

VRF Wall-mounted Indoor Unit **Instruction Manual**

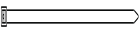
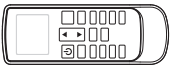


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Accessories and parts purchased locally

Accessories

Name of accessories	Numbers	Shape	Application
Installation instruction for indoor unit	1	The manual	(Please be sure to hand it to user.)
Insulating tube	2		To encase single joints of high and low pressure pipes.
Ribbon	6		Bind up cables and connecting pipes.
Dome insulated tip	6		Used to connect wires
X-type insulated tip	3		Used to connect wires
Brass joint nut	2		Used to connect pipe
Remote controller	1		Control A/C
Battery	2		Supply power to remote controller
Outlet pipe	1		Used to drain water
Blank valve bag	3		Used to contain accessories.

Parts Purchased Locally

	Type	2. 2kW~2. 8kW	3. 6kW~5. 6kW	7. 1kW
Cooper pipe	Liquid pipe (mm)	$\phi 6.35 \times 0.8$		$\phi 9.52 \times 0.8$
	Gas pipe (mm)	$\phi 9.52 \times 0.8$	$\phi 12.7 \times 0.8$	$\phi 15.88 \times 1.0$
PVC drainpipe	For the indoor unit drainpipe. The length is decided according to the actual need.			
Insulation bushing	Assort inner diameter respectively with relevant copper pipe and hard polyethylene plastic pipe. The thickness is usually 10 mm (above). It should be appropriately thickened in closed and wet areas.			

Correct Disposal of this product



Do not dispose this product as unsorted municipal waste. Collection of such waste separately for special treatment is necessary.

1. Safety Precautionary Measures

Warning

- The installation work must be done by the distributor or a professional worker.
The installation worker must be equipped with all related knowledge as a wrong operation may cause fire risk, electric shock, injury or water leakage, etc.
This appliance can be used by children aged from 8 years and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning use of the appliance in a safe way and understand the hazards involved. Children shall not play with the appliance. Cleaning and user maintenance shall not be made by children without supervision.
- Parts purchased locally should be appointed products of our company.
Retailed parts like humidifier should be appointed products of our company, the violation of which may cause fire, electric shock or water leakage, etc. The installation work of retailed products must be installed by professionals.
- If the unit has to be installed in a small room, suitable measures shall be done to make sure any refrigerant leakage concentration if happened in the room will not exceed the critical level.
For detailed measures, please consult with the distributor.
- Connection of power supply must be complying with rules specified by the local electrical authority.
Required by law, must be reliable ground works. If the ground is not perfect, it may result in electric shock
The appliances that are intended to be permanently connected to fixed wiring, and have a leakage current that may exceed 10mA, shall state that the installation of a residual current device (RCD) having a rated residual operating current not exceeding 30mA is advisable.
- If the air conditioner need to be moved or reinstalled, please let the distributor or a professional worker operate.
Incorrect installation will cause fire risk, electric shock, injury or water leakage, etc.
- The user is not permitted to rebuild or repair the unit by themselves.
Incorrect repairing will cause fire risk, electric shock, injury or water leakage, etc, so repairing must be performed by the distributor or a professional worker.
If the supply cord is damaged, it must be replaced by the manufacturer, its service agent or similarly qualified persons in order to avoid a hazard.

Notice

- Make sure the water drainage pipe is useable.
Incorrect installation of water drainage pipe will cause water leakage and furniture wetting, etc.
- Make sure a current leakage protection switch is equipped.
The current leakage protection switch must be equipped or there may be an electric shock.
- It mustn't be installed in any position with potential leakage of inflammable gas.
If any inflammable gas leaks, there may be a fire risk around the indoor unit.
- Make sure the foundation installation or suspending installation is firm and reliable.
If the foundation or suspension is not firm and reliable enough, there may be a fall accident.
- Make sure all electric cables are correctly connected.
If any electric cable is incorrectly connected, any electrical part may be damaged.
- Exposure of this machine to water or other moisture before installation will cause short-circuit of electrical components.
Don't store it in humid basement or expose it to rain or water.
- If the refrigerant leaks during installation, the room must be ventilated at once.
The leaked refrigerant may generate some toxic gas if it contacts any flame.
- After installation, make sure there is no refrigerant leakage.
If the refrigerant gas enters and contacts some flame source such as a heater, a stove or an electric cooker, it may generate some toxic gas.

2. Selection of Installation Site

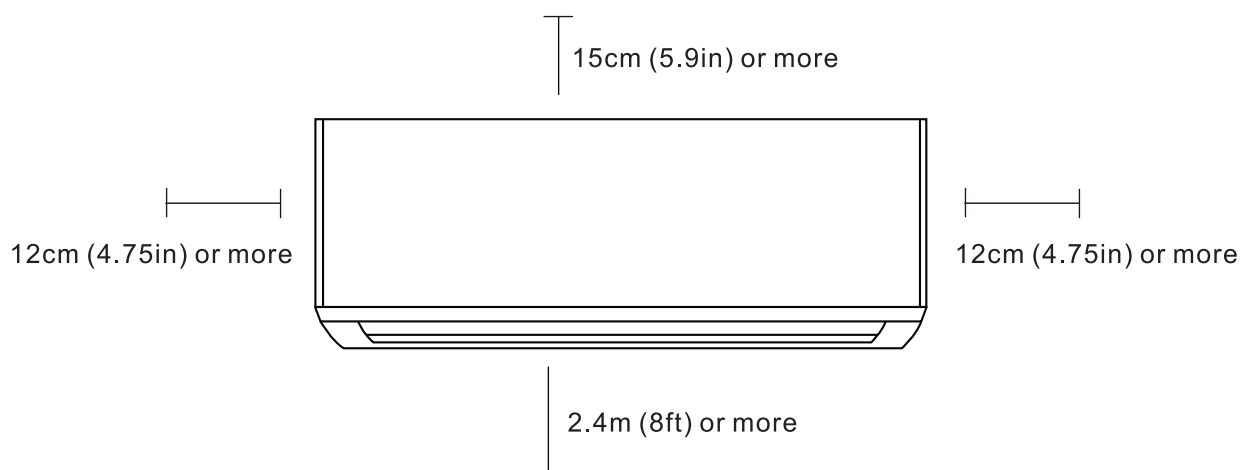
2-1 Selection of Installation Site for Indoor Unit

- 1) Provide enough space for installation and maintenance.
- 2) The ceiling is horizontal and the building construction can support indoor unit.
- 3) Ventilation is accessible and the site suffers from the minimal impact of extraneous air.
- 4) Air stream can spread to everywhere of the room.
- 5) Connecting pipe and drainpipe are easy to be extracted.
- 6) No direct radiation of heat.

⚠ Attention

- It may result in faults (if it's inevitable, please consult) if the unit is installed in the following places:
- Places where there is mineral oil like cutting oil.
- Places like seaside where there is much salt in the air.
- Places where there is aggressive gas like sulfur gas.
- Places like factory where power supply voltage severely fluctuates.
- In car or cabin.
- Places like kitchen which is full of oil gas and oil bloom.
- Places where there is strong electromagnetic wave.
- Please where there is inflammable gas or material.
- Please where acidic or alkaline gas evaporates.
- Other special environments.
- This series of air conditioning of comfort air conditioning, do not use computer, precision instrument, food, animals and plants, art and other special places.

2-2 Space Needed for Installation and Maintenance



Note: It is necessary to install other functional devices for the air conditioner (such as the purification device). At this time, it is necessary to take the installation space of the functional device into account.

3. Installation of Indoor Unit

⚠ Warning

- The air conditioner must be installed in a place of enough strength to support the machine weight.
- If it lacks of strength, the machine may fall down and cause some personal injury.
- If it lacks of strength, the machine may fall down and cause some personal injury.
- Incorrect installation may cause some accident because of machine falling down.

3-1 Installation Demands of Indoor Unit

3-1-1 Select the place with excellent ventilation indoors, and strictly prohibit to install it in the following sites.

Comply with the following rules during the installation:

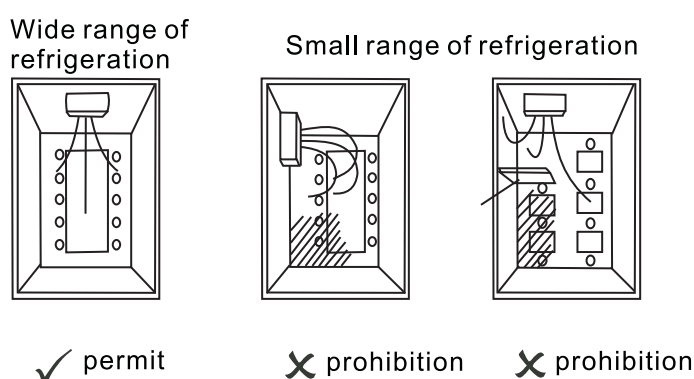


Figure 3.1

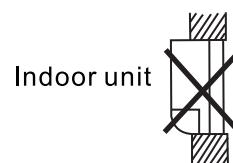


Figure 3.2

3-1-2 Prohibit to embed the unit enclosure in the wall (see Figure 3.2).

3-1-3 Ensure the wall is firm.

3-2 Installation of Indoor Unit

3-2-1 Fix the Mounting Plate of Indoor Unit

1) Select the installation location, take down the mounting plate in the back of the indoor unit, and place the mounting plate to selected installation location in advance. At this time, it is necessary to maintain the levelness and reserve enough dimension between the ceiling and the left/right wall, and confirm the location to punch the fixing wall plate hole.

2) If the wall is composed of the brick, concrete or similar materials, punch one hole with the diameter 5mm in the wall. Insert the plastic expanding pipe into it after the fixing hole is punched by the electric hammer with drill, and fix the mounting plate to the wall by the self-tapping screws. Furthermore, it will determine the levelness of the mounting plate by the level meter.

3) Fix the mounting plate of the indoor unit in the wall.

3. Installation of Indoor Unit

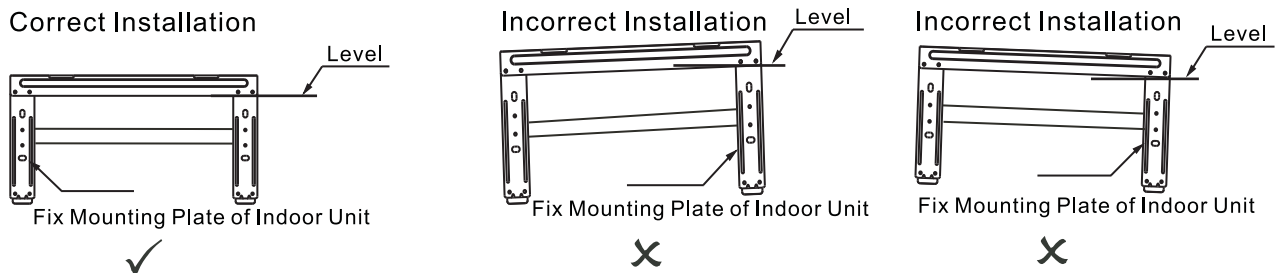


Figure 3.3

3-2-2 Punch Hole in Wall

- 1) Determine the pipe route and the pipe outlet location.
- 2) Select the drill in accordance with the model of units, and punch the hole in wall by the electric hammer or water drill.
- 3) It is necessary to bypass the wire or foreign matter in and out of the wall and the too hard wall as much as possible during the punching, and the inner side of the hole shall be higher than the outer side for 0.5cm - 1cm for the Drain. The wall hole of the outlet pipe at the side of the indoor unit shall be slightly lower than the lower side of the indoor unit. Paste the plastic cloth in the wall during the punching by the water drill or take other measures, to prevent the water from flowing in the wall, and take measures for the dustproof during the punching by the electric hammer.

3-2-3 Installation Structure of Indoor Unit

3-2-3-1 When it is installed in the wooden structure:

- 1) Make sure the wooden wall is firm enough before the installation.
- 2) Determine the upper and lower location of the mounting plate according to the distance between the indoor unit and the ceiling.
- 3) Adjust the left and right distance by taking the screw hole of the mounting plate as the center.
- 4) Fix the mounting plate in the wall by the screw.
- 5) For the thickness of the wall is 25mm - 45mm only, please open the bottom cover, to ensure there is not any gap between the indoor unit and the wall, and fix it by the screw.

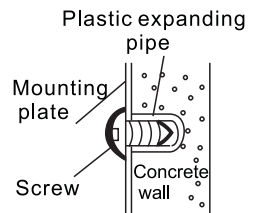


Figure 3.4

3-2-3-2 When it is installed in the concrete structure:

- 1) Drill in the wall according to the mounting plate, and embed it into the plastic expanding pipe.
- 2) Fix the mounting plate by the screw (see Figure 3.4).

3-2-4 Wall-mounted Indoor Unit

- 1) The bound pipe and connecting cable will penetrate through the wall hole, and prevent from damaging the horn mouth and prevent the sand from entering into the connecting unit pipe.
- 2) Hang the upper jaw in the upper hook of the mounting plate in the back of the indoor unit, and move the unit body left and right, to check whether it is hung firmly.
- 3) Push the lower part of the indoor unit toward the wall, and move the unit body up/down and left/right, to check whether it is hung firmly.
- 4) Support the indoor unit between the indoor unit and the wall by one rotation block of the vibration-damping material. On completion of the piping installation, take out this vibration-damping material until it can hang the indoor unit correctly, to ensure the clamp of the indoor unit is snapped into the groove. It will not swing up/down and left/right by the hand. Measure whether it is level by the level meter.
- 5) Piping Route:

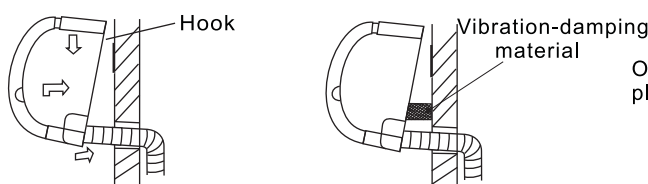


Figure 3.5

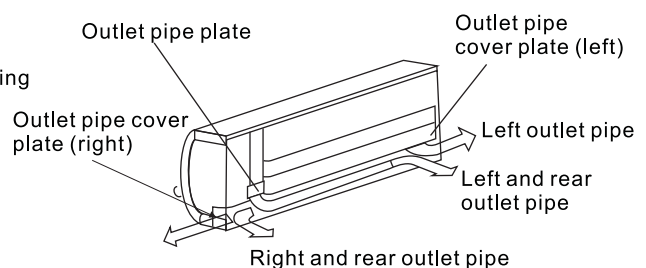


Figure 3.6

3. Installation of Indoor Unit

3-3 Pipe Arrangement and Binding

- 1) Bind it in the sequence that the power cord and the signal cable are on the upper part, the connecting pipe is in the middle and the water pipe is on the lower part.
- 2) Determine the outlet location and connect to the Drain pipe.
- 3) Don't pull the Drain pipe by force during the binding.
- 4) You can fix 5-6 parts by the vinyl tape when you expand the pipe.
- 5) It is necessary to cover the insulation materials when you withdraw the pipe horizontally.
- 6) It is necessary to bypass the connecting pipe joint during the binding for the leakage detection.
- 7) If the Drain pipe is not long enough, it is necessary to lengthen the Drain pipe, and pay attention to wrap the indoor part of the lengthened Drain pipe. The interface of the Drain pipe shall be sealed by the all-purpose adhesive. The water pipe shall not be twisted at any location.

⚠ Notice

Don't expose the piping from the back of the indoor unit.

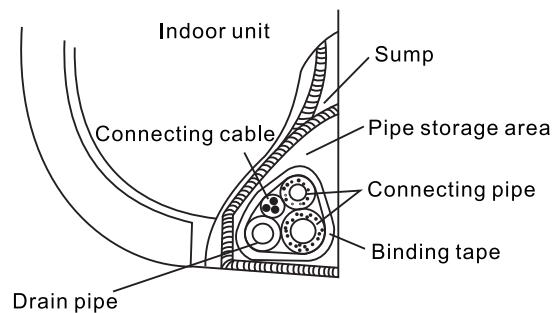


Figure 3.7

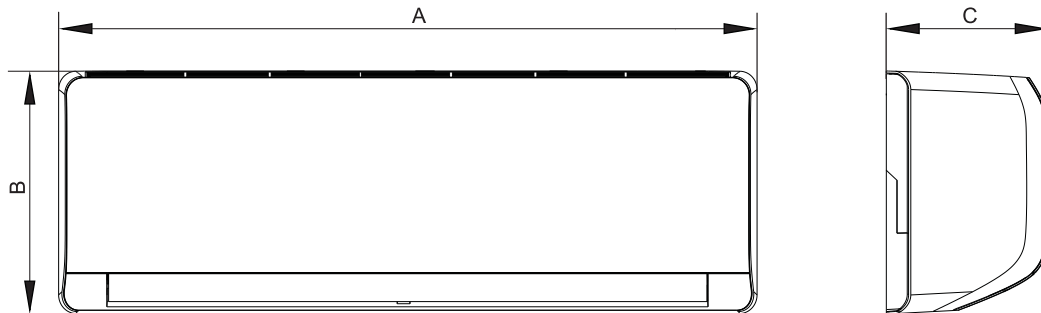
⚠ Notice

Determine the installation location of the indoor unit by the mounting plate, and use the wall hole sleeve when the refrigerant piping penetrates through the metal plate wall.

3. Installation of Indoor Unit

3-4 Installing Size of Indoor Unit

Outer dimension of wall-mounted unit:



Unit: mm

Model of indoor unit \ Size code	Body size		
	A	B	C
2. 2kW~3. 6kW	864	300	200
4. 5kW~7. 1kW	972	320	215

4. Drain Pipe Layout

4-1 Installation of Drainpipe of Indoor Unit

⚠ Notice

Be sure to comply with the instruction for installation to connect the Drain pipe, to prevent the condensed water. The insulation of the Drain pipe shall be implemented effectively.

1) The inner diameter of the PVC Drain pipe is 20mm, and users can purchase and arrange the Drain pipe with proper length at the dealer or the local air conditioner after-sales service, or purchase the Drain pipe on the market directly.

2) Connect the Drain pipe in accordance with Figure 4.1.

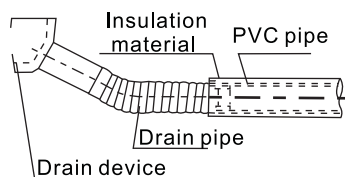


Figure 4.1

⚠ Notice

Don't exert too much force, to prevent the drain pipe from the rupture.

3) The water pump pipe and Drain pipe of the main body (especially for the indoor part) shall be bound by the insulation sleeve and tightened by the tightening belt, to prevent the ingress of air from condensing.

4) To prevent the water from flowing into the air conditioner back during the downtime, the Drain pipe shall decline toward the outdoor side (drain side), and the degree of declination is 1/100 or more. It shall not display any projection or water accumulation (see Figure 4.2a).

5) Don't pull it by force when you connect the Drain pipe, to prevent the stress of the main body. Furthermore, it is necessary to set one supporting point every other 0.8 - 1.0m, to prevent the deflection of the Drain pipe.

6) It is necessary to bind the indoor part when you connect the lengthened Drain pipe, but the lengthened Drain pipe shall not be loosened.

⚠ Notice

Various interfaces of the Drain system shall be sealed, to prevent from the water leakage.

7) The height from the end of the Drain pipe to the floor or the bottom of the Drain groove shall be greater than 50mm, and it shall not be put into the water. When the condensed water is drained into the Drain ditch directly, the Drain pipe shall be bent into one U-shape water seal upward, to prevent the odor from entering into the indoors via the Drain pipe.

Note: The highest point of the U-shape water seal shall be lower than the height of the Drain outlet, to prevent the poor Drain.

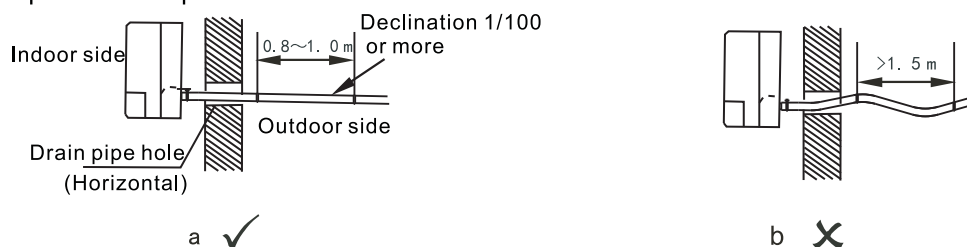


Figure 4.2

4-2 Drain Test

After the Drain pipe is installed, inject a small amount of water into the water tray, to check whether the Drain is smooth.

5. Install Connecting Pipes and Electronic Throttle

5-1 Requirements for the connecting length and drop height of the tubing of both indoor and outdoor units

- 1) Please refer to the allowed length of tubing in the instruction of outdoor unit.
- 2) Please refer to the allowed drop height of tubing in the instruction of outdoor unit.

⚠ Notice

- During the installation process, keep the air, dust and other impurities from getting into the pipeline system.
- Fix indoor and outdoor units before installing the connecting pipe.
- Keep dry while installing the connecting pipe and keep the water from getting into the pipeline system.
- Connecting pipe must be wrapped by heat insulator. (Usually, the thickness is more than 10 mm, and it is even thicker in closed humid area.)

5-2 Material and Size of Tubing

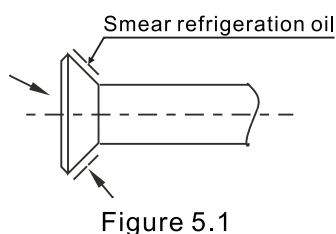
Table 5.1

Type	2. 2kW~2. 8kW	3. 6kW~5. 6kW	7. 1kW
Liquid pipes (mm)	$\phi 6.35 \times 0.8$		$\phi 9.52 \times 0.8$
Gas pipes (mm)	$\phi 9.52 \times 0.8$	$\phi 12.7 \times 0.8$	$\phi 15.88 \times 1.0$

5-3 Procedures for Connecting Pipes

5-3-1 Measure the needed length of connecting tubing, and make connecting tubing according to the flowing methods. (For details, see the "Tubing Connection" column)

- 1) Connect the indoor unit before connecting the outdoor unit.
 - a. Pay attention to the configuration of winding tubing so as not to damage the tubing and its insulation layer.
 - b. Smear the refrigerator oil (it must be engine oil which is compatible with the cooling medium of this type) on the outside surface of flared joint and the conical surface of connecting nut and screw it 3 or 4 rounds with your hand (Fig. 5.1) before screwing the flared nut up.
 - c. Use two spanners at the same time when connecting or taking the tubing down.
 - d. The interface of indoor unit can't bear all the weight of the connecting tubing, because if the interface is over-burdened, it will affect the cooling or heating effects of indoor unit.
- 2) The stop valve of outdoor unit should be completely shut down (as the default state when leaving the factory). Unscrew the nut from the stop valve and connect the flared tube at once (within 5 minutes).
- 3) After connecting the refrigerant tubing to both indoor and outdoor units, eliminate the air according to the column of "Vacuum Supply", then screw the nut up.
 - a. Notes for flexible coupling:
 - ① The winding angle should be less than 90° (Fig. 5.2).
 - ② Its sinuosity had better be in the centre of the pipe range, its bending radius should be more than 3.5 D (the diameter of pipeline).
 - ③ Don't bend the flexible coupling pipe for more than 3 times.



Bend pipe with thumbs



5. Install Connecting Pipes and Electronic Throttle

b. Bending thin-wall connecting pipe (Fig. 5.3).

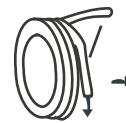
① Cut away a notch of a required size in the insulated tubing at the place of sinuosity when operating with the sinuosity, then expose the pipeline (wrap it up with binder after it gets bent).

② Bend radius as much as possible so as to avoid squash or destruction.

③ Use pipe bender to make close sinuosity.

c. Use copper pipe sold in the market:

When using the copper pipe purchased in the market, you must use the same type insulating material (thickness is often more than 10 mm, and it is even thicker in closed humid area.).



Remove coil methods
make pipe end straight

Figure 5.3

5-3-2 Pipe Arrangement

1) It is necessary to bend pipe or drill holes on the wall. The section surface of bending pipe should not exceed 1/3 of original section surface. When drilling wall or board, ensure to set protection bushings. Welding lines are not allowed to be made within the protection bushings. When drilling external wall for the pipe, ensure to seal it tightly with binder so as to prevent impurities from entering the pipe. The pipe should be insulated by appropriate and suitable insulating tube.

2) The encased connecting pipe should get through the hole on the wall from outside and enter into the room. Arrange pipes carefully. Don't destroy pipes.

5-4 Connection of Pipe

5-4-1 Flaring

1) Cut off pipe with a pipe cutting knife (See Figure 5.4).

2) Insert the pipe into the connected flared nut (Table 5.2).

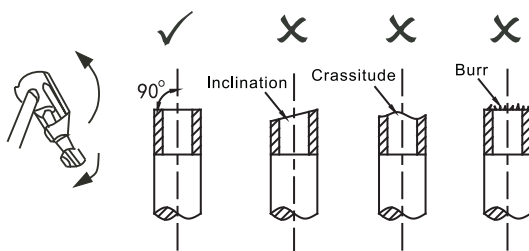
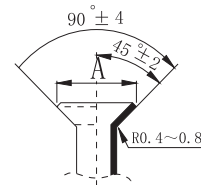


Figure 5.4

Table 5.2

External diameter (mm)	A (mm)	
	Maximum	Minimum
φ 6.35	8.7	8.3
φ 9.52	12.4	12.0
φ 12.7	15.8	15.4
φ 15.88	19.0	18.6
φ 19.05	23.3	22.9



5-4-2 Fasten Nuts

Aim at the connecting pipe and screw up nuts with hand and then screw them up with wrenches as shown in Figure 5.5.

Notice

In accordance with installation conditions, too large torque will break loudspeaker while too small torque will cause leakage of air. Please ensure that the torque has been screwed up according to Table 5.3.

Table: 5.3

pipes size (mm)	Tightening torque (N.m)
φ 6.35	10 ~ 12
φ 9.52	15 ~ 18
φ 12.7	20 ~ 23
φ 15.88	28 ~ 32
φ 19.05	35 ~ 40

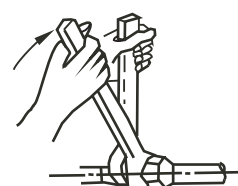


Figure 5.5

5. Install Connecting Pipes and Electronic Throttle

5-5 Installation of Electronic Throttle Component

5-5-1 Schematic Diagram for Installation of Electronic Throttle Component

For the electronic throttle component of the internal electronic expansion valve wall-mounted unit, refer to Figure 5.6.

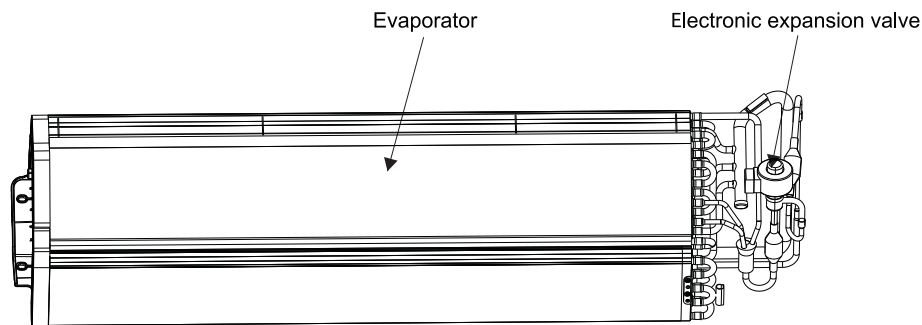


Figure 5.6 The wall-mounted unit of the internal electronic expansion valve

5-6 Leakage Test

After having installed refrigerant pipe, connect it before outdoor unit. Inject nitrogen with certain pressure (4.0MPa) from gas pipe side and liquid pipe side at the same time to take leakage test for 24 hours.

5-7 Vacuum Supply

Connect refrigerant pipe with the two sides of gas pipe and liquid pipe of outdoor, use vacuum pump to vacuumize from the two sides of gas pipe and liquid pipe of outdoor at the same time.

Notice

Never use refrigerant sealed in outdoor unit to vacuumize.

5-8 Valve Switch

Use 5 mm hex socket to open and close the valve of outdoor unit.

5-9 Leak Detection

When detecting leakage, detect leak in the valves at the interface of the pipe joints with soap bubbles.

5-10 Insulated Treatment

Insulate gas pipe side and liquid pipe side. When refrigerating, the temperature of gas pipe side and liquid pipe side should be low. To prevent condensation, please fully insulate (See Figure 5.7).

1) Gas pipe must be made from insulated material which can resist more than 120°C.

2) Please seamlessly insulate the connecting parts of indoor pipe with accessorial insulated materials.

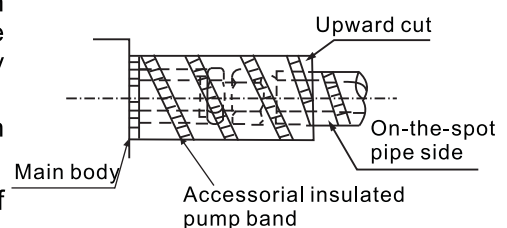


Figure 5.7

6. Connection of Electricity

6-1 Electric Wiring

⚠ Notice

- Air conditioning applies special power supply and power supply voltage should conform to the rated voltage.
- The external power supply circuit of air conditioning must have ground wire. Power supply's ground wire of indoor unit should be connected accurately with external circuit.
- Wiring should be installed by professional technicians according to labeling of circuit diagram.
- The connected fixed circuit must be furnished with an all-pole disconnection equipment with at least 3mm trigger distance.
- Install protective equipment of creepage in accordance with standard of national electrical equipment technology.
- Power and signal lines should be appropriately arranged in good order, and can not interfere with each other.
- Meanwhile, they cannot connect with connecting pipes and valve body. At the same time, two wires cannot be connected, unless they are welded firmly and wrapped with insulating tapes.
- After installation has done, before connecting to power supply, please check carefully and make sure everything is fine.

6-2 Specification of Power Supply

The specification of power supply wires is shown in the following Table 6.1. Wirings may be overheated and the machine will break down if the capacity is too small.

Table 6.1

Project Mode	Power supply of indoor part					Connecting wire		Ground wire
	Power supply	Power switch		Power Cord		Signal wire of indoor and outdoor units		
		Capacity	Fuse	Below 20 m	Below 50 m	Number	Wire diameter	
2. 2~7. 1kW	Single-phase	15A	15A	1.5mm²×2	2.5mm²×2	1	Two-core shielded cable 0. 75mm²	Single wire 2.5mm²

⚠ Warning

As you review this manual, along with the wiring instructions presented in this section, keep in mind that: all field-installed wiring must conform to National Electric Code (NEC) guidelines, and any applicable state and local codes. Be sure to satisfy proper equipment grounding requirements per NEC.

6-3 Wiring Suggestion of Signal Wire of Indoor Unit

- 1) Shielded wire should be used as signal wire. Using other wires may cause signal interference and malfunction.
- 2) Wiring shielding layers of shielded wire into one line and then connect it to port E of terminal. (See Figure 6.1)
- 3) It is forbidden to tie the signal wire with refrigerant pipe, power supply wires etc. When power supply wires are paved in parallel with signal wire, they should keep a distance of more than 300mm to avoid interference of signal source.
- 4) Signal wire cannot form a closed circuit.
- 5) Signal wire contains polarity, so be careful when connecting wires. Signal wire of indoor unit should be connected to ports labeled "P, Q, E". And they should conform to ports labeled "P, Q, E" of the main machine of outdoor unit and cannot be connected wrongly.

6. Connection of Electricity

6) Please use two-core twisted shielded pair cable (not less than 0.75mm^2) as signal wire of indoor and outdoor units. Because it contains polarity, it should be connected properly. Signal wires of indoor and outdoor units can only be led out from the main machine of outdoor unit and connected to all indoor units of a same system.

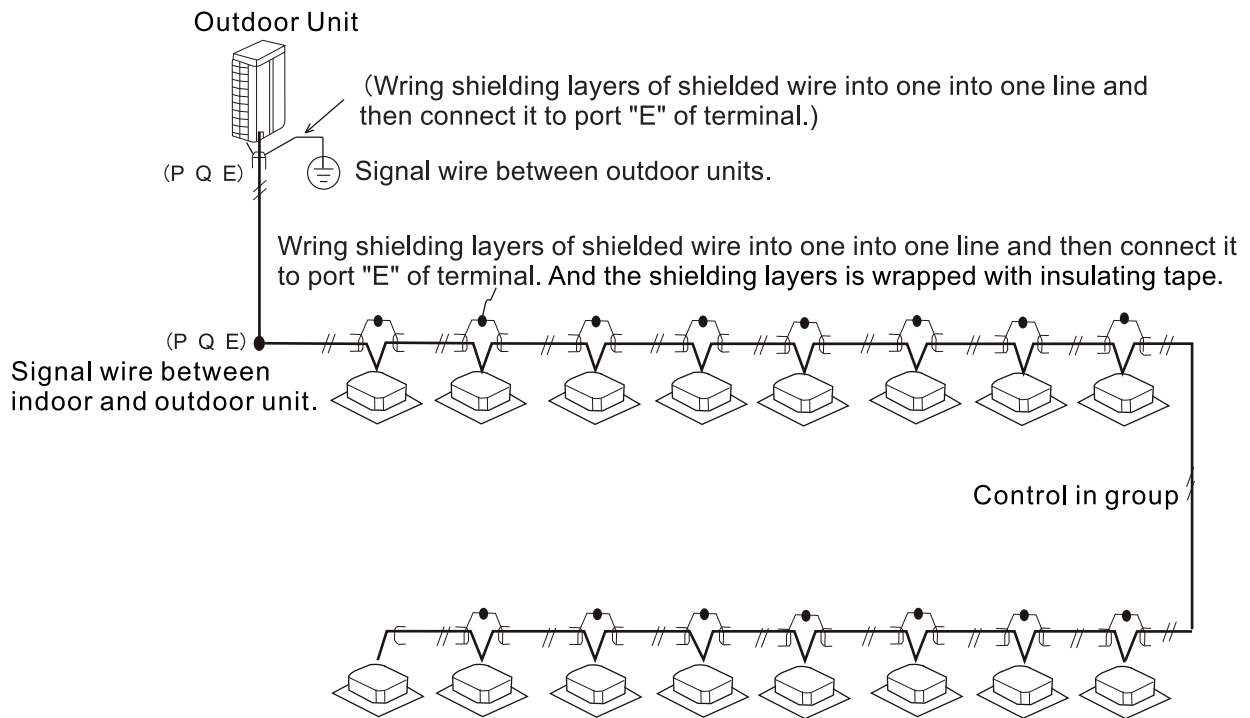
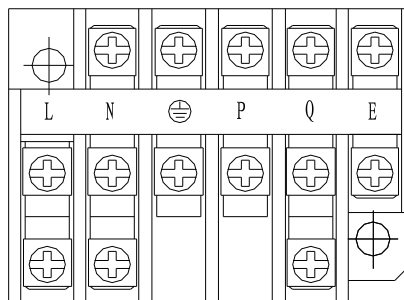


Figure 6.1

6-4 Wiring Suggestion of Power Supply of Indoor Unit

- 1) The indoor unit power supply in the same system must be in the same circuit and switched on or off at the same time, or the system service life may be shortened and the machine may fail in starting up.
- 2) Power supply, current leakage protector and manual switch connected to the same outdoor unit must be with the versatility.
- 3) Power supply wires should be connected to the terminal labeled "L, N", ground wire of power supply should be also connected to the terminal labeled "⊕".



6-5 Handling of Wiring Interface

Wiring interface should be sealed with insulated material. Failure to seal will cause condensation.

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