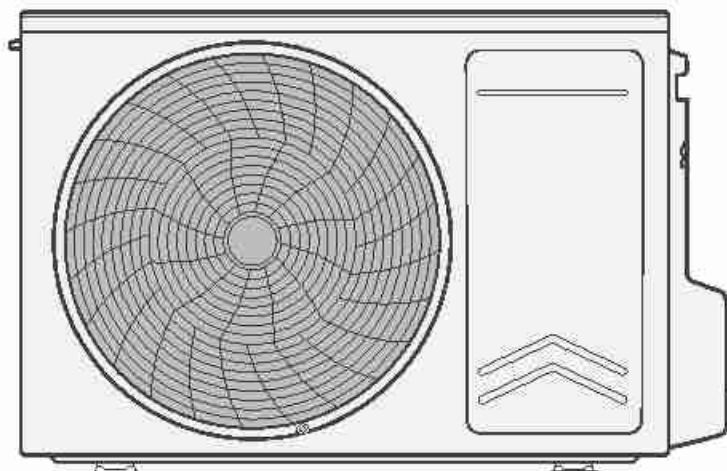


HEPACO



MODELS

HP24MO4

HP30MO4

HP36MO4

Thank you for choosing HEPACO ENVIRONMENTAL TECHNOLOGY EQUIPMENT CO.,LTD,please read this owner's manual carefully before operation and retain it for future reference.

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This marking indicates that this product should not be disposed with other household wastes throughout the EU. To prevent possible harm to the environment or human health from uncontrolled waste disposal, recycle it responsibly to promote the sustainable reuse of material resources. To return your used device, please use the return and collection systems or contact the retailer where the product was purchased. They can take this product for environmental safe recycling.

Safety Precautions

WARNING

This mark indicates procedures which, if improperly performed, might lead to the death or serious injury of the user.

CAUTION

This mark indicates procedures which, if improperly performed, might possibly result in personal harm to the user, or damage to property.

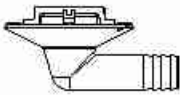
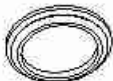
WARNING

- This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety.
- Children should be supervised to ensure that they do not play with the appliance.
- For operating the air conditioner pleasantly, install it as outlined in this installation manual.
- Connect the indoor unit and outdoor unit with the room air conditioner piping and cord available from our standard parts. This installation manual describes the correct connections using the installation set available from our standard parts.
- Installation work must be performed in accordance with national wiring standards by authorized personnel only.
- If refrigerant leaks while work is being carried out, ventilate the area. If the refrigerant comes in contact with a flame, it produces toxic gas.
- Do not power on until all installation work is complete.
- During installation, make sure that the refrigerant pipe is attached firmly before you run the compressor. Do not operate the compressor under the condition of refrigerant piping not attached properly with 2-way or 3-way valve open. This may cause abnormal pressure in the refrigeration cycle that leads to breakage and even injury.
- During the pump-down operation, make sure that the compressor is turned off before you remove the refrigerant piping. Do not remove the connection pipe while the compressor is in operation with 2-way or 3-way valve open. This may cause abnormal pressure in the refrigerant cycle that leads to breakage and even injury.
- When installing and relocating the air conditioner, do not mix gases other than the specified refrigerant (R410A) to enter the refrigerant cycle. If air or other gas enters the refrigerant cycle, the pressure inside the cycle will rise to an abnormally high value and cause breakage, injury, etc.
- This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety.
- Children should be supervised to ensure that they do not play with the appliance.
- 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.
- The appliance shall be installed in accordance with national wiring regulations.

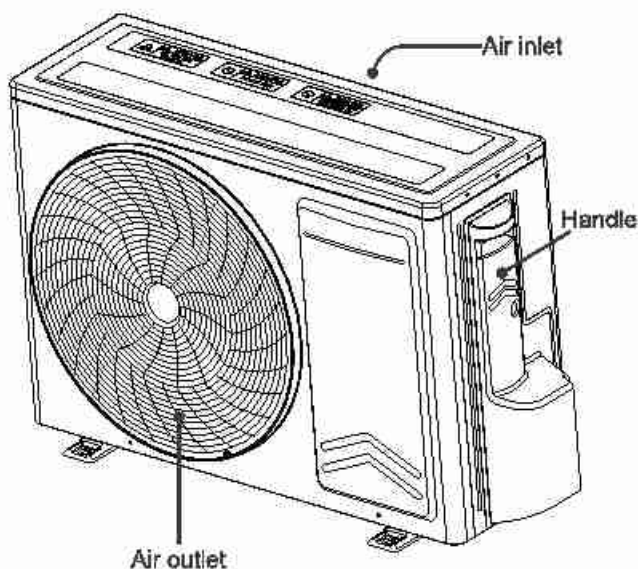
Outline of the Unit and Main Parts

Standard Accessory Parts

Table 1

Outdoor Unit	Drainage Connector		1	To connect with the hard PVC drain pipe
	Drain Plug		3	To plug the unused drain hole
	Other	Instructions, Bar code		

Outdoor unit(12K-42K)



Note:

- The connection pipe and duct for this unit should be prepared by the user.
- The unit is standard equipped with rectangular duct.
- Actual product may be different from above graphics, please refer to actual products.

Preparative for Installation

Selection of the Installation Location

WARNING

The unit must be installed where strong enough to withstand the weight of the unit and fixed securely, otherwise the unit would topple or fall off.

CAUTION

- Do not install where there is a danger of combustible gas leakage.
- Do not install the unit near heat source, steam, or flammable gas.
- Children under 10 years old must be supervised not to operate the unit.

Decide the installation location with the customer as follows:

Outdoor Unit

WARNING

- Install the unit where it will not be tilted by more than 5°.
 - During installation, if the outdoor unit has to be exposed to strong wind, it must be fixed securely.
1. If possible, do not install the unit where it will be exposed to direct sunlight. (If necessary, install a blind that does not interfere with the air flow.)
 2. Install the outdoor unit in a place where it will be free from getting dirty or getting wet by rain as much as possible.
 3. Install the outdoor unit where it is convenient to connect the indoor unit.
 4. Install the outdoor unit where the condensate water can be drained out freely during heating operation. Do not place animals and plants in the path of the warm air.
 5. Take the air conditioner weight into account and select a place where noise and vibration are small.
 6. Install the outdoor unit where is capable of withstanding the weight of the unit and generates as less noise and vibration as possible.
 7. Provide the space shown in Fig.1, so that the air flow is not blocked. Also for efficient operation, leave three of four directions of peripheral constructions open.

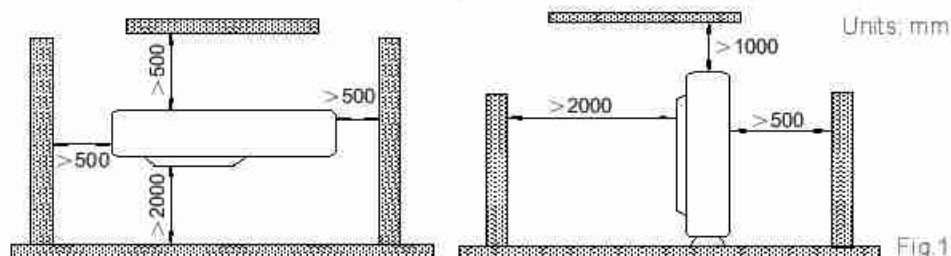


Fig.1

Preparative for Installation

Connection Pipe Requirement

CAUTION

The maximum length of the connection pipe is listed in the table below. Do not place the units between which the distance exceeds the maximum length of the connection pipe.

Table 2

Model	Size of Fitting Pipe (Inch)		Max. Pipe Length (m)	Max. height Difference between Indoor Unit and Outdoor Unit (m)
	Liquid	Gas		
HP24MO4	3/8	5/8	30	15
HP30MO4	3/8	5/8	30	15
HP36MO4	3/8	5/8	30	15

Note:

1. The connection pipe should be insulated with proper water-proof insulating material.
2. The pipe wall thickness shall be 0.5-1.0mm and the pipe wall shall be able to withstand the pressure of 6.0 MPa. The longer the connecting pipe, the lower the cooling and heating effect performs.

Preparative for Installation

Electrical Requirement

Electric Wire Size and Fuse Capacity

Table 3

Model	Power Supply	Capability of Air Switch(A)	Minimum Sectional Area of Power Cable and Earth line (mm ²)
HP24MO4	220-240V~,50Hz	25	2.5
HP30MO4		25	2.5
HP36MO4		25	2.5

Note:

- 1.The fuse is located on the main board.
2. Install the disconnect device with a contact gap of at least 3mm in all poles nearby the units.The appliance must be positioned so that the plug is accessible.
3. The specifications of the breaker and power cable listed in the table above are determined based on the maximum power (maximum amps) of the unit.
4. The specifications of the power cable listed in the table above are applied to the conduitguarded multi-wire copper cable (like, YJV copper cable, consisting of PE insulated wires and a PVC cable jacket) used at 40°C and resistible to 90°C(see IEC 60364-5-52). If the working condition changes, they should be modified according to the related national standard.
5. The specifications of the breaker listed in the table above are applied to the breaker with the working temperature at 40°C. If the working condition changes, they should be modified according to the related national standard.
6. Take 2 pieces of power cord of 0.75mm² as the communication lines between indoor and outdoor unit, with their longest lengths of 50m. Please select the appropriate line length as per the actual installation conditions. The communication lines can not be twisted together. For the unit, it's recommended to use 8m long communication line.
7. Take 2 pieces of power cord of 0.75mm² as the communication lines between the wired controller and the indoor unit, with their longest lengths of 30m. Please select the appropriate line length as per the actual installation conditions. The communication lines can not be twisted together. It's recommended to use 8m long communication line.
8. The wire size of the communication line should be no less than 0.75mm². It's recommended to take 0.75mm² power cords as the communication line.

Installation of the Unit

Installation of the Outdoor Unit



WARNING

- Install the unit where it will not be tilted by more than 5°.
- During installation, if the outdoor unit has to be exposed to strong wind, it must be fixed securely.

1. Outdoor unit dimension

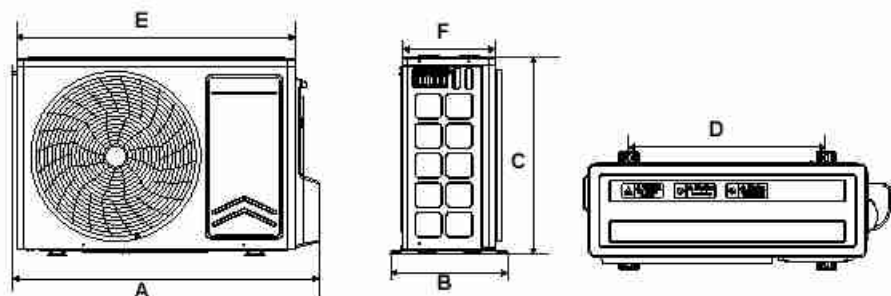


Table 4

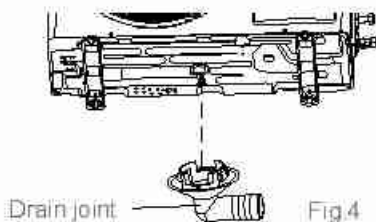
Units: mm

Model \ Item	A	B	C	D	E	F
HP24MO4	890	372	598	550	820	310
HP30MO4	960	396	700	560	890	340
HP36MO4	990	426	790	610	920	370

Installation of the Unit

2. Condensate Drainage of the Outdoor Unit(Only for the heat pump unit)

- (1). It is required to install a drain pipe for the outdoor unit to drain out the condensate water during heating operation. (only for the heat pump unit)
- (2). When installing the drain pipe, apart from the drain pipe mounting hole, all other holes should be plugged so as to avoid water leakage.(only for the heat pump unit)
- 3). Installation Method. Insert the pipe joint into the hole $\Phi 25$ located at the base plate of the unit and then connect the drain pipe to the pipe joint.



Installation of the Unit

Installation of the Connection Pipe

1. Flare Processing

- (1). Cut the connection pipe with the pipe cutter and remove the burrs.
- (2). Hold the pipe downward to prevent cuttings from entering the pipe.
- (3). Remove the flare nuts at the stop valve of the outdoor unit and inside the accessory bag of the indoor unit, then insert them to the connection pipe, after that, flare the connection pipe with a flaring tool.
- (4). Check if the flare part is spread evenly and there are no cracks (see Fig.5).

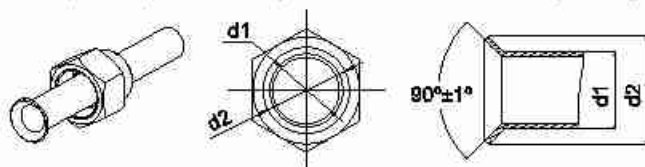


Fig.5

2. Bending Pipes

- (1). The pipes are shaped by your hands. Be careful not to collapse them.

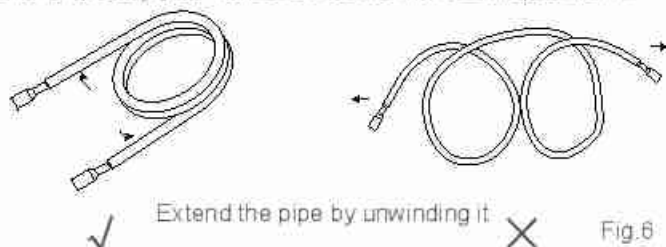


Fig.6

- (2). Do not bend the pipes in an angle more than 90°.
- (3). When pipes are repeatedly bent or stretched, the material will harden, making it difficult to bend or stretch them any more. Do not bend or stretch the pipes more than three times.
- (4). When bending the pipe, do not bend it as is.

The pipe will be collapsed. In this case, cut the heat insulating pipe with a sharp cutter as shown in Fig.7, and bend it after exposing the pipe. After bending the pipe as you want, be sure to put the heat insulating pipe back on the pipe, and secure it with tape.

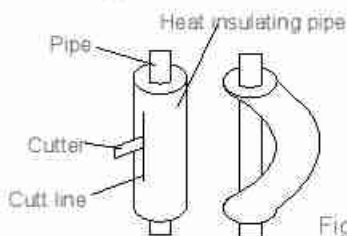


Fig.7

⚠ CAUTION

- To prevent breaking of the pipe, avoid sharp bends. Bend the pipe with a radius of curvature of 150 mm or over.
- If the pipe is bent repeatedly at the same place, it will break.

Installation of the Unit

3.Connecting the Pipe at the Indoor Unit Side

Detach the caps and plugs from the pipes.

CAUTION

- Be sure to apply the pipe against the port on the indoor unit correctly. If the centering is improper, the flare nut cannot be tightened smoothly. If the flare nut is forced to turn, the threads will be damaged.
- Do not remove the flare nut until the connection pipe is to be connected so as to prevent dust and impurities from coming into the pipe system.

Centering the pipe against port on the indoor unit, turn the flare nut with your hand.

Table 5 Flare nut tightening torque

Pipe Diameter (Inch)	1/4	3/8	5/8	1/2	3/4	7/8
Tightening Torque (N.m)	15-30	35-40	60-65	45-50	70-75	80-85

CAUTION

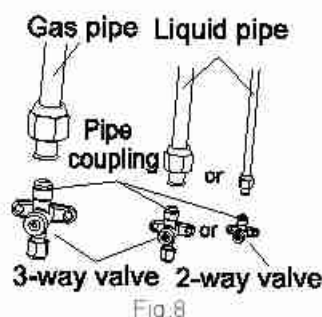
Be sure to connect the gas pipe after connecting the liquid pipe completely.

4.Connecting the Pipe at the Outdoor Side Unit

Tighten the flare nut of the connection pipe at the outdoor unit valve connector. The tightening method is the same as that as at the indoor side.

5.Checking the Pipe Connections for Gas Leaking

For both indoor and outdoor unit side, check the joints for gas leaking by the use of a gas leakage detector without fail when the pipes are connected.

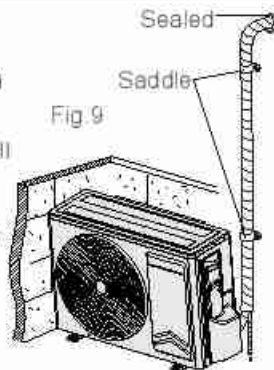


Installation of the Unit

6. Liquid Pipe and Drain Pipe

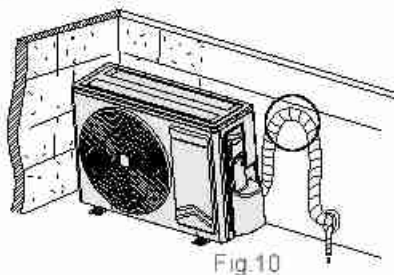
If the outdoor unit is installed lower than the indoor unit (See Fig.9)

- (1). A drain pipe should be above ground and the end of the pipe does not dip into water. All pipes must be restrained to the wall by saddles.
- (2). Taping pipes must be done from bottom to top.
- (3). All pipes are bound together by tape and restrained to wall by saddles.



If the outdoor unit is installed higher than the indoor unit (See Fig.10)

- (1). Taping should be done from lower to the upper part.
- (2). All pipes are bound and taped together and also should be trapped to prevent water from returning to the room.
- (3). Restraint all pipes to the wall with saddles.



Vacuum and Gas Leakage Inspection

CAUTION

Do not purge the air with refrigerants but use a vacuum pump to vacuum the installation!
There is no extra refrigerant in the outdoor unit for air purging!

1. Vacuum

- (1). Remove the caps of the liquid valve, gas valve and also the service port.
- (2). Connect the hose at the low pressure side of the manifold valve assembly to the service port of the unit's gas valve, and meanwhile the gas and liquid valves should be kept closed in case of refrigerant leak.
- (3). Connect the hose used for evacuation to the vacuum pump.
- (4). Open the switch at the lower pressure side of the manifold valve assembly and start the vacuum pump. Meanwhile, the switch at the high pressure side of the manifold valve assembly should be kept closed, otherwise evacuation would fail.
- (5). The evacuation duration depends on the unit's capacity, generally, 15 minutes for the 12K units, 20 minutes for the 18K units, 30 minutes for the 24/36/42K units, 45 minutes for the 48/60K units. And verify if the pressure gauge at the low pressure side of the manifold valve assembly reads -1.0Mp (-75cmHg), if not, it indicates there is leak somewhere. Then, close the switch fully and then stop the vacuum pump.

Installation of the Unit

- (6). Wait for some time to see if the system pressure can remain unchanged, 3 minutes for the units less than 18K, 5 minutes for the 18K–24K units, 10 minutes for the 36/42/48/60K units. During this time, the reading of the pressure gauge at the low pressure side can not be larger than 0.005Mp (0.38cmHg).
- (7). Slightly open the liquid valve and let some refrigerant go to the connection pipe to balance the pressure inside and outside of the connection pipe, so that air will not come into the connection pipe when removing the hose. Note that the gas and liquid valve can be opened fully only after the manifold valve assembly is removed.
- (8). Place back the caps of the liquid valve, gas valve and also the service port.

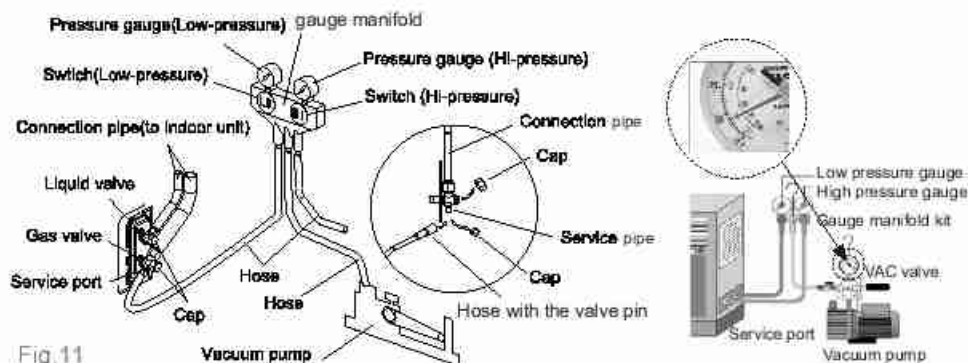


Fig.11

Note:

For the large-sized unit, it has the service port for both the gas valve and the liquid valve. During evacuation, it is available to connect two hoses of the manifold valve assembly to two service ports to quicken the evacuating speed.

2.Additional Charge

Refrigerant suitable for a piping length of 5m is charged in the 12~42K outdoor unit at the factory, and for 48~60K outdoor unit refrigerant is charged for a piping length of 7.5m. When the piping of 18~42K unit is longer than 7.5m or the piping of 48~60K unit is longer than 9.5m, additional charging is necessary.

Table 6

Model	Additional Refrigerant Amount for Extra Pipe
HP24MO4	22g/m
HP30MO4	
HP36MO4	

Installation of the Unit

When the height difference between the indoor unit and outdoor unit is larger than 10 meters, an oil bend should be employed for every 6 meters.

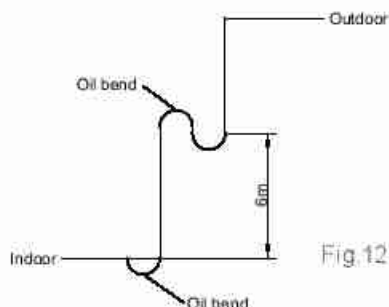


Fig.12

Electrical Wiring

1. Wiring Precautions



WARNING

- Before obtaining access to terminals, all supply circuits must be disconnected.
- The rated voltage of the unit is as shown as table 3.
- Before turning on, verify that the voltage is within the 198~264V range (for single phase unit) or 342~415V range (for three-phase unit).
- Always use a special branch circuit and install a special receptacle to supply power to the air conditioner.
- Use a special branch circuit breaker and receptacle matched to the capacity of the air conditioner.
- The special branch circuit breaker is installed in the permanent wiring. Always use a circuit that can trip all the poles of the wiring and has an isolation distance of at least 3mm between the contacts of each pole.
- Perform wiring work in accordance with standards so that the air conditioner can be operated safely and positively.
- Install a leakage special branch circuit breaker in accordance with the related laws and regulations and electric company standards.



CAUTION

- The power source capacity must be the sum of the air conditioner current and the current of other electrical appliances. When the current contracted capacity is insufficient, change the contracted capacity.
- When the voltage is low and the air conditioner is difficult to start, contact the power company to raise the voltage.

Installation of the Unit

2. Electrical Wiring

(1). For solid core wiring (Fig.13)

- 1). Cut the wire end with a wire cutter or wire-cutting pliers, then strip the insulation about 25mm (15/16").
- 2). Using a screwdriver, remove the terminal screw(s) on the terminal board.
- 3). Using pliers, bend the solid wire to form a loop suitable for the terminal screw.
- 4). Shape the loop wire properly, place it on the terminal board and tighten securely with the terminal screw using a screwdriver.

(2). For strand wiring (Fig.13)

- 1). Cut the wire end with a wire cutter or wire-cutting pliers, then strip the insulation about 10mm (3/8").
- 2). Using a screwdriver, remove the terminal screw(s) on the terminal board.
- 3). Using a round terminal fastener or pliers, securely clamp a round terminal to each stripped wire end.
- 4). Position the round terminal wire, and replace and tighten the terminal screw with a screwdriver.(Fig.14)

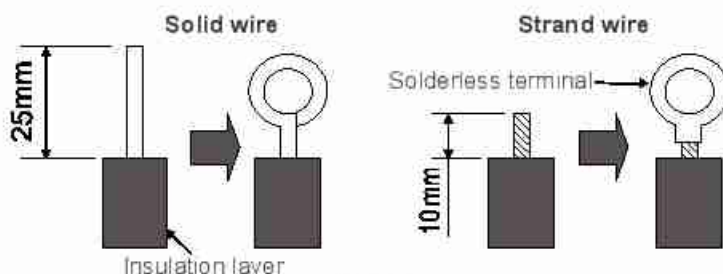


Fig.13

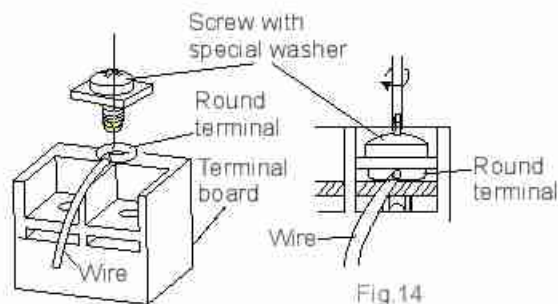


Fig.14

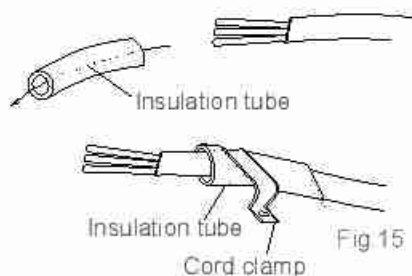


Fig.15

(3). How to fix connection cord and power cord by cord clamp

After passing the connection cord and power cord through the insulation tube, fasten it with the cord clamp.(Fig.15)

Installation of the Unit

CAUTION

- Before starting work, check that power is not being supplied to the indoor unit and outdoor unit.
- Match the terminal block numbers and connection cord colors with those of the indoor unit side.
- Erroneous wiring may cause burning of the electric parts.
- Connect the connection cords firmly to the terminal block. Imperfect installation may cause a fire.
- Always fasten the outside covering of the connection cord with cord clamps. (If the insulator is not clamped, electric leakage may occur.)
- Always connect the ground wire.

(4). Electric wiring between the indoor and outdoor units.

Single phase power supply unit:

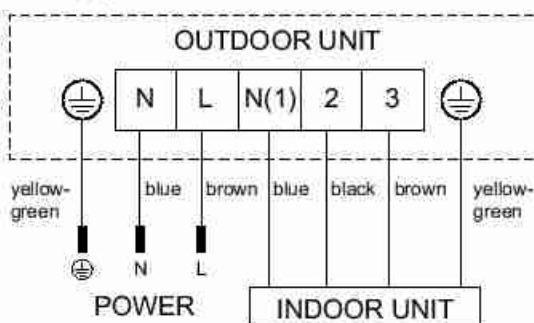


Fig.16

Three phase power supply unit:

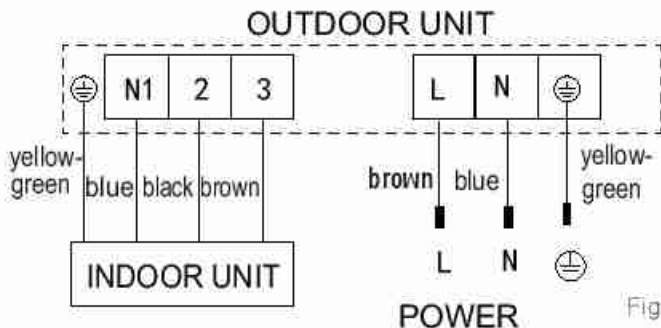


Fig.17

Installation of Controllers

Refer to the Installation Manual of the controller for more details.

Test Running

Trial Operation and Testing

The meaning of error codes is shown below:

Table 7

Error Code	Name
CL	Filter filth blockage alert
H0	High exhaust temp. protection
H1	Overcapacity protection
H2	Compressor overload protection
H4	System high pressure protection
H5	System low pressure protection
H6	Lack refrigerant/valve stop protection
C0	Jumper malfunction
C2	No feedback signal of indoor unit fan
C3	Communication malfunction
C7	The communication between indoor unit and wired controller fault
Cb	Water full protection
E0	Short/open circuit of indoor environment sensor
E1	Short/open circuit of indoor unit tube sensor
E2	Outdoor temp. sensor open/short circuit

Note: When the unit is connected with the wired controller, the error code will be simultaneously shown on it.

Test Running

Working Temperature Range

Table 8

The unit may not work properly temperature range	
Cooling operation	Outdoor side temperature: above 43°C or below 15°C
	Indoor side temperature: below 21°C

Note:

1. The design of this unit conforms to the requirements of EN14511 standard.
2. The air volume is measured at the relevant standard external static pressure.
3. Cooling (heating) capacity stated above is measured under nominal working conditions corresponding to standard external static pressure. The parameters are subject to change with the improvement of products, in which case the values on nameplate shall prevail.
4. In this table, there are two outside DB values under the low temp cooling conditions, and the one in the brackets is for the unit which can operate at extreme low temperature.

Troubleshooting and Maintenance

Troubleshooting

If your air-conditioning unit suffers from abnormal operation or failure, please first check the following points before repair:

Table 10

Failure	Possible Reasons
The unit cannot be started.	<ol style="list-style-type: none">1. The power supply is not connected.2. Electrical leakage of air-conditioning unit causes tripping of the leakage switch.3. The operating keys are locked.4. The control loop has failure.
The unit operates for a while and then stops.	<ol style="list-style-type: none">1. There is obstacle in front of the condenser.2. The control loop is abnormal.3. Cooling operation is selected when the outdoor ambient temperature is above 52°C.
Poor cooling effect.	<ol style="list-style-type: none">1. The air filter is dirty or blocked.2. There is heat source or too many people inside the room.3. The door or window is open.4. There is obstacle at the air intake or outlet.5. The set temperature is too high.6. There is refrigerant leakage.7. The performance of room temperature sensor becomes worse.

After carrying out the check of the above items and taking relevant measures to solve the problems found but the air-conditioning unit still does not function well, please stop the operation of the unit immediately and contact the local service agency. Only ask professional serviceman to check and repair the unit.

Troubleshooting and Maintenance

Routine Maintenance

Only a qualified service person is allowed to perform maintenance.

Before accessing to terminal devices, all power supply circuits must be disconnected.

Do not use water or air of 50°C or higher for cleaning air filters and outside panels.

Note:

1. Do not remove the air filter except for cleaning. Unnecessary handling may damage the filter.
2. Do not clean the unit with gasoline, benzene, thinner, polishing powder or liquid insecticide, otherwise it would cause discoloration and deformation of the unit.
3. Do not wet the indoor unit in case of electric shock or fire hazard.

Increase the frequency of cleaning if the unit is installed in a room where the air is extremely contaminated. (As a yardstick for yourself, consider cleaning the filter once a half year.)

If dirt becomes impossible to clean, change the air filter. (Air filter for exchange is optional.) (1). Removing the air filter from the duct.

(2). Cleaning the air filter

Remove dust from the air filter using a vacuum cleaner and gently rinse them in cool water. Do not use detergent or hot water to avoid filter shrinking or deformation. After cleaning dry them in the shade.

(3). Replacing the air filter

Reinstall the filter as before.



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