

Installation Manual - Use and Maintenance Manual

COOLBLADE DX-M-INV2 Inverter modular series



Climaveneta IT Cooling

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Symbols in the manual

The following symbols are used in this manual and inside the air conditioning unit:

The following symbol will be used in the manual and the unit interior			
	user		importance
	Mounting party		forbid
	after sale		

The following symbols are used in parts of this manual:



warning sign -Only professionals can modify the operation



Prohibition sign - Do not modify the operation under any circumstances

Professional (Electrical):

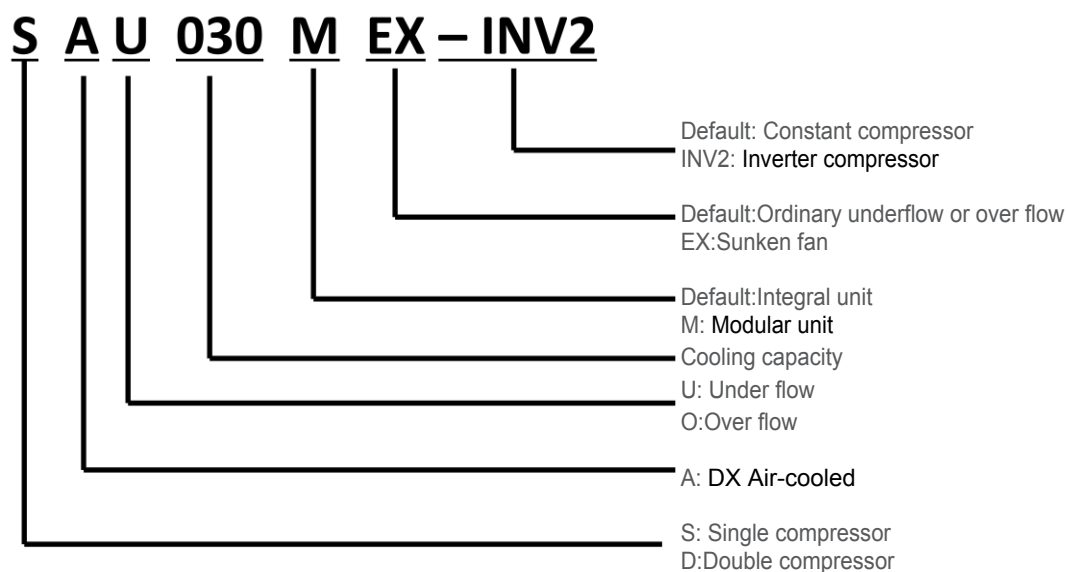
Possess professional knowledge and rich operating experience, and be able to avoid possible dangers when operating air conditioning units (IEV 826-09-01) have

Random factory accessories

Each unit includes the following accessories:

- Installation and Maintenance Manual
- Control manual
- Circuit diagram
- Production certificate
- Factory inspection report
- 2 keys for the unit
- Condensate pipe pre-connected 1.5 meters
- 2 spare fuses
- The humidifier drain pipe is pre-connected 1.5 meters (configured only when the humidification
- function is selected) 5 door plugs (for cover screws)

Nomenclature



Overview

COOLBLADE Overview of series units

COOLBLADE series precision computer room air conditioner is composed of refrigeration system, electric heating or fin heat exchanger system, humidification system, dehumidification system and other functional components. The operation of the whole machine is centrally controlled by the microprocessor, which fully realizes the high-quality effects of high precision and low energy consumption. It is an excellent product of contemporary energy saving and environmental protection. Widely used in military, medical, financial, communication and large data processing centers in various fields, it is your best choice.

COOLBLADE series precision computer room air conditioners use environmentally friendly refrigerant R410A as the refrigerant. This series of units complies with the national standard of unitary air conditioners for computer and data processing rooms in China (GB/T19413-2010), passed the 2006/42/CE certification, and passed the performance test before leaving the factory.

Unit Appearance

The appearance of this series of units is sprayed with RAL7016, and the sheet metal parts are made of galvanized steel sheets. The company's advanced installation technology enables the unit to operate normally even when the unit is being repaired; at the same time, this series of units has excellent quiet performance, and the inner surface of the inner cover of the unit can be equipped with double-layer sound insulation panels. Sound insulation and thermal insulation made of special materials.

Compressor

Use frequency conversion hermetic scroll compressor with motor overheating protection device and bearing locking function. The base of the compressor is equipped with a rubber shock absorber to reduce the vibration of the whole machine, and the compressor has been filled with refrigeration oil before leaving the factory.

Inverter

It adopts general-purpose compact multi-function inverter, high reliability, high speed, low noise, and low harmonic control; it has its own control operation panel, and users can directly adjust parameters on the operation panel.

Fan**EC inverter fan**

Single suction port, backward inclined blades; configuration of brushless frequency conversion motor, so that the EC fan can achieve excellent performance under the condition of low power consumption and high static pressure. Users can directly adjust the motor speed through the control panel to control the air volume or ESP of the unit.

Electric heating

The stainless steel aluminum finned heater is equipped with overheating protection, which will cut off the power to activate the alarm in case of overheating.

Air filter

The air filter consists of a metal screen with synthetically treated recycled polyester filter media and a sheet metal frame. It has reached the G4 efficiency requirement of CEN-EN779 standard, and the average separation efficiency is 90.1% (ASHRAE). This filter is non-flammable.

Return air mode

O- OVER: upward air supply

U- UNDER: Downflow

Evaporator

The finned heat exchanger is used as the indoor evaporator, which has a large enough heat exchange area; the heat exchanger is composed of internally threaded copper tubes with high heat exchange efficiency and special-shaped aluminum fins, and has excellent heat exchange performance. At the same time, the heat exchanger is hydrophilic, which facilitates the discharge of condensed water. The heat exchanger is installed in front of the fan outlet, with a sump and drain hose.

Electric control box

The installation and wiring of the electric control box fully comply with the IEC 204-1/EN60204-1 standard. It is connected to the power junction box of the fan and compressor and the overheating protection through a contactor, and has a general disconnect switch to ensure electrical safety.

Control performance

The microprocessor configured in the unit can perfectly control the operation of the compressor, the cooling capacity of the whole unit and the alarm function, and can be connected with the monitoring system of the building.

Air flow switch

When the air flow cannot meet the indoor environment requirements or the fan fails, an alarm signal will be sent.

Electrode humidifier

The humidifier can use untreated water as a steam source, the humidifier can turn on the humidification function according to the indoor humidity, and can control the salt content in the water at the same time.

Microprocessor control system

The microprocessor configured in the system can accurately control the temperature and humidity of the indoor environment, and at the same time monitor the operating conditions of the unit. Conforms to (EECDirective 89/336).

Direct expansion unit

A variable frequency hermetic scroll compressor with high efficiency, low noise and built-in overheating protection device is used. The refrigeration system consists of the following components:

- reservoir
- oil separator
- Filter drier, sight glass
- Electronic expansion valve
- Shut-off valve
- High and low pressure switch (manually resettable)
- High and low pressure sensor / temperature and humidity sensor

SAU/OM-INV2DAU/OM-INV2

All units have at least one refrigeration cycle, some models have two refrigeration cycles. The compressor discharges the high-temperature and high-pressure refrigerant gas to the outdoor condenser for condensation, and the refrigerant that is condensed into liquid in the outdoor unit first enters the liquid receiver (installed on the indoor side) to ensure that a proper flow of refrigerant passes through the expansion valve. After throttling, the evaporator entering the room exchanges heat with the indoor air. In the evaporator, the refrigerant will take away the heat of the indoor air and reduce the temperature of the indoor air; the liquid refrigerant that has absorbed the heat evaporates into a gas, and then returns to the compressor for compression, and then continues the cycle. In order to ensure that the exhaust gas of the compressor can be maintained at the optimal pressure, and at the same time suitable for the stable and safe operation of the inverter compressor, our unit is equipped with a speed controller for the condensation fan of the outdoor unit as standard. At the same time, each variable frequency compressor is equipped with an oil separator to realize the safe operation of the variable frequency compressor. The scroll compressor is equipped with a one-way valve to prevent the liquid refrigerant from flowing back into the compressor when the pressure of the outdoor unit is too high in summer, and it can also prevent the liquid refrigerant from flowing back when the compressor is started. The other one-way valve is installed between the indoor unit and the outdoor unit liquid connection, and is installed by the installer when the unit is installed. The purpose is to prevent the liquid refrigerant in the accumulator from flowing back into the condenser coil due to the low pressure of the outdoor unit in winter, which will affect the heat exchange of the condenser. At the same time, install a low pressure alarm device for the condenser to prevent the pressure of the outdoor unit from being too low.

Installation of air-cooled condenser for outdoor unit

The indoor unit is used with different types of outdoor units, standard type or low noise type (special treatment is done on the condenser coil to reduce noise).

Information on other outdoor unit installations can be obtained from

Obtained from the parameter table of the external air-cooled condenser.

Note 1: The outdoor unit and indoor unit are sold separately.

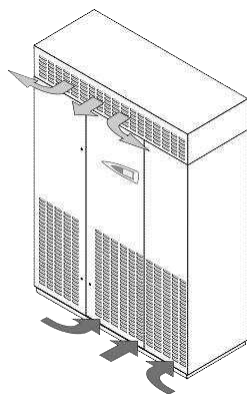
Note 2: The indoor unit is filled with 1.5bar high-pressure nitrogen before leaving the factory, while the outdoor unit is filled with 8bar high-pressure nitrogen

Note 3: The customer must correctly connect the refrigerant circuit of the indoor unit and the outdoor unit according to the requirements of the installation manual, and fill the refrigerant and refrigeration oil according to the length of the on-site piping.

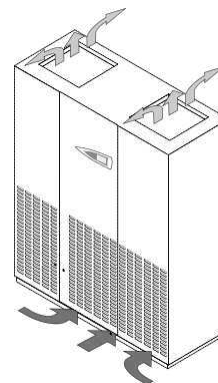
Return air mode

COOLBLADE series precision computer room air conditioners have multiple air supply and return modes, depending on the position of the air supply and return air outlet of the unit, there are mainly two forms of upward air supply and downward air supply. The air blowing unit is blown from the top of the unit, and the air is generally returned from the front and back of the unit. We can provide units with different forms of air supply and return according to customer requirements. The air outlet of the upper blower unit can be connected to the air duct on the ceiling or connected to an air outlet device at the air outlet.

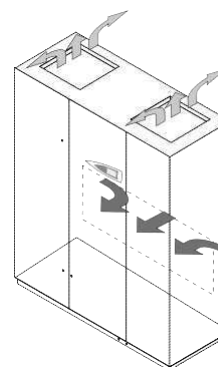
SAO/DAO-M-INV2



1 Return air unit before sending up, equipped with air outlet device.



2 Up-supply front-return air unit, air supply from the top

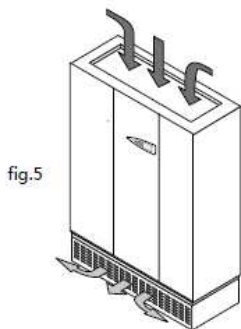


3 Up-supply and back-return fan unit, air is supplied from the top

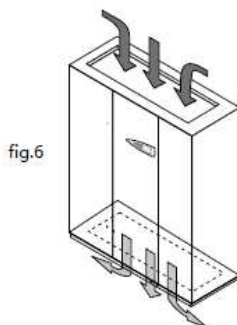
Downflow air: the unit supplies air from the bottom and returns air from the top, and the return air can directly inhale air from the room or pass through an air inlet

Mouth back and forth.

SAU/DAU-M-INV2



5 under supply and over return with our let device



6.under supply and over return supply air under floor

Nameplate

The unit nameplate is placed on the inner panel of the unit.

机组名称	风冷式机房精密空调 / Air Cooled		
Unit Type	Direct Expansion CRAC Unit		
型号	DAU120M-INV2		
Model			
生产任务号/生产日期	DH17051002/2021-11		
Unit Serial/Manufact. Year			
制冷量	97.9 kW		
Cooling Capacity			
输入功率	34.1 kW		
Total Power Input			
再加热量	18.0 kW		
Reheating Capacity			
加湿量	8.0 kg/h		
Humidifier Capacity			
运行重量	690 kg		
Operating Weight			
全年能效比	4.01		
AEER			
制冷剂/充注量	R410A	--	kg
Refrigerant/Refri.charge			
电源供给	380/3/50 V/Ph/Hz		
Power Supply			
最大允许压力	HP=4.3MPa	LP=2.8MPa	
Maximum Pressure			
电流			
Current			
零部件/Components	FLA(A)	LRA(A)	QTY
压缩机/Compressor(s)	80	89.5	2
风机/Fan(s)	10.8	--	2
电加热器/Heater	27.3	--	3-stages
加湿器/Humidifier	9.1	--	1
冷凝器/Cond. Rents	18	42	6
风机/Fan	99.9	--	--

Unit internal operation

The corresponding operations inside the unit can be performed by removing the panels in all directions of the unit. There are two ways to remove the front panel and side cover:

Front panel

All front panels are hinged and can be opened and closed by locks on the door panels. The front panel can be opened or locked with a key matched with the lock.

The unit can be operated after opening the front panel, and the unit can be inspected and repaired smoothly even in a very narrow space. All the components of the unit can be operated after opening the front panel. The number of front panels depends on the cooling capacity of the unit.

Side panel

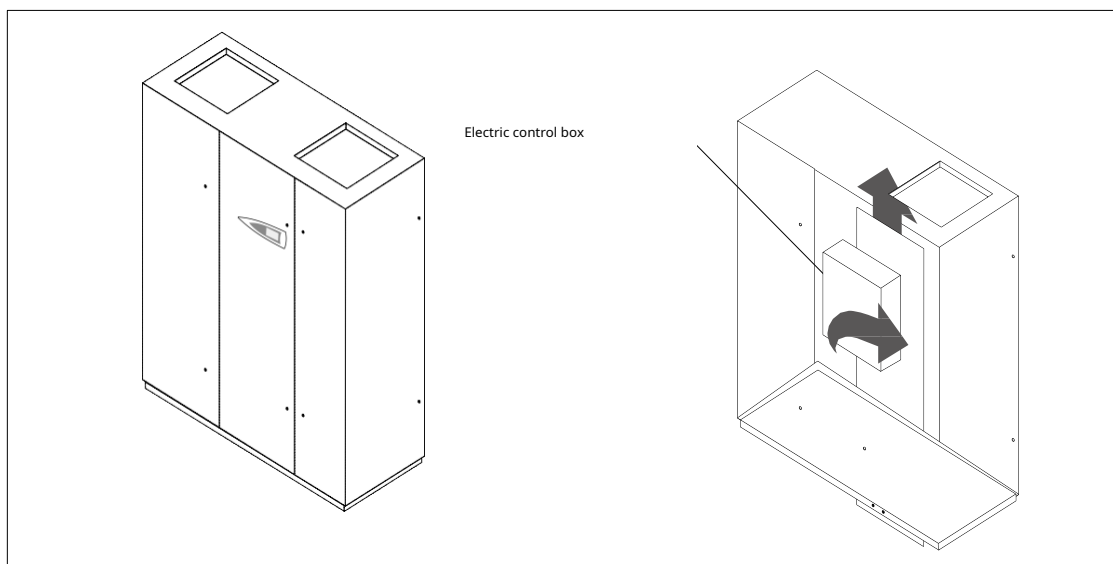
All side covers can be removed, and the side covers are fixed by screws. However, there is no need to remove the side covers during routine maintenance, which means that multiple units can be placed closely in a row regardless of the space required on the sides. There are black plastic sealing covers installed on the screw holes of the side cover.

Rear cover

The back cover is locked with self-tapping screws. Normally, the back cover is installed close to the wall, so there is no need to remove the back cover.

Inner panel

The high-speed fan and electric heater inside the unit are blocked by the inner panel, which can play a protective role. The inner panel cannot be removed when the unit is not closed.



warn! Always check that all outer covers are properly reinstalled before restarting the unit.

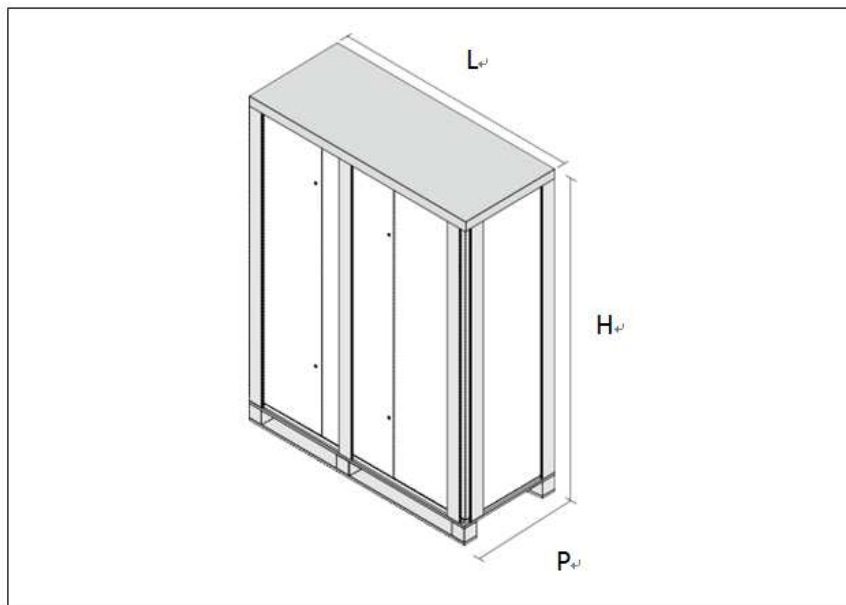
Transport and storage

Do not tilt or lay down to move the air conditioning unit. It is best to arrive at the installation site before unpacking the unit, and try not to expose the unit to the outside for too long.

The unit can be moved in the following ways:

- Use a forklift, there is an opening for the forklift on the wooden base of the unit.
- Use a sling, and be careful not to lift the edge of the unit when using the sling. The air conditioning unit must be stored indoors, and it is best to keep the original packaging of the unit; the storage environment is humid

The temperature must be lower than 85%, and the temperature should be lower than 50°C.



model	SAO/SAU-M-INV2					DAO/DAU-M-INV2					
	033	040	045	050	060	065	080	090	100	110	120
L(mm)	990					1430	1840			2280	
P(mm)	1090					1090	1090			1090	
H(mm)	2190					2190	2190			2190	

The following symbols are formulated according to the ISO 7000 standard and will appear on the outer packaging of the unit. The specific meanings are as follows:

	Fragile :handle with care		Direction of movement:the correct place version when be moved
	Keep drying:must be put in the dry condition		Temperature request : the temperature request of storage and transportation
	Center of gravity:the center of gravity is pointed our		Do not use hook:do not use hook when move the unit
	Stay away from high temperature heat source:the unit must stay away from high temperature heat		Don't stack the unit

Reception

When receiving the air conditioner unit, it is necessary to check whether the unit is intact. If any unit damage is found due to transportation, please notify the transporter in writing immediately. Focus on checking whether the control panel on the front panel of the unit is damaged; at the same time, if the side cover is installed incorrectly, it must be installed in the correct position before installing the unit.

Installation size

The air conditioner unit can be placed directly on the ground, and it should be no less than 5mm above the ground, otherwise it may cause condensate leakage.



warn! Air conditioning units must be installed indoors and cannot be used in harsh environments. During installation, it is necessary to use elastic gaskets around the bottom of the unit to reduce noise and vibration.

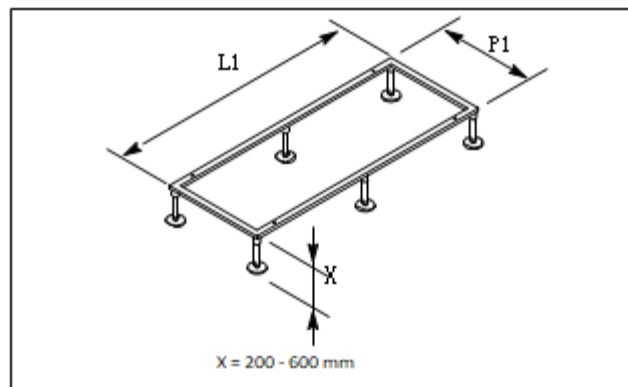
Mounting bracket (optional)

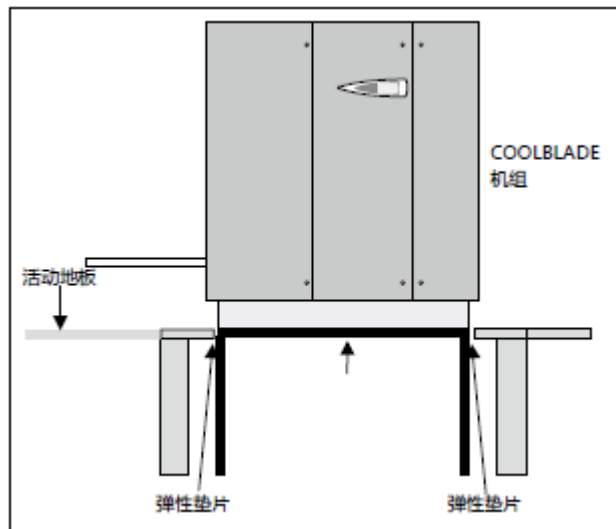
The mounting bracket has the following functions:

- Allows for CRAC to be installed prior to installing the raised floor.
- can completely suppress mechanical vibration
- It is convenient for pipeline layout

The height of the mounting bracket can be adjusted. In the picture on the right, X represents the height of the mounting bracket. The height is preferably 200 to 600mm.

In order to reduce noise and vibration, the elastic gasket installed at the bottom of the unit needs to be at least 5mm thick. The elastic spacer needs to be installed between the unit and the upper surface of the access floor, and also needs to be insulated from the ground. Note: The installation bracket needs to be installed according to the requirements of the attached installation instructions.





bracket

	SAO/SAU-M-INV2					DAO/DAU-M-INV2					
	033	040	045	050	060	065	080	090	100	110	120
L1(mm)	850					1290	1700			2140	
P1(mm)	950					950	950			950	

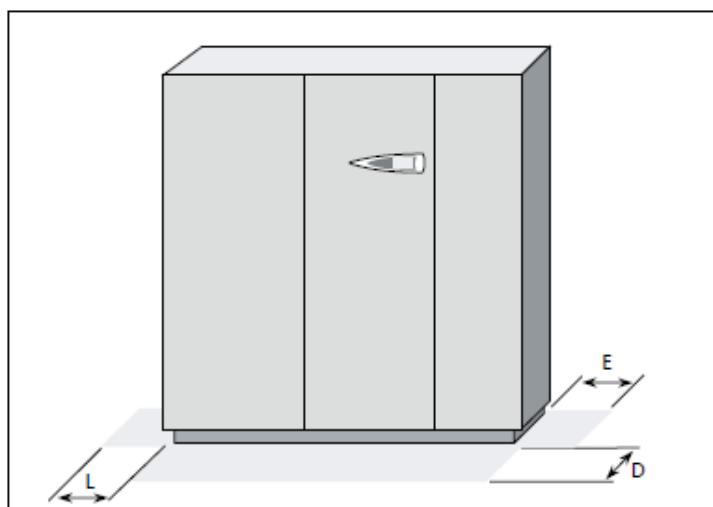
Reserved operating space

The installation of COOLBLADE series units only needs to leave enough space directly in front of the unit. The design of this space can ensure that customers can easily operate when installing or maintaining the unit later. At the same time, thanks to the structural features of the COOLBLADE series, multiple units can be installed side by side or on the base bracket without leaving space on the side or rear.

In order to facilitate the maintenance or other operations of the unit, please ensure that at least 900mm of space is reserved in front of the unit.



warn! Do not block all or part of the return air vent under any circumstances.



	033	040	045	050	060	065	080	090	100	110	120
	SAO/SAU-M-INV2					DAO/DAU-M-INV2					
D mm	> 900										
E mm	0										
L mm	0										

Operating limit range

Environmental temperature and humidity control range

22~40°C RH 45~55%

Outdoor temperature

- 20.0°C~+46.0°C, for standard units

- 35.0°C~+46.0°C, the unit needs to be equipped with low-temperature components. In order to ensure the normal operation of the air conditioner in the computer room, the unit must be operated within the range of the required working conditions.

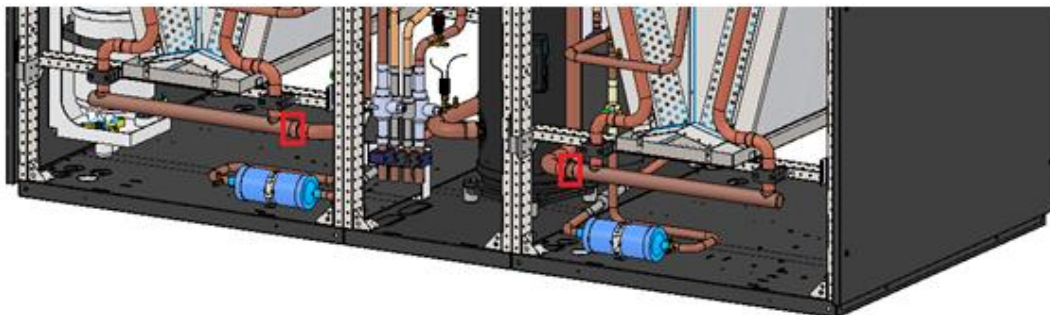
Module connection

To separate the modules, you need to open the front door, remove the inner cover, and remove the rear cover. When separating the modules, the copper pipes and wires need to be separated first.

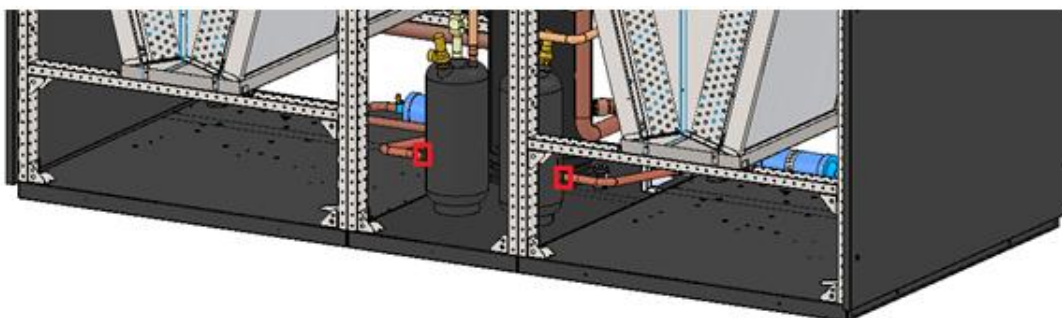
To separate the copper pipe, it is necessary to desolder the copper pipe from the interface near the module connection position, and pay attention to the correctness of the welding pipeline.

by DAO120M-INV2 Take the front of the unit as an example

front



back



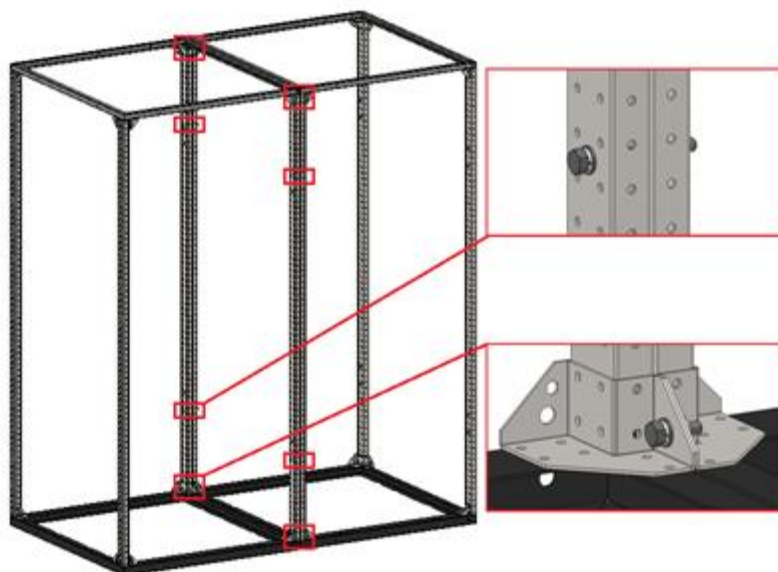
When the electrical components and the electric control box are not in the same module, the wires need to be separated.

The compressor power cord, inverter power cord, electric heater and humidifier power cord must be separated from the electric control box. The fan wires, wind pressure difference, and temperature and humidity sensors are separated through plug-ins, or disconnected from the sub-module, and marked clearly.

The air pressure difference, the filter screen is dirty and blocked, and the water leakage alarm is connected by terminals.

After the pipeline is separated, remove the connecting bolts between the modules.

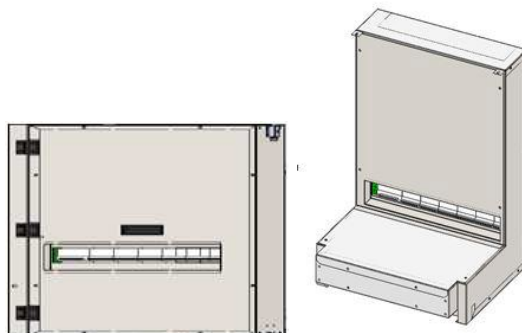
There are 8 sets of bolts and nuts connected between every two modules, which are respectively located on the bottom plate connection block, the top plate connection block and the column.



Electric control box opening and closing

The electric control box in front of the surface cooler can be turned forward.

The left side of the electric control box is connected by a hinge, and the right side is positioned by a hasp. Press the button on the side of the hasp and the hasp will pop out to rotate the electric control box.



Installation positioning

1. Check whether the installation site can bear the weight of the unit. Information about the weight of the unit can be queried in the technical parameter table (module machine parameter table).
2. According to the design requirements, the air conditioning unit should be installed on the indoor level. A sturdy chassis helps distribute weight evenly. When choosing the installation site, the necessary maintenance space and air supply space should be considered.
3. Children, unauthorized persons and animals are not allowed to enter the installation site of the air conditioning unit.
4. When the compressor is running, the air conditioning unit may vibrate. To avoid such vibrations, it is recommended to mount the unit on a shock-absorbing mount, in the same way that the unit is positioned on a raised-floor mount with, for example, shock-absorbing pads.
5. The air conditioner unit should not be installed in offices or other rooms sensitive to noise.
6. The unit shall not be installed in an environment of flammable or explosive gas.

Refrigerant circuit connectionSAU/OM-INV2DAU/OM-INV2

Refrigeration circuit piping

For best performance, pipe walls and pipe diameters should be in accordance with the table

model	DiameterxWall thickness (mm)	
	Gas Pipe	Liquid Pipe
SA 033M-INV2	16×1	16×1
SA 040M-INV2	19×1	16×1
SA 045M-INV2	22×1.2	16×1
SA 050M-INV2	22×1.2	16×1
SA 060M-INV2	22×1.2	19×1
DA 065M-INV2	19×1	16×1
DA 080M-INV2	19×1	16×1
DA 090M-INV2	22×1.2	16×1
DA 100M-INV2	22×1.2	16×1
DA 110M-INV2	22×1.2	19×1
DA 120M-INV2	22×1.2	19×1

The refrigerant line connections are located near the compressor and are marked "Air Line" and "Liquid Line"; for dual circuit units, they are marked "Air Line 1" and "Air Line 2" respectively.

Pipes must be joined by welding. For a double circuit unit, do not weld the circuit to the external unit by mistake.

Connection between internal and external units

Installation Notes						
series	Standard machine			Add extension components		
	Effective pipe length	Positive height difference	Negative height difference	Effective pipe length	Positive height difference	Negative height difference
SAO/UM-INV2 DAO/UM-INV2	≤50m	≤25m	≤5m	≤50m~80m	≤25m	≤5m
Remark: 1. Positive drop: the vertical distance that the outdoor unit is higher than the indoor unit; negative drop: the vertical distance that the outdoor unit is lower than the indoor unit; 2. If the positive drop exceeds the range, please consult the factory, and the unit cannot be used if the negative drop exceeds the range; 3. When there is a positive drop, add an oil trap every time the air pipe rises 3-5m.						

Cryogenic and Extended Assembly Instructions						
		liquid storage tank	oil separator	check valve	The electromagnetic valve	Remark
SAO/UM-INV2 DAO/UM-INV2	Standard machine	-	-	-	-	The added components are installed in the indoor unit inside the crew, As a non-standard option pieces, before placing an order and technical support communicate;
	Low temperature group pieces	-	-	-	-	
	Extended group pieces	-	-	-	-	
Remarks: √ means configuration, × means no configuration						
1. The oil is installed at the outlet of the exhaust pipe;						
2. The liquid storage tank is installed on the liquid path from the condenser;						
3. When the unit needs both low-temperature components and extension components, the extension components can be selected.						
4. If the unit is equipped with an electronic expansion valve, the solenoid valve does not need to be configured.						

Electrical parameters

The selection of the wire diameter of the power supply wire needs to take into account factors such as the total length of the power wire and the installation method of the unit, and select the wire diameter of the power inlet wire based on the maximum input current of the air conditioning unit. This can avoid too much voltage loss (the fluctuation range of the input voltage must be between 90% and 110% of the rated voltage). The following table lists the minimum wire diameter required by the unit

Note: An auxiliary fuse needs to be installed before the power supply of the unit enters the line to prevent electrical accidents caused by short circuit of the power supply (the current can be as high as 10kA).

SAU/OM-INV2DAU/OM-INV2 Total input power of the unit

New Mod.	Unit power supply	B				R				H				T			
		FLI(kW)	FLA(A)	SA(A)	mm ²	FLI(kW)	FLA(A)	SA(A)	mm ²	FLI(kW)	FLA(A)	SA(A)	mm ²	FLI(kW)	FLA(A)	SA(A)	mm ²
SA033M-INV2	380V/3N/50	13.7	28.2	59.2	10	22.7	41.8	59.2	16	17.5	33.8	64.8	10	22.7	41.8	64.8	16
SA040M-INV2	380V/3N/50	16.7	26.2	80.2	10	25.7	39.8	80.2	10	20.5	31.8	85.8	10	25.7	39.8	85.8	10
SA045M-INV2	380V/3N/50	16.7	26.2	80.2	10	25.7	39.8	80.2	10	20.5	31.8	85.8	10	25.7	39.8	85.8	10
SA050M-INV2	380V/3N/50	18.7	37.2	80.2	10	27.7	50.8	80.2	16	22.5	42.8	85.8	16	27.7	50.8	85.8	16
SA060M-INV2	380V/3N/50	25.6	45.4	94.9	16	34.6	59.0	94.9	16	29.3	51.1	100.6	16	34.6	59.0	100.6	16
DA065M-INV2	380V/3N/50	25.6	53.4	77.4	16	25.6	53.4	77.4	16	29.3	59.1	83.1	16	29.3	59.1	83.1	16
DA080M-INV2	380V/3N/50	33.4	52.3	99.3	16	37.4	57.6	99.3	16	39.4	61.4	108.4	16	39.4	61.4	108.4	16
DA090M-INV2	380V/3N/50	33.4	52.3	99.3	16	37.4	57.6	99.3	16	39.4	61.4	108.4	16	39.4	61.4	108.4	16
DA100M-INV2	380V/3N/50	37.4	74.3	108.3	25	39.4	74.3	108.3	25	43.4	83.4	117.4	25	43.4	83.4	117.4	25
DA110M-INV2	380V/3N/50	51.1	90.8	129.8	25	51.1	90.8	129.8	25	57.1	99.9	138.9	25	57.1	99.9	138.9	25
DA120M-INV2	380V/3N/50	51.1	90.8	129.8	25	51.1	90.8	129.8	25	57.1	99.9	138.9	25	57.1	99.9	138.9	25

B=Cooling only

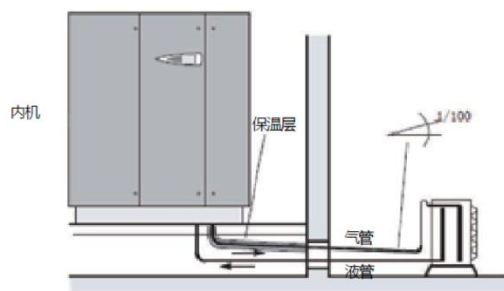
R=refrigeration only + standard electric heating (dehumidification function)

H=cooling+humidification

during continuous operation⁶

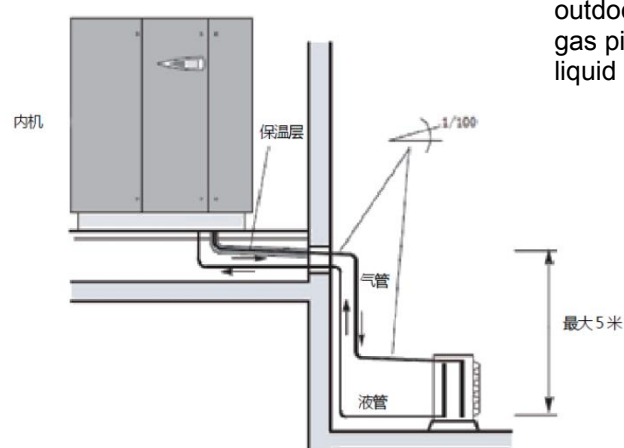
! The above data values do not include the external unit, if the external unit is powered by the internal unit, please add the current value of the external unit to the maximum load current

indoor coil insulation
gas pipe:need insulation
liquid pipe:don't need insulation



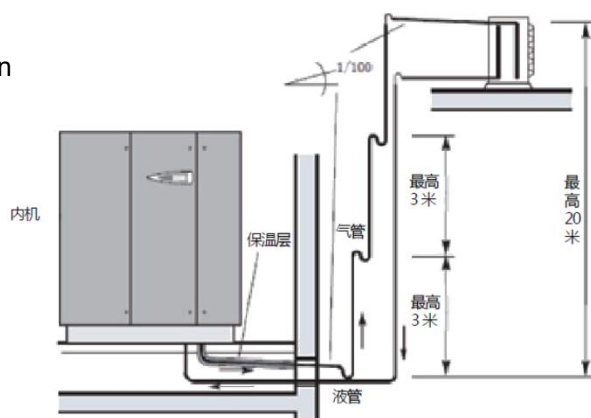
outdoor coil insulation
gas pipe:don't need insulation
liquid pipe:suggest insulation

indoor coil insulation
gas pipe:need insulation
liquid pipe:don't need insulation



outdoor coil insulation
gas pipe:don't need insulation
liquid pipe:suggest insulation

indoor coil insulation
gas pipe:need insulation
liquid pipe:don't need insulation



outdoor coil insulation
gas pipe:don't need insulation
liquid pipe:suggest insulation

remark:liquid gas can't be exposure to direct
sunlight,there must be 30mm distance between liquid
and gas pipe

Evacuate and charge refrigerant

When the COOLBLADE series air-cooled modular unit leaves the factory, the unit is filled with a small amount of refrigerant, and this part of the refrigerant cannot be used or maintained for pressure. After the unit arrives at the site, keep the pressure first, and fill the refrigeration system with an appropriate amount of refrigerant R410A during installation.

For Mitsubishi Inverter Compressor ANB52FFTMT/ ANB66FLJMT, the recommended lubricating oil type is FV50S, For Mitsubishi Inverter Compressor ANB78FVAMT/ ANB87FVLMT, the recommended lubricating oil type is FVC68D.

R410A
Open any valve on the unit and make sure that all parts of the system are free of internal high-pressure gas.
Connect a high-efficiency vacuum pump to the filling valve of the suction and discharge pipeline of the compressor.
Start vacuuming, and stop vacuuming only when the absolute pressure inside the unit is lower than 40pa, which can eliminate the of air and moisture.
The vacuum needs to be carried out slowly, and it needs to be maintained for a long time, and the pressure of the system cannot be quickly reduced to below 40pa. When the system pressure reaches the requirement, keep it for 100s to confirm that the absolute pressure of the system does not exceed 50pa
Usually, if the system has a lot of moisture, or when vacuuming a large unit, it is necessary to repeat the vacuuming many times. When the absolute pressure of the system reaches the requirement, inject high-pressure nitrogen into the system, and then repeat vacuuming.
Connect the refrigerant charging machine to the system's charging valve.
Charge the system with refrigerant.
Start the compressor, and slowly fill the system with refrigerant, and carefully observe the state of the sight glass, and stop charging when the suction and discharge pressure of the compressor stabilizes and there are no bubbles in the sight glass.
Before charging the refrigerant, it is necessary to consider the requirements of the local environment for refrigerant leakage. For units equipped with a shut-off valve, when charging refrigerant, close the shut-off valve partly to avoid sudden stop and turn of the condensing fan, which will affect its life. Make sure that the subcooling degree of the system is about 3~5°C, and the superheating degree is about 5°C.

Evaporator and condenser volume and refrigerant charge

Indoor unit evaporator volume and refrigerant charge

Model	Capacity dm ³	Amount of refrigerant (kg)	Type of refrigerant
SA 033M-INV2	6.8	3.4	R410A
SA 040M-INV2	6.8	3.4	R410A
SA 045M-INV2	9	5.1	R410A
SA 050M-INV2	9	6.5	R410A
SA 060M-INV2	12.2	6.5	R410A
DA 065M-INV2	12.2	6.5	R410A
DA 080M-INV2	13.6	6.8	R410A
DA 090M-INV2	18	9	R410A
DA 100M-INV2	18	9	R410A
DA 110M-INV2	24.4	12.2	R410A
DA 120M-INV2	24.4	12.2	R410A

* The refrigerant charges listed in the above table are theoretical values,

Outdoor unit condenser volume and refrigerant charge

Model	Capacity [dm ³]	Amount of refrigerant [kg]	Type of refrigerant
C14	3.4	1.7	R410A
C17	3.4	1.7	R410A
C24	5.3	2.7	R410A
C29	7.9	4.0	R410A
C33	10.2	5.1	R410A
C42	9.6	4.8	R410A
C49	10.5	5.3	R410A
C58	15.8	7.9	R410A
C74	15.8	7.9	R410A

Note: The refrigerant charging amount listed in the above table is a theoretical value, and the actual charging amount is shown on the nameplate of the unit. When the distance between the indoor and outdoor units exceeds 30 meters, it is necessary to add refrigeration oil according to the pipe length.

Refrigerant/refrigerant oil charging

Liquid line diameter (mm)	Additional refrigerant per pipe length (kg/m) ⁽²⁾	Oil amount ⁽¹⁾ ⁽¹⁾
10	0.070	0.05
12	0.101	0.08
14	0.137	0.12
16	0.178	0.15
18	0.227	0.19
22	0.339	0.25

1)The distance between the indoor and outdoor units exceeds 30meters, additional refrigeration oil need to be charged per 10 meters. For Mitsubishi Inverter Compressor ANB52FFTMT/ ANB66FLJMT, the recommended lubricating oil type is FV50S, For Mitsubishi Inverter Compressor ANB78FVAMT/ANB87FVLMT, the recommended lubricating oil type is FVC68D. .

2)Refers to the indoor unit distance

Debugging

Power wiring

Open the rear door of the indoor unit, and you can see the interfaces of the electric control box. The layout of the electric control box of different units is different, please refer to the circuit diagram and instruction label for details. After confirming that the power is off,L1~L3,N,PEThey are respectively connected to the corresponding ends of the external power supply. When the unit is equipped with a main power line, the specifications of the power line must comply with the regulations of the country and local electrical regulations. Refer to the circuit diagram (see the attached factory accessories) and the instruction label to complete the connection of the control line. In order to facilitate the customer to install the power supply line, there are wiring holes on the bottom and top of the unit, and the customer can according to different applications Choose bottom or top entry with scene.

Debugging steps

- 1) The power supply voltage is the same as the rated voltage on the equipment nameplate;
- 2) There is no open circuit or short circuit in the electrical circuit of the system;
- 3) The power cable and grounding cable of the frequency converter, indoor unit and outdoor unit have been connected; 4) the circuit breaker or fuse is correctly rated;
- 5) The control cable has been connected;
- 6) All cables and circuit connectors have been tightened, and the fastening screws are not loose. After all the above contents have been checked and confirmed to be correct, you can start debugging. The debugging steps are as follows: 1) Disconnect the air switch corresponding to each component, close the main air switch to check the control voltage;
- 2) Close the air switch of the fan, and observe whether the displayed values of all parameters such as temperature, humidity, and pressure are correct? If all are correct, manually control the display panel to turn on the fan, confirm the direction of the fan, and set the fan speed. You should be able to feel a significant change in the fan speed;
- 3) When configuring the heater, close the electric heating air switch, change the temperature setting value, start the heater (or manually start the electric heater), the corresponding contactor should be closed, and can sense feel the hot wind blowing;
- 4) When configuring the humidifier, close the humidifying air switch, change the humidity setting value, start the humidifier (or manually start the humidifier), the corresponding contactor should be closed, the water injection solenoid valve should be opened, and if there is water entering the humidification tank, check with a multimeter There should be current in the connection line of the humidifier, indicating that the humidifier has been turned on; check whether there is leakage in the water injection pipe or drain pipe, and whether the drainage is smooth; 5) Confirm that the refrigerant or nitrogen stored in the factory has been evacuated, and the vacuum and pressure maintenance have met the requirements.

6) start-up commissioning

- a. Change the temperature setting value, start refrigeration (or manually start refrigeration), and measure the operating current of each phase of the compressor in real time.
Trigger cooling (compressor on) method: adjust the temperature setting value to make it lower than the indoor computer room temperature 5°C. The control system should be able to trigger the demand for cooling and the compressor to run. run at least 3 Minutes later, adjust the set temperature to the room temperature +5°C, if the compressor stops running at this time, it indicates that the refrigeration function is normal.
- b. Check and confirm the running current of the condenser fan, and observe whether it runs smoothly;
- c. Start the compressor, keep the refrigerant bottle upside down, and fill the refrigerant slowly R410A, until the suction superheat reaches 5K around, the exhaust superheat is at 15°C~35°C. Observe the suction pipeline of the compressor to ensure that there is no "condensation" in the pipeline and the casing of the compressor to eliminate the potential risk of liquid hammer.

Oil separator

Since the inverter compressor is used and the unit is equipped with an oil separator, the system needs to ensure oil return to prevent the compressor from being damaged due to lack of refrigeration oil.

The oil separator has the following functions:

- Extend the working life of the compressor

The surface of the finned heat exchanger of the indoor unit and outdoor unit can basically not absorb refrigeration oil by using the oil separator, which will greatly improve the heat exchange performance of the heat exchanger, thereby optimizing the performance of the system and reducing The energy consumption of the unit.

Operational control

Electronic expansion valve

- Large adjustment range, sensitive and quick action.
- High adjustment accuracy, no vibration, fully exerting the heat exchange efficiency of the evaporator.
- Proportional adjustment function, excellent technical and functional characteristics

Alarm switch

The series units are equipped with the following control switches:

- High pressure switch F1: manual reset, equipped with one for each cycle.
- Low pressure switch F2: automatic reset, equipped with one for each cycle.
- Unit outlet air temperature probe (see installation manual for installation method)
- Temperature probe BT2 or indoor environment temperature and humidity probe BH1 (unit with indoor air humidity control function)

Some series of units have the following control switches:

- Electric heating overheating protection (units with electric heating).

The following control switches are optional:

- flow probe, consisting of
 - a) The FSD device installed on the special connector in the electric control box
 - b) FLOE sensors installed at monitoring points
- Smoke/fire detection probes SFFS and SFFF
- Air filter clogging probe F4 (differential pressure switch)



Calibration of pressure switch and electric heating overheating protection setting value

After starting the air conditioning unit, the following parameters need to be adjusted:

- Room ambient temperature (cooling or heating set point)
- relative humidity (humidification or dehumidification set point)
- Air filter blockage alarm set point, refer to "air filter blockage alarm switch setting value"

NOTE: The settings of the control and safety switches must not be changed.

describe	Alarm setpoint	Difference	Reset
High voltage switch	40.5bar	1.2	Manual reset 33.3bar
low voltage switch	4.5 bar	0.35bar	Automatic reset, 5.5bar
Electric heating overheating protection	75°C/110°C	-	Automatic reset/thermal cutoff

Air filter blockage alarm switch setting value (optional)

The setting value of the air filter alarm switch when the unit leaves the factory is 400Pa. The calibration of the alarm switch should not only take into account the pressure drop of the incoming and outgoing air and the velocity of the air flow.

The air filter clogged alarm switch can be calibrated as follows:

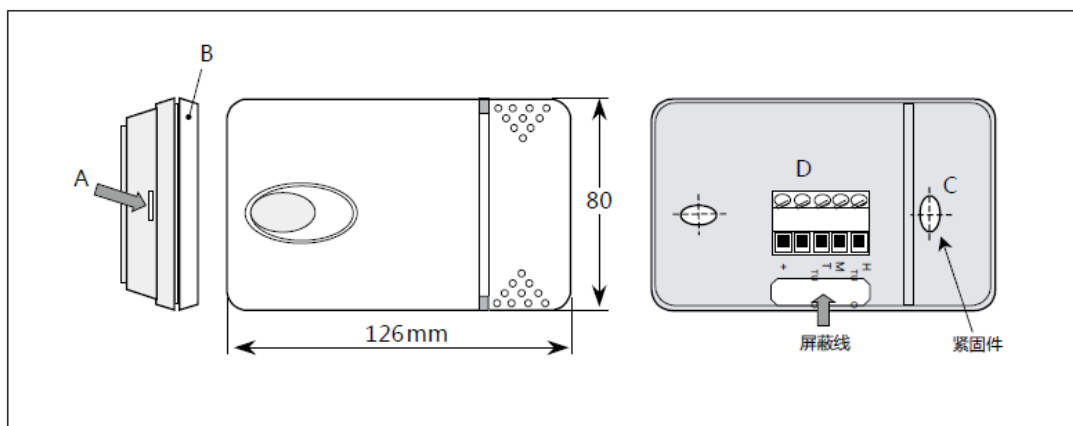
- Install a clean air filter on the unit;
- start the air conditioning unit;
- Gradually cover the surface of the air filter with cardboard or wood, when 50-60% of the surface of the air filter is covered, check whether the alarm switch alarms;

If the alarm switch does not alarm, the pressure value is set too high, and the set value needs to be gradually reduced; if the alarm switch has alarmed without covering 50% of the surface area, then gradually increase the set value. Air filter blockage alarm switch setting value

Indoor environment temperature and humidity probe

If you need to replace the indoor ambient temperature and humidity probes, refer to the figure below.

Use a screwdriver to press A, remove the white plastic cover B, and expose fastening bolt C and terminal D. Shielded wires are required to connect the temperature and humidity probes of the indoor environment. For the wiring method, refer to the circuit diagram. The unit can choose the distribution air temperature option, in which a single system is configured with a supply air temperature probe, and a dual system is configured with two



Electric heating.

The wiring of the electric heating is connected to the contactor, and the specific wiring method can refer to the circuit diagram. The electric heating has two levels of protection. The first level is 75 degrees. After reaching this temperature, the electric heating will stop working, and it will automatically resume when the temperature is lower than this temperature. The second level is 110 degrees. After reaching this temperature, the electric heating stops working, but the thermostat cannot automatically recover.

If it is necessary to replace the electric heater, first disconnect the power supply of the unit, and replace it after the electric heater cools down. After the electric heater is replaced, please make sure that the ground wire is connected correctly.



Inverter

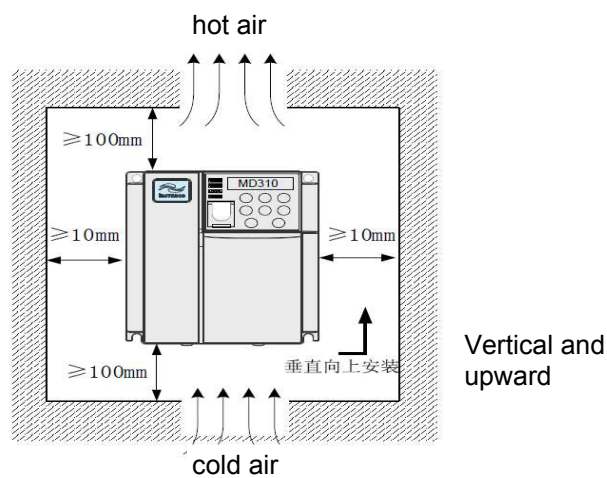
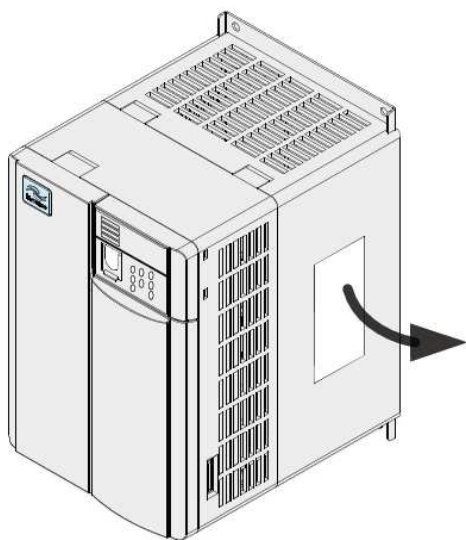
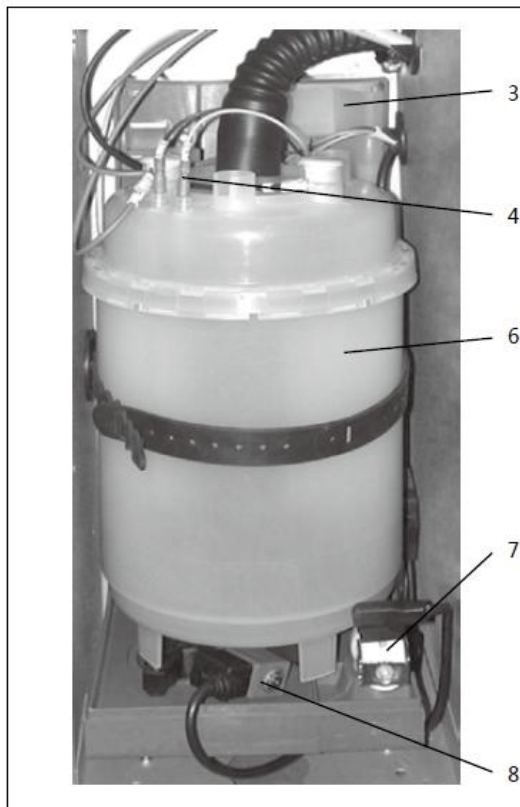


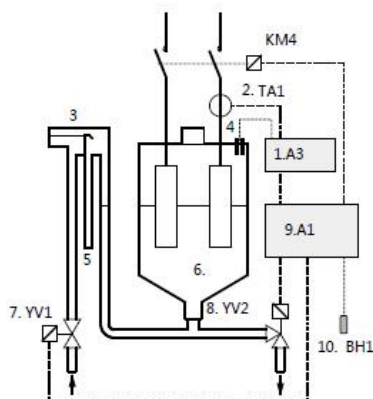
图 3-1 install space requirement of inverter MD310

humidifier

According to customer requirements, the air conditioning unit can be equipped with an electrode humidifier.



1. Control panel of humidifier A3(install in the electric control box)
- 2.Current transformer TA1,measure the current through the humidifier (install in the electric control box)
- 3.Refill tank
- 4.High water level electrode
- 5.Overflow pipe (install on the back of the humidifier tank)
- 6.Humidifier tank
- 7.Inlet water solenoid valve
- 8.Outlet water solenoid valve
- 9.motherboard A1
- 10.Indoor temp. and humidity sensor BH1



How a humidifier works

The working principle of the electrode humidifier is to heat the water inside the humidification tank through the electric current between the electrodes, so that the water evaporates to obtain water vapor. By controlling the water inlet and outlet solenoid valves to control the water level inside the humidifier and the salt content inside the water, the current transformer can detect and control the current between the electrodes, thereby controlling the amount of steam generated.

When the indoor humidity is lower than the set value, the main board controls the contactor of the humidifier to close (see the circuit diagram for details), supplies power to the humidifier, and the humidifier starts to work.

When the water level in the humidifier is too low and the current value is lower than the set value, the water inlet valve is opened to adjust the water level.

Depending on the water supplied to the humidifier, the drain valve may be activated to adjust the salt concentration in the humidifier. The daily maintenance that the humidifier needs to do is to regularly check and clean the steam generating part of the humidifier. The following operations need to be done once a year, preferably in summer.

Humidifier

Regularly clean the inside of the tank to remove scale buildup on the electrode surfaces and clean the water filter at the bottom of the tank. The steps to remove the humidification tank are as follows:

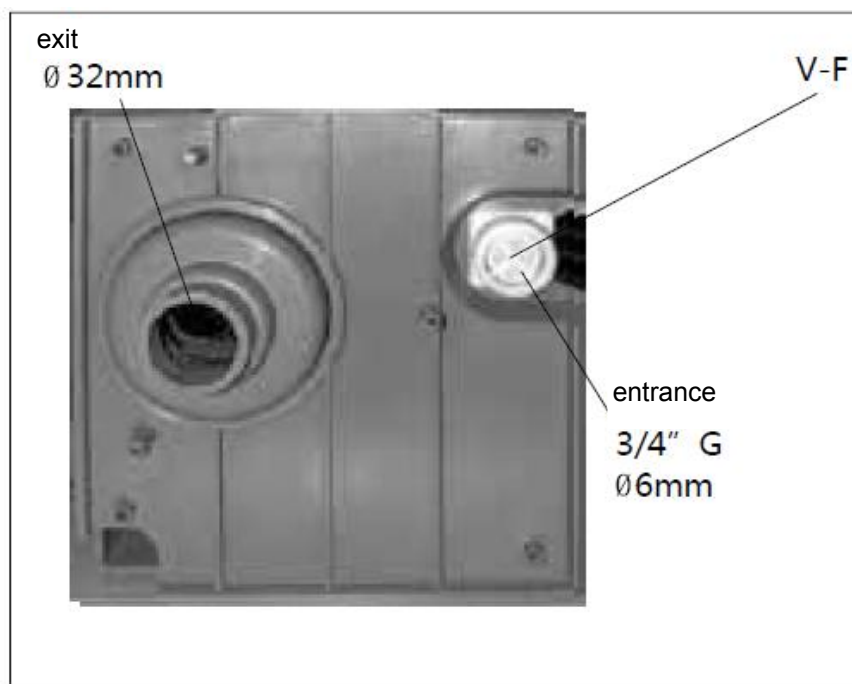
- Completely drain the water inside the humidifier (see the operation manual for the operation method)
- Disconnect the main load switch on the unit
- Remove the vapor outlet hose from the top of the humidification tank
- Disconnect the mains cable and electrode connectors
- Unfasten the straps of the humidification tank
- Remove the humidification tank upwards

The humidification tank can be reused many times after cleaning, but if the electrode is worn out, it cannot be used any longer and needs to be replaced with a new one. The tank body of the humidification tank and the filter installed at the bottom form a complete humidification tank.

Filling and Draining the Humidifier

In order to ensure the long-term stable operation of the humidifier, regular water injection and drainage operations are required. The steps are as follows:

- Completely empty the water inside the humidifier (use the control board to operate)
- Disconnect the unit's main load switch
- Remove the 3/4 pipe splice on the water inlet Solenoid valve
- Clean the pipe splice
- Remove the drain water pipe and clean the drain water pipe and the bend completely



Use potable water without any chemical treatment or demineralization as the water source for the humidifier.

The characteristics of the water need to meet the following requirements:

water quality requirement				范围	
				Min	Max
pressure			bar	1	8
PH	pH	-		7	8,5
conductivity under 20 degree	$\sigma_{R, 20^{\circ}\text{C}}$	-	$\mu\text{S/cm}$	300	1250
solubility	TDS	-	mg/l	($\emptyset$)	($\emptyset$)
solid residue under 180 degree	R_{180}	-	mg/l	($\emptyset$)	($\emptyset$)
Total water hardness	TH	-	mg/l CaCO_3	100($\emptyset$)	400
Temporary hardness		-	mg/l CaCO_3	63($\emptyset$)	300
Content of Fe+Mn		-	mg/l Fe + Mn	0	0,2
Content of oxide		-	ppm Cl	0	30
Content of SiO ₂		-	mg/l SiO ₂	0	20
Content of Cl		-	mg/l Cl	0	0,2
Content is Ca		-	mg/l CaSO_4	0	100
Metal impurity		-	mg/l	0	0
		-	mg/l	0	0

(1)According to actual conductivity,usually is : $\text{TDS} \approx 0.93 \times \sigma_{R, 20^{\circ}\text{C}}$; $R_{180} \approx 0.65 \times \sigma_{R, 20^{\circ}\text{C}}$

(2) Not less than chloride content 200%,unit : mg/l

(3) Not less than chloride content 300%,unit : mg/l

Humidifier and Condenser Drain

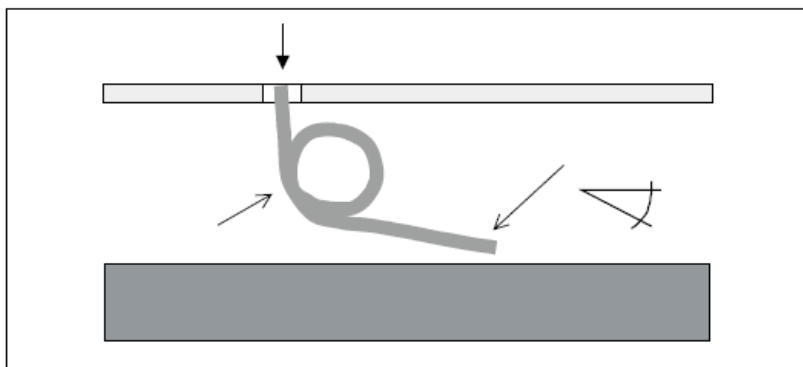
There is a drain valve at the bottom of the humidifier, which can remove the condensed water formed by the unit during the dehumidification process. A drain hose has been installed on the unit, and a rubber or plastic hose with a diameter of 32mm is required for installation to connect the hose to the drainage system.

A sink is required at the end of the line to prevent odors from spoiled water and to avoid overflowing the humidifier tank. During installation, fill the condensate collection tank with water so that the tank outside the unit is filled with water.

The water tank outside the unit must have a certain slope to facilitate drainage, with a minimum slope of 1%.

WARNING: The water discharged from the humidifier is hot and needs attention.

The humidifier drain hose must not be bundled with any other electrical wires, and the hose needs to be oriented straight down to prevent contact with the electrical cables.



Condensate pumps and humidifier pumps

Depending on the model, it can be equipped with a humidifier water pump or a condensate water pump. The humidifier water pump must be suitable for high-temperature water. The water pump must be installed downstream of the humidifier drain joint, see the instruction manual in the package accessories of the unit for details.

Working principle of condensate pump

The condensate pump is used in conjunction with the float level switch. When the inflowing water reaches a certain position of the level switch, the float floats up

When the switch is turned on, the water pump works, and the water discharged into the water pump is lifted to a required height through power and discharged to the outside.

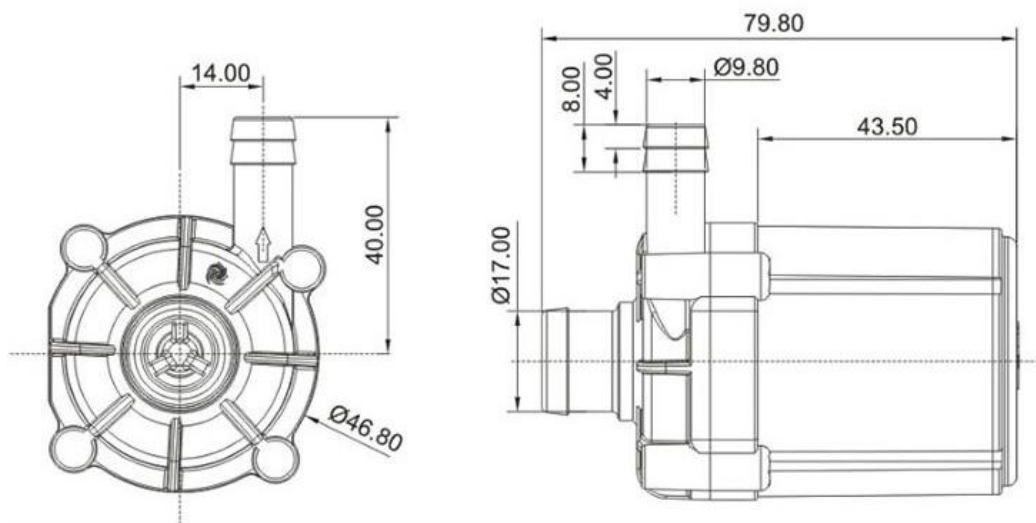
When the amount of water flowing into the liquid level switch cannot make the float float, the water pump stops working.

Parameters



Brand	深鹏电子	Voltage	24V DC
Model	P450424D05	Head	8m
Weight	0.2KG	Output power	30W
Protection class	IP68	Flow rate	10L/Min
Insulation class	F级	Noise	≤45dB (A)
Service life	15000小时	Working medium	Water/antifreezing
Operation temp.	-25-70℃	Medium temp.	0-100℃

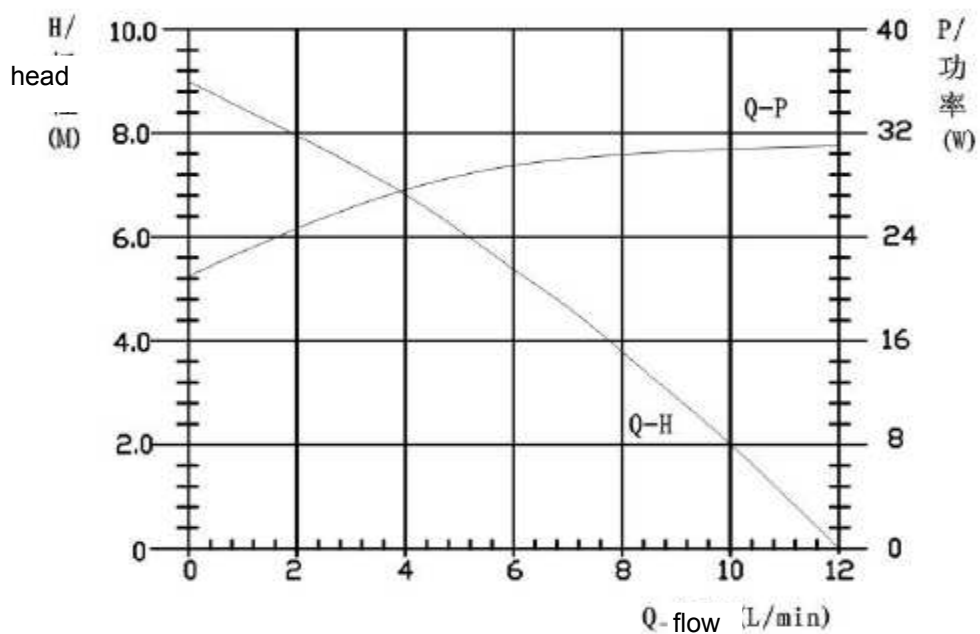
Dimension:



Notice:

1. Strictly prohibit operate without water
2. Strictly prohibit positive and negative terminals reverse
3. Strictly prohibit the temperature of medium beyond 100degree
4. Strictly prohibit the impurity and magnetic particle liquid in the cycle (the particle is smaller than 0.3mm)
5. Strictly prohibit operate in the strong acid and strong alkaline solution

Curve diagram



Introduction of float level switch:

Working principle

Liquid Level switch is consist of magnetic spring switch and float. The magnetic spring switch is installed in the guide bar, and the float has ring magnet. When the float moves up and down in the measured liquid level, the magnet will attract the magnetic spring switch to act in order to measure the level of the liquid to control and display.

Installation form	install on the top or bottom
Mounting dimension	M10
Action characteristic	move up or down to connect (adjustable)
Using medium	water, oil and chemical industry medium
Temperature range	-30~+80℃
Pressure range	0.2MPa

Installation and use instructions

- 1、Installation place must away from the water inlet or the switch will be influences by the movement of water inlet.
- 2、The load of the controlled circuit should match the capacity of the float switch.
- 3、The specific gravity of measures liquid must larger than the specific gravity of float.
- 4、The action of the float is set accorrding to the customer's request, please don't move the float.

Routine maintenance

periodically clean the dirt on the float and the guide bar (the cycle is judged by the medium)

check if the ring buckle is loose

Type	1A1
Max power	10W
Max switching voltage	100VAC/100VDC
Max switching current	0.1A
Min breakdown voltage	110V
Max current load	0.5A
Max contact resistance	100mΩ
Temperature range	-10~+80℃
Float material	pp
Body material	pp



Electrical surge protector SPD

In order to protect the electrical system and important electrical and electronic equipment from lightning overvoltage damage, the low-voltage power distribution system and communication signal system choose to install surge protectors, also known as "SPD".

SPD is mainly used to limit the transient overvoltage (ie lightning surge) and most of the operating overvoltage caused by lightning in the power supply and signal system. Lightning surge can invade the equipment through the power supply or signal line, and it can be caused by the lightning strike. The potential rise counterattack equipment can also be induced in cables and loops by the pulse electromagnetic field generated by lightning strikes on the building itself (or nearby). Therefore, in addition to being equipped with good lightning rods, down conductors and grounding devices, it is also necessary to install SPDs. Because they cannot prevent the conduction intrusion along the lightning-induced surge and the secondary strike of lightning. Especially if the information electronic equipment or power electronic equipment with high value and great influence in the building, its withstand The ability of lightning surge is much lower than that of conventional electrical equipment, and it is even more necessary to install SPD.



Unit maintenance



Notice: When replacing parts of the unit (compressor, pressure switch, liquid receiver, etc.), the list of important parts of the unit enclosed in the package must be referred to.

In order to ensure the correct operation of the air conditioning unit, customers need to pay attention to the content involved in this section. It only needs to perform a few simple maintenance operations on the unit regularly to avoid serious damage to the unit. Only authorized institutions and professionals can operate the unit.

Maintenance operations can be summarized as follows:

- Clean the air filter
- Inspect and clean condenser coils
- Check and clean condenser coils for cooling water, descale
- Check and clean gutters
- Check the humidification system
- Check the overall health of the unit
- Check the operation of the pressure vessel

Clean air filter

As more and more dust and impurities adhere to the air filter, the air flow and velocity of the unit will gradually decrease, which will lead to a reduction in the cooling capacity and efficiency of the unit. For direct expansion units, a clogged air filter may cause low pressure switch alarms and compressor damage. The above-mentioned problems can be avoided by regularly cleaning the dirt of the air filter, and the cleaning interval depends on the air condition of the local environment.

The following suggestions apply in any case:

- Check the air filter every week for cleanliness
- Vacuum the air filter every two weeks
- Clean the air filter with soapy water once a month

- Change the air filter every six months

The cleaning and maintenance intervals above do not apply to all environmental conditions and more frequent cleaning and replacement of the air filter is required as necessary.

It should be noted that before operating the air filter, it is necessary to ensure that the unit is turned off and disconnected from the power supply.

Inspecting and Cleaning Condensing Coils

In hot climates, air conditioning units are required to operate at maximum load, so it is necessary to ensure that the condenser can meet the heat exchange needs of the unit. Since the condenser is installed outdoors or in an environment connected to the outdoor environment, there may be paper, leaves or dust adsorbed to the surface of the coil, thereby reducing the heat transfer of the condenser, so the condenser needs to be maintained regularly. If maintenance is not carried out, the high-voltage switch of the unit may cause an alarm and the unit will stop. When there is a lot of floating debris in the outdoor air, or when leaves fall in the fall, the condenser coil needs to be cleaned frequently, spraying water or air on the coil to remove debris from the surface. Before cleaning the condenser, it is necessary to shut down the unit and disconnect the power supply.

Check and clean the condenser plate for cooling water, and clean the scale

Check the temperature of the water in and out of the dry condenser for cooling water, and compare it with the condensation temperature of the unit to determine whether there is dirt in the condenser that affects the heat exchange effect.

In the case of good heat exchange, the temperature difference between the outlet water temperature and the condensation temperature is about 5.8°C. With the operation of the unit, this temperature difference value gradually increases, which means that the scaling of the dry cooler increases and the heat exchange efficiency gradually decreases. Only professionals can carry out cleaning work, and use chemical solution to clean when cleaning.

Before cleaning the dry cooler, the unit needs to be shut down and disconnected from the power supply.

Check and clean sinks

The installation needs to ensure that the condensate and humidifier drainage system is perfect to avoid condensate seeping into the interior floor. When the humidifier drains water, according to the hardness of the water, the discharged water will contain a certain amount of scale. Scale deposits at the bottom of drains, clogging drains and elbows, so regular cleaning is required.

Descaling agent (acidic solution) is required to clean the scale. Before cleaning the drain tank, the unit must be turned off and disconnected from the power supply.

Check the operation of the pressure vessel

Check your stress status at least once a year. It is necessary to check whether the surface of the pressure vessel is rusted, whether it will be oxidized and corroded, and whether there is obvious deformation, which are potential dangers. The surface of the pressure vessel is gradually oxidized and corroded, the wall thickness is gradually reduced, and the mechanical strength and pressure bearing capacity are reduced accordingly. If it is not handled in time, it will cause accidents.

The surface of the pressure vessel needs to be coated with anti-rust paint to protect the surface.

If the pressure vessel is obviously deformed, stop the unit immediately and contact the nearest after-sales service center of our company.

Check the overall health of the unit

It is necessary to check the overall operation of the unit on a regular basis. The purpose is to compare the difference between the current operation status of the unit and the operation status of the last inspection. If any differences are found, attention should be paid and the reasons should be carefully checked.

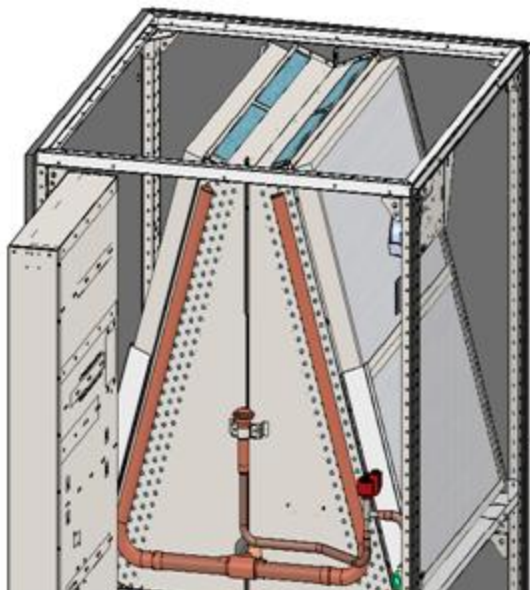
Regular inspection and cleaning of the unit can ensure long-term stable operation of the unit. Under normal circumstances, the overall inspection of the unit once a month can ensure the normal operation of the unit, except in special cases. If the unit is properly maintained for a long period of time, it is unlikely that the unit will experience a major failure and cause interruption of other work.

After the unit has been in continuous operation for 10 years, a complete and comprehensive inspection of the unit is required.

Filter replacement

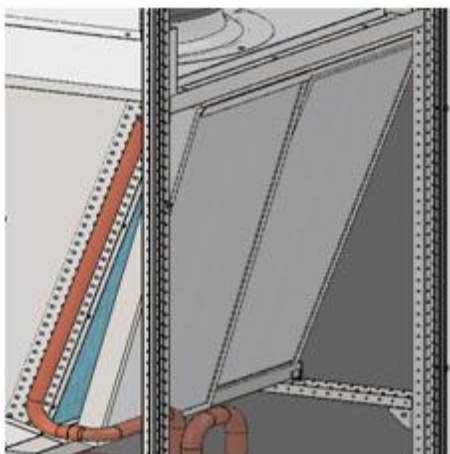
The type of the lower outlet fan is different according to whether there is an electric control box in front of the surface cooler, and the type of filter pad. For models without an electric control box in front of the surface cooler, there is a filter pad on both sides of the surface cooler. After opening the front door, the filter pad can be pulled out directly.

For models with an electric control box in front of the surface cooler, there are two upper and lower filter pads on both sides of the surface cooler, and the filter pads must be turned out of the electric control box before taking out the filter pads. The upper filter pad can be pulled out forward after being pulled up and higher than the front baffle, and the lower filter pad can also be pulled out forward after being pulled up.



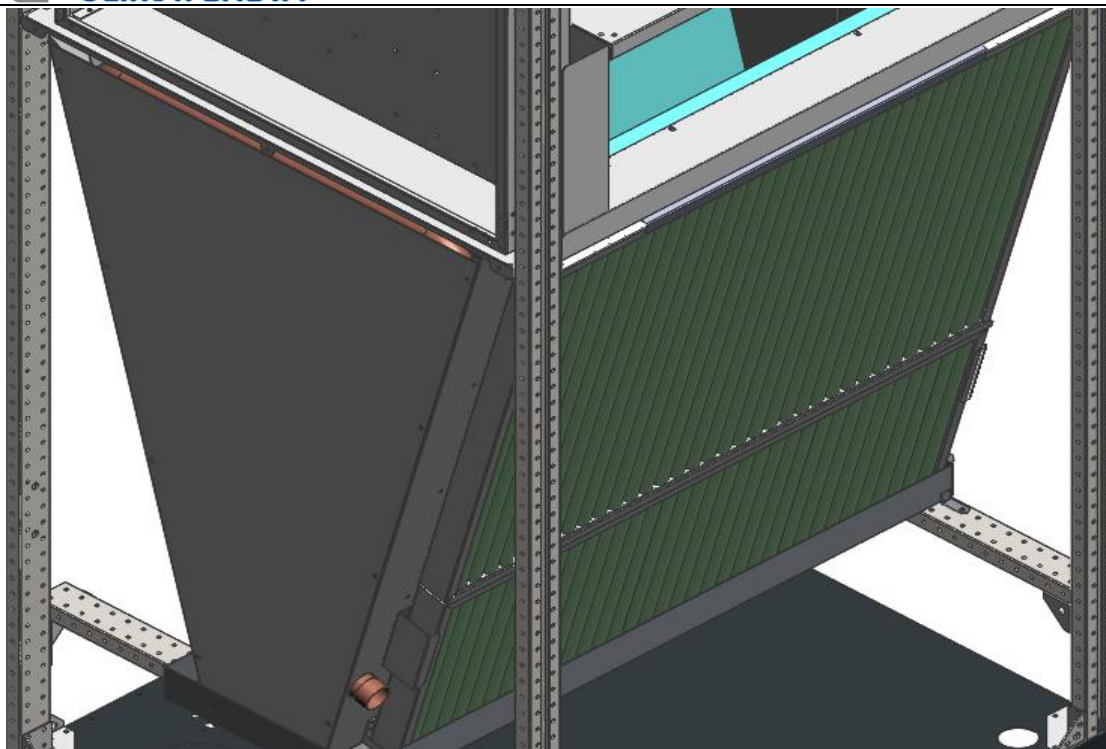
There are two front and rear filter mats on both sides of the upper outlet fan type surface cooler.

For the model with an electric control box in front of the surface cooler, it is necessary to turn out the electric control box before taking out the filter pad. Pull the filter pad upwards so that the lower part is out of the slide rail, turn outward at a certain angle and pull down to make the filter pad completely detach from the slide rail. Take it out forward after rotating 90° in the front-back direction.



Take it out forward after rotating 90° in the front-back direction.

For the model with upper outlet fan, for the model where the electric control box is not in front of the surface cooler, the air filter pad is divided into upper and lower two pieces, the upper filter pad can be pulled out directly, and the lower filter pad can be pulled up and pulled out forward.



Unit disassembly



机组的拆卸按照 CE2002/96/CE 标准执行

If it is necessary to disassemble the air conditioning unit, it needs to be operated by professional personnel. Disassembling the unit according to the correct procedure will avoid refrigerant leakage and damage the environment, and at the same time reduce unnecessary losses.

Relevant dismantling contracts need to be signed before the unit is dismantled.

Troubleshooting

Alarm type	Reason	Solution
The unit cannot be turned on	The electric control box is not powered on	Check the power supply, close the main load switch
	Auxiliary circuit not powered	Check auxiliary circuit Check the fuses on the motherboard
	The control board does not issue a power-on name to the unit	Check DC power
Indoor temperature is high	Indoor environment temperature and humidity setting value on the control panel Incorrect	Check the settings in the control panel
	The temperature and humidity probe of the indoor environment is faulty	Check whether the power wiring of the probe is correct. Is the connection between the header and the motherboard correct?
	The indoor heat load is higher than the cooling capacity of the unit	Check the heat load in the room
	The controller has commanded the start compressor to start, but Compressor does not start, or a compressor does not start up	Refer to "Compressor will not start"
Indoor temperature is low	Indoor environment temperature and humidity setting value on the control panel Incorrect	Check the settings in the control panel
	The heater power is too low or the heater does not start	Check that the electric heating circuit breaker is normal; Check whether the electric heating is powered on; If the electric heating overheating protection is activated, check the activation , then reset it
Indoor humidity is high	Indoor environment temperature and humidity setting value on the control panel not right	Check the settings in the control panel
	The latent heat load is higher than the design value	Check design latent heat load Check air velocity and outside air condition Check that outside air is flowing into the room
	Compressor not running during dehumidification	Refer to "Compressor will not start"
	The control system is not working properly	Check the control panel condition Check if the control board and probe are working properly
Indoor humidity is low	Indoor environment temperature and humidity setting value on the control panel Incorrect	Check the settings in the control panel
	The latent heat load is lower than the design value	Check latent heat load value
	Humidifier does not turn on	Check the pressure of the humidifier water supply Check whether the control system and steam generation system are working as normal
	The control system is not working properly	Check the control panel condition Check if the control board and probe are working properly
electric heating overheat protection alarm	Electric heating overheating protection wiring is damaged or cut off	Check the connection from the electric heating overheating protection to the motherboard Is the line normal?
	false positive	Reset motor thermal overheat protection

Alarm type	Reason	Solution
Compressor discharge pressure Lego	Air or other high boiling. There is gas at the point, check the sight glass for bubbles appears, you can also check whether the subcooling degree is too high	Recharging the refrigerant after draining the system
	The refrigerant charge is too large, and the liquid accumulation in the condenser is large; The subcooling degree at the refrigerant outlet of the condenser is too large	pump out part of the refrigerant
	The valve on the discharge side of the compressor is partially blocked	Check valve opening
High pressure switch alarm (compressor row air pressure too high)	The condenser pressure control system is not working properly	Check whether the condensing fan and protection device are working properly Regular; repair or replace the faulty fan; Check the pressure switch and wind speed adjustment of the condensing fan Whether the setting value of the device is normal
	High compressor discharge pressure	Refer to "Compressor Discharge Pressure High"
Compressor discharge pressure low force	The condensing pressure control system is not working properly (Refer to Control Manual)	Check condenser pressure control system or condensing air Machine speed Is the regulator working properly?
	Low suction pressure	Refer to "Compressor Suction Pressure Low"
compressor suction pressure Lego	Heat load higher than design value	Check whether the thermal load is within the design range Check air velocity and outdoor air status Check whether the outside air flows into the room
	High compressor discharge pressure	Refer to "Compressor Discharge Pressure High"
	Refrigerant charge is too large	pump out part of the refrigerant
	Liquid refrigerant returns to the compressor	Check that the superheat of the thermal expansion valve is set correctly; Check that the thermostatic expansion valve's temperature sensing bulb is installed correctly indeed, and And after thermal insulation and insulation treatment
compressor suction pressure low force (very likely Current coil frosting Case)	Indoor ambient temperature is low	Refer to "Indoor ambient temperature is low"
	The reservoir outlet check valve is not fully open	Check valve opening
	Clogged filter drier	Check filter drier, replace filter drier if necessary device. Refrigerant temperature difference between inlet and outlet of filter drier The value shall not be greater than 2°C
	Insufficient refrigerant charge	Check whether the subcooling degree is within a reasonable range, and report to charge the system with refrigerant
Low pressure switch alarm (compressor suction low pressure)	The thermostatic expansion valve is set incorrectly or is malfunctioning	Check that the superheat of the thermal expansion valve is correct (about 5°C)
	Clogged filter drier	Check filter drier, replace filter drier if necessary device. Refrigerant temperature difference between inlet and outlet of filter drier Not too big at 2°C
	Compressor suction pressure low	Refer to "Compressor Discharge Pressure Low"

