LAKES

SUPER DC INVERTER MODULE UNIT

INSTALLATION MANUAL

SYSTEM INSTALLATION

Select the field

1. Outdoor unit

Please take care of the following points when selecting the installation field ! A .

To avoid of direct sunlit ;

B . The noise of the unit shouldn’t affect neighbors or their everyday lives .

C . Locate the outdoor unit at the place near the indoor unit , which is convenient for connecting them .

D . Locate the outdoor unit at the place where is convenient for connecting with the power lines ;

E . When heating , make sure that the condensation water discharged from the chassis will not affect the ambience .

F. Not install it in the places near the high -voltage power, the equipment with high frequency or the place with inflammable gas or heat ;

G . Make sure the ambience of the field with sound ventilation ;

H . Don ’t install the unit at the oily place (include machine oil) ;

I . Don ’t install the unit at the place along the coast where there is rich of salt ;

J . Don ’t install the unit at the place full of sulfid , such as the hot well (It is easy to breakdown for the air conditioner which is located near such places , so please follow th e requirement of installation field .)

K . When installing the unit , please make sure that the hot air or cold air blown from the outdoor unit won ’t reach at the neighbor ’s window ;

L . The support surface must be strong enough to bear unit’s load ; M .

Make sure the installation base is level ;

N . Void of the place with strong electromagnetic wave ;

2. Indoor unit

The installation field of indoor unit is related to the type of the unit , but there are some common grounds for different indoor units :

A . Supply air to all places in room quickly ;

B . Install it in the place where don′t block air in or out ;

C . Avoid of the place with more lampblack or steam ;

D . Avoid of the place where may produce , inflow, stay or leak flammable gas ; E .

Avoid of the place where the acid fluid is used frequently ;

F. Avoid of the place near the heat resource ;

G . Avoid of the place where suffers from the outdoor air ; H .

Don ’t place the fire alarm at the blast inlet ;

I . Don ’t locate the indoor unit at the place where is the high -frequency equipment , such as the electric welder with high frequency ;

J . The different points of the installation fields for different indoor units are :

1) Wall -mounted type : Don ’t locate it on the advanced devices , such as TV, Sound Acoustics and computer etc .

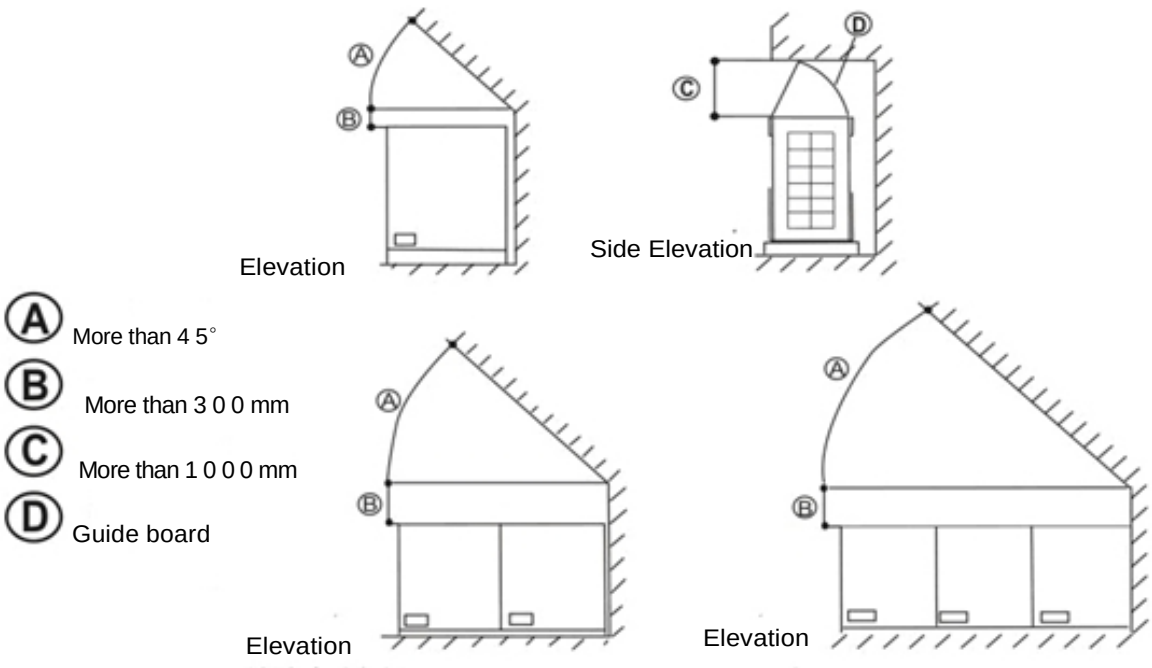
2) Ceiling cassette type or Fan coil type : Don ’t locate it on the advanced devices , such as TV, Sound Acoustics and computer etc .

Mounting space for outdoor unit

A . Maker sure that there is enough space for maintaining and all modules in the same system are kept in the same height , see Fig 1 ;

B . Leave enough service space for installing the outdoor unit , see Fig 2 ;

C . Follow Fig 3 if there are some obstacles above the outdoor unit .



Note : If there are some obstacles around the outdoor units ,keep them 8 0 0 mm away from the top of the outdoor unit , otherwise , it needs to collocate the mechanical draft device .

Fig 3 : The installation sketch map for the outdoor unit with obstacles above

Preparation before installation

: 1 . Outdoor unit

There are two kinds of installation foundations for outdoor units , one is concrete foundation , the other is the support frame type foundation welding with channel steel , I – Steel and Angle Steel . And the requirements are :

A . Concrete foundation

This foundation is cast with concrete , which has great anti -vibration effect , the following factors shall be emphasized :

1) The surface of concrete foundation is massy, firm and flat . The bearing of the support surface is more than 2 times of the unit weight .
2) When the cement foundation platform is made , the following measures are adopted : put the whorl reinforcing steel bar (Dia > 9 . 5 mm)into the concrete foundation , the whorl reinforcing steel bar must be enlaced as top and bottom layers , and the space between bars is 1 0 centimeters .
3) When making the cement foundation on the concrete floor board , please keep the surface coarse , and then clean and wet it , after all of these works , make the concrete foundation seat .
4) The mix ratio of the concrete is 1 : 2 : 4 , if necessary, embed some set size and quantitative anchor bolts . Finally, keep the surface of the basic platform smooth .
5) The surface of the concrete foundation platform should have the waterproof disposal and around of it we should have a drip through and the gradient is more than 0 . 5 ℃, and it points to outfall .
6) Until the concrete foundation is fully dry, you can install the unit .
7) In order to run the unit quietly and avoid the noise and vibration affect the building where the unit is located at , there should keep a separate layer for vibration -proof between the base of the unit and foundation . And then keep the unit level when installing .

8) To avoid units distortion and even rupture , which is caused in displacement of the unit run for a long time or result from the earthquake or typhoon , you should take some measures to fix the unit at the restrict position .

9) The length of the foundation is the length of the unit added 5 0 0 mm and the width is the width of the unit added 400 mm . As for the detail , please refer to Fig 4 (unit : mm) :

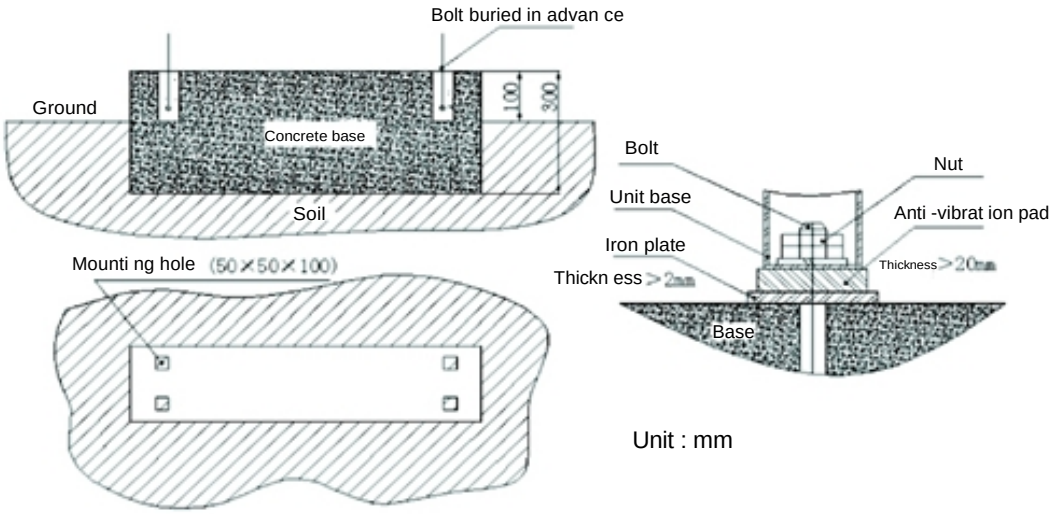


Fig 4 Concrete foundation installation sketch map of outdoor units

NOTE :

1.The distance between the concrete foundation and the ground is more than 1 0 0 mm ;

2.The height of the concrete foundation is more than 3 0 0 mm ;

3.The concrete foundation should keep level ,and the level gradient is less than 0 . 1％.

B . Welded with Channel Steel , I -Steel and Angle Iron , the support should be riveted on the ground with bolts .

NOTE :

The support surface must be strong enough to bear unit’s load , and it do not increase vibration and noise , which may cause the disturbance .

2. Indoor unit

A . If possible , it ’s better to pre -bury some components for the fan coil unit and ceiling built -in unit , the detail is referred to Fig 5 .

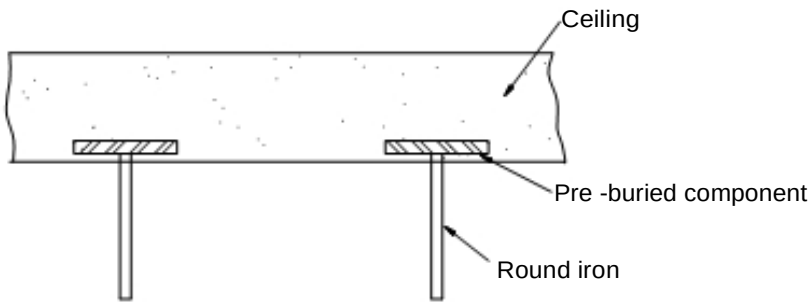
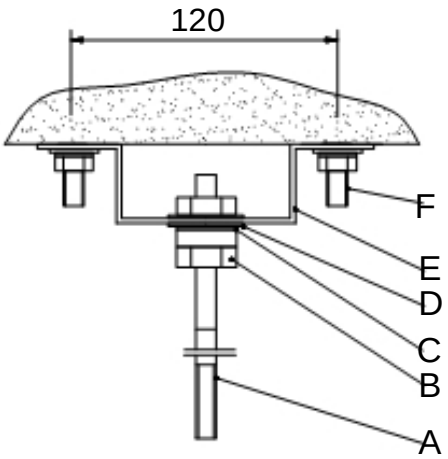


Fig 5 Pre -buried component sketch map of ceiling built -in unit

NOTE : After installing pre -buried component , paint the outer surface with anti -rust paint for once or twice , and then surface paint .

If it is not permit , you can do as Fig 6 :



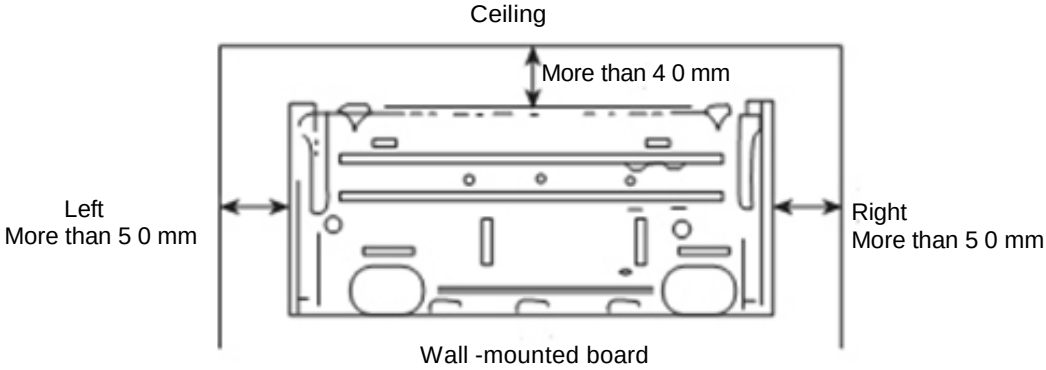
A - -Hanger bolt
B - -Bolt
C - -Spring washer
D - -Flat washer
E - -Mounting support
F - -Expansion bolt

Fig 6 The replacer sketch map of pre -buried component

B . Wall -mounted unit

The wall -mounted unit should be located on the firm wall ;

Leave enough space between the unit and the wall for maintaining and checking the unit , see Fig 7



NOTE : Please leave more space for installing other functional equipment (such as clarification plant) on the air conditioner

Fig 7 The mounting space sketch map of wall -mounted unit

C . Packaged air conditioner

Packaged air condition should be located on the firm wall ;

Leave enough space between the unit and the wall for maintaining and checking the unit , see Fig 8

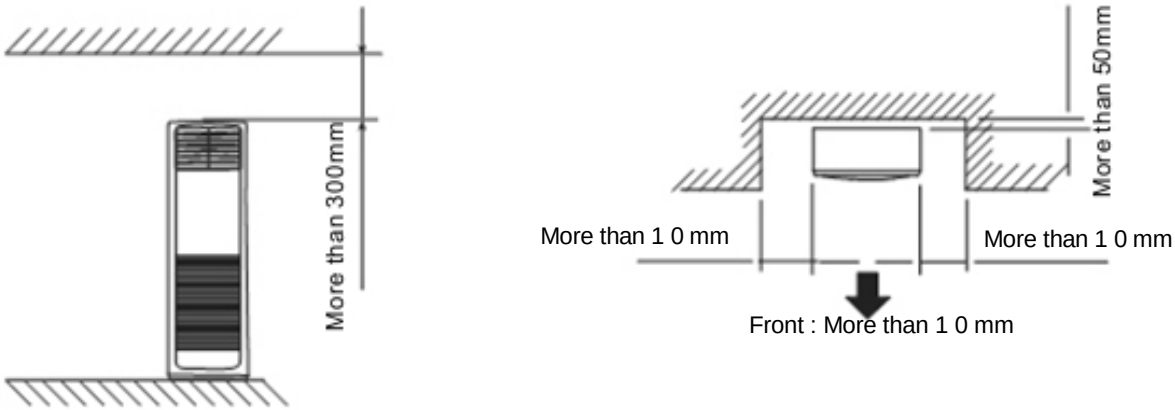


Fig 8 The mounting space sketch map of packaged air condition

Unpacking inspection

Inspect the equipment before installation . Do as follows :

1. Check for any damage or damp at outer surface after opening .
2. Check for name , specification , type , power meeting requirement , for user′ s manual and certificate .
3. Check for connection at the moving part , for abnormality of collision and attrition between shell and other part .
4. Check for any leakage at the gas -feeding protective equipment .
5. Check for any loose , opposed or wrong direction at connecting line of electronic control plate and connection line terminal . No damage to the electronic plate .
6. Record (see Table 1) .

Table 1

Equipments name		
Equipments inspection	1. External package	
	2. Chec k the whol e machine set	
	3. Elect rical con trol exa mination	
	4. The check for the blower and the motor	
	5. Others	
Check the technical documents	1. Check the packing list	Copy Sheet
	2. Certificate for the products	Copy Sheet
	3. The users′ manual	Copy Sheet
	4. Others	Copy Sheet
Existing Problems and handling advice		
Inspector		Year Month Day

Inspect the power

Inspect the power and related equipment before installation . Do as follows :

1. Check the capacity of power prior to installation :

   The power capacity connecting with outdoor units must meet the capacity requirement of outdoor units (The power capacity of outdoor unit is referred to “Electric Installation ”) ;

   The power capacity connecting with indoor units must be larger than the max . input power in nameplate of indoor units .

2. Check the specification of the power supply wire of outdoor units and Leakage Protection Switch , which meets the capacity requirement of outdoor units to ensure it running well and safely.
3. The power lines of the unit are connected with the separate power control switch (with three -phase) , avoiding of sharing the power with other industry or everyday devices to ensure the power voltage meet the requirement : 3 4 2 - 4 3 7 V / 5 0 Hz .

NOTE : If it does n ’t meet the safety operation requirement , the installer should refuse installing it .

Install the unit

1. Install the outdoor unit

A . Suspension

Each unit has been inspected and tested strictly before leaving company, so install it carefully , especially not damage pipeline and control system . If the volume of unit is too large to be removed , the suspension equipment can be used , the requirement of suspension is as follows :

1) The gradient of outdoor units should be less than 2 0° ;

2) The stress-bearing part of unit should be separated from suspension rope with cloth or other soft things .

3) User should put lightly and keep the force on the equipment equal .

NOTE : Suspension of units can do as follows .

① Suspension manually or suspension with fork lift truck ;

② Lay logs (or water ducts) down the equipment and then move it manually . B .

Fix the equipment

After suspending the equipment , the following work can be done :

1) After suspending equipments to the basement , you must adjust the levelness of equipment with a gradienter, the error must be less than ±2 mm;

2) Fix the equipment after adjustment and keep the force on the firmware equal .

C . Collocate the anti -snow device in the area with snowfall . In order to avoid of breaking down for the snow, a elevated platform is needed . Besides , it needs to install anti -snow shed at the air inlet and outlet , refer to Fig 9 .

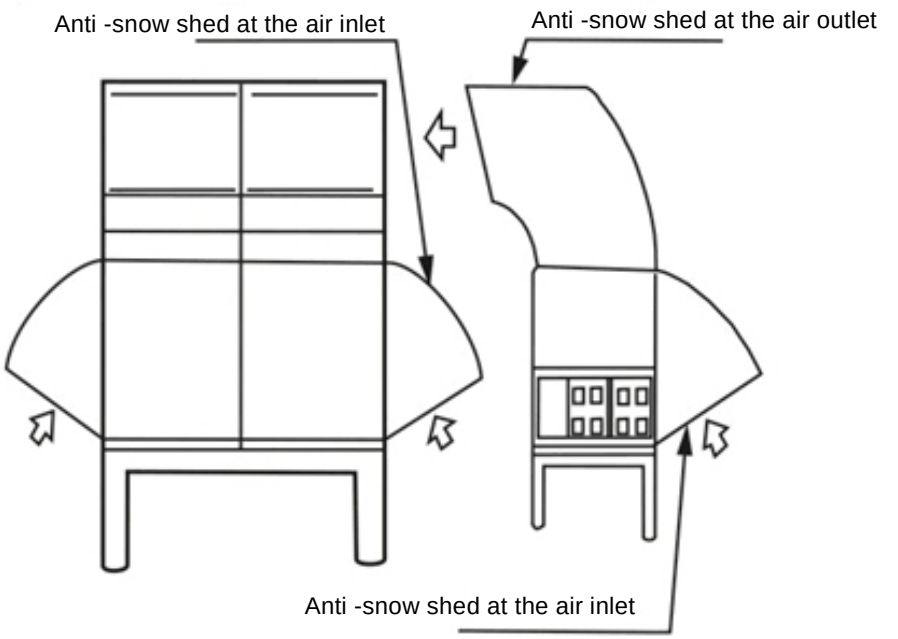


Fig 9 Anti -snow shed 's installation sketch map of outdoor units

2. Installation of indoor units

Indoor units include fan coils , wall -mounted unit , packaged unit and ceiling built -in unit and soon . Except controlling and throttling parts , they are as the same as constant frequency unit , so the installation can be referred to that of the constant frequency unit :

1) Wall -mounted unit

The installation of wall -mounted unit includes three parts : installing the main machine , installing the electronic expansion valve casing and cleaning the pipeline .

A . Install the electronic expansion valve :

Dimension of electronic expansion valve : L X W X H = 2 1 0 mm X 1 6 5 mm X 7 1 mm

In the electronic expansion valve box , there are the electronic expansion valve body, electronic expansion valve loop , capillary, filter and silencer cotton etc . The ties -in at the both ends of the box are marked IN and OUT: The " IN " end connects with the liquid pipe from outdoor unit to the indoor unit , ″OUT″ end connects the inlet liquid pipe in indoor units by electronic expansion valve connect pipe (at the packing chest of indoor unit) . Gas pipes of outdoor directly connect with that of indoor units , the pin - 6 of the electronic expansion loop directly be inserted into jack - 6 of electronic panel of indoor units ("CN 1 3 " sample marked on the plug of electronic panel is different from "CN 1 A " sample marked on the plug of the wire controller, through both of them have six pins) . As for installation of electronic expansion valve , the requirement is as follows :

① The case should be fixed on the wall or other bearing with bolts provided , make sure fixation is firm ;

② Keep the case near indoor units as much as possible , the distance should be less than 1 meter, which is convenient for installing the connection pipes of the electronic expansion valve and connecting the expansion valve loop .

③ Keep the surface pasted with " Face up after installation " upright during installation , for if the mounting angle departs from the vertical more than 1 0° , it may cause expansion valve out of work .

④ As for the connection pipes of the valve (located in the packing chest of indoor units) , keep it as the same as that leaving factory, that is , there are two round bents , which can reduce the collision and the noise for throttling of electronic expansion valve . As for the installation , please refer to Fig 1 0 .

＜1 . 0 meter

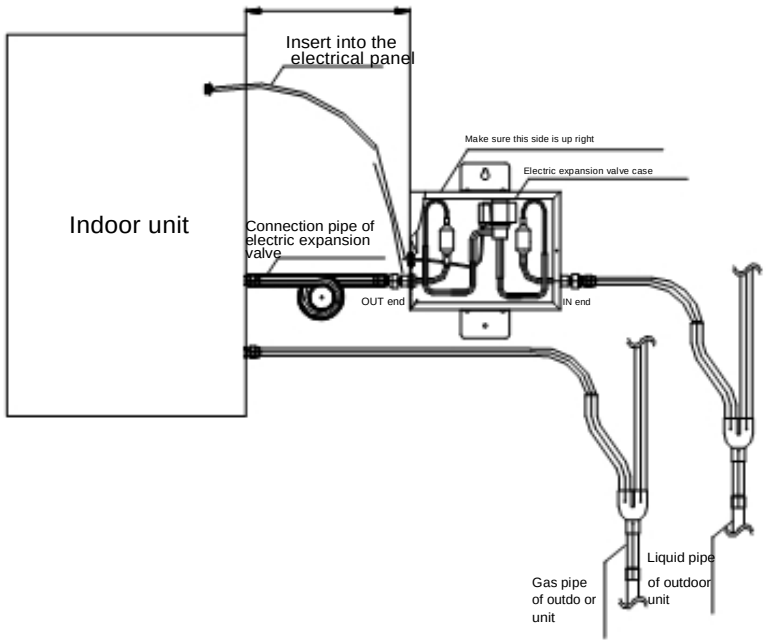


Fig 1 0 Installation sketch map of the electronic expansion valve

B . Install the machine :

① Take out the wallboard to stick to the wall , then screw down one of Self -tapping screws ;

② Find the central perpendicular line with hammer line , draw other positions of screws to hammer wallboard ; ③ Find the position of the hole with a ruler ;

④ Make holes in the wall and install through -wall pipes which should leap down 2～5 ° and then cut off the redundant part of the through -wall pipe according to the thickness of wall

C . Clean pipeline :

① Along with the pipeline , draw the pipe tie-in , drain pipe and connection wire from the main machine , and then tie them with bands(Pay attention to the heat insulation at the joints of pipes) . At last, install pipe pressure pad ;

② Pre -adjust the position of electronic expansion case to keep the connection well .

③ Hang the machine on two pothooks at the wall , then move them to find the suitable position .

④ And then fix the electronic expansion case .

⑤ Pipeline connection : make bend radius as big as possible and not flatten copper pipes . Keep copper pipes level or vertical and screw down the screw cap after adjusting the horn of the pipe .

2) Packaged air conditioner

The installation of Packaged air conditioner includes three parts : installing the main machine , installing the electronic expansion valve casing and cleaning the pipeline .

A . Install the electronic expansion valve (Refer to the corresponding part of wall -mounted unit) B . Instal units :

① Open the package of indoor unit and take out the indoor unit , place it in the selected place ;

② Along the pre -designed direction of connection pipe , beat away the corresponding refrigerant pipe and drain pipe at the bottom of the indoor unit ;

③ Screw up self -tapping screws (two) of the anti -leaning board on the top of the unit and dismantle them , keep one side of the anti -leaning board against the wall according to the wall position , then fix it .

④ Dismantling the return grille , drill the ground fixed plate on the base , fix with expansion bolts on the ground

C . Clean pipes : (Refer to the corresponding part of wall -mounted unit)

3) Ceiling cassette unit

The installation of Ceiling cassette unit includes three parts : installing the main machine , installing the electronic expansion valve casing and cleaning the pipeline .

A . Install the electronic expansion valve (Refer to the corresponding part of wall -mounted unit) B . Install the main body :

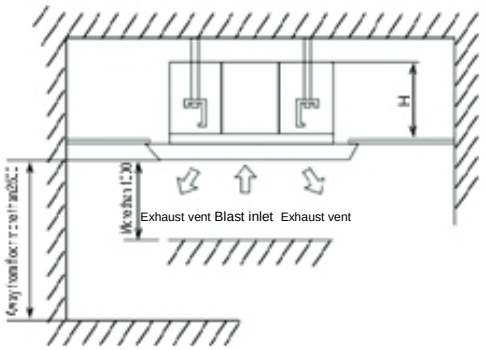
① Select the mounting position : In the ceiling , if the temperature is higher than 3 0℃ and RH is more than 8 0 % , stick heat insulation material on the machine . The heat insulation material : Glass cotton and the foamed polythene , both of them are thicker than 1 0 mm , otherwise , please fold up and place the extra part into the ceiling opening ;

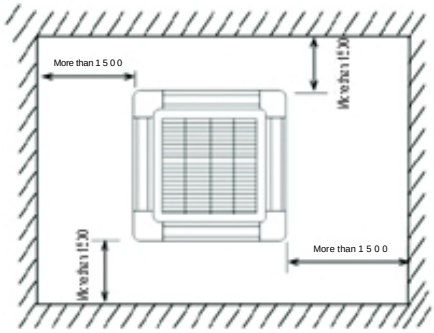
NOTE : In order to avoid of noise or interrupting TV or Radio , please keep the indoor unit , outdoor unit , the power lines and connection wires one meter away from those devices (When the electric wave is quite strong , it still cause some noise even if the distance is one meter.)

② The height of the ceiling : Make sure the height where the indoor unit installed is about 2 . 5 ~ 3 . 5 m .

③ When installing the suspension screw, please make sure that the installation place can support the unit , if not , fasten it before installing . The hole spacing is marked on Mounting Pad , so you can find the position which needs to be fastened according the instruction of Mounting Pad .

④ Mounting space : The mounting space of ceiling cassette is referred to Fig 11 .





Model	Dimension (H)
2.8kW, 3.6 kW and 5.6kW(Ceiling Cassette)	275 mm
7.1 kW and 8 . 0 kW (Ceiling Cassette)	230 mm
10 kW, 11 . 2 kW and 1 2 . 5 kW (Ceiling Cassette)	285 mm

Fig 11 Mounting space sketch map of Ceiling Cassette

⑤ Preparation before installing :

a . Relative positions of the opening of the ceiling , the main body and the suspension screw, refer to Fig 1 2 and Table 2 (unit : mm)

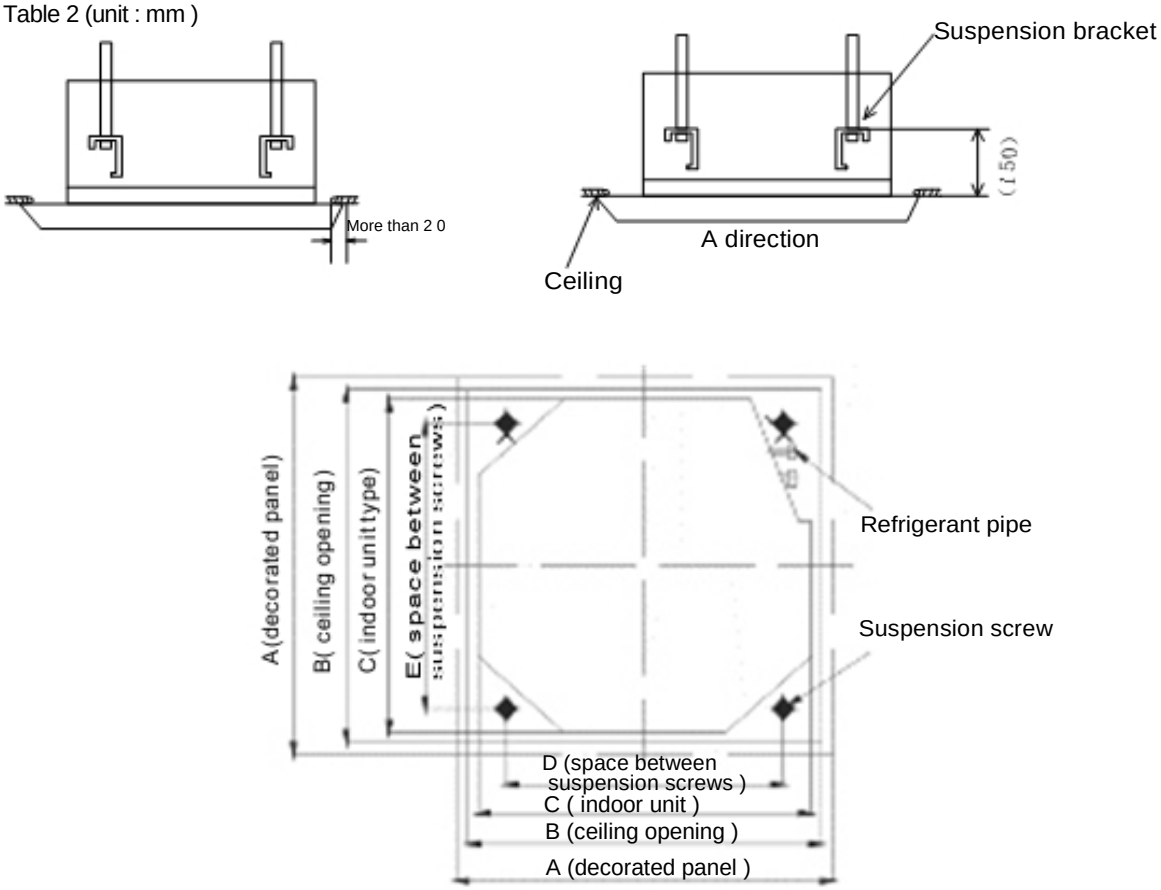


Fig 1 2 : Relative positions of the ceiling opening , the main body and suspension screw

Table 2 Relative position of the ceiling opening , the main body and suspension screw

Model	Dimension of the panel				
	A	B	C	D	E
2.8kW, 3.6 kW and 5.6kW(Ceiling Cassette)	650	610	580	400	600
7.1 kW and 8 . 0 kW (Ceiling Cassette)	950	＊8 9 0	840	680	780
10 kW, 11 . 2 kW and 1 2 . 5 kW (Ceiling Cassette)	950	＊8 9 0	840	680	780

NOTE : The dimension of ceiling opening marked by ＊ may be larger than 9 1 0 mm , but the overlap section between the ceiling and decorated panel should be more than 2 0 mm .If necessarily, make the ceiling opening on the ceiling (for the field with the ceiling) and as for the dimension of ceiling opening , please refer to the installation paper model .

Please collocate all pipes (refrigerant pipe and drain pipe)connected with the indoor unit and wires which are connected with the indoor unit and outdoor unit before installing the main body.

When making the ceiling opening , it may need to fasten the support of the ceiling to keep the ceiling level and void of vibration . As for the detail , please consult the building contractor.

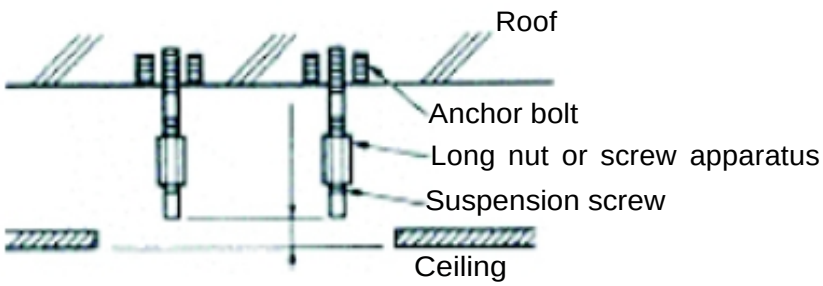
b . Install the suspension screw (The model of bolt is : W 3 / 8 , M 1 0 ; Refer to Fig 1 3)

In order to support the main body, anchor bolts is adopted for the old ceiling , as for the new ceiling , it adopts embedded bolts or buried bolts or other parts provided on the site .

Please adjust the distance between the suspension screw and the ceiling .

Unit : mm

Installation example



NOTE : all parts above are provided at the installation site .

Fig 1 3 Installation sketch map of the suspension screw for the ceiling cassette unit C

. The site with new ceiling :

● Temporarily install the indoor unit : Attach the suspension bracket to the suspension screw and then fasten the bracket with nuts and washers . Besides , Washer Locating Board ⑦ is used to prevent the washer falling off .

● As for the dimension of ceiling opening , please refer to Mounting Pad ⑤, the center of the opening is marked on the paper model , as for the detail , please consult the building contractor or carpenter. The center of the unit , however, is marked on the scutcheon attached to the unit and Mounting Pad . Besides , fix Mounting Pad ⑤ on the unit with three Screws ⑥ and on the corners of the waterspout at the pipe outlet , fasten the waterspout with screws .

● After installing the ceiling , adjust the unit to the right position ;

● Check whether the unit is level .

The indoor unit is collocated with the built -in drain pump and floater switch , so it needs to check whether the unit is level with the level meter or the polythene tubing filled with water. (If the unit inclines the direction opposing to the condensate current , it will lead the floater switch out of work and then the water drop will be produced .)

- Unpack down Washer Locating Board ⑦ and then screw down nuts ;
- Unpack down Mounting Pad ⑤.

4) The site with the old ceiling :

- Temporarily install the indoor unit : Attach the suspension bracket to the suspension screw and then fasten the bracket with nuts and washers . Besides , Washer Locating Board ⑦ is used to prevent pillow falling off .
- Adjust the height and position of the unit
- Carry out the forth step and the fifth step in the " The site with the new ceiling " .

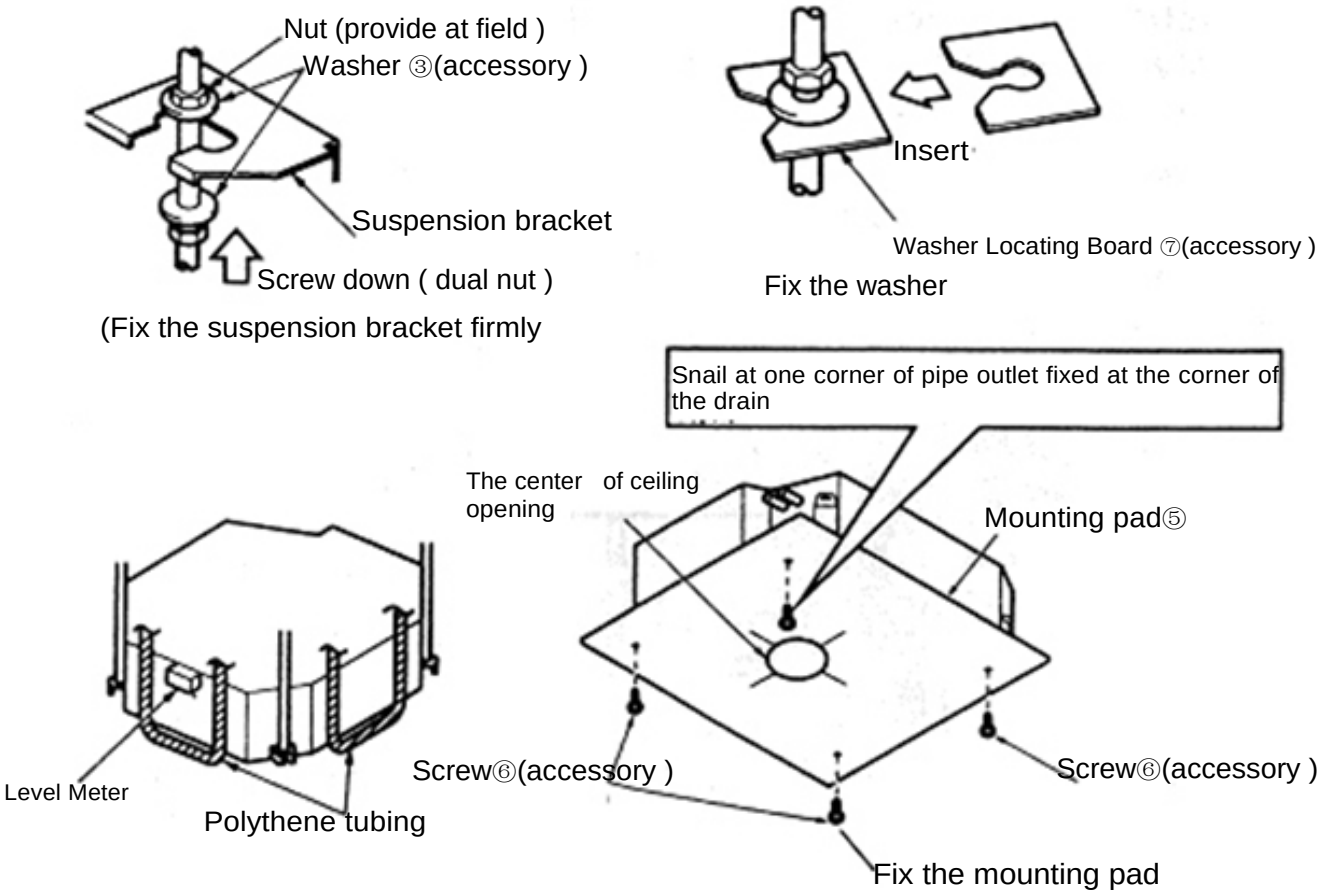


Fig 1 4 Main body 's installation sketch map of Ceiling Cassette Unit

C . Install the panel

Applicable models : 7 0 0 0 W ~ 1 2 0 0 0 W (Rated cooling capacity)

1) Preparation prior to installation :

Preparation prior to installation , refer to the following figure .

Locate the decorated panel

* Never keep the panel down , neither against wall nor placed on other protuberant thing . *

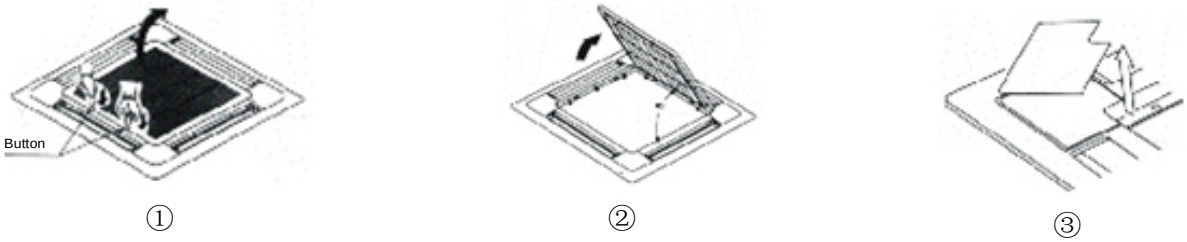
Not collide or push the swing board , otherwise it will cause damage .

Take down the return grille from the panel

1. Press the button of the return grille first , then lift one end of the button . (refer to Fig 1 5 -①)

2. Lift the grille up about 4 5° ,take out the return grille from decorated panel . (refer to Fig 1 5 - ②)

3. Take out the cover at corner, draw it out . (Refer to the following Fig 1 5 - ③)



① ② ③

Fig 1 5 The preparation for installing the panel of Ceiling Cassette

2) Install the decorated panel of the indoor unit

① As is shown in Fig 1 6 , aim the swing board motor in panel cover at the pipe of the indoor unit in order to install the panel on the indoor unit .

② Install the panel

The order of installing the panel follows the installation sketch map of the panel below, the details are :

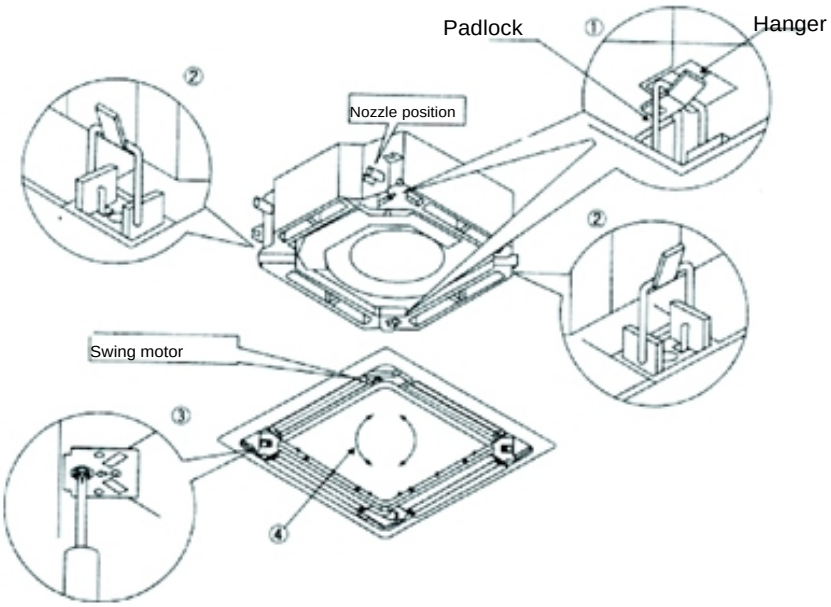


Fig 1 6 Installation order of the panel for Ceiling Cassette Unit

● Install the panel on the indoor unit temporarily, hang the padlock on the hanger of indoor unit opposed to swing motor in decorated panel . (Not engulf the wire of swing motor into the sealing material) .

● Hang other two padlocks on the hanger of indoor unit . (Not engulf the wire of swing motor into the sealing material) .

● Wring four hex head screws under the pothook into about 5 mm . (The panel will rise with it)

● Adjust the decorated panel along the arrowhead direction to cover the ceiling hatch completely, see Fig 1 7 ;

● Wring screws to compress the thickness of sealing material between the decorated panel and the indoor unit to 5 ~ 8 mm , see Fig 1 7 :

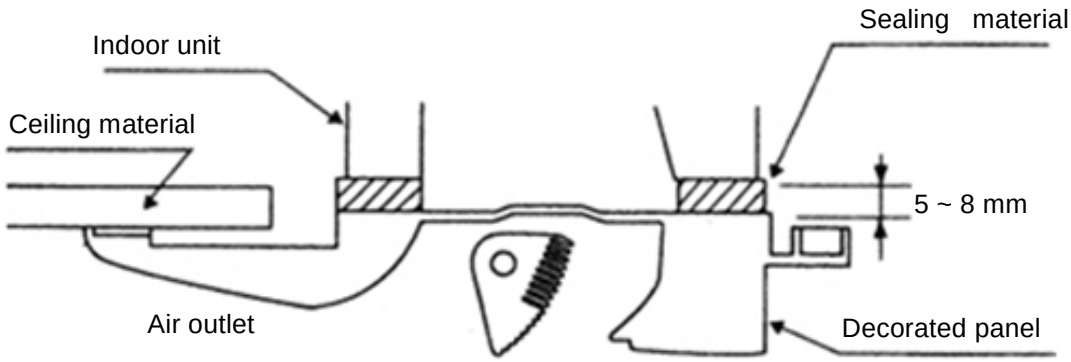


Fig 1 7 The sketch map of the space among the panel of Ceiling Cassette and the main body

NOTE : Keep the panel level , or else it will cause many problems , the details refer to the following figure :

Installing screws improperly, it will cause the fault in the following figure, user should screw down screws again to regulated requirement.

If there are slits between ceiling and decorated panel after screwing down , adjust the height of the indoor unit again .

The height of indoor unit can be adjusted by angle hole in decorated panel if the drain pipe doesn't drain even when the indoor unit is level .

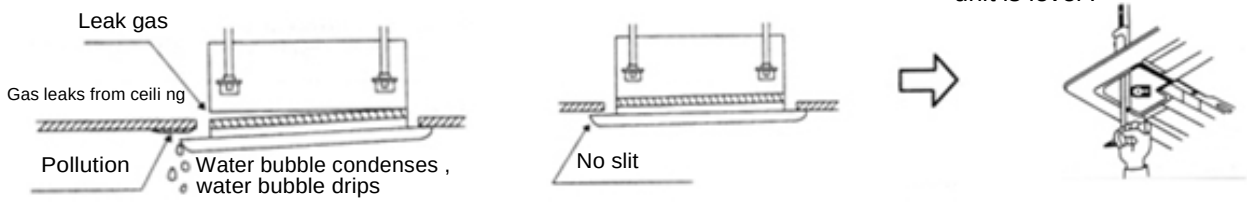


Fig 1 8 Improper panel installation of Ceiling Cassette

3) Lifting height of the indoor unit

After installing the indoor unit , please adjust its lifting height , see Fig 1 9 :

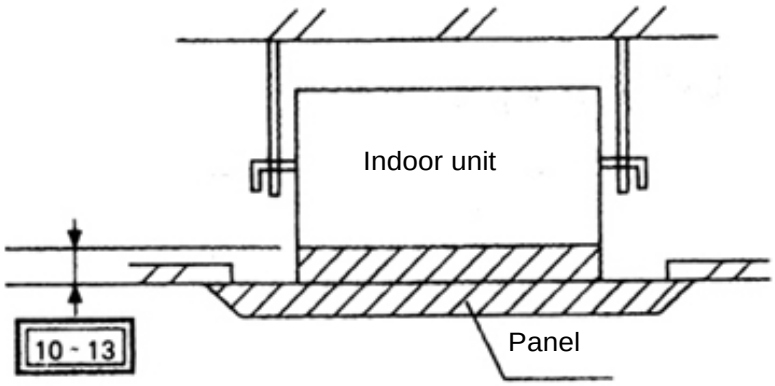


Fig 1 9 : The lifting height of Ceiling Cassette

If there is spacing between indoor unit and the panel , it will cause the following ill working condition :

The cold air will leak from the ceiling , which lead the inside and outside surface (the inside of the ceiling) of the unit condensing ;

The disorder air current blown out will lead the horizontal blade and inside surface of the unit condensing and water splashing , see Fig 2 0 :

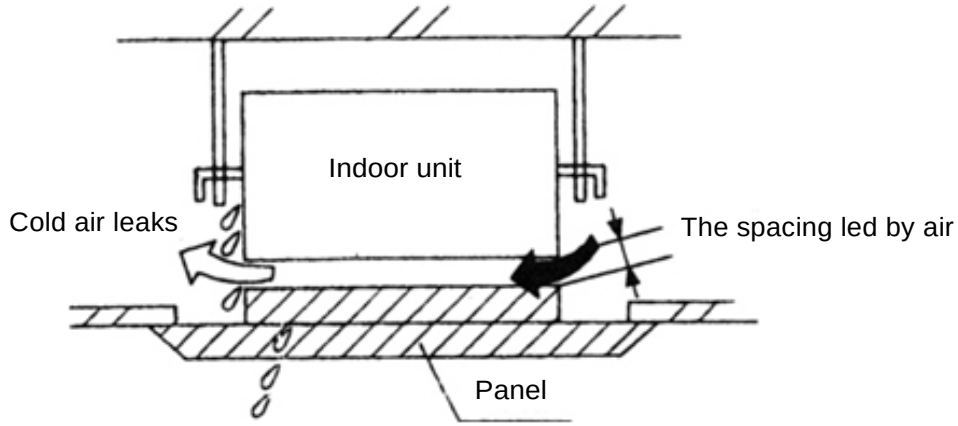


Fig 2 0 : Ill working condition result from the spacing between indoor unit and the panel

4) The connection between the indoor unit and the panel (refer to Fig 2 1)

① Connect ties -in of swing motor lead (on the decoration panel) ;

② Connect those ties -in properly, otherwise the swing board won′ t work ;

③ Make sure that the lead of swing motor be not trapped between the indoor unit and the decoration panel .

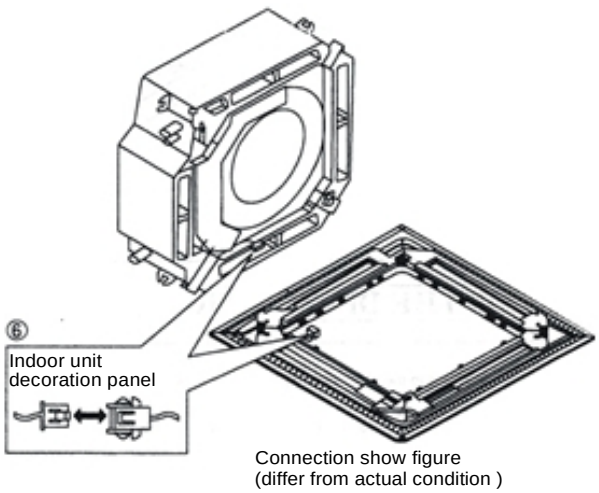


Fig 2 1 : Wire connection between the main body and the panel

5) Install the return grille and capping : Please follow Fig 2 2 to install them !

① Install the return grille

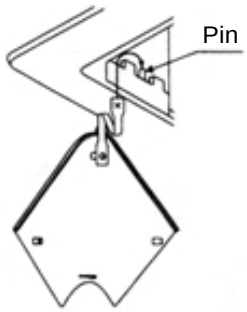
The step is opposed with the step of " Preparation for decoration panel " . Turn the return grille , there are four directions at all. It can change installation direction if it needs to adjust that of the return grille or user puts forward requirement.

② Fix the capping on the corner

It is shown as the following figure, fasten the line of capping to the pin of decoration panel .

Install the cover to the panel (refer to the figure below)

Never engulf the lead of swing baffle motor when installing the return grille .



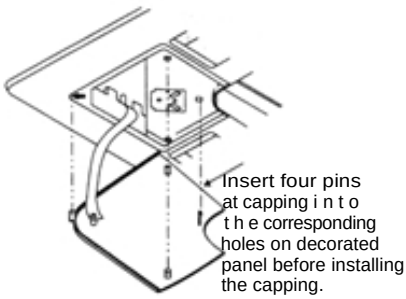


Fig 2 2 : Installation of the return grille and capping

6) After screwing bolts , if there are also slits between ceiling and panel , you must readjust the height of indoor unit (refer to the above figure of Fig 2 3) ;If the position of indoor units and drain duct can be adjusted freely, you can adjust the height of indoor unit through the opening at the corner of the panel .

① Hang the air inlet grille to the panel first , then connect the down -lead tie -in of the motor and control box at the panel to the corresponding tie -in of main body.

② Install air inlet grille again according the opposite steps on taking out of air inlet grille . ③ Re -enclose the installation board

- Fix the installation board rope to the pin of installation board (refer to the other of Fig 2 3) ;
- Push the installation cover into the panel slightly.

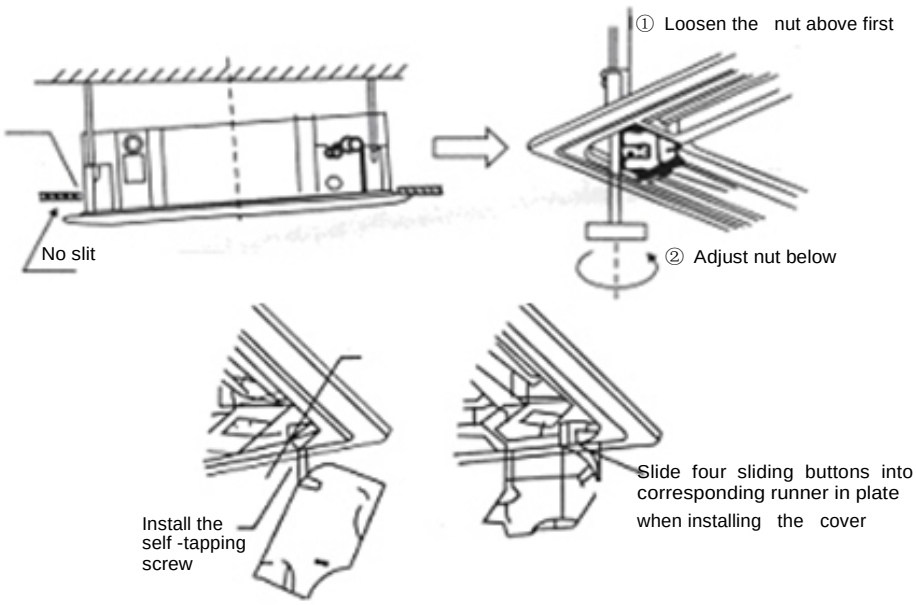


Fig 2 3 : Readjustment of installation height of the indoor unit

D . Clean pipes : (Refer to the corresponding part of wall -mounted unit)

4) Fan coil unit

A . Install the electronic expansion valve (Refer to the corresponding part of wall -mounted unit) B

. Install the main body :

Fan coil unit is in -the -ceiling type , if the condition permits , it 's better pre -embed some components . The details are as Fig 2 4：

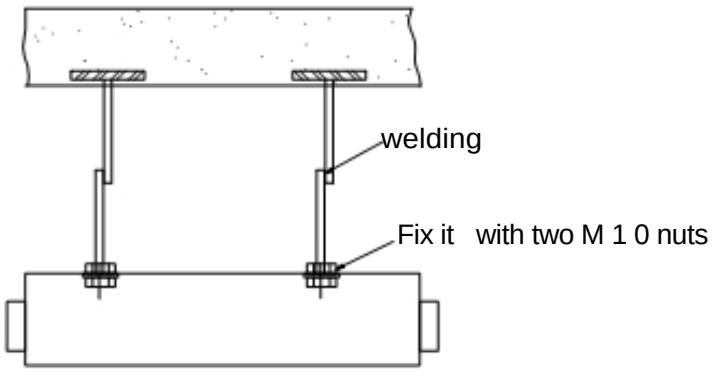


Fig 2 4 : The suspension of pre -buried components for Fan Coil Unit

If not , you can refer the following method , see Fig 2 5

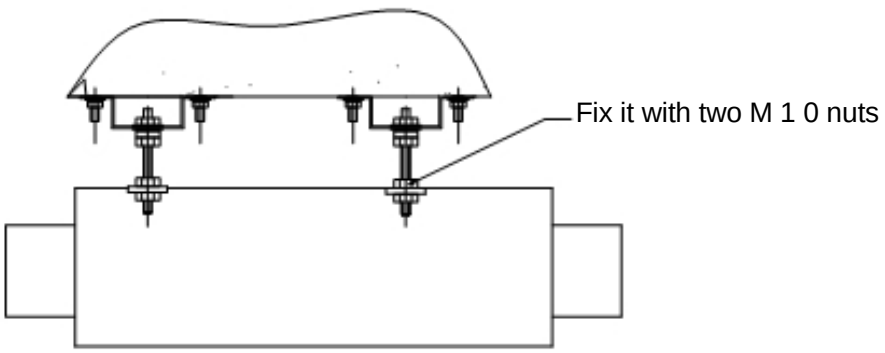


Fig 2 5 : The suspension replacer of pre -buried components for Fan Coil Unit

C . Instal air tubes

① Make air tubes

Making air tubes can refer to relative requirement about metal air tubes in GB 5 0 2 4 3 - 9 7 .

NOTE : Most of air tubes used by company now are the galvanization rectangular air tubes with low wind speed. ② Install fresh air tubes

The inlet of fresh air tubes should be clean and without dust . Filters and rainproof grille should be installed in the outdoor inlet . Besides , it is considered to install the draft control valve on the section of fresh air tube . The fresh airflow rate is 1 0 ~ 1 5 % of Total airflow rate , see Fig 2 6：

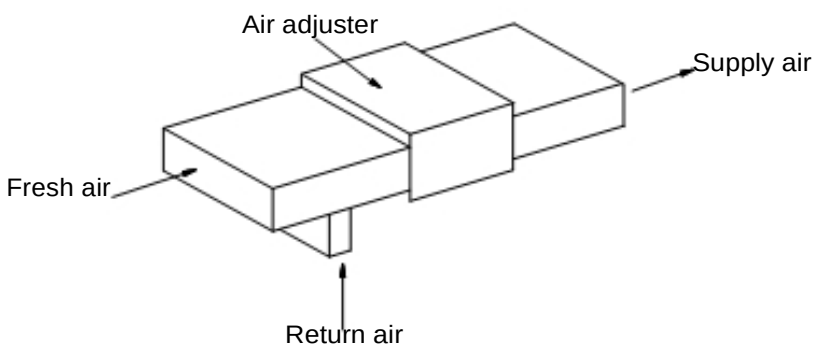


Fig 2 6 : Installation of the fresh air tube

③ Install blast tubes

The dimension of the fan coil can refer to the attached drawing of “Dimension and Mounting Size of Fan Coil Unit . Rectangle blast pipe can connect with air outlet and lead to the supply air grille . The dimension of the pipe should be consistent with fan coil air outlet . The length of rectangle blast pipes is shorter than 1 m , which can ensure the supply volume . The width of guide vane in each supply air grille should be no less than 25 mm , which guides the wind direction . The supply air grille with both UP / DOWN and LEFT /RIGH vane is the best choose , which can send cool air or hot air to every corner of the room . The connection of blast tubes and indoor units can refer to Fig 2 7 :

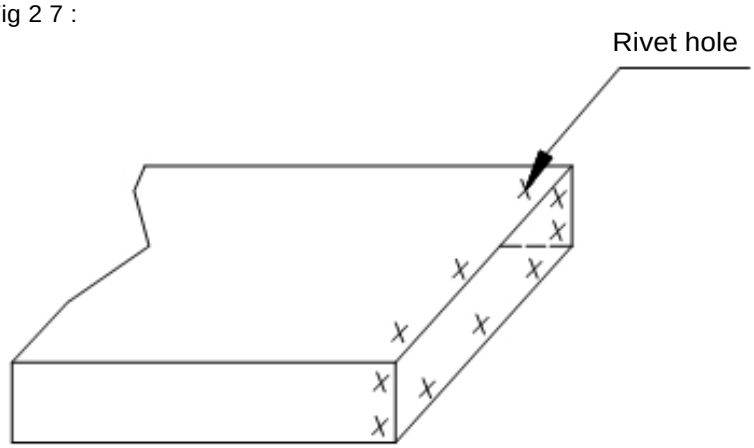
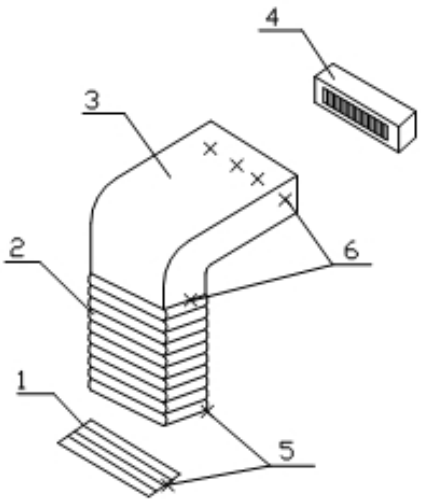


Fig 2 7 : The connection of blast tubes and indoor units

④ Install the return vent pipe .

The return vent pipe is connected with the return air inlet of indoor unit by rivets , another end is connected with return air shutter, the middle section can use a short anti -fire canvas hose , then make the # 8 iron folding shape , which can be adjusted freely according with the height of ceiling . The dimension of the pipe should be consistent with fan coil air outlet . The length of rectangle blast pipe is shorter than 1 m , which can ensure the supply volume .

NOTE : The distance recommended between the wall and the edge of the return vent pipe is more than 1 5 0 mm .



1—Return Air Shutter
2— Air tube made of fireproof canvas
3—Return vent pipe
4—Indoor unit
5—Wooden screw
6—Rivet

Fig 2 8 : Installation sketch map of the return vent pipe

⑤ Heat preservation of air tubes

There are heat insulation layers on blast tubes and return vent tubes, the heat insulation material includes rubber PE cotton and glass cotton . As for the rubber PE cotton , wipe up the outer of air tube first , then affix PE heat insulation material with corresponding glue water ; As for the glass cotton, affix glue nail to air duct prior to attach insulation cotton with a layer of foil paper, and then cover with glue nail , sealing the joints with foil adhesive tape at last . The detail information refers to Fig 2 9 :

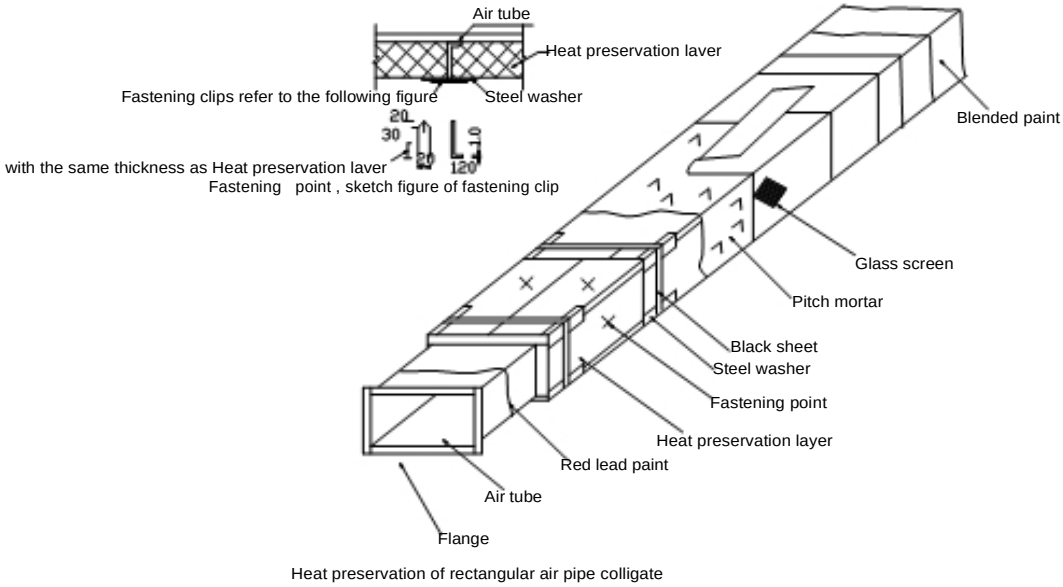


Fig 2 9 : Heat preservation of air tubes

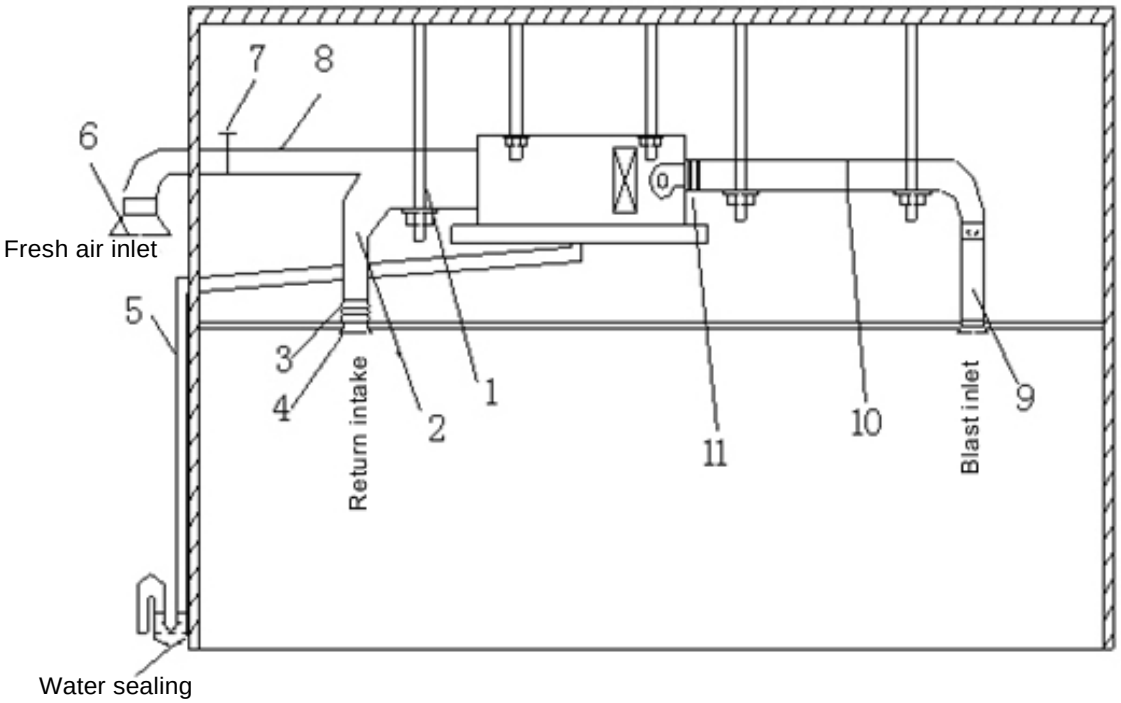
NOTE : ① The number of fixing glue nails per square meter is referred to Table 3 ;

② The outer surface of heat insulation layer of air tube aren′t allowed to frost on cooling operation .

Table 3 The number of fixing glue nails per square meter

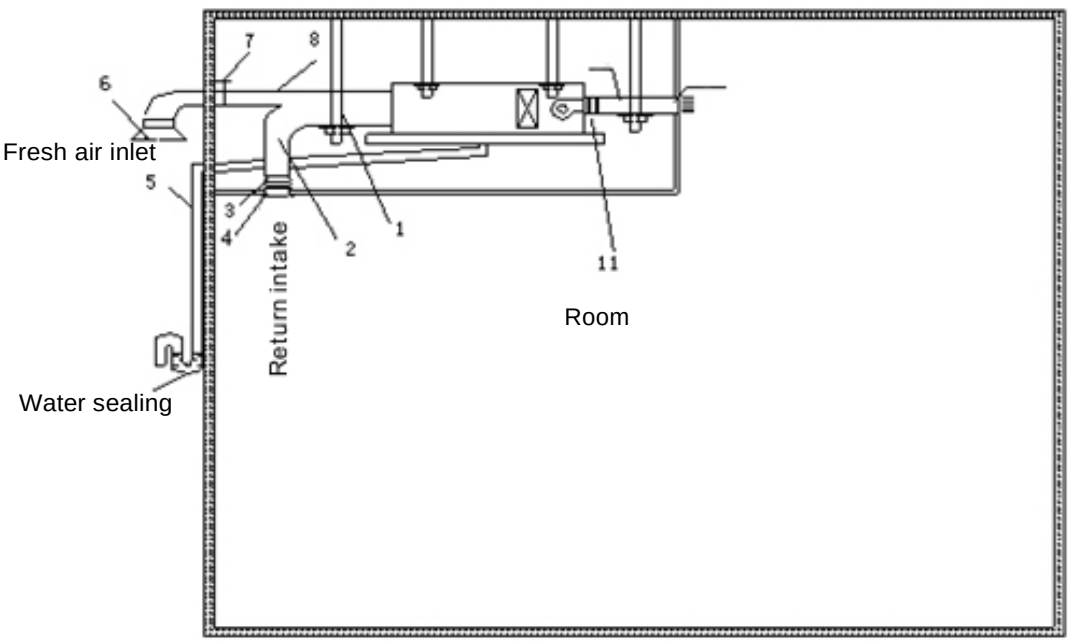
Beside or below the air tube	Above the air tube
12 pcs /m^2	5 pcs /m^2

⑥ It is the diagram of hoisting of fan coil unit :



1— —Hanger 2— —Return vent pipe 3— —Canvas air tube 4— —Return air shutter
5— —Drain pipe 6— —Rainproof shutter 7— —Air valve 8— —Fresh air tube
9— —Diffuser 10— —Air outlet pipe 11— —Transition air tube

Fig 3 0 : Suspension of Fan Coil Unit for the case of the room with whole ceiling



1— —Hanger 2— —Return vent pipe 3— —Canvas air tube 4— —Return air shutter
5— —Drain pipe 6— —Rainproof shutter 7— —Air valve 8— —Fresh air tube
9— —Diffuser 10— —Air outlet pipe 11— —Transition air tube

Fig 3 1 : Suspension of Fan Coil Unit for the case of the room with part ceiling

D . Clean pipes : (Refer to the corresponding part of wall -mounted unit)

Install the condensate pipe

As for the air conditioning system , it needs to install the condensate pipe to drain out the condensate in time . The installation of condensate pipes is related to the type of units , the details are :

1. Fan coil type

A . Selecting for condensate pipes

The condensate pipe is Hard PVC Pipe or Galvanized Pipe , we usually select Hard PVC Pipe for considering the problem of sanitation and rust .

B . Installation requirement

① It′s considered to set water sealing at the outdoor exhaust vent , especially for the long pipes . ② The gradient of drain pipe is no less than 1° .

③ The outer surface of condensate pipes in the room should be wrapped with heat insulation pipes or heat insulation cotton in case of water leakage , and then fix it with hobs , which are located every 2 m in order to ensure that the gradient be no less than 1° .

④ Please do leakage test to make sure that every joint be not leaking and the drainage be smooth after installing condensate pipes . The installation can refer to the following figure：

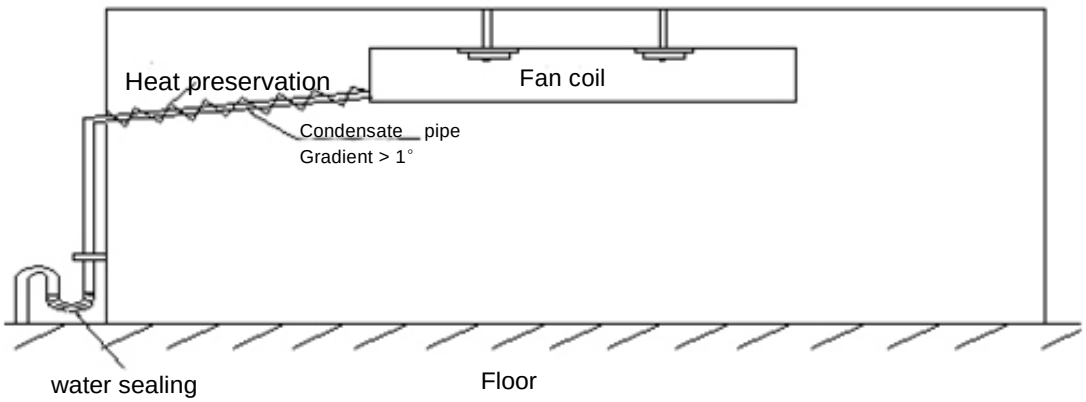


Fig 3 2 : Installation of condensate pipes for Fan Coil Type

2. Ceiling Cassette type

There is a micro lift water pump in ceiling cassette type , the installation is referred to Fig 3 3 . The water level switch turns on and drain the condensate in the seeper trayer to the condensing drain pipe no sooner than the water level has reached to the certain height . The pump stops after exhausting the condensate .

Pay attention to the followings on designing the condensate system :

① The height of the drainage lift pipe is limited by the drainage height of the lift pump which is different from different models . The pump lift of ceiling built -in type produced by our company is different for different specs . The pump lift of the ceiling cassette type of our company is 7 0 0 mm , H is no more than 4 0 0 mm .

② The distance between drainage lift pipe and indoor unit is less than 3 0 0 mm。

③ The condensate water pipe always adopts the hard PVC pipe , the tie -in adopting drainage hose and clamped with metal nips .

④ The condensate pipe in room should be wrapped with heat insulation pipes or heat insulation cotton , and then fixed with hobs , which be set every 2 m to ensure the gradient be no less than 1° .

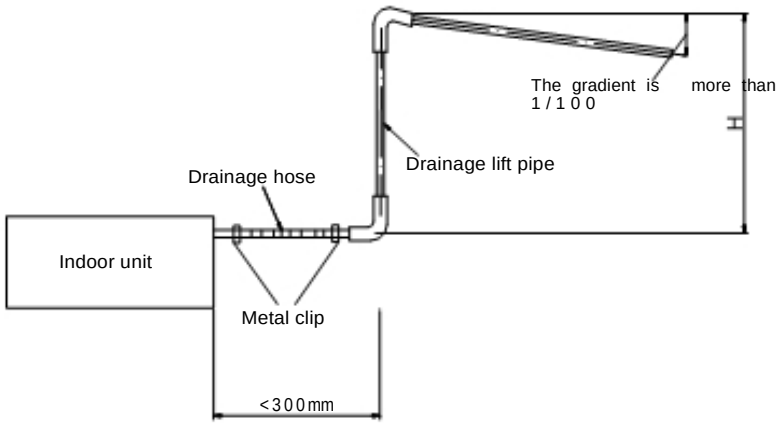


Fig 3 3 : Installation of the condensate pipe for Ceiling Cassette Type

3. Wall -mounted Type

When installing Wall -mounted Type , please install pipes of the indoor unit according to the position of the hole in the wall and then wrap up those pipes and the drainage pipe , keeping the drainage pipe below, see Fig 3 4 .

Because the humidity of the room is quite large , the condensate may be produced on the surface of the section of drainage hose in the room .

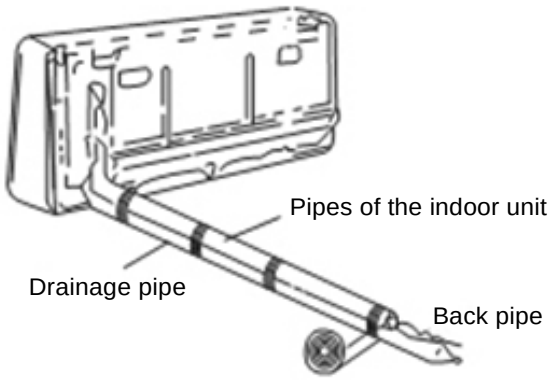


Fig 3 4 : Installation of the condensate pipe for Wall -mounted Type

4. Packaged air conditioner

Installation requirement of the condensate pipe for Packaged air conditioner is as follows :

①. If the condensate pipe needs to adopt the heat -insulated pipe with good heat -insulated performance , the thickness of which is more than 1 2 mm ;

②.The part of drainage hose in the room needs to be wrapped with heat -insulated material to avoid of condensing . ③ Usually, the condensate pipe adopts the tubing accessory of CHIGO .

Collocate the pipeline

1. Introduce to how to dominate the tubing

It 's convenient for uniform domination of tubing , the details refer to Table 4 and Fig 3 5 :

Table 4 : Domination of tubing

Name of tubing		The connection position of tubing	Number
Main pipe		The section of the tubing from the outdoor unit to the first manifold of the room .	1
Indoor tubing	Main tubing	The section of the tubing from the first manifold of the room to ones not connecting with indoor unit .	2
	Branched tubing	The section of the tubing from the first manifold of the room to ones connecting with indoor unit .	3
The tubing of the outdoor unit		The section of the tubing among outdoor modules	4

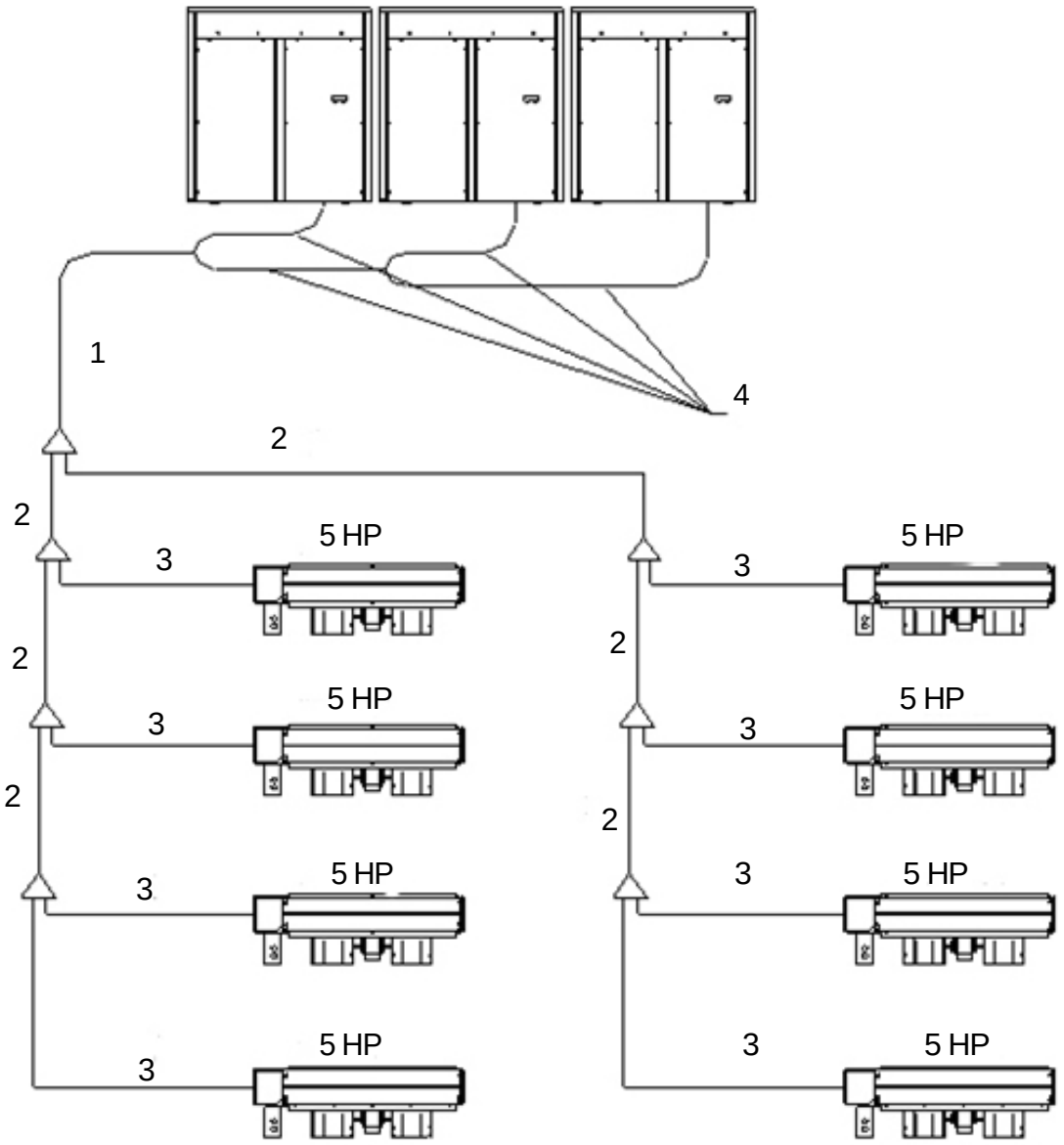


Fig 3 5 : The tubing domination sketch map

2. Introduction of manifolds

For the pipeline system of Super DC Inverter Modular is quite complicated , many manifolds and all kinds of three -way valves are adopted in installing pipes , which include Gas Balance T-type three -way valve , Oil Balance T-type three -way valve and all kinds of bifurcated pipes subassembly of gas pipes or liquid pipes , the details are as follows :

A . Gas balance T-type three -way valve (The material coding of CHIGO : S 3 6 1 6 0 0 2 6)

When three Super DC Inverter Modular run together, the gas balance pipes of them are connected with the three -way valve to keep the system run well ;

The caliber of three connectors of the three -way valve is Φ1 9 . 0 5 , see Fig 3 6 :

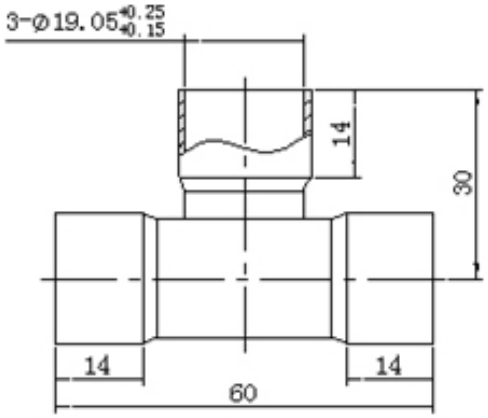


Fig 3 6 : Structure drawing of the gas balance T-type three -way valve

B . Oil balance T-type three -way valve (The material coding of CHIGO : S 3 6 1 6 0 0 5 9)

When three sets of Super DC Inverter Modular run together, the oil balance pipes of them are connected with the three -way valve to keep the system run well ;

The caliber of three connectors of the three -way valve is Φ6 . 3 5 , see Fig 3 7 :

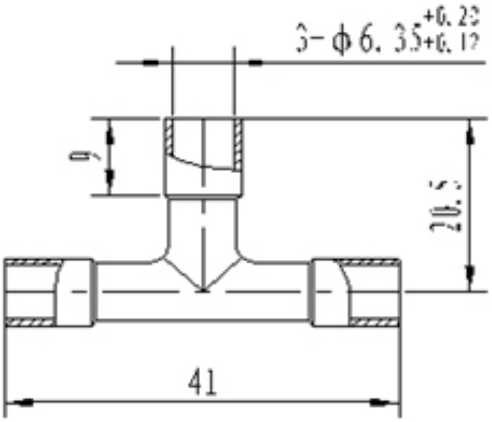


Fig 3 7 : Structure drawing of the oil balance T-type three -way valve

C . If the outdoor unit is just single module with the 8 - 1 6 H power, there are three types of three -way valves :

1) Three -way valve of the outdoor unit : As for the single -module , it needs no three -way valve ;

2) Three -way valve of the indoor unit :

① Total return air manifold

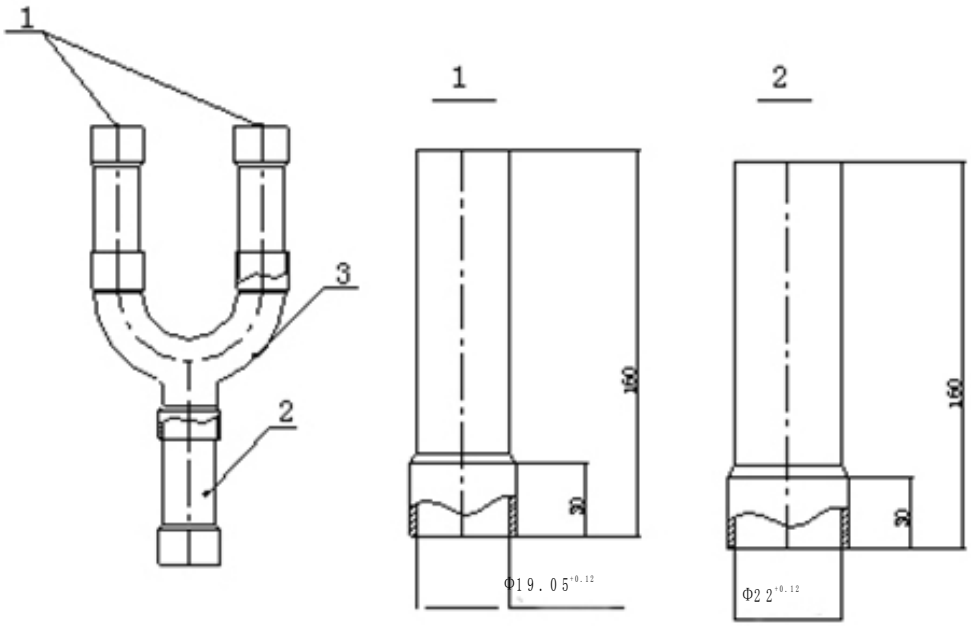


Fig 3 8 : Total return air manifold

" Total return air manifold " can converge the return air of two indoor units , that is , insert Total return air pipe of two indoor unit into 1 # Pipe separately then converge them , then go into Low -pressure Gas Pipe through 2 # Pipe . The manifold comes with the indoor machine , there is no need to purchase any one .

NOTE : When installing the manifold , keep it level , otherwise it will lead the refrigerant coming into indoor units uneven , which does bad effect to the cooling or heating effect of the system .

② Return air manifold

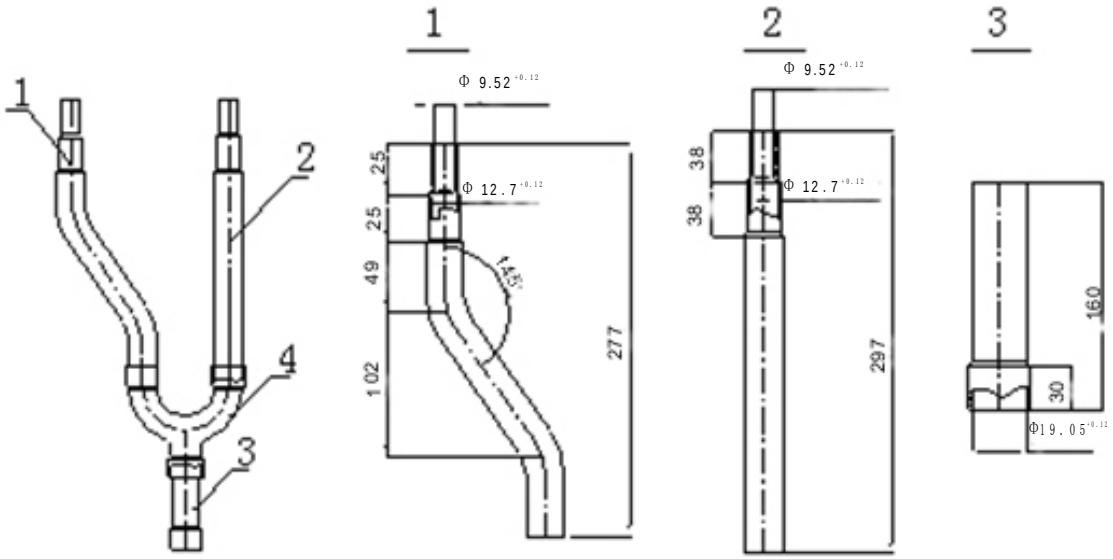


Fig 3 9 : Return air manifold

"Return air manifold "is used for connecting with Low -pressure gas pipe of the lower indoor units . The manifold adopts different caliber design , so according to different calibers of gas outlet pipes of each indoor unit , incise the corresponding caliber of 1 # Pipe with the pipe cutter, insert the gas outlet pipe into 1 # Pipe and weld them . 2 # Pipe and 3 # Pipe are used for connecting other indoor units or connection pipes .

NOTE : When installing the manifold , keep it level , otherwise it will lead the refrigerant coming into indoor units uneven , which does bad effect to the cooling or heating effect of the system .

③ High pressure manifold

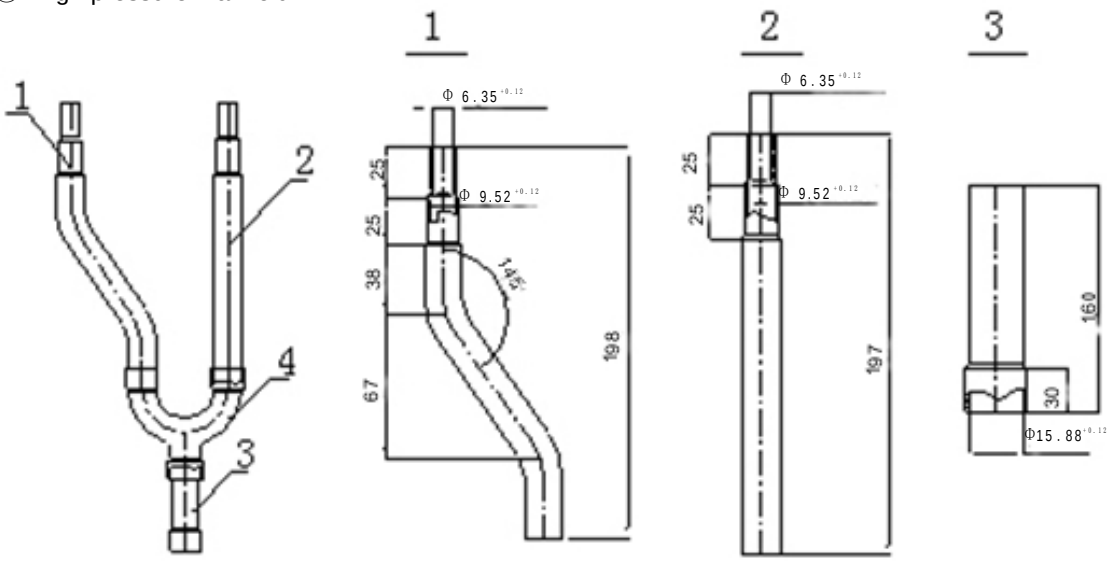


Fig 4 0 : High pressure manifold

“High pressure manifold ”is used for connecting with High pressure liquid pipe of the lower indoor units . The manifold adopts different calibers design , so according to different calibers of inlet liquid pipes of each indoor unit ,incise the corresponding caliber of 1# Pipe with the pipe cutter, insert the inlet liquid pipe into 1# Pipe and weld them . 2# Pipe and 3# Pipe are used for connecting other indoor units or connection pipes .

NOTE One : When installing the manifold , keep it level , otherwise it will lead the refrigerant coming into indoor units uneven , which does bad effect to the cooling or heating effect of the system .

NOTE Two : “ Return air manifold ” and “High pressure manifold ” composes one set of the manifold , which is attached to the multi - connection indoor unit as the accessory, there is no need to purchase any one .

D . If the outdoor unit is the multi - modules with the capacity of 8 - 2 4 H , there are two types of three -way valves :

1) Three -way valve of the outdoor unit :

① Low -pressure bifurcation Y- type three -way valve with the capacity of 8 - 2 4 H :

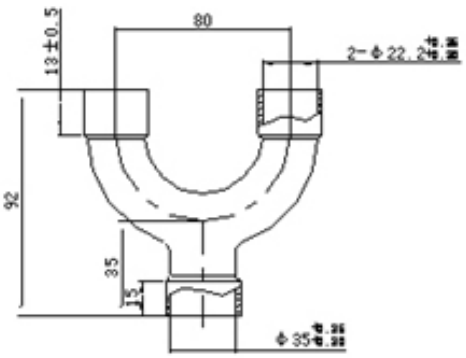


Fig 4 1 : Y- type three -way valve of the low -pressure manifold with the capacity of 8 - 2 4 H

“ Y- type three -way valve of the low -pressure manifold with the capacity of 8 - 2 4 H ” , installed on the trunk duct of the low -pressure pipe , is connected with low -pressure pipes located among all outdoor units in the module system . Through this Y-type three -way valves , all indoor units are divided into several indoor groupware with the total capacity of 8 HP, 1 0 HP or 1 2 HP separately.

NOTE : When installing the manifold , keep it level , otherwise it will lead the refrigerant coming into indoor units uneven , which does bad effect to the cooling or heating effect of the system .

② Y- type three -way valve of the high -pressure manifold with the capacity of 8 - 2 4 H :

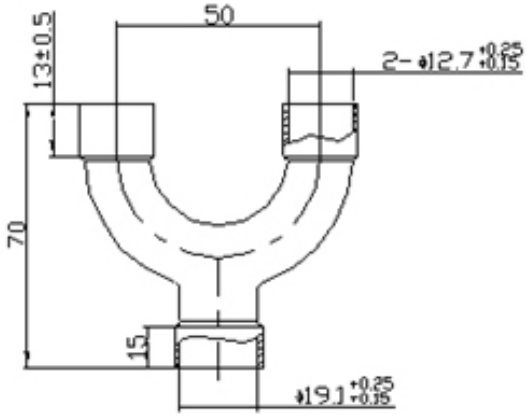


Fig 4 2 : Y- type three -way valve of the high -pressure manifold with the capacity of 8 - 2 4 H

"Y- type three -way valve of the high -pressure manifold with the capacity of 8 - 2 4 H " is connected with high - pressure pipes located among all outdoor units in the module system or is used for divided all indoor units into into several indoor groupware with the total capacity of 8 HP, 1 0 HP or 1 2 HP separately.

NOTE One : When installing the manifold , keep it level , otherwise it will lead the refrigerant coming into indoor units uneven , which does bad effect to the cooling or heating effect of the system .

NOTE Two : Both three -way valves above compose one set of the manifold , which is requested to be purchased from our company (The model number of this accessory box is SP -G 1 8 2) . If the manifold is purchased from other places , it will lead the refrigerant coming indoor units uneven and does bad effect to the cooling or heating effect of the system .

2) Three -way valve of the indoor unit :

On the trunk duct of indoor units , there are "Y- type three -way valve of the low -pressure manifold with the capacity of 8 - 2 4 H " and " Y- type three -way valve of the high -pressure manifold with the capacity of 8 - 2 4 H " ; On the branched pipe , however, it adopts " Total return air manifold " (refer to Figh 3 8) , " Return air manifold " (refer to Fig 3 9) and "High -pressure manifold " . And among of these three manifolds on the branched pipe , two of the latter are attached to the indoor unit .

NOTE : When installing the manifold , keep it level , otherwise it will lead the refrigerant coming into indoor units uneven , which does bad effect to the cooling effect of the system .

E . If the outdoor unit is the multi - modules with the capacity of 2 6 - 4 8 H , there are two types of three -way valves :

1) Three -way valve of the outdoor unit :

① Low -pressure manifold with the capacity of 2 6 - 4 8 H :

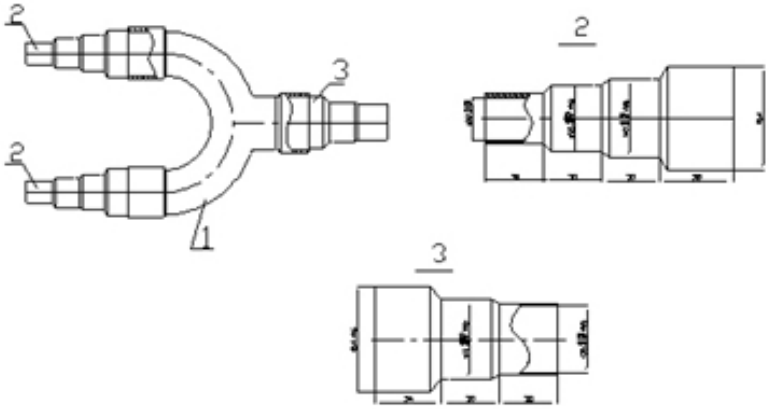


Fig 4 3 : Low -pressure manifold with the capacity of 2 6 - 4 8 H

“ Low -pressure manifold with the capacity of 2 6 - 4 8 H ” , installed on the main pipe of the low -pressure pipe , is connected with low -pressure pipes located among all outdoor units in the module system . Through this manifold , all indoor units are divided into several indoor groupware with the total capacity of 8 HP, 1 0 HP , 1 2 HP or 1 6 HP separately.

This three -way valve adopts the different calibers design , the corresponding caliber of which is welded according to the installation requirement .

NOTE : When installing the manifold , keep it level , otherwise it will lead the refrigerant coming into indoor units uneven , which does bad effect to the cooling or heating effect of the system .

② “ Low -pressure manifold with the capacity of 2 6 - 4 8 H ” :

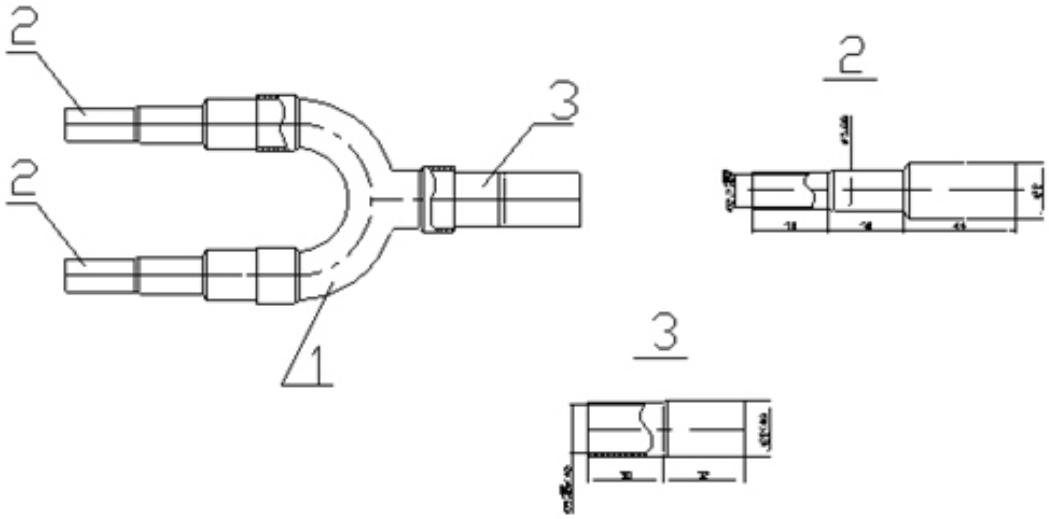


Fig 4 4 : High -pressure manifold with the capacity of 2 6 - 4 8 H

“ High -pressure manifold with the capacity of 2 6 - 4 8 H ” is connected with high -pressure pipes located among all outdoor units in the module system or is used for divided all indoor units into several indoor groupware with the total capacity of 8 HP, 1 0 HP , 1 2 HP or 1 6 HP separately. This three -way valve adopts the different calibers design , the corresponding caliber of which is welded according to the installation requirement .

NOTE One : When installing the manifold , keep it level , otherwise it will lead the refrigerant coming into indoor units uneven , which does bad effect to the cooling or heating effect of the system .

NOTE Two : Both three -way valves above compose one set of the manifold , which is requested to be purchased from our company (The model number of this accessory box is SP -G 1 8 2) . If the manifold is purchased from other places , it will lead the refrigerant coming indoor units uneven and does bad effect to the cooling or heating effect of the system .

2) Three -way valve of the indoor unit :

On the trunk duct of indoor units , there are “Low -pressure manifold with the capacity of 2 6 - 4 8 H ” , “High -pressure manifold with the capacity of 2 6 - 4 8 H ” , “ Y- type three -way valve of the low -pressure manifold with the capacity of 8 - 2 4 H ” and “ Y- type three -way valve of the with the high -pressure manifold capacity of 8 - 2 4 H ” ;On the branched pipe , however, it adopts “ Total return air manifold ” (refer to Fig 3 8) , “ Return air manifold ” (refer to Fig 3 9) and “High -pressure manifold ” . And among of these three manifolds on the branch pipe , the former is attached to the outdoor, the others are attached to the indoor unit .

NOTE : When installing the manifold , keep it level , otherwise it will lead the refrigerant coming into indoor units uneven , which does bad effect to the cooling or heating effect of the system

3. Install the tubing of outdoor units

The installation of the tubing of outdoor units is related to the number of outdoor modules , the details are as follows :

A . As for the single -module system :

The tubing installation drawing of the single -module system is referred to Fig 4 5 :

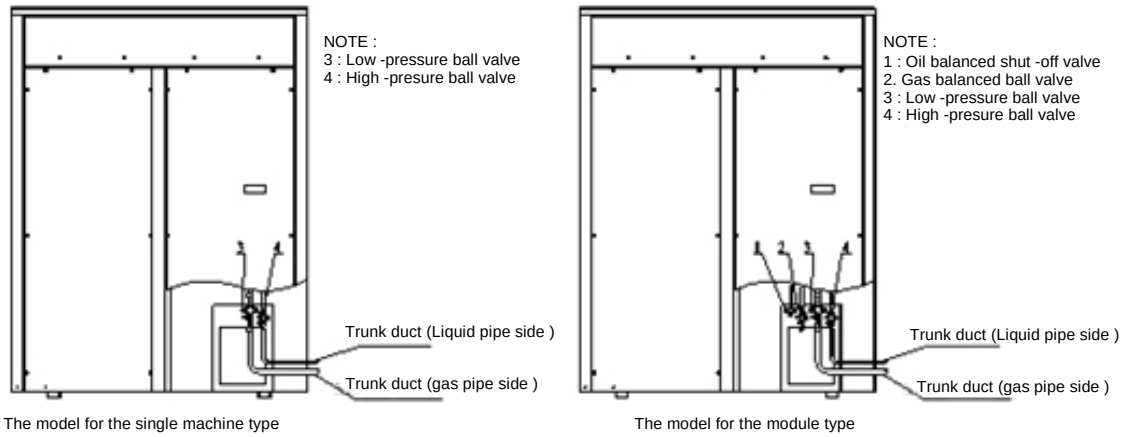


Fig 4 5 : The tubing installation drawing of the single -module system

1) In the single -module system , by welding the trunk duct of gas pipe side is connected with the low -pressure ball valve of the outdoor unit (it needs to reduce the temperature of the joint to keep the temperature of the valve lower than 1 2 0℃ when welding .) ; Through the flare , the trunk duct of liquid pipe side , however, is connected the with the high -pressure ball valve of the outdoor unit . In this system , it is no need to install the tubing of the outdoor unit and the dimension of the main pipe is referred to the corresponding contents in " Install the trunk duct " .

2) In the single -module system , it is no need to install gas balanced pipes and oil balanced pipes . However, as for installing the single -module system with the module type , it needs to fasten the gas balanced valve and the oil balanced valve to avoid of leakage .

B . As for two -modules system : The installation drawing is as Fig 4 6 :

1) Installation of gas balanced pipes :

In the two -module system , the gas balanced pipe is connected to the ball valve through a pipe with Φ1 9 . 1 and then weld them at the joints . After installing , empty the gas balanced pipe with the needle valve or vaccumize it directly ; At last , turn on gas balanced ball valves of all indoor unit in the module system .

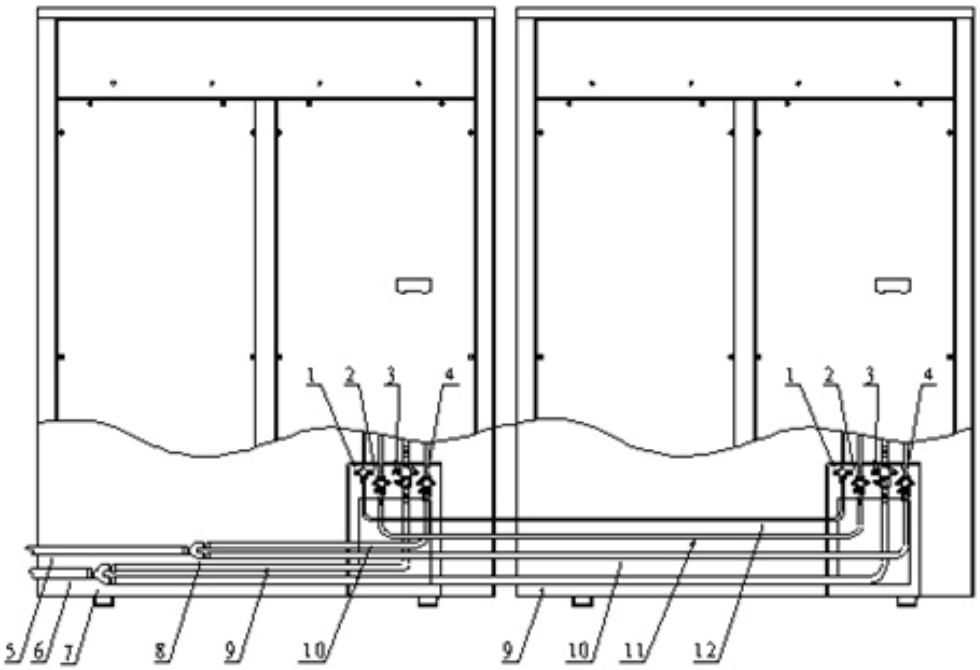
NOTE : When welding , Wrapping ball valves with wet cloth or cooling ball valves to keep the temperature of them lower than 1 2 0℃ so that prevent them from burning .

2) Installation of oil balanced pipes :

In the two -module system , the connection among oil balanced pipes adopts the flare connection type , that is , the oil balanced pipe is connected to copper pipes (Φ6 . 3 5 X 0 . 7 5 mm) with two ends flared .

Screw down tie - in nuts of the cut -off valve of the oil balanced pipe before emptying the oil balanced pipe newly -installed , that is , adopts the " Discharging inside" method screwing up the oil balance cut -off valve . For the oil balance pipe has been filled with lubricating oil , you can screw down tie -in nuts to complete emptying when the oil is dripping from the nut during emptying process .

After emptying the oil balanced pipe , turn on all cut -off valves among oil balanced pipes to keep the oil circuit flowing among all outdoor units in this system .



1 : Oil balanced shut -off valve
2 : Gas balanced ball valve
3 : Low -pressure ball valve
4 : High -pressure ball valve
5 : Main pipe (liquid pipe side)
6 : Main pipe (gas pipe side)
7 : Three -way valve of gas pipe side
8 : Three -way valve of liquid pipe side
9 : Connection pipe of outdoor units (gas pipe side)
10 : Connection pipe of outdoor units (liquid pipe side)
11. Gas balanced connection pipe
12 : Oil balanced connection pipe

Remark One : Three -way valve in the above figure is the type for outdoor units when the capacity of the system is 1 8 - 2 4 H ; If the capacity of the system is 2 6 - 32 H or the system needs to adopt other types , it will follow the actual condition , this figure is just for a referrer.

Remark Two : Keep all three -way valves level , otherwise it will lead the refrigerant coming into indoor units uneven .

Fig 4 6 : Installation drawing of the tubing in two -modules system

3) Installation of high -pressure liquid pipes :

In the two -module system , the installation of high -pressure liquid pipes are referred to the installation drawing above and the spec . Of the main pipe on side of liquid pipe is referred to " Table of the spec . Of Main Pipes " from " Installation of Main Pipes " . Connection pipes of outdoor units on side of liquid pipes is flared and connected with the high -pressure ball valve of outdoor module , and the diameters of these pipes are referred to " Diameters of Outdoor Connection Pipes " (refer to the corresponding spec . Table of outdoor units) . As for Distribution Three -way Valve on the side of liquid pipes , the type is decided by system capacities (Please refer to " 2 . Introduction of Bifurcated Pipes ")

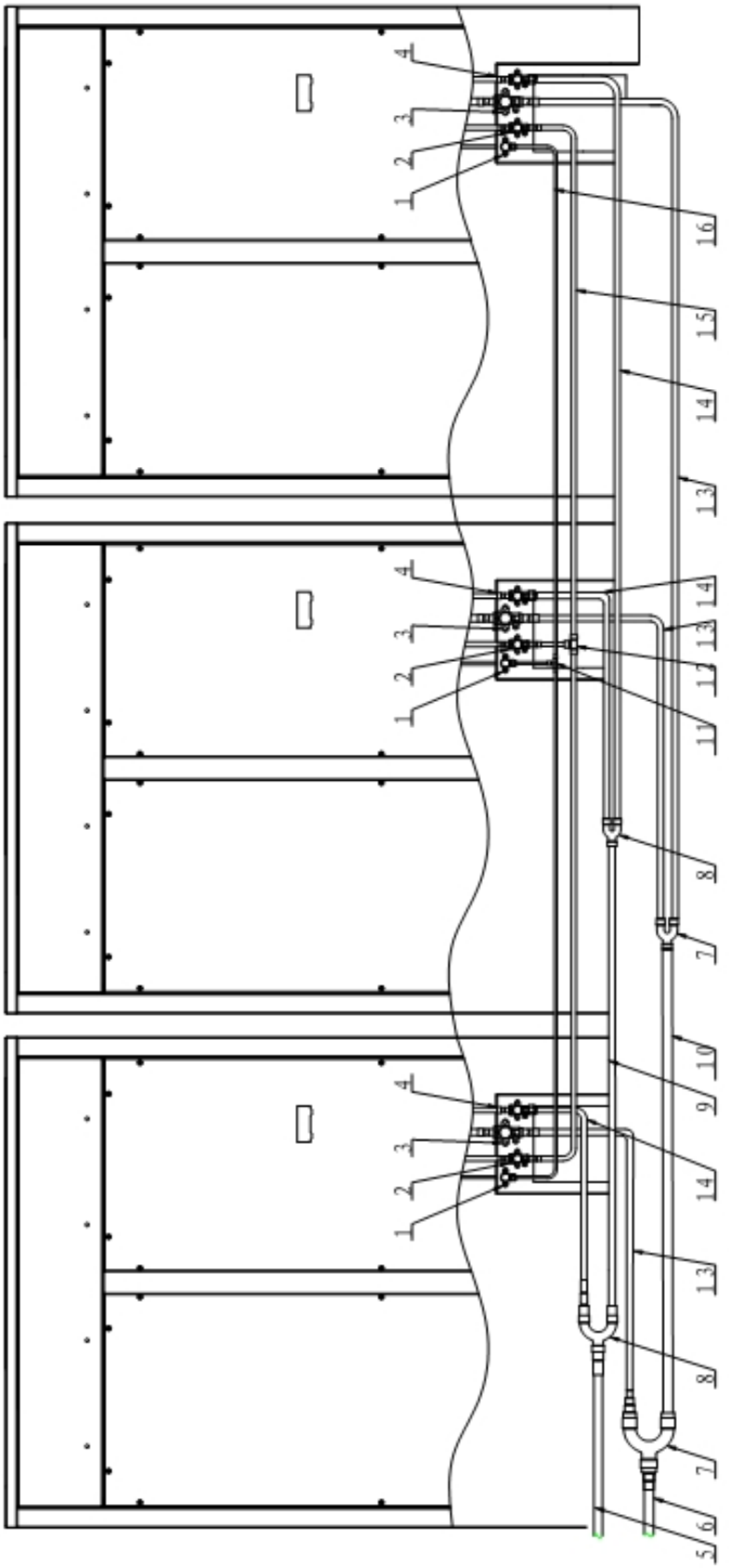
NOTE : Before welding , charge some Nitrogen gas into the pipes !

4) Installation of low -pressure gas pipes :

In the two -module system , the installation of low -pressure gas pipes are referred to the installation drawing above and the spec . Of the main pipe on side of gas pipe is referred to " Table of the spec . Of Main Pipes " from " Installation of Main Pipes " . Connection pipes of outdoor units on side of gas pipes is connected by welding with the low -pressure ball valve of outdoor module , and the diameters of these pipes are referred to " Diameters of Outdoor Connection Pipes " (refer to the corresponding spec . Table of outdoor units) . As for Distribution Three -way Valve on the side of gas pipes , the type is decided by system capacities (Please refer to " 2 . Introduction of Bifurcated Pipes ")

NOTE : Before welding , charge some Nitrogen gas into the pipes ! When welding , Wrapping ball valves with wet cloth or cooling ball valves to keep the temperature of them lower than 1 2 0℃

C . As for three -modules system : The installation drawing is as Fig 4 7 :



1: Oil balanced cut-off valve
2: Gas balanced ball valve
3: Low-pressure ball valve
4: High-pressure ball valve
5: Main pipe(liquid pipe side)
6: Main pipe(gas pipe side)
7: Three-way valve of gas pipe side
8: Three-way valve of liquid pipe side
9: Tubing of outdoor units(liquid pipe side)
10: Tubing of outdoor units(gas pipe side)
11. Gas balanced T-type three-way valve
12: Oil balanced T-type three-way valve
13: Connection pipe of outdoor units(gas pipe side)
14: Connection pipe of outdoor units(liquid pipe side)
15: Gas balanced connection pipe
16: Oil balanced connection pipe

Remark 1: Three-way valve in the above figure is just for a referrer. As for the actual installation, it needs to accord the actual condition to select the corresponding types, which may be different from the figure.
Remark 2: Keep all three-way valves level, otherwise it will lead the refrigerant coming into indoor units uneven

Fig 47: Installation drawing of the tubing in three-modules system

1) Installation of gas balanced pipes :

In the three -module system , the gas balanced pipe is connected to the ball valve through a pipe with Φ1 9 . 1 and then weld them at the joints . After installing , empty the gas balanced pipe with the needle valve or vaccumize it directly ; At last , turn on gas balanced ball valves of all indoor unit in the module system .

In the three -module system , installing gas balanced pipes , Gas balanced T-type three -way valves adopted can refer to Fig 3 6 .

NOTE : When welding , Wrapping ball valves with wet cloth or cooling ball valves to keep the temperature of them lower than 1 2 0℃ so that prevent them from burning .

2) Installation of oil balanced pipes :

In the three -module system , the connection among oil balanced pipes adopts the flare connection type , that is , the oil balanced pipe is connected to copper pipes (Φ6 . 3 5 X 0 . 7 5 mm) with two ends flared . In this system , when installing oil balanced pipes , Oil balanced T-type three -way valves adopted can refer to Fig 3 7 .

Screw down tie - in nuts of the cut -off valve of the oil balanced pipe before emptying the oil balanced pipe newly -installed , that is , adopts the " Discharging inside" method screwing up the oil balance cut -off valve . For the oil balance pipe has been filled with lubricating oil , you can screw down tie -in nuts to complete emptying when the oil is dripping from the nut during emptying process .

After emptying the oil balanced pipe , turn on all cut -off valves among oil balanced pipes to keep the oil circuit flowing among all outdoor units in this system .

3) Installation of high -pressure liquid pipes :

In the three -module system , the installation of high -pressure liquid pipes are referred to the installation drawing above and the spec . Of the main pipe on side of liquid pipe is referred to " Table of the spec . Of Main Pipes " from " Installation of Main Pipes " . Connection pipes of outdoor units on side of liquid pipes is flared and connected with the high -pressure ball valve of outdoor module , and the diameters of these pipes are referred to " Diameters of Outdoor Connection Pipes " (refer to the corresponding spec . Table of outdoor units) . As for Distribution Three -way Valve on the side of liquid pipes , the type is decided by system capacities (Please refer to " 2 . Introduction of Bifurcated Pipes ")

NOTE : When welding , charge some Nitrogen gas into the pipes !

4) Installation of low -pressure gas pipes :

In the three -module system , the installation of low -pressure gas pipes are referred to the installation drawing above and the spec . Of the main pipe on side of gas pipe is referred to " Table of the spec . Of Main Pipes " from " Installation of Main Pipes " . Connection pipes of outdoor units on side of gas pipes is connected by welding with the low -pressure ball valve of outdoor module , and the diameters of these pipes are referred to " Diameters of Outdoor Connection Pipes " (refer to the corresponding spec . Table of outdoor units) . As for Distribution Three -way Valve on the side of gas pipes , the type is decided by system capacities (Please refer to " 2 . Introduction of Bifurcated Pipes ")

NOTE : When welding , charge some Nitrogen gas into the pipes and wrapping ball valves with wet cloth to keep the temperature of them lower than 1 2 0℃

4. Installation of main pipes

A . Diameter selecting of main pipes

The main pipe is just the part duct from the first bifurcation outside to the first bifurcation inside . Diameters of main pipes are related to the total capacity of the system , please refer to the following table :

Table 5 : Diameters of main pipes

System Total Capacity A	Main Liquid Pipe Φ (mm)	Main Gas Pipe Φ (mm)
A = 8 , 1 0 , 1 2 HP	12.7	22.2
A = 1 4 , 1 6 HP	15.9	28.6
18≤A≤2 4 HP	19.1	34.9
26≤A≤3 2 HP	22.2	38.1
34≤A≤4 8 HP	22.2	41.3

B . Set return oil elbows

① When the height difference between outdoor and indoor units is more than 8 m , it needs to set return oil elbows on total liquid outlet pipe and total return air pipe , the number is decided by height difference and the installation position adopt Equal Allocation according the practical height , see Table 6

Table 6 : Set return oil elbows on the upright section of main pipes

The height difference between indoor unit and outdoor unit H (m)	Equal allocation setting	Number of return oil elbows
H≤8	0	0
8 <H≤1 6	At the position of 1/2 of the height difference between indoor unit and outdoor unit H	Total out liquid duct : 1 Total return air duct : 1
16 <H≤2 4	At the position of 1 / 2 and 2 / 3 of the height difference between indoor unit and outdoor unit H	Total out liquid duct : 2 Total return air duct : 2
24 <H≤3 2	At the position of 1 / 4 , 2 / 4 and 3 / 4 of the height di ff erence between indoor unit and outdoor unit H	Total out liquid duct : 3 Total return air duct : 3
32 <H≤4 0	At the position of 1/ 5, 25, 3/ 5 and 4 / 5 of the height difference between indoor unit and outdoor unit H	Total out liquid duct : 4 Total return air duct : 4
40 <H≤5 0	At the position of 1 / 6 , 2 / 6 , 3 / 6 , 4/6 and 5/6 of the height difference between indoor unit and outdoor unit H	Total out liquid duct : 5 Total return air duct : 5

The detail about the installation of return oil elbows is referred to Fig 4 8 :

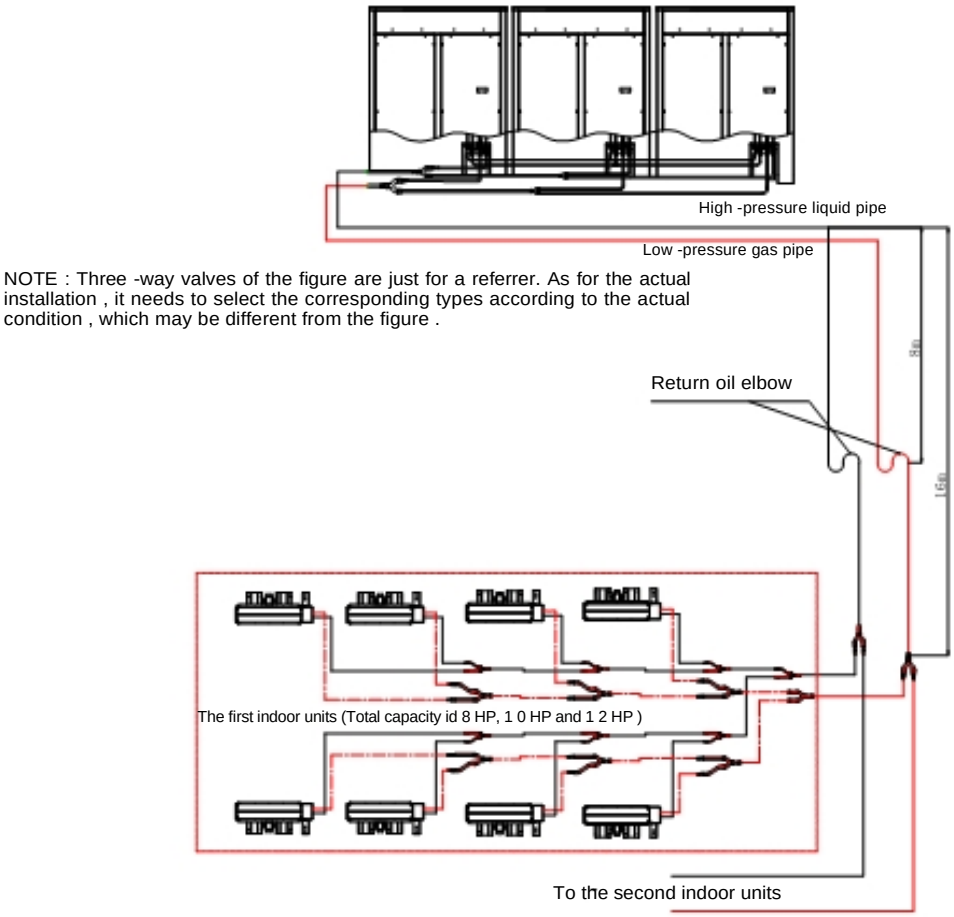


Fig 4 8 : Design drawing of return oil elbows -Upright Direction

② When the distance of the level pipe from outdoor units to indoor units is more than 5 0 meters , it needs to install return oil elbow on the total out liquid duct and total air return duct . The number of return oil elbows is decided t by the length and the installation adopts Equal Allocation based on the practical length , the detailed information is as Table 7：

Table 7 : Set return oil elbows on the level section of main pipes

The length between the horizontal duct of indoor unit and of outdoor unit L(m)	Equal allocation setting	Number of return oil elbows
L≤5 0	0	0
50 <L≤6 0	At the position of 1 / 2 of the horizontal duct of indoor unit and of outdoor unit	Total out liquid duct : 1 Total return air duct : 1
60 <L≤7 0	At the position of 1 / 3 and 2 / 3 of the horizontal duct of indoor unit and of outdoor unit H	Total out liquid duct : 2 Total return air duct : 2
70 <L≤8 0	At the position of 1 / 4 , 2 / 4 and 3/4 of the horizontal duct of indoor unit and of outdoor unit	Total out liquid duct : 3 Total return air duct : 3
80 <L≤9 0	At the position of 1/5,25,3/5 and 4/5of the horizontal duct of indoor unit and of outdoor unit	Total out liquid duct : 4 Total return air duct : 4
90 <L≤1 0 0	At the position of 1 / 6 , 2 / 6 , 3 / 6 , 4/6 and5/6of the horizontal duct of indoor unit and of outdoor unit	Total out liquid duct : 5 Total return air duct : 5

The detailed installation sketch figure refer to Fig 4 9 :

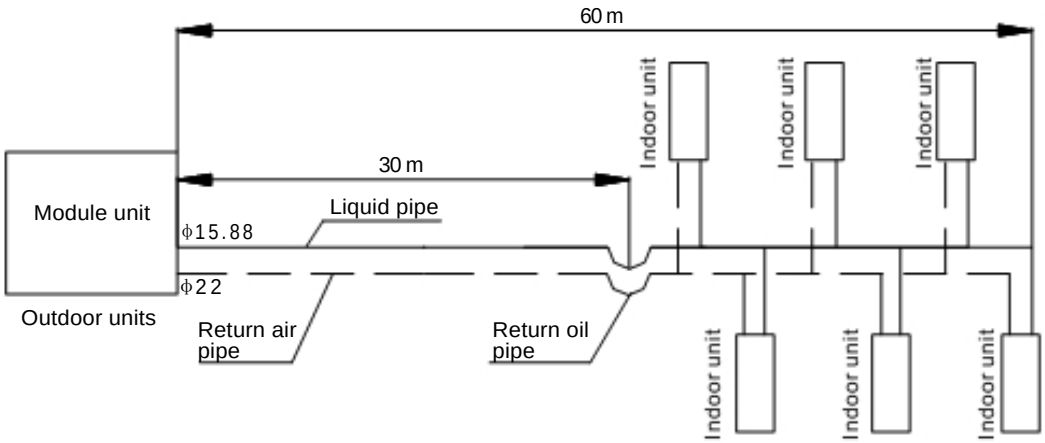


Fig 4 9 : Design drawing of return oil elbows -Upright Direction

③ It is best to set the diameter of return oil from 1 0 0 to 2 0 0 mm .

④ The return oil elbow can be made by yourself or purchased from our company.

5. Installation of the indoor tubing

Among indoor units and outdoor units of DC Inverter Modular, there is only one set of high -pressure liquid pipes and low -pressure gas pipes , so the pipe connection of indoor units and outdoor units includes the connection of high -pressure liquid pipes and the connection of low -pressure gas pipes . The followings introduce the diameter selection of tubing , the selection of three -way valves and different diameters design :

A . Diameter selection of indoor tubing

The diameter of indoor tubing is decided by the capacity of lower indoor units , the more the capacity is , the bigger the diameter is , please refer to Table 8 :

Table 8 : Spec . Of indoor tubing

Total Capacity of lower indoor unit A (HP)	Liquid tubing ϕ (mm)	Gas tubing ϕ (mm)
A<1.5	6.35	9.52
1.5≤A < 3	6.35	12.7
3≤A<3.5	9.52	15.88
3.5≤A≤7	12.7	19.05
7 <A≤1 3	12.7	22.2
13 <A≤1 7	15.9	28.6
17 <A≤2 5	19.1	34.9
25 <A≤3 3	22.2	38.1
33 <A	22.2	41.3

Note : The tubing spec of 1 0 0 Q , 11 2 Q and 1 2 5 Q is separately ϕ1 9 . 0 5 / ϕ9 . 5 2 .When the model is adopted , take the tubing spec of indoor units .

B . Pipeline connection of indoor units

1) When designing for installing indoor units , it is better to set the indoor groupware with the total capacity of indoor units of 8 HP, 1 0 HP or 1 2 HP, see Fig 5 0 . This combination is not only convenient for installing three -way valves but also easy for maintaining and controlling indoor units . Besides , it also reduces the diameter change .

2) When connecting indoor pipes , it adopts several types of three -way valves , the spec . And using method of which is referred to corresponding contents introduced before .

As for the connection of high -pressure liquid pipes , there are three types of three -way valve : “High -pressure bifurcated pipe subassembly ” (refer to Fig 4 0) , “High -pressure bifurcation Y-type three -way valve with the capacity of 1 8 - 2 4 HP ” (refer to Fig 4 2) and “High -pressure bifurcation Y-tyep three -way valve with the capacity of 26-4 8 HP ” (refer to Fig 4 4) . The “High -pressure bifurcated pipe subassembly ” is attached to indoor units and no need purchasing .

As for the connection of low -pressure gas pipes , there are four types of three -way valve : “Return air bifurcated pipe subassembly ” (refer to Fig 3 9) , “Total return air bifurcated pipe subassembly ” (refer to Fig 3 8) , “Low -pressure bifurcation Y-type three -way valve with the capacity of 1 8 - 2 4 HP ” (refer to Fig 4 1) and “Low -pressure bifurcation Y-tyep three -way valve with the capacity of 2 6 - 4 8 HP ” (refer to Fig 4 3) . The “Return air bifurcated pipe subassembly ” is attached to indoor units and no need purchasing .

3) Different caliber design for pipes with three -way valves :

In the system of Super DC Inverter Modular, connecting indoor tubing needs to adopt three -way valves . The diameter selection for each tubing is referred to Table 8 (Spec . Of indoor tubing) and as for three -way valves , please refer to the structure and function of each one . When connecting with different calibers , connect the tubing with the corresponding connector of three -way valves and then weld them well .

4) The example for different caliber design is referred to Fig 5 1 : Different caliber design for indoor tubing and Table 9 : Spec . Of some tubing .

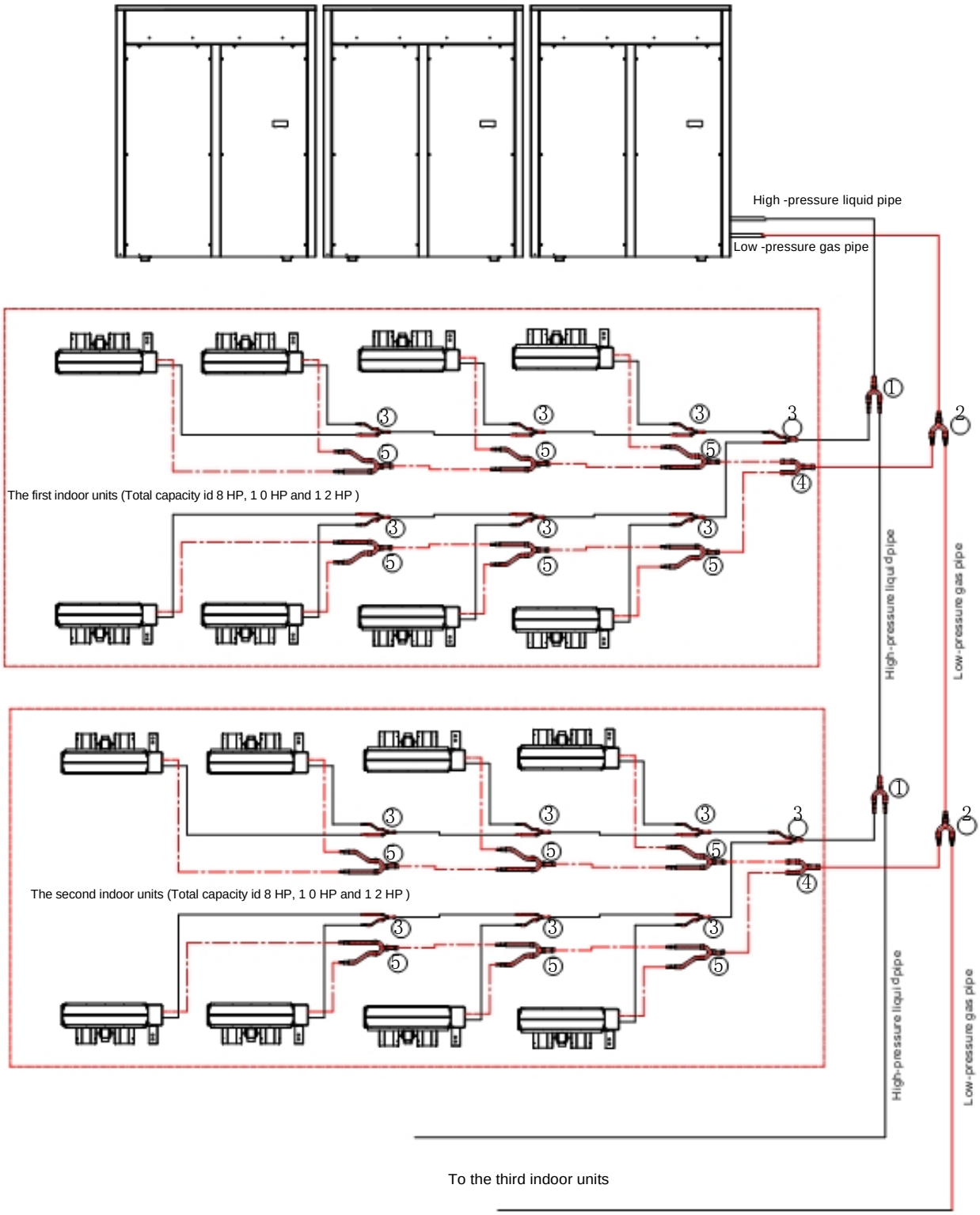


Fig 5 0 : Installation drawing of the indoor tubing

NOTE 1 : ① " 2 6 - 4 8 HP High -pressure manifold "
② " 2 6 - 4 8 HP Low -pressure manifold "
③ " High -pressure manifold "
④ "Total return air manifold "
⑤ "Return air manifold "

NOTE 2 : Keep all three -way valves level , otherwise it will lead the refrigerant coming into indoor units uneven , which will lead the system out of well work .

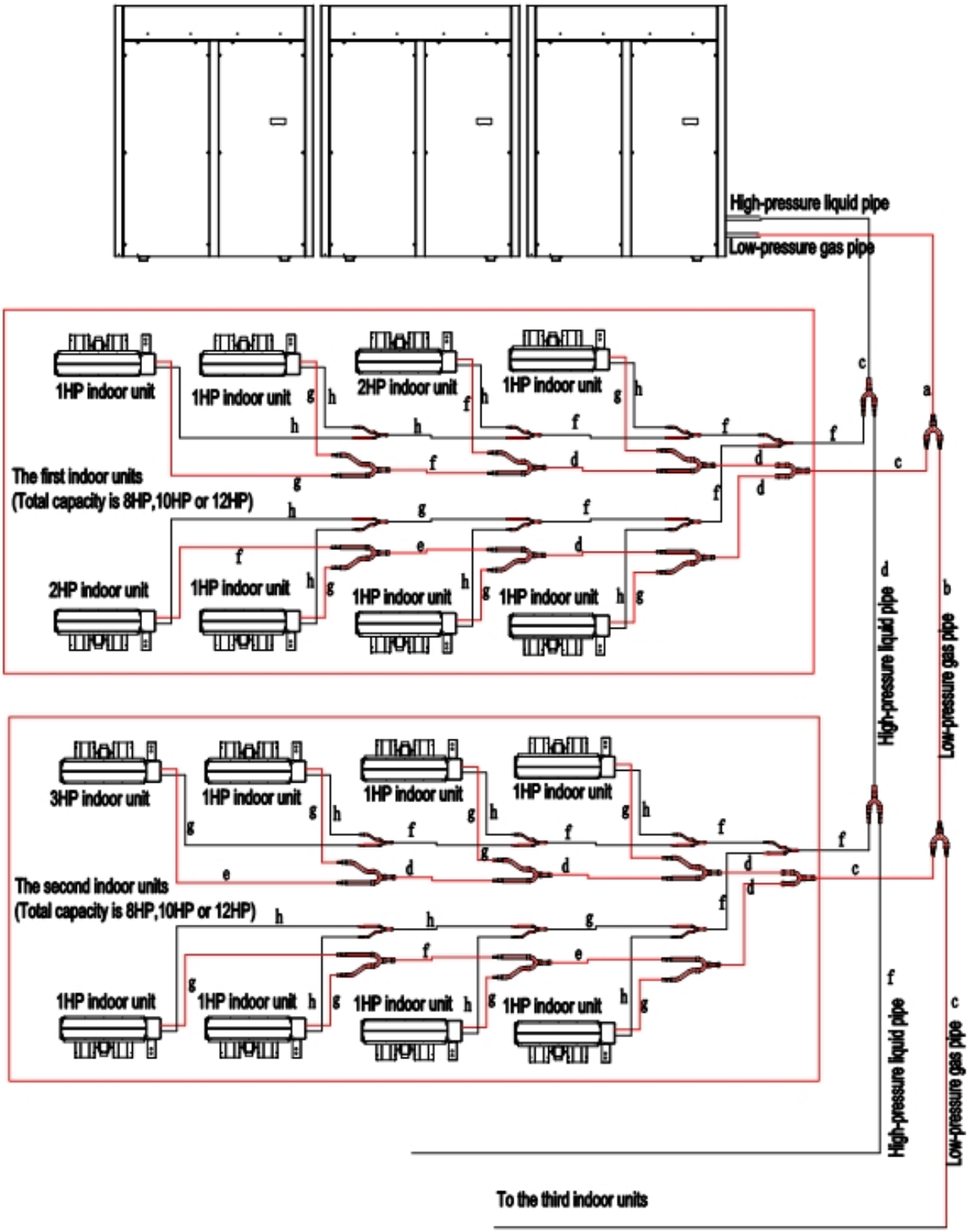


Fig 5 1 : Different calibers design drawing for indoor tubing

Table 9 : Spec . Table of some pipes

Number	a	b	c	d	e	f	g	h
Diameter (mm)	Φ41.3	Φ34.9	Φ22.2	Φ19.1	Φ15.88	Φ12.7	Φ9.52	Φ6.35

6. Height difference allowed and length of refrigerant pipes

A . Requirement of the tubing height and its length , see Table 1 0

Table 1 0 : Height and length of refrigerant pipes

Model \ Item		Max. Tubing length	Max . Tubing height diffe rence	Max . pipe length from main unit to the first manifold	Max . pipe height from main unit to the first manifold	Max . height dif ference among indoor units
Super DC Inverter Modular	Main unit is on top	150	50	140	50	15
	Main unit is below	150	30	140	30	15

B . Distance from indoor units to three -way valve

Table 11 : Distance from indoor units to three -way valve

Item \ Indoor units	< 1 HP	1- 1 . 5 HP	1.5- 2 HP	2- 3 HP	3- 5 HP
Max . pipe length (m)	7	8	8	10	10
Max . height (m)	3	3	5	5	5
Max. Number of elbows (piece)	10	10	10	10	10

7. Protection of tubing , welding pipes , sealing for keeping pressure , heat preservation and disposal A . Protection of refrigerant pipes

1) Transition and Layout of tubing

When transiting the tubing in the construction field , please keep the tubing from being out of shape and take some measures on both ends of the tubing to prevent the dirt or rainwater from entering into . The tubing are placed on the special frames or table -boards and kept in the appointed place . Refer to Fig 5 2 :

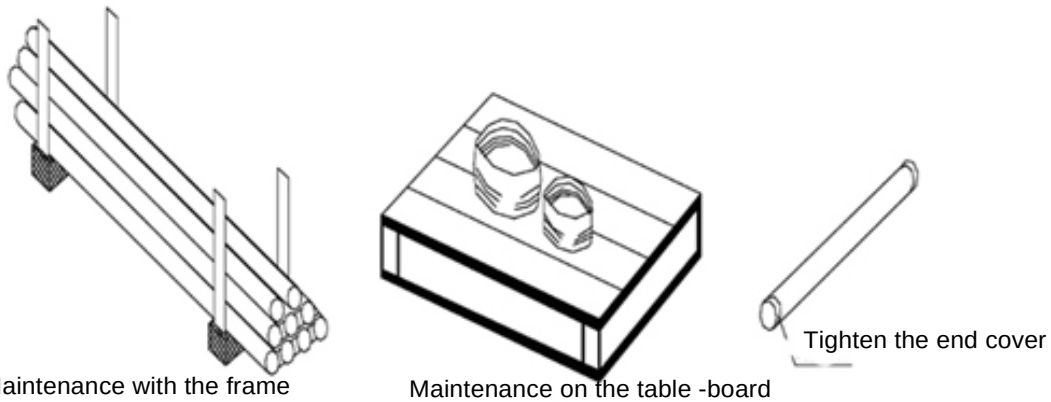


Fig 5 2 : The layout sketch map of the refrigerant tubing

Please wrap the end of each duct with the end cover and " Tightening " is the best effective method , see Fig 5 2 . " Binding up " , however, is the easy replacing method for some field . The applicable fields are referred to Table 1 2 :

Table 1 2 : Wrapping methods of copper pipes

Fields	Working period	Wrapping methods
Outdoor	More than three months	Tightening
	Less than three months	Tightening or binding up
Indoor	No matter how long the working period is	Tightening or binding up

NOTE 1 : As for “Tightening ” method , clamp the end of the copper pipe and then weld it , see Fig 5 3 :

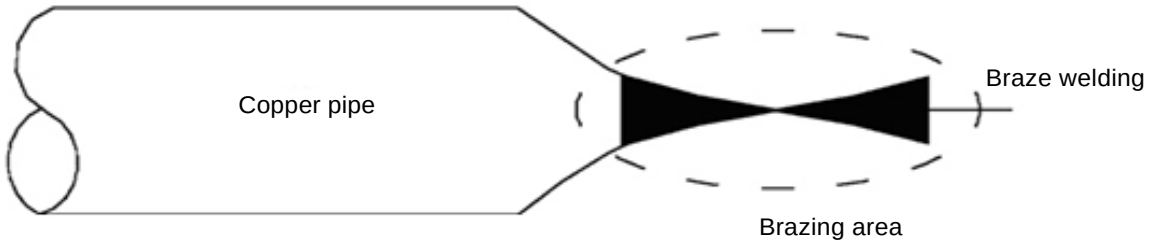


Fig 5 3 : “Tightening ” sketch map of copper pipes

NOTE 2 : As for “Binding up ” method , bind up the copper pipe with PVC band following steps described in Fig 5 4 :

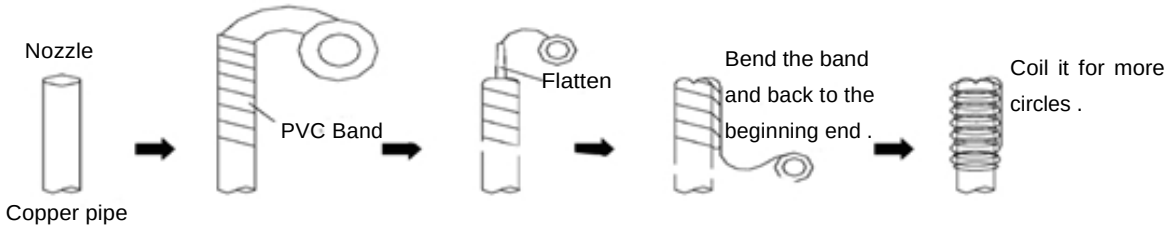


Fig 5 4 : “Binding up ” sketch map of copper pipes

2) Notices for the following operations :

- When the copper pipe gets through the hole , it is easy for dirts to enter into the pipe ;
- If the copper pipe reaches outdoors , the rainwater may enter into the pipe , especially for the upright pipe , please seal the nozzle ;

3) Notices for the protection of refrigerant pipes :

- Keep the tubing from dirts or water ;
- Seal the nozzle with the end cover when connecting the tubing ;
- Keep the nozzle horizontal or downward , see Fig 5 5 :

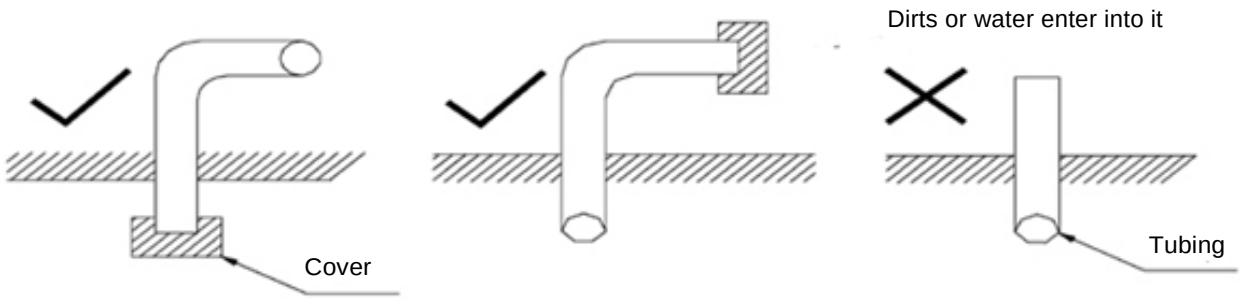


Fig 5 5 : Nozzle protection sketch map of the tubing

- When the copper pipe gets through the wall , please seal the nozzle of the pipe , see Fig 5 6 :

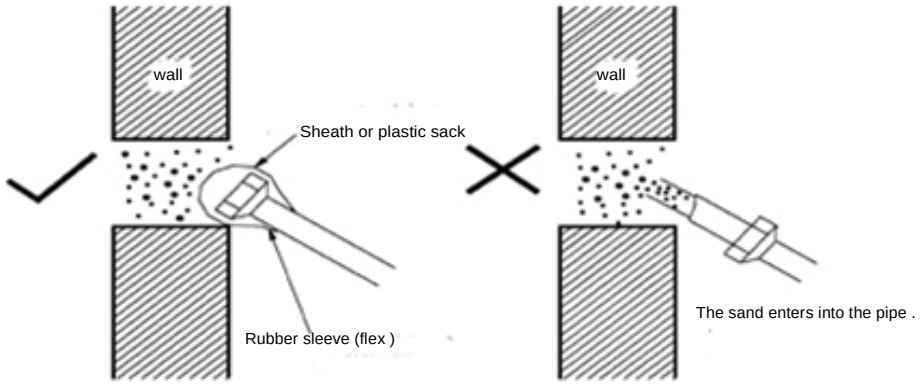


Fig 5 6 : Protection sketch map of the tubing for getting through the wall

- Neither place the tubing on the ground nor make the tubing clashing with the ground , see Fig 5 7 :

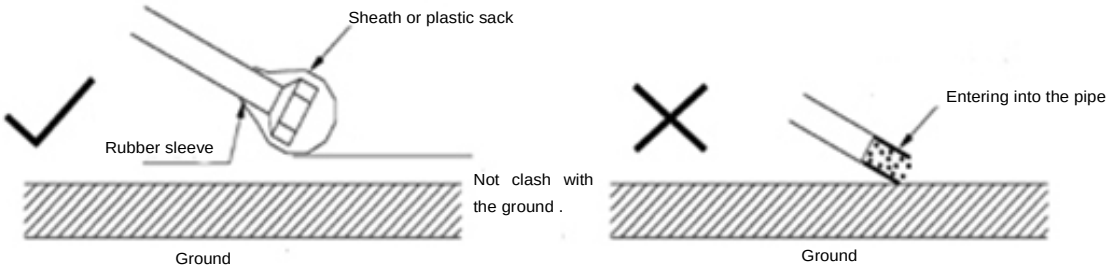


Fig 5 7 :It is not allowed for the tubing to get clashing with the ground directly

- When polishing the cut of the tubing , keep the cut down ;
- In rainy day, seal the nozzle and then carry on other operations , refer to Fig 5 8 :

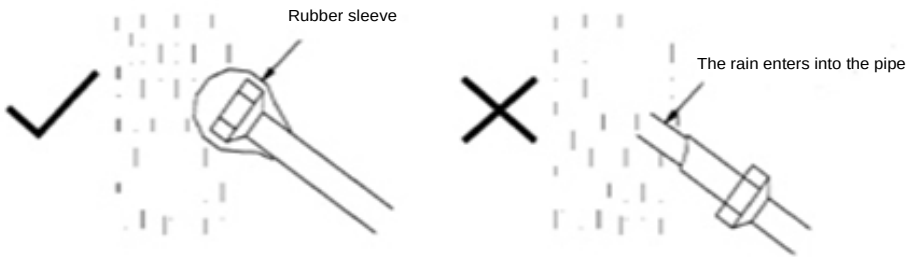


Fig 5 8 : Seal the nozzle before carrying on other operations in rainy day.

B . Welding the pipeline

1) Keep the pipe horizontal or downward when welding , it is better to avoid of reverse welding , refer to Fig 5 9 :

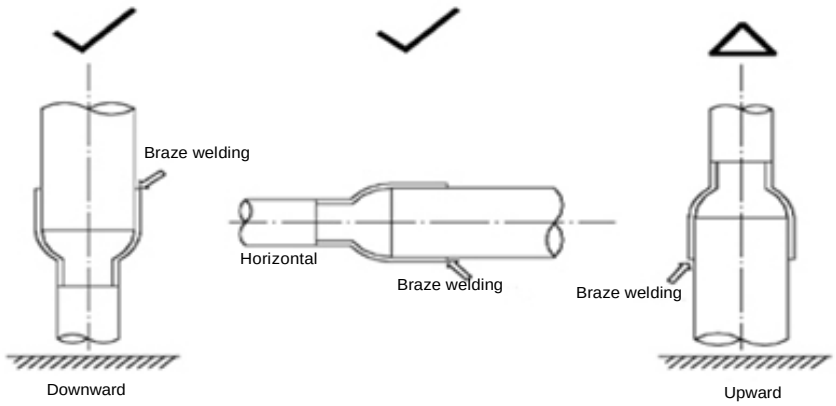


Fig 5 9 : Welding sketch map

2) Pay attention to the assemblage direction and angle of liquid pipes and gas pipes in order to avoid of oil reflux or accumulation ;

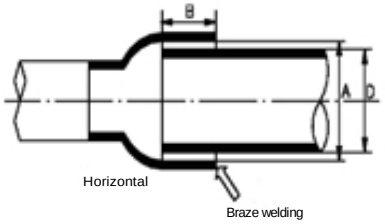
3) it needs to charge Nitrogen gas into the pipe when welding and only when Nitrogen gas has replaced all gas of the pipe can the welding be carried out ;

4) After welding the pipeline , wipe up the inner of the pipe at the welding point with the cloth driven by a rope or the long stick with the cloth fastened in the end , and then flush it with high -pressure nitrogen gas to clear up the oxide skins inside the pipe ;

5) Notices ;

- Preparation for preventing fires : keep off the fire , welding it in the clean area , place the fire extinguisher and water nearby ;
- Be care of scald ;
- Pay attention to the spacing to avoid of leakage . The relationship of the spacing and the minium depth built -in of the tie -in is referred to Table 1 3 :

Table 1 3 : The relationship of the spacing and the minium depth built -in of the tie -in

Type	Outside diameter D	Minium depth built -in B	Spacing A -D
	5 <D < 8	6	0.05- 0 . 2 1
	8 <D < 1 2	7	
	11 <D < 1 6	8	0.05- 0 . 2 7
	16 <D < 2 5	10	
	25 <D < 3 5	12	0.05- 0 . 3 5
	35 <D < 4 5	14	

- Make sure that there are enough tubing supports ; The standard of the spacings among supports for horizontal copper pipes are as Table 1 4 :

Table 1 4 ： Spacing among supports for horizontal copper pipes

Diameter (mm)	Smaller than Φ 2 0	Φ 2 5 - Φ 4 0	Φ 5 0
Max . Spacing (mm)	1.0	1.5	2.9

C . Flared connection

Take care for following points about pipes flared connection :

1) Please anneal the secondary pipe before flaring ;

2) Cut the pipe with the pipe cutter. The big pipe is cut by the big cutter and if the pipe is quite big , please cut it with the metal saw instead of the pipe cutter. When sawing the pipe , please keep the sawdust off the pipe and then clean the cut ;

3) Keep the dimension of flares as the following by adopting the pipe flaring tool ;

Tabl e 15: Dimensi on requi rement of flares

Outside view	Nominal diameter (inch)	Outside diameter (mm)	Dimensi on of flares A (mm)
	3 / 8 ″	9. 53	12.2～1 2 . 8
	1 / 2 ″	12. 7	15.6～1 6 . 2
	5 / 8 ″	15. 9	18.8～1 9 . 4
	3 / 4 ″	19. 0	23.1～2 3 . 7

4) Wipe some air -conditioning oil on the outside and inside surface of the flare to get the flared nut passing easily and void of the distortion of pipes ;

5) Get rid of the burr ;

6) Fix the pipe with two wrenches ;

7) Please fit flared nut on the pipe before flaring ;

8) Screw down the nut with proper torque force ; The torque is 1 0 % more or less than the standard one , referred to Table 1 6 :

Table 1 6 : Torque table of copper nuts

Dimension inch (mm)	Torque	
	(Kgf .cm)	(N .cm)
1 / 4 ″ (Φ6 . 4)	144- 1 7 6	1420- 1 7 2 0
3 / 8 ″ (Φ9 . 5)	333- 4 0 7	3720- 3 9 9 0
1 / 2 ″ (Φ1 2 . 7)	504- 6 1 6	4950- 6 0 3 0
5 / 8 ″ (Φ1 5 . 9)	630- 7 7 0	6180- 7 5 4 0
3 / 4 ″ (Φ1 9 . 0)	990- 1 2 1 0	9270- 11 8 6 0

D . Layout of the refrigerant pipe

The layout requirement of the refrigerant pipe is as follows :

1) Please mark the system sign every interval to void of wrong connection ;

2) Keep the plane of two branches of the manifold horizontal or keep the main pipe of the manifold vertical in order to void of uneven distributing of gas and liquid and affect the effect , see Fig 6 0 :

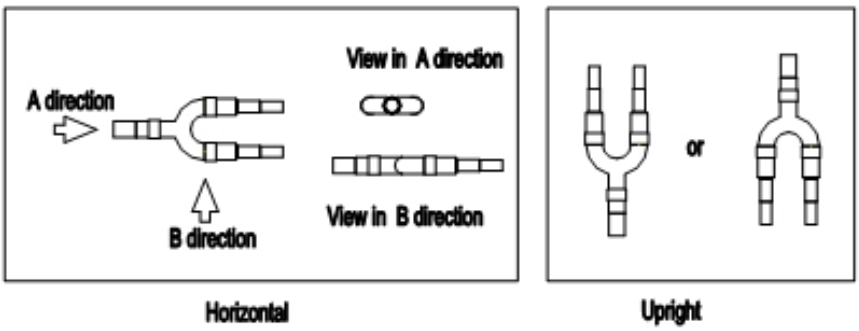


Fig 6 0 : Layout sketch map of manifolds

3) Protection for outdoor refrigerant pipes

As for the outdoor section of the refrigerant pipe , wrap it with the cold insulator as well as protect it from damage by accident , see Fig 6 1 . If the outdoor section of the refrigerant pipe is longer than one meter, cover the section with the splint .

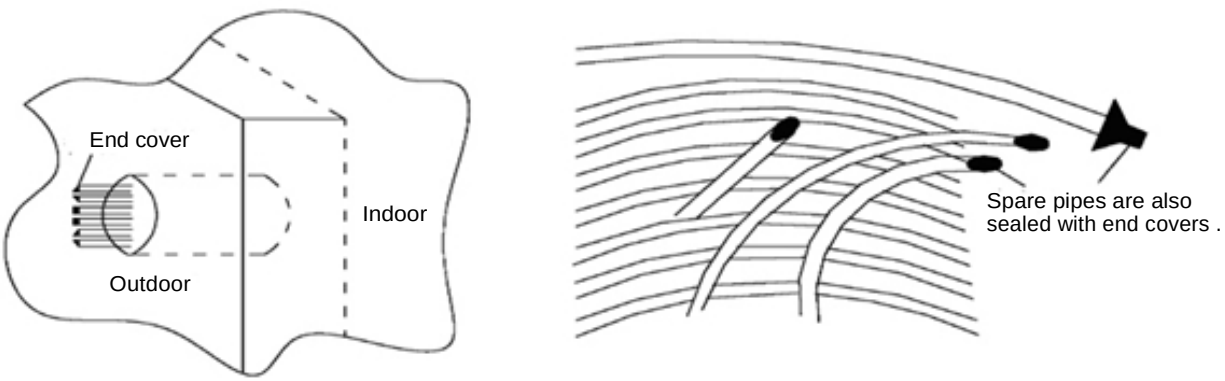


Fig 6 1 : Protection for outdoor refrigerant pipes

4) Layout principle of refrigerant pipes

- Centralized layout , layout along the wall , layout in the aisle as possible ;
- After laying pipes , wrap them with white belts . During wrapping those pipes , wrap each pipe first and then wrap them together to keep no longer flabby ;
- When installing connection pipes and wires (power lines or controlling lines) of indoor units and outdoor units , keep them along the wall , proper bent , horizontal or vertical , in parallel and wrapped together, voiding of traverse or blocking the traffic ;
- When installing connection pipes and wires (power lines or controlling lines) of indoor units and outdoor units , make pipes as short as possible ;
- Wrap all pipes together as possible and not keep the tie -ins exposed ;

5) Notices for laying refrigerant pipes

- Getting through pipes : Mark System Number on the pipe to avoid of wrong connections ; ●

Make sure that there are enough supports for pipes ;

- Installing , at the outlet of vertical pipe sleeve and rooftop pipe sleeve , fasten the tag marking the system name , which will avoid of wrong connections for such many refrigerant pipes ;

E . Flush the refrigerant pipe

After welding refrigerant pipes , flush them with the pressure gas to clear the dust inside the pipe . There are three functions of flushing .

- It can get rid of oxide bubbles in the copper pipe when there is not enough Nitrogen gas ;
- It can get rid of dirts and humidity in the pipe when the seal cover of the pipe is not sealed well ;
- It can check whether pipes connection of outdoor units and indoor units are OK (liquid pipes and gas pipes) .

There are following steps for flushing , the equipment connection is referred to Fig 6 2 :

1) Fit the pressure regulator on the Nitrogen cylinder ; Only Nitrogen gas is adopted (If it adopts Teflon or Carbon Dioxide , the system may condense ; If it adopts Oxygen , the explosion may happen .)

2) Connect the inlet of outdoor liquid pipe on the regulator with the charging pipe ;

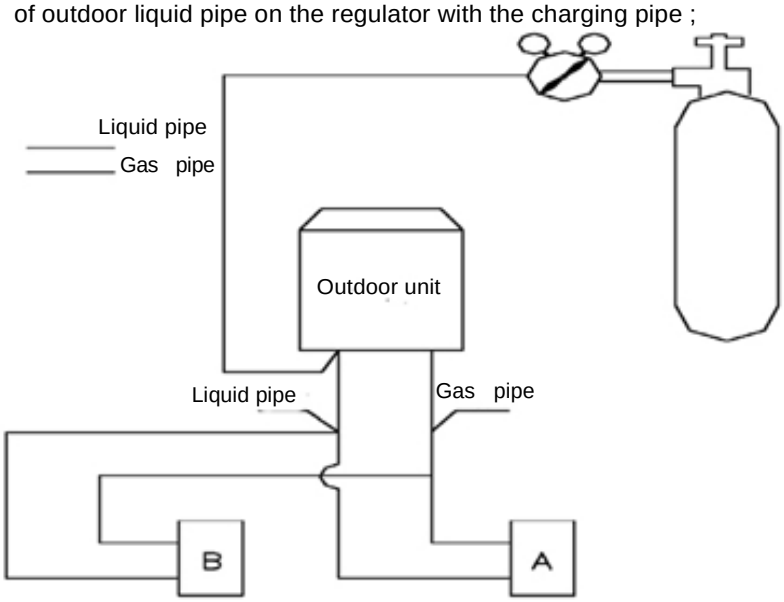


Fig 6 2 : Equipment connection sketch map when flushing refrigerant pipes

3) Stop up all ports of liquid copper pipes of indoor units (except Indoor unit A) with blind plugs ;

4) Turn on Nitrogen cylinder to adjust the reading pressure of the pressure regulator to 5 kgf /cm ^{2};

5) Check whether Nitrogen gas flows through the liquid pipe of Indoor unit A ; (The ports of indoor units have been

sealed with adhesive tapes to prevent dirts from entering)

6) Flush , the steps are :

① Block the mouth of the main gas pipe with insulating material in hand ;

② When the pressure is too high to block the mouth , take it away quickly (for the first flushing) ; And block the mouth again (for the second flushing) , see Fig 6 3 :

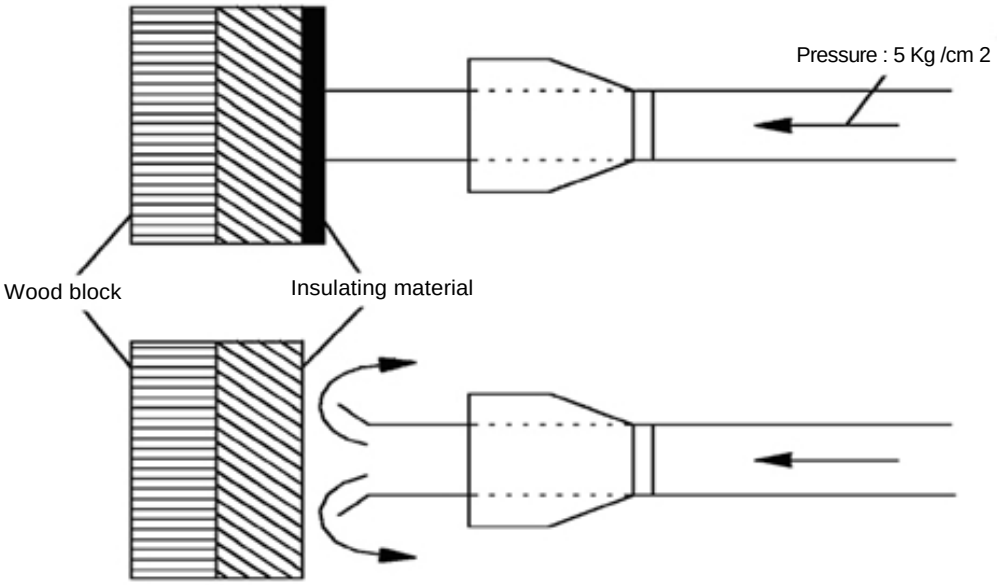


Fig 6 3 : Flushing sketch map for refrigerant pipes

③ In flushing , place a cloth on the port ; If you find the cloth wet , please dry the pipe completely by following steps below :

- Purge the inside of pipes with Nitrogen gas until the cloth no longer becomes wet ;
- Carry on vacuum drying operation , the details are referred to " Vacuum Drying of Refrigerant Pipes ")

7) Turn off the main valve of Nitrogen cylinder ;

8) Carry on the operations above for Indoor units ;

9) After flushing liquid pipes , flush gas pipes with the same method ;

F. Air Tightness Test for Refrigerant Pipes

1) Operation steps

Please do air tightness test by following steps below :

① After connecting indoor tubing , connect the high -pressure tubing with the gauge port and then weld them , refer to Fig 6 4 ;

② Connect the low -pressure tubing with the gauge port and then weld them , refer to Fig 6 4 ;

③ Charge some Nitrogen gas from gauge ports of low -pressure meter and high -pressure pipes and then do the air tightness test ;

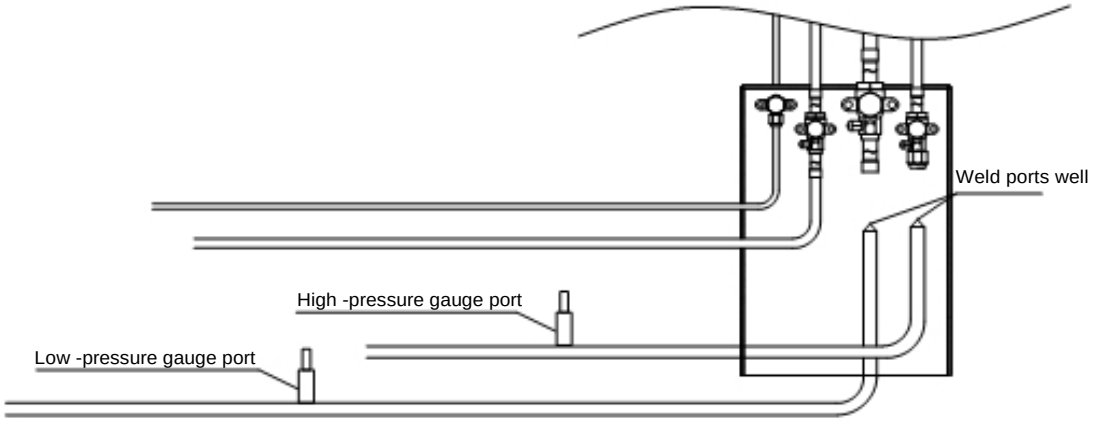


Fig 6 4 : Air tightness test

NOTE :

- Doing the air tightness test needs to charge 6 . 0 MPa (that is 6 0 kgf /cm ²) Nitrogen gas ;
- It is not allowed to charge the nitrogen gas after the low -pressure ball valve and the low -pressure tubing have been welded or the high -pressure valve and the high -pressure liquid pipe have been connected , which avoids the nitrogen gas entering the system through those valves in pressure kept process ;
- It can not adopt Oxygen , inflammable gas or poisonous gas for the air tightness test .

2) Pressure operation

① As to each refrigerant system , it needs to charge the nitrogen gas slowly from the gas pipe and the liquid pipe at the same time ;

② There are several stages for charging the nitrogen gas , the details are referred to Fig 6 5 :

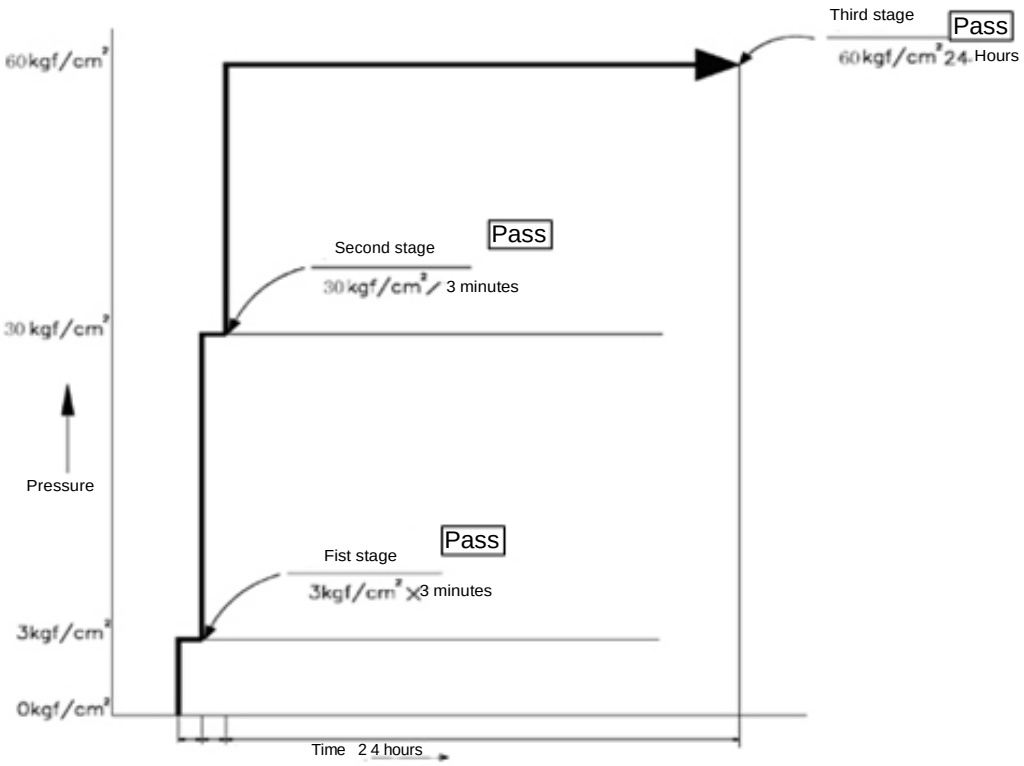


Fig 6 5 : Pressure stage control in the air tightness test

③ On the third stage , keep the pressure for more than 2 4 hours for observation ; ④

Pressure observation :

Table 1 7 : Pressure observation in each pressure stage

NUMBER	STAGE(There are some stages to rise the system pressure)	STANDARD
1	First stage: Charge some nitrogen gas with 3.0 kgf/cm2 for three minutes. If the reading of the manometer changes, it means that there is a big vantage	The pressure isn't reduced.
2	Second stage: Charge some nitrogen gas with 15.0 kgf/cm2 for three minutes. If the reading of the manometer changes, it means that there is a big vantage	
3	Third stage: Charge some nitrogen gas with 28.0 kgf/cm2 for 24 hours. If the reading of the manometer changes, it means that there is a small vantage	

- Main pressure observation ways are referred to the above table ;
- Charge the nitrogen gas so that the pressure is 6 0 . 0 kgf /cm ^{2} and keep the pressure for 2 4 hour, which is regarded certificated ; If the pressure is reduced , adjust it . If the pressure does not change after adjustment , check where the leak is ;
- Adjusting method :

If the difference of the environment temperature is 1℃, the pressure difference is 0 . 1 kgf /cm ^{2} ;

Adjustment formula :

Actual pressure = Pressurizing Pressure + (Pressurizing Temperature - Observing Temperature) X 0 . 1 kgf /cm ^{2}

Compare the pressure adjusted with Pressurizing Pressure to find out the result .

⑤ Leak inspection

In each stage , find out where the leak is when the pressure drops , the methods are : ●

Listening for leak inspection : You can hear a big leaking sound ;

- Touching for leak inspection : You can feel whether there is the leak by putting your hand on the pipe joint ; ●

Leak inspection with subs : You will see some air bubble coming from the leak

- Leak inspection with Halogen Detector : It can adopt Halogen Detector for leak inspection when there is a little leak or you find the pressure reducing but can not find out where the leak is . The inspection methods are :
  - ☆ Discharge some nitrogen gas until the pressure is 3 . 0 kgf /cm^2 ;
  - ☆ Charging more refrigerant until the pressure is 5 . 0 kgf /cm^2 ;
  - ☆ Adopting Halogen Detector, Paraffinic Detector and Electric Detector to inspect the leak ;
  - ☆ Continue to charge more nitrogen gas until the pressure reaches 6 0 . 0 kgf /cm ^{2} and then inspect it .

3) Notices :

① The highest pressure is not higher than 6 0 . 0 kgf /cm ^{2} in the air tightness test ;

② If the pipe is quite long , divide the pipe into several sections and then check one section per once . The pipe is divided into the following sections :

- Indoor section ;
- Indoor and vertical section ;
- Indoor, vertical and outdoor section

G . Vacuum drying for refrigerant pipes

1) The connection sketch map of vacuum drying equipment is as Fig 6 6 :

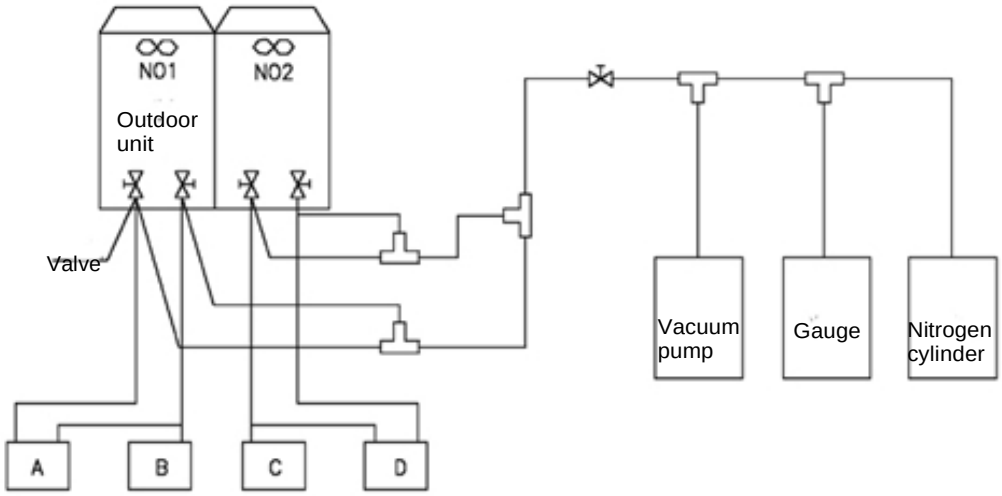


Fig 6 6 ：The connection sketch map of vacuum drying equipment

2) Vacuum drying

Dry the pipe by exhausting the vapor turned from water (liquid) with the vacuum pump . The boiling point of water (steam temperature) is 1 0 0 ℃ under one atmospheric pressure . The pressure will be reduced when the vacuum pump begins to vacuumize the pipe . When the pressure inside the pipe closes to vacuum , the corresponding boiling point will drop to the value that is lower than the outdoor temperature and the water inside the pipe begins to be vaporized .

Table 1 8 : Relationship of Water Boiling Point and Atmospheric Pressure

Water Boiling Point （℃）	Atmospheric Pressure (mmHg)	Degree of Vacuum (mmHg)
40	55	-705
30	36	-724
26. 7	25	-735
24. 4	23	-737
22. 2	20	-740
20. 6	18	-742
17. 8	15	-745
15. 0	13	-747
11. 7	10	-750
7. 2	8	-752
0	5	-755

3) Vacuum pump selection

① Select a vacuum pump which can make the system reaching the vacuum (Degree of vacuum : - 7 5 5 mmHg) ; ② With a large exhaust volume (more than 4 0 L /min) . Besides , check whether the rang of the vacuum gauge is lower than - 7 5 5 mmHg before vacuumizing .

4) Vacuum drying procedures

During vacuum drying , follow the procedures below :

- Vacuum drying (first time) : Connect the pressure gauge to charging ports of the liquid pipe and the gas pipe and then let the vacuum pump running for more than 2 hours ; (The degree of vacuum is lower than -755 mm Hg) ;
- After pumping for 2 hours , if the degree of vacuum is not lower than - 7 5 5 mmHg , it means that there is some water or a leak in the pipe and needs to pump for another hour ;
- After pumping for 3 hours , if the degree of vacuum is not lower than - 7 5 5 mmHg , it needs to check whether there is an air leak ;
- It is in the same time for pumping the liquid pipe and the gas pipe ; (Puming operation may be disrupted for some functional parts allocated in the indoor unit)
- Common vacuum drying sketch map is referred to Fig 6 7 :

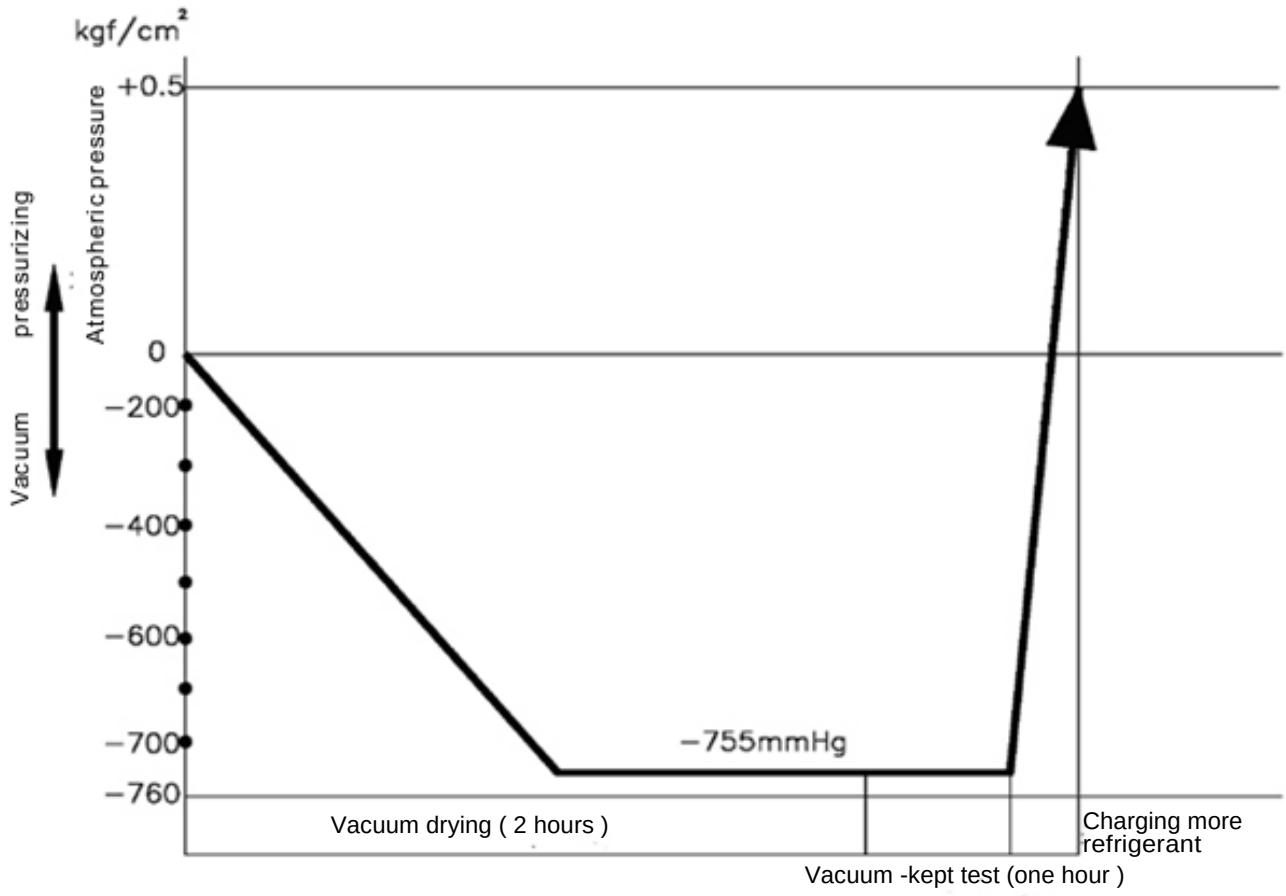


Fig 6 7 : Common Vacuum Drying sketch map

Ellcotriate the pipeline

NOTE :

a . Please combine the wiring system of indoor unit and outdoor unit with the refrigerant tubing system for one system ;

b . Conform to the corresponding state electrical standard ;

1. The summary of Electrical System

Electrical System referred to is just the electric control system of the air conditioner. As for the electrical system of Chigo Super DC Inverter Module Unit , it mainly includes the following systems : Outdoor unit power system , indoor unit power system , communicating system for indoor units and outdoor units , communicating system for outdoor modules , inside electric system and control system of outdoor units , indoor electric control system of indoor units and the user operating system such as the wire controller, central controller and so on . As for the electrical installation , it also includes the installations of those systems above . And now we will make a detailed instruction for the electrical installation :

2. Wiring the power wire

Wiring the power wires includes wiring power wires of outdoor units and wiring power wires of indoor units , please pay attention to those items during wiring power wires :

a . Please adopt the special powers of indoor units and outdoor units ;

b . In the same system , indoor units share with a leakage breaker, each indoor unit doesn't need a special one to avoid of system failure ;

c . In the same system , outdoor units share with a leakage breaker, each outdoor unit doesn't need a special one to avoid of system failure ;

d . The diameters of grounding wires of each module units are no smaller than the diameter of power wires and the cross -section -area of grounding wires of indoor units is no smaller than 1 . 5 mm^2

e . Wiring the power wire is carried out by electricians .

Now we will introduce for the wiring of power wires of outdoor units and indoor units separately :

1) Wiring the power wire of outdoor units

A . Wiring the power wire includes wiring the main power lines and wiring the branch power wires , see the following figure :

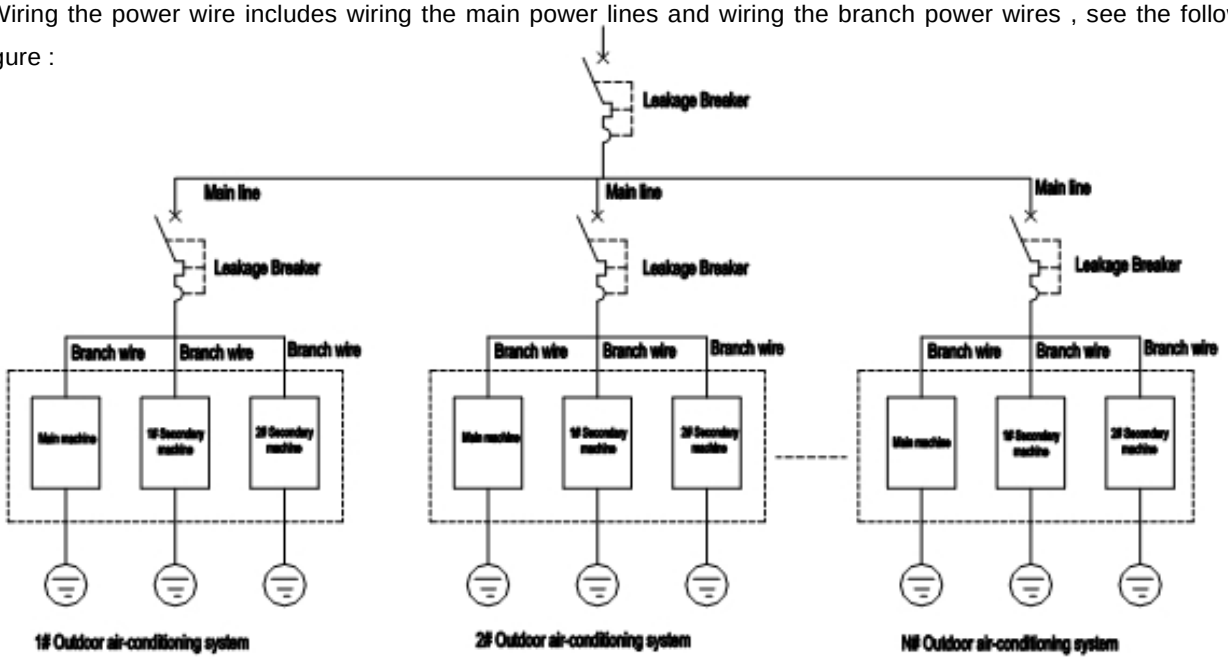


Fig 6 8 : The system drawing of power wires of outdoor units

B . Please select the spec of power main lines according to the relative regulation to avoid of the system failure .

The cross -section -area of main power lines is correlated with total capacity of outdoor units which are collected with branch boxes , the detail can refer to the following table :

Table 1 9 : Cross -section -area of outdoor main power lines

Total capacity of outdoor units(PH)	The cross-section-area of main power line (mm2)		Total capacity of outdoor units(PH)	The cross-section-area of main power line (mm2)	
	Less than 15 meters	Less than 50 meters		Less than 15 meters	Less than 50 meters
8	4	6	30	10	16
10	4	6	32	10	16
12	4	6	34	16	16
14	6	6	36	16	16
16	6	10	38	16	16
18	6	10	40	16	25
20	6	10	42	25	25
22	10	10	44	25	25
24	10	10	46	25	25
26	10	10	48	25	25
28	10	16			

NOTE : If you want to lengthen the tubing wire , please widen its cross -section -area accordingly at the same in order to keep its voltage change within 2 % .

C . As for the unit with 8 HP, 1 0 HP or 1 2 HP, the cross -section -area of the branch power wire is 6 mm ^{2}; As for the unit with 1 4 HP or 1 6 HP, the cross -section -area of the branch power wire is 1 0 mm ^{2}. Power wires of all units with the same phase are collected with the amphenol connector of the special leakage breaker.

NOTE : The cross -section -areaz of power wires in the above table are just for a referrer, please ask the professional to select and install power wires to guarantee the safety of the equipment , property and people . D . The power wiring readjustment and installation design of the outdoor fan

Each outdoor unit of Super DC Inverter Module Unit will collocate one or two outdoor fan , the maximum power output of which is about 11 0 0 W. All fan motors are connected with the terminal connector L 1 of the outdoor power with 2 2 0 Vac (The details can refer to the electric wiring diagram .) . As for the system with more than three sets of outdoor units , if all terminal connector L 1 are connected with the A -phase total power, it will lead the three phases of the total power go wrong (The voltage of A phase are lower than that of other phases) so that the system can not work well . Therefore , it needs to adjust the phase sequence of the total power to keep three phases are in the balance after wiring the power wires . The detailed operations are :

a . Before installing , three fire wires L 1 ,L 2 ,L 3 and the zero wire of the leakage breaker separately adopts red , yellow, blue and black wire ;

b . Separately connect the three fire wires L 1 (red) ,L 2 (yellow) ,L 3 (blue) and the zero wire (black) of the leakage breaker to the corresponding interface L 1 ,L 2 ,L 3 and N of the same outdoor system ;

c . Power on the outdoor unit , if the electric control board does not display E 0 5 Phase Sequence Fault , it means that the wiring above is right ;

d . Calculate how many outdoor units are and then divide them into three air -conditioning groups evenly ;

e . The power terminal blocks L 1 ,L 2 ,L 3 and N of the first air -conditioning group are connected to L 1 (red) ,L 2 (yellow) ,L 3 (blue) and N (black) of the corresponding leakage breaker separately ;

f . The power terminal blocks L 1 ,L 2 ,L 3 and N of the second air -conditioning group are connected to L 1 (red) ,L 2 (yellow) ,L 3 (blue) and N (black) of the corresponding leakage breaker separately ;

g . The power terminal blocks L 1 ,L 2 ,L 3 and N of the third air -conditioning group are connected to L 1 (red) ,L 2 (yellow) ,L 3 (blue) and N (black) of the corresponding leakage breaker separately ;

Adopting the wiring method above can keep the three phases of the power main line in balance , see the figure below :

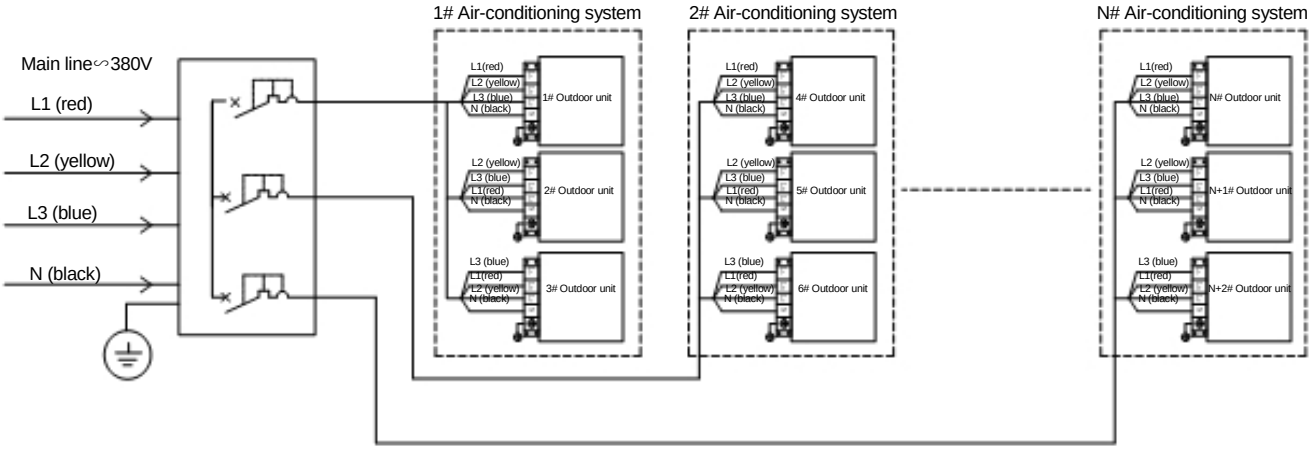


Fig 6 9 :The power wiring readjustment drawing of the outdoor fan

2) Wiring the power wire of indoor units

A . All indoor units in the same module share the power source , which is means that they are powered or cut off at the same . The details can refer to Fig 7 0 ;

B . If there are many indoor units or if the system is collocated with the auxiliary electric heater, once all indoor units are connected with one phase wire , it will lead the three phases of the whole power out of balance so that the system breaks down . In this case , it needs to adopt three -phase power and keep each phase branch wire connecting with the same load indoor units , see Fig 7 1 . What is more , if the auxiliary electric heater is connected with the three -phase power, that is means that the load of the heater are distributed to each phase wire evenly.

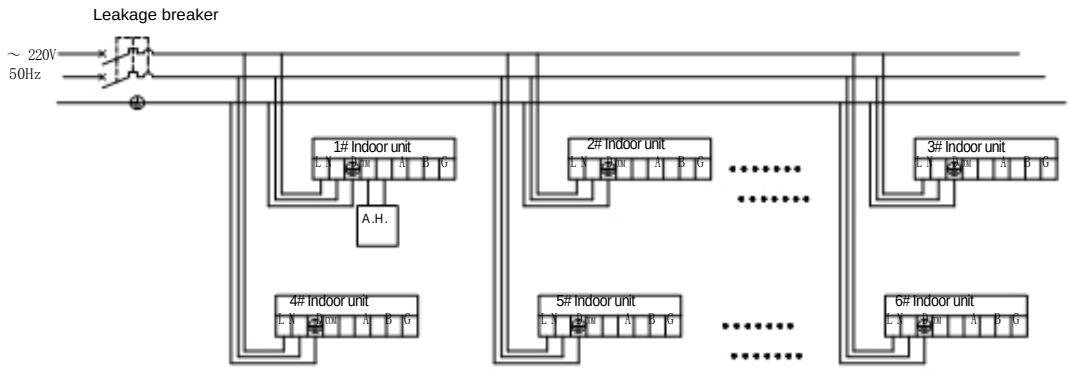


Fig 7 0 :The power wiring sketch drawing of indoor units

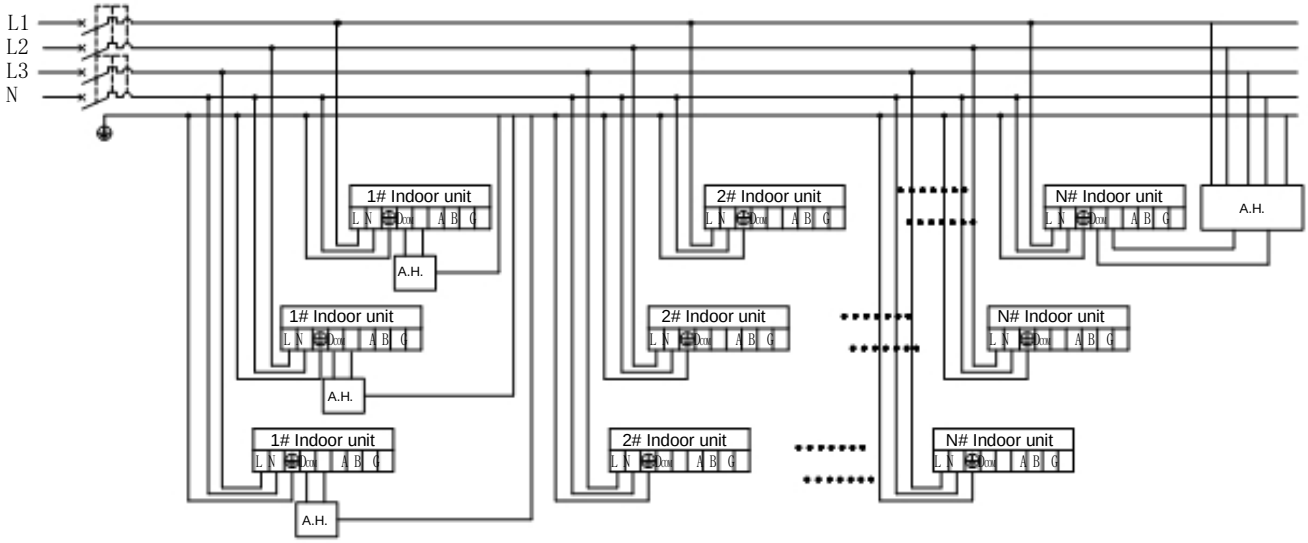


Fig 7 1 :The power wiring sketch drawing of indoor units

C . The spec of power wires of indoor units are decided by the capacity of indoor units , the details can refer to the following table :

Table 1 2 : The spec of power wires of indoor units

Items / Model	Power	Without auxiliary electric heater	With auxiliary electric heater (single-phase)		With auxiliary electric heater (three-phase)		
			Less than 15m	More than 15m	Indoor power	Power with auxiliary electric heater	
						Less than 15 m	More than 15 m
1.8kW	~220V	1.5mm² X3	2.5mm² X3	4.0mm² X 3	/	/	/
2.2kW	~220V	1.5mm² X3	2.5mm² X3	4.0mm² X 3	/	/	/
2.5kW	~220V	1.5mm² X3	2.5mm² X3	4.0mm² X	/	/	/
2.5kW	~220V	1.5mm² X3	2.5mm² X3	4.0mm² X 3	/	/	/
2.8kW	~220V	1.5mm² X3	2.5mm² X3	4.0mm² X 3	/	/	/
3.2kW	~220V	1.5mm² X3	2.5mm² X3	4.0mm² X 3	/	/	/
3.5kW	~220V	1.5mm² X3	2.5mm² X3	4.0mm² X 3	/	/	/
3.6kW	~220V	1.5mm² X3	2.5mm² X3	4.0mm² X 3	/	/	/
4.6kW	~220V	1.5mm² X3	2.5mm² X3	4.0mm² X 3	/	/	/
5.1kW	~220V	1.5mm² X3	2.5mm² X3	4.0mm² X 3	/	/	/
6.1kW	~220V	1.5mm² X3	2.5mm² X3	4.0mm² X 3	/	/	/
7kW	~220V	1.5mm² X3	/	/	1.5mm² X 3	2.5mm² X 5	4.0mm² X 5
8.8kW	~220V	1.5mm² X3	/	/	1.5mm² X 3	2.5mm² X 5	4.0mm² X 5
9kW	~220V	1.5mm² X3	/	/	1.5mm² X 3	2.5mm² X 5	4.0mm² X 5
11kW	~220V	1.5mm² X3	/	/	1.5mm² X 3	2.5mm² X 5	4.0mm² X 5
11.2kW	~220V	1.5mm² X3	/	/	1.5mm² X 3	2.5mm² X 5	4.0mm² X 5
12kW	~220V	1.5mm² X3	/	/	1.5mm² X 3	2.5mm² X 5	4.0mm² X 5
14kW	~220V	1.5mm² X3	/	/	1.5mm² X 3	2.5mm² X 5	4.0mm² X 5
15kW	~220V	1.5mm² X3	/	/	1.5mm² X 3	2.5mm² X 5	4.0mm² X 5
17kW	~220V	1.5mm² X3	/	/	1.5mm² X 3	2.5mm² X 5	4.0mm² X 5
20kW	~380V	1.5mm² X5	2.5mm² X5	4.0mm² X 5	The auxiliary electric heater is powered by the unit, 6KW (temporary setting)		
22.4kW	~380V	1.5mm² X5	2.5mm² X5	4.0mm² X 5			
25kW	~380V	1.5mm² X5	2.5mm² X5	4.0mm² X 5			
5.1kW	~220V	1.5mm² X3	/	/	/	/	/
7kW	~220V	1.5mm² X3	/	/	/	/	/
8.8kW	~220V	1.5mm² X3	/	/	/	/	/
12kW	~220V	1.5mm² X3	/	/	/	/	/
2.5kW	~220V	1.5mm² X3	2.5mm² X3	4.0mm² X 3	/	/	/
3.5kW	~220V	1.5mm² X3	2.5mm² X3	4.0mm² X 3	/	/	/
5kW	~220V	1.5mm² X3	2.5mm² X3	4.0mm² X 3	/	/	/
7kW	~220V	1.5mm² X3	2.5mm² X3	4.0mm² X 3	/	/	/
7.5kW	~220V	1.5mm² X3	2.5mm² X3	4.0mm² X 3	/	/	/
8.8kW		1.5mm² X3	2.5mm² X5	4.0mm² X 5	With the auxiliary electric heater, the unit power is ~ 380V with three -phase; Without the heater, the unit power is ~ 220V with single -phase.		
12kW		1.5mm² X3	2.5mm² X5	4.0mm² X 5			

NOTE : If you want to lengthen the tubing wire , please widen its cross -section -area accordingly at the same in order to keep its voltage change within 2 % .

3. The wiring of communication wires

NOTE : In order to reduce the interruption , the communication wires adopt the interwoven type shield wires with two cores instead of other wires to keep the system run well .

1) The wiring of indoor communication wires

A . All communication wires of indoor units and outdoor units are connected with the outdoor main machine .

Besides , they adopt the interwoven type shield wires with two cores , which is polarity and the cross -section -area is no less than 1 . 0 mm^2. Please connect those communication wires , the details refer to Fig 7 2 :

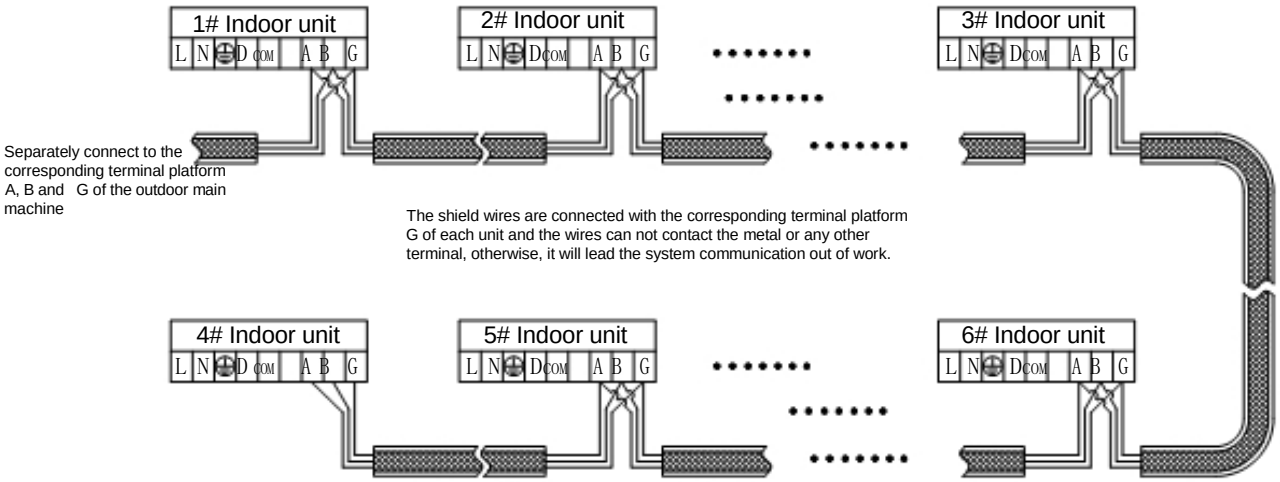


Fig 7 2 : The communication wires wiring drawing of indoor units and outdoor units

B . Adopting 4 8 5 Polarity communication , the farthest distance of the communication between indoor units and outdoor units is 1 0 0 0 m and the maximum amount of communicating indoor units is 5 0 ;

2) The wiring of outdoor communication wires

A . Adopting 4 8 5 Polarity communication , communication wires of indoor units and outdoor units adopt the interwoven type shield wires with two cores and its the cross -section -area is no less than 1 . 0 mm^2. Please connect those communication wires , the details refer to Fig 7 3 :

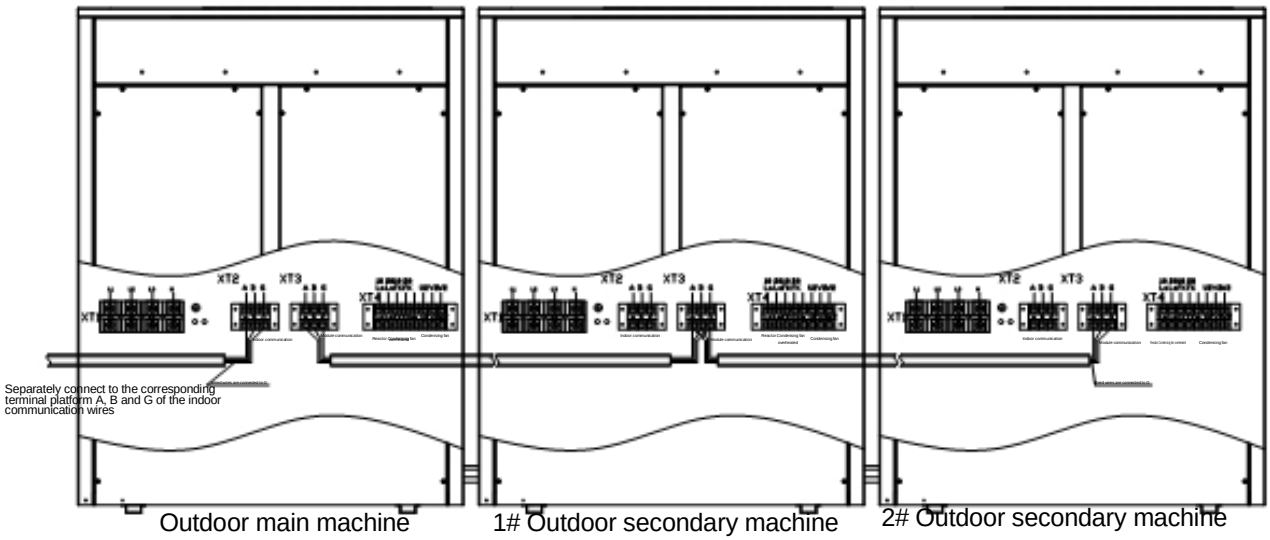
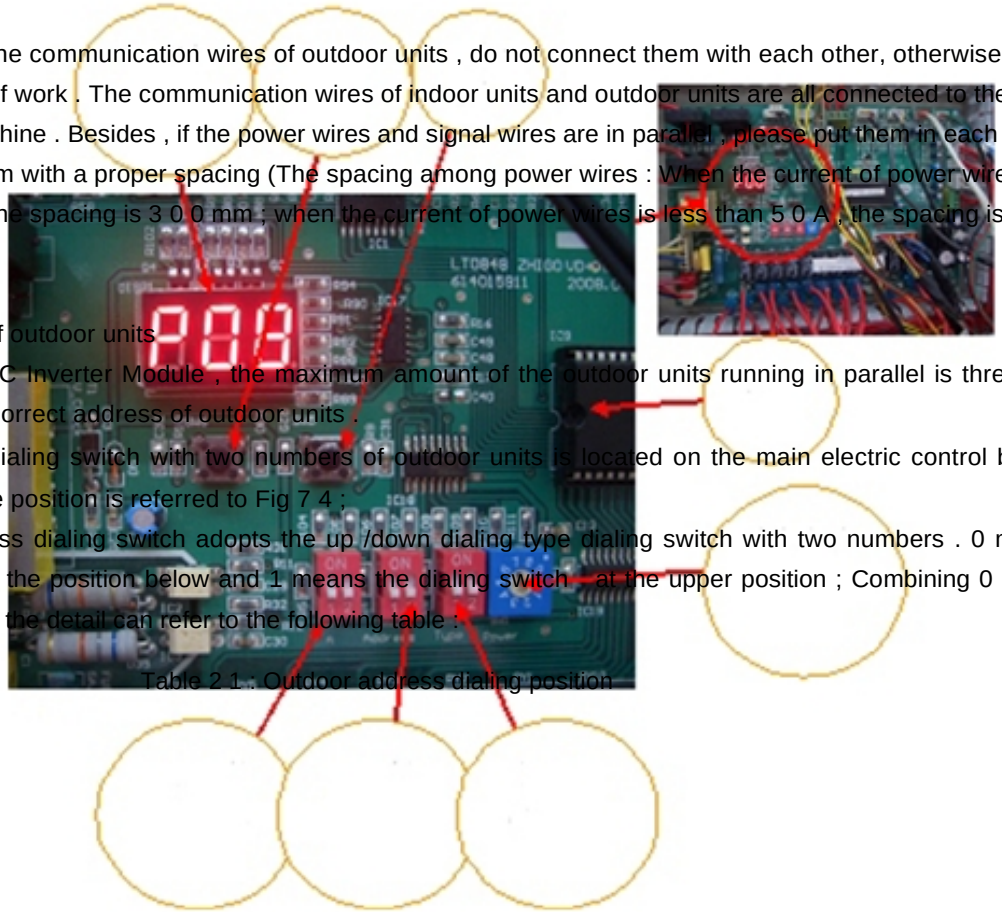


Fig 7 3 : The communication wires wiring drawing of indoor units and outdoor units

NOTE :

When wiring the communication wires of outdoor units , do not connect them with each other, otherwise it will lead the unit out of work . The communication wires of indoor units and outdoor units are all connected to the outdoor main machine . Besides , if the power wires and signal wires are in parallel , please put them in each cable box and keep them with a proper spacing (The spacing among power wires : When the current of power wires is less than 1 0 A , the spacing is 3 0 0 mm ; when the current of power wires is less than 5 0 A , the spacing is 5 0 0 mm)



4. Address setting of outdoor units

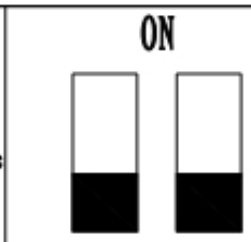
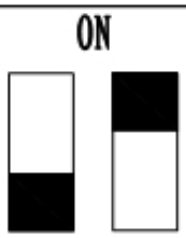
As for Super DC Inverter Module , the maximum amount of the outdoor units running in parallel is three and it needs to set the correct address of outdoor units .

The address dialing switch with two numbers of outdoor units is located on the main electric control board of outdoor units , the position is referred to Fig 7 4 ;

Outdoor address dialing switch adopts the up /down dialing type dialing switch with two numbers . 0 means the dialing switch at the position below and 1 means the dialing switch at the upper position ; Combining 0 and 1 can make four states , the detail can refer to the following table :

Table 2 1 : Outdoor address dialing position

NOTE : In one system , there is only a main machine with 0 0 address code and all communication lines connecting indoor units and outdoor units are connected to the main machine . Otherwise , the system will go wrong .

Dialing position diagramatic sketch				
Number	00	01	10	11
Meaning	One outdoor unit	Two outdoor units in parallel	Three outdoor units in parallel	Wrong dialing codes(it is not allowed.)
Instruction	Setting method of outdoor module amount dialing codes: 00 , 01 and 02 mean that the amount of outdoor modules is separately one, two and three; The dialing code of main machine is the same as the dialing code of secondary machines; 11 stands for wrong dialing way and the default value before delivery is 00.			

5. Instruction for setting module amount dialing switch of outdoor units

As for Super Direct Current Converting Module Unit , several outdoor units can run at the same time in parallel . However, the amount of those machines running in parallel should be set before running , otherwise , the system will break down . The electronic controller of each outdoor unit has an outdoor module amount switch (the position can refer to the following drawing) , which adopts the up /down dialing type dialing switch with two numbers . 0 means the dialing switch at the position below and 1 means the dialing switch at the upper position ; Combining 0 and 1 can make four states , the detail can refer to the following table :

NOTE :

a . Please set module amount for each outdoor unit in the system . Otherwise , the system will go wrong .

b . The amount set of modules is just the amount of actual modules . Otherwise , the system will go wrong .

c . Please dial correct codes of outdoor module amount and outdoor address . Otherwise , the system will go wrong .

6. The connection of RS 4 8 5 Terminal Resistance :

The terminal resistance is used for getting rid of the signal reflection which will happen when the impedance is not continuous or not matched during communicating .

At the end of the cable , install a terminal resistance with the same characteristic impedance as the cable to keep the impedance continuous . Since the signal is intercommunicated , it needs to install another terminal resistance with the same spec at the other end of the cable , that is , install one matched resistance at each end of the communication network .

As for Super DC Inverter Module Unit of our company, there are two communication networks : a . The communication between all indoor units and outdoor main machines ;

b . The communication among outdoor units ;

During the project installation , it is hard to identify which is the origination or the terminal so that we join a 100 Ω parallel resistance on the outdoor main board with the communication interface of the indoor unit and no need to install a matched resistance for the communication network between indoor units and outdoor main machines .

In the communication network among outdoor units , the communication interface of each outdoor main board locates a 1 0 0 Ω terminal resistance , which is controlled by a short - film J 5 located below the interface , refer to Fig 7 5 . After installing the system , the main machine is connected with J 5 (it is set before delivery) and the secondary machines are disconnected with J 5 .

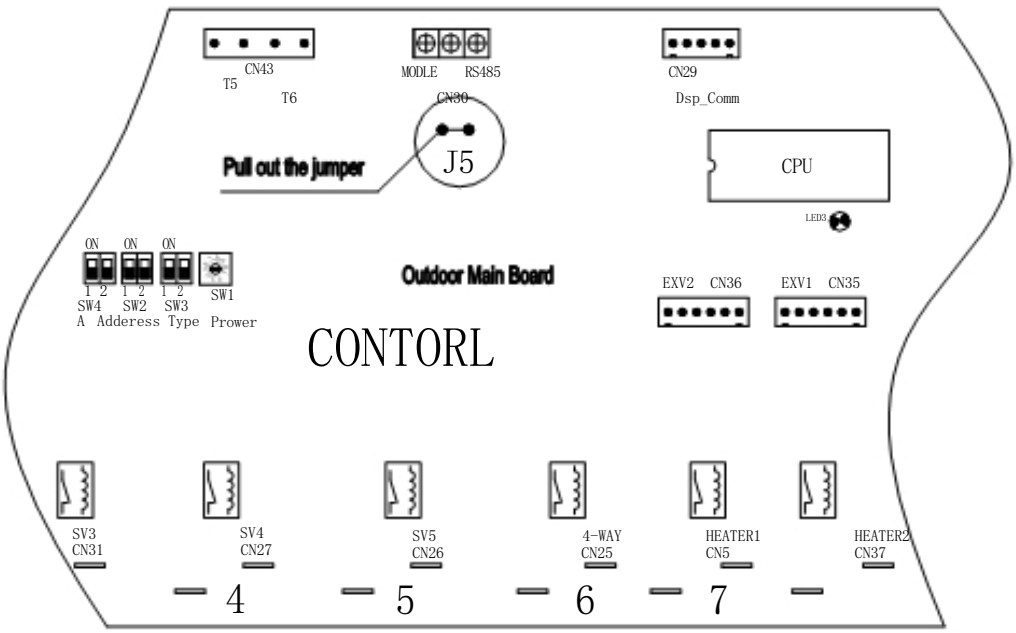


Fig 7 5 : J 5 jumper position sketch map

NOTE : It is no need to pull out J 5 jumper of the main machine . As for J 5 jumper of secondary machines , pull out them and then insert them into one jumper for next using .

7. Important notices for the electric wiring

A . Please set module amount for each outdoor unit in the system . Otherwise , the system will go wrong .

B . The amount set of modules is just the amount of actual modules . Otherwise , the system will go wrong .

C . Please dial correct codes of outdoor module amount and outdoor address . Otherwise , the system will go wrong .

D . Locate a proper terminal resistance for the communication network of outdoor units to avoid of communication fault .

Charging more refrigerant

Since Super DC Inverter Module Unit is applicable for many occasions and there are many different tubing , the outdoor unit has been charged some refrigerant before leaving factory. As to actual installation , however, it needs to charge more refrigerant for the system as long as the liquid pipe is longer than 0 meter.

1. Calculation method for charging more refrigerant

As for Super DC Inverter Modular, the amount of the refrigerant charged is decided by the spec . And length of the liquid tubing , the calculation formula for charging more refrigerant is :

$G = L1 \times g1 + L2 \times g2 + L3 \times g3 + L4 \times g4 + \ldots + Ln \times gn$

G : The amount of the refrigerant charged ;

L 1 : Total length of Φ6 . 3 5 liquid pipes among indoor units and outdoor units after installation ;

L 2 : Total length of Φ9 . 5 2 liquid pipes among indoor units and outdoor units after installation ;

L 3 : Total length of Φ1 2 . 7 liquid pipes among indoor units and outdoor units after installation ;

L 4 : Total length of Φ1 5 . 8 8 liquid pipes among indoor units and outdoor units after installation ;

g 1 : The amount of the refrigerant charged per meter for Φ6 . 3 5 liquid pipes (refer to Standard of Refrigerant Charged) ;

g 2 : The amount of the refrigerant charged per meter for Φ9 . 5 2 liquid pipes (refer to Standard of Refrigerant Charged) ;

g 3 : The amount of the refrigerant charged per meter for Φ1 2 . 7 liquid pipes (refer to Standard of Refrigerant Charged) ;

g 4 : The amount of the refrigerant charged per meter for Φ1 5 . 8 8 liquid pipes (refer to Standard of Refrigerant Charged) ;

Table 2 3 : Standard of Refrigerant Charged

Diameter of liquid pipes（㎜）	Adding amount per meter（kg ）
Φ6.35	0.022
Φ9.52	0.060
Φ12.7	0.110
Φ15.88	0.170
Φ19.1	0.250
Φ22	0.350
Φ25	0.520

NOTE : When calculating the refrigerant charged for liquid pipes , it does not include the bifurcated section .

For example : As to the system in Fig 7 6 ,the accurate refrigerant charged is 2 6 . 4 5 Kg . (Refer to Table 2 4 : Refrigerant calculation table)

Table 2 4 : Refrigerant calculation table

Refrigerant calculation table			
Tubing diameter	Adding amount per meter	Length	Adding amount for each pipe (=Adding amount per meter * Length)
Φ6.35	0.022	0	0
Φ9.52	0.06	40	2.4
Φ12.7	0.11	10	1.1
Φ15.88	0.17	10	1.7
Φ19.1	0.25	15	3.75
Φ22	0.35	50	17.5
Φ25	0.52	0	0
Total amount of refrigerant charged			26.45

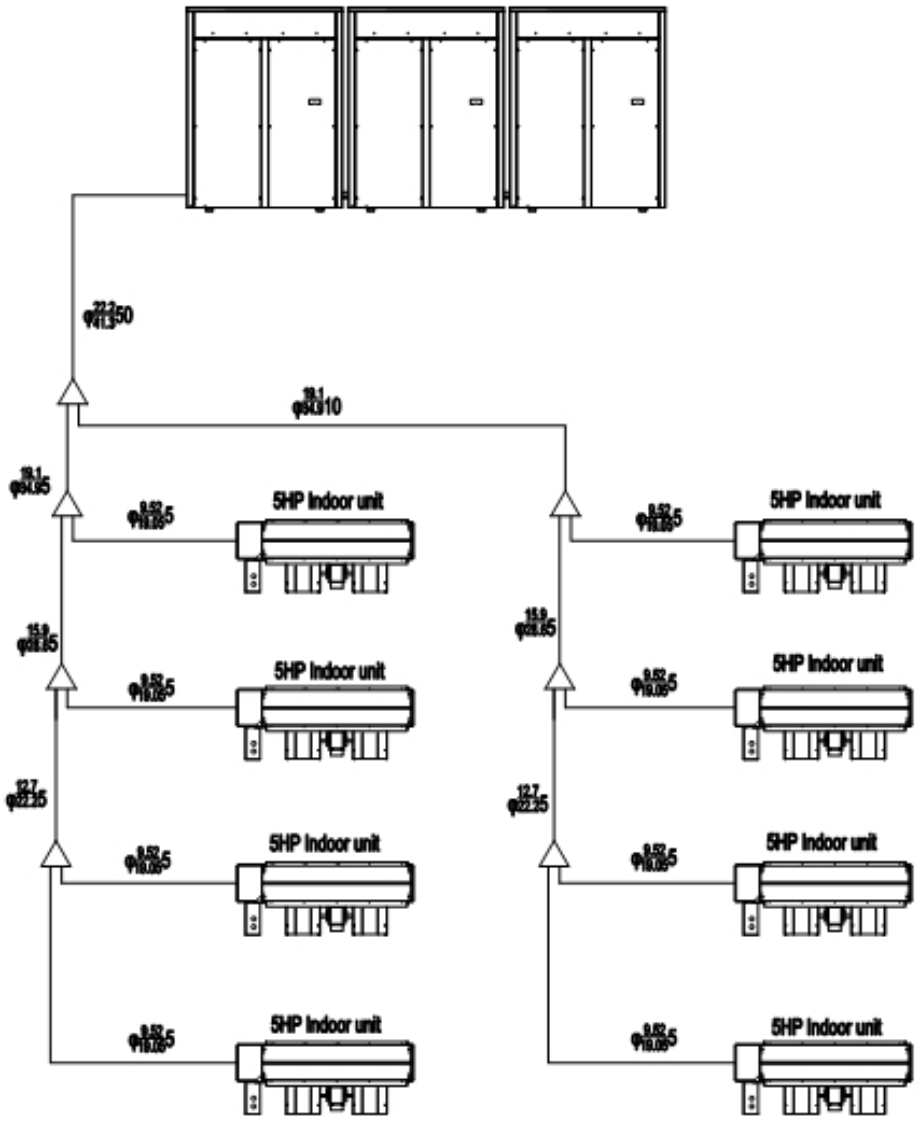


Fig 7 6 : Refrigerant Calculation sketch map

2. Refrigerant charging

Take care of following points for charging refrigerant ”

A . The refrigerant is charged with the high precision electronic scale , you can not charge the refrigerant at will . Otherwise it may lead the system breaking down .

B . When the refrigerant is charged with the refrigerant cylinder, empty the charging pipe at first , then keep the refrigerant cylinder converted when charging the refrigerant .Otherwise it may lead the system breaking down .

C . The refrigerant is not allowed to be charged with another refrigerant . Otherwise it may lead the system breaking down .

D . The data is registered in “Using Acknowledge Table of Outdoor Unit about the amount of the refrigerant charged , tubing length (actual value) and height difference of indoor unit and outdoor unit .

System debugging

After installing , it needs commissioning and debugging the system to make sure that the system runs well .

1. Check instruction of outdoor units

Read in the relative parameter from outdoor units when them are commissioning . Now we introduce the read read method about running parameters of outdoor units :

On the main electric board of outdoor units for Super DC Inverter Modular, there are the three -digit digital display tube and check button (refer to Appendix 1 : Import parts position sketch map of outdoor units) to display the system parameters . When debugging the system , press the check button with your hand and the digital tube will indicate the corresponding information in turn at once .

Information description indicated by Three -digit digital tube is as follows :

- In standby state , Three -digit digital tube indicates the amount of indoor units connected and communicating at present .
- When compressors are running , the digital tube indicates the frequency of those compressors ;
- In defrosting mode , the digital tube indicates “ dF ” ;
- In oil return mode , the digital tube indicates “ dO ” ;
- In checkup mode , the digital tube indicates the corresponding information circularly in the following order ;

Table 2 5 : Checkup order of outdoor units

	Content display	NOTE
Normal display		(Note 1)
1	Outdoor unit Address	0, 1, 2, 3
2	Outdoor unit capacity	8, 10, 12, 14, 16
3	Amount of Outdoor units	The main machine can meet with the requirement of indoor units
4	Total capacity of outdoor units	Capacity requirement
5	Total required capacity of outdoor units	Total capacity of the main machine can meet with the requirement of indoor units (total capacity requirement sent by indoor units)
6	Total capacity requirement after the main machine is rectified.	Total capacity of the main machine can meet with the requirement of indoor units (After T4 is rectified.)
7	Operating mode	0,1,2,3,4 (Note 2)
8	Temporal output of the outdoor unit	Actual capacity output of t modules
9	Fan condition	(Note 3)
10	Average temperature of the indoor pipe	Actual value(Note 4)
11	Pipe temperature of the condenser outside	Actual value
12	Outdoor environment temperature	Actual value
13	Frequency conversion exhaust temperature	Actual value
14	#1 Constant frequency exhaust temperature	Actual value
15	#2 Constant frequency exhaust temperature	Actual value
16	Frequency conversion current	Actual value
17	#1 Constant frequency current	Actual value
18	#2 Constant frequency current	Actual value
19	Opening of Electronic expansion valve A	Actual value
20	Opening of Electronic expansion valve B	Actual value
21	Amount of indoor units	Actual value(Note 5)
22	System exhaust pressure	Actual value(MPa)
23	System suction pressure	Actual value (MPa)
24	Last fault or protection code	00: No protection display or fault display
25	Present operating frequency	
26	—	The inspection is over

Remarks :

Note 1 : It displays the amount of indoor units during idle state , the present frequency of the compressor when the compressor is running , the protection code or fault code if the system runs in protection mode or runs with faults (If there are several protection or fault codes , it displays circularly) . Besides , if the module unit is running , it displays the present frequency of the frequency converting compressor .

Note 2 : Row 7 : Running modes (Off : 0 , Ventilating : 1 , Cooling /dehumidifying : 2 , Heating : 3 , Forced cooling : 4

Note 3 : Row 9 : Running state (OFF : 0 ; Seven numbers from 1 to 7 stands for seven grade speeds from low to high) Note 4 : Row 1 0 : It displays TB 2 during cooling operation (Outlet average temperature of indoor evaporator) and in heating , it displays T 2 (Midpoint average temperature of indoor evaporator) ;

Note 5 : Row 2 1 : Amount of indoor units (The value should meet with the requirement keeping indoor units communicating normally with outdoor units)

2. System commissioning

There are two operating modes (cooling and heating) for commissioning DC Inverter Module Unit and it needs to select some typical combinations to be tested , the details are :

1) Start up all terminal equipment at the same time ;

2) Let the farthest terminal equipment commissioning ;

3) Let the terminal equipment with the minimal capacity commissioning ;

4) During the commissioning process , select 2 - 3 types of combinations for commissioning at will ;

NOTE : The operating time for each test is no less than two hours and make the debugging records ;

As for tests above , if all targets meet the requirement of HVAC Regulation (GB 0 2 4 3 - 9 7) , it means that the commission is passed and you can carry on the acceptance procedure ;

Installation of the dome

1. There are two functions to install the dome :

a . When the supply air or return air of outdoor units is clogged , the dome can guide the supple air to get a good effect of the air flowing and the heat exchanging ;

b . When the supply air of outdoor units disturbs others , for example , the blast inlet is located under the others ' window or the noise of supply air is too large to affect others ' rest , it needs to install a dome for changing the wind direction to eliminate the effect .

2. Installation principle of the dome :

1) As for the installation direction , please refer to Fig 7 7 ;

2) The dome is made on the site , please pay attention to the following points when making :

a . The dome should be strong enough so that it won 't be out of shape or make abnormal noise when the outdoor unit supplies air ;

b . Fix the dome firmly on the outdoor unit so that it won 't be removed by the supply air of the outdoor unit or other strong wind ;

c . It is better to lay a damping cotton on the interface among the dome and the outdoor unit to prevent the dome from colliding with the outdoor unit and making abnormal noise when the unit runs ;

d . Keep the inner of the dome smooth and the resistance against the supply air does not exceed 2 0 Pa , otherwise it will get a bad effect of heat exchange efficiency and even lead the system out of work .

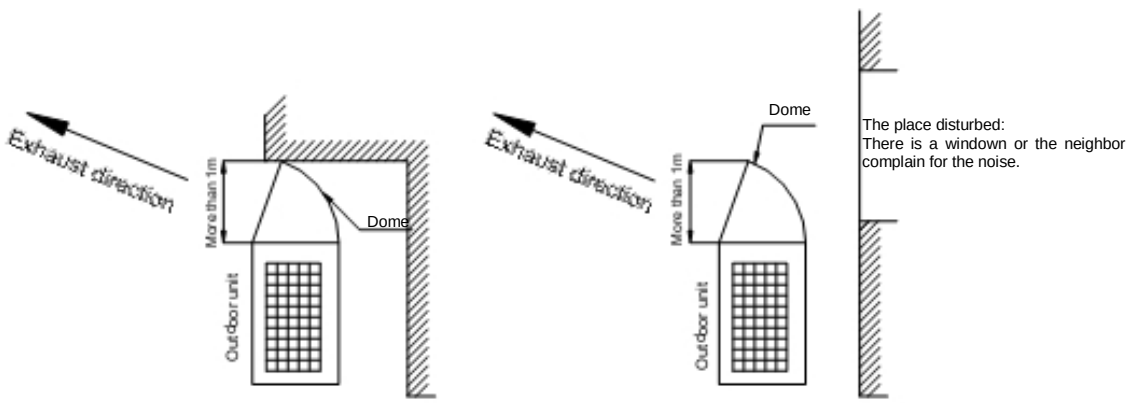
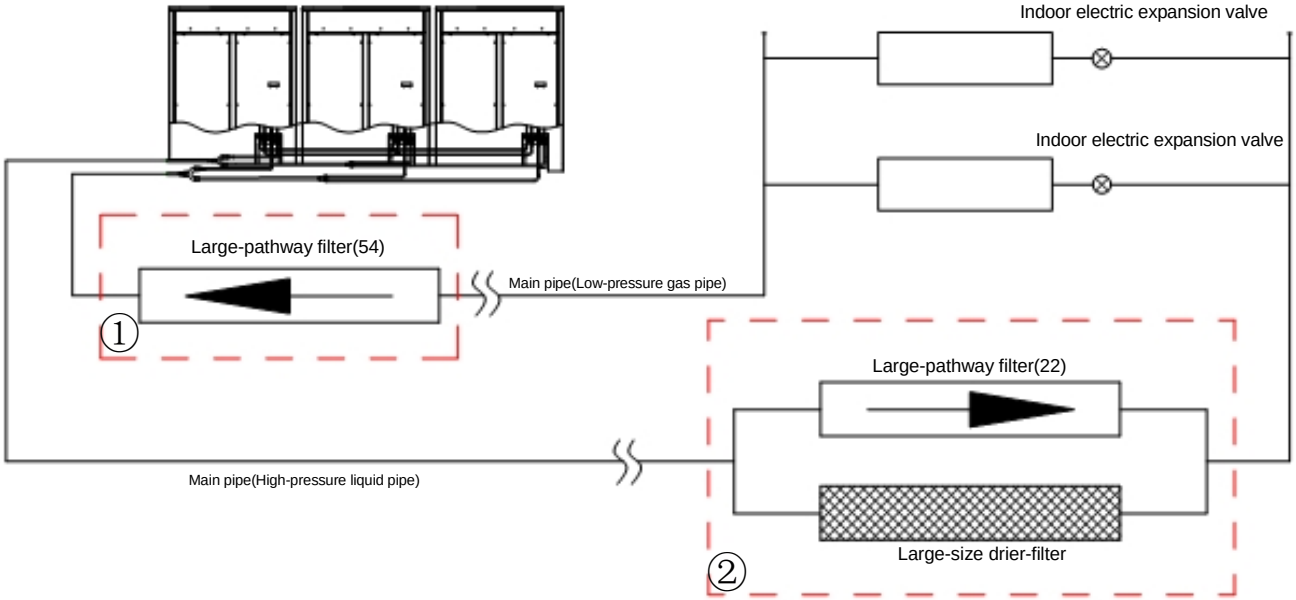


Fig 7 7 : Dome installation drawing

Oxide skins reclaiming

1. Equipment installation drawing for flushing the oxide skins with the refrigerant :



Remark ① : Large -pathway filter on the gas pipe , please install it on the section of the main return air pipe as closed to the outdoor unit as possible ;

Remark ② : Large -pathway filter on the liquid pipe , please install it on the section of the main liquid pipe as closed to the indoor unit as possible (before the first manifold of indoor units) ;

Fig 7 8 : Equipment installation drawing for flushing the oxide skins with the refrigerant

2. Operation procedures :

a . Please install a set of large -size pipe filters (The filter on the gas pipe is the one with the outside diameter Φ5 4 and the filter on the liquid pipe is the one with the outside diameter Φ2 2 . There are 8 0 holes per square inch of the strainer for both filters ; Our company will freely supply the two sets filter above for the installation company, however, the number is limited .) ;

b . Before debugging the system , keep the system running for no than 8 hours in cooling mode (In winter, if the system can not start cooling operation , do forced -cooling operation instead of it . It needs to press the “Forced -cooling ” key once per hour, for the forced -cooling operation can only last one hour.) ;

C . Please start forced -cooling operation for reclaiming the refrigerant after running for 8 hours ;

d . After reclaiming the refrigerant , weld the pipe filters both on the gas main pipe and liquid main pipe and then check whether the filter is clean . If there are much impurity or many oxide skins inside the filter, clean up the system .

E . Connect those pipes with the copper pipes and then weld them . After vacuumizing the system again and emptying the refrigerant , you can carry on other operations for debugging .

NOTE : The pipe filter welded can be used circularly after being cleaned and dried .

Check and accept

After running -in and debugging of the air condition project meets the requirement , you can tidy the correlative data and the equipment and deliver them to the client . “ Operation Instruction Manual ”of each indoor unit is quite important , don ’t forget deliver them to the client . Besides , you ’d better introduce the details of “ Operation Instruction Manual ” . Items to be delivered :

Remote controllers of indoor units and its “ Operation Instruction Manual ” ;

Wire controllers of indoor units and its “ Operation Instruction Manual ” ;

Pipeline collocation drawing of air conditioning system ;

Debugging record tables ;

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