

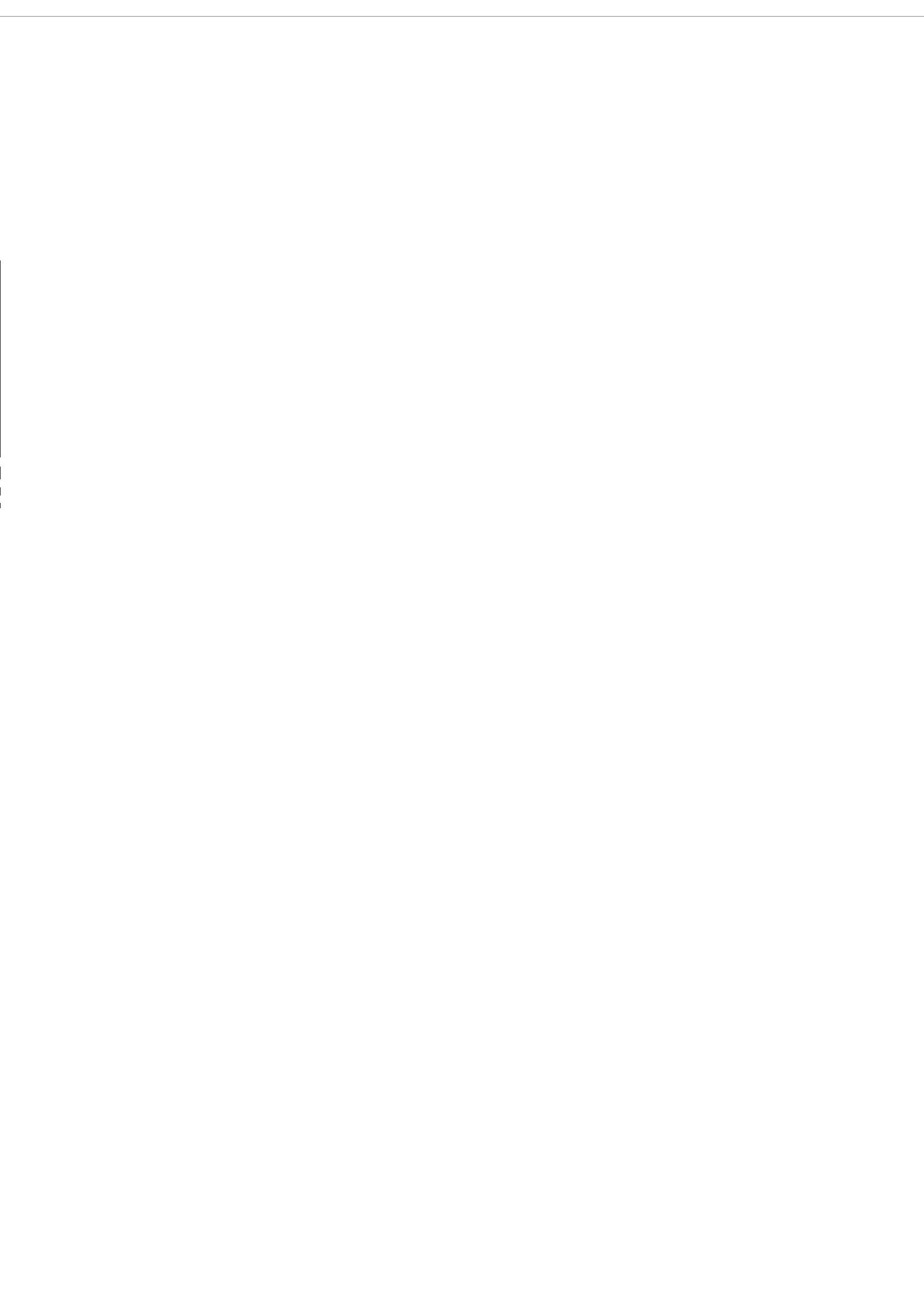


INSTALLATION MANUAL

X-POWER DC Inverter (K series) Outdoor Unit

Thank you very much for purchasing our air conditioner,
Before using your air conditioner , please read this manual carefully and keep it for future reference.

Caution:The manual is applicable for the cooling&heating and cooling only outdoor unit.The cooling&heating indoor unit is applicable for the cooling&heating and the cooling only outdoor unit;the heating capacity of the indoor unit will be effective only when the indoor unit connect to the cooling&heating outdoor unit.



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1. PRECAUTIONS

Precautions before reading the Installation manual.

- This Installation manual is for the outdoor unit.
- Refer to the indoor unit Installation manual for indoor parts installation.
- Please read the power source unit Installation manual to install the power source unit.
- Please refer to the refrigerant distributor Installation manual to install the refrigerant distributor.

The safety precautions listed here are divided into two categories. In either case, important safety information is listed which must be read carefully.



WARNING

Failure to observe a warning may result in death. The appliance shall be installed in accordance with national wiring regulations.



CAUTION

Failure to observe a caution may result in injury or damage to the equipment.

After completing the installation, make sure that the unit operates properly during the start-up operation. Please instruct the customer on how to operate the unit and keep it trained. Also, inform customers that they should store this Installation manual along with the owner's manual for future reference.



WARNING

- **Be sure only trained and qualified service personnel to install, repair or service the equipment.**
Improper installation, repair, and maintenance may result in electric shocks, short-circuit, leaks, fire or other damage to the equipment.
- **Install according to this installation instructions strictly.**
If installation is defective, it will cause water leakage, electrical shock fire.
- **When installing the unit in a small room, take measures against to keep refrigerant concentration from exceeding allowable safety limits in the event of refrigerant leakage.**
Contact the place of purchase for more information. Excessive refrigerant in a closed ambient can lead to oxygen deficiency.

- **Use the attached accessories parts and specified parts for installation.**
Otherwise, it will cause the set to fall, water leakage, electrical shock fire.
- **Install at a strong and firm location which is able to withstand the set's weight.**
If the strength is not enough or installation is not properly done, the set will drop to cause injury.
- **The appliance shall be installed in accordance with national wiring regulations**
- **The appliance shall not be installed in the laundry.**
- **Before obtaining access to terminals, all supply circuits must be disconnected.**
- **The appliance must be positioned so that the plug is accessible.**
- **The enclosure of the appliance shall be marked by word, or by symbols, with the direction of the fluid flow.**
- **For electrical work, follow the local national wiring standard, regulation and this installation instructions. An independent circuit and single outlet must be used.**
If electrical circuit capacity is not enough or defect in electrical work, it will cause electrical shock fire.
- **Use the specified cable and connect tightly and clamp the cable so that no external force will be acted on the terminal.**
If connection or fixing is not perfect, it will cause heat-up or fire at the connection.
- **Wiring routing must be properly arranged so that control board cover is fixed properly.**
If control board cover is not fixed perfectly, it will cause heat-up at connection point of terminal, fire or electrical shock.
- **If the supply cord is damaged, it must be replaced by the manufacture or its service agent or similarly qualified person in order to avoid a hazard.**
- **An all-pole disconnection device which has at least 3mm separation distance in all pole and a residual current device(RCD)with the rating of above 10mA shall be incorporated in the fixed wiring according to the national rule**
- **When carrying out piping connection, take care not to let air substances go into refrigeration cycle.**
Otherwise, it will cause lower capacity, abnormal high pressure in the refrigeration cycle, explosion and injury.
- **Do not modify the length of the power supply cord or use of extension cord, and do not share the single outlet with other electrical appliances.**
Otherwise, it will cause fire or electrical shock.
- **Carry out the specified installation work after taking into account strong winds, typhoons or earthquakes.**
Improper installation work may result in the equipment falling and causing accidents.
- **The temperature of refrigerant circuit will be high, please keep the interconnection cable away from the copper tube.**
- **The power cord type designation is H07RN-F.**
- **Equipment complying with IEC 61000-3-12.**

- **If the refrigerant leaks during installation, ventilate the area immediately.**
Toxic gas may be produced if the refrigerant comes into the place contacting with fire.
- **After completing the installation work, check that the refrigerant does not leak.**
Toxic gas may be produced if the refrigerant leaks into the room and comes into contact with a source of fire, such as a fan heater, stove or cooker.



CAUTION

- **The cooling&heating indoor unit is applicable for the cooling&heating and the cooling only outdoor unit;the heating capacity of the indoor unit will be effective only when the indoor unit connect to the cooling&heating outdoor unit.**
- **This A/C is a kind of amenity unit. Don't install it at the place where for storing machine, precise instrument, food, plant, animal, artwork or any other special used occasion.**
- **Ground the air conditioner.**
Do not connect the ground wire to gas or water pipes, lightning rod or a telephone ground wire. Incomplete grounding may result in electric shocks.
- **Be sure to install an earth leakage breaker.**
Failure to install an earth leakage breaker may result in electric shocks.
- **Connect the outdoor unit wires , then connect the indoor unit wires.**
You are not allowed to connect the air conditioner with the power source until wiring and piping the air conditioner is done.
- **While following the instructions in this Installation manual, install drain piping in order to ensure proper drainage and insulate piping in order to prevent condensation.**
Improper drain piping may result in water leakage and property damage.
- **Install the indoor and outdoor units, power supply wiring and connecting wires at least 1 meter away from televisions or radios in order to prevent image interference or noise.**
Depending on the radio waves, a distance of 1 meter may not be sufficient enough to eliminate the noise.
- **The appliance is not intended for use by young children or infirm persons without supervision.**
- **Young children should be supervised to ensure that they do not play with the appliance.**
- **Don't install the air conditioner in the following locations:**
 - There is petrolatum existing.
 - There is salty air surrounding (near the coast).
(Except for the models with corrosion-resistant function)
 - There is caustic gas (the sulfide, for example) existing in the air (near a hot spring).
 - The Volt vibrates violently (in the factories).
 - In buses or cabinets.
 - In kitchen where it is full of oil gas.
 - There is strong electromagnetic wave existing.
 - There are inflammable materials or gas.
 - There is acid or alkaline liquid evaporating.
 - Other special conditions.

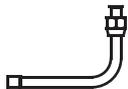
- **The insulation of the metal parts of the building and the air conditioner should comply with the regulation of National Electric Standard.**

2. CONSTRUCTION CHECKPOINTS

- Acceptance and Unpacking
 - After the machine arrives, check whether it is damaged during the shipment. If the surface or inner side of the machine is damaged, submit a written report to the shipping company.
 - Check whether the model, specification and quantity of the equipment conform to the contract.
 - After removing the outer package, please keep the operation instructions well and count the accessories.
- Refrigerant pipe
 - Check the model and name to avoid mistaken installation.
 - An additionally purchased refrigerant distributor (manifold adapter and manifold pipe) must be used for installing the refrigerant pipes.
 - The refrigerant pipes must have the specified diameter. Nitrogen of a certain pressure must be filled into the refrigerant pipe before welding.
 - The refrigerant pipe must undergo heat insulation treatment.
 - After the refrigerant pipe is installed completely, the indoor unit cannot be powered on before performing the airtight test and creating a vacuum. The air-side and liquid-side pipes must undergo the airtight test and vacuum extraction.
- Airtight test
The refrigerant pipe must undergo the airtight test [with 3.9 MPa(40kgf/CM²) nitrogen].
- Creating a vacuum
Be sure to use the vacuum pump to create a vacuum of the connective pipe at the air side and liquid side concurrently.
- Refrigerant replenishment
 - If the length is greater than the reference pipe, the refrigerant replenishment quantity for each system should be calculated through the formula obtained according to the actual length of pipe.
 - Record the refrigerant replenishment quantity, actual length of pipe and the height difference of the indoor & outdoor unit onto the operation confirmation table of the outdoor unit in advance for future reference.
- Electric wiring
 - Select the power supply capacity and wire size according to the design manual. The power cable of the air conditioner is generally thicker than the power cable of the motor.
 - In order to prevent misoperation of the air conditioner, do not interleave or entwine the power cablewith the connection wires (low-voltage wires) of the indoor/outdoor unit.
 - Power on the indoor unit after performing the airtight test and making a vacuum.
 - For details of setting the address of the outdoor unit, see Outdoor unit address bits.
- Trial run
 - Perform the trial run only after the outdoor unit has been powered on for over 12 hours.

3. ACCESSORIES

Table.3-1

Model Name	Qty.	Outline	Function
Outdoor unit installation manual	1	This manual	_____
Outdoor unit owner's manual	1		Be sure to deliver it to the customer
Indoor unit owner's manual	1		Be sure to deliver it to the customer
Accessory screw bag	1	_____	For use in maintenance
Toggling flathead screw	1	_____	For toggling of indoor and outdoor units
90° mouting elbow	1	_____	For connecting pipes
Seal plug	8	_____	For cleansing pipes
Conneting pipe subassembly	1		For conneting liquid side
Connecting pipe	1(8,10,16,18HP) 2(12,14HP)		For connecting to the air pipe side when it's needed

4. OUTDOOR UNIT INSTALLATION

4.1 Outdoor unit combination

Table.4-1

HP	Mode	Max. indoor units nos.	HP	Mode	Max. indoor units nos.
8	8HP×1	13	26	16HP+10HP	43
10	10HP×1	16	28	18HP+10HP	46
12	12HP×1	20	30	16HP+14HP	50
14	14HP×1	23	32	18HP+14HP	53
16	16HP×1	26	34	18HP+16HP	56
18	18HP	29	36	18HP×2	59
20	10HP×2	33	38	18HP+10HP×2	63
22	12HP+10HP	36	40	16HP+14HP+10HP	64
24	14HP+10HP	39	42	16HP×2+10HP	64

Table.4-2

HP	Mode	Max. indoor units nos.	HP	Mode	Max. indoor units nos.
44	18HP+16HP+10HP	64	60	18HP×2+14HP+10HP	64
46	18HP×2+10HP	64	62	18HP×2+16HP+10HP	64
48	18HP+16HP+14HP	64	64	18HP×3+10HP	64
50	18HP×2+14HP	64	66	18HP×2+16HP+14HP	64
52	18HP×2+16HP	64	68	18HP×3+14HP	64
54	18HP×3	64	70	18HP×3+16HP	64
56	18HP×2+10HP×2	64	72	18HP×4	64
58	18HP+16HP+14HP+10HP	64			

4.2 Dimension of outdoor unit

Unit:mm

1) 8,10HP

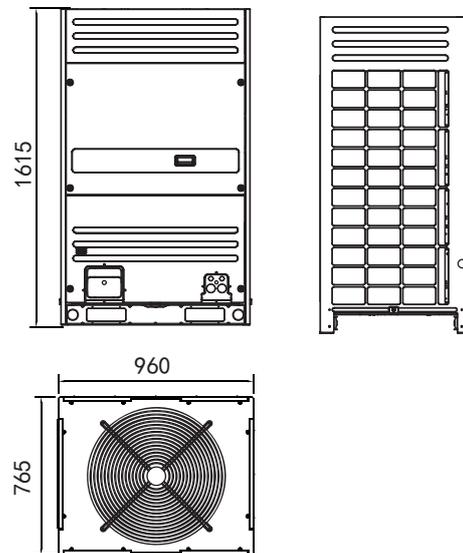


Fig.4-1

2) 12, 14,16,18HP

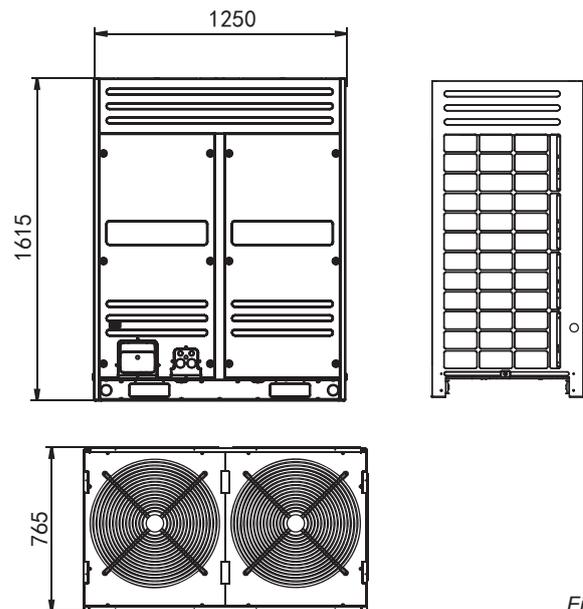


Fig.4-2

4.3 Selecting installation position

- Ensure that the outdoor unit is installed in a dry, well-ventilated place.
- Ensure that the noise and exhaust ventilation of the outdoor unit do not affect the neighbors of the property owner or the surrounding ventilation.
- Ensure that the outdoor unit is installed in a well-ventilated place that is possibly closest to the indoor unit.
- Ensure that the outdoor unit is installed in a cool place without direct sunshine exposure or direct radiation of high-temp heat source.
- Do not install the outdoor unit in a dirty or severely polluted place, so as to avoid blockage of the heat exchanger in the outdoor unit.
- Do not install the outdoor unit in a place with oil pollution or full of harmful gases such as sulfurous gas.
- Do not install the outdoor unit in a place surrounded by salty air. (Except for the models with corrosion-resistant function.)

- If the basement is placed on the roofing, the detritus layer isn't needed, but the concrete surface must be flat. The standard concrete mixture ratio is cement 1/ sand 2/ carpolite 4, and add $\Phi 10$ strenthen reinforcing steel bar, the surface of the cement and sand plasm must be flat, border of the the basement must be chamfer angle.
- Before construct the unit base, please ensure the base is directly supporting the rear and front folding edges of the bottom panel vertically, for the reason of these edges are the actual supported sites to the unit.
- In order to drain off the seeper around the equipment, a discharge ditch must be setup around the basement.
- Please check the affordability of the roofing to ensure the load capacity.
- When piping from the bottom of the unit, the base height should no less than 200mm.

4.4 Base for outdoor unit

- A solid, correct base can:
 - Avoid the outdoor unit from sinking.
 - Avoid the abnormal noise generated due to base.
- Base types
 - Steel structure base
 - Concrete base (see the figure below for the general making method)

■ Position illustration of screw bolt (Unit: mm)

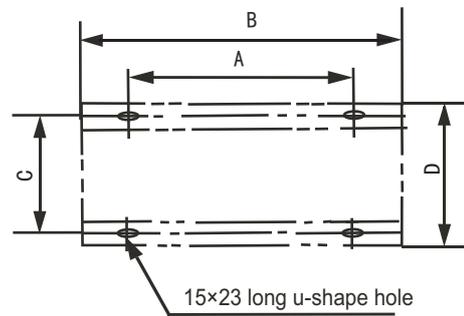


Fig.4-4

Table.4-3

Unit: mm

Model Size	8,10HP	12,14,16,18HP
A	830	1120
B	960	1250
C	736	736
D	765	765

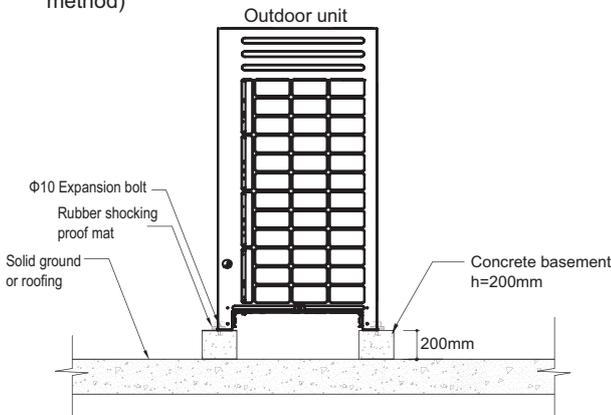
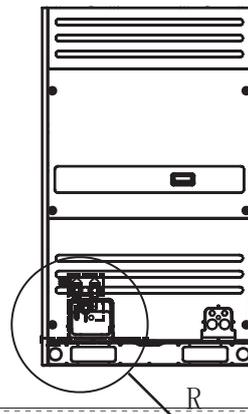


Fig.4-3

■ Centering position illustration of each connective pipe (Unit: mm)

1) 8,10HP



CAUTION

- The key points to make basement:
 - The master unit's basement must be made on the solid concrete ground . Refer to the structure diagram to make concrete basement in detail, or make after field measurements.
 - In order to ensure every point can contact flat, the basement should be on completely level.

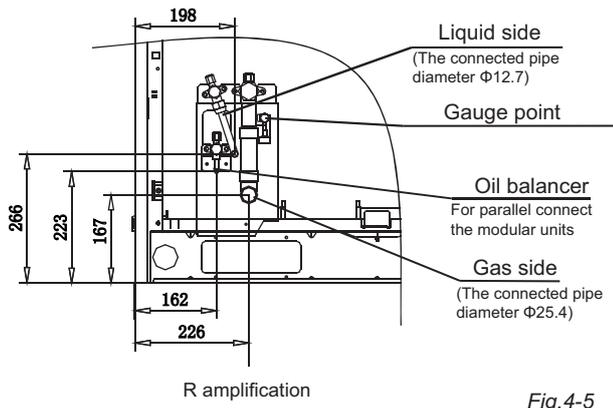


Fig. 4-5

2) 12, 14, 16, 18HP

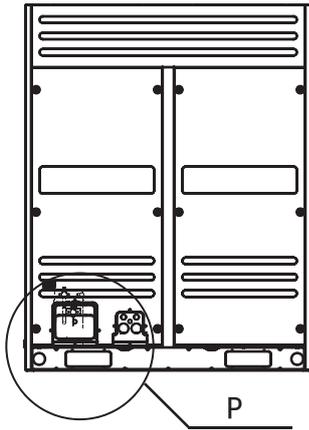


Fig. 4-6.1

Enlarged view for 12-16HP

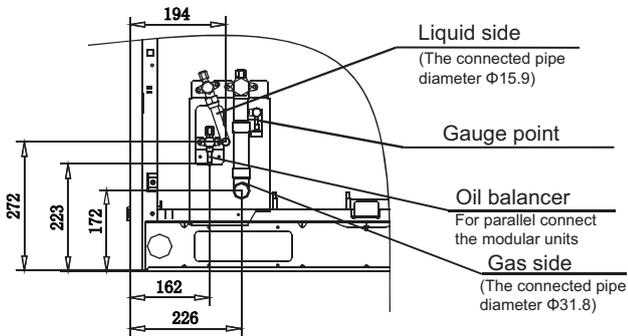


Fig. 4-6.1

Enlarged view for 12-16HP

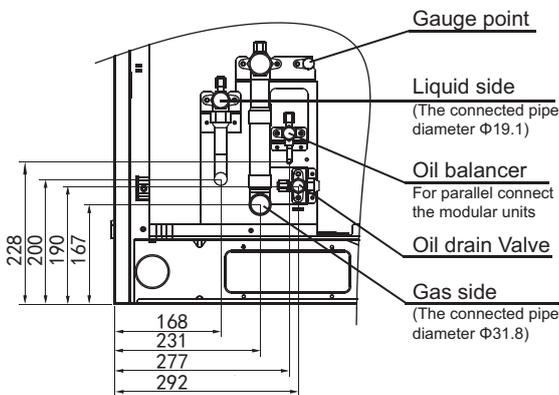


Fig. 4-6.2

Enlarged view for 18HP

4.5 Outdoor units' placement sequence & master and slave units' settings

A system, which provide with more than two outdoor units, will be set as the followings method: The outdoor units in this system should place sequentially from the large to the small capacity; the largest capacity outdoor unit must be mounted at the first branching site; and set the largest capacity outdoor unit address as the master Unit, while the other setting as the Slave Unit. Take 38HP (composed by 10HP, 12HP and 16HP) as an example:

- 1) Place the 16HP at a side of the first branching site.
- 2) Place the unit from the large capacity to the small (See the detail placement illustration)
- 3) Set 16HP as the master unit, while the 12HP and the 10HP as the aux. unit.

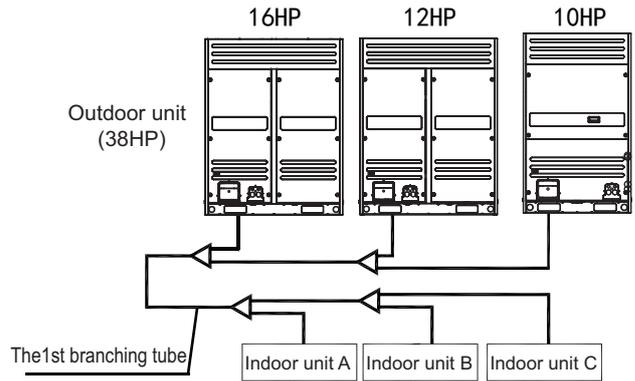
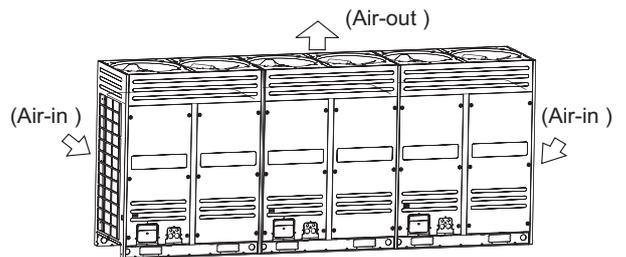


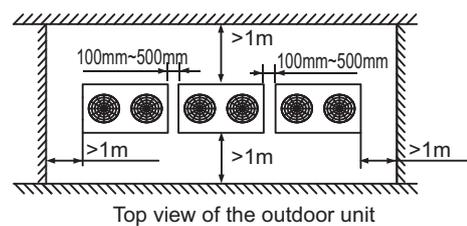
Fig. 4-7

4.6 Installation space for outdoor unit

- Ensure enough space for maintenance. The modules in the same system must be on the same height. (see the Fig. 4-8)
- When installing the unit, leave a space for maintenance shown in Fig. 4-9. Install the power supply at the side of the outdoor unit. For installation procedure, see the power supply device Installation manual.
- In case any obstacles exist above the outdoor unit, refer to Fig. 4-14.



Installation and maintenance surface Fig. 4-8



Top view of the outdoor unit

Fig. 4-9

4.7 Layout

- When the outdoor unit is higher than the surrounding obstacle

- One row

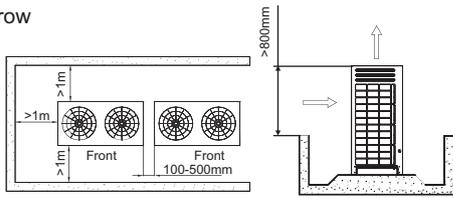


Fig.4-10

- Two rows

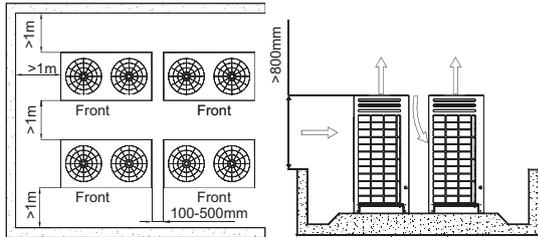


Fig.4-11

- More than two rows

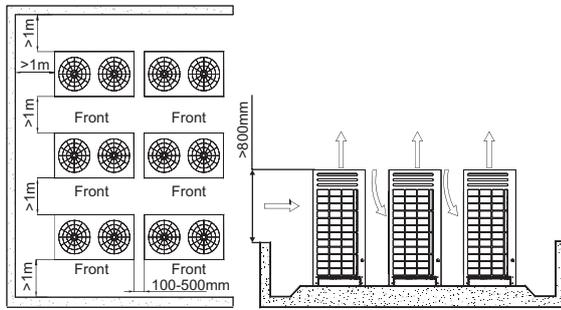


Fig.4-12

- When the outdoor unit is lower than the surrounding obstacle, refer to the layout, to avoid cross connection of the outdoor hot air from affecting the heat exchange effect, please add an air director onto the exhaust hood of the outdoor unit to facilitate heat dissipation. See the figure below. The height of the air director is HD (namely H-h). Please make the air director on site.

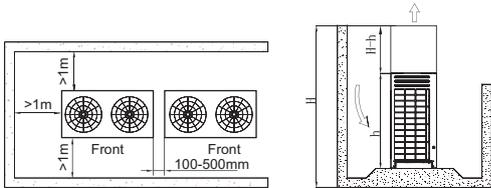


Fig.4-13

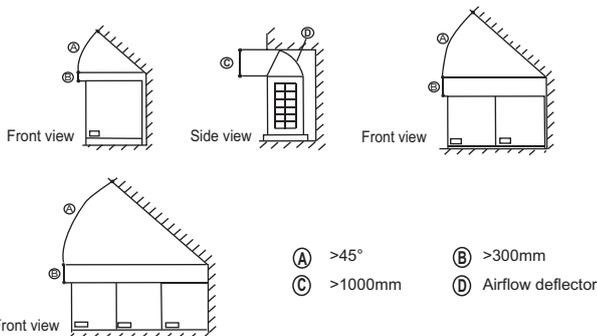


Fig.4-14

4.8 Set the snow-proof facility

- In snowy areas, facilities should be installed. (Refer to figure below) (defective facilities may cause malfunction.) Please lift the bracket higher and install snow shed at the air inlet and air outlet.

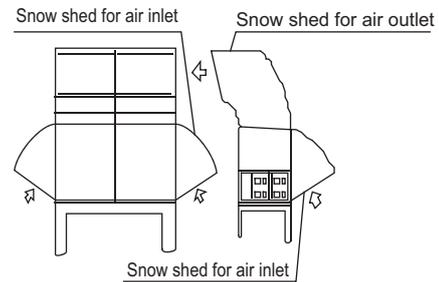
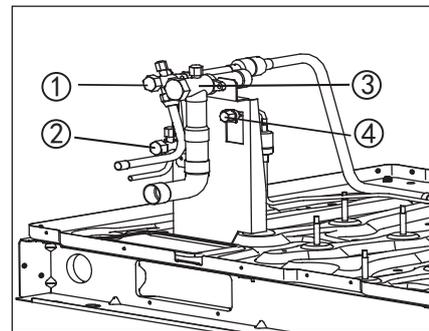


Fig.4-15

4.9 Explanation of valve



Note: For a single modular that is not necessary to connect with oil balancer.

Fig.4-16

Table.4-4

①	Liquid side stop valve	8-16HP
②	Oil balancer	
③	Gas side stop valve	
④	Gauge point(Use for detecting pressure and refrigerant)	

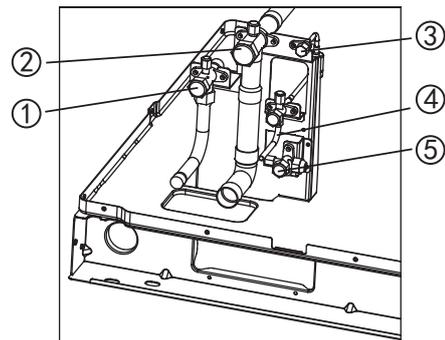


Fig.4-17

Table.4-5

①	Liquid side stop valve	18HP
②	Gas side stop valve	
③	Gauge point(Use for detecting pressure and refrigerant)	
④	Oil balancer	
⑤	Oil drain valve	

4.10 Mount the air deflector

■ Before install the air deflector (purchased by user), please ensure the mesh enclosure has been taken off, and then install as the following two methods.

1) 8, 10HP

Example A

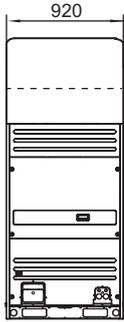


Fig. 4-18

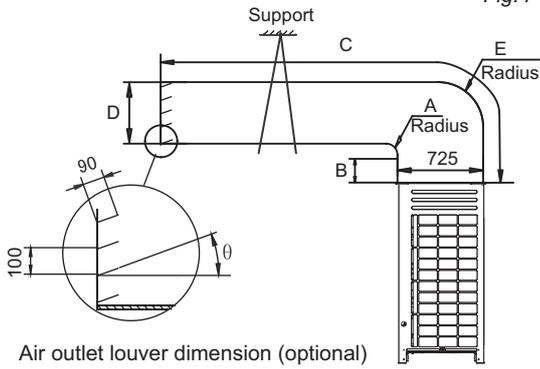


Fig. 4-19

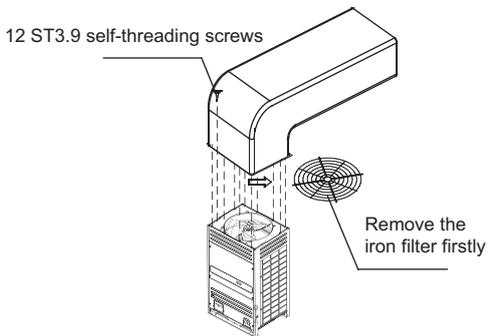


Fig. 4-20

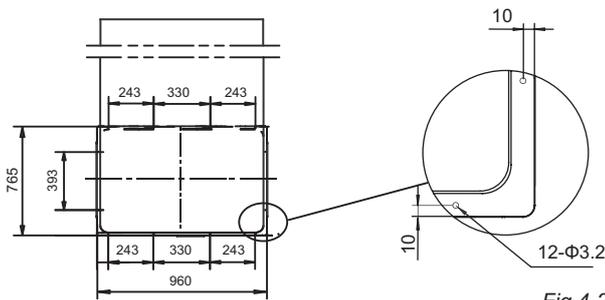
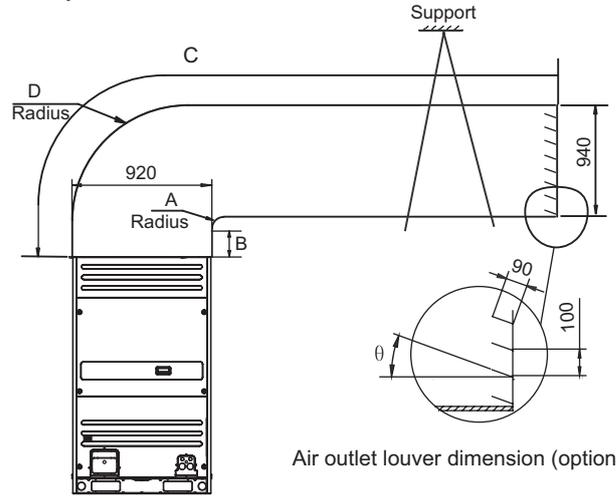


Fig. 4-21

Table.4-6 Unit: mm

A	$A \geq 300$
B	$B \geq 250$
C	$C \leq 3000$
D	$725 \leq D \leq 760$
E	$E = A + 725$
θ	$\theta \leq 15^\circ$

Example B



Air outlet louver dimension (optional)

Fig. 4-22

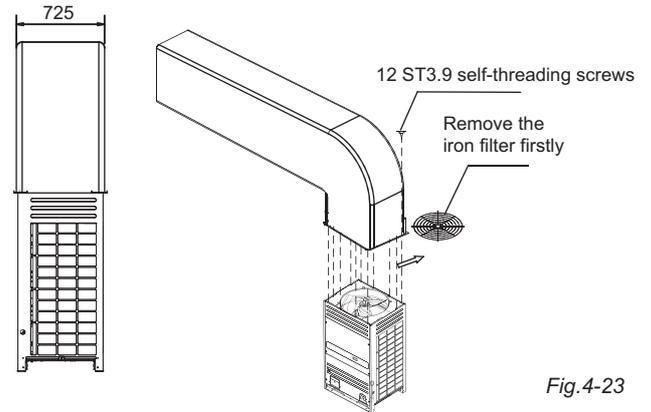


Fig. 4-23

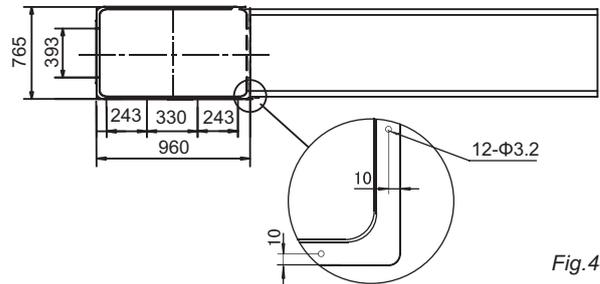


Fig. 4-24

Table.4-7 Unit: mm

A	$A \geq 300$
B	$B \geq 250$
C	$C \leq 3000$
D	$D = A + 920$
θ	$\theta \leq 15^\circ$

Table.4-8

Static pressure	Remark
0Pa	Default
0~20Pa	Remove the iron wire netting, connect with the air deflector pipe within 3m
Above 20Pa	Need to be customized

2) 12, 14, 16, 18HP

Example A

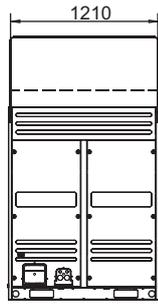


Fig. 4-25

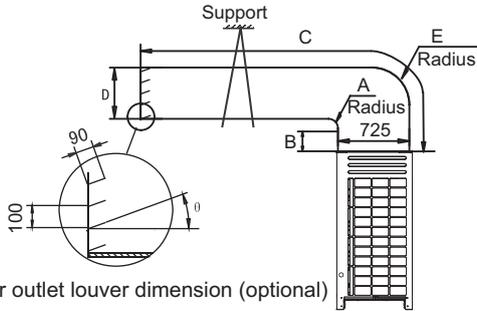


Fig. 4-26

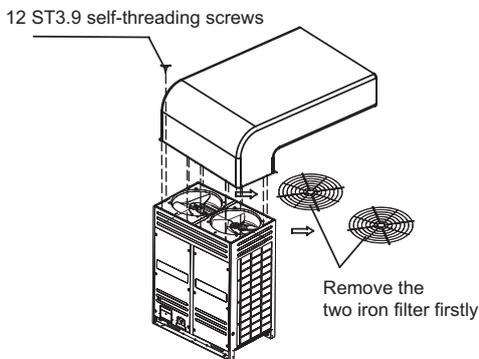


Fig. 4-27

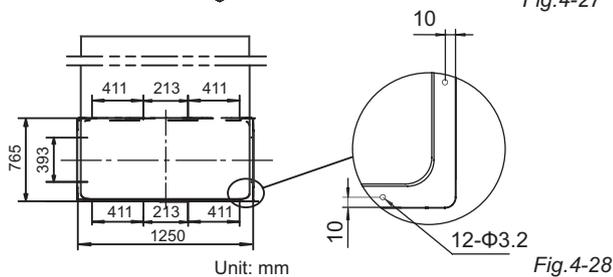


Fig. 4-28

Table 4-9

A	$A \geq 300$
B	$B \geq 250$
C	$C \leq 3000$
D	$725 \leq D \leq 760$
E	$E = A + 725$
θ	$\theta \leq 15^\circ$

Table 4-10

Static pressure	Remark
0Pa	Default
0~20Pa	Remove the iron wire netting, connect with the air deflector pipe within 3m
Above 20Pa	Need to be customized

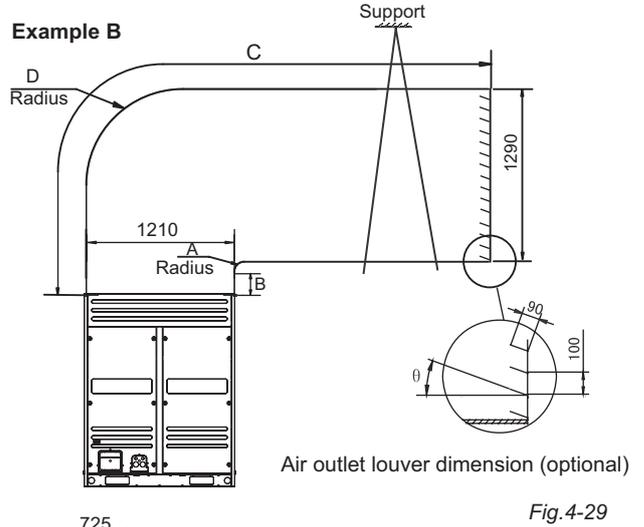


Fig. 4-29

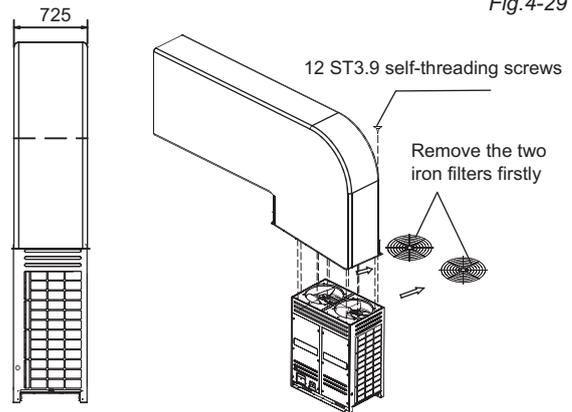


Fig. 4-30

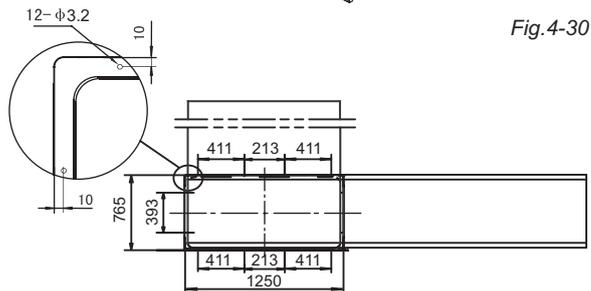


Fig. 4-31

Table 4-11 Unit: mm

A	$A \geq 300$
B	$B \geq 250$
C	$C \leq 3000$
D	$D = A + 1210$
θ	$\theta \leq 15^\circ$



NOTE

- Before install the air deflector, please ensuring the mesh enclosure has been took off, otherwise the air supply efficiency would be block down.
- Once mounting the shutter to the unit, air volume, cooling (heating) capacity and efficiency would be block down, this affection enhance along with the angle of the shutter. Thus, we are not recommend you to mount the shutter, if necessary in use, please adjust the angle of shutter no larger than 15°.
- Only one bending site to be allowed in the air duct (see as above figure), otherwise, misoperation may led out.
- Install the flexible connector between the unit and the air pipe. for avoiding to produce vibration noise.

5. REFRIGERANT PIPE

5.1 Length and drop height permitted of the refrigerant piping

Note: Reduced length of the branching tube is the 0.5m of the equivalent length of the pipe.

Table.5-1

		Permitted value	Piping
Pipe length	Total pipe length (Total extended length)	1000m (Please refer to the caution 5 of conditions 2)	$L1+(L2+L3+L4+L5+L6+L7+L8+L9) \times 2+a+b+c+d+e+f+g+h+i+j$
	Maximum piping (L)	Actual length	175m
		Equivalent length	200m(Please refer to caution 1)
Pipe(between the farthest indoor unit and first branch joint) length		40/90*m(Please refer to caution 5)	$L5+L8+L9+j$
Drop height	Indoor unit-outdoor unit drop height	Outdoor unit up	70m (Please refer to caution 3)
		Outdoor unit down	110m (Please refer to caution 4)
	Indoor unit to indoor unit drop height	30m	—

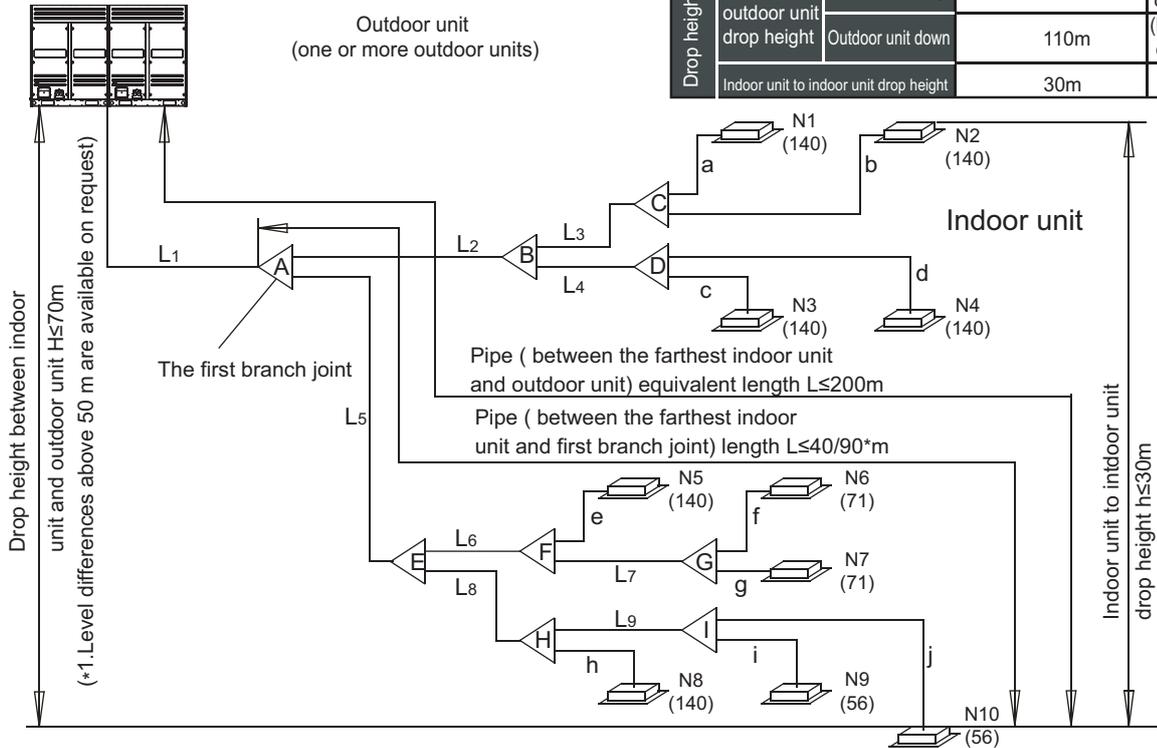


Fig.5-1

*1.Level difference above 50m are not supported by default but the project need to be approved by the manufacturer .(if the outdoor unit is above the indoor unit.)

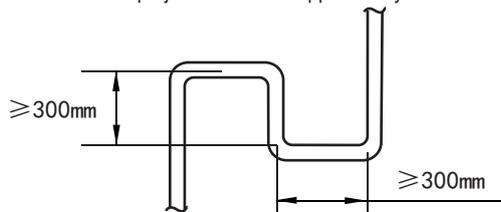


Fig.5-2



CAUTION

1. The equivalent length of the each branch joint is 0.5m.
2. The inner units should as equal as possible to be installed in the both sides of the U-shape branch joint.
3. When the outdoor unit is on the top position and the difference of level is over 20m, it is recommended that set a oil return bend every 10m in the gas pipe of the main pipe, the specification of the oil return bend refers to Fig.5-2.
4. When the outdoor unit is on the low position, $H \geq 40m$, the liquid pipe of the main pipe need to increase one size.
5. The allowable length of the fist branch joint which connected to the indoor unit should be equal to or shorter than 40m. But when the following conditions are all metted, the allowable length can extended to 90m.

Conditions 1

1. It is needed to increase all the pipe diameters of the the main distribution pipe which between the first and the last branch joint assembly. (Please change the pipe diameter at field) If the pipe diameter of the indoor unit main pipe is the same as the main pipe, then it is not needed to be increased.

Examples

- $N10$ $L5+L8+L9+j \leq 90m$ L2, L3, L4, L5, L6, L7, L8, L9
Need to increase the pipe diameter of the distribution pipe
- Increasing size as the following
 - $\phi 9.5 \rightarrow \phi 12.7$ $\phi 12.7 \rightarrow \phi 15.9$ $\phi 15.9 \rightarrow \phi 19.1$
 - $\phi 19.1 \rightarrow \phi 22.2$ $\phi 22.2 \rightarrow \phi 25.4$ $\phi 25.4 \rightarrow \phi 28.6$
 - $\phi 28.6 \rightarrow \phi 31.8$ $\phi 31.8 \rightarrow \phi 38.1$ $\phi 38.1 \rightarrow \phi 41.3$
 - $\phi 41.3 \rightarrow \phi 44.5$ $\phi 44.5 \rightarrow \phi 54.0$

Conditions 2
2. When counting the total extended length, the actual length of above distribution pipes must be doubled.(Expect the main pipe and the distribution pipes which no need to be increased.) $L1+(L2+L3+L4+L5+L6+L7+L8+L9) \times 2+a+b+c+d+e+f+g+h+i+j \leq 1000m$
Examples
Reference Figure. 5-1
Conditions 3
3. The length from the indoor unit to the nearest branch joint assembly $\leq 40m$ $a, b, c, \dots, j \leq 40m$ (Pipe diameter requirements, please refers to table .5-9)
Examples
Reference Figure .5-1
Conditions 4
4. The distance difference between [the outdoor unit to the farthest indoor unit] and [the outdoor unit to the nearest indoor unit] is $\leq 40m$. The farthest indoor unit $N10$ The nearest indoor unit $N1$ $(L1+L5+L8+L9+j) - (L1+L2+L3+a) \leq 40m$
Examples
Reference Figure .5-1

Table.5-2

Pipe name	Code (As per the Fig. 5-3)
Main pipe	L1
Indoor unit main pipe	L2~L9
Indoor unit aux. pipe	a, b, c, d, e, f, g, h, i, j
Indoor unit branch joint assembly	A, B, C, D, E, F, G, H, I
Outdoor unit branch joint assembly	L, M
Outdoor unit connective pipe	g1, g2, g3, G1

5.3 Size of joint pipes for indoor unit

Table.5-3 Size of joint pipes for R410A indoor unit

Capacity of indoor unit A($\times 100W$)	Size of main pipe(mm)		
	Gas side	Liquid side	Available branch joint
A<166	$\Phi 15.9$	$\Phi 9.5$	BJF-224-CM(i)
166≤A<230	$\Phi 19.1$	$\Phi 9.5$	BJF-224-CM(i)
230≤A<330	$\Phi 22.2$	$\Phi 9.5$	BJF-330-CM(i)
330≤A<460	$\Phi 28.6$	$\Phi 12.7$	BJF-710-CM(i)
460≤A<660	$\Phi 28.6$	$\Phi 15.9$	BJF-710-CM(i)
660≤A<920	$\Phi 31.8$	$\Phi 19.1$	BJF-710-CM(i)
920≤A<1350	$\Phi 38.1$	$\Phi 19.1$	BJF-1344-CM(i)
1350≤A	$\Phi 41.3$	$\Phi 22.2$	BJF-E1344-CM(i)

e.x.1: Refer to Fig.5-3 , the capacity of downstream units to L2 is $140 \times 4 = 560$, i.e. the gas pipe for L2 is $\Phi 28.6$, liquid pipe is $\Phi 15.9$.

5.2 Select the refrigerant piping type

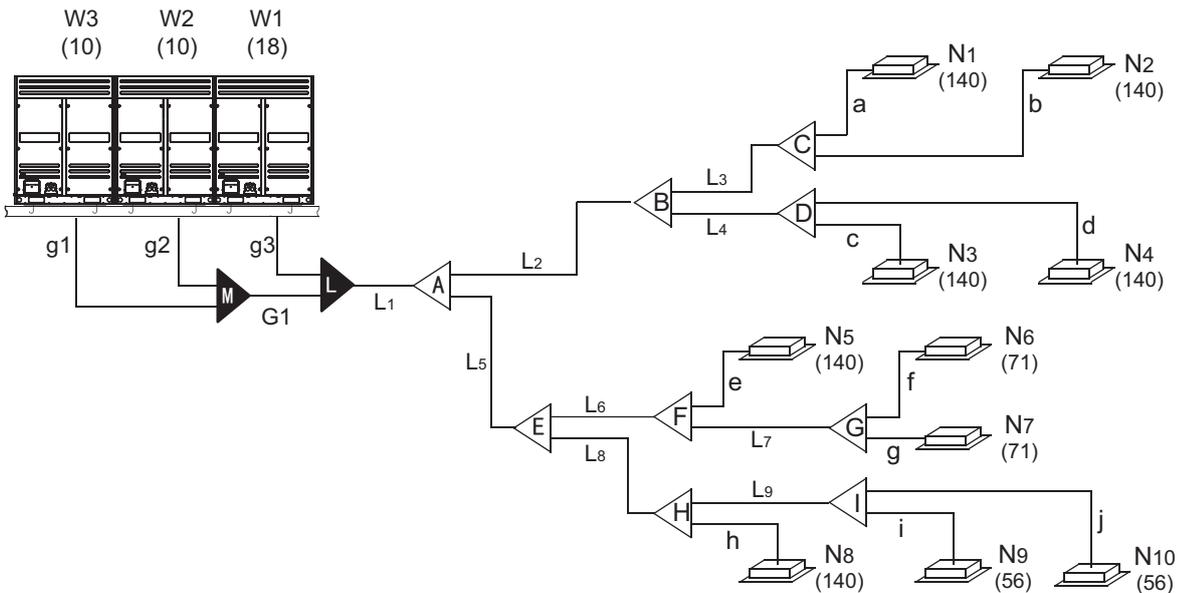


Fig.5-3

5.4 Size of joint pipes for outdoor unit

Base on the following tables, select the diameters of the outdoor unit connective pipes. In case of the main accessory pipe large than the main pipe, take the large one for the selection.

Example: parallel connect with the three outdoor units 16+16+14 (the total capacity is 46HP), all indoor units total capacity is 1360, provided that the equivalent length of all pipes are $\geq 90\text{m}$, according to the Table. 5-5 the main pipe diameter are $\Phi 38.1/\Phi 22.2$; in according to all indoor unit capacity 1360, we could find out the master unit diameter is $\Phi 41.3/\Phi 22.2$ base on Table.5-3. Take the large one for the selection, we final confirm the main pipe diameter is $\Phi 41.3/\Phi 22.2$.

Table.5-4 Size of joint pipes for R410A outdoor unit

Model	When the equivalent length of all liquid pipes < 90m, the size of main pipe(mm)		
	Gas side	Liquid side	The 1st branch joint
8HP	$\Phi 22.2$	$\Phi 9.53$	BJF-330-CM(i)
10HP	$\Phi 22.2$	$\Phi 9.53$	BJF-330-CM(i)
12~14HP	$\Phi 25.4$	$\Phi 12.7$	BJF-330-CM(i)
16HP	$\Phi 28.6$	$\Phi 12.7$	BJF-710-CM(i)
18~22HP	$\Phi 28.6$	$\Phi 15.9$	BJF-710-CM(i)
24HP	$\Phi 28.6$	$\Phi 15.9$	BJF-710-CM(i)
26~32HP	$\Phi 31.8$	$\Phi 19.1$	BJF-710-CM(i)
34~48HP	$\Phi 38.1$	$\Phi 19.1$	BJF-1344-CM(i)
50~64HP	$\Phi 41.3$	$\Phi 22.2$	BJF-E1344-CM(i)
66~72HP	$\Phi 44.5$	$\Phi 25.4$	BJF-E1344-CM(i)

Table.5-5 Size of joint pipes for R410A outdoor unit

Model	When the equivalent length of all liquid pipes $\geq 90\text{m}$, the size of main pipe(mm)		
	Gas side	Liquid side	The 1st branch joint
8HP	$\Phi 22.2$	$\Phi 12.7$	BJF-330-CM(i)
10HP	$\Phi 25.4$	$\Phi 12.7$	BJF-330-CM(i)
12~14HP	$\Phi 28.6$	$\Phi 15.9$	BJF-710-CM(i)
16HP	$\Phi 31.8$	$\Phi 15.9$	BJF-710-CM(i)
18~22HP	$\Phi 31.8$	$\Phi 19.1$	BJF-710-CM(i)
24HP	$\Phi 31.8$	$\Phi 19.1$	BJF-710-CM(i)
26~32HP	$\Phi 38.1$	$\Phi 22.2$	BJF-1344-CM(i)
34~48HP	$\Phi 38.1$	$\Phi 22.2$	BJF-1344-CM(i)
50~64HP	$\Phi 44.5$	$\Phi 25.4$	BJF-E1344-CM(i)
66~72HP	$\Phi 54.0$	$\Phi 25.4$	BJF-E1500-CM(i)

5.5 Branch pipes for outdoor unit

Table.5-6

Model	Outdoor unit pipe connective opening dimension(mm)	
	Gas side	Liquid side
8HP, 10HP	$\Phi 25.4$	$\Phi 12.7$
12HP, 14HP, 16HP	$\Phi 31.8$	$\Phi 15.9$
18HP	$\Phi 31.8$	$\Phi 19.1$

5.6 Branch pipes for indoor unit

Base on Table.5-7 and Table.5-8 select the multi connecting pipes of outdoor unit. Before installation, please read the Outdoor Unit branch joint Installation Manual carefully.

Table.5-7 Outdoor unit multi-connective pipe assembly (Illustration)

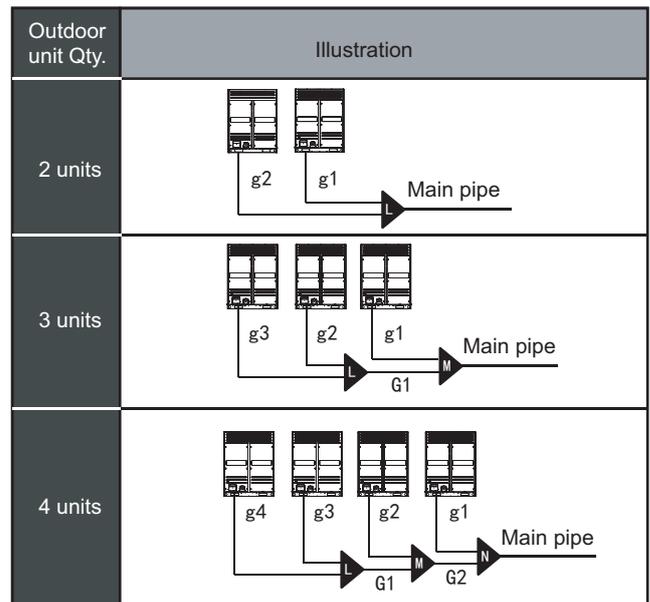


Table.5-8 Outdoor unit multi-connective pipe assembly

Outdoor unit Qty.	Outdoor unit connective pipe diameter	Parallel connect with the branch joint assembly	Main pipe
2 units	g1, g2: 8, 10HP: $\Phi 25.4/\Phi 12.7$; 12~18HP: $\Phi 31.8/\Phi 15.9$	L: BJC-02-CM(i)	Refer to Table. 5-4 or 5-5 for main pipe dimension
3 units	g1, g2, g3: 8, 10HP: $\Phi 25.4/\Phi 12.7$; 12~18HP: $\Phi 31.8/\Phi 15.9$; G1: $\Phi 38.1/\Phi 19.1$	L+M: BJC-03-CM(i)	
4 units	g1, g2, g3, g4: 8, 10HP: $\Phi 25.4/\Phi 12.7$; 12~18HP: $\Phi 31.8/\Phi 15.9$; G1: $\Phi 38.1/\Phi 19.1$; G2: $\Phi 41.3/\Phi 22.2$	L+M+N: BJC-04-CM(i)	

Note: The pipe assemblies in above table is special for this model, must be purchased separately.

5.7 Example

- 1) Take (18+10+10) HP that composed by three modules as an example to clarify the pipe selection.
- 2) Take Fig.5-4 as an example. Provided that the equivalent length of all pipes in this system is larger than 90m.

Table.5-9

Unit: mm

Indoor unit capacity A($\times 100W$)	When branch joint's length $\leq 10m$		When branch joint's length $> 10m$	
	Gas side	Liquid side	Gas side	Liquid side
$A \leq 45$	$\Phi 12.7$	$\Phi 6.4$	$\Phi 15.9$	$\Phi 9.5$
$A \geq 56$	$\Phi 15.9$	$\Phi 9.5$	$\Phi 19.1$	$\Phi 12.7$

- A The branch joint at the inside of the unit.
There are a-j branch joints at the inside of the unit, the branch joint diameter should be select as per Table. 5-9.
- B Main pipe at the inside the unit (Refer to Table. 5-3)
- 1) The main pipe L3 with N1, N2 downstream indoor units that total capacity is $140 \times 2 = 280$, the pipe L3 diameter is $\Phi 22.2 / \Phi 9.5$, thus select BJB-330-CM(i) for the branch joint C.
 - 2) The main pipe L4 with N3, N4 downstream indoor units that total capacity is $140 \times 2 = 280$, the pipe L4 diameter is $\Phi 22.2 / \Phi 9.5$, thus select BJB-330-CM(i) for the branch joint D.
 - 3) The main pipe L2 with N1~N4 downstream indoor units that total capacity is $140 \times 4 = 560$, the pipe L2 diameter is $\Phi 28.6 / \Phi 15.9$, thus select BJB-710-CM(i) for the branch joint B.
 - 4) The main pipe L7 with N6, N7 downstream indoor units that total capacity is $71 \times 2 = 142$, the pipe L7 diameter is $\Phi 15.9 / \Phi 9.5$, thus select BJB-224-CM(i) for the branch joint G.
 - 5) The main pipe L6 with N5~N7 downstream indoor units that total capacity is $140 + 71 \times 2 = 282$, the pipe L6 diameter is $\Phi 22.2 / \Phi 9.5$, thus select BJB-330-CM(i) for the branch joint F.

- 6) The main pipe L9 with N9, N10 downstream indoor units that total capacity is $56 + 56 = 112$, the pipe L9 diameter is $\Phi 15.9 / \Phi 9.5$, thus select BJB-224-CM(i) for the branch joint I.
- 7) The main pipe L8 with N8~N10 downstream indoor units that total capacity is $140 + 56 + 56 = 252$, the pipe L8 diameter is $\Phi 22.2 / \Phi 9.5$, thus select BJB-330-CM(i) for the branch joint H.
- 8) The main pipe L5 with N5~N10 downstream indoor units that total capacity is $140 \times 2 + 56 \times 2 + 71 \times 2 = 534$, the pipe L5 diameter is $\Phi 28.6 / \Phi 15.9$, thus select BJB-710-CM(i) for the branch joint E.
- 9) The main pipe A with N1~N10 downstream indoor units that total capacity is $140 \times 6 + 56 \times 2 + 71 \times 2 = 1094$, thus select BJB-1344-CM(i) for the branch joint A.

C Main pipe (Refer to Table.5-3, Table.5-5):
Main pipe L1 in the Fig.5-4, which upstream outdoor units total capacity is $10 + 10 + 18 = 38$, base on table.5-5, the gas/liquid pipe diameter are $\Phi 38.1 / \Phi 22.2$, total capacity of the downstream indoor unit is $140 \times 6 + 56 \times 2 + 71 \times 2 = 1094$, base on table.5-3, the gas/liquid pipe diameter are $\Phi 38.1 / \Phi 19.1$, take the large one for your selection, final confirm the main pipe diameter is: gas/liquid pipe $\Phi 38.1 / \Phi 22.2$.

D Parallel connect the outdoor units

- 1) The outdoor unit linked by Pipe g1 is 10HP, parallel connects with outdoor unit. refer to Table.5-8 the connective pipe diameter is $\Phi 25.4 / \Phi 12.7$;
The outdoor unit linked by Pipe g2 is 10HP, parallel connects with outdoor unit. refer to Table.5-8 the connective pipe diameter is $\Phi 25.4 / \Phi 12.7$;
The outdoor unit linked by Pipe g3 is 18HP, parallel connects with outdoor unit. refer to Table.5-8 the connective pipe diameter is $\Phi 31.8 / \Phi 19.1$.
- 2) The upstream of G1 is the two parallel connected outdoor units, refer to Table.5-8 select the three parallel connected outdoor unit, the pipe diameter is $\Phi 38.1 / \Phi 19.1$.
- 3) Parallel connect the three outdoor units, refer to Table.5-8 should select BJC-03-CM(i) for outdoor unit connective pipes (L+M).

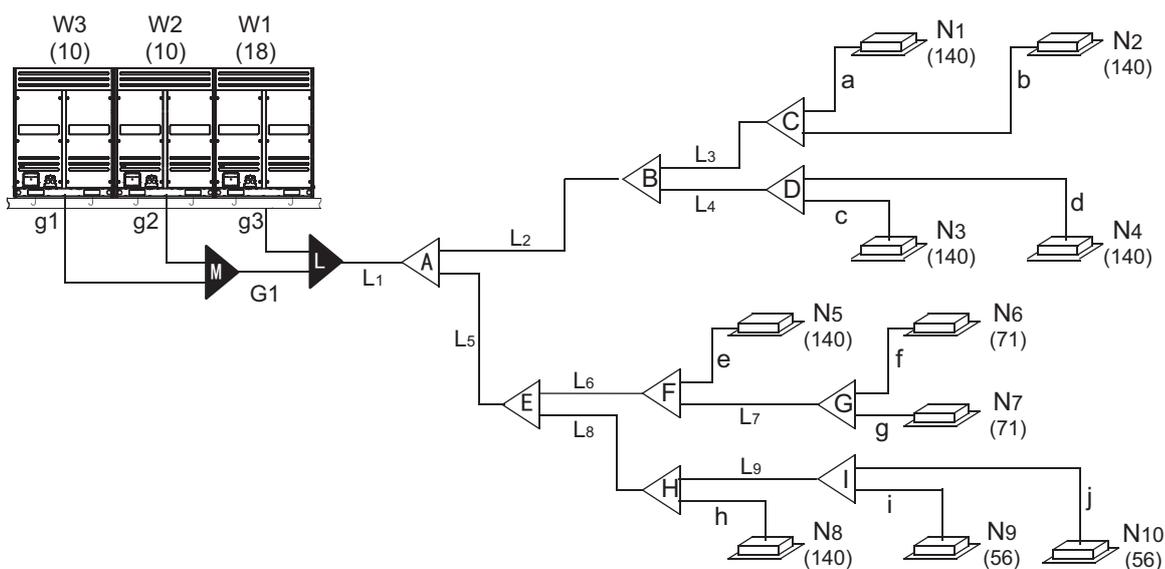


Fig.5-4

5.8 Remove dirt or water in the piping

- Make sure there is no any dirt or water before connecting the piping to the outdoor units.
- Wash the piping with high pressure nitrogen, never use refrigerant of the outdoor unit.

5.9 Gas tight test

- 1) Upon set up the indoor unit pipeline, please connect the Hi-pressure pipe with shut-off valve firstly.
- 2) Weld the pipe at the low pressure side to the meter connector.
- 3) Use the vacuum pump discharging air inside the liquid side shut-off valve and meter connector, until to the -1kgf/cm^2 .
- 4) Close the vacuum pump, charge 40kgf/cm^2 nitrogen gas from the piston of shut-off valve and from the meter connector. Pressure inside should be maintained at there no less than 24 hrs.

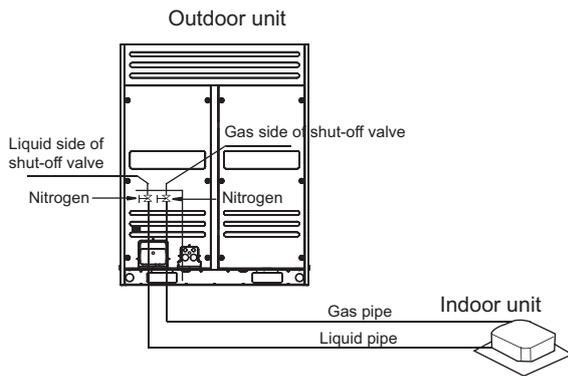


Fig.5-5



CAUTION

- Pressurized nitrogen (3.9MPa ; 40kgf/cm^2) is used for airtightness test.
- It is not allow to use oxygen, combustible gas or toxic gas to conduct the airtightness test.
- When welding, please use wet cloth insulating the low pressure valve for protection.
- For avoid the equipment be damaged, the pressure maintainedtime should not last too long.

5.10 Vacuum with vacuum pump

- 1) Use the vacuum pump which vacuum level lower than -0.1MPa and the air discharge capacity above 40L/min .
- 2) The outdoor unit is not necessary to vacuum, don't open the outdoor unit gas and liquid pipe shut-off valves.
- 3) Make sure the vacuum pump could result as -0.1MPa or below after 2 hrs or above operation. If the pump operated 3 hrs or above could not achieve to -0.1MPa or below, please check whether water mix or gas leak inside of the pipe.

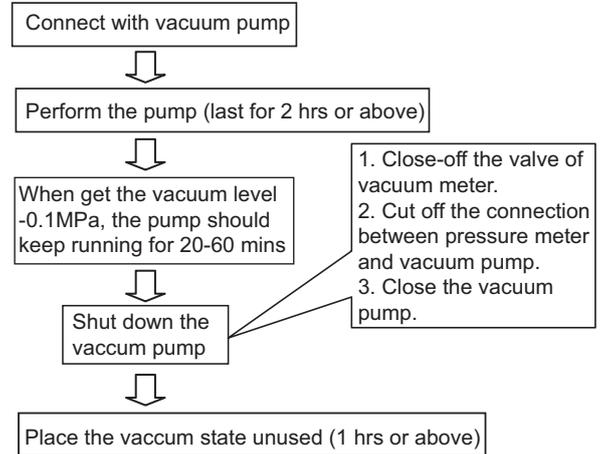


Fig.5-6



CAUTION

- Don't mix up the different refrigerants or abuse the tools and measurements which directly contact with refrigerants.
- Don't adopt refrigerant gas for air vacuuming.
- If vacuum level could not get to -0.1MPa , please check whether resulted by leakage and confirm the leakage site. If no leakage, please operate the vacuum pump again 1 or 2 hrs.

5.11 Refrigerant amount to be added

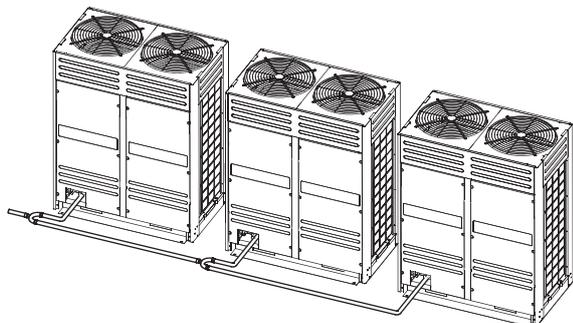
Calculate the added refrigerant according to the diameter and the length of the liquid side pipe of the outdoor/indoor unit connection. The refrigerant is R410A.

Table.5-10

Pipe size on liquid side	Refrigerant to be Added per meter
Φ6.4	0.022kg
Φ9.5	0.057kg
Φ12.7	0.110kg
Φ15.9	0.170kg
Φ19.1	0.260kg
Φ22.2	0.360kg
Φ25.4	0.520kg
Φ28.6	0.680kg

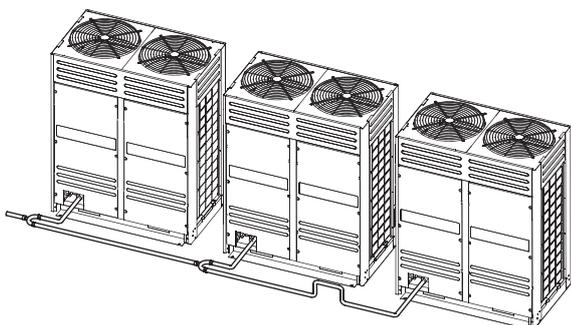
5.12 The Installation key points of connective pipes between outdoor units

- 1) Connect the pipes between outdoor units, the pipes should place horizontally (Fig.5-7, Fig.5-8), it is not allow the concave at junction site (Refer to Fig.5-9).
- 2) All connective pipes between the outdoor units are not allowed to over than the height of every outlets of the pipes (Refer to Fig.5-10).



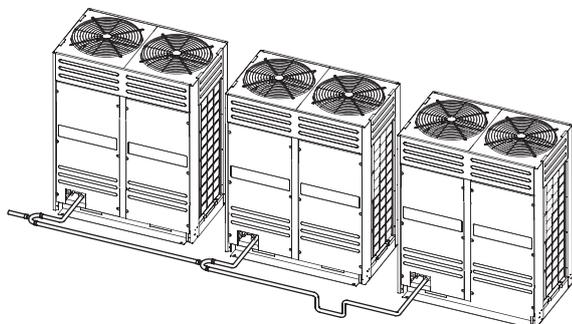
✓ Correct way

Fig.5-7



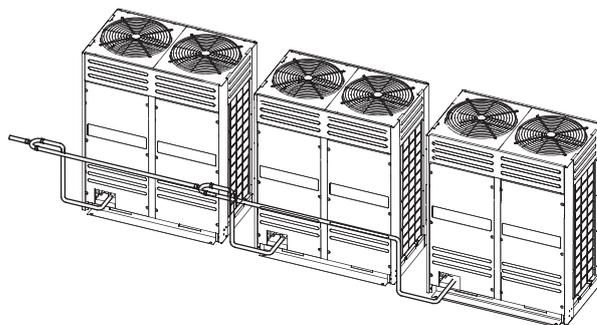
✓ Correct way

Fig.5-8



× Wrong way

Fig.5-9



× Wrong way

Fig.5-10

- 3) The branch joint must be installed horizontally, error angle of it should not large than 10° . Otherwise, malfunction will be caused.

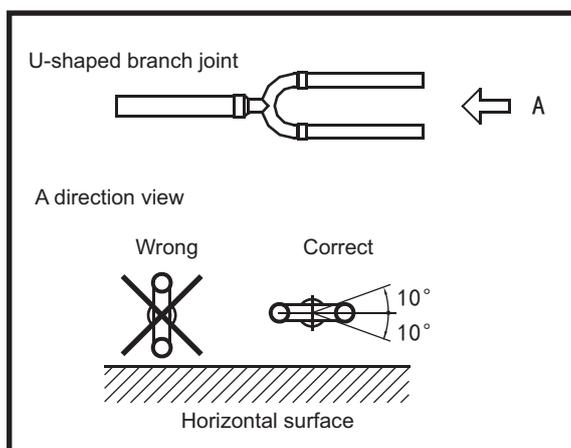


Fig.5-11

- 4) For avoid oil accumulate at the outdoor unit, please install the branch joints properly.

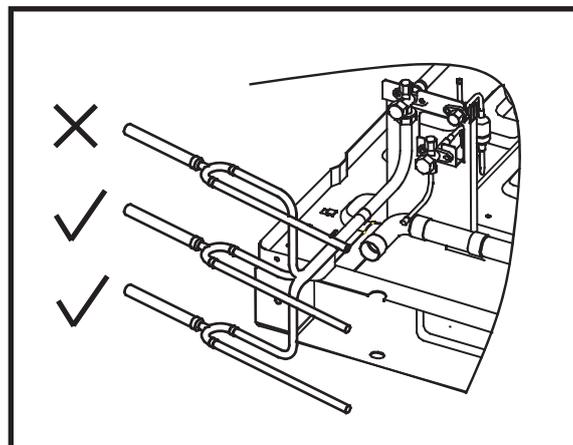


Fig.5-12

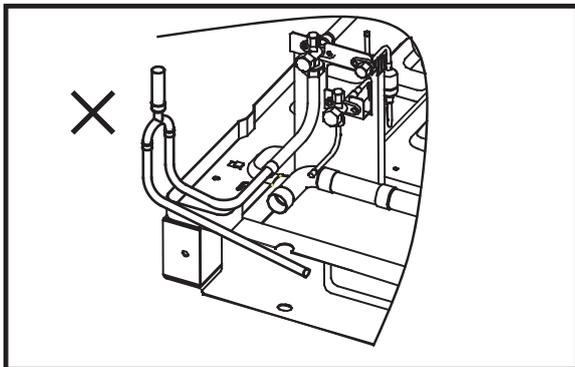


Fig.5-13

6. ELECTRIC WIRING

6.1 SW2 query instructions

Use application of the SW2 spot check

Table.6-1

Serial Num	Normal Display	Normal display	Note
1	0--	Outdoor unit address	0,1,2,3
2	1--	Outdoor unit capacity itself	8,10,12,14,16,18
3	2--	Modular outdoor unit qty.	Avai lable for main unit
4	3--	Setting of indoor units qty.	Avai lable for main unit
5	4--	Total capacity of outdoor units	Capacity requirement
6	5--	Total requirement of indoor unit capacity	Avai lable for main unit
7	6--	Total requirement of main unit corrected capacity	Avai lable for main unit
8	7--	Operation	0, 2, 3, 4
9	8--	This outdoor unit actual operation capacity	Capacity requirement
10	9--	Speed of fan 1	
11	10--	Speed of fan 2	
12	11--	T2/T2B average Temp	Actual value
13	12--	T3 pipe temp	Actual value
14	13--	T4 ambient temp	Actual value
15	14--	Discharge Temp.of Inv. compressor	Actual value
16	15--	Discharge Temp.of fixed compressor	Actual value
17	16--	Tp saturation Temp	Actual value + 30
18	17--	Current of inverter compressor	Actual value
19	18--	Current of fixed_1 compressor	Actual value
20	19--	Opening degree of EXV 1	
21	20--	Opening degree of EXV 2	
22	21--	High pressure	Actual value X 10 MPa
23	22--	Qty. of indoor unit	Actual value
24	23--	Qty. of operating indoor units	Actual value
25	24--	Priority mode	0,1,2,3,4
26	25--	Noise control mode	0,1,2,3
27	26--	Reserve	
28	27--	DC voltage	
29	28--	Reserve	
30	---	The last error or protection code	Without error/protection, display 8.8.8.
31	---	---	Check end

Normal display: Display qty. of indoor units which communicate with outdoor unit on standby mode. In case of cap. requirement, display running frequency of compressor.

Operation mode: 0-OFF/FAN; 2-Cooling; 3-Heating; 4-Constraint cooling;

Fan speed: 0-stop; 1~15: speed increase sequentially, 15 is the max. fan speed;

EXV opening degree: Pulse count=display value*8;

Noise control mode: 0- Night silent mode ; 1-silent mode ; 2-super silent mode ;3-none silent mode;

Priority mode: 0-heating priority mode ; 1-cooling priority mode ; 2-number 63 &the more operating mode first ;3-respond the heating mode only ; 4-respond the cooling mode only ;

SW1: constraint cool button SW2:query switch;

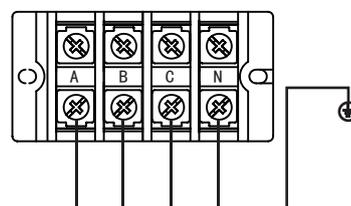
ENC1:outdoor units address setting switch;

ENC2:outdoor units capacity setting switch;

ENC3:indoor units qty. setting switch;

ENC4:network address setting switch;

6.2 Terminal base function



To 380-415V 3N- 50Hz

Fig. 6-1

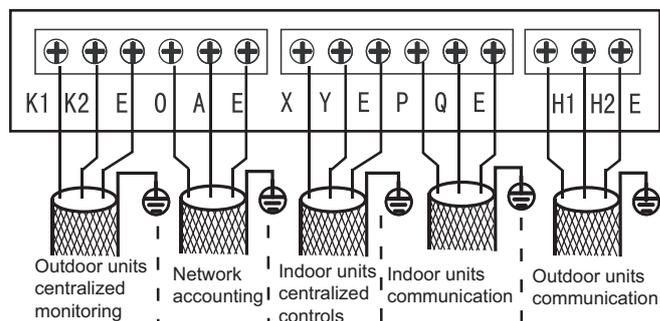


Fig. 6-2

6.3 Explanation of main board

- Main board used on the 8/10/14/16/18HP outdoor unit

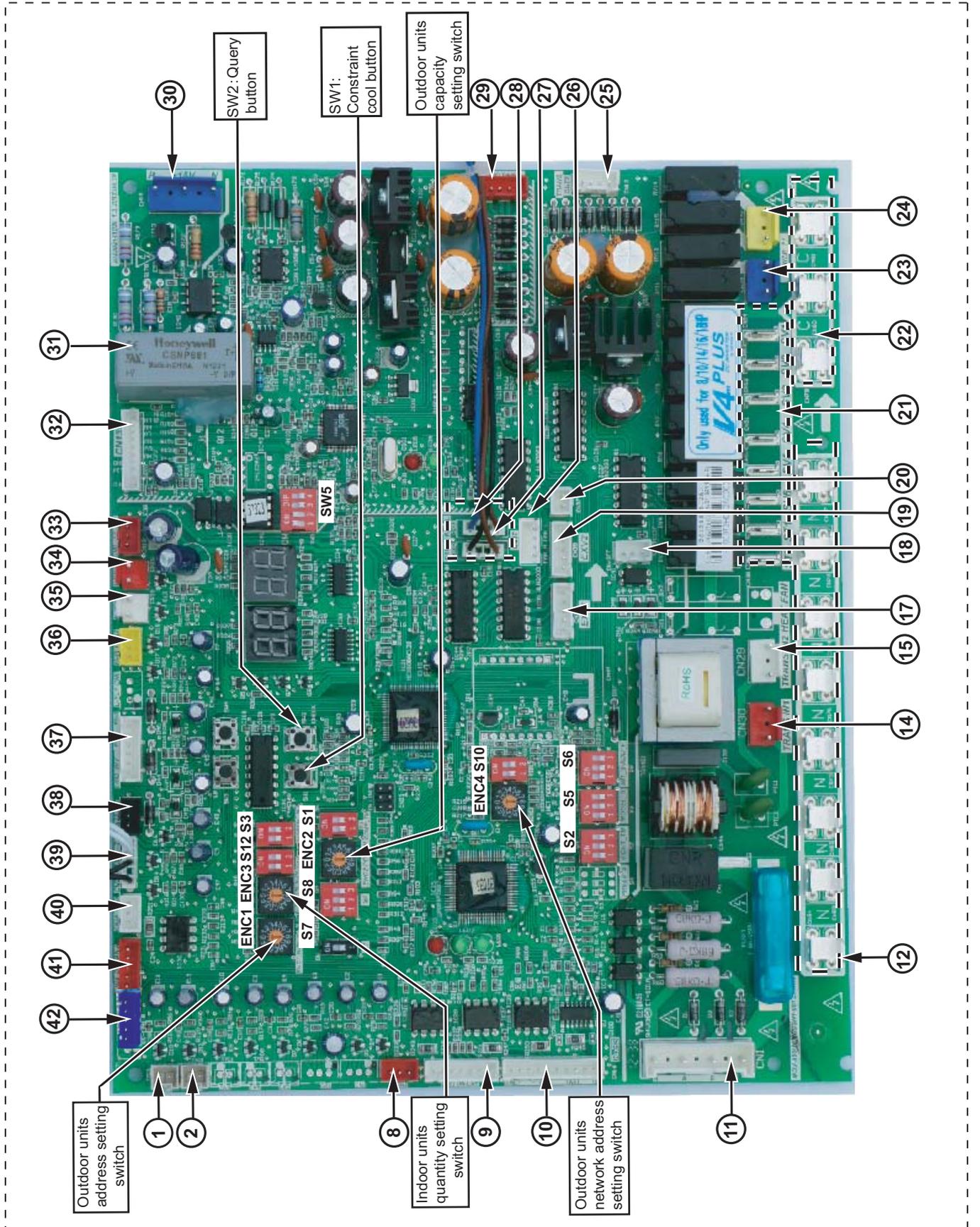


Fig.6-3

6.3 Explanation of main board

■ Main board used on the 12HP outdoor unit

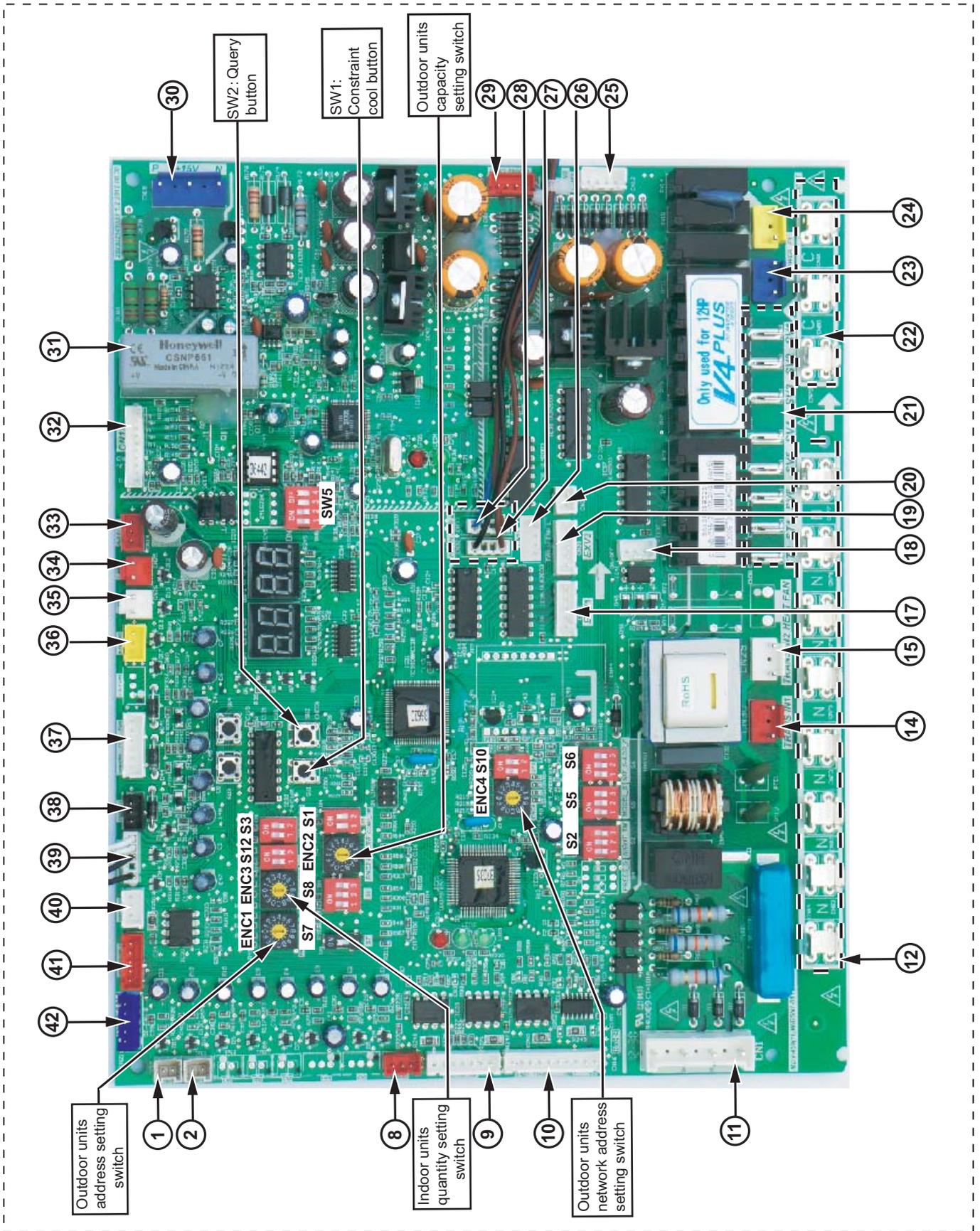


Fig.6-4

■ Explanation of main board

Table.6-2

No.	Content
1	Discharge Temp. sensed port of the Inv. compressor
2	Discharge Temp. sensed port of the fix_1(8,10HP:Inv.) Compressor
8	Power supply port in the Mid-adapted panel
9	Reserve
10	Wiring port for communication between indoor and outdoor units, indoor unit network, outdoor unit network and network accounting
11	Phase inspection port
12	Null line port
14	Power input of the No.1 transformer
15	Power input of the No.2 transformer
17	EXV 1 driving port
18	Reserve
19	EXV 2 driving port
20	Power supply port of 12V DC
21	Loading output terminal
22	Loading output terminal
23	Loading output terminal
24	Loading output terminal
25	Power output of the No.1 transformer
26	Control port of AC fan
27	High-fan control port of AC fan
28	Low-fan control port of AC fan
29	Power output of the No.2 transformer
30	Port for inverter module voltage inspection
31	Mutual inductor for DC main lead current inspection
32	Activation port of inverter module
33	Power supply connected port of the main control panel
34	ON/OFF signal input port for system low pressure inspection
35	ON/OFF signal input port for system high pressure inspection
36	Input port for system high pressure inspection
37	Current inspection port of the inverter(fixed) compressors
38	Reserve
39	Inspection port for outdoor ambient Temp. and condensator coil
40	Communication ports among outdoor units
41	Control port of DC fan A
42	Control port of DC fan B(Only for DC+DC condenser fan type)



CAUTION

- Before debugging the power supply connected port of the main control panel, it must set the indoor and outdoor units addresses.
- There are high electric in the electric control box, don't touch except for the professionals.

6.4 Dial codes definition

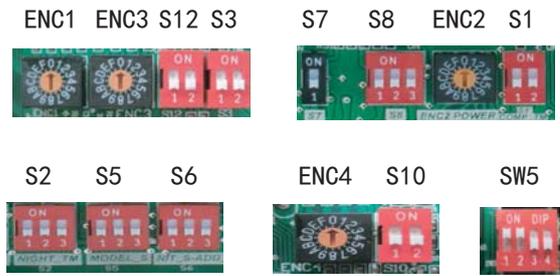


Fig.6-5

ENC1 definition

ENC1 	Outdoor unit address setting switch Effective to 0-3 0 stand for main unit 1-3 stand for slave unit
----------	--

ENC2 definition

ENC2 	Outdoor units capacity setting switch Effective to 0-5 0-5 stand for 8HP-18HP
----------	---

ENC4 definition

ENC4 	Network address setting switch Effective to 0-7
----------	--

SW5 definition

SW5 	12HP outdoor unit setting
SW5 	8/10/14/16/18HP outdoor unit setting

S1 definition

S1 	Starting time is set about 5 minutes
S1 	Starting time is set about 12 minutes (Default the Factory Set)

S2 definition

S2 	Night time selection is 6h/10h (Default the Factory Set)
S2 	Night time selection is 6h/12h
S2 	Night time selection is 8h/10h
S2 	Night time selection is 8h/12h

S3 definition

ON 	Night silent mode (Default the Factory Set)
ON 	Silent mode
ON 	Super silent mode
ON 	None silent mode

S5 definition

ON 	Heating priority mode (Default the Factory Set)
ON 	Cooling priority mode
ON 	number 63 & the more operating mode first
ON 	Respond the heating mode only
ON 	Respond the cooling mode only

S6 definition

ON 	Automatic search address
ON 	Nonautomatic search address. (The communication way of the original indoor units) (Default the Factory Set)
ON 	Clean the indoor unit address (Effective to automatic searching new indoor units)

S7 definition

ON 	Without setting the numbers of indoor units (Default the Factory Set)
ON 	Need to set the numbers of indoor units

S8 definition

ON 	For DC Fan+AC Fan
ON 	For DC Fan+DC Fan

S10 definition

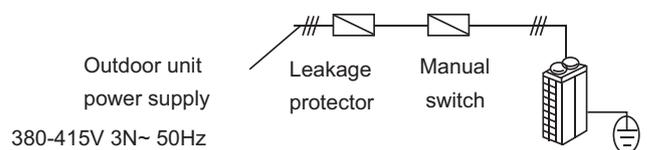
ON 	Reserve
--	---------

ENC3 and S12 definition

ENC3 	S12 	Setting the numbers of indoor units to be 0-15
ENC3 	S12 	Setting the numbers of indoor units to be 16-31
ENC3 	S12 	Setting the numbers of indoor units to be 32-47
ENC3 	S12 	Setting the numbers of indoor units to be 48-63

6.5 Electric wiring system and installation

Outdoor unit power wiring



Indoor unit power wiring

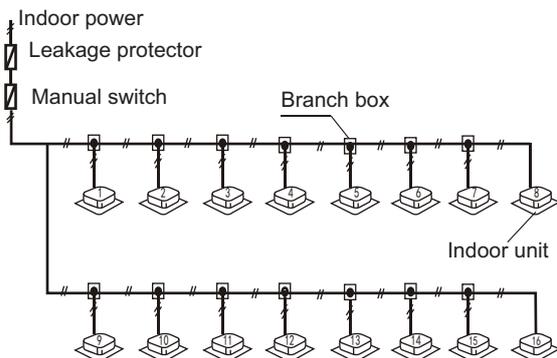


Fig.6-6

Fig.6-7



CAUTION

- Set refrigerant piping system, signal wires between indoor-indoor unit, and that between outdoor-outdoor unit into one system.
- Power must unified supply to all indoor units in the same system.
- Please do not put the signal wire and power wire in the same wire tube; keep distance between the two tubes. (Current capacity of power supply: less than 10A--300mm, less than 50A--500mm.)
- Make sure to set address of outdoor unit in case of parallel multi-outdoor units.

6.6 Electric parameter form of outdoor unit

Table.6-3

System HP	Outdoor Unit				Power Current			Compressor		OFM	
	Voltage	Hz	Min.	Max.	MCA	TOCA	MFA	MSC	RLA	KW	FLA
8HP	380	50	342	456	21.8	24.5	25	-	17.4	0.424	4.40
	400							-	16.5		
	415							-	15.9		
10HP	380	50	342	456	21.8	24.5	25	-	17.4	0.424	4.40
	400							-	16.5		
	415							-	15.9		
12HP	380	50	342	456	20.0	24.5	25	-/68	6.2+9.8	0.48	5.50
	400							-/64.6	5.9+9.3		
	415							-/62.3	5.7+9		
14HP	380	50	342	456	22.8	33.0	40	-/62	17.4+8.8	0.80	7.30
	400							-/58.9	16.5+8.4		
	415							-/56.8	15.9+9		
16HP	380	50	342	456	34.0	36.0	40	-/68	17.4+9.8	0.80	7.30
	400							-/64.6	16.5+9.3		
	415							-/62.3	15.9+9		
18HP	380	50	342	456	43.6	46.0	50	-/85	17.4+12	0.85	8.80
	400							-/80.8	16.5+11.4		
	415							-/77.8	15.9+11		
20HP	380	50	342	456	43.6	49.0	50	-	17.4*2	0.85	8.80
	400							-	16.5*2		
	415							-	15.9*2		
22HP	380	50	342	456	41.9	49.0	50	-/68	17.4+6.2+9.8	0.90	9.90
	400							-/64.6	16.5+5.9+9.3		
	415							-/62.3	15.9+5.7+9		
24HP	380	50	342	456	54.6	57.5	60	-/62	17.4*2+8.8	1.22	11.70
	400							-/58.9	16.5*2+8.4		
	415							-/56.8	15.9*2+8.1		
26HP	380	50	342	456	57.8	60.5	65	-/68	17.4*2+9.8	1.22	11.70
	400							-/64.6	16.5*2+9.3		
	415							-/62.3	15.9*2+9		
28HP	380	50	342	456	65.3	70.5	65	-/85	17.4*2+12	1.28	12.80
	400							-/80.8	16.5*2+11.4		
	415							-/77.8	15.9*2+11		
30HP	380	50	342	456	68.8	69.0	70	-/130	17.4*2+9.8+8.8	1.60	14.60
	400							-/123.5	16.5*2+9.3+8.4		
	415							-/119.0	15.9*2+9+8.1		
32HP	380	50	342	456	76.3	79.0	80	-/147	17.4*2+12+8.8	1.60	14.60
	400							-/139.7	16.5*2+11.4+8.4		
	415							-/134.5	15.9*2+11+8.1		
34HP	380	50	342	456	79.5	82.0	90	-/153	17.4*2+12+9.8	1.65	16.10
	400							-/145.4	16.5*2+11.4+9.3		
	415							-/140.1	15.9*2+11+9		
36HP	380	50	342	456	87.0	92.0	90	-/170	17.4*2+12*2	1.65	16.10
	400							-/161.5	16.5*2+11.4*2		
	415							-/155.7	15.9*2+11*2		
38HP	380	50	342	456	87.1	95.0	90	-/85	17.4*3+12	1.70	17.20
	400							-/80.8	16.5*3+11.4		
	415							-/77.8	15.9*3+11		
40HP	380	50	342	456	90.6	93.5	100	-/130	17.4*3+9.8+8.8	2.02	19.00
	400							-/123.5	16.5*3+9.3+8.4		
	415							-/119.0	15.9*3+9+8.1		

System HP	Outdoor Unit				Power Current			Compressor		OFM	
	Voltage	Hz	Min.	Max.	MCA	TOCA	MFA	MSC	RLA	KW	FLA
42HP	380	50	342	456	93.8	96.5	100	-/136	17.4*3+9.8*2	2.02	19.00
	400							-/129.2	16.5*3+9.3*2		
	415							-/124.5	15.9*3+9*2		
44HP	380	50	342	456	101.3	106.5	100	-/153	17.4*3+12+9.8	2.08	20.10
	400							-/145.4	16.5*3+11.4+9.3		
	415							-/140.1	15.9*3+11+9		
46HP	380	50	342	456	108.8	116.5	110	-/170	17.4*3+12*2	2.40	21.90
	400							-/161.5	16.5*3+11.4*2		
	415							-/155.7	15.9*3+11*2		
48HP	380	50	342	456	112.3	115	120	-/215	17.4*3+12+9.8+8.8	2.40	21.90
	400							-/204.3	16.5*3+11.4+9.3+8.4		
	415							-/196.9	15.9*3+11+9+8.1		
50HP	380	50	342	456	119.8	125	130	-/232	17.4*3+12*2+8.8	2.45	23.40
	400							-/220.4	16.5*3+11.4*2+8.4		
	415							-/212.4	15.9*3+11*2+8.1		
52HP	380	50	342	456	123.0	128	130	-/238	17.4*3+12*2+9.8	2.45	23.40
	400							-/226.1	16.5*3+11.4*2+9.3		
	415							-/217.9	15.9*3+11*2+9		
54HP	380	50	342	456	130.5	138	130	-/255	17.4*3+12*3	2.50	24.50
	400							-/242.3	16.5*3+11.4*3		
	415							-/233.5	15.9*3+11*3		
56HP	380	50	342	456	130.6	141	140	-/170	17.4*4+12*2	2.82	26.30
	400							-/161.5	16.5*4+11.4*2		
	415							-/155.7	15.9*4+11*2		
58HP	380	50	342	456	134.1	139.5	140	-/215	17.4*4+12+9.8+8.8	2.82	26.30
	400							-/204.3	16.5*4+11.4+9.3+8.4		
	415							-/196.9	15.9*4+11+9+8.1		
60HP	380	50	342	456	141.6	149.5	140	-/232	17.4*4+12*2+8.8	2.88	27.40
	400							-/220.4	16.5*4+11.4*2+8.4		
	415							-/212.4	15.9*4+11*2+8.1		
62HP	380	50	342	456	144.8	152.5	150	-/238	17.4*4+12*2+9.8	3.20	29.20
	400							-/226.1	16.5*4+11.4*2+9.3		
	415							-/217.9	15.9*4+11*2+9		
64HP	380	50	342	456	152.3	162.5	150	-/255	17.4*4+12*3	3.20	29.20
	400							-/242.3	16.5*4+11.4*3		
	415							-/233.5	15.9*4+11*3		
66HP	380	50	342	456	155.8	161	160	-/300	17.4*4+12*2+9.8+8.8	3.25	30.70
	400							-/285	16.5*4+11.4*2+9.3+8.4		
	415							-/274.7	15.9*4+11*2+9+8.1		
68HP	380	50	342	456	163.3	171	160	-/317	17.4*4+12*3+8.8	3.30	32.20
	400							-/301.2	16.5*4+11.4*3+8.4		
	415							-/290.3	15.9*4+11*3+8.1		
70HP	380	50	342	456	166.5	174	170	-/323	17.4*4+12*3+9.8	3.35	33.70
	400							-/306.9	16.5*4+11.4*3+9.3		
	415							-/295.8	15.9*4+11*3+9		
72HP	380	50	342	456	153	163	170	-/340	17.4*4+12*4	3.40	35.20
	400							-/323	16.5*4+11.4*4		
	415							-/311.4	15.9*4+11*4		

Notes:

1. RLA is based on the following conditions, Indoor temp. 27°C DB/19°C WB, Outdoor temp. 35°C DB
2. TOCA means the total value of each OC set.
3. MSC means the Max. current during the starting of compressor.
4. Voltage range

Units are suitable for use on electrical systems where voltage supplied to unit terminals is not below or above listed range limits.

5. Maximum allowable voltage variation between phase is 2%
6. Selection wire size based on the larger value of MCA or TOCA
7. MFA is used to select the circuit breaker and the ground fault circuit interrupter (earth circuit breaker).

Remark:

- MCA: Min. Current Amps. (A)
- TOCA: Total Over-current Amps. (A)
- MFA: Max. Fuse Amps. (A)
- MSC: Max. Starting Amps. (A)
- RLA: Rated Locked Amps. (A)
- OFM: Outdoor Fan Motor.
- FLA: Full Load Amps. (A)
- KW: Rated Motor Output (KW)

6.7 Control system and Installation

- The control line should be shielded wire. Using other wiring shall create signal interference, thus leading to error operation.
- The shielded nets at the two sides of shielded wires are either grounded to the earth, or connected with each other and jointed to the sheet metal along to the earth.
- Control wire could not be bound together with refrigerant pipeline and power wire. When power wire and control wire is distributed in parallel form, keep gap between them above 300mm so as to preventing signal interference.
- Control wire could not form closed loop.
- Control wire has polarity, so be careful when connecting.

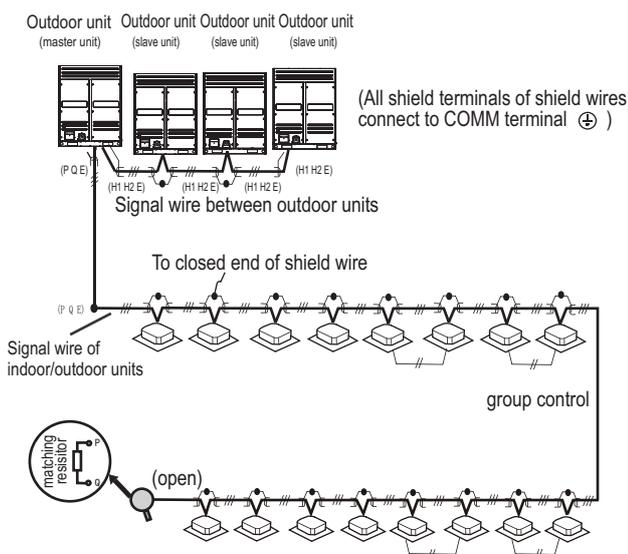


NOTE

The shield net should be grounded at the wiring terminal of outdoor unit. The inlet and outlet wire net of indoor communication wire should be connected directly and could not be grounded, and form open circuit at the shield net of final indoor unit.

6.8 Signal wire of indoor/outdoor units

- Signal wire of indoor/outdoor unit adopts 3-core shielded wire ($\geq 0.75\text{mm}^2$) which has polarity, please connect it correctly.



The indoor unit at the terminal of communication system should parallel connect a impedance between port P and port Q.

Fig.6-8

6.9 Example for power wire connection

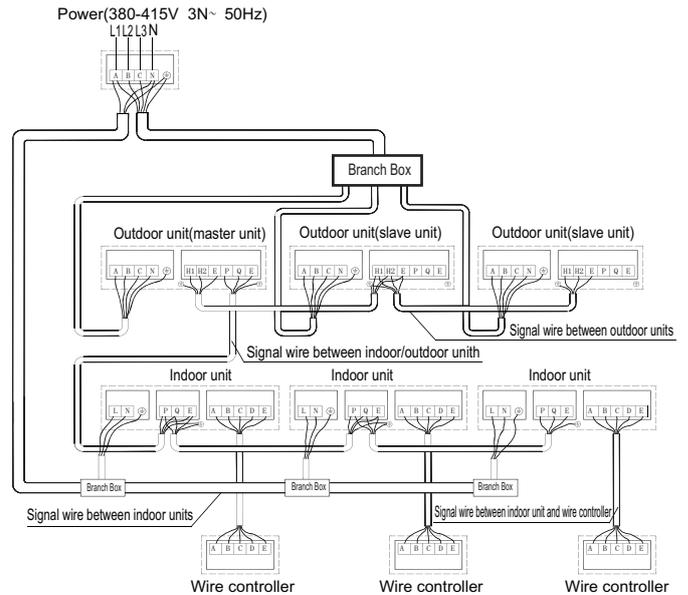


Fig.6-9

7. TRIAL RUN

7.1 Inspection and confirmation before commissioning

- Check and confirm that refrigeration pipe line and communication wire with indoor and outdoor unit have been connected to the same refrigeration system. Otherwise, operation troubles shall happen.
- Power voltage is within $\pm 10\%$ of rated voltage.
- Check and confirm that the power wire and control wire are correctly connected.
- Check whether wire controller is properly connected.
- Before powering on, confirm there is no short circuit to each line.
- Check whether all units have passed nitrogen pressure-keeping test for 24 hours with R410A: 40kg/cm^2 .
- Confirm whether the system to debugging has been carried out vacuum drying and packed with refrigeration as required.

7.2 Preparation before debugging

- Calculating the additional refrigerant quantity for each set of unit according to the actual length of liquid pipe.
- Keep required refrigerant ready.
- Keep system plan, system piping diagram and control wiring diagram ready.
- Record the setting address code on the system plan.
- Turn on power switches outdoor unit in advance, and keep connected for above 12 hours so that heater heating up refrigerant oil in compressor.
- Turn on air pipe stop valve, liquid pipe stop valve, oil balance valve and air balance valve totally. If the above valves do not be turned on totally, the unit should be damaged.
- Check whether the power phase sequence of outdoor unit is correct.
- All dial switch to indoor and outdoor unit have been set according to the Technical Requirement of Product.

7.3 Fill the name of connected system

To clearly identify the connected systems between two or more indoor units and outdoor unit, select names for every system and record them on the nameplate on the outdoor electric control box cover.

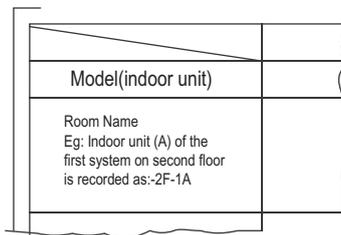


Fig.7-1

7.4 Caution on refrigerant leakage

- This air conditioner adopts R410A as refrigerant, which is safe and noncombustible.
- The room for air conditioner should be big enough that refrigerant leakage can not reach the critical thickness. Besides this, you can take some action on time.
- Critical thickness----the max thickness of Freon without any harm to person. R410A critical thickness:0.3 [kg/m³]

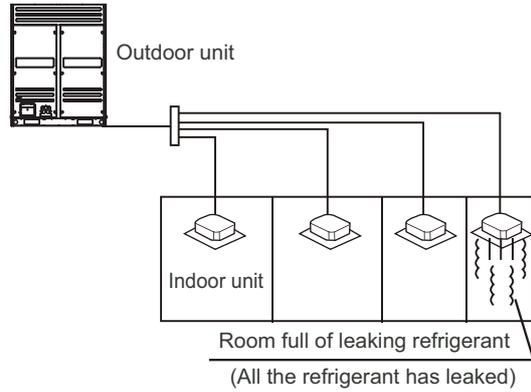


Fig.7-2

- Calculate the critical thickness through following steps, and take necessary actions.
 - Calculate the sum of the charge volume (A[kg])
Total refrigerant volume=refrigerant volume when delivered(nameplate)+superaddition
 - Calculate the indoor cubage (B[m³]) (as the minimum cubage)
 - Calculate the refrigerant thickness.

$$\frac{A \text{ [kg]}}{B \text{ [m}^3\text{]}} \leq \text{Critical thickness: } 0.3 \text{ [kg/m}^3\text{]}$$

- Countermeasure against overhigh thickness
 - Install mechanical ventilator to reduce the refrigerant thickness under critical level. (ventilate regularly)
 - Install leakage detector alarming device related to mechanical ventilator if you can not regularly ventilate.

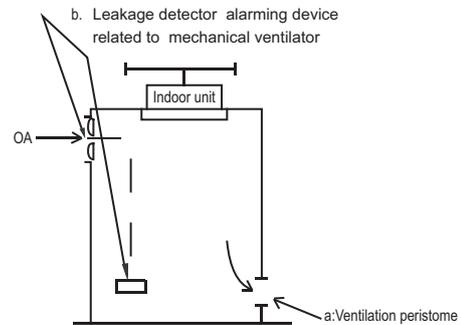


Fig.7-3

7.5 Turn over to customer

Be sure to deliver the Installation Manual of the indoor unit, and the outdoor unit to the user.

8. CUSTOMER DETAILS

Branch Address :

.....

.....

Telephone :

Person to be contacted :

Dealer address :

.....

.....

Telephone :

Person to be contacted :

.....

Signature of the Dealer with Seal.

In all correspondence/communication state your name, address, the serial number of your air conditioning unit, date of purchase and dealer's name (include address), location of unit and description of problem, for prompt and immediate attention

Name of Customer :

Address :

.....

.....

Sr.No. of the Unit :

Sr.No. of the Compressor : Date of purchase:.....

Invoice No :

202000172356I



更改说明(此页不出菲林，不印刷)：

图号H升级到I:10~12页分歧管型号升级到***(i) (带保温棉分歧管),同时更改11页表5-5
66~72HP对应的分歧管型号。

