ENGLISH

SHARP

SPLIT ROOM AIR CONDITIONER

MAINTENANCE PRECAUTIONS & INSTALLATION MANUAL

C094

	Indoor unit / Outdoor unit
1.0 HP model	AH-XP10DMA / AU-X10DMA
1.5 HP model	AH-XP13DMA / AU-X13DMA
2.0 HP model	AH-XP18DMA / AU-X18DMA

Read the MAINTENANCE PRECAUTIONS in this manual carefully before operating the unit.
This appliance is filled with refrigerant R32.




MAINTENANCE PRECAUTIONS

WARNING

1. Do not use means to accelerate the defrosting process or to clean, other than those recommended by the manufacturer.
2. The appliance shall be stored in a room without continuously operating ignition sources (for example: open flames, an operating gas appliance or an operating electric heater).
3. Do not pierce or burn.
4. Be aware that refrigerants might not contain an odour.
5. Requirements for pipe-work as following:
   a) The installation of pipe-work shall be kept to a minimum;
   b) Pipe-work shall be securely mounted and guarded from physical damage;
   c) Pipe-work shall not be installed in an unventilated space;
   d) Compliance with national gas regulations shall be observed;
   e) Mechanical connections made in accordance with IEC 60335-2-40 section 22.118 shall be accessible for maintenance purposes.
6. Keep any required ventilation openings clear of obstruction.
7. Servicing shall be performed only as recommended by the manufacturer.
8. Precautions shall be taken to avoid excessive vibration or pulsation to refrigerating piping.
9. Protection devices, piping and fittings shall be protected as far as possible against adverse environmental effects, for example the danger of water collecting and freezing in relief pipes or the accumulation of dirt and debris.
10. Provision shall be made for expansion and contraction of long runs of piping.
11. Piping in refrigerating systems shall be so designed and installed as to minimize the likelihood of hydraulic shock damaging the system.
12. Solenoid valves shall be correctly positioned in the piping to avoid hydraulic shock and shall not block in liquid refrigerant unless adequate relief is provided.
13. Steel pipes and components shall be protected against corrosion with a rustproof coating before applying any insulation.
14. Field-made refrigerant joints indoors shall be tightness tested. The test method shall have a sensitivity of 5 grams per year of refrigerant or better under a pressure of at least 0,25 times the maximum allowable pressure. No leak shall be detected.
15. Electrical components that can arc or spark, which are not considered ignition sources due to compliance with IEC 60335-2-40 section 22.116.1 points b), c), d), or f) shall only be replaced with parts specified by the appliance manufacturer. Replacement with other parts may result in the ignition of refrigerant in the event of a leak.
16. If a stationary appliance is not fitted with a supply cord and a plug, or with other means for disconnection from the supply mains having a contact separation in all poles that provide full disconnection under overvoltage category III conditions, disconnection must be incorporated in the fixed wiring in accordance with the wiring rules.

Requirements for service personnel

- Any person who is involved with working on or breaking into a refrigerant circuit, opening of sealed components, opening of ventilated enclosures, etc. should hold a current valid certificate from an industry-accredited assessment authority, which authorises their competence to handle refrigerants safely in accordance with an industry recognised assessment specification.
- Servicing shall only be performed as recommended by the equipment manufacturer. Maintenance and repair requiring the assistance of other skilled personnel shall be carried out under the supervision of the person competent in the use of R32 refrigerant.

Checks to the area

Prior to beginning work on systems containing R32 refrigerant, safety checks are necessary to ensure that the risk of ignition is minimised.

Work procedure

Work shall be undertaken under a controlled procedure so as to minimise the risk of a flammable gas or vapour being present while the work is being performed.

1. General work area

All maintenance staff and others working in the local area shall be instructed on the nature of work being carried out Work in confined spaces shall be avoided.

2. Checking for presence of refrigerant

The area shall be checked with an appropriate refrigerant detector prior to and during work, to ensure the technician is aware of potentially flammable atmospheres. Ensure that the leak detection equipment being used is suitable for use with R32 refrigerant, i.e. non-sparking, adequately sealed or intrinsically safe.

3. Presence of fire extinguisher

If any hot work is to be conducted on the refrigerating equipment or any associated parts, appropriate fire extinguishing equipment shall be available to hand. Have a dry powder or CO_2 fire extinguisher adjacent to the charging area.

4. No ignition sources

No person carrying out work in relation to a refrigerating system which involves exposing any pipe work that contains or has contained R32 refrigerant shall use any sources of ignition in such a manner that it may lead to the risk of fire or explosion. All possible ignition sources, including cigarette smoking, should be kept sufficiently far away from the site of installation, repairing, removing and disposal, during which R32 refrigerant can possibly be released to the surrounding space. Prior to work taking place, the area around the equipment is to be surveyed to make sure that there are no flammable hazards or ignition risks. “No Smoking” signs shall be displayed.

5. Ventilated area

Ensure that the area is in the open or that it is adequately ventilated before breaking into the system or conducting any hot work. A degree of ventilation shall continue during the period that the work is carried out. The ventilation should safely disperse any released refrigerant and preferably expel it externally into the atmosphere.

6. Checks to the refrigeration equipment

Where electrical components are being changed, they shall be fit for the purpose and to the correct specification. At all times the manufacturer’s maintenance and service guidelines shall be followed. If in doubt consult the manufacturer’s technical department for assistance.

The following checks shall be applied to installations using R32 refrigerant:

- the refrigerant charge is in accordance with the room size within which the refrigerant containing parts are installed;
- the ventilation machinery and outlets are operating adequately and are not obstructed;
- if an indirect refrigerating circuit is being used, the secondary circuit shall be checked for the presence of refrigerant;
- marking to the equipment continues to be visible and legible. Markings and signs that are legible shall be corrected;
- refrigerating pipe or components are installed in a position where they are unlikely to be exposed to any substance which may corrode refrigerant containing components, unless the components are constructed of materials which are inherently resistant to being corroded or are suitably protected against being so corroded.

7. Checks to electrical devices

Repair and maintenance to electrical components shall include initial safety checks and component inspection procedures. If a fault exists that could compromise safety, then no electrical supply shall be connected to the circuit until it is satisfactorily dealt with. If the fault cannot be corrected immediately but it is necessary to continue operation, an adequate temporary solution shall be used. This shall be reported to the owner of the equipment so all parties are advised.

Initial safety checks shall include:

- that capacitors are discharged: this shall be done in a sale manner to avoid possibility of sparking;
- that there no live electrical components and wiring are exposed while charging, recovering or purging the system;
- that there is continuity of earth bonding.

Sealed electrical components

Sealed electrical components shall not be repaired.

Cabling

Check that cabling will not be subject to wear, corrosion, excessive pressure, vibration, sharp edges or any other adverse environmental effects. The check shall also take into account the effects of aging or continual vibration from sources such as compressors or fans.

Detection of R32 refrigerants

Under no circumstances shall potential sources of ignition be used in the searching for or detection of refrigerant leaks. A halide torch (or any other detector using a naked flame) shall not be used.

Leak detection methods

The following leak detection methods are deemed acceptable for systems containing R32 refrigerant.

Electronic leak detectors shall be used to detect R32 refrigerant, but the sensitivity may not be adequate, or may need re-calibration. (Detection equipment shall be calibrated in a refrigerant-free area.) Ensure that the detector is not a potential source of ignition and is suitable for the refrigerant used. Leak detection equipment shall be set at a percentage of the LFL of the refrigerant and shall be calibrated to the refrigerant employed and the appropriate percentage of gas (25 % maximum) is confirmed.

Leak detection fluids are suitable for use with most refrigerants but the use of detergents containing chlorine shall be avoided as the chlorine may react with the refrigerant and corrode the copper pipe-work.

If a leak is suspected, all naked flames shall be removed/extinguished.

If a leakage of refrigerant is found which requires brazing, all of the refrigerant shall be recovered from the system, or isolated (by means of shut off valves) in a part of the system remote from the leak. Oxygen free nitrogen (OFN) shall then be purged through the system both before and during the brazing process. Removal of refrigerant shall be according to the below part “Refrigerant removal and circuit evacuation”.

Refrigerant removal and circuit evacuation

When breaking into the refrigerant circuit to make repairs - or for any other purpose conventional procedures shall be used. However, it is important that best practice is followed since flammability is a consideration. The following procedure shall be adhered to:

- safely remove refrigerant following local and national regulations;
- evacuate;
- purge the circuit with inert gas;
- evacuate;
- continuously flush with inert gas when using flame to open circuit;
- open the circuit.

The refrigerant charge shall be recovered into the correct recovery cylinders.

The manufacturer shall specify the inert gases that can be used. Compressed air or oxygen shall not be used for purging refrigerant systems.

Purging of the refrigerant circuit shall be achieved by breaking the vacuum in the system with inert gas and continuing to fill until the working pressure is achieved, then venting to atmosphere, and finally pulling down to a vacuum. This process shall be repeated until no refrigerant is within the system. The system shall be vented down to atmospheric pressure to enable work to take place.

Ensure that the outlet of the vacuum pump is not close to any potential ignition sources and that ventilation is available.

Charging procedures

Ensure that the outlet for the vacuum pump is not close to any ignition sources and there is ventilation available.

In addition to conventional charging procedures, the following requirements shall be followed:

- Ensure that contamination of different refrigerants does not occur when using charging equipment. Hoses or lines shall be as short as possible to minimise the amount of refrigerant contained in them;
- Cylinders shall be kept in an appropriate position according to the instructions;
- Ensure that the refrigerating system is earthed prior to charging the system with refrigerant;
- Label the system when charging is complete (if not already);
- Extreme care shall be taken not to overfill the refrigerating system.

Prior to recharging the system it shall be pressure tested with the appropriate purging gas. The system shall be leak tested on completion of charging but prior to commissioning. A follow up leak test shall be carried out prior to leaving the site.

Decommissioning

Before carrying out this procedure, it is essential that the technician is completely familiar with the equipment and all its detail. It is recommended good practice that all refrigerants are recovered safely. Prior to the task being carried out, an oil and refrigerant sample shall be taken in case analysis is required prior to re-use of recovered refrigerant. It is essential that electrical power is available before the task is commenced.

a) Become familiar with the equipment and its operation;

b) Isolate system electrically;

c) Before attempting the procedure ensure that;
   - mechanical handling equipment is available, if required, for handling refrigerant cylinders;
   - all personal protective equipment is available and being used correctly;
   - the recovery process is supervised at all times by a competent person;
   - recovery equipment and cylinders conform to the appropriate standards;

d) Pump down refrigerant system, if possible;

e) If a vacuum is not possible, make a manifold so that refrigerant can be removed from various parts of the system;

f) Make sure that cylinder is situated on the scales before recovery takes place;

g) Start the recovery machine and operate in accordance with manufacturer’s instructions;

h) Do not overfill cylinders. (No more than 80 % volume liquid charge);

i) Do not exceed the maximum working pressure of the cylinder, even temporarily;

j) When the cylinders have been filled correctly and the process completed, make sure that the cylinders and the equipment are removed from site promptly and all isolation valves on the equipment are closed off;

k) Recovered refrigerant shall not be charged into another refrigerating system unless it has been cleaned and checked.

NOTE:

Equipment shall be labeled stating that it has been de-commissioned and emptied of refrigerant. The label shall be dated and signed. Ensure that there are labels on the equipment stating the equipment contains R32 refrigerant.

Recovery

When removing refrigerant from a system, either for servicing or decommissioning, it is recommended good practice that all refrigerants are removed safely.

When transferring refrigerant into cylinders, ensure that only appropriate refrigerant recovery cylinders are employed. Ensure that the correct number of cylinders for holding the total system charge are available. All cylinders to be used are designated for the recovered refrigerant and labeled for that refrigerant (i.e. special cylinders for the recovery of refrigerant). Cylinders shall be complete with pressure relief valve and associated shut-off valves in good working order. Empty recovery cylinders are evacuated and, if possible, cooled before recovery occurs.

The recovery equipment shall be in good working order with a set of instructions concerning the equipment that is at hand and shall be suitable for the recovery of R32 refrigerant. Consult manufacturer if in doubt. In addition, a set of calibrated weighing scales shall be available and in good working order. Hoses shall be complete with leak-free disconnect couplings and in good condition.

The recovered refrigerant shall be processed according to local legislation in the correct recovery cylinder, and the relevant waste transfer note arranged. Do not mix refrigerants in recovery units and especially not in cylinders.

If compressors or compressor oils are to be removed, ensure that they have been evacuated to an acceptable level to make certain that R32 refrigerant does not remain within the lubricant. The compressor body shall not be heated by an open flame or other ignition sources to accelerate this process. Draining of oil from a system shall be carried out safely.

Supplementary regulations

- This electrical 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 electrical appliance.
- If the flexible power supply cord is damaged, it must be replaced by the manufacturer, its service agent, or a similarly qualified person to avoid any potential hazard.
- Do not use soldering flux or other parts containing refrigerant with low-temperature brazing alloy, such as lead-tin alloy.
- The transportation of air conditioners containing flammable refrigerants must comply with transport regulations related to flammable gas packaging, including the maximum number of packages or the permissible packaging configurations for co-transportation.
- Storage of air conditioners and storage of air conditioners in packaging. (unsold)
  - Store packages in a dry, well-ventilated area, avoiding storage in extremely hot or cold locations.
  - Store away from direct sunlight and heat sources, and ensure no continuous ignition sources are present.
  - Package storage must comply with the manufacturer’s instructions.
- The disposal of air conditioners using flammable refrigerants.
  - Do not discard with general waste.
  - Dispose of the product at designated collection points.
  - Or contact the local administrative organization for proper and environmentally friendly disposal.

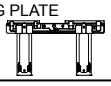
SPLIT ROOM AIR CONDITIONER

INSTALLATION MANUAL

Cable that meets the required specifications for connecting the indoor unit to the power supply must be prepared by installers before installation.

	Indoor unit / Outdoor unit
1.0 HP model	AH-XP10DMA / AU-X10DMA
1.5 HP model	AH-XP13DMA / AU-X13DMA
2.0 HP model	AH-XP18DMA / AU-X18DMA

ACCESSORIES

ITEMS	Q'ty
1 MOUNTING PLATE 	1
2 LONG SCREW (M4.5×30) To fix the mounting plate.	7
3 REMOTE CONTROL 	1
4 DRY BATTERY 	2
5 SHORT SCREW (M4×20) To fix the REMOTE CONTROL HOLDER.(2) To fix the CABLE COVER.(1)	3
6 REMOTE CONTROL HOLDER. 	1
7 CABLE COVER 	1
8 OPERATION MANUAL 	1
9 INSTALLATION MANUAL 	1

POST-INSTALLATION CHECK LIST

IMPORTANT! PLEASE CHECK ALL ITEMS

By installer

1. Voltage : .....Volt
2. Current : ..... Ampere
3. Gas Pressure : .....Psi
4. Circuit Breaker : ..... Ampere
5. Main Power Cable Connection ☐OK ☐NG
6. IDU & ODU Cable Connection ☐OK ☐NG
7. Earth Cable Connection ☐OK ☐NG
8. Circuit Breaker Function ☐OK ☐NG
9. IDU Mounting ☐OK ☐NG
10. Drainage ☐OK ☐NG
11. Gas Leakage at Pipe Connection ☐OK ☐NG
12. 2-Way & 3-Way Valve ☐Open ☐Close
13. Remote Control Function ☐OK ☐NG
14. Air Removal by Vacuum Pump ☐OK ☐NG
    Note: Do not remove air by purging.
15. Trial Operation Period : ..... mins
16. IDU Air Temperature Difference
    (Inlet - Outlet) : .....°C

Note: IDU → Indoor Unit
ODU → Outdoor Unit

By consumer

Tidiness ☐Good ☐Average ☐Not Good
Cleanliness ☐Good ☐Average ☐Not Good
Explanation ☐Good ☐Average ☐Not Good
Courteousness ☐Good ☐Average ☐Not Good

EXPLANATION TO CUSTOMER

- Explain to the customer how to use and maintain the system, referring to the operation manual.
- Ask the customer to carefully read the operation manual.
- When the system has been set up, hand the installation manual to the customer.

Data check	Name of Installation Company	Name of installer
/ / (D/M/Y)		

SAFETY PRECAUTIONS

- **The appliance must be installed, maintained, repaired and removed in accordance with the installation manual by qualified installer or service person. When any of these jobs is to be done, ask a qualified installer or qualified service person to do them for you.**
- **A qualified installer or qualified service person is an agent who has the qualifications and knowledge described in the installation manual.**
  Incorrect work will cause electric shock, water leak, fire.
- **Be sure to use the attached accessories parts and specified parts for installation.**
  Use of other parts will cause electric shock, water leak, fire, the unit falling.
- **The appliance shall be installed in accordance with national wiring regulations.**
  Wrong connection can cause overheating or fire.
- **Ensure there is no leakage of refrigerant prior to and during work**
  Check and make sure no ignition source around working area.
  Ensure workspace shall be sectioned off and far away from flammable material.
- **Ventilate the room if refrigerant gas leaks during installation.**
  If the refrigerant gas contact with fire, it may generate toxic gas.
  When conduct any hot work, dry powder or CO_2 fire extinguisher should be available to hand, and should be carried out in an ventilated area.
  Cigarette smoking or other possible ignition sources shall be kept sufficiently far away from the work area.
- **After installation has completed, check that there is no leakage of refrigerant gas.**
  If the refrigerant gas contact with fire, it may generate toxic gas.
- **The appliance must be installed, operated and stored in a room with a floor area larger than 4 m^2.**
- **Use the specified electrical cable.**
  Make sure the cable is secured in place and that the terminals are free of any excess force from the cable. Otherwise overheating or fire may result.
- **Form the cable so that the control box cover, the cord holder and cable holder are not loose.**
  Otherwise overheating, fire or electric shock may result.
- **In case of replacing electrical parts, should be compliance to SHARP Service Manual or contact manufacture.**
  Prior to replace electrical parts, ensure that capacitors are discharged, no live electrical components and wiring are exposed and there is continuity of earth bonding.
- **Tighten the flare nut with a torque wrench according to the specified method.**
  If the flare nut is tightened too hard, the flare nut may be broken after a long time and cause refrigerant gas leakage.
- **When installing the unit, take care not to enter air substance other than the specified refrigerant(R32) in the refrigerant cycle.**
  Otherwise, it will cause burst and injury as a result of abnormal high pressure in the refrigerant cycle.
- **Only qualified personnel can handle, fill, purge and dispose of the refrigerant.**
  Comply with national gas regulations.
  The appliance shall be stored in a room without continuously operating ignition sources.
- **Be sure to connect the refrigerant pipe before running the compressor.**
  Otherwise, it will cause burst and injury as a result of abnormal high pressure in the refrigerant cycle.
- **Earth the unit.**
  Incomplete earthing may cause electrical shock.
- **Install an earth leakage breaker to avoid electric shock in case of leak.**
  Use the current-activated, high-sensitivity, high-speed type breaker with a rated sensitivity current of below 30mA and an operating time of below 0.1 second.
- **Arrange the drain hose to ensure smooth drainage.**
  Insufficient drainage may cause wetting of the room, furniture etc.

NOTES ON LOCATIONS

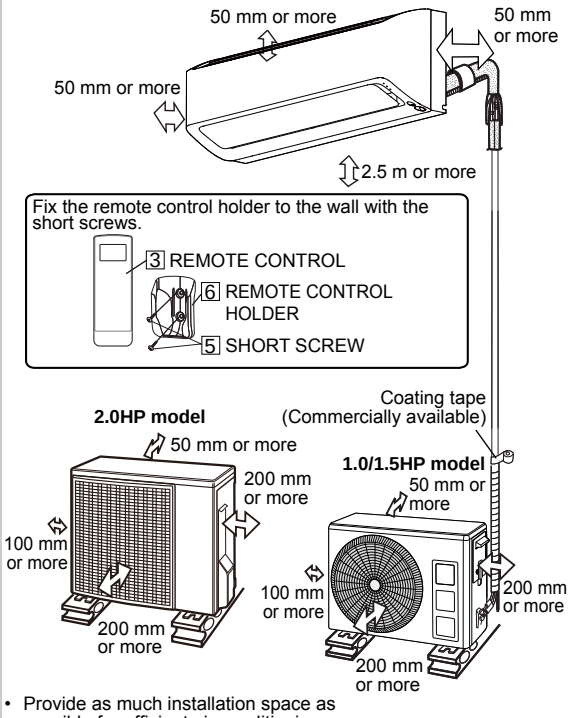
Indoor unit

1. Keep the air outlet clear of any obstacle so that outgoing air flows smoothly in the entire room.
2. Make a drain hose hole for easy drainage.
3. Provide sufficient space on both sides and above the unit.
4. The air filter should be easily taken in and out.
5. Keep TV set, radio and the like 1 m or more away from the unit and the remote control.
6. Keep the air inlet clear of obstacles that could block incoming air.
7. The remote control may not function properly in a room equipped with an electronic simultaneous-start or rapid-start fluorescent lighting.
8. Select a location that does not cause loud operating noise and extreme vibrations.
9. For safety, indoor unit should be installed at level not less than 2.5m.

Outdoor unit

1. Place the outdoor unit on a stable base.
2. Provided sufficient space around the unit. It should also be well ventilated.
3. The unit should not be exposed to strong wind nor splashed with rain water.
4. Water drain from the unit should be let out without problem. Lay a drain hose if required. In cold regions, installation of the drain pipe is not advisable as freezing could result.
5. Keep TV set, radio and the like 1 m or more away from the unit.
6. Avoid locations exposed to machine oil vapor, salty air (facing the seashore, for example), hot spring vapor sulfur gas, etc. Such location can cause breakdown.
7. Avoid locations exposed to muddy water (along a road, for example) or where the unit can be tampered with.
8. Select a location where the outgoing air or operating noise cannot annoy others.
9. Keep the air outlet opening free of any obstacle. This could affect the performance of the unit and create loud noises.

INSTALLATION DIAGRAM

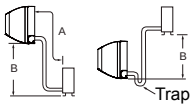


- Provide as much installation space as possible for efficient air-conditioning.

PIPING

Max. piping length: A	Max. height difference: B		Min. piping length	Additional refrigerant (piping length exceeds 7.5m)
20m	7m	1.0/1.5HP model	3m	10g/m
	10m	2.0HP model		

- Standard piping length is 5m.
- When the outdoor unit is placed at a higher level than the indoor unit, provide a trap near the hose's lead-in port.



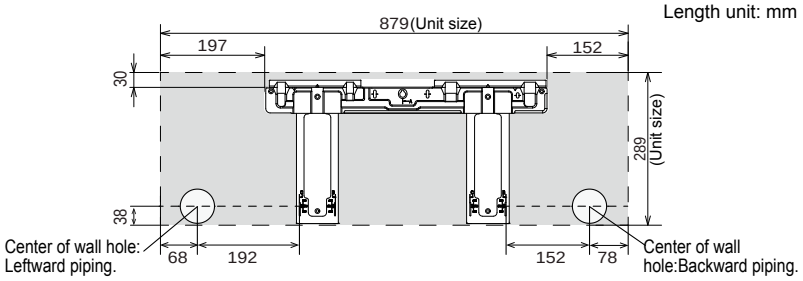
Use the refrigerant pipes shown in the table below.

Pipe size			Min. Piping Thickness	Thermal insulation
Liquid side	1/4" (6.35mm)		0.8mm	Thickness: 6 mm or thicker Material: Polyesthylene foam
Gas side	3/8" (9.52mm)	1.0/1.5HP model	0.8mm	
	1/2" (12.7mm)	2.0HP model		

- The thermal insulation should cover both the gas and liquid pipes.

INSTALLATION DIMENSION OF INDOOR UNIT

Length unit: mm

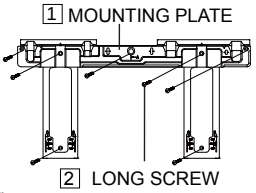


1 PLACING THE MOUNTING PLATE AND MAKING A PIPING HOLE

Installing the mounting plate

(1) Referring to the "**INSTALLATION DIMENSION OF INDOOR UNIT**", mark the location for the fixing holes and the piping hole.
- Recommended fixing holes are marked in circle around the holes. (7 points)
- Make sure that the mounting plate is horizontal.

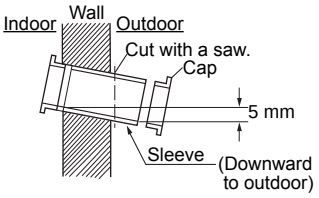
(2) Secure the mounting plate to the wall with the long screws and check the stiffness.



Making a piping hole

(1) Drill a piping hole with 70 mm diameter concrete drill or a hole saw with a 5 mm downward slant to the outside.

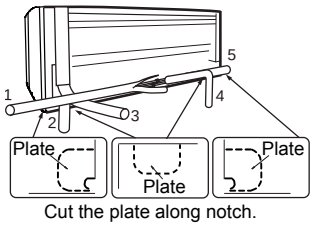
(2) Set the sleeve and caps.



2 SETTING UP THE INDOOR UNIT

Piping route

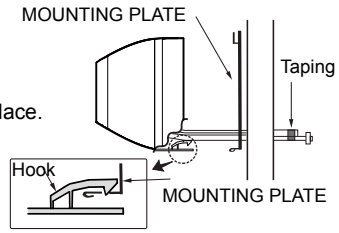
For directions 1, 2, 4 and 5, cut out the specific zone without leaving any sharp edge.
(Keep the cut-out plate for possible future use.)



Mounting the indoor unit

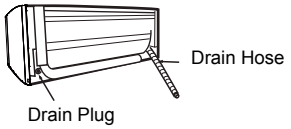
For right side piping

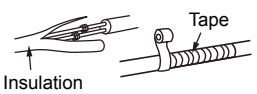
(1) Pass the pipes and the drain hose through the piping hole.
(2) Hook the unit onto the mounting plate.
(3) Pull the connecting cable into the indoor unit.
(4) Push the unit and apply the bottom hooks to the mounting plate's support.
(5) Pull the bottom of the unit to check that the unit is fixed in place.

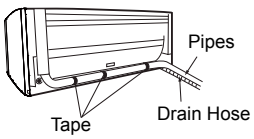


For left side piping

(1) Reverse the positions of the drain hose and drain plug. Refer to **"Exchange the drain hose"**.
(2) Connect the pipes and wrap tape around the insulation of the piping joints tightly not to become thick.
(3) Bind the pipes and connecting cable with tape.
(4) Set the pipes and connecting cable along the back of the unit.
(5) Pass the pipes, connecting cable and the drain hose through the piping hole.
(6) Hook the unit onto the mounting plate.
(7) Push the unit and apply the bottom hooks to the mounting plate's support.
(8) Pull the bottom of the unit to check that the unit is fixed in place.



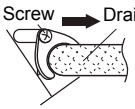




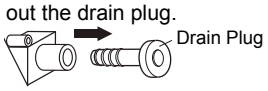
Notes:
- Bend the pipes carefully as not to damage them.
- Lay the drain hose below the pipes.

Exchange the drain hose

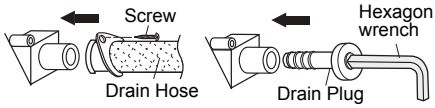
(1) Remove the screw and pull out the drain hose.



(2) Pull out the drain plug.



(3) Reconnect the drain hose to the right and insert the drain plug to the left.
- Fully insert the drain hose until it stops and fix the screw removed in (1).
- Insert a hexagon wrench (4 mm diagonal) into the drain plug, and press it fully.

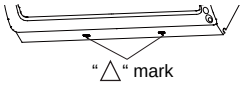


Caution:

After replacing, make sure that both the drain hose and drain plug are firmly inserted.

Detaching the unit from the mounting plate

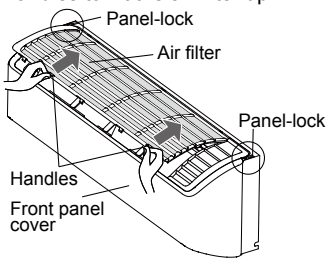
Push the "△" mark at the bottom of the indoor unit and pull the bottom of the unit. When the hook is released from the mounting plate, support the bottom of the unit and lift the unit upwards.



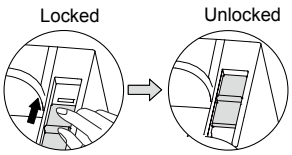
3 CONNECTING THE CABLE TO THE INDOOR UNIT

REMOVE FRONT PANEL COVER

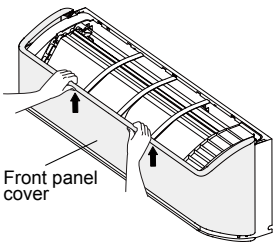
(1) Remove the air filter.
Insert fingers into two handles to lift the air filter up.



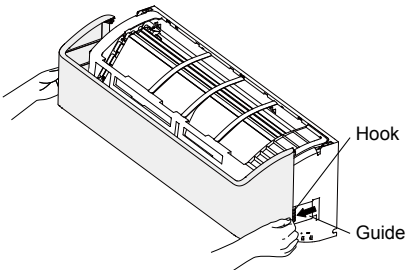
(2) Unlock the panel-lock (two sides) by pushing the lock (two sides) to back side.



(3) Hold the front panel cover toward yourself to release it, then lift it up.



(4) Pull the front panel cover by sliding out the hooks along the guides (two sides), then remove it.



CONNECTING THE CABLE TO THE INDOOR UNIT

Use a copper cable which is not lighter than polychloroprene sheathed flexible cord (Code designation 60245 IEC 57).

(1) Process the end of the connecting cable for the indoor side.
(2) Connect the connecting cable and power supply cable.
(3) Attach the cable cover with the short screw.

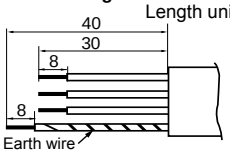
Cautions:

- Be sure to put the cable leads deep into the terminal board and tighten up the screws. Poor contact can cause overheating, fire or malfunction.
- Be very careful not to confuse the terminal connections. Wrong cabling may damage the internal control circuit.
- Be sure to connect the cable to match the markings on the indoor unit's terminal board and those of the outdoor unit.
- Be sure not to bend or curl the cables after cables connected and fixed, to avoid over heat of cables when unit operating.

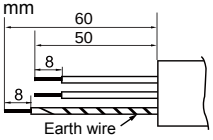
Cross-section area of Cable:

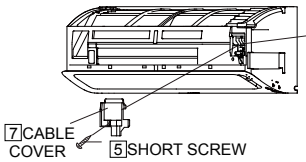
Cable	1.0/1.5HP model	2.0HP model
Power supply	1.5 mm^2 3-Core	2.5 mm^2 3-Core
Connecting	1.5 mm^2 4-Core	2.5 mm^2 4-Core

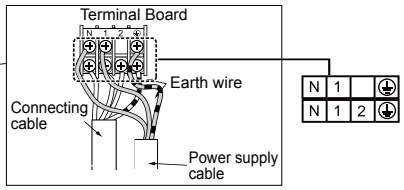
Connecting cable Length unit: mm



Power supply cable



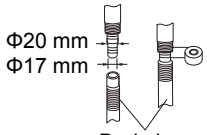




4 CONNECTING THE DRAIN HOSE

Connecting the drain hose

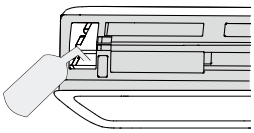
(1) Connect a drain hose.
(2) Tape over the connecting part.



Drain hose
(Commercially available)

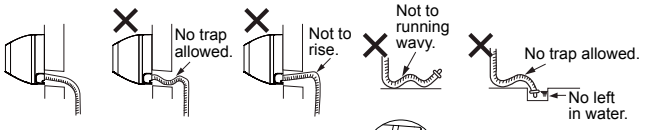
Checking drainage

(1) Pour some water into the drain pan.
(2) Check the water drains smoothly.



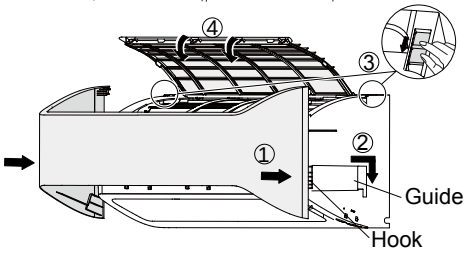
Notes:

- Be sure to lay the drain hose downward for smooth drain flow.
- Be careful not to allow the drain hose to rise, form a trap or leave its end in water, as shown below.
- Coil thermal insulation around a drain hose extension, if running in the room.



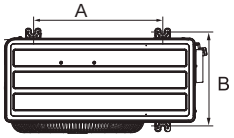
ATTACH FRONT PANEL COVER

①Match the hook into the guide (two sides).
②Slide front panel cover back into the original position.
③Pull the panel-lock (two sides) to front side to lock the front panel cover.
④Attach the air filter.



5 OUTDOOR UNIT INSTALLATION

Referring to the figure, firmly fasten the outdoor unit with bolts.



Length unit: mm

Model	A	B
1.0/1.5HP model	407	299
2.0HP model	540	310

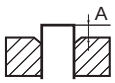
6 CONNECTING THE REFRIGERANT PIPES

Flaring the pipe end

(1) Cutting with a pipe cutter
Cut at a right angle.

(2) Deburring
Allow no cutting in the pipe.
(3) Putting in the flare nut.
(4) Flaring
Flare processing dimension (A)

Tool	A
R410A & R32 tool	0 - 0.5 mm

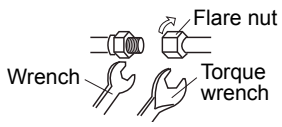


(5) Checking
To be flared perfectly circular.
Flare nut not missing.

Connecting the pipes

Connect the pipes for the indoor unit first and then for the outdoor unit.

(1) Tighten the flare nuts by hand for the first 3-4 turns.
(2) Use a wrench and torque wrench to tighten up the pipes.
• Do not over tighten the pipes. It may be deformed or damaged.



Flare nut tightening torque

Pipe size		Torque
Liquid side	1/4"	16±2N·m (1.6±0.2kgf·m)
Gas side	3/8"	38±4N·m (3.9±0.4kgf·m) for 1.0/1.5HP model
	1/2"	55±5N·m (5.6±0.5kgf·m) for 2.0HP model

7 AIR REMOVAL

Use a vacuum pump, gauge manifold and hoses exclusively for R32.

(1) Remove both valve shaft caps of the 2 and 3-way valves.
(2) Remove the service port cap of the 3-way valve.
(3) Connect the gauge manifold hose to the service port and the vacuum pump. Be sure that the hose end to be connected to the service port has a valve core pusher.
(4) Open the gauge manifold low-pressure valve (Lo) and operate the vacuum pump for 10-15 minutes. Make sure the compound gauge reads -0.1 MPa(-76 cmHg).
(5) Close the gauge manifold valve.
(6) Turn off the vacuum pump.Leave as it for 1-2 minutes and make sure the needle of the compound gauge does not go back.
(7) Open the 2-way valve 90° counterclockwise by turning the hexagon wrench. Close it after 5 second, and check for gas leakage.*
(8) Disconnect the gauge manifold hose from the service port.
(9) Fully open the 2-way valve with hexagon wrench.
(10) Fully open the 3-way valve with hexagon wrench.
(11) Firmly tighten the service port cap and both valve shaft caps with a torque wrench at the specified tightening torque.

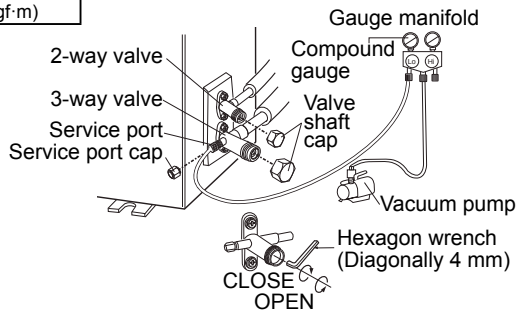
*Check the pipe connections for gas leak using a leakage detector or soapy water.

Valve shaft cap tightening torque

Pipe size		Torque
Liquid side	1/4"	24±3N·m (2.5±0.3kgf·m)
Gas side	3/8"	24±3N·m (2.5±0.3kgf·m) for 1.0/1.5HP model
	1/2"	31±3N·m (3.2±0.3kgf·m) for 2.0HP model

Service port cap tightening torque

Torque
11±1N·m (1.1±0.1kgf·m)



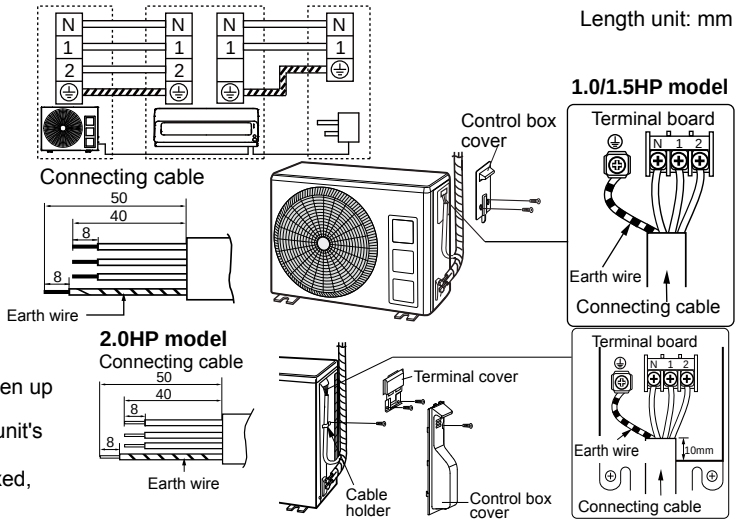
8 CONNECTING THE CABLE TO THE OUTDOOR UNIT

Model: 1.0/1.5HP model
(1) Process the end of the connecting cable for the outdoor unit.
(2) Remove the control box cover.
(3) Connect the cable.
(4) Put back the control box cover.
(5) Double -check that the cable is securely in place.

Model: 2.0HP model
(1) Process the end of the connecting cable for the outdoor unit.
(2) Remove the control box cover and the terminal cover.
(3) Remove the cable holder and connect the cable.
(4) Fix the cable sheath with the cable holder and the screw.
(5) Double -check that the cable is securely in place.
(6) Put back the control box cover and the terminal cover.

Caution:
- Be sure to put the cable leads deep into the terminal board and tighten up the screws. Poor contact can cause overheating, fire or malfunction.
- Be sure to connect the cable to match the markings on the outdoor unit's terminal board and those of the indoor unit.
- Be sure not to bend or curl the cables after cables connected and fixed, to avoid over heat of cables when unit operating.

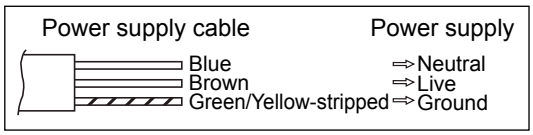
Length unit: mm



9 POWER CABLING

Prepare a dedicated power supply circuit.

	1.0/1.5HP model	2.0HP model
Supply power	220V, 50Hz single-phase	220V, 50Hz single-phase
Circuit breaker	10A	16A



- Fit a disconnect switch, having a contact separation of at least 3mm in all poles, to the electricity power line.

PUMP DOWN

Pump down is adopted in the case of unit removal for re-installation, abandonment, repair etc. Pump down is to collect the refrigerant into the outdoor unit.

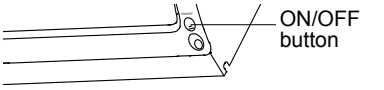
PROCEDURE USING GAUGE MANIFOLD (Recommended procedure)
(1) Connect the gauge manifold hose to the service port of the 3-way valve.
(2) Run the air conditioner at cooling test run mode (Refer to 10 TEST RUN).
(3) After 5-10 minutes, close the 2-way valve.
(4) Close the 3-way valve when the compound gauge reading becomes almost 0 MPa (0 cmHg).
(5) Stop the test run operation.
(6) Disconnect the gauge manifold hose from the service port.
(7) Disconnect both refrigerant pipes.

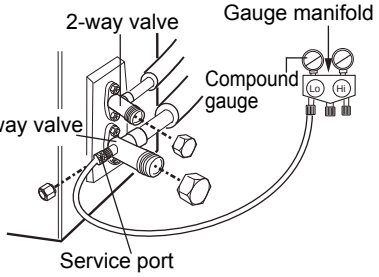
PROCEDURE WITHOUT USING GAUGE MANIFOLD
(1) Run the air conditioner at cooling test run mode (Refer to 10 TEST RUN).
(2) After 5-10 minutes, fully close the 2-way valve by turning the hexagon wrench clockwise.
(3) After 2-3 minutes, immediately close the 3-way valve fully.
(4) Stop the test run operation.
(5) Disconnect both refrigerant pipes.

Caution:
- Make sure that the compressor is turned off before removing the refrigerant pipes. Otherwise, it will cause burst and injury.
- Do not perform PUMP DOWN when refrigerant is leaking or there is no refrigerant in the refrigerant cycle. Otherwise, it will cause burst and injury.

10 TEST RUN

(1) Start the operation with the remote control.
(2) To start test run in cooling, hold down the ON/OFF button on the unit for over 5 seconds until a beep sound is heard and a operation lamp flashes.
(3) Make sure the system runs well. To stop the operation, press the ON/OFF button again.





SHARP

分體式冷氣機

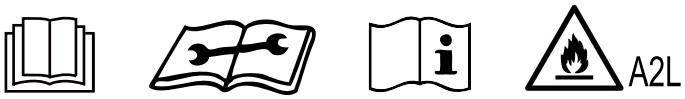
保養注意事項及安裝說明書

C094

	室內機 / 室外機
1.0 HP 機型	AH-XP10DMA / AU-X10DMA
1.5 HP 機型	AH-XP13DMA / AU-X13DMA
2.0 HP 機型	AH-XP18DMA / AU-X18DMA

使用冷氣機前，請仔細閱讀本說明書的「保養注意事項」。

此設備填充 R32 製冷劑。



保養注意事項

警告

1. 除製造商推薦的方法外，切勿使用任何方式加速除霜過程或進行清潔。
2. 本設備應存放於沒有持續運作的點火源（例如：明火、運作中的燃氣設備或電暖器）的房間內。
3. 請勿刺穿或燃燒。
4. 須注意製冷劑可能無色無味。
5. 管道安裝要求如下：
   a) 管道安裝應盡量簡潔；
   b) 管道應牢固安裝並防止物理損壞；
   c) 管道不應安裝於不通風的空間；
   d) 必須遵守國家氣體相關法規；
   e) 根據IEC 60335-2-40第22.118節進行的機械連接，應便於維護。
6. 保持所有通風口暢通無阻。
7. 保養維修應僅按照製造商的建議進行。
8. 應採取預防措施，避免製冷管道受到過度震動或脈衝影響。
9. 保護裝置、管道及配件應盡可能避免惡劣環境影響，例如防止排水管積水結冰，或污垢雜物堆積。
10. 須為長距離管道的膨脹與收縮預留空間。
11. 製冷劑系統中的管道設計與安裝，應盡量減少液壓衝擊損壞系統的可能性。
12. 電磁閥應正確安裝於管道中，以避免液壓衝擊；除非設有適當的泄壓裝置，否則不應阻斷液態製冷劑流動。
13. 在安裝隔熱層前，應先為鋼管及相關部件塗上防銹塗層，以防腐蝕。
14. 現場製作的室內製冷劑接頭須進行氣密性測試。測試方法在至少0.25倍最大允許壓力下，應具有每年5克或更低的製冷劑洩漏檢測靈敏度。測試結果不得檢測到任何洩漏。
15. 可能產生電弧或火花的電氣元件（若符合IEC 60335-2-40第22.116.1條b)、c)、d)或f)項規定，則不被視為點火源）必須僅使用電器製造商指定的零件進行更換。使用其他零件更換，可能在製冷劑洩漏時引發燃燒。
16. 若固定式設備未配備電源線及插頭，或未配備可在過壓類別III條件下實現全極斷開的電源斷開裝置，則必須按照配線規例，在固定佈線中設置斷開裝置。

維修人員資格要求

- 任何涉及操作或改動製冷迴路、開啟密封組件、打開通風外殼等工序的人員，均須持有業界認可評估機構頒發之有效證書，以證明其具備根據業界認可評估標準安全處理製冷劑的資質。
- 維修只應按照設備製造商的建議進行。若需其他專業人員協助進行維護或修理，必須在具備 R32 製冷劑使用資質的人員監督下執行。

檢查安裝區域情況

在開始對含有 R32 製冷劑的系統進行工作前，必須進行安全檢查，以確保將燃燒風險降至最低。

工作程序

操作應在受控程序下進行，以儘量減少在作業期間出現易燃氣體或蒸氣的風險。

1. 常規**工作區域**

必須向所有維修人員及在當地工作的其他人員說明正在進行的工作的性質。應避免在密閉空間內工作。

2. 檢查是否有製冷劑

工作前及工作期間，應使用適當的製冷劑檢測儀檢查區域，以確保技術人員知悉潛在的可燃氣環境。確保所使用的檢測設備適用於 R32 製冷劑，即須為防火花、充分密封或本質安全型。

3. 滅火器的配置

若需在製冷設備或相關部件上進行任何熱功作業，應備有適當的滅火設備以備隨時使用。請在充注區域附近放置乾粉或二氧化碳滅火器。

4. 禁止明火源

任何從事涉及暴露含有或曾含有 R32 製冷劑管道工作的維修人員，均不得使用任何可能引發火災或爆炸危險的點火源。所有可能的點火源，包括吸煙，應與安裝、維修、拆卸及處理作業現場保持足夠距離，因為在此期間 R32 製冷劑可能會洩漏至周圍空間。作業前須檢查設備周圍區域，確保無易燃危險或點火風險，並應張貼「禁止吸煙」標示。

5. 通風區域

在拆卸系統或進行任何熱功作業之前，確保該區域為開放狀態或通風良好。在作業期間，應保持通風。通風應安全地消散任何釋放的製冷劑，並最好將其排放到大氣中。

6. 製冷設備檢查

更換電氣元件時， 必須選用符合用途且規格正確的部件。 任何時候均應遵循製造商的維護和檢修指南。 如有疑問， 請諮詢製造商技術部門以獲取協助。

以下檢查適用於使用 R32 製冷劑的安裝 ：

- 製冷劑充注量須符合安裝含製冷劑部件房間的面積；
- 通風機械和出氣口是否充分運行，不受阻礙；
- 若使用間接製冷迴路，應檢查二次迴路是否存有製冷劑；
- 設備標識須保持清晰可辨，應糾正模糊不清的標識和標誌；
- 製冷管道或部件應安裝於不易接觸腐蝕性物質的位置，除非其材質本身具抗腐蝕性或有適當防腐保護。

7. 電氣裝置檢查

電氣元件的維修與保養須包含初步安全檢查及部件檢測程序。若存在可能影響安全的故障，在未妥善處理前不得接通電路電源。若故障無法立即排除但需繼續運行，應採取足夠的臨時解決方案，並須向設備所有者報告以確保各方知悉。

初步安全檢查應包括：

- 電容器已放電：須以安全方式進行，避免可能產生的火花；
- 在系統充注、回收或清洗過程中，沒有帶電的電氣元件及線路外露；
- 接地連接保持導通。

密封電氣元件

密封電器元件不得進行維修。

電線佈線

檢查電纜佈線時，須確保其不會受磨損、腐蝕、過度擠壓、震動、銳利邊緣或其他任何不利環境因素的影響。檢查亦應考慮老化或來自壓縮機、風扇等源頭的持續震動所帶來的影響。

檢測 R32 製冷劑

在任何情況下，均不得使用潛在的點火源來搜查或檢測製冷劑洩漏。切勿使用鹵化物檢漏燈（或任何其他使用明火的檢測裝置）。

漏氣檢測方法

以下適用於含 R32 製冷劑系統的洩漏檢測方法被視為可接受：

應使用電子檢漏儀檢測 R32 製冷劑，但其靈敏度可能不足或需要重新校準（檢測設備須在無製冷劑區域進行校準）。確保檢漏儀不會成為潛在火源，且適用於所使用的製冷劑。檢漏設備的設定值應為製冷劑燃燒下限（LFL）的百分比，並須針對所使用之製冷劑及適當氣體比例（最高 25%）進行校準確認。

檢漏液適用於大多數製冷劑，但應避免使用含氯清潔劑，因氯可能與製冷劑發生反應並腐蝕銅質管道。

若懷疑存在洩漏，須移除或熄滅所有明火。

若發現需要進行銅焊接修的製冷劑洩漏處，應從系統中完全回收所有製冷劑，或透過關閉閥門將製冷劑隔離於遠離洩漏位置的系統部分。隨後須在銅焊過程前及過程中，以無氧氮氣（OFN）對系統進行吹掃。製冷劑的移除應按照以下「製冷劑回收與迴路抽真空」章節的規定執行。

製冷劑回收與迴路抽真空

當需要拆開製冷劑迴路進行維修或任何其他用途時， 應採用常規操作程序。 然而， 由於涉及可燃性考量， 遵循最規範的操作至關重要。 必須嚴格遵守以下程序 ：

- 依據當地及國家規定安全回收製冷劑；
- 抽真空；
- 使用惰性氣體吹掃迴路；
- 再次抽真空；
- 若需使用明火開啟迴路，須持續以惰性氣體吹掃；
- 開啟迴路。

製冷劑應回收至專用的正確回收鋼瓶內。

製造商須明確指定可使用的惰性氣體種類。嚴禁使用壓縮空氣或氧氣進行製冷劑系統的吹掃作業。

製冷劑迴路的吹掃應通過以下方式完成 ：以惰性氣體破除系統內的真空狀態， 持續填充直至達到工作壓力， 隨後將氣體排放至大氣中， 最後重新抽真空。 此流程應重複進行， 直至系統內無殘留製冷劑。 系統須排氣至大氣壓力， 方可進行後續作業。

請確保真空泵的排氣口遠離任何潛在火源， 並保持作業環境通風良好。

充注程序

確保真空泵的排氣口遠離任何火源，並保持通風良好。

除常規充注步驟外，還須遵守以下要求：

- 使用充注設備時，須避免不同製冷劑交叉污染。連接軟管或管線應盡量縮短，以減少管內殘留的製冷劑量；
- 氣瓶應按照指示置於適當位置；
- 向製冷劑系統充注製冷劑前，須確保系統已接地；
- 充注完成後須為系統貼上標籤（如未標記）;
- 須極度小心，避免過量充注製冷劑系統。

在為系統加註之前，應使用適當的吹掃氣體進行壓力測試。充注完成後、正式啟用前，須進行泄漏檢測。離場前應再作一次後續泄漏測試。

拆卸及停用程序

進行本程序前，技術人員必須對設備及其所有細節完全熟悉。建議採取良好操作規範，安全回收所有製冷劑。在操作前，應提取潤滑油及製冷劑樣本，以便在回收製冷劑重新使用前進行分析（如需要）。必須確保開始操作前電力供應正常。

a) 熟悉設備及其操作；

b) 切斷系統電源；

c) 進行程序前須確保：
   - 備有機械搬運設備（如需要）以處理製冷劑鋼瓶；
   - 所有個人防護裝備齊備並正確使用；
   - 回收過程全程由具備資格的人員監督；
   - 回收設備及鋼瓶須符合相關標準；

d) 如有可能，抽空製冷劑系統；

e) 如果無法達到真空，則製作分歧器，以便從系統不同部位抽取製冷劑；

f) 進行回收前，須確保鋼瓶已放置於磅秤上；

g) 啟動回收機並嚴格按照製造商指示操作；

h) 切勿過量充注鋼瓶（液態充注量不得超過容積的80%）；

i) 即使短暫操作亦不可超出鋼瓶的最高工作壓力；

j) 當鋼瓶正確充注且流程完成後，須立即將鋼瓶及設備移離現場，並關閉設備上所有隔離閥；

k) 回收後的製冷劑必須經過清潔與檢測，方可注入其他製冷劑系統。

注意事項：

設備應貼有標籤，註明已停用且製冷劑已清空。標籤須註明日期並簽署。同時須確保設備貼有標明「內含R32製冷劑」的標識。

回收

於系統中移除製冷劑時（無論是維修或報廢），建議遵循以下安全操作指引，妥善移除所有製冷劑。

將製冷劑轉移至鋼瓶時, 確保僅使用專用於製冷劑回收的合適鋼瓶. 確保準備了正確數量的鋼瓶，以容納系統內的全部製冷劑。所有鋼瓶必須標明專用於回收該類製冷劑（即回收製冷劑的特殊鋼瓶）。鋼瓶須配備狀態良好的壓力釋放閥及相關關閉閥門。空回收鋼瓶應先抽真空，並盡可能在回收前進行冷卻。

回收設備須處於良好運作狀態，並配備一套設備操作說明書以供隨時查閱，且該設備須適用於回收 R32 制冷劑。如有疑問，請向製造商查詢。此外，應配備一套經校準的電子秤並確保其運作正常。連接軟管須配備防漏快速接頭且保持完好無損。

回收的製冷劑必須按照當地法規，使用正確的回收鋼瓶進行處理，並安排相關的廢物轉移文件。請勿在回收設備中混合不同製冷劑，尤其禁止在鋼瓶中混合。

若需拆卸壓縮機或處理壓縮機潤滑油，必須確保其已抽真空至合格標準，以確保潤滑油內不殘留 R32 製冷劑。切勿使用明火或其他引燃源加熱壓縮機外殼以加速此過程。系統內的排油作業必須以安全方式進行。

附加安全規例

- 本電器不適合身體、感官或精神能力較弱，或缺乏經驗與知識的人士（包括兒童）使用，除非有負責其安全的人在旁監督或指導如何使用本電器。
- 兒童應受監督，以確保他們不會玩耍本電器。
- 若柔性電源線損壞，必須由製造商、其服務代理或具備相應資格的人員更換，以避免任何潛在危險。
- 請勿在低溫銅焊合金（例如鉛錫合金）中使用焊劑或其他含有製冷劑的部件。
- 含易燃製冷劑的冷氣機在運輸時，必須遵守有關易燃氣體包裝的運輸規例，包括包裹的最大數量或允許的共同運輸包裝配置。
- 冷氣機的存放以及包裝狀態下的冷氣機存放（未售出時）:
  - 包裹應存放在乾燥、通風良好的地方，避免置於極熱或極冷的環境。
  - 遠離陽光直射及熱源，並確保附近無持續性火源。
  - 包裹存放必須遵從製造商的指示。
- 使用易燃製冷劑的冷氣機的棄置方法：
  - 請勿與一般垃圾一同丟棄。
  - 應將產品送至指定回收點處理。
  - 或聯絡本地行政機構，以進行適當且環保的棄置程序。

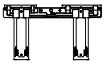
分體式冷氣機

安裝說明書

安裝人員必須在安裝前， 準備好符合規格要求的電纜， 用以連接室內機與電源。

	室內機 / 室外機
1.0 HP 機型	AH-XP10DMA / AU-X10DMA
1.5 HP 機型	AH-XP13DMA / AU-X13DMA
2.0 HP 機型	AH-XP18DMA / AU-X18DMA

配件

項目	數量
1 掛接板 	1
2 長螺絲 (M4.5×30) 用來固定掛接板。	7
3 遙控器 	1
4 乾電池 	2
5 螺絲 (M4×20) 用來固定遙控器 (2)。 用來固定線材護蓋 (1)。	3
6 遙控器支架 	1
7 線材護蓋 	1
8 操作說明書 	1
9 安裝說明書 	1

安裝後檢查清單

重要提示！ **請檢查所有項目**

由安裝者

1. 電壓	:..... 伏特	12. 二通閥與三通閥	□ 開啟 □ 關閉
2. 電流	:..... 安培	13. 遙控器功能	□ 正常 □ 異常
3. 氣壓	:.....Psi	14. 使用真空泵抽真空	□ 正常 □ 異常
4. 斷路器	:..... 安培	*注意：請勿使用排氣法進行抽真空。*	
5. 主電源線連接	□ 正常 □ 異常	15. 試運行時間	:..... 分鐘
6. 室內機與室外機電纜連接	□ 正常 □ 異常	16. 室內機空氣溫差	
7. 接地線連接	□ 正常 □ 異常	(進風口 - 出風口)	:.....°C
8. 斷路器功能	□ 正常 □ 異常		
9. 室內機安裝	□ 正常 □ 異常	*注意：IDU → 室內機*	
10. 排水系統	□ 正常 □ 異常	*ODU → 室外機*	
11. 管道連接處氣體洩漏	□ 正常 □ 異常		

由消費者

整潔程度	□ 良好 □ 一般 □ 欠佳	**解說清晰度**	□ 良好 □ 一般 □ 欠佳
清潔情況	□ 良好 □ 一般 □ 欠佳	**服務禮貌**	□ 良好 □ 一般 □ 欠佳

向客戶說明的事項

- 參照使用說明書，向客戶說明如何使用及保養冷氣機。
- 請客戶仔細閱讀使用說明書。
- 冷氣機安裝完成後，請將安裝說明書交付客戶。

內容核對	安裝公司名稱	安裝人員姓名
/ / (日 / 月 / 年)		

安全注意事項

- **本電器必須由合格的安裝人員或維修人員依據本安裝說明書進行安裝、保養、修理及卸除。於執行這些工作中的任何一項時，請讓合格的安裝人員或合格的維修人員來為您執行。**
- **合格的安裝人員或合格的維修人員為具備本安裝說明書中所述資格與知識的代理人。**
  動作不正確會造成觸電、漏水、火災。
- **務必使用隨附配件及指定零件進行安裝。**
  使用其他零件會造成觸電、漏水、火災、機組掉落。
- **本電器應依據國家配線法規進行安裝。**
  連接錯誤會造成過熱或火災。
- **在作業之前及過程中，請確保製冷劑沒有洩漏。**
  檢查並確保作業區周圍沒有點火源。
  確保工作地點應與易燃材質隔開且遠離易燃材質。
- **安裝期間若製冷劑氣體洩漏，請讓房間通風。**
  製冷劑氣體碰到火可能會產生有毒氣體。
  在進行任何熱作業時，乾粉或CO_2滅火器應放在伸手可及之處，而且應該在通風的區域使用。
  抽菸或其他可能的點火源應與作業區域保持足夠距離。
- **當安裝完成後，請檢查製冷劑氣體沒有洩漏。**
  製冷劑氣體碰到火可能會產生有毒氣體。
- **本電器必須安裝、操作及存放在地板面積大於4 m^2的房間內。**
- **使用指定的電線。**
  請確保線材有固定在適當位置，並且端子未承受來自線材的任何過度施力。否則，可能會引起過熱或火災。
- **線材之形成應使得控制盒護蓋、線夾及索夾不致鬆脫。**
  否則，可能會引起過熱、火災或觸電。
- **關於更換電氣零件，應符合《SHARP維修說明書（SHARP Service Manual）》的要求，或聯絡製造單位。**
  在更換電氣零件前，請確保電容器已放電、帶電零組件與配線不外露、以及有接地。
- **依據指定方法使用扭力扳手將寬底螺帽鎖緊。**
  如果寬底螺帽鎖太緊，寬底螺帽可能會在長時間之後斷裂，並且造成製冷劑氣體洩漏。
- **在安裝機組時，請小心不要讓指定製冷劑（R32）除外的空氣物質進入製冷劑循環。**
  否則，於製冷劑循環中會因為壓力異常高而造成爆炸及傷害。
- **只有合格人員才能搬移、填充、去除及處置製冷劑。**
  須遵守國家氣體法規。
  本電器應存放在沒有點火源持續運作的房間內。
- **在使壓縮機運轉前，務必先連接製冷管道。**
  否則，於製冷劑循環中會因為壓力異常高而造成爆炸及傷害。
- **將機組接地。**
  接地不全可能會造成觸電。
- **請安裝接地漏電斷路器，以免漏電時觸電。**
  請以低於30 mA的額定靈敏度電流及短於0.1秒的操作時間使用電流啟動、高靈敏度、高速型斷路器。
- **布置排水管以確保排水順暢。**
  排水不足可能會造成房間、傢俱等潮濕。

位置注意事項

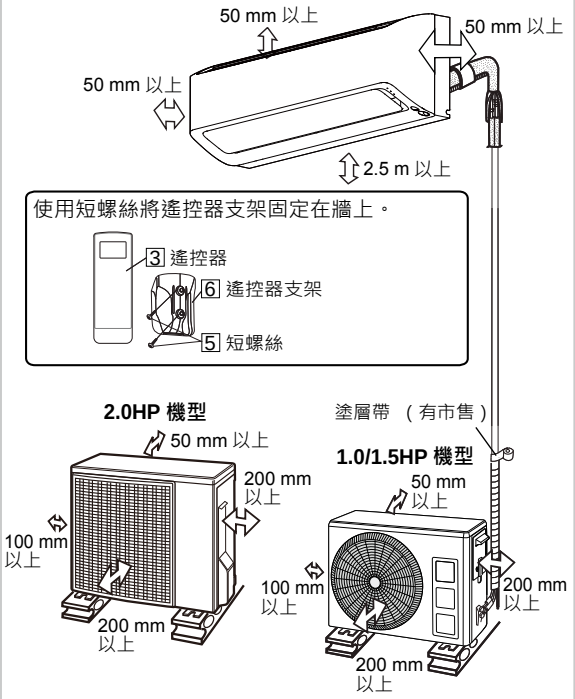
室內機

1. 保持排氣口沒有任何障礙物，才能使外排空氣在整個房間內順利流動。
2. 使排水管孔易於排水。
3. 在兩側邊及機組上面提供足夠空間。
4. 空氣濾網應易於放入及取出。
5. 使電視機、收音機之類的設備與機組及遙控器保持1 m以上的距離。
6. 使進氣口保持沒有可能阻擋內送空氣的障礙物。
7. 遙控器在配有電子同時啟動或快速啟動螢光照明功能的房間內可能無法發揮正常功能。
8. 選擇不造成吵雜運作聲音與極大震動的位置。
9. 為了安全起見，室內機應安裝在不低於2.5 m的高度。

室外機

1. 將室外機放到穩固的基座上。
2. 於機組周圍提供足夠空間。通風也應該良好。
3. 機組不應外露至強風或受到雨水潑灑。
4. 機組應該能夠將水順利排出。若有需要，請擺放排水管。寒冷地區會結凍，因此不適合安裝排水管。
5. 使電視機、收音機之類的設備與機組保持1 m以上的距離。
6. 避免外露於機油蒸汽、含鹽空氣（例如：面向海岸）、熱溫泉蒸汽含硫氣體等的位置。此類位置會造成故障。
7. 避免外露於泥水（例如：沿著道路）的位置或機組會遭受搗損處。
8. 選擇外排空氣或運作聲音不會打擾他人的位置。
9. 使排氣口保持沒有任何障礙物。障礙物可能影響機組效能並產生吵雜的噪音。

安裝圖解

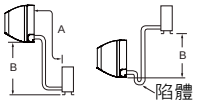


• 為確保冷氣機運作高效，請盡量預留充足的安裝空間。

佈管

最大佈管長度：A	最大高度差：B		最小佈管長度	添加製冷劑（佈管長度超過 7.5 m）
20m	7m	1.0/1.5HP 機型	3m	10g/m
	10m	2.0HP 機型		

• 標準佈管長度為 5 m.
• 室外機若是放在比室內機更高的地方， 請於軟管的引入埠附近提供陷體。

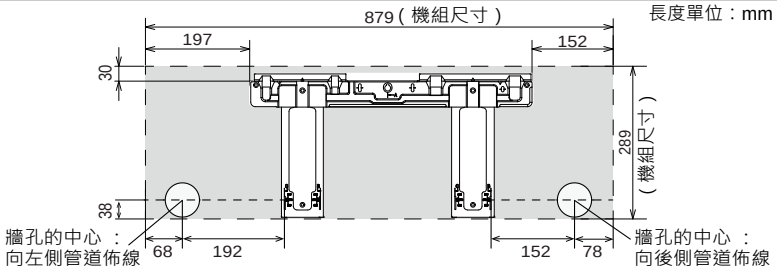


使用下表所示的製冷管。

管線尺寸			佈管厚度	隔熱物
液體側	1/4" (6.35mm)		0.8mm	厚度：6 mm 或更厚 材質：聚乙烯泡棉
氣體側	3/8" (9.52mm)	1.0/1.5HP 機型	0.8mm	
	1/2" (12.7mm)	2.0HP 機型		

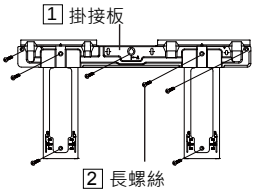
• 隔熱物應將氣體管線與液體管線兩者都包覆。

室內機安裝尺寸



1 置放掛接板並製作佈管孔

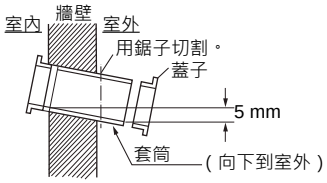
安裝掛接板



• 安裝板應安裝在能夠支撐室內機重量的牆上。
(1) 請參閱「**室內機安裝尺寸**」，標示用於固定孔及佈管孔的位置。
  • 用圓圈框住的固定孔（7處）為建議使用的固定孔。
  • 確保掛接板呈水平。
(2) 請使用長螺絲將掛接板固定到牆壁並檢查韌性。

製作佈管孔

(1) 使用直徑 70 mm 的混凝土鑽孔機或下傾 5 mm 的鋸孔器將佈管孔鑽到外部。
(2) 設置套筒及蓋子。



2 設置室內機

佈管繞線

針對方向1、2、4及5，切去特定區域，不留任何銳緣。（保留切去的板材以備可能在未來使用。）

掛接室內機

對於右側佈管

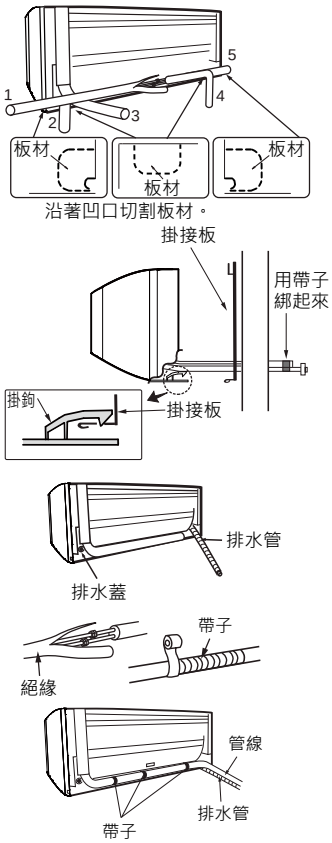
(1) 使管線及排水管通過佈管孔。
(2) 將機組掛到掛接板上。
(3) 將連接線拉進室內機。
(4) 推壓機組並將底端掛鉤用於支撐掛接板。
(5) 拉動機組的底端以檢查機組已固定在適當位置。

對於左側佈管

(1) 將排水管及排水蓋調換位置。請參閱「**互換排水管**」。
(2) 將佈管接頭絕緣物周圍的管線與繞線帶緊密連接，勿使變厚。
(3) 用帶子將管線與連接線綁起來。
(4) 沿著機組背面設置管線與連接線。
(5) 使管線、連接線及排水管通過佈管孔。
(6) 將機組掛到掛接板上。
(7) 推壓機組並將底端掛鉤用於支撐掛接板。
(8) 拉動機組的底端以檢查機組已固定在適當位置。

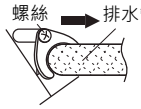
注意事項：

• 小心折彎管線，勿使損壞。
• 將排水管擺放到這些管線下面。

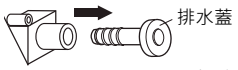


互換排水管

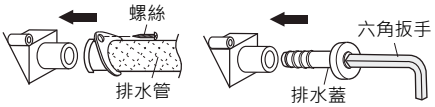
(1) 卸除螺絲並拉出排水管。



(2) 拉出排水蓋。



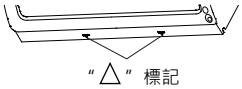
(3) 將排水管重新連接到右邊，並且將排水蓋插入左邊。
  • 將排水管完全插入直到止住為止，並且將步驟 (1) 中卸除的螺絲固定。
  • 將六角扳手（對角 4 mm）插入排水蓋，並且完全按下。



注意：
更換後，請確保排水管與排水蓋兩者都有插牢。

從安裝板上拆卸室內機

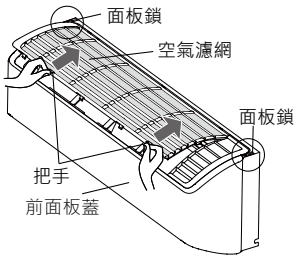
按下室內機底部的 "△" 標記並向外拉動機身底部。待掛鉤從安裝板上鬆開後，請托住機身底部並向上抬起室內機。



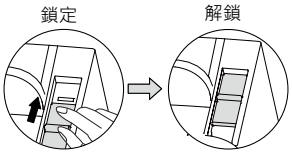
3 將線材連接到室內機

拆下前面板蓋

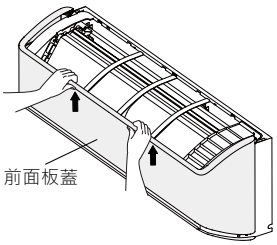
(1) 拆下空氣濾網。
將手指插入兩個把手，將空氣濾網濾网向上提起。



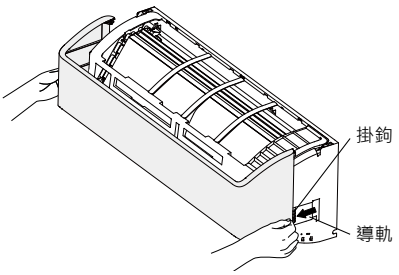
(2) 將鎖 （兩側） 推到后面以解開面板鎖 （兩側）。



(3) 朝自己方向拉前面板蓋， 將其鬆開， 然後將其抬起。



(4) 通過沿導軌 （兩側） 滑出掛鉤拉動前面板蓋， 然後將其拆下。



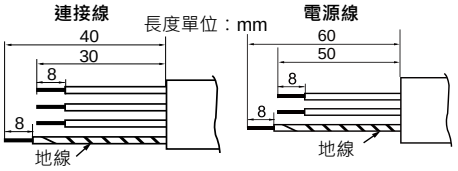
將線材連接到室內機

請使用不輕於聚氯丁烯護套軟線（型號標示為 60245 IEC 57）的銅製線材。

(1) 處理室內側連接電纜的末端。
(2) 將連接線與電源線連接。
(3) 用短螺絲固定線材護蓋。

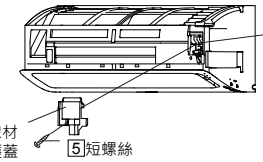
電線橫截面積：

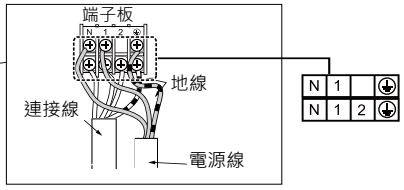
電線	1.0/1.5HP 機型	2.0HP 機型
電源線	1.5 mm² 3 芯	2.5 mm² 3 芯
連接線	1.5 mm² 4 芯	2.5 mm² 4 芯



注意：

- 確保將電線引線深入端子板並擰緊螺釘。 接觸不良可能導致過熱、 火灾或故障。
- 務必非常小心，不要混淆端子連接。 佈線錯誤可能會使內部控制電路損壞。
- 於連接線材時， 務必對準室內機接線板上的標記及室外機接線板上的標記。
- 電線連接和固定後， 確保不要彎曲或捲曲電纜， 以避免裝置運行時電線過熱。

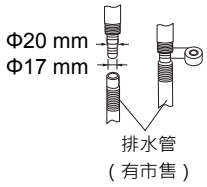




4 連接排水管

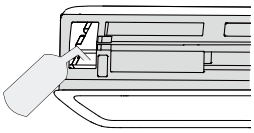
連接排水管

(1) 連接排水管。
(2) 用膠帶纏繞連接件。



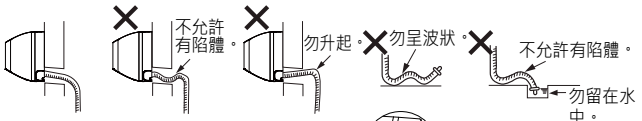
檢查排水

(1) 將水灌入排水盤。
(2) 檢查排水是否順暢。



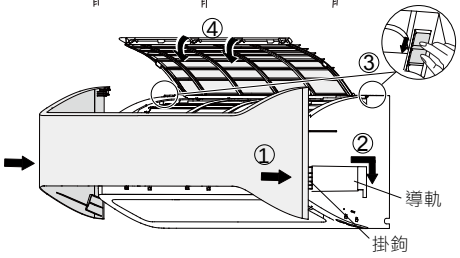
注意事項：

- 務必將排水管向下擺放以利排水流動順暢。
- 小心不要使排水管升起、形成陷體或使其末端留在水中，如以下所示。
- 若排水管從室內通過，請於排水管上盤繞隔熱物。



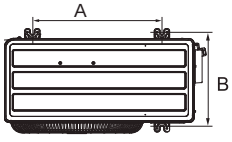
安裝前面板蓋

① 將掛鉤與導軌（兩側）匹配。
② 將前面板蓋滑回原始位置。
③ 將面板鎖 （兩側） 拉到前側， 以鎖定前面板蓋。
④ 安裝空氣濾網。



5 室外機安裝

請參閱圖示，用螺栓將室外機牢牢固定。



長度單位：mm

機型	A	B
1.0/1.5HP 機型	407	299
2.0HP 機型	540	310

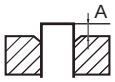
6 連接製冷管道

擴大管線末端

(1) 用管線切割器進行切割
直角切割。

(2) 去毛邊
管線內不允許有切屑。
(3) 放進寬底螺帽
(4) 擴大
擴大處理尺寸（A）

工具	A
R410A & R32 工具	0 - 0.5 mm



(5) 檢查
要呈完美圓形擴大。
寬底螺帽不缺。

連接管線

室內機先連接管線， 然後才是室外機。
(1) 前 3 到 4 圈先用手鎖緊寬底螺帽。
(2) 使用扳手及扭力扳手將管線鎖更緊。
• 請勿使管線過度鎖緊。這樣可能會導致變形或損壞。

寬底螺帽鎖緊扭力

管線尺寸		扭力
液體側	1/4"	16±2N·m (1.6±0.2kgf·m)
氣體側	3/8"	38±4N·m (3.9±0.4kgf·m)（適用於 1.0/1.5HP 機型）
	1/2"	55±5N·m (5.6±0.5kgf·m)（適用於 2.0HP 機型）

7 空氣排除

使用 R32 專用的真空泵、計量錶歧管與軟管。

(1) 將二通閥及三通閥的閥軸蓋都卸除。
(2) 將三通閥的維修埠蓋卸除。
(3) 將計量錶歧軟管連接到維修埠及真空泵。
確保要連接到維修埠的軟管末端具有閥核推壓器。
(4) 打開計量錶歧管低壓閥（Lo）並開啟真空泵 10 到 15 分鐘。
確保複合計量錶讀取 -0.1 MPa (-76 cmHg)。
(5) 關閉計量錶歧管閥。
(6) 關閉真空泵。
維持原狀 1 到 2 分鐘，並確保複合計量錶的指針沒有跑回去。
(7) 藉由轉動六角扳手來逆時針 90° 打開二通閥。5 秒後關閉，然後檢查漏氣。*
(8) 斷開計量錶歧軟管與維修埠的連接。
(9) 使用六角扳手將二通閥完全打開。
(10) 使用六角扳手將三通閥完全打開。
(11) 以指定的鎖緊扭力使用扭力扳手將維修埠蓋及兩閥軸蓋牢牢鎖緊。

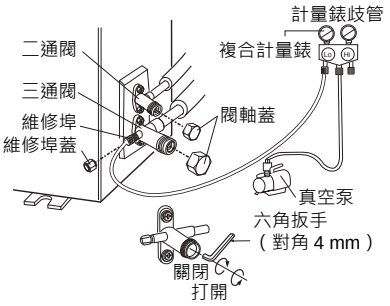
* 使用檢漏器或肥皂水檢查管線連接是否有漏氣。

閥軸蓋鎖緊扭力

管線尺寸		扭力
液體側	1/4"	24±3N·m (2.5±0.3kgf·m)
氣體側	3/8"	24±3N·m (2.5±0.3kgf·m)（適用於 1.0/1.5HP 機型）
	1/2"	31±3N·m (3.2±0.3kgf·m)（適用於 2.0HP 機型）

維修埠蓋鎖緊扭力

扭力
11±1N·m (1.1±0.1kgf·m)



8 將線材連接到室外機

長度單位：mm

機型：1.0/1.5HP 機型

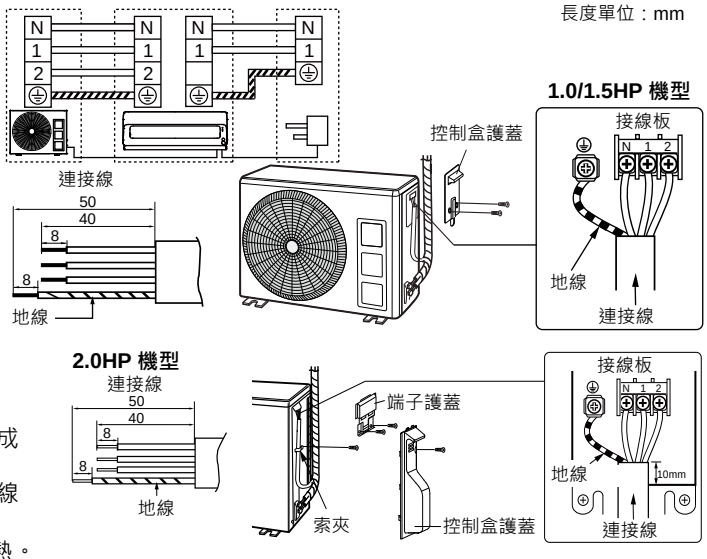
(1) 處理室外側連接線的末端。
(2) 卸除控制盒護蓋。
(3) 將線材連接到接線板
(4) 裝上控制盒護蓋。
(5) 再次確認連接線已安全固定。

機型：2.0HP 機型

(1) 處理室外側連接線的末端。
(2) 卸除控制盒護蓋及端子護蓋。
(3) 卸除索夾並將線材連接到接線板。
(4) 用索夾與螺絲固定線套。
(5) 再次確認連接線已安全固定。
(6) 裝上端子護蓋及控制盒護蓋。

注意：

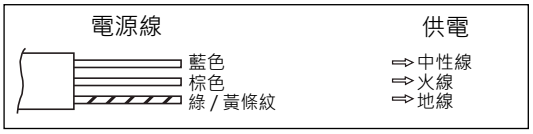
- 務必將連接線引線放入接線板深處並將螺絲鎖緊。接觸不良會造成過熱或火災、或故障。
- 在將連接線連接時，務必對準室外機接線板上的標記及室內機接線板上的標記。
- 連接線連接和固定後， 確保不要彎曲或捲曲， 以避免運行時過熱。



9 電源佈線

準備專用電源電路。

	1.0/1.5HP 機型	2.0HP 機型
供電	220V, 50Hz 單相	220V, 50Hz 單相
斷路器	10A	16A



- 將隔離開關（每個電極都有至少 3 mm 接觸分離部分）安裝到電力線。

抽空

抽空是用在為了重新安裝、丟棄、修理等目的而卸除機組的情況。抽空是為了將製冷劑抽集到室外機內。

<u>使用計量錶歧管的操作程序</u>（推薦的操作程序）

(1) 將計量錶歧軟管連接到三通閥的維修埠。
(2) 使冷氣機在製冷試運轉模式下運轉（請參閱「10 試運轉」）。
(3) 5 到 10 分鐘後，請關閉二通閥。
(4) 當複合計量錶讀值低於 0 MPa (0 cmHg) 時，請關閉三通閥。
(5) 停止試運轉操作。
(6) 斷開計量錶歧軟管與維修埠的連接。
(7) 斷開兩根製冷管的連接。

<u>不使用計量錶歧管的操作程序</u>

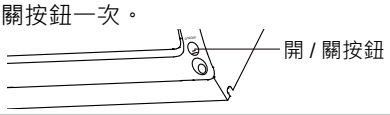
(1) 使冷氣機在製冷試運轉模式下運轉（請參閱「10 試運轉」）。
(2) 5 到 10 分鐘後，請藉由順時針轉動六角扳手將二通閥完全關閉。
(3) 2 到 3 分鐘後，請立即將三通閥完全關閉。
(4) 停止試運轉操作。
(5) 斷開兩根製冷管的連接。

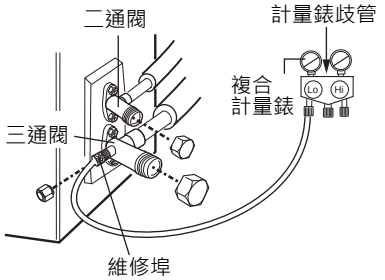
注意：

- 務必先將壓縮機關閉再卸除冷媒管。否則，會造成爆炸及傷害。
- 請勿在製冷劑洩漏或製冷循環中沒有製冷劑時進行抽空。否則，會造成爆炸及傷害。

10 試運轉

(1) 使用遙控器開始操作。
(2) 若要開始冷卻試運轉，請按住機組上的開 / 關按鈕至少 5 秒，直到聽見嗶聲且操作燈閃爍為止。
(3) 確定系統運轉良好。若要停止運作，請再按開 / 關按鈕一次。





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