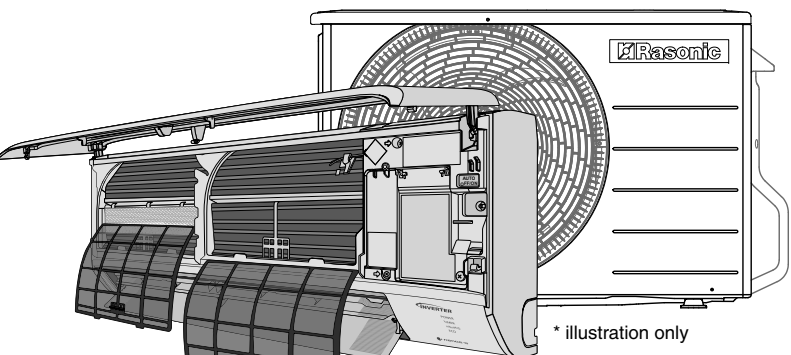




Installation Instruction

Air conditioner



* illustration only

MODEL NO : RS/RU-PN9** (1.0HP)
RS/RU-PN12** (1.5HP)

CAUTION

R32 REFRIGERANT

This Air Conditioner contains and operates with refrigerant R32.

THIS PRODUCT MUST ONLY BE INSTALLED OR SERVICED BY QUALIFIED PERSONNEL

Refer to National, State, Territory and local legislation, regulations, codes, installation & operation manuals, before the installation, maintenance and/or service of this product.

Explanation of symbols displayed on the indoor unit or outdoor unit.

	WARNING	This symbol shows that this equipment uses a mildly flammable refrigerant. If the refrigerant is leaked, together with an external ignition source, there is a possibility of ignition.
	CAUTION	This symbol shows that the Installation Manual should be read carefully.
	CAUTION	This symbol shows that a service personnel should be handling this equipment with reference to the Installation Manual.
	CAUTION	This symbol shows that there is information included in the Operation Manual and/or Installation Manual.

SAFETY PRECAUTIONS

- Read the following "SAFETY PRECAUTIONS" carefully before installation.
- Electrical work must be installed by a licensed electrician. Be sure to use the correct rating of the power plug and main circuit for the model to be installed.
- The caution items stated here must be followed because these important contents are related to safety. The meaning of each indication used is as below. Incorrect installation due to ignoring of the instruction will cause harm or damage, and the seriousness is classified by the following indications.

	WARNING	This indication shows the possibility of causing death or serious injury.		The items to be followed are classified by symbols:		Symbol with white background denotes item that is PROHIBITED.
	CAUTION	This indication shows the possibility of causing injury or damage to properties only.				Symbol with dark background denotes item that must be carried out.

- Carry out test running to confirm that no abnormality occurs after the installation. Then, explain to user the operation, care and maintenance as stated in instructions. Please remind the customer to keep the operating instructions for future reference.

If the equipment is transferred to a new user or delivered to a recycling plant, be sure also to hand over the manual.

WARNING

- Do not use means to accelerate the defrosting process or to clean, other than those recommended by the manufacturer. Any unit method or using incompatible material may cause product damage, burst and serious injury.
- Do not install outdoor unit near handrail of veranda. When installing air-conditioner unit on veranda of a high rise building, child may climb up to outdoor unit and cross over the handrail causing an accident.
- Do not use unspecified cord, modified cord, joint cord or extension cord for power supply cord. Do not share the single outlet with other electrical appliances. Poor contact, poor insulation or over current will cause electrical shock or fire.
- Do not tie up the power supply cord into a bundle by band. Abnormal temperature rise on power supply cord may happen.
- Do not insert your fingers or other objects into the unit, high speed rotating fan may cause injury.
- Do not sit or step on the unit, you may fall down accidentally.
- Keep plastic bag (packaging material) away from small children, it may cling to nose and mouth and prevent breathing.
- When installing or relocating air conditioner, do not let any substance other than the specified refrigerant, eg. air etc mix into refrigeration cycle (piping). Mixing of air etc. will cause abnormal high pressure in refrigeration cycle and result in explosion, injury etc.
- Do not pierce or burn as the appliance is pressurized. Do not expose the appliance to heat, flame, sparks, or other sources of ignition. Else, it may explode and cause injury or death.
- Do not add or replace refrigerant other than specified type. It may cause product damage, burst and injury etc.

- For R32/R410A model, use piping, flare nut and tools which is specified for R32/R410A refrigerant. Using of existing (R22) piping, flare nut and tools may cause abnormally high pressure in the refrigerant cycle (piping), and possibly result in explosion and injury.

For R32 and R410A, the same flare nut on the outdoor unit side and pipe can be used.

- Since the working pressure for R32/R410A is higher than that of refrigerant R22 model, replacing conventional piping and flare nuts on the outdoor unit side are recommended.
- If reuse piping is unavoidable, refer to instruction "IN CASE OF REUSING EXISTING REFRIGERANT PIPING"
- Thickness of copper pipes used with R32/R410A must be more than 0.8 mm. Never use copper pipes thinner than 0.8 mm.
- It is desirable that the amount of residual oil less than 40 mg/10 m.
- Engage authorized dealer or specialist for installation.

If installation done by the user is incorrect, it will cause water leakage, electrical shock or fire.

- For refrigeration system work, install according to this installation instructions strictly. If installation is defective, it will cause water leakage, electrical shock or fire.
- Use the attached accessories parts and specified parts for installation. Otherwise, it will cause the set to fall, water leakage, fire or electrical shock.

- Install at a strong and firm location which is able to withstand weight of the set. If the strength is not enough or installation is not properly done, the set will drop and cause injury.
- For electrical work, follow the national regulation, legislation and this installation instructions. An independent circuit and single outlet must be used. If electrical circuit capacity is not enough or defect found in the electrical work, it will cause electrical shock or fire.

- Do not use joint cable for indoor / outdoor connection cable. Use the specified indoor/outdoor connection cable, refer to instruction ⑤ **CONNECT THE CABLE TO THE INDOOR UNIT** and connect tightly for indoor/outdoor connection. Clamp the cable so that no external force will have impact on the terminal. If connection or fixing is not perfect, it will cause heat up or fire at the connection.

- Wire routing must be properly arranged so that control board cover is fixed properly. If control board cover is not fixed perfectly, it will cause fire or electrical shock.

- This equipment is strongly recommended to be installed with Earth Leakage Circuit Breaker (ELCB) or Residual Current Device (RCD). If RCD is not possible, make a manifold so that refrigerant can be removed from various parts of the system.

- During installation, install the refrigerant piping properly before running the compressor. Operation of compressor without fixing refrigeration piping and valves at opened position will cause suck-in of air, abnormal high pressure in refrigeration cycle and result in explosion, injury etc.

- During pump down operation, stop the compressor before removing the refrigeration piping. Removal of refrigeration piping while compressor is operating and valves are opened will cause suck-in of air, abnormal high pressure in refrigeration cycle and result in explosion, injury etc.

- Tighten the flare nut with torque wrench according to specified method. If the flare nut is over-tightened, after a long period, the flare may break and cause refrigerant gas leakage.

- After completion of installation, confirm there is no leakage of refrigerant gas. It may generate toxic gas when the refrigerant contacts with fire.

- Ventilate if there is refrigerant gas leakage during operation. It may cause toxic gas when the refrigerant contacts with fire.
- Be aware that refrigerants may not contain an odour.

8. Charging procedures

- 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 minimize 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 over fill the refrigerating system.
 - Prior to recharging the system it shall be pressure tested with OFN (refer to #7).
 - 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.
- Electrostatic charge may accumulate and create a hazardous condition when charging and discharging the refrigerant. To avoid fire or explosion, dissipate static electricity during transfer by grounding and bonding containers and equipment before charging/discharging.

9. Decommissioning

- Before carrying out this procedure, it is essential that the technician is completely familiar with the equipment and all its details.
- 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.
 - Become familiar with the equipment and its operation.
 - Isolate system electrically.
 - 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.
- Pump down refrigerant system, if possible.
 - If a vacuum is not possible, make a manifold so that refrigerant can be removed from various parts of the system.
 - Make sure that cylinder is situated on the scales before recovery takes place.
 - Start the recovery machine and operate in accordance with instructions.
 - Do not over fill cylinders. (No more than 80 % volume liquid charge).
 - Do not exceed the maximum working pressure of the cylinder, even temporarily.
 - 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.
 - Recovered refrigerant shall not be charged into another refrigerating system unless it has been cleaned and checked.
- Electrostatic charge may accumulate and create a hazardous condition when charging or discharging the refrigerant. To avoid fire or explosion, dissipate static electricity during transfer by grounding and bonding containers and equipment before charging/discharging.

10. Labelling

- Equipment shall be labelled 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 flammable refrigerant.

11. 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 labelled 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.
- 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 concerning the equipment that is at hand and shall be suitable for the recovery of flammable refrigerants.
- 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 and shall be suitable for the recovery of flammable refrigerant.
- Before using the recovery machine, check that it is in satisfactory working order, has been properly maintained and that any associated electrical components are sealed to prevent ignition in the event of a refrigerant release.
- Consult manufacturer if in doubt.
- The recovered refrigerant shall be returned to the refrigerant supplier 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 flammable refrigerant does not remain within the lubricant.
- The evacuation process shall be carried out prior to returning the compressor to the suppliers.
- Only electric heating to the compressor body shall be employed to accelerate this process.
- When oil is drained from a system, it shall be carried out safely.

CAUTION

- Do not install the unit in a place where leakage of flammable gas may occur. In case gas leaks and accumulates at surrounding of the unit, it may cause fire.
- Prevent liquid or vapor from entering sumps or sewers since vapor is heavier than air and may form suffocating atmospheres.
- Do not release refrigerant during piping work for installation, re-installation and during repairing refrigeration parts. Take care of the liquid refrigerant, it may cause frostbite.
- Do not install this appliance in a laundry room or other location where water may drip from the ceiling, etc.
- Do not touch the sharp aluminium fin, sharp parts may cause injury.

- Carry out drainage piping as mentioned in installation instructions.
- If drainage is not perfect, water may enter the room and damage the furniture.
- Select an installation location which is easy for maintenance. Incorrect installation, service or repair of this air conditioner may increase the risk of rupture and this may result in loss damage or injury and/or property.

- Power supply connection to the room air conditioner.
- Use power supply cord 3 x 1.5 mm² (1.0 - 1.5HP), type designation 60245 IEC 57 or heavier cord.
- Connect the power supply cord of the air conditioner to the mains using one of the following method.

- Power supply point should be in easily accessible place for power disconnection in case of emergency.
- In some countries, permanent connection of this air conditioner to the power supply is prohibited.

- 1) Power supply connection to the receptacle using power plug.
- Use an approved 15/16 A (1.0 - 1.5HP) power plug with earth pin for the connection to the socket.

- 2) Power supply connection to a circuit breaker for the permanent connection.
- Use an approved 16 A (1.0 - 1.5HP) circuit breaker for the permanent connection. It must be a double pole switch with a minimum 3.0 mm contact gap.

- Installation work. It may need two people to carry out the installation work.

- Keep any required ventilation openings clear of obstruction.

PRECAUTION FOR USING R32 REFRIGERANT

- Pay careful attention to the following points and the installation work procedures.

WARNING

- The appliance shall be stored, installed and operated in a well ventilated room with indoor floor area larger than A_{min} (m²) [refer Table A] and without any continuously operating ignition source. Keep away from open flames, any operating gas appliances or any operating electric heater. Else, it may explode and cause injury or death.
- The mixing of different refrigerants within a system is prohibited. Models that use refrigerant R32 and R410A have a different charging port thread diameter to prevent erroneous charging with refrigerant R22 and for safety.
- Therefore, check beforehand. (The charging port thread diameter for R32 and R410A is 12.7 mm (1/2 inch).)
- Ensure that foreign matter (oil, water, etc.) does not enter the piping.
- Also, when storing the piping, securely seal the opening by pinching, taping, etc. (Handling of R32 is similar to R410A.)
- Operation, maintenance, repairing and refrigerant recovery should be carried out by trained and certified personnel in the use of flammable refrigerants and as recommended by the manufacturer. Any personnel conducting an operation, servicing or maintenance on a system or associated parts of the equipment should be trained and certified.
- Any part of refrigerating circuit (evaporators, air coolers, AHU, condensers or liquid receivers) or piping should not be located in the proximity of heat sources, open flames, operating gas appliance or an operating electric heater.
- The user/owner or their authorized representative shall regularly check the alarms, mechanical ventilation and detectors, at least once a year, where as required by national regulations, to ensure their correct functioning.
- A logbook shall be maintained. The results of these checks shall be recorded in the logbook.
- In case of ventilations in occupied spaces shall be checked to confirm no obstruction.
- Before a new refrigerating system is put into service, the person responsible for placing the system in operation should ensure that trained and certified operating personnel are instructed on the basis of the instruction manual about the construction, supervision, operation and maintenance of the refrigerating system, as well as the safety measures to be observed, and the properties and handling of the refrigerant used.
- The general requirement of trained and certified personnel are indicated as below:
 - a) Knowledge of legislation, regulations and standards relating to flammable refrigerants; and,
 - b) Detailed knowledge of and skills in handling flammable refrigerants, personal protective equipment, refrigerant leakage prevention, handling of cylinders, charging, leak detection, recovery and disposal; and,
 - c) Able to understand and to apply in practice the requirements in the national legislation, regulations and Standards; and,
 - d) Continuously undergo regular training to maintain this expertise.
- Air-conditioner piping in the occupied space shall be installed in such a way to protect against accidental damage in operation and service.
- Precautions shall be taken to avoid excessive vibration or pulsation to refrigerating piping.
- Ensure protection devices, refrigerating piping and fittings are well protected against adverse environmental effects (such as the danger of water collecting and freezing in relief pipes or the accumulation of dirt and debris).
- Expansion and contraction of long runs piping in refrigerating systems shall be designed and installed securely (mounted and guarded) to minimize the likelihood hydraulic shock damaging the system.
- Protect the refrigerating system from accidental rupture due to moving furniture or reconstruction activities.
- To ensure no leaking, 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 (>1.04MPa, max 4.15MPa). No leak shall be detected.

Required tools for Installation Works

1 Phillips screw driver	6 Pipe cutter	11 Thermometer	16 Torque wrench
2 Level gauge	7 Reamer	12 Megameter	18 N·m (1.8 kgf·m)
3 Electric drill, hole core drill (ø70 mm)	8 Knife	13 Multimeter	42 N·m (4.3 kgf·m)
4 Hexagonal wrench (4 mm)	9 Gas leak detector	14 Vacuum pump	55 N·m (5.6 kgf·m)
5 Spanner	10 Measuring tape	15 Gauge manifold	100 N·m (10.2 kgf·m)

Attached accessories

No.	Accessories part	Qty.	No.	Accessories part	Qty.
1	Installation plate	1	5	Remote control holder	1
2	Installation plate fixing screw	5	6	Remote control holder fixing screw	2
3	Remote Control	1	7	Drain elbow	1
4	Battery	2			

	Piping size	
	Gas	Liquid
CZ-3F5, 7BP	9.52 mm (3/8")	6.35 mm (1/4")
CZ-4F5, 7, 10BP	12.7 mm (1/2")	6.35 mm (1/4")
CZ-5F5, 7, 10BP	15.88 mm (5/8")	6.35 mm (1/4")

SELECT THE BEST LOCATION

- INDOOR UNIT**

 - Do not install the unit in excessive oil fume area such as kitchen, workshop and etc.
 - There should not be any heat source or steam near the unit.
 - There should not be any obstacles blocking the air circulation.
 - A place where air circulation in the room is good.
 - A place where drainage can be easily done.
 - A place where noise prevention is taken into consideration.
 - Do not install the unit near the door way.
 - Ensure the spaces indicated by arrows from the wall, ceiling, fence or other obstacles.
 - If piping length is over the [piping length for additional gas], additional refrigerant should be added as shown in the (Table A).
 - Indoor unit of this air conditioner shall be installed in a height of at least 1.8 m.

OUTDOOR UNIT

 - If an awning is built over the unit to prevent direct sunlight or rain, be careful that heat radiation from the condenser is not obstructed.
 - There should not be any animal or plant which could be affected by hot air discharged.
 - Keep the spaces indicated by arrows from wall, ceiling, fence or other obstacles.
 - Do not place any obstacles which may cause a short circuit of the discharged air.
 - If piping length is over the [piping length for additional gas], additional refrigerant should be added as shown in the (Table A).

Table A

Model	Capacity (W)	Piping size		Std. Length (m)	Max. Elevation (m)	Min. Piping Length (m)	Max. Piping Length (m)	Additional Refrigerant (g/m)	Piping Length for add. gas (m)	Refrigerant Charge (kg)	A _{min} (m ²)
		Gas	Liquid								
PN9**	1.0HP	9.52 mm (3/8")	6.35 mm (1/4")	5	15	3	20	10	7.5	0.55	Not applicable (*)
PN12**	1.5HP	12.70 mm (1/2")	6.35 mm (1/4")	5	15	3	20	10	7.5	0.88	Not applicable (*)

Example: For PN9**
If the unit is installed at 10 m distance, the quantity of additional refrigerant should be => 10 m (distance) - 7.5 m (piping length for additional gas) => 2.5 m
=> 2.5 x 10 g/m (additional Refrigerant) => 25 g

$A_{min} = (m_c / (2.5 \times (LFL)^{0.50} \times h_o))^2$ ** not less than safety factor margin

A_{min} = Required minimum room area, in m²
m_c = Refrigerant charge in kg
LFL = Lower flammability limit (0.307 kg/m³)
h_o = Installation height of the appliance : (1.8 m for wall mounted)

SF = Safety factor with a value of 0.75

(*) = Systems with total refrigerant charge, m, lower than 1.84 kg are not subjected to any room area requirements.

The higher value shall be taken when determining the room area.

CAUTION

1. General

- Must ensure the installation of pipe-work shall be kept to a minimum. Avoid use dented pipe and do not allow acute bending.
- Ensure that the physical location of the unit will be protected from physical damage.
- Must comply with national gas regulations, state municipal rules and legislation.
- Notify relevant authorities in accordance with all applicable regulations.
- Must ensure mechanical connections be accessible for maintenance purposes.
- In cases that require mechanical ventilation, ventilation openings shall be kept clear of obstruction.
- When disposal of the product, do follow to the precautions in #11 and comply with national regulations.
- In case of field charge, the effect on refrigerant charge caused by the different pipe length has to be quantified, measured and labelled. Always refer to local municipal offices for proper handling.
- Ensure the actual refrigerant charge is in accordance with the room size within which the refrigerant containing parts are installed.
- Ensure refrigerant charge not to leak.
- Wear appropriate protective equipment, including respiratory protection, as conditions warrant.
- Keep all sources of ignition and hot metal surfaces away.

2. Servicing

2-1. Qualification of workers

- Any qualified person who is involved with working on or breaking into a refrigerant circuit should hold a current valid certificate from an industry-accredited assessment authority, which authorizes their competence to handle refrigerants safely in accordance with an industry recognized 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 flammable refrigerants.
- Servicing shall be performed only as recommended by the manufacturer.
- The system is inspected, regularly supervised and maintained by a trained and certified service personnel who is employed by the person user or party responsible.

2-2. Checks to the area

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

- For repair to the refrigerating system, the precautions in #2-3 to #2-7 must be followed before conducting work on the system.

2-3. Work procedure

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

2-4. General work area

- All maintenance staff and others working in the local area shall be instructed and supervised on the nature of work being carried out.
- Avoid working in confined spaces. Always ensure away from source, at least 2 meter of safety distance, or zoning of free space area of at least 2 meter in radius.

2-5. 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 flammable refrigerants, i.e. non sparking, adequately sealed or intrinsically safe.
- In case of leakage/spillage happened, immediately ventilate area and stay upwind and away from spill/release.
- In case of leakage/spillage happened, do notify persons down wind of the leaking/spill, isolate immediate hazard area and keep unauthorized personnel out.

2-6. 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 at hand.
- Have a dry powder or CO₂ fire extinguisher adjacent to the charging area.

2-7. 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 flammable refrigerant shall use any source of ignition in such a manner that it may lead to the risk of fire or explosion. He/She must not be smoking when carrying out such work.

- All possible ignition sources, including cigarette smoking, should be kept sufficiently far away from the site of installation, repairing, recharging and disposal of the equipment. Flammable 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.

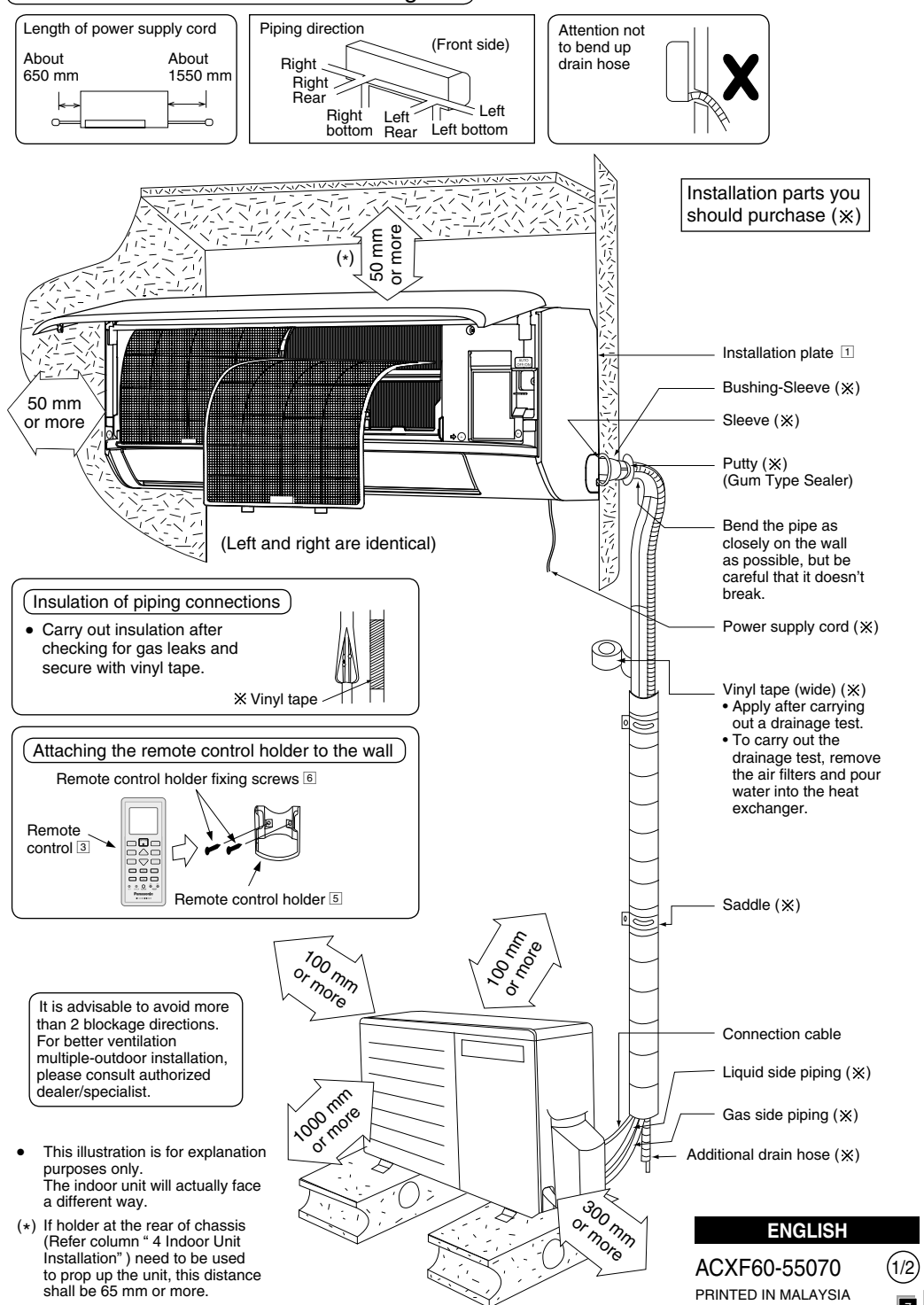
2-8. Ventilated area

- 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.

2-9. Checks to the refrigerating 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 flammable refrigerants.
 - The actual 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 illegible shall be corrected.
 - Refrigerating pipe or components are installed in a position where they are unlikely to be exposed to any substance which may corroded refrigerant containing components, unless the components are constructed of materials which are inherently resistant to being corroded or are properly protected against being so corroded.

Indoor/Outdoor Unit Installation Diagram



ENGLISH

ACXF60-55070

PRINTED IN MALAYSIA

1 SELECT THE BEST LOCATION (Refer to "Select the best location" section)

2 HOW TO FIX INSTALLATION PLATE

The mounting wall shall be strong and solid enough to prevent it from vibration.

Dimension					
1	2	3	4	5	6
465 mm	70 mm (+)	365 mm	415 mm	10 mm	70 mm

- The center of installation plate should be at more than ① at right and left of the wall.
- The distance from installation plate edge to ceiling should more than ②.
- From installation plate center to unit's left side is ③.
- From installation plate center to unit's right side is ④.

⑤ For left side piping, piping connection for liquid should be about ⑤ from this line.

⑥ For left side piping, piping connection for gas should be about ⑥ from this line.

1. Mount the installation plate on the wall with 5 screws or more (at least 5 screws). (If mounting the unit on the concrete wall, consider using anchor bolts.)

- Always mount the installation plate horizontally by aligning the marking-off line with the thread and using a level gauge.

2. Drill the piping plate hole with ø70 mm hole-core drill.

- Line according to the left and right side of the installation plate. The meeting point of the extended line is the center of the hole. Another method is by putting measuring tape at position as shown in the diagram above. The hole center is obtained by measuring the distance namely 115 mm for left and right hole respectively.
- Drill the piping hole at either the right or the left and the hole should be slightly slanting to the outdoor side.

3 TO DRILL A HOLE IN THE WALL AND INSTALL A SLEEVE OF PIPING

1. Insert the piping sleeve to the hole.

2. Fix the bushing to the sleeve.

3. Cut the sleeve until it extrudes about 15 mm from the wall.

CAUTION

① When the wall is hollow, please be sure to use the sleeve for tube assembly to prevent dangers caused by mice biting the connection cable.

4. Finish by sealing the sleeve with putty or caulking compound at the final stage.

1 SELECT THE BEST LOCATION (Refer to "Select the best location" section)

2 INSTALL THE OUTDOOR UNIT

After selecting the best location, start installation to Indoor/Outdoor Unit Installation Diagram.

1. Fix the unit on concrete or rigid frame firmly and horizontally by bolt nut (ø10 mm). Make sure unit install in balance level to ensure that water flow out from unit drainage hole.

2. When installing at roof, please consider strong wind and earthquake. Please fasten the installation stand firmly with bolt, screws or nails.

Model	A	B	C	D
1.OHP	474 mm	87 mm	18.5 mm	261 mm
1.SHP	570 mm	105 mm	18.5 mm	320 mm

3 CONNECT THE PIPING

Connecting The Piping to Indoor

For connection joint of all models Please make flare after inserting (locate at joint portion of tube assembly) onto the copper pipe. (In case of using long piping)

Connect the piping.

- Align the center of piping and sufficiently tighten the flare nut with fingers.
- Further tighten the flare nut with torque wrench in specified torque as stated in the table.

Additional Precautions For R32 Models when connecting by flaring at indoor side

① Ensure to do re-flaring of pipes before connecting to units to avoid leaking

Seal sufficiently the flare nut (both gas and liquid sides) with neutral cure (Alkoxy type) & ammonia-free silicone sealant and insulation material to avoid the gas leak caused by freezing.

Neutral cure (Alkoxy type) & ammonia-free silicone sealant is only to be applied after pressure testing and cleaning up by following instructions of sealant, only to the outside of the connection. The aim is to prevent moisture from entering the connection joint and possible occurrence of freezing. Curing sealant will take some time. Make sure sealant will not peel off when wrapping the insulation.

Apply neutral cure (Alkoxy type) & ammonia-free silicone sealant along the circumference

Spanner or Wrench Torque wrench

Connecting The Piping to Outdoor

Decide piping length and then cut by using pipe cutter. Remove burrs from cut edge. Make flare after inserting the flare nut (locate at valve) onto the copper pipe. Align center of piping to valve and then tighten with torque wrench to the specified torque as stated in the table.

Piping size	Torque
6.35 mm (1/4")	18 N·m (1.8 kgf·m)
9.52 mm (3/8")	42 N·m (4.3 kgf·m)
12.7 mm (1/2")	55 N·m (5.6 kgf·m)
15.88 mm (5/8")	65 N·m (6.6 kgf·m)
19.05 mm (3/4")	100 N·m (10.2 kgf·m)

① Do not overtighten, overtightening may cause gas leakage.

5 CONNECT THE CABLE TO THE OUTDOOR UNIT

① Remove the control board cover from the unit by loosening the screw.

② **Connection cable** between indoor unit and outdoor unit shall be approved polychloroprene sheathed 3 x 1.5 mm² (1.0 ~ 1.5HP) flexible cord, type designation 60245 IEC 57 or heavier cord. Do not use joint connection cable. Replace the wire if the existing wire (from concealed wiring, or otherwise) is too short.

Terminals on the outdoor unit	1	2
Colour of wires	1	2

Terminals on the indoor unit	1	2
Colour of wires	1	2

③ Secure the cable onto the control board with the holder (clammer).

④ Attach the control board cover back to the original position with screw.

⑤ For wire stripping and connection requirement, refer to instruction ⑤ of indoor unit.

Earth wire shall be Yellow/Green (Y/G) in colour and longer than other AC wires for safety reason.

6 PIPING INSULATION

1. Please carry out insulation at pipe connection portion as mentioned in Indoor/Outdoor Unit Installation Diagram. Please wrap the insulated piping end to prevent water from going inside the piping.

2. If drain hose or connecting piping is in the room (where dew may form), please increase the insulation by using POLY-E FOAM with thickness 6 mm or above.

4 INDOOR UNIT INSTALLATION

Do not turn over the unit without shock absorber during pull out the piping. It may cause intake grille damage.

Use shock absorber during pull out the piping to protect the intake grille from damage.

1. FOR THE RIGHT REAR PIPING

Step-1 Pull out the Indoor piping

Step-2 Install the Indoor Unit

Step-3 Secure the Indoor Unit

- If indoor power supply, excess length of power supply must arrange accordingly, please refer "Power supply cord arrangement" before secure the indoor unit.

Step-4 Insert the connection cable

2. FOR THE RIGHT AND RIGHT BOTTOM PIPING

Step-1 Pull out the Indoor piping

Step-2 Install the Indoor Unit

Step-3 Insert the connection cable

Step-4 Secure the Indoor Unit

- If indoor power supply, excess length of power supply must arrange accordingly, please refer "Power supply cord arrangement" before secure the indoor unit.

Secure the Indoor Unit

1. Power supply cord arrangement

Excess length of power supply cord should be arranged behind the chassis at piping keeping area as shown in the diagram without tying up in a bundle. Ensure that the power supply cord is not clamped in between unit's hook (2 position) and installation plate. Ensure that the power supply cord is not stretched between chassis back and installation plate. It may create squeak sound.

2. Press the lower left and right side of the installation plate until hooks engages with their slot (sound click).

Unit's hook Installation plate

To take out the unit, push the ▽ marking at the bottom unit, and pull it slightly towards you to disengage the hooks from the unit.

Insert the connection cable

About 70 ~ 80 mm

Guide surface

Connection cable

Gas side piping

Liquid side piping

Drain hose

How to keep the cover

In case of the cover is cut, keep the cover at the rear chassis as shown in the illustration for future reinstallation.

(Left, right and 2 bottom covers for piping.)

* Holder

There is an option to use the holder at the rear of chassis as shown in the illustration for ease of installation. Push the holder back to original position before secure the indoor unit.

* Press the area of orange color to release holder

AIR PURGING METHOD IS PROHIBITED FOR R32 SYSTEM

4 AIR TIGHTNESS TEST ON THE REFRIGERATING SYSTEM

① Do not purge the air with refrigerants but use a vacuum pump to vacuum the installation.

① There is no extra refrigerant in the outdoor unit for air purging.

Before system is charged with refrigerant and before the refrigerating system is put into operation, below site test procedure and acceptance criteria shall be verified by the certified technicians, and/or the installer.

Be sure to check whole system for gas leakage.

Preparation (Step 1-2)

Evacuation (Step 3-4)

Tightness Test with Inert Gas (Step 5-7)

Pressure drop? (Step 8)

YES Leak detection and repair (Step 9-12)

NO Recovery of Test Gas (Step 13)

Evacuation (Step 3-4)

Open 2 and 3 valves (Step 14-18)

Complete

1) Connect a charging hose with a push pin to the Low side of a charging set and the service port of the 3-way valve. During extremely cold winter, material contraction might happened, try to further tighten the 2-way, 3-way valve to ensure they are fully closed.

2) Attach the gauge manifold set correctly and tightly. Make sure that both valves of the manifold gauge (low pressure and high pressure) is in close position.

3) Connect the center hose of the manifold gauge to a vacuum pump.

4) Turn on the power switch of the vacuum pump, then turn open the low side manifold gauge valve and make sure that the needle in the gauge moves from 0cmHg (0 MPa) to ~76 cmHg (~0.1 MPa) or vacuum until 500 microns is achieved. This process continues for approximately ten minutes. Then close the low side manifold gauge valve.

5) Remove the vacuum pump from the centre hose and connect the center hose to cylinder of any applicable inert gas as test gas.

6) Charge test gas into the system and wait until the pressure within the system to reach min. 1.04MPa (10.4bar).

7) Wait and monitor the pressure reading on the gauges. Check if there is any pressure drop. Waiting time depends on the size of the system.

8) If there is any pressure drop, perform step 9-12. If there is no pressure drop, perform step 13.

9) Use Gas Leak Detector to check for leaks. Must use the detection equipment with a sensitivity of 5 grams per year of test gas or better.

10) Move the probe along the air conditioning system to check for leaks, and mark for repair.

11) Any leak detected and marked shall be repaired.

12) After repair, repeat evacuation steps 3-4 and tightness test steps 5-7. Check the pressure drop as in step 8.

13) If no leak, Recover the test gas. Perform evacuation of steps 3-4. Then proceed to step 14.

14) Disconnect the charging hose from the service port of the 3-way valve.

15) Tighten the service port caps of the 3-way valve at a torque of 18 N·m with a torque wrench.

16) Remove the valve caps of both of the 2-way valve and 3-way valve, using a hexagonal wrench (4 mm). It is recommended to allow refrigerant slowly flow into the refrigerant system to prevent refrigerant freezing. Slightly open 2-way valve for 5 seconds then close the valve. Repeat this action for 3 cycles then fully open the valve.

17) Open both of the valves, using a hexagonal wrench (4 mm).

18) Mount back the valve caps onto the 2-way valve and the 3-way valve to complete this process.

Notes: Recommended use of any of the following leak detector.

I) Universal Sniffer leak detector

II) Electronic halogen leak detector

III) Ultrasonic Leak Detector

CUTTING AND FLARING THE PIPING

1. Please cut using pipe cutter and then remove the burrs.

2. Remove the burrs by using reamer. If burrs is not removed, gas leakage may be caused. Turn the piping end down to avoid the metal powder entering the pipe.

3. Please make flare after inserting the flare nut onto the copper pipes.

Improper flaring

Inclined Surface Cracked Uneven thickness

When properly flared, the internal surface of the flare will evenly shine and be of even thickness. Since the flare part comes into contact with the connections, carefully check the flare finish.

1. To cut

2. To remove burrs

3. To flare

3. FOR THE EMBEDDED PIPING

Step-1 Change the drain hose position

Step-2 Bend the embedded piping

- Use a spring bender or equivalent to bend the piping so that the piping is not crushed.

Step-3 Pull the connection cable into Indoor Unit

- The indoor unit and outdoor unit connection cable can be connected without removing the front grille.

Step-4 Cut and flare the embedded piping

- When determining the dimensions of the piping, slide the unit all the way to the left on the installation plate.
- Refer to the column "Cutting and flaring the piping".

Step-5 Install the Indoor Unit

Step-6 Connect the piping

- Please refer to "Connecting the piping" column in outdoor unit section. (Below steps are done after connecting the outdoor piping and gas-leakage confirmation.)

Step-7 Insulate and finish the piping

- Please refer to "Insulation of piping connection" column as mentioned in indoor/outdoor unit installation.

Step-8 Secure the Indoor Unit

(This can be used for left rear piping also.)

Change the drain hose position

Rear view for left piping installation

Drain cap

Drain hose

Adjust the piping slightly downwards.

Connection cable

Drain hose

- In case of left piping how to insert the connection cable and drain hose.

Drain hose

Piping

Cable

(For the right piping, follow the same procedure)

PVC tube for drain hose

Cable

Piping

Indoor unit

55 mm

How to pull the piping and drain hose out, in case of the embedded piping.

Apply putty or caulking material to seal the wall opening.

More than 950 mm

Connection cable

Piping

Drain hose from main unit

PVC tube (VP-65) for piping and connection cable

PVC tube for drain hose (VP-30)

More than 700 mm

More than 270 mm

Front panel

Grille door

Screw

5 CONNECT THE CABLE TO THE INDOOR UNIT

The indoor and outdoor unit connection cable can be connected without removing the front grille.

① Install the indoor unit on the installing holder that mounted on the wall.

② Open the front panel and grille door by loosening the screw.

Connection cable between indoor unit and outdoor unit shall be approved polychloroprene sheathed. 3 x 1.5 mm² (1.0 ~ 1.5HP) flexible cord, type designation 60245 IEC 57 or heavier cord. Do not use joint connection cable. Replace the wire if the existing wire (from concealed wiring, or otherwise) is too short.

③ Bind all the indoor and outdoor **Connection cable** with tape and route the connection cable via the right side escapement.

Wire stripping

No loose strand when inserted

Indoor/outdoor connection terminal board

5 mm or more (gap between wires)

Conductor fully inserted

Conductor over inserted

Conductor not fully inserted

ACCEPT PROHIBITED PROHIBITED

WARNING

① This equipment must be properly earthed.

RISK OF FIRE

JOINING OF WIRES MAY CAUSE OVERHEATING AND FIRE.

Do not joint wires

Use complete wire without joining.

Use approved socket and plug with earth pin.

Wire connection in this area must follow to national wiring rules.

HOW TO TAKE OUT FRONT GRILLE

Please follow the steps below to take out front grille if necessary such as when installing or servicing.

① Open front panel.

② Remove the 3 mounting screws on the front grille as shown in the illustration below.

③ Slide the 3 lock knobs on the upside of front grille to unlock position.

④ Pull the front grille towards you to remove the front grille.

Front panel

Front grille

①

② Screw

LOCK UNLOCK

Lock knob

AUTO SWITCH OPERATION

The below operations will be performed by pressing the "AUTO" switch.

1. AUTO OPERATION MODE

The Auto operation will be activated immediately once the Auto Switch is pressed and release within 5 sec..

2. TEST RUN OPERATION (FOR PUMP DOWN/SERVICING PURPOSE)

The Test Run operation will be activated if the Auto Switch is pressed continuously for more than 5 sec.. A "pep" sound will occur at the fifth sec., in order to identify the starting of Test Run operation.

3. REMOTE CONTROLLER RECEIVING SOUND ON/OFF

The ON/OFF of Remote controller receiving sound can be change over by the following steps:

a) Press "AUTO" switch continuously for 5 sec.. until "pep pep" sound is heard during first 20 sec. from step 2.

b) Press "AUTO" switch again. Everytime "AUTO" switch is pressed (within 20 sec. interval), Remote controller receiving sound status will be swapped between ON and OFF. Long "peep" sound indicates that Remote controller receiving sound is ON. Short "pep" sound indicates that Remote controller receiving sound is OFF.

DISPOSAL OF OUTDOOR UNIT DRAIN WATER

- If a drain elbow is used, the unit should be placed on a stand which is taller than 5 cm.
- If the unit is used in an area where temperature falls below 0°C for 2 or 3 days in succession, it is recommended not to use a drain elbow, for the drain water freezes and the fan will not rotate.

Drain elbow

Hose

Install the hose at an angle so that the water smoothly flows out.

⑤ Remove the tapes and connect the connection cable between indoor unit and outdoor unit according to the diagram below.

Terminals on the indoor unit	1	2
Colour of wires (connection cable)	1	2

Terminals on the outdoor unit	1	2
Colour of wires (connection cable)	1	2

④ Connection cable

Terminal Board

Earth Wire longer than others AC wires for safety reason

Control Board

Holder

Indoor & outdoor connection cable

Outdoor Unit

WARNING

① This equipment must be properly earthed.

⑥ Secure firmly the connecting cable onto the control board with the holder. Do not overtighten holder screw, as this may damage the holder.

⑦ Close grille door by tighten with screw and close the front panel.

Note:

- Isolating Devices (Disconnecting means) should have minimum 3.0 mm contact gap.
- Ensure the colour of wires of outdoor unit and the terminal Nos. are the same to the indoor's respectively.
- Earth wire shall be Yellow/Green (Y/G) in colour and longer than other AC wires as shown in the figure for the electrical safety in case of the slipping out of the cord from the anchorage.

WIRE STRIPPING, CONNECTING REQUIREMENT

Wire stripping

No loose strand when inserted

Indoor/outdoor connection terminal board

5 mm or more (gap between wires)

Conductor fully inserted

Conductor over inserted

Conductor not fully inserted

ACCEPT PROHIBITED PROHIBITED

WARNING

RISK OF FIRE

JOINING OF WIRES MAY CAUSE OVERHEATING AND FIRE.

Do not joint wires

Use complete wire without joining.

Use approved socket and plug with earth pin.

Wire connection in this area must follow to national wiring rules.

CHECK THE DRAINAGE

- Open front panel and remove air filters. (Drainage checking can be carried out without removing the front grille.)
- Pour a glass of water into the drain tray-styrofoam.
- Ensure that water flows out from drain hose of the indoor unit.

EVALUATION OF THE PERFORMANCE

- Operate the unit at cooling/heating operation mode for fifteen minutes or more.
- Measure the temperature of the intake and discharge air.
- Ensure the difference between the intake temperature and the discharge is more than 8 °C during Cooling operation or more than 14 °C during Heating operation.

Note:

- During winter, turn on the power supply and standby the unit for at least 15 minutes before test run. Allow sufficient time to warm up refrigerant and prevent wrong error code judgement.

IN CASE OF REUSING EXISTING REFRIGERANT PIPING

Observe the followings to decide reusing the existing refrigerant piping.

Poor refrigerant piping could result in product failure.

- In the circumstances listed below, do not reuse any refrigerant piping. Instead, make sure to install a new piping.
 - Heat insulation is not provided for either liquid-side or gas-side piping or both.
 - The existing refrigerant pipe has been left in an open condition.
 - The diameter and thickness of the existing refrigerant piping does not meet the requirement.
 - The piping length and elevation does not meet the requirement.
- Perform proper pump down before reuse piping.
- In the circumstances listed below, clean it thoroughly before reuse.
 - Pump down operation cannot be performed for the existing air-conditioner.
 - The compressor has a failure history.
 - Oil color is darken. (ASTM 4.0 and above).
 - The existing air-conditioner is gas/oil heat pump type.
- Do not reuse the flare to prevent gas leak. Make sure to install a new flare.
- If there is a welded part on the existing refrigerant piping, conduct a gas leak check on the welded part.
- Replace deteriorated heat insulating material with a new one.
- Heat insulating material is required for both liquid-side and gas-side piping.

Proper Pump Down Method

① Operate air conditioner at cooling mode for 10 ~ 15 minutes.

② After 10 ~ 15 minutes of pre operation, close 2 way valve. After 3 minutes, close 3 way valve.

③ Take out air conditioner unit.

④ Install New Refrigerant air conditioner.

Most Important Process Purpose: To make the oil & refrigerant mix together. They are in separated condition when air conditioner is stopped.

Mixed refrigerant & oil will be collected into outdoor unit, which is acceptable.

Only very small amount of oil remain inside piping, which is acceptable.

CHECK ITEMS

Is there any gas leakage at flare nut connections?

Has the heat insulation been carried out at flare nut connection?

Is the connection cable being fixed to terminal board firmly?

Is the connection cable being clamped firmly?

Is the drainage ok? (Refer to "Check the drainage" section)

Is the earth wire connection properly done?

Is the indoor unit properly hooked to the installation plate?

Is the power supply voltage complied with rated value?

Is there any abnormal sound?

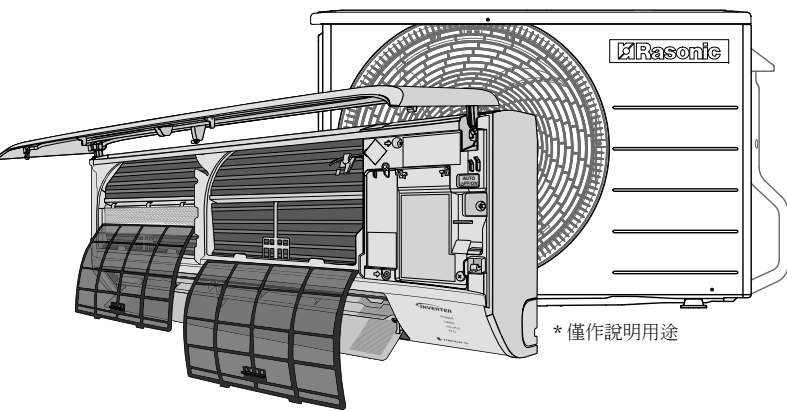
Is the cooling/heating operation normal?

Is the thermostat operation normal?

Is the remote control's LCD operation normal?

安裝說明

空調器



* 僅作說明用途

型號：RS/RU-PN9** (1.0HP)
RS/RU-PN12** (1.5HP)

⚠ 注意

R32

冷媒

此空氣調節機包含 R32 冷劑並利用 R32 冷劑進行操作。

須由具備資質的人員對此產品進行安裝或維修。

對此產品進行安裝、保養和或維修之前，請參閱國家、州、地區和地方的法律、條例、法規、安裝和操作手冊。

室內機或室外機顯示的符號說明。

圖示	警告	注意	注意	注意	注意	注意
⚠	這行號顯示這個設備使用了一種輕度易燃的冷劑。如果冷劑與外部點火源一起洩漏，則有可能點燃。		這個符號表示應該仔細閱讀安裝手冊。		此行號表示檢核人員應參照“安裝手冊”處理此設備。	
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2-10. 電氣設備檢查

- 電氣部件的維修和保養應包括初始安全檢查和部件檢查程式。
- 初始安全檢查應包括但不限於：
 - 電容器已放電：應以安全方式完成放電，避免產生火花。
 - 對系統進行充填、回收或排氣操作時，不存在暴露的電氣部件和電線。
 - 接地連接妥當。
 - 始終應遵循製造商的保養和檢修規範。
 - 如有疑問，請諮詢製造商的技術部門獲取協助。
 - 如果存在可能危及安全的故障，則在妥善處理故障之前不得為電路接通電源。
 - 如果故障無法立即糾正，但又必須繼續操作，則應採取適當的臨時解決方案。
 - 必須通知或報告設備所有者，確保各方均已知悉。

3. 密封件維修

- 維修密封件期間，在拆下密封蓋之前，應為待作業的設備斷開所有電源。
- 如果在檢修期間必須為設備接通電源，則應在關鍵點進行持續的洩漏偵測，為潛在的危險情況提供預警。
- 應特別注意下列情況，確保在電氣部件上進行作業時，不會變更護罩，導致保護水準受到影響。包括電纜損壞、連接過多、端子並非原始規格、密封件損壞、密封裝置壓配不當等。
- 確保裝置安裝妥當。
- 確保密封件或密封材料未發生劣化，否則它們將不再起到阻止易燃空氣進入的作用。
- 替換零件應依照製造商之規格。

備註：

- 使用裝有膠帶可能抑制某些類型的洩漏偵測設備之有效性。
- 本安全安全部件在作業之前不必隔離。

4. 本質安全部件維修

- 切勿為電路施加任何固定電壓負載或電容負載，除非可確保負載不會超過所用設備的容許電壓和電流。
- 當存在易燃空氣時，本質安全部件是電唯一可以進行作業的類型。
- 試驗裝置應具備正確的額定值。
- 僅使用製造商指定之零件更換部件。製造商未指定之零件可能導致洩漏在大氣中的冷劑劑引燃。

5. 電纜

- 檢查以確保電纜不會受到磨損、腐蝕、起壓、振動、銳緣或任何其他不良環境影響。
- 此檢查還應考慮老化或系統腐蝕或風扇等持續振動的影響。

6. 可燃性冷劑之偵測

- 探測或偵測冷劑洩漏時，在任何情況下，均不得使用潛在的點火源。
- 不得使用齒鋸（或使用明火的任何其他偵測器）。
- 以下蓋漏檢測方法適用於所有冷劑系統。
 - 當使用在至少 0.25 倍於最大容許壓力的壓力（>1.04MPa，最大 4.15MPa）下具有每年 5 克製冷劑或更好的靈敏度的洩漏偵測設備（例如，通用嗅探器）進行偵測時，不應僅偵測到洩漏。
 - 應使用電子洩漏偵測器來偵測可燃性冷劑，但是靈敏度可能不足，或者可能需要重新校準。（應當在無冷劑區域進行偵測設備校準。）
 - 確保偵測器不是潛在的點火源並且適合所使用之冷劑劑。
 - 洩漏偵測設備應設置於冷劑劑燃燒下限的某一百分比并應對冷劑劑進行校準，並確定氣體之適當百分比（最大 25 %）。
 - 洩漏偵測設備適合與大多數冷劑劑配合使用，例如，氣泡法和螢光法。應避免使用含氣清潔劑，因為氣可能與冷劑劑發生反應并腐蝕銅管件。
 - 如果懷疑存在洩漏，則應消除/熄滅所有明火。
 - 如果發現需要焊接的冷劑劑洩漏，則應從系統中排放所有冷劑劑或在系統中遠離洩漏的部分進行隔離（藉助關閉閥）。排放冷劑劑時必須遵循第 7 部分中的注意事項。

7. 排放和抽空

- 當介入冷劑劑迴路進行維修時或進行任何其他操作時，應遵循常規充填步驟。而且，遵循最佳作業規範至關重要，因為可燃性是一個考慮因素。應遵照以下步驟：
 - 排放冷劑劑 → 利用惰性氣體淨化迴路 → 抽空 → 利用惰性氣體淨化迴路 → 通過切割或焊接打開迴路
- 應將所充填的冷劑劑回收至適當的回收銅板中。
- 應使用無氣氣排系統內的空氣，保持空氣調節機安全。（備註：OFN = 無氧氣，惰性氣體的類型）此過程可能需要重複幾次。
- 此項任務不得使用壓縮空氣或氧氣。
- 應使用無氧氣破壞系統內的真空并繼續充填直至達到工作壓力，然後排放至大氣中，再抽氣至真空，以此來完成空氣排除。
- 重複此過程，直至系統內不存在任何冷劑劑。
- 當最後進行無氧氣充填時，應將系統並壓至大氣壓力，確保工作得以進行。
- 此操作極其重要，以確保管件上之焊接作業得以進行。
- 確保真空氣出口不靠近任何潛在點火源，并确保通風良好。

室內機或室外機顯示的符號說明。

圖示	警告	注意	注意	注意	注意	注意
⚠	這行號顯示這個設備使用了一種輕度易燃的冷劑。如果冷劑與外部點火源一起洩漏，則有可能點燃。		這個符號表示應該仔細閱讀安裝手冊。		此行號表示檢核人員應參照“安裝手冊”處理此設備。	
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安全措施

- 安裝之前請詳細閱讀此“安全措施”。
- 電氣工作必須由授權人員安裝。請務必使用有正確額定電壓的插頭與主電路。
- 請務必遵循所述注意事項，因為其重要內容與您的安全息息相關。各行號的意義如下。忽視指示造成安裝不當，可能會導致受傷或損壞。其嚴重程度如下所示。

圖示	警告	注意	注意	注意	注意	注意
⚠	此符號表示可能導致死亡或重傷。	應遵照的注意事項目下以下符號分類：	🚫	白色底的符號表示被禁止的項目。	🚫	深色底的符號表示必須進行的項目。
⚠	此符號表示可能只導致受傷或機件損壞。		🚫	白色底的符號表示被禁止的項目。	🚫	深色底的符號表示必須進行的項目。

- 安裝後進行運轉測試以確保一切正常操作。接著，依照使用說明書向使用者解釋操作、照顧和保養之方法。請提醒使用者妥善保存使用說明書以供將來參考之用。
- 如果將設備轉讓給新用戶或交付給回收工廠，請務必同時轉交手冊。

警告

- 除非製造商推薦，否則切勿使用工具加速除霜過程或進行清理。任何不適宜的方法或使用不適當的材料可能导致產品損壞、破裂和嚴重損害。
- 不要將室外機安裝在靠近陽臺的扶手。當在高樓的陽臺安裝空氣調節機時，必須注意小孩可能會爬上室外機並爬出扶手，繼而導致意外發生。
- 勿使用非指定電纜、改裝電纜、接駁電纜或延長電纜作為電源電纜。勿與其他電器共用一個插頭。接觸不良、絕緣不良或電流超額將導致觸電或火災。
- 切勿用帶子將電源電纜繫成一捆。
- 電源電纜可能會異常升溫。
- 切勿將您的手指或其他物體插入本機，高速轉動的風扇可能會導致損傷。
- 切勿坐或踩踏在本機上以免意外摔跌。
- 將塑膠袋（包裝材料）遠離小孩，它可能會粘附在鼻子和嘴巴上導致窒息。
- 當安裝或重新安裝空氣調節機時，除指定冷劑劑外，勿讓任何物體，例如空氣等，混入製冷循環系統（導管）。空氣等的加入將導致製冷循環系統出現異常高壓並導致爆炸、受傷等等。
- 切勿刺穿或燃燒，因為本設備已加壓。切勿將本設備接觸高溫、明火、火花或其他點火源。否則，可能發生爆炸，導致受傷或死亡。
- 切勿添加或更換指定類型以外的冷劑劑。這可能會導致產品損壞、破裂、損傷等等。

- 對於 R32/R410A 模型，請使用 R32/R410A 冷劑劑所指定的導管、擴口螺母及工具。使用現有的 (R22) 導管、擴口螺母及工具可能會導致（導管）冷週期出現不尋常高壓，並可能造成爆炸和受傷。
- 對於 R32 和 R410A，可使用同樣的室外機擴口螺母和導管。
- 由於 R32/R410A 的工作壓力高於冷劑劑 R22 型號的工作壓力，因此建議更換室外機側的常規導管和擴口螺母。
- 如果不得重新使用導管，請參閱指示“在重新使用現有冷劑劑配管的情況下”。
- 使用於 R32/R410A 的銅管厚度必須超過 0.8 mm 千萬不要使用厚度低於 0.8 mm 的銅管。
- 殘油的數量最好低於 40 mg/10 m。
- 備用授權代理商或專人代為安裝。
- 如果用戶自行安裝不正確，將會引起漏水、觸電或火患。
- 製冷系統作業時，應嚴格按照本安裝說明進行安裝。安裝不得法將會引起漏水、觸電或火患。
- 安裝時務請使用所列之附送或指定之配件。否則這將導致本機故障、漏水、火災或觸電。
- 安裝于堅硬和牢固得足以支撐空氣調節機之重量的位置。如果堅固度不足或安裝不得法，空氣調節機將會掉下和致傷人。
- 應遵循國家法規、法律及本安裝說明手冊進行電氣作業。一定要使用獨立電路和單一出口。若電路容量不夠或電線安裝出錯，會導致觸電或火患。
- 勿使用接駁電纜為室內/室外連接電纜。使用特定的室內/室外連接電纜，請參閱指示 ⑥ 如何將電纜連接至室內機，並將室內/室外連接緊密地連接好。夾緊電纜，使外力對端子無效。若銜接和安裝不妥，會導致銜接處發熱或產生火患。
- 電線排列須妥當安排，以避免暴露控制板蓋。如果控制板蓋沒有完全地蓋好，它可能會導致火患或觸電。
- 強力建議為此設備安裝靈敏度 30 毫安/0.1 秒或以下的通地線漏電路斷路器 (ELCB) 或殘餘電流裝置 (RCD)。否則，當設備故障或絕緣故障等情況發生時可能會導致觸電或火患。
- 進行安裝時，請在啟動壓縮機前妥善地安裝冷劑劑導管。在沒有安裝冷劑劑導管和將閥設置開放位置的情況下操作壓縮機將會導致空氣被吸入、製冷循環系統出現異常高壓並導致爆炸、受傷等等。
- 在進行抽氣操作時，請在拆除冷劑劑導管之前關閉壓縮機。在壓縮機正在操作和閥在開放狀態的情況下拆除冷劑劑導管將會導致空氣被吸入、製冷循環系統出現異常高壓並導致爆炸、受傷等等。
- 根據所設定的方法使用扭力扳手鎖緊接頭螺母。如果將接頭螺母鎖得太緊，經過一段時間後，接頭螺母可能會爆裂和導致冷劑劑洩漏。
- 安裝完畢後，確定沒有冷劑劑洩漏。冷劑劑一旦和火接觸可能會產生有毒氣體。
- 若在操作期間發生冷劑劑洩漏，請立刻進行通風。冷劑劑一旦和火接觸可能會產生有毒氣體。
- 應意識到冷劑劑不得有氣味。

使用 R32 冷劑劑注意事項

- 請密切注意以下幾點和安裝工作程序。

警告

- 本設備應儲存、安裝并工作於通風良好的空間內，室內面積應大於 A_{min} (參見表 A) 並且不存在任何連續操作的點火源。遠離明火、任何工作中的燃氣設備或任何工作中的電熱器。否則，可能發生爆炸，導致受傷或死亡。
- 禁止在系統內混合不同的冷劑劑。為安全起見，使用 R32 和 R410A 冷劑劑的型號具有不同的充填端口螺紋直徑，以防錯誤充填 R22 冷劑劑。
- 因此，應事先檢查。[R32 和 R410A 的充填端口螺紋直徑為 12.7 mm (1/2 英寸)。]
- 確保無異物（油、水等）進入導管。
- 而且，當儲存導管時，應通過夾緊、黏貼等方式緊密密封管口。（R32 之操作與 R410A 相似。）
- 操作、維護、修理以及冷劑劑回收應根據製造商的建議，在使用可燃性冷劑劑方面經過培訓和認證的人員處理。在設備的系統或相關部分上進行操作、維修或維護的任何人員都應該經過培訓和認證。
- 製冷迴路（蒸發器，空氣調節器，AHU，冷凝器或液體接收器）或管道的任何部位不應位於熱源、明火、操作熱氣器或工作中的電熱器附近。
- 用戶/所有者或授權代表應按照國家規定的要求，至少定期每年檢查一次報警器、機械通風器和探測器並確保其正確運作。
- 應該保持日誌更新。檢查結果應記錄在日誌中。
- 應檢查佔用空間內的通風情況，並確認沒有障礙物。
- 在使用新的製冷系前，負責系統運行者應確保經過培訓和認證的操作人員根據說明手冊對冷劑系統進行施工、監理、運行和維護，以及要遵守所有安全措施，以及所使用的冷劑劑的特性和處理。
- 培訓和認證人員的一般要求如下：
 - a) 了解有關可燃性冷劑劑的立法、法規和標準，以及；
 - b) 擁有處理可燃性冷劑劑、個人防護設備、個人防護設備、防止冷劑劑洩漏、處理銅板、充電、洩漏偵測、回收和處置方面的詳細知識和技能，以及；
 - c) 理解并實踐國家立法、法規和標準的要求，以及；
 - d) 持續進行定期和進一步的培訓，以確保持續擁有專業知識。
- 應妥善安裝佔用空間內的空調器管道，以免操作和維修時造成意外損壞。
- 應採取措施避免冷劑劑導管發生過度振動或震動。
- 應為保護裝置、製冷管道和配件提供良好保護，使其免受不良環境影響（例如，排水管積水和凍結風險或污物和碎屑積攔風險）。
- 製冷系統長管道的膨脹與收縮應妥善設計並安裝牢固（妥善安裝和保護），盡可能將液體衝擊對系統造成損壞的可能性降至最低。
- 應妥善保護製冷系統，避免因移動家具或重建活動等而發生意外破裂。
- 應對室內整體牆造製冷管接觸進行氣密性測試，確保無洩漏，在至少 0.25 倍於最大容許壓力的壓力（>1.04MPa，最大 4.15MPa）下，該測試方法應具有每年 5 克製冷劑劑或更好的靈敏度。不應僅測到洩漏。

8. 充填步驟

- 除常規充填步驟外，應遵循以下要求：
 - 應使用充填設備時，確保不會出現不同冷劑劑的污染。
 - 導管或管適應儘可能短，以將管道中所包含之冷劑劑的數量減至最小。
 - 應依照使用說明書將銅板存放於適當位置。
 - 為系統充填冷劑劑之前，應確保製冷系統正確接地。
 - 充填完成時，請為系統添加標籤（若無標籤）。
 - 應務必小心不要過度充填製冷系統。
- 再充填系統之前，應使用無氧氣測試系統之壓力（參閱第 7 部分）。
- 充填完成時，應在試運轉之前進行漏氣檢查。
- 離開安裝地點之前應進行後續漏氣檢查。
- 充填和排放冷劑劑時，靜電荷可能積聚并構成危險情況。
- 在充填/排放之前，應將容器和設備安全接地，在輸送過程中消除靜電，以避免火災或爆炸。

9. 停用

- 執行此程式之前，技術人員須十分熟悉本設備及其全部詳情。
- 建議遵循良好作業規範，所有冷劑劑均應安全回收。
- 在執行此項任務之前，應提取冷劑劑油和冷劑劑樣本，以防再用所回收的冷劑劑之前需要進行分析。
- 開始此項任務之前須確保電力供應正常。
 - a) 熟悉本設備及其操作。
 - b) 確保系統電氣絕緣。
 - c) 嘗試此程式之前應確保：
 - 必要時，備有可供使用的搬運裝置，用於搬運冷劑劑銅板；
 - 備有所有個人防護設備并應正確使用；
 - 回收過程始終要在勝任人員的監督之下；
 - 回收設備和銅板符合適當的標準。
- 如有可能，為冷劑劑系統抽真空。
 - a) 若無法抽出真空，則製作歧管，便於從系統中的各個部分排放冷劑劑。
 - f) 在進行回收之前，應確保銅板位於磅秤上。
 - 啟動回收機并依照說明書進行操作。
 - 切勿過度充填銅板。（液體充填不超過空桶的 80%。）
 - 切勿超過銅板的最大工作壓力，暫時超過不可容許。
 - 當正確充填銅板並已完成該過程時，確保立即從安裝地點拆除銅板和設備并關閉設備上的所有隔離閥門。
 - 除非經過清潔和檢驗，否則不得將所回收的冷劑劑充填入另一個製冷系統。
- 充填或排放冷劑劑時，靜電荷可能積聚并構成危險情況。
- 在充填/排放之前，應將容器和設備安全接地，在輸送過程中消除靜電，以避免火災或爆炸。

10. 添加標籤

- 應為設備添加標籤，說明設備已經停用並且冷劑劑已放空。
- 標籤應當注明日期并簽名。
- 確保設備上貼有標籤，注明設備包含可燃性冷劑劑。

11. 回收

- 當出於檢修或停用設備之目的從系統排放冷劑劑時，建議遵循良好作業規範，所有冷劑劑均應安全排放。
- 當將冷劑劑輸送至銅板中時，應確保只使用適當的冷劑劑回收銅板。
- 應確保備有適當數量的銅板，便於容納整個系統內充填的冷劑劑。
- 待使用之所有銅板被指定用於回收的冷劑劑并為該冷劑劑加貼標籤（即，用於冷劑劑回收的特殊銅板）。
- 銅板應配有處於正常狀態的洩漏偵測和相關關閉閥。
- 為回收銅板抽真空，如有可能，在進行回收之前卸卸回收銅板。
- 回收設備應處於正常狀態，并隨附關於該設備的一系列說明。回收設備還應適合於回收可燃性冷劑劑。
- 此外，應備有一臺經過校準且處於正常狀態的磅秤。
- 導管應配有無洩漏快速接頭且處於良好狀態。
- 使用回收機之前，應檢查回收機是否處於正常狀態、已進行正常維護並且任何關聯的電氣部件皆已密封，以防冷劑劑洩漏時發生引燃。
- 如有疑問，請諮詢製造商。
- 應使用正確的回收銅板時所回收的冷劑劑退還至冷劑劑供應商處，并提供相關廢棄物轉移說明。
- 切勿在回收裝置中混合冷劑劑。
- 如欲拆卸壓縮機或拆卸壓縮機油，應確保將其排放至可接收水準，確保潤滑油中不含可燃性冷劑劑。
- 將壓縮機退還至供應商之前，應執行抽空過程。
- 僅應對壓縮機機體進行電熱，以加速此過程。
- 當從系統中排放壓縮機油時，應安全進行。

安裝時所需的工具

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
菲力螺絲起子	水平儀	空心鑽 (直徑 670 mm)	六角扳手 (4 mm)	扳手	剪管器	擴孔器	刀	漏氣偵查器	帶尺	溫度計	高阻表	萬用電表	真空室	量規規管	扭力扳手

附送之配件

編號	附件	數量	編號	附件	數量
1	安裝板	1	5	遙控器支架	1
2	安裝板固定螺絲	5	6	遙控器支架固定螺絲	2
3	遙控器	1	7	排水管彎	1
4	電池	2			

選擇最佳位置

室內機										室外機									
<ul style="list-style-type: none"> 切勿將機組安裝到油洩過多的區域，如：廚房、車間等。 機組附近不應有任何熱源和蒸氣。 不應有任何阻擋空氣流通的障礙物。 最好安裝于空氣流通的地方。 最好安裝于可輕鬆完成排水的地方。 最好安裝于有防噪考慮在內的地方。 切勿將機組安裝在靠近門道的地方。 確保前部所示之部位離開牆壁、天花板、籬笆或其他阻礙物一段距離。 本空調機室內機最低安裝高度應為 1.8 m。 										<ul style="list-style-type: none"> 如果這一個天然保護至室外機組以防止陽光直射或雨淋時，則應注意冷凝器的散熱不受阻礙。 安裝場所不要飼養動物和種植花木，因為排出的熱氣對它們有影響。 確保前部所示之部位離開牆壁、天花板、籬笆或其他阻礙物一段距離。 不要置放可能會導致散熱空氣受阻的任何障礙物。 若導管長度超過 [附加氣體的導管長度]，則必須如（表 A）所示添加額外的冷劑劑。 									

表 A

型號	容量 W (HP)	配管尺寸	標準長度 (m)	最大高度 (m)	最小管長 (m)	最大管長 (m)	補充冷劑劑 (g/m)	附加氣體所需的導管長度 (m)	最大冷劑劑充填量 (kg)	A _{min} (m²)
PN9**	1.0HP	9.52 mm (3/8")		15	3	20	10	7.5	0.55	不適用 (*)
PN12**	1.5HP	12.70 mm (1/2")	6.35 mm (1/4")	5	15	3	20	10	0.88	不適用 (*)

舉例：針對 PN9**

若機組的安裝距離是 10 m，

額外冷劑劑的數量應該是

=> 10 m (距離) - 7.5 m (附加氣體的導管長度)

=> 2.5 m

=> 2.5 m x 10 g/m (附加冷劑劑) => 25 g

舉例：針對 PN9**

若機組的安裝距離是 10 m，

額外冷劑劑的數量應該是

=> 10 m (距離) - 7.5 m (附加氣體的導管長度)

=> 2.5 m

=> 2.5 m x 10 g/m (附加冷劑劑) => 25 g

總冷劑劑充填量 m_{tot} 低於 1.84 kg

的系統不受任何房間面積要求限制。

A_{min} = m_{tot} / (2.5 x LFL)^{0.66} x h₀)² ** 不小於安全係數

A_{min} = 所需最小房間面積 (m²)

m_{tot} = 設備內冷劑劑充填量 (kg)

LFL = 燃燒下限 (0.307 kg/m³)

h₀ = 設備的安裝高度 (m) (壁掛式 1.8 m)

SF = 安全係數 0.75

** 所需最小房間面積，A_{min} 還應遵循下方的安全係數公式：

(*) => 總冷劑劑充填量 m_{tot} 低於 1.84 kg

的系統不受任何房間面積要求限制。

A_{min} = m_{tot} / (SF x LFL x h₀) 確定房間面積時應取較大值。

警告

- 此設備必須正確接地。地線不可以被連接到煤氣管、水管、避雷針線和電話線地線。否則，當設備故障或絕緣故障等情況發生時可能會導致觸電。

注意

- 勿將空氣調節機安裝于易燃氣體可能滲漏之處。氣體滲漏和積存于空氣調節機周圍可能會引起火患。
- 防止液體或蒸汽進入污水或下水道，因為蒸汽比空氣重，可能形成窒息氣氛。
- 進行喉管工作、重新安裝和維修冷操作時不要放出冷劑劑。
- 小心處理液體製冷劑，它可能會導致凍傷。
- 請勿安裝本裝置於洗衣房或其他有水自天花板等滴落之處。
- 切勿觸摸尖銳的鉛線熱片以免受到尖銳部位傷害。

警告

- 依照安裝說明書安裝排水管。
- 排水管若安裝不當，水滴可能會弄濕房間和損壞家具。
- 選擇容易進行維修工作的安裝位置。此空氣調節機安裝、檢修或維修不當可能增加破裂的風險，因而可能導致損失、損壞或受傷和/或財物損失。
- 室內空氣調節機的電源銜接。請使用電線線 3 x 1.5 mm² (1.0 ~ 1.5HP) 類型名稱 60245 IEC 57 或更粗的電源線。用以下其中一種方法將空氣調節器的電源電纜連接到總線。電源點應該位於容易接近的地方以便在發生緊急事故時可以容易地切斷電源。
- 某些國家禁止空氣調節機永久性銜接電源供應。
 - 1) 用電插頭插入插孔以銜接電源。
 - 2) 將電源永久性銜接到電流切割器。
- 用合格 15/16A (1.0 ~ 1.5HP) 電插頭插入插孔以連接電源。
- 用合格 16A (1.0 ~ 1.5HP) 電流切割器進行永久連接。而且至少有 3.0 mm 空隙的雙極開關。
- 安裝工作。安裝工作可能動用兩人。
- 確保所有通風口保持暢通無阻。

使用 R32 冷劑劑注意事項

- 請密切注意以下幾點和安裝工作程序。

警告

- 本設備應儲存、安裝并工作於通風良好的空間內，室內面積應大於 A_{min} (參見表 A) 並且不存在任何連續操作的點火源。遠離明火、任何工作中的燃氣設備或任何工作中的電熱器。否則，可能發生爆炸，導致受傷或死亡。
- 禁止在系統內混合不同的冷劑劑。為安全起見，使用 R32 和 R410A 冷劑劑的型號具有不同的充填端口螺紋直徑，以防錯誤充填 R22 冷劑劑。
- 因此，應事先檢查。[R32 和 R410A 的充填端口螺紋直徑為 12.7 mm (1/2 英寸)。]
- 確保無異物（油、水等）進入導管。
- 而且，當儲存導管時，應通過夾緊、黏貼等方式緊密密封管口。（R32 之操作與 R410A 相似。）
- 操作、維護、修理以及冷劑劑回收應根據製造商的建議，在使用可燃性冷劑劑方面經過培訓和認證的人員處理。在設備的系統或相關部分上進行操作、維修或維護的任何人員都應該經過培訓和認證。
- 製冷迴路（蒸發器，空氣調節器，AHU，冷凝器或液體接收器）或管道的任何部位不應位於熱源、明火、操作熱氣器或工作中的電熱器附近。
- 用戶/所有者或授權代表應按照國家規定的要求，至少定期每年檢查一次報警器、機械通風器和探測器並確保其正確運作。
- 應該保持日誌更新。檢查結果應記錄在日誌中。
- 應檢查佔用空間內的通風情況，並確認沒有障礙物。
- 在使用新的製冷系前，負責系統運行者應確保經過培訓和認證的操作人員根據說明手冊對冷劑系統進行施工、監理、運行和維護，以及要遵守所有安全措施，以及所使用的冷劑劑的特性和處理。
- 培訓和認證人員的一般要求如下：
 - a) 了解有關可燃性冷劑劑的立法、法規和標準，以及；
 - b) 擁有處理可燃性冷劑劑、個人防護設備、個人防護設備、防止冷劑劑洩漏、處理銅板、充電、洩漏偵測、回收和處置方面的詳細知識和技能，以及；
 - c) 理解并實踐國家立法、法規和標準的要求，以及；
 - d) 持續進行定期和進一步的培訓，以確保持續擁有專業知識。
- 應妥善安裝佔用空間內的空調器管道，以免操作和維修時造成意外損壞。
- 應採取措施避免冷劑劑導管發生過度振動或震動。
- 應為保護裝置、製冷管道和配件提供良好保護，使其免受不良環境影響（例如，排水管積水和凍結風險或污物和碎屑積攔風險）。
- 製冷系統長管道的膨脹與收縮應妥善設計並安裝牢固（妥善安裝和保護），盡可能將液體衝擊對系統造成損壞的可能性降至最低。
- 應妥善保護製冷系統，避免因移動家具或重建活動等而發生意外破裂。
- 應對室內整體牆造製冷管接觸進行氣密性測試，確保無洩漏，在至少 0.25 倍於最大容許壓力的壓力（>1.04MPa，最大 4.15MPa）下，該測試方法應具有每年 5 克製冷劑劑或更好的靈敏度。不應僅測到洩漏。

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使用 R32 冷劑劑注意事項

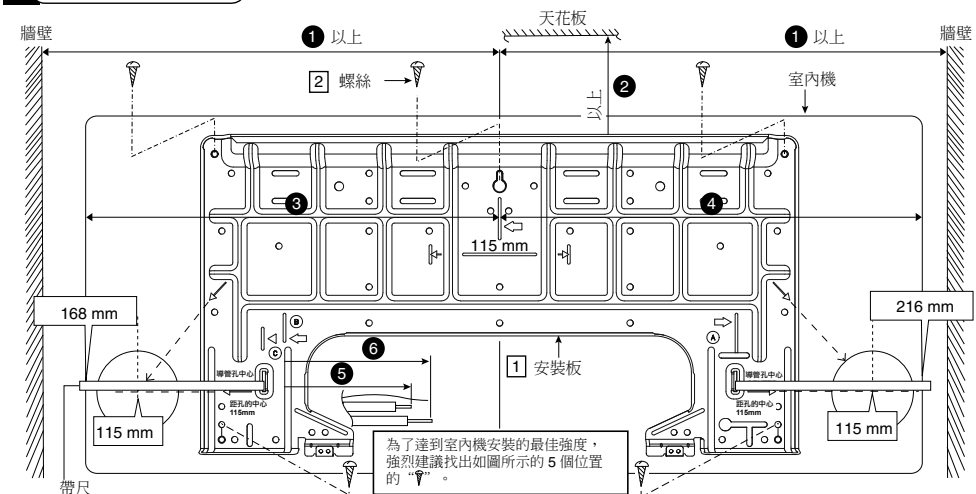
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- 培訓和認證人員的一般要求如下：
 - a) 了解有關可燃性冷劑劑的立法、法規和

1 選擇最佳位置 (參考“選擇最佳位置”之頁)

2 如何固定安裝板



尺寸					
1	2	3	4	5	6
465 mm	70 mm (+)	365 mm	415 mm	10 mm	70 mm

- 安裝板的中心點到左及右邊牆壁的距離應大於①。
- 從安裝板邊緣到天花板的距離應大於②。
- 從安裝板中心到本機的左側為③。
- 從安裝板中心到本機的右側為④。
- 至於左邊導管，從這條線起至液體導管連接的距離應約為⑤。
- 至於左邊導管，從這條線起至氣體導管連接的距離應約為⑥。

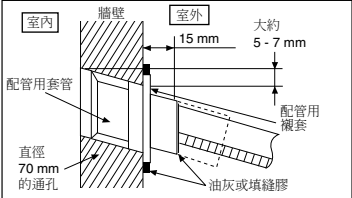
- 用 5 枚或以上的螺絲 (至少 5 枚螺絲)，將安裝板安裝到牆面上。(如果將機組安裝到混凝土牆面上，可考慮使用錨定螺絲。)
- 務必使用水平儀及細線標記一道劃線，並通過對準該道劃線，以水平方向裝上安裝板。
- 用 $\phi 70$ mm 的空心鑽鑽管通孔。
- 將安裝板的左側和右側形成一條線。延長線的交匯點是孔的中心。另一個方法是將卷尺放在上圖所示的位置。測孔的左右兩端距離測量為 115 mm 時即可取得測孔的中心點。
- 右側或左側鑽一個導管孔，該孔應稍微向室外側傾斜。

3 在牆上鑽孔及安裝導管套管

- 將導管套管插入孔中。
- 為套管裝上襯套。
- 切斷套管，讓牆外側留下約 15 mm 長的套管。

注意
當牆壁為空心結構時，務請使用配管套管，以防止老鼠咬壞連接電纜而導致的危險。

- 最後請用油灰或堵塞劑加密封 (在最後階段進行)。

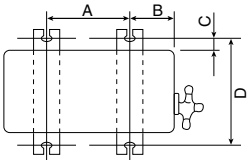


1 選擇最佳位置 (參考“選擇最佳位置”之頁)

2 裝置室外機

- 選定最佳位置後，依照室內/室外機安裝圖進行安裝。
- 用螺栓 ($\phi 10$ mm 直徑) 將室外機穩實打橫地裝在牆上或樑上。確保機組安裝在平衡面，確保水從機組排水孔流出。
- 若裝在屋頂，請考慮到強風和地震。

型號	A	B	C	D
1.0HP	474 mm	87 mm	18.5 mm	261 mm
1.5HP	570 mm	105 mm	18.5 mm	320 mm



3 連接管子

連接配管至室內

所有型號的連接接頭在插入 (在室內管子) 的連接部份) 在銅管上後，請擴大管口。(若需用較長的管子) 連接管子

- 將管子插入，用手手指用力擰緊連接螺母。
- 再用扭力扳手依圖表所示的扭力鎖緊螺口螺母。

完成壓力測試并根據密封膠使用說明進行清潔之後才能將中性固化 (烷氧基型)、無氟硅樹脂密封膠塗於連接處的外側。

目的在於避免水分進入連接接頭，進而可能發生凍結。密封膠固化將需要一段時間。包裹隔熱材料時應確保密封膠不會剝落。

請決定配管長度，然後用配管剪剪管器切除。去除切面邊緣的毛刺。

把螺口螺母 (位於閘門) 套在銅管上之後，請擴大管口。將配管中央部位與閘門對齊，然後用扭力扳手按照以上桌桌上所指定的轉矩旋緊。

R32 型號在室內側以螺口方式進行連接時的其他注意事項

- 確保在連接到機台前做管道的重新燃燒，以避免洩漏。

使用中性固化 (烷氧基型)、無氟硅樹脂密封膠和隔熱材料充分密封螺口螺母 (氣體和液體側管)，以免因凍結而造成氣體洩漏。

液體側管方向應塗中性固化 (烷氧基型)、無氟硅樹脂密封膠。

扭力扳手

連接配管至室外

配管尺寸	轉矩
6.35 mm (1/4")	18 N·m (1.8 kg·m)
9.52 mm (3/8")	42 N·m (4.2 kg·m)
12.7 mm (1/2")	55 N·m (5.6 kg·m)
15.88 mm (5/8")	65 N·m (6.6 kg·m)
19.05 mm (3/4")	100 N·m (10.2 kg·m)

5 將電線連接至室外機

- 旋松螺絲釘以取下控制板蓋。
- 室內機和室外機的連接電纜應採用合格的 3 x 1.5 mm² (1.0 ~ 1.5HP) 聚氯丁烯鎧裝電線 (編號 60245 IEC 57)，或負荷更高的電纜。切勿使用接駁連接電纜。若現有 (隱藏配線或其它) 電纜太短，請更換之。

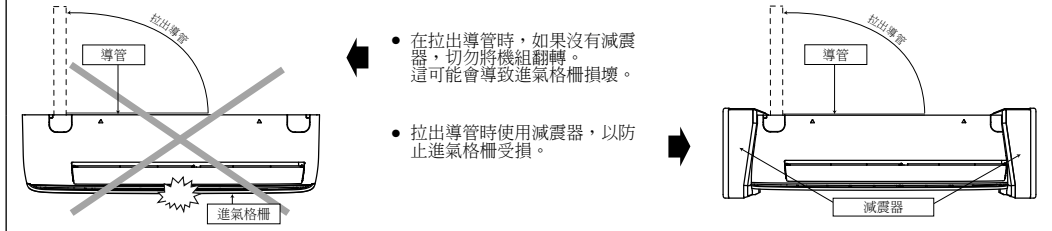
室外機組上的端子	1	2	⊕
電線的顏色 (連接電纜)	1	2	⊕
室內機組上的端子	1	2	⊕

- 用固緊件 (夾扣) 把電纜牢牢地固定在控制板上。
- 以螺絲釘將控制板蓋安裝回原來的位。
- 欲瞭解剩餘和連接要求，請參閱室內的說明⑤。
- 基於安全理由，地線應該是黃色/綠色 (Y/G) 以及較其他交流電線長。

6 喉管絕緣

- 請於室內/室外機安裝圖所示在配管連接部分進行絕緣。
- 請將已絕緣的管子末端包扎好，以防止水流入管內。
- 如果排水管或連接配管位於室內 (露滴將形成)，請使用厚度至少 6 mm 或以上的聚乙炔泡沫塗加絕緣。

4 室內機的安裝



1. 右後導管的安裝

步驟 1 拉出室內導管

步驟 2 安裝室內機

步驟 3 固定室內機

步驟 4 插入連接電纜

2. 右邊和右下導管的安裝

步驟 1 拉出室內導管

步驟 2 安裝室內機

步驟 3 插入連接電纜

步驟 4 固定室內機

固定室內機

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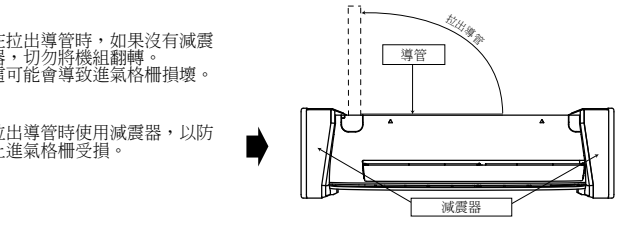
步驟 4 固定室內機

固定室內機

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4 室內機的安裝



1. 右後導管的安裝

步驟 1 拉出室內導管

步驟 2 安裝室內機

步驟 3 固定室內機

步驟 4 插入連接電纜

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3. 嵌入式配管的處理

步驟 1 更改排水管的位

步驟 2 將嵌入式導管弄彎

步驟 3 引導連接電纜進入室內機

步驟 4 切割和擴大嵌入式導管

步驟 5 安裝室內機

步驟 6 連接管子

步驟 7 為導管進行隔熱及成型處理

步驟 8 固定室內機

（這還可用於左後導管。）

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