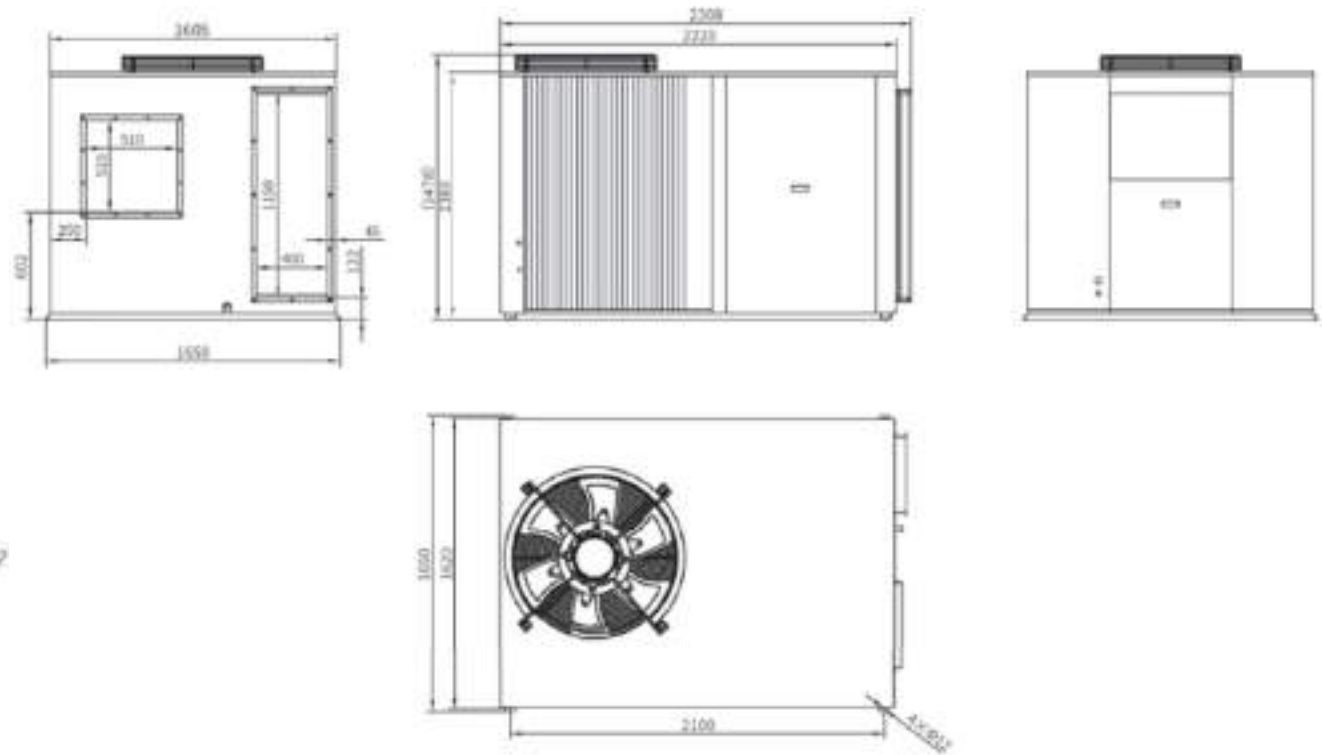
Size Drawing of (B)W(R)F24/30/35Z



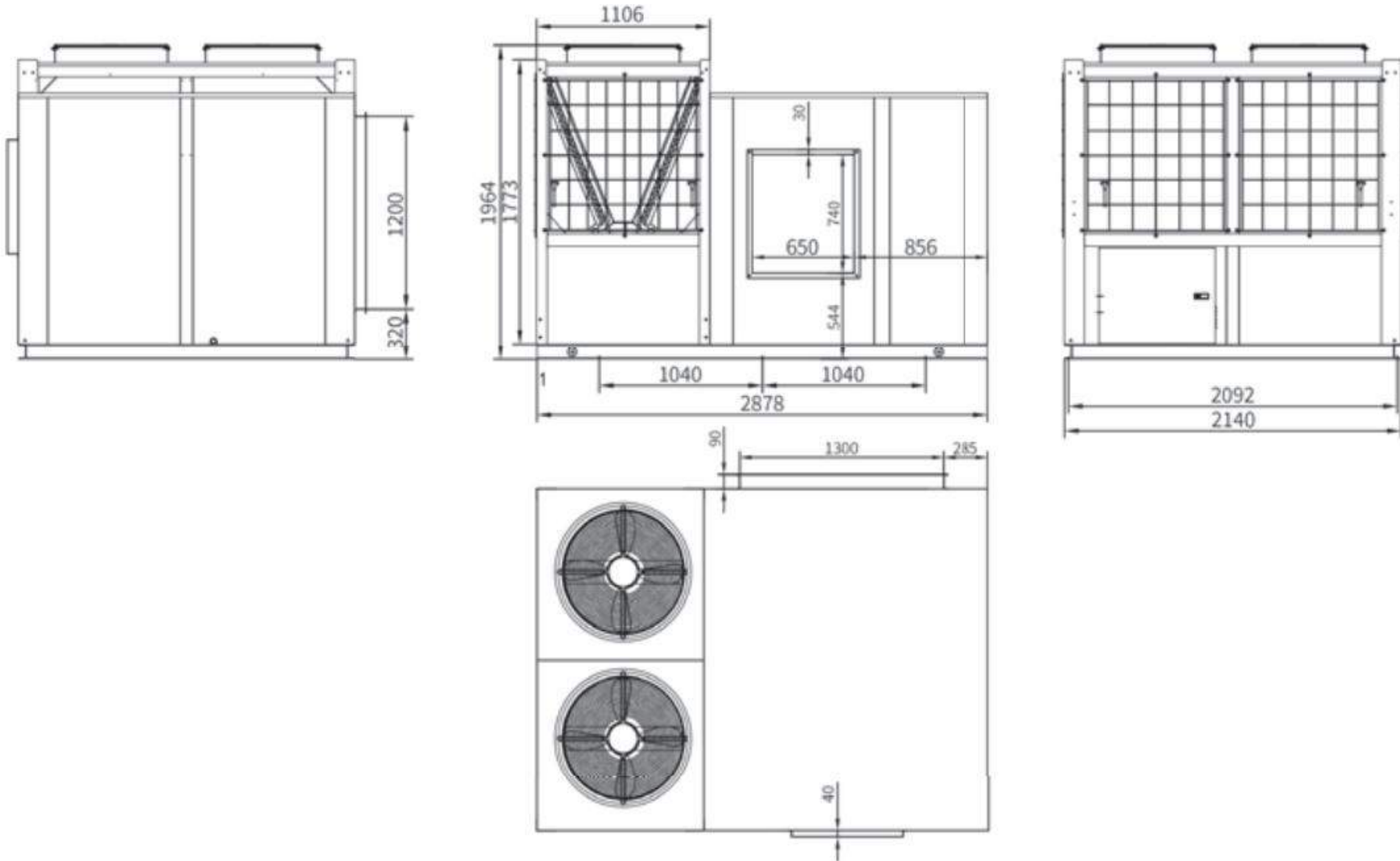
Size Drawing of (B)W(R)F40/50Z



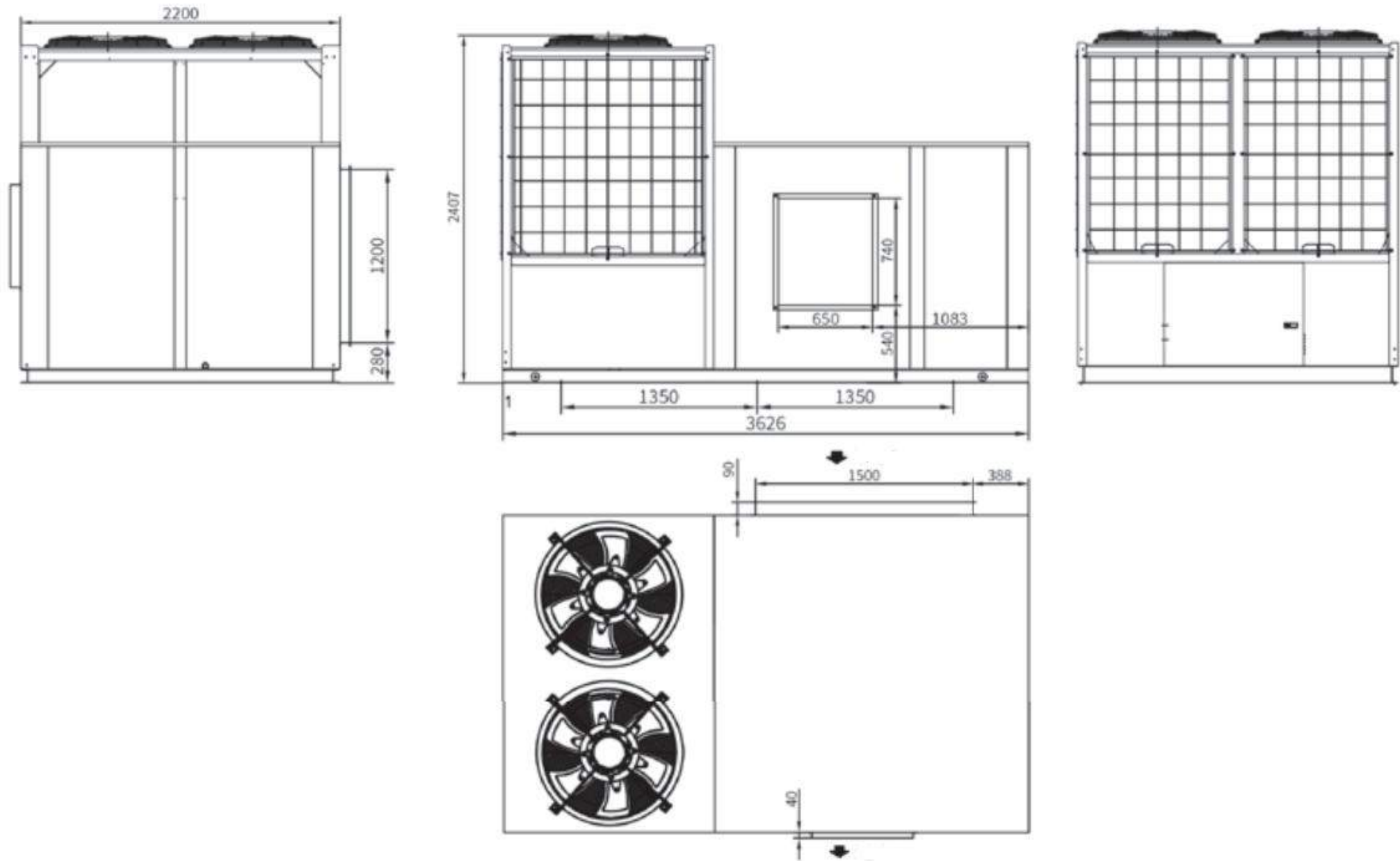
Size Drawing of (B)W(R)F60/70Z



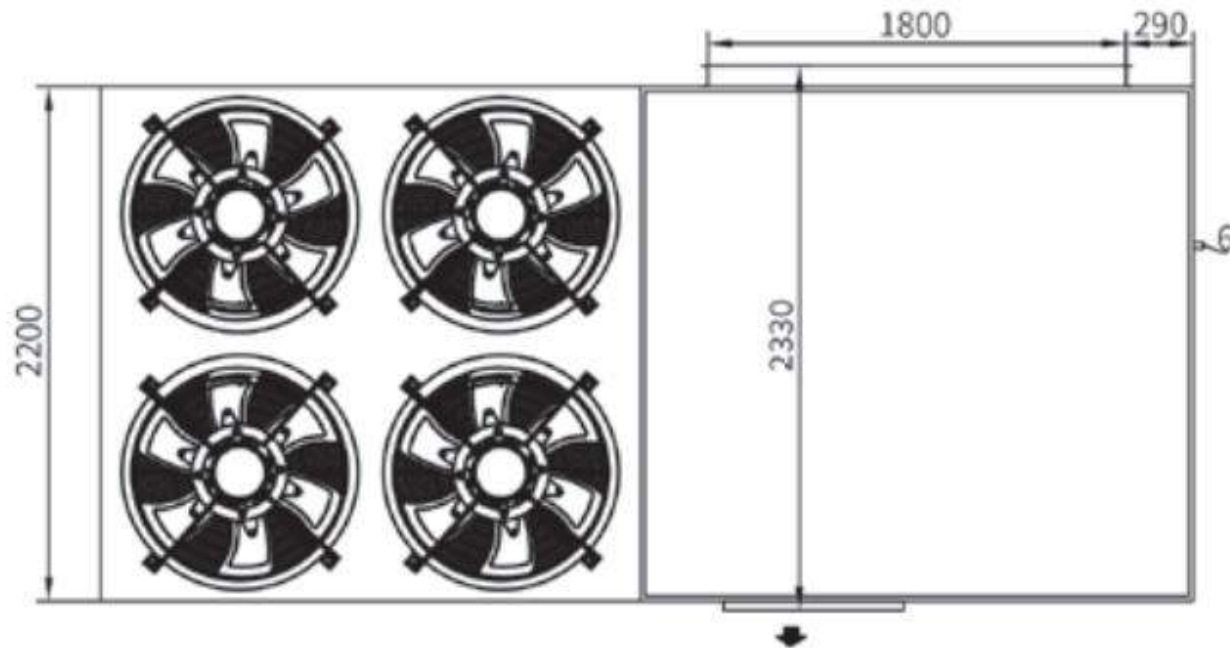
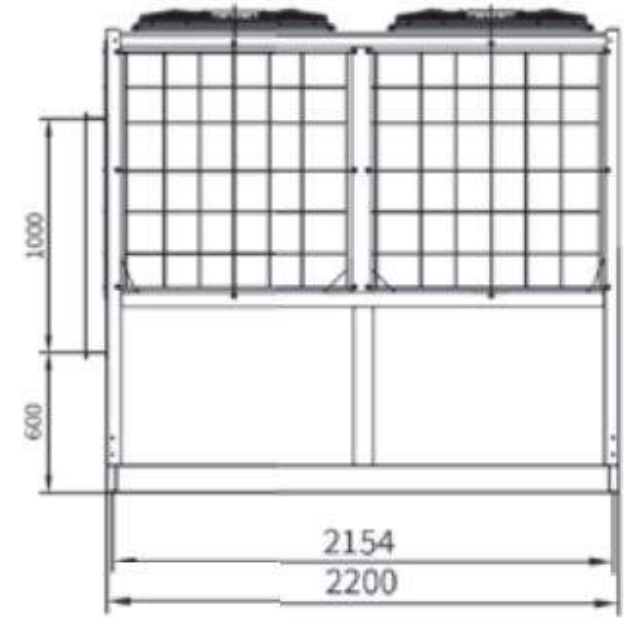
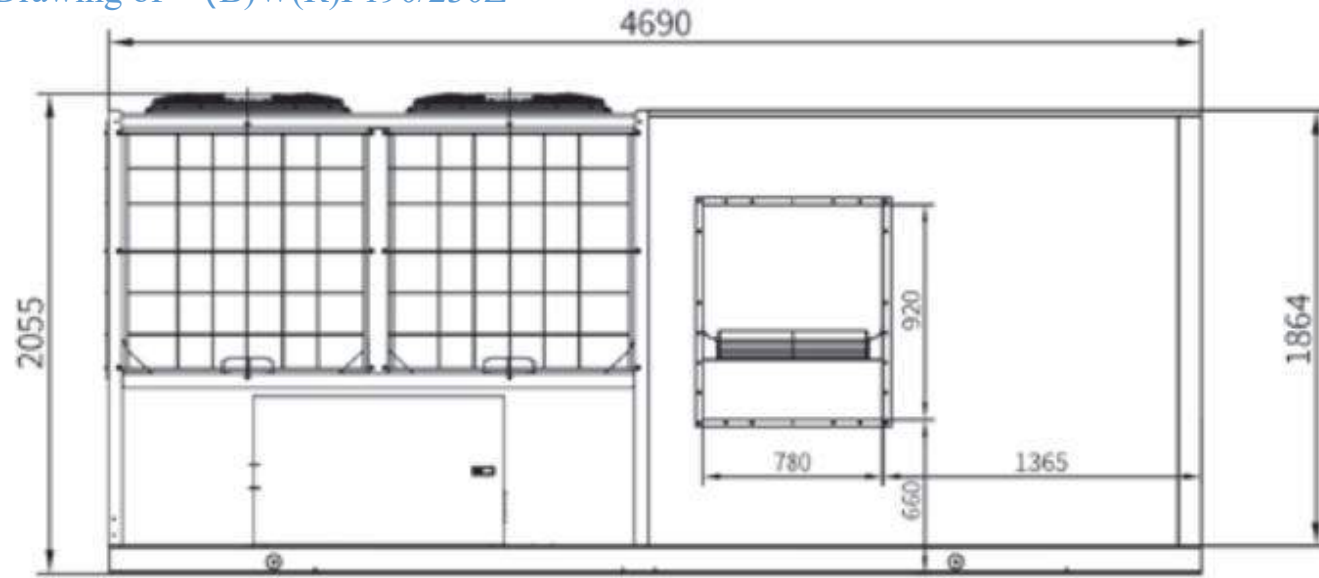
Size Drawing of (B)W(R)F90/105Z



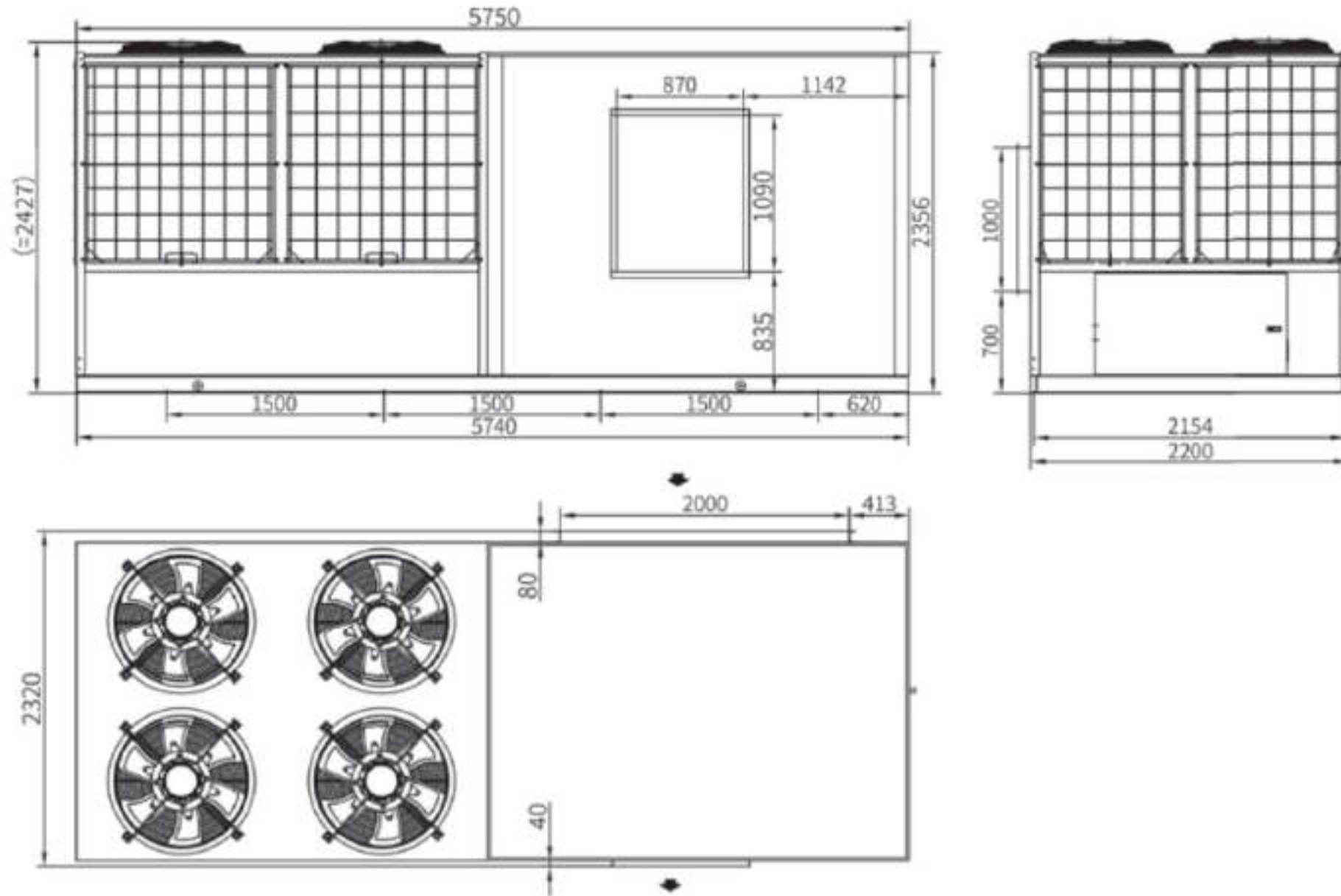
Size Drawing of (B)W(R)F120/140/150Z



Size Drawing of (B)W(R)F190/230Z



Size Drawing of (B)W(R)F300Z



This unit is a central air-conditioning product with a high degree of automation. Under normal circumstances, it does not need to be guarded by operation and management personnel. If the unit can be effectively maintained and maintained for a long period of time, its reliability and lifespan will be further improved. Therefore, it is recommended to equip dedicated personnel for operation and management.

## 12.1 Overview

1.The unit has reached the best working condition after adjustment by the company's commissioning engineer. Please do not change the set operating parameters at will.

2.Records should be made during daily operation, especially the various phenomena, time and working conditions that occurred during abnormal operation, so as to facilitate the analysis and inspection of faults.

3.The unit shall not be operated with illness, and the abnormal situation shall be shut down and dealt with in time.

4.It is strictly forbidden to frequently operate or play with the operation switches. The number of times of on and off of the compressor should be less than 6 times/hour, and each operation time should be more than 5 minutes. Frequent startup and shutdown will cause certain damage to the compressor.

5.The main circuit power switch must be kept on during the normal use period to maintain the normal operation of the compressor oil heater.

6.During the normal use period, the whole machine should be inspected once a month. The items are:

- a. Whether the fastening bolts of each electrical terminal are loose;
- b. Whether the moving parts of the unit are noisy and whether they are operating normally;
- c. Whether the high and low pressure values of the refrigeration system are normal;
- d. Whether the operating current of each motor is normal, and whether the insulation resistance is normal;
- e. Whether the filter is normal, if the filter outlet is frosted, it indicates that the filter is dirty and clogged. Replace the filter.

7. Refrigerant charging:

The unit has been charged with sufficient refrigerant before leaving the factory. However, in the long-term operation process, when the system refrigerant is insufficient due to some reasons, the system low pressure is low, and the cooling (heating) effect of the unit is poor. At this time, the refrigerant needs to be supplemented. When charging the refrigerant, connect the refrigerant cylinder gas nozzle to the low-pressure side charging valve. Before the connection is tightened, first discharge the air in the cylinder nozzle with refrigerant gas, and then tighten the joint nut. When the unit is running Refrigerant can be charged by opening the valve of the refrigerant cylinder (if it is a mixed refrigerant, please try to ensure liquid charging). During the charging process, use a scale to measure, and wait for 10 to 20 minutes to observe the high and low pressures until the system is normal after a certain amount of refrigerant is charged.



## 8. Cleaning of fin heat exchanger:

After long-term use, ash and dust will occur, which will affect the heat exchange effect and may cause the unit to malfunction. The user should clean the fin heat exchanger in the compression condensing section at least once a year, either mechanically or chemically. This work should be done by professionals.

### a. Mechanical cleaning

Mechanical cleaning is mainly used to remove dust and other substances on the fin heat exchanger. Use a round nylon brush or brass brush (holding the rod) to brush the inside and out of the fin heat exchanger. Flush the fin heat exchanger with clean water or compressed air, and protect the compressor junction box, fan motor junction box, and control box against water during cleaning.

### b. Chemical cleaning

If there are oil stains on the fins, they need to be cleaned chemically. Only reliable sources of cleaning agents should be used when cleaning. Pay special attention to the amount when cleaning and rinse and neutralize after cleaning. When cleaning, also pay attention to waterproof protection for the compressor junction box, fan motor junction box, control box, etc.

9. In cold areas or in winter, when the air conditioning unit stops operating, close the fresh air, supply air and return air valves to prevent the heat exchanger from freezing and cracking. Drain the water in the steam (hot water) heating coil to prevent it from freezing and cracking.

10. The soft connection of the fan should be properly protected, and the air leakage caused by wear and corrosion should be repaired and replaced in time.

11. If the unit is not used for a long time, the blower of the air treatment section should be activated for 1 to 2 hours to dry the water pan of the unit and clean the unit, which can prolong the service life of the unit.

## 1 2. 2 Blower

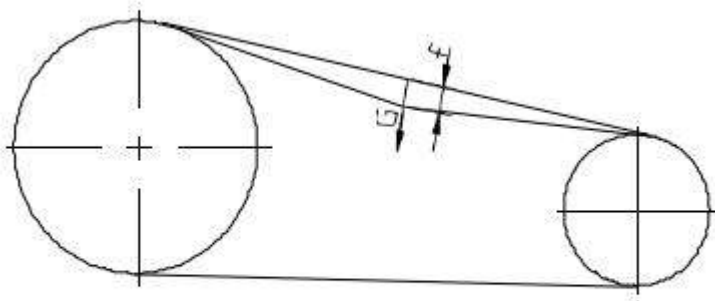
1. After half a year of normal operation, if you work within 16 hours a day (including 16 hours), lubricating oil will be added every 5000 hours. If you work for 16 ~ 24 hours a day, every Add lubricating oil once every 3000 hours.

2. The fan should always be kept clean to remove dust and foreign objects so as not to affect the dynamic balance of the fan blades.

3. After 40 hours of initial operation of the blower, the tension of the narrow V-belt of the blower must be checked again. The method of controlling the tension of the narrow V-belt (see Figure 19) is to add a load G perpendicular to the edge of the belt at the midpoint of the cut edge of the belt (usually hang a spring balance at the midpoint, and then pull it by hand), Make the midpoint of the belt produce a displacement f, when  $f = 13 \text{ mm}$ , the force indicated on the spring balance should be in the range of  $12 \sim 18 \text{ N}$ . If  $f = 13 \text{ mm}$ , the force is less than  $12 \text{ N}$ , and the adjusting screw should be rotated to make the belt tighten further. if

When  $f = 12 \text{ mm}$ , the force is greater than  $18 \text{ N}$ , indicating that the tension of the belt is too large. Insufficient tension, reduced load transfer capacity, low efficiency, and rapid heat generation of the small pulley, belt wear, excessive tension will reduce the life of the belt, increase the load on the shaft and bearing, and cause the bearing to heat up. Wear.

4. When the blower is in normal operation, you should always pay attention to the abnormal sound of the blower and observe the operation of the narrow V-belt. If the slack of the narrow V-belt is found to affect the normal operation of the blower, the tension of the narrow V-belt should be re-adjusted according to the above method. If it is found that the narrow V-belt is worn out  
When the adjustment affects the normal operation of the blower, the narrow V-belt should be replaced. When replacing the belt, several belts must be replaced at the same time. The belt is a vulnerable part and has a service life of 3 to 6 months.



5. It is recommended to adjust the tension of the narrow V-belt according to the following table (see attached table):

Tape tension adjustment period table				
Time	start of test run	in the next two weeks	in the next two months	every two months thereafter
Adjustments No.	should be once a day for 2 days	once a week	once a month	one time

6. Since the bearing unit and bearing seat can seal the lubricating grease in the bearing cavity, the fan bearing has good operating conditions and the grease can maintain a long running time. But in the harsh operating environment  
In the case of, please follow the table (see Table 3) to replenish grease (usually Shell lithium grease R2 or R3). Especially for 24 hours of continuous operation, where dust and humidity are obvious, the replenishment interval in the table below should be shortened by half. Secondly, a protective cover should be provided for the bearing seat assembly. Generally, it is normal that the ambient temperature on the surface of the bearing seat is at room temperature plus 40°C or less than 70°C. If it exceeds 70°C, it needs to be dealt with in time.

Grease replenishment intervals for bearing units and housings			
Bearing operating temperature °C	Speed r/min		
	below 1500	below 3000	above 3000
below 60	4 months	3 months	2 months
below 70	2 months	1.5 months	1 month
below 80	1 month	0.5 month	0.5 month

7. Care should be taken to avoid adding excessive grease when relubricating the bearing, as long as there is a little grease seeping out of the outer ring of the bearing and the periphery of the sealing ring. Excessive grease will cause over-bearing

If heat or seals fall off, do not apply grease to the outside of the bearing seal ring to avoid affecting the heat dissipation of the bearing. The bearing is a vulnerable part. Please perform maintenance according to the instruction manual. The table below provides a rough reference for the amount of grease.

8. Regarding the motor, please follow the instructions in the motor manual for maintenance. If the motor needs to be replaced, you can remove it from the maintenance door or disassemble the panel at that location.

### 12.3 Air filter

1. Carefully monitor the pressure loss of the filter. When the filter reaches the maximum pressure loss, the filter can be cleaned or replaced. The filter is a vulnerable part.

2. Bounce off the circlip that presses the filter screen.

3. Carefully remove the dusty filter in the metal frame to avoid fouling the unit and scratching the filter material.

4. Shake the filter and rinse it in soapy water at 40°C to allow it to dry for later use.

5. Do not rinse the filter more than three times. If it is more than three times, replace it.

6. If you reassemble the filter, follow the above steps in reverse.

#### 12.4 Air valve (optional accessory)

1. Check whether the air valve drive rod can be flexibly rotated (the actuator can be carefully removed by the electric air valve, and the drive rod can be turned by hand).
2. Remove the dust on the air valve blades.
3. Review the function of the air valve.
4. At all moving parts of the air valve, drip lubricating oil for lubrication protection.

#### 12.5 Humidification device (optional accessory)

1. For dry steam humidifiers, check whether the installed humidifiers correspond to the left and right types of the unit, and the nozzle direction and the air supply direction of the unit should be arranged in the opposite direction; check whether the nozzles are blocked, and remove them if any; humidifier Whether the fixing and sealing of the valve are intact, whether the steam inlet pipe and the condensate drain pipe are unobstructed; check whether the regulating valve is flexible in rotation and easy to exchange;

2. For the wet film humidifier, confirm whether the type of humidifying material and the thickness of the humidifying material are correct, whether the wet material is damaged, whether the water pipe is unobstructed, whether the connection between the humidifier and the heat exchanger is loose, and if there is any, tighten and fix it; When the unit has a direct drainage wet membrane for humidification, the user must control the water volume by himself to avoid excessive water overflow.

3. For high-pressure spray humidifiers, check that the nozzle spraying direction should be opposite to the air supply direction of the unit. The profiles and brackets of the fixed nozzle should be installed firmly. The part of the humidifying pipe passing through the panel should be sealed and insulated, and the main part of the outer humidification It must be well assembled;

4. For the electrode type humidifier, check that the spray direction of the humidifier should be perpendicular to the air supply direction of the unit, and the spray hole should be upward, check whether the condensate drain pipe of the humidifier is intact, and the part where the inlet and outlet pipes pass through the panel should be sealed. For thermal protection, the water source should be ordinary tap water or standard demineralized water with qualified water quality, and pure water cannot be used.