

This product utilizes R-454B refrigerant

Olympus Series Multi-Zone Mini-Split System

INSTALLATION & OWNER'S MANUAL

MODELS:

MULTI*-*HP230C-O
O-*-*HP-WMAH-230C-O
DUCT*-*HP-230B-O
CASSETTE*HP-230C-O



Read this manual carefully before installation and keep it where the operator can easily find it for future reference.

Due to updates and constantly improving performance, the information and instructions within this manual are subject to change without notice.

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Please visit www.mrcool.com/documentation to ensure you have the latest version of this manual.



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Safety Precautions

Read Before Using

Incorrect usage may cause serious damage or injury.

The symbols below are used throughout this manual to indicate instructions that should be followed closely or actions that should be avoided to prevent death, injury, and/or property damage.



Indicates the possibility of personal injury or loss of life.



Indicates the possibility of property damage or serious consequences.



WARNING FOR PRODUCT INSTALLATION

INSTALLATION MUST BE PERFORMED BY AN AUTHORIZED DEALER OR SPECIALIST. DEFECTIVE INSTALLATION CAN CAUSE WATER LEAKAGE, ELECTRICAL SHOCK, OR FIRE.

******ELECTRICAL WORK MUST BE COMPLETED BY A QUALIFIED ELECTRICAL TECHNICIAN******

⚠ **DO NOT** install the unit in a location that may be exposed to combustible gas leaks. If combustible gas accumulates around the unit, it could cause fire.

⚠ **DO NOT** turn on the power until the installation and all work has been completed.

1. Installation must be performed according to the installation instructions. Improper installation could cause water leakage, electrical shock, or fire.
2. Contact an authorized service technician for repair or maintenance of this unit.
3. This appliance must be installed in accordance with national wiring regulations.
4. Only use the included accessories, parts, and specified parts for installation. Using non-standard parts can cause water leakage, electrical shock, fire, and/or failure of the unit.
5. Install the unit in a firm location that can support the unit's weight. If the location cannot support the unit's weight, or the installation is not done properly, the unit may drop and cause serious injury and damage.
6. Install the drainage piping according to the instructions in this manual. Improper drainage could cause water damage to your home and/or property.
7. When moving or relocating the air conditioner, consult experienced service technicians for disconnection and re-installation of the unit.
8. For detailed information of how to install the indoor and outdoor units to their respective supports, please refer to the indoor unit installation and outdoor unit installation sections of this manual.
9. USB device access, replacement, and maintenance operations must be carried out by professional staff.



WARNING FOR CLEANING & MAINTENANCE

1. **DO NOT** clean the unit with excessive amounts of water.
2. **DO NOT** clean the unit with combustible cleaning agents, as these could cause deformation and/or fire.
3. Turn off the device and disconnect the power before cleaning. Failure to do this could result in electrical shock.

TAKE NOTE OF FUSE SPECIFICATIONS

- The unit's circuit board (PCB) is designed with a fuse to provide over-current protection.
- The specifications of the fuse are printed on the circuit board, examples of such are T5A/250VAC and T10A/250VAC.

Note: Only a blast-proof ceramic fuse can be used.



WARNING FOR PRODUCT USE

- ⚠ **DO NOT** insert fingers, rods, or other objects into the air inlet or outlet. This could cause injury, since the fan may be rotating at high speeds.
 - ⚠ **DO NOT** use flammable sprays such as hair spray, lacquer or paint near the unit, as this could cause fire and/or an explosion.
 - ⚠ **DO NOT** operate the unit in places near or around combustible gases. Emitted gas may collect around the unit and cause an explosion.
 - ⚠ **DO NOT** allow children to play with the appliance. Children must be supervised around the unit at all times.
 - ⚠ **DO NOT** operate the unit in a room where it could be exposed to excessive amounts of water, such as a bathroom or laundry room. Exposure to excessive water amounts can cause the electrical components to short circuit.
 - ⚠ **DO NOT** expose your body directly to direct cool airflow from the unit for a prolonged period of time.
1. If the unit operates abnormally (emits strange noises or a burning smell), immediately turn off the unit and disconnect the power in order to avoid electric shock, fire, and/or injury. Call your local dealer, or MRCOOL® tech support at (270) 366-0457, for further assistance.
 2. If the air conditioner is used together with burners or other heating devices, thoroughly ventilate the room in order to avoid an oxygen deficiency.
 3. In certain functional environments (such as kitchens and server rooms etc.), the use of specially designed air-conditioning units is highly recommended.
 4. This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety. Children should be supervised to ensure that they do not play with the appliance.
 5. Turn off the unit and disconnect the power before performing any cleaning, installation, or repairing. Failure to do so can cause electric shock.



CAUTION

- ⚠ **DO NOT** allow the air conditioner to operate for extended periods of time with the doors or windows open, or in very high humidity.
 - ⚠ **DO NOT** operate the air conditioner with wet hands, as this could cause electric shock.
 - ⚠ **DO NOT** use device for any other purpose than its intended use.
 - ⚠ **DO NOT** climb onto or place objects on top of the outdoor unit.
1. Make sure that water condensation can drain smoothly and unhindered from the unit.
 2. Turn off the unit and disconnect the power if the unit will not be used for an extended period of time.
 3. Turn off and unplug the unit during storms.



ELECTRICAL WARNINGS

******ELECTRICAL WORK MUST BE COMPLETED BY A QUALIFIED ELECTRICAL TECHNICIAN******

- ⚠ **DO NOT** share the power supply with other appliances. An improper or insufficient power supply could cause fire and/or electrical shock.
1. Only use the specified wire. If the wire is damaged, it must be replaced by the manufacturer, its service agent or similarly qualified persons in order to avoid a hazard.
 2. The product must be properly grounded during installation or electrical shock could occur.
 3. Appropriate wiring standards, regulations, and the installation manual must be followed for all electrical work.
 4. If connecting power to fixed wiring, an all-pole disconnection device must be incorporated in the fixed wiring in accordance with the wiring rules and must meet the following requirements: at least 3 mm of clearances in all poles, a leakage current that may exceed 10 mA, and a residual current device (RCD) having a rated residual operating current not exceeding 30 mA.
 5. Connect cables tightly and clamp them securely to prevent external forces from damaging the terminal.



ELECTRICAL WARNINGS

Improper electrical connections could overheat, causing fire and/or electrical shock.

6. All electrical connections must be made according to the Electrical Connection Diagram located on the panels of the indoor and outdoor units.
7. All wiring must be properly arranged to ensure that the control board cover can close properly. If the control board cover is not properly closed, it can lead to corrosion and cause the connection points on the terminal to heat up, catch fire, or cause electrical shock.
8. Disconnection must be incorporated in the fixed wiring in accordance with the wiring rules.



FLAMMABLE REFRIGERANT WARNINGS

1. The installation of pipe-work should be kept to a minimum and should be protected from physical damage.
2. Refrigerant pipes should comply with national gas regulations.
3. All mechanical connections and ventilation openings should be kept clear of obstruction.
4. Utilize proper disposal processes based on national regulations.
5. Any person 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.
6. 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.
7. Do not use any means to accelerate the defrosting process or to clean, other than those recommended by the manufacturer.
8. 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).
9. Do not allow foreign matter (oil, water, etc.) to enter the piping, and securely seal the opening by pinching, taping, etc.
10. Do not pierce or burn.
11. Refrigerants may not contain an odor.
12. Working procedures that affect safety should only be carried out by competent persons.
13. The unit should be stored in a well-ventilated area where the room size corresponds to the room area as specific for operation, and should be stored so as to prevent potential mechanical damage from occurring.
14. Joints should be tested with detection equipment with a capability of 5 g/year of refrigerant or better, with the equipment in standstill and under operation or under a pressure of at least these standstill or operation conditions after installation. Detachable joints should NOT be used in the indoor side of the unit (brazed, welded joint could be used).
15. A leak detection system is installed. The unit must be powered except for service. For units with a refrigerant sensor, the indoor unit will display an error code and emit a buzzing sound, the compressor of the outdoor unit will immediately stop, and the indoor fan will start running. The service life of the refrigerant sensor is 15 years. When the refrigerant sensor malfunctions, the indoor unit will display the error code "FHCC". The refrigerant sensor cannot be repaired and can only be replaced by the manufacturer. It should only be replaced with the sensor specified by the manufacturer.
16. When a flammable refrigerant is used, the requirements for installation space of the appliance and/or ventilation requirements are determined according to:
 - The mass charge amount (M) used in the unit.
 - The installation location.
 - The type of ventilation of the location of the unit.
 - Piping material, pipe routing, and installation must include protection from physical damage in operation and service. This must be in compliance with local codes and standards, such as ASHRAE 15, IAPMO Uniform Mechanical Code, ICC International Mechanical Code, or CSA B52. All field joints must be accessible for inspection prior to being covered or enclosed.
 - Protection devices, piping and fittings must be protected as much as possible against adverse environmental effects. For example, against the danger of water collecting and freezing in relief pipes or against accumulation of dirt or debris.



FLAMMABLE REFRIGERANT WARNINGS

- Piping in refrigeration systems must be designed and installed to minimize the likelihood of hydraulic shock, resulting in damage from the system.
 - Steel pipes and components must be protected against corrosion with a rust-proof coating before applying insulation.
 - Precautions must be taken against excessive vibration or movement of the unit.
 - The minimum floor area of the room must be mentioned in the form of a table or a single figure without reference to a formula.
17. After completion of field piping for split systems, the field pipework should be pressure tested with an inert gas and then vacuum tested prior to refrigerant charging, according to the following requirements:
- The minimum test pressure for the low side of the system should be the low side design pressure and the minimum test pressure for the high side of the system should be the high side design pressure, unless the high side of the system cannot be isolated from the low side of the system in which case the entire system should not be pressure tested to the low side design pressure.
 - The test pressure after removal of pressure source shall be maintained for at least 1 hour with no decrease of pressure indicated by the test gauge, with test gauge resolution not exceeding 5% of the test pressure.
18. Prior to beginning work on systems containing flammable refrigerants, safety checks are necessary to ensure that the risk of ignition is minimized. For repairs to the refrigerating system, the following precautions shall be complied with prior to conducting work on the system.
19. Work should be undertaken under a controlled procedure so as to minimize the risk of a flammable gas or vapor being present while the work is being performed.
20. All maintenance staff and others working in the local area should be instructed on the nature of work being carried out. Avoid work in confined spaces.
21. The area should 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. no sparking, adequately sealed, or intrinsically safe.
22. If any hot work is to be conducted on the refrigeration equipment or any associated parts, appropriate fire extinguishing equipment should be on site and readily available. Have a dry power or CO2 fire extinguisher adjacent to the charging area.
23. No person carrying out work in relation to a refrigerating system which involves exposing any pipe work should 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 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 should be displayed.
24. 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.
25. 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 should 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 circuits should be checked for the presence of refrigerant;
 - marking to the equipment continues to be visible and legible, marking and signs that are illegible should be corrected;
 - refrigerant 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 or protected against corrosion.



FLAMMABLE REFRIGERANT WARNINGS

26. 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 should be used.
27. Initial safety checks should include:
 - that capacitors are discharged: this should be done in a safe manner to avoid the possibility of sparking;
 - that there are no live electrical components and wiring are exposed while charging, recovering, or purging the system;
 - that there is continuity of earth bonding.
28. Sealed electrical components should be replaced if damaged.
29. Intrinsically safe components should be replaced if damaged.
30. Check that wiring 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.
31. Under no circumstances should potential sources of ignition be used in the search for or detection of refrigerant leaks. A halide torch (or any other detector using a naked flame) should not be used. The following leak detection methods are deemed acceptable for refrigerant systems. Electronic leak detectors may be used to detect refrigerant leaks but, in the case of flammable refrigerants, 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 should be calibrated to the refrigerant employed, and the appropriate percentage of gas (25% minimum) is confirmed. Leak detection fluids are also suitable for use with most refrigerants but the use of detergents containing chlorine may react with the refrigerant and corrode the copper work. Examples of leak detection fluids are the bubble method, fluorescent method agents, etc. If a leak is suspected, all naked flames should be removed/extinguished. If a leakage of refrigerant is found which requires brazing, all of the refrigerant should be recovered from the system, or isolated (by means of shut-off valves) in a part of the system remote from the leak. See the following instructions of removal of refrigerant.
32. When breaking into the refrigerant circuit to make repairs, or for any other purpose, conventional procedures should be used. However, for flammable refrigerants, it is even more vital to follow best practice. The following procedure should be adhered to:
 - safely remove refrigerant following local and national regulations;
 - evacuate;
 - purge the circuit with inert gas;
 - evacuate;
 - continuously flush or purge with inert gas when using flame to open circuit;
 - open the circuit
33. The refrigerant charge should be recovered into the correct recovery cylinders if venting is not allowed by local and national codes. For units containing flammable refrigerants, the system should be purged with oxygen-free nitrogen to render the appliance safe for flammable refrigerants. This process might need to be repeated several times. Compressed air or oxygen shall not be used for purging refrigerant systems. For appliances containing flammable refrigerants, refrigerant purging should be achieved by breaking the vacuum in the system with oxygen-free nitrogen and continuing to fill the working pressure is achieved, then venting to atmosphere, and finally pulling down to a vacuum. This process should be repeated until no refrigerant is within the system. When the final oxygen-free nitrogen charge is used, the system should be vented down to atmospheric pressure to enable work to take place. The outlet for the vacuum pump should not be close to any potential ignition sources, and ventilation should be available.
34. In addition to conventional charging procedures, the following requirements should be followed:
 - Work should be undertaken with appropriate tools only (in case of uncertainty, please consult the manufacturer of the tools for use with flammable refrigerants)
 - 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.



FLAMMABLE REFRIGERANT WARNINGS

- Ensure that the refrigeration system is grounded prior to charging the system with refrigerant.
 - Label the system when charging is complete (if not already).
 - Extreme care should be taken not to overfill the refrigeration system.
 - Prior to recharging the system, it should be pressure tested with oxygen-free nitrogen (OFN). The system should 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.
35. Before carrying out this procedure, it is essential that the technician is completely familiar with the equipment and all its detail. It is good recommended practice that all refrigerants are recovered safely. Prior to the task being carried out, an oil and refrigerant sample should 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 the 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
- 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 the cylinder is situated on the scales before recovery takes place.
 - g. Start the recovery machine and operate in accordance with 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 equipment are removed from the site promptly and all isolation valves on the equipment are closed off.
 - k. Recovered refrigerant should not be charged into another refrigeration system unless it has been cleaned and checked.
36. Equipment shall be labeled stating that it has been decommissioned and emptied of refrigerant. The label should be dated and signed. For appliances containing flammable refrigerants, ensure that there are labels on the equipment stating the equipment contains flammable refrigerant.
37. When removing refrigerant from a system, either for servicing or decommissioning, it is good recommended 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 is available. All cylinders to be used should be 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 should be in good working order with a set of instructions concerning the equipment that is at hand and should be suitable for the recovery of the flammable refrigerant. If in doubt, the manufacturer should be consulted. In addition, a set of calibrated weighing scales should be available and in good working order. Hoses should be complete with leak-free disconnect couplings and in good condition. The recovered refrigerant should 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.
38. 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 compressor body should not be heated by an open flame or other ignition sources to accelerate this process. When oil is drained from a system, it should be carried out safely.
39. An unventilated area where the appliance using flammable refrigerants is installed should be constructed so that should any refrigerant leak, it will not stagnate so as to create a fire or explosion hazard. If appliances connected via an air duct system to one or more rooms below the ventilation requirements,



FLAMMABLE REFRIGERANT WARNINGS

that room should never contain potential ignition sources. A flame-producing device may be installed in the space if the device is provided with an effective flame arrest. Auxiliary devices which may be a potential ignition source should not be installed in the duct work. Examples of such are hot surfaces with a temperature exceeding 1292°F (700°C) and electric switching devices. Only auxiliary devices (such as a certified heater kit) approved by the manufacturer or declared suitable with the refrigerant should be installed in connecting ductwork. False or drop ceilings may be used as a return air plenum if a refrigerant detection system is provided in the appliance and any external connections are also provided with a sensor immediately below the return air plenum duct joint. Refrigerant sensors for refrigerant detection systems should only be replaced with sensors specified by the manufacturer. A leak detection system is installed. The unit must be powered except for service.

40. Transport of equipment containing flammable refrigerants should comply with transportation regulations.
41. Marking of equipment using signs should comply with local regulations.
42. Disposal of equipment using flammable refrigerants should comply with national regulations.
43. Storage of equipment/appliances should be in accordance with the manufacturer's instructions.
44. Storage of packed (unsold) equipment should be constructed so that mechanical damage to the equipment inside the package will not cause a leak of the refrigerant charge. The maximum number of pieces of equipment permitted to be stored together will be determined by local regulations.
45. During the evacuation test, after achieving a vacuum level specified in the manual or less, the refrigeration system shall be isolated from the vacuum pump and the pressure shall not rise above 1500 microns within 10 minutes. The vacuum pressure level should be specified in the manual, and should be the lessor of 500 microns of the value required for compliance with national and local codes and standards, which may vary between residential, commercial, and industrial buildings.
 - Field-made refrigerant joints indoors should be tightness-tested according to the following requirements: the test method should 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 should be detected.
 - Any servicing should be performed only as recommended by MRCOOL®.
46. Any maintenance, service, or repair operations must be performed by qualified personnel. Every working procedure that affects safety should only be carried out by competent persons that are both trained and certified. The training of these procedures should be carried out by national training organizations or manufacturers that are accredited to teach the relevant national competency standards that may be set in legislation. All training should follow the ANNEX HH requirements of UL 60334-2-40 4th Edition.

Examples of such working procedures are:

 - breaking into a refrigerant circuit
 - opening of sealed components
 - opening of ventilated enclosures

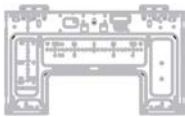
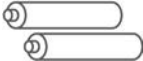
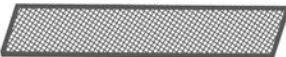
Symbols Displayed on Indoor & Outdoor Unit

	WARNING	This symbol shows that this appliance uses a flammable refrigerant. If the refrigerant is leaked and exposed to an external ignition source, there is a risk of fire.
	CAUTION	This symbol shows that the operation 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	
	CAUTION	This symbol shows that information is available such as the operating manual or installation manual.

2 UNIT OVERVIEW

2.1 Packing List

This system comes with the following accessories. Use all of the installation parts and accessories to install the unit. Improper installation may result in water leakage, electrical shock and fire, or cause the equipment to fail. The items that are not included with the air conditioner must be purchased separately.

PART	LOOKS LIKE	QUANTITY
Manuals		2 (Installation & Remote)
Mounting Plate & Template		1 1- Metal Mounting Plate 1 - Cardboard Template
Remote Control		1
Remote Control Holder		1
AAA Battery		2
Fixing Screw for Remote Control Holder		2
Anchor		5
Mounting Plate Fixing Screw		
Small Filter		1-2
Seal		1
Drain Joint		1
Copper Nut		2
Transfer Connector (Packed with the Indoor & Outdoor Units)	 Note: Pipe size may differ between models. To meet different pipe size requirements, sometimes the pipe connections need a transfer connector installed on the outdoor unit.	1 (Indoor Unit) 1-8 (Outdoor Unit)

Name	Model	Pipe Specification		Remark
		Liquid Side	Gas Side	
Connecting Pipe Assembly	9K	Ø1/4in (Ø6.35mm)	Ø3/8in (Ø9.52mm)	Pipes are not included in the accessories and must be purchased separately from a local dealer.
	12K	Ø1/4in (Ø6.35mm)	Ø3/8in (Ø9.52mm)	
	18K	Ø1/4in (Ø6.35mm)	Ø1/2in (Ø12.7mm)	
	24K	Ø3/8in (Ø9.52mm)	Ø5/8in (Ø16mm)	

2.2 Specifications

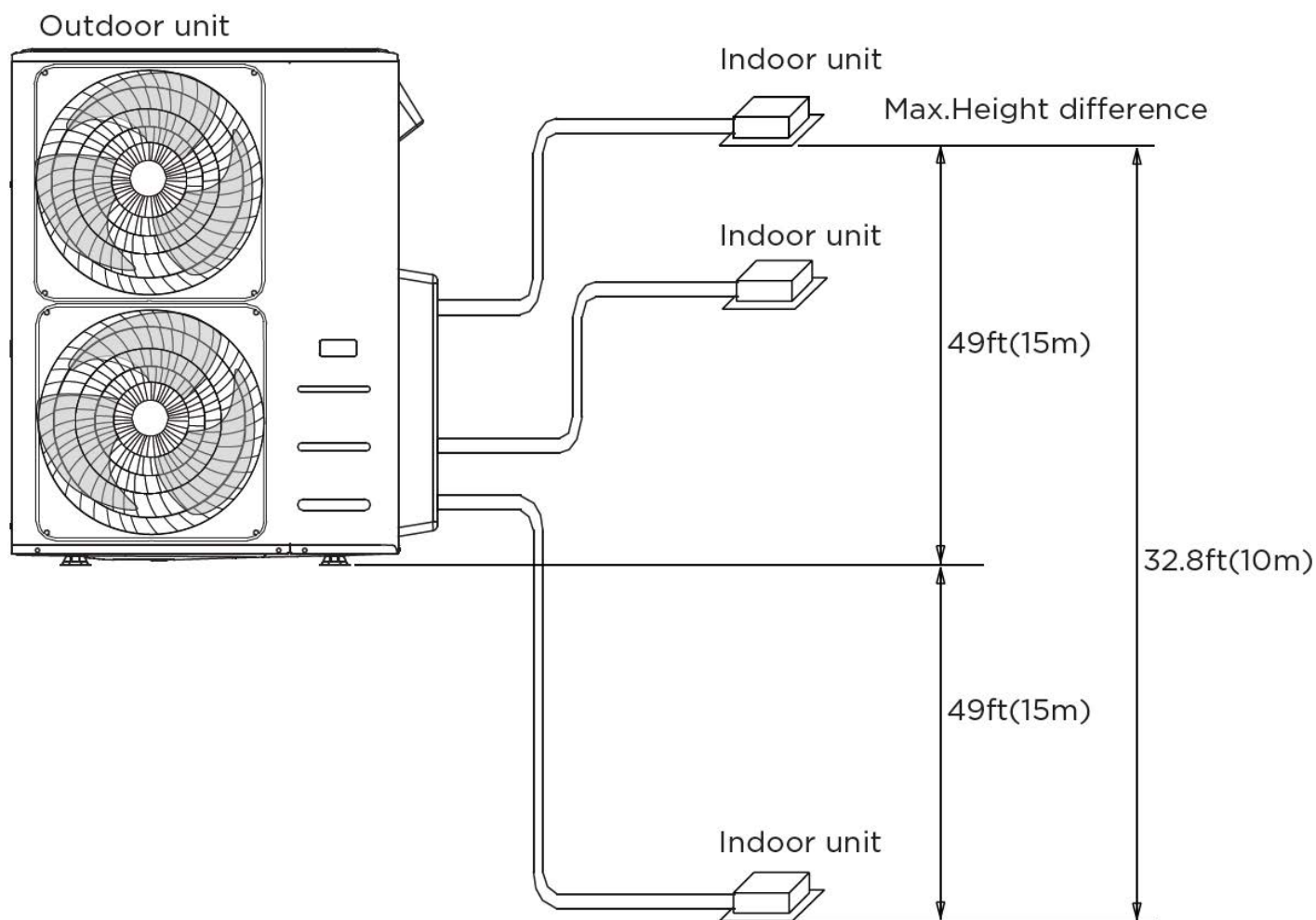
Unit: ft/m

Possible Number of Connected Units	1-6 Units		
Compressor Stop/Start Frequency	3 Minutes or More		
Power Source Voltage	Voltage Fluctuation	Within $\pm 10\%$ of rated voltage	
	Voltage Drop During Start	Within $\pm 15\%$ of rated voltage	
	Interval Balance	Within $\pm 3\%$ of rated voltage	

Unit: ft/m

	2-Zone	3-Zone	4-Zone	5-Zone	6-Zone
Max. Length for All Rooms	131/40	197/60	262/80	262/80	262/80
Max. Length for One Indoor Unit	82/25	98/30	115/35	115/35	115/35
Max. Length Diff. Between Indoor & Outdoor Unit	49/15	49/15	49/15	49/15	49/15
Max. Height Diff. Between Indoor Units	33/10	33/10	33/10	33/10	33/10

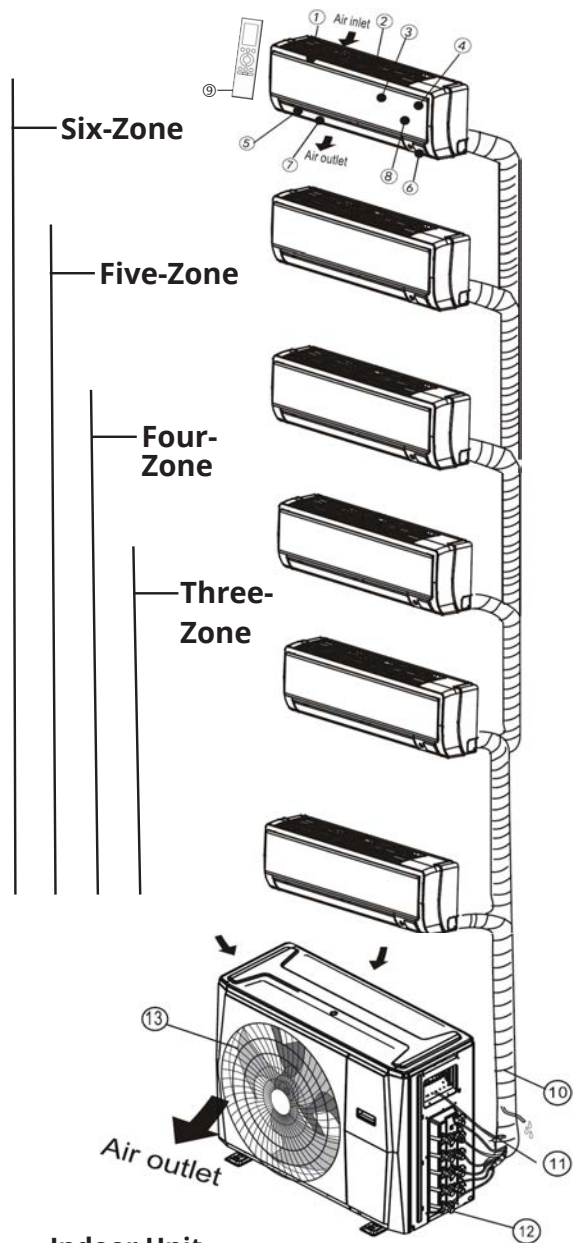
When installing multiple indoor units with a single outdoor unit, ensure that the length of the refrigerant pipe and the drop height between the indoor and outdoor units meet the requirements illustrated in the following diagram:



2 UNIT OVERVIEW

2.3 Product Overview

(A) Wall-Mounted Air Handler



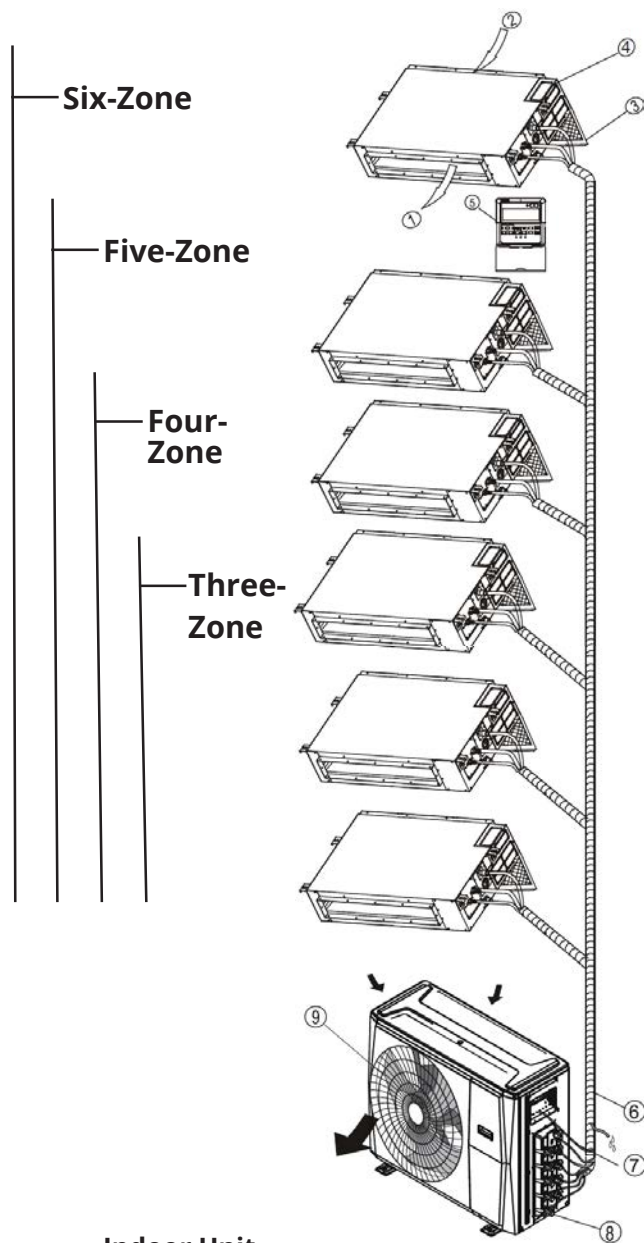
Indoor Unit

1. Panel Frame
2. Rear Air Intake Grille
3. Front Panel
4. Air Purifying Filter & Air Filter (Behind)
5. Horizontal Louver
6. LCD Display Window
7. Vertical Louver
8. Manual Control Button (Behind)
9. Remote Control

Outdoor Unit

10. Drain Hose, Refrigerant Connecting Pipe
11. Connective Cable
12. Stop Valve
13. Fan Hood

(B) Ducted / Ceiling Air Handler



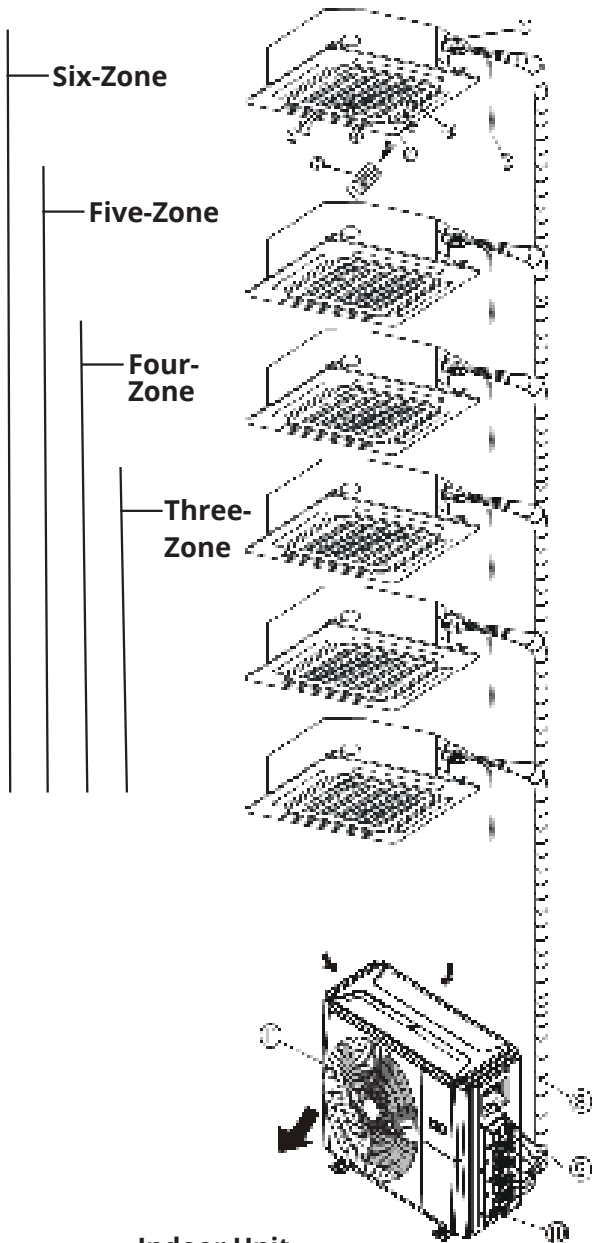
Indoor Unit

1. Air Outlet
2. Air Inlet
3. Air Filter
4. Electric Control Cabinet
5. Wired Controller

Outdoor Unit

6. Drain Hose, refrigerant connecting pipe
7. Connective Cable
8. Stop Valve
9. Fan Hood

(C) Four-Way Cassette Air Handler



Indoor Unit

1. Drain Pump
2. Drain Hose
3. Air Outlet
4. Air Inlet
5. Air-in grill
6. Display Panel
7. Remote Control

Outdoor Unit

8. Refrigerant Connecting Piping
9. Connecting Cable
10. Stop Valve
11. Fan Hood

NOTE

- For multi-split type units, one outdoor unit can be matched to different types of indoor units. All of the pictures in this manual are for demonstration purposes only. Your unit may be slightly different, if similar in shape.
- It is necessary to allow disconnection from the supply after installation, unless a switch is already present. This disconnection may be achieved by having the plug accessible or by incorporating a switch in the fixed wiring in accordance with the wiring rules.

2.4 Packing & Unpacking the Unit

Unpacking the Indoor Unit

1. Cut the sealing tape on the carton on the left, one cut in the middle, and one cut on the right.
2. Use pliers to take out the sealing nails on the top of the carton.
3. Open the carton.
4. Take out the middle support plate if it is included.
5. Take out the accessory package, then take out the connecting wire (if included).
6. Lift the machine out of the carton and lay it flat.
7. Remove the packing foam, and untie the packaging bag.

Unpacking the Outdoor Unit

1. Cut the packing belt.
2. Take the unit out of the carton.
3. Remove the foam from the unit.
4. Remove the packaging bag from the unit.

Packing the Indoor Unit

1. Place the indoor unit into the packing bag.
2. Attach the packing foam to the unit.
3. Place the unit into the carton, then add the accessory package.
4. Close the carton and seal it with packing tape.
5. Use the packing belt, if necessary.

Packing the Outdoor Unit

1. Place the outdoor unit into the packing bag.
2. Place the packing foam into the box.
3. Place the unit into the carton, then put the upper packing foam on the unit.
4. Close the carton and seal it with packing tape.
5. Use the packing belt, if necessary.

2 UNIT OVERVIEW

2.5 Operating Conditions

When your unit is used outside of the following temperature ranges, certain safety protection features may activate and cause the unit to disable.

	Cool Mode	Heat Mode	Dry Mode
Room Temperature	60°F-90°F (16°C-32°C)	32°F-86°F (0°C-30°C)	50°F-90°F (10°C-32°C)
Outdoor Temperature	-13°F-122°F (-25°C-50°C)	-13°F-75°F (-25°C-24°C)	32°F-122°F (0°C-50°C)

For Outdoor Units with Auxiliary Electric Heater:

When the outside temperature is below 32°F (0°C), we strongly recommend keeping the unit plugged in at all times to ensure smooth ongoing performance.

NOTE: Room relative humidity should be less than 80%. If the unit operates in excess of this figure, the surface of the unit may accumulate condensation. Set the vertical air flow louver to its maximum angle (vertically to the floor), and set the fan mode to HIGH.

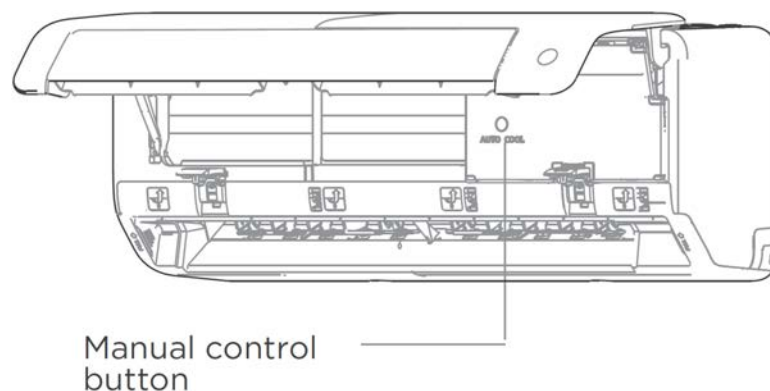
To further optimize the performance of your unit, do the following:

- Keep doors and windows closed
- Limit energy usage by using the timer functions.
- Do not block air inlets or outlets.
- Regularly inspect and clean air filters.

2.6 Manual Operation

To Operate the Unit Manually:

1. Open the front panel of the air handler.
2. Locate the MANUAL CONTROL button on the right-hand side of the unit.
3. Press the MANUAL CONTROL button one time to activate FORCED AUTO mode.
4. Press the MANUAL CONTROL button again to activate FORCED COOLING mode.
5. Press the MANUAL CONTROL button a third time to turn the unit off.
6. Close the front panel.

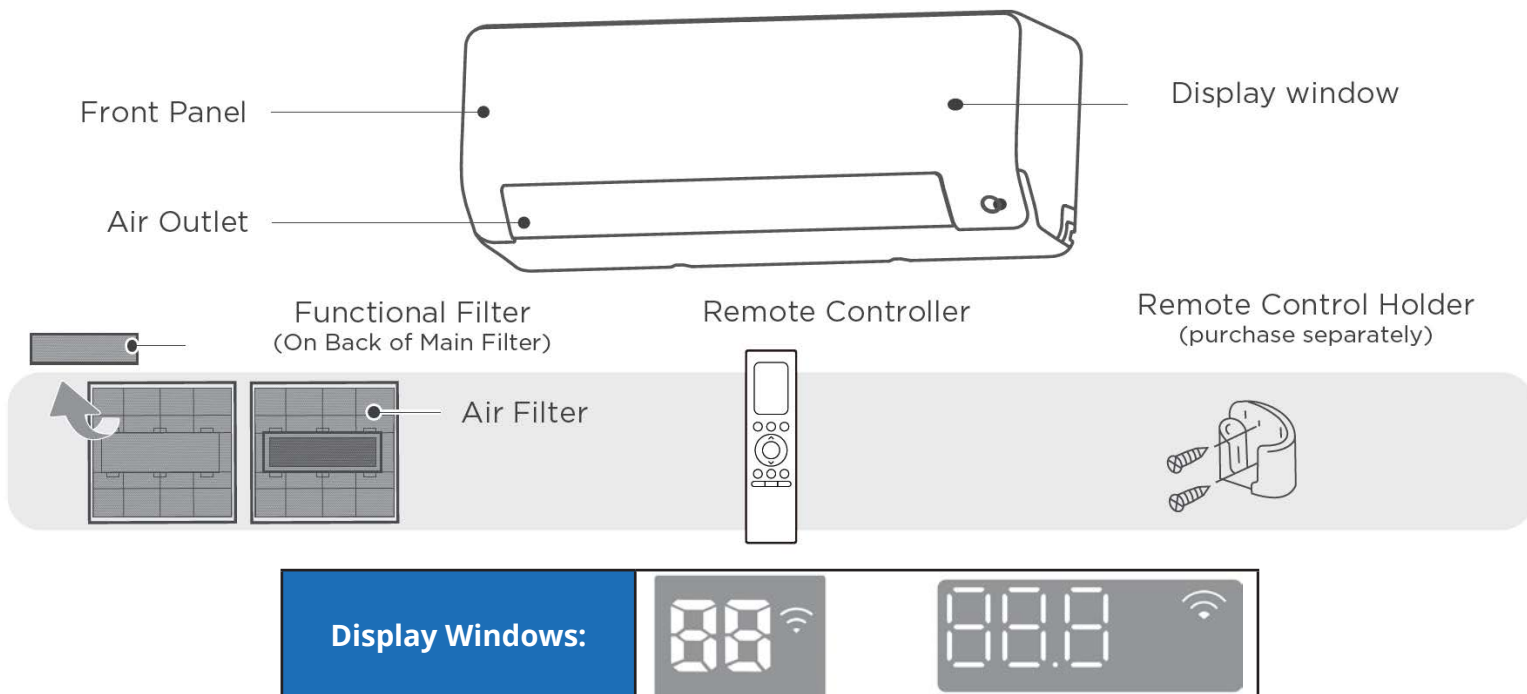


! CAUTION

The manual button is intended for testing purposes and emergency operation only. Please do not use this function unless the remote control is unavailable. To restore regular operation, use the remote control to activate the unit. The unit must be turned off before manual operation.

2.7 Indoor Unit Display

Only use compatible modules certified for use with the model. Refer to the Electric Auxiliary Heat Model specification for additional details to ensure proper selection and installation.



Display Code	Display Code Meaning
88.8 88	Displays temperature, operation features, and error codes
eco	When ECO function is activated
⊞	When wireless control feature is activated
ON (for 3 seconds)	- TIMER ON is set (if the unit is off, "ON" remains on when TIMER ON is set). - SWING, TURBO, ECO, BREEZE AWAY, SILENCE, or ECO INTELLIGENT EYE feature is turned on.
OF (for 3 seconds)	- TIMER OFF is set. - SWING, TURBO, ECO, BREEZE AWAY, SILENCE, or ECO INTELLIGENT EYE feature is turned off.
CL	When Active Clean feature is turned on.
df	When defrosting.
FP	When 46°F (8°C) heating feature is turned on.

2 UNIT OVERVIEW

2.8 Setting Angle of Airflow

Note on Louver Angles

When using COOL or DRY mode, do not set louver at too vertical of an angle for long periods of time. This will cause the water to condense, which will result in water dropping below the unit.

When using COOL or HEAT mode, setting the louver at too small an angle can reduce the performance of the unit due to restricted air flow.

Set the vertical air flow louver to it's maximum angle according to the relative standards requirement under heating capacity test.



Note: While the unit is on, use the SWING button (located on the remote control) to set the direction (vertical/horizontal angle) of airflow. Please refer to the Remote Control Manual for details. Do not manually move the louver. To reset the louver, turn off the unit and disconnect from power.

! CAUTION

DO NOT put your fingers in or near the blower and suction side of the unit. The high-speed fan inside the unit may cause injury.

2.9 Additional Functions

Note: When the unit is powered on, a buzzing sound will be heard to indicate that the unit has been powered on normally. If there is no sound, it is possible that there is a problem with the unit. If this happens, power off and then on again. Also, check the circuit. Check the indoor display and remote control for your unit. (See the Remote Control Manual for more features.)

Auto-Restart

In the event that there is a power loss, the unit will automatically restart with the prior settings once power has been restored.

Breeze Away

This feature avoids airflow from blowing directly on the body. The fan will adjust to continue to maintain a cool atmosphere in the room.

Wireless Control

Allows you to control your air conditioner using your mobile phone and a wireless connection. For the USB device access, replacement, maintenance operations, contact MRCOOL customer support.

Active Clean function

The Active Clean Technology washes away dust when it adheres to the heat exchanger by automatically freezing and then rapidly thawing the frost. This operation is used to produce more condensed water to improve the cleaning effect, and the cold air will blow out. After cleaning, the internal wind wheel then keeps operating with hot air to blow-dry the evaporator, thus keeping the inside clean. When this function is turned on, the indoor unit display window appears "CL", after 20 to 45 minutes, the unit will turn off automatically and cancel the Active Clean function.

Louver Angle Memory

When turning on your unit, the louver will automatically resume its former angle.

Outdoor Unit Reverse Fan Operation:

This feature helps keep the outdoor coil cleaner and may extend the duration between regular maintenance intervals depending on local conditions. When the unit is turned off, a 10 second delay occurs then the outdoor fan runs in reverse rotation for 70 seconds to remove loose accumulated dust and debris.

Refrigerant Leakage Detection

When the system detects a malfunction of the refrigerant, the indoor unit will automatically display the following error codes:

"EL0C (System lacks refrigerant)",

"EHC1 (Refrigerant sensor detects leakage)",

"EHC2 (Working condition of the refrigerant sensor is out of range and leakage is detected)", "EHC3 (Working condition of the refrigerant sensor is out of range)", or

"ECC1 (Other indoor unit refrigerant sensor detects leakage (Multi-zone))".

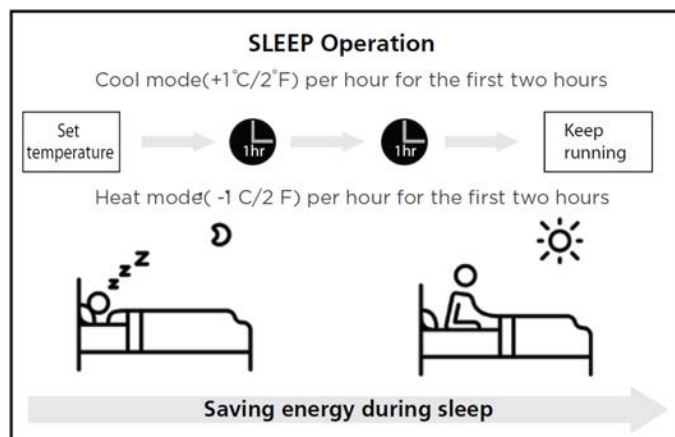
When "EHC1" or "EHC2" error occurs, the buzzer will continue to beep for 5 to 6 minutes before stopping. You can also press any button on the remote controller to stop the buzzer.

Note: Error codes of "EHC1", "EHC2", "EHC3" and "ECC1" are only applicable to the units with refrigerant sensor.

Sleep Operation

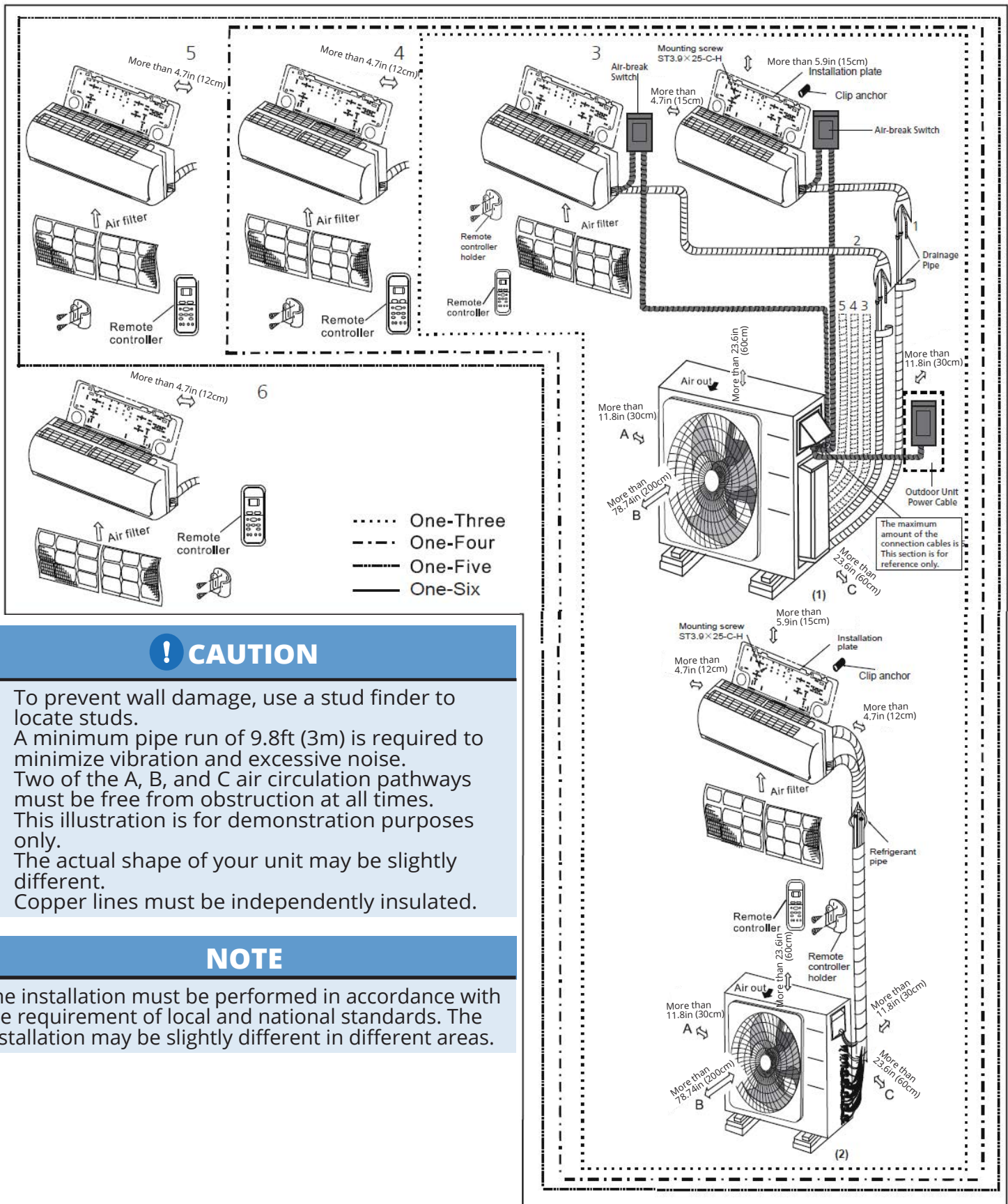
The SLEEP function is used to maximize energy usage while you sleep (and don't need the same temperature settings to stay comfortable). When in COOL mode, press the SLEEP button on remote control. The unit will increase the temperature by 2°F (1°C) after 1 hour, and will increase an additional 2°F (1°C) after another hour. When in HEAT mode, the unit will decrease the temperature by 2°F (1°C) after 1 hour, and will decrease an additional 2°F (1°C) after another hour.

The sleep feature will stop after 8 hours and the system will keep running with final temperature setting.



3 INDOOR UNIT INSTALLATION

3.1 Installation Diagram



! CAUTION

- To prevent wall damage, use a stud finder to locate studs.
- A minimum pipe run of 9.8ft (3m) is required to minimize vibration and excessive noise.
- Two of the A, B, and C air circulation pathways must be free from obstruction at all times.
- This illustration is for demonstration purposes only.
- The actual shape of your unit may be slightly different.
- Copper lines must be independently insulated.

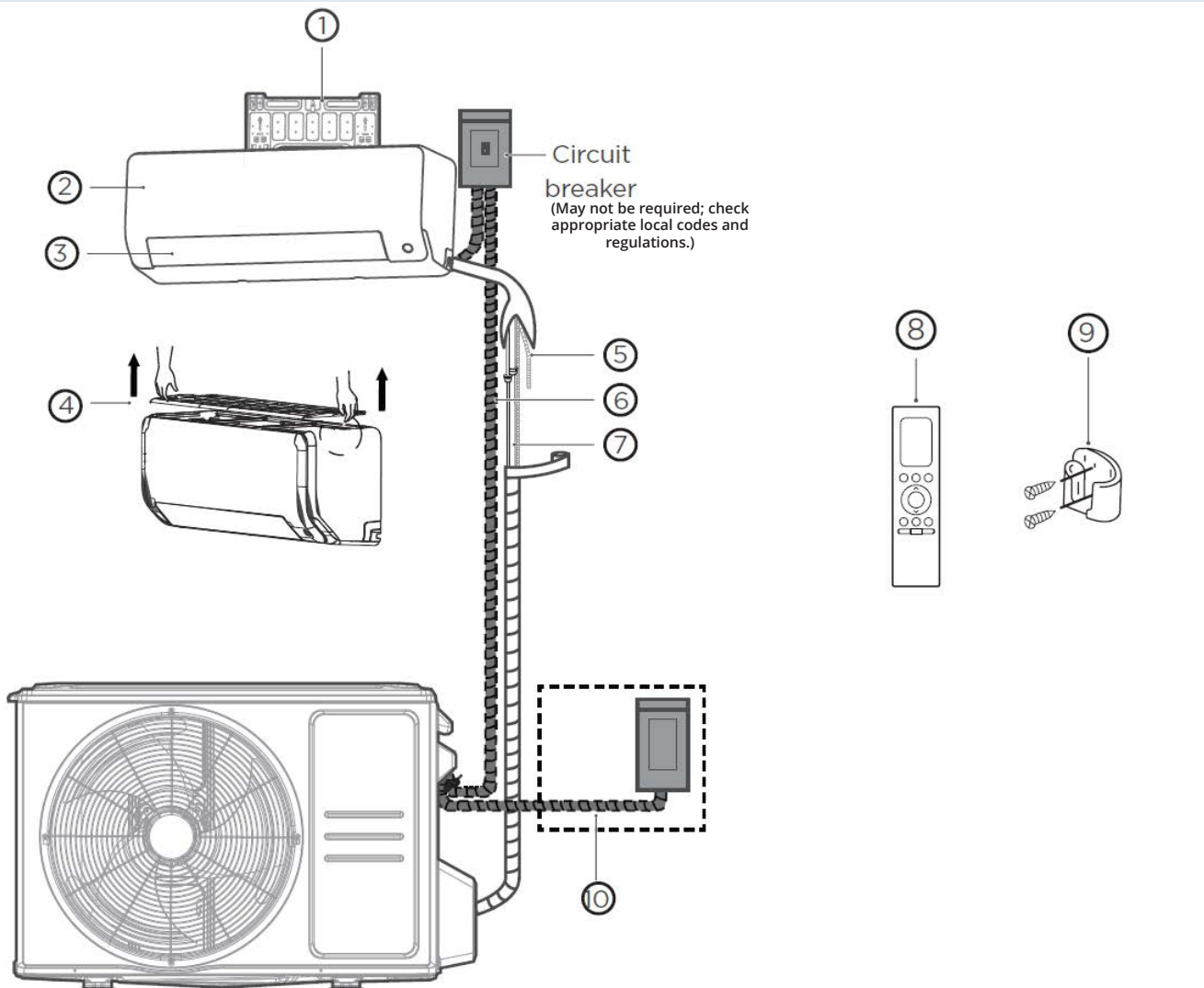
NOTE

The installation must be performed in accordance with the requirement of local and national standards. The installation may be slightly different in different areas.

3 INDOOR UNIT INSTALLATION

3.2 Installation Overview

Note: Illustrations in this manual are for explanatory purposes. The shape of your actual unit may be slightly different.



1. Wall Mounting Plate

2. Front Panel

3. Louver

4. Air Filter

5. Drain Pipe (purchase separately)

6. Connection Cable (purchase separately).

7. Refrigerant Piping (purchase separately).

8. Remote Control

9. Remote Control Holder

10. Outdoor Unit Power Cable (purchase separately)

Tools NOT Included:



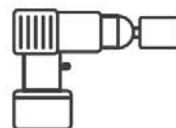
Gloves



Screwdriver & wrench



Hammer drill



Core drill



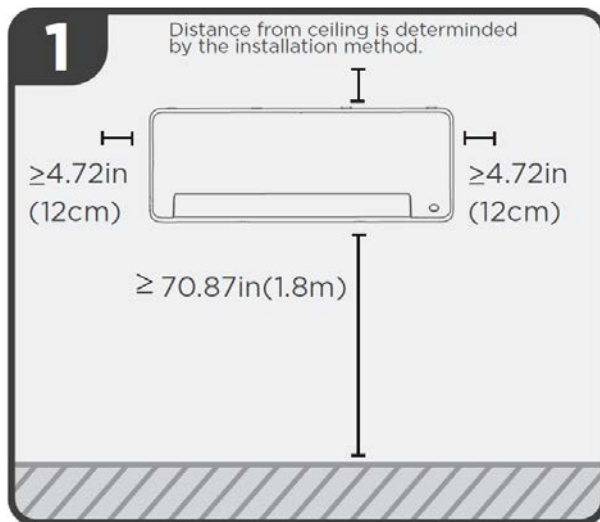
Goggles & masks



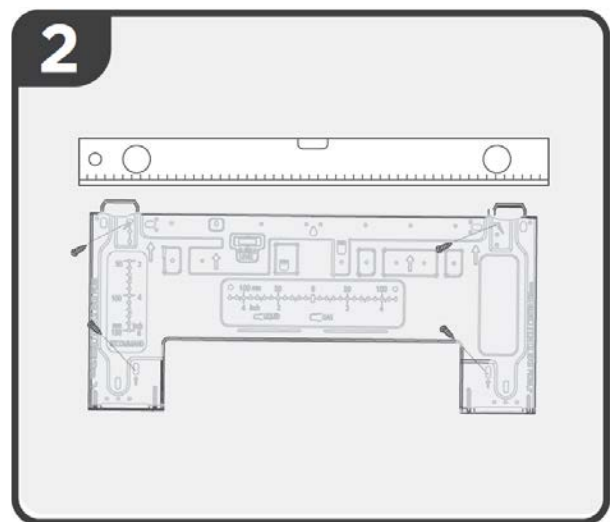
Vinyl tape

3 INDOOR UNIT INSTALLATION

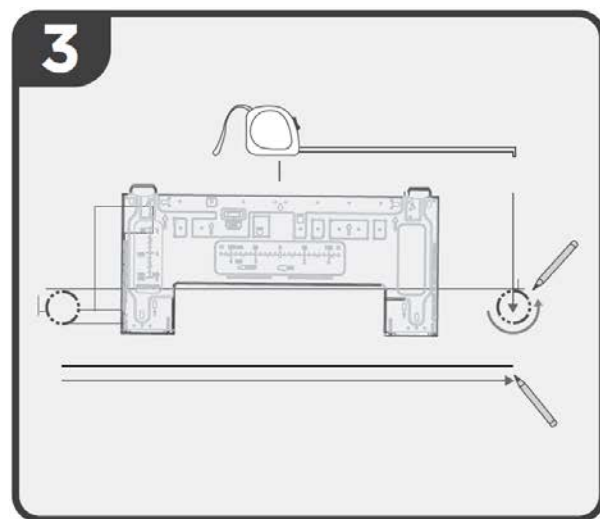
3.3 Installation Summary



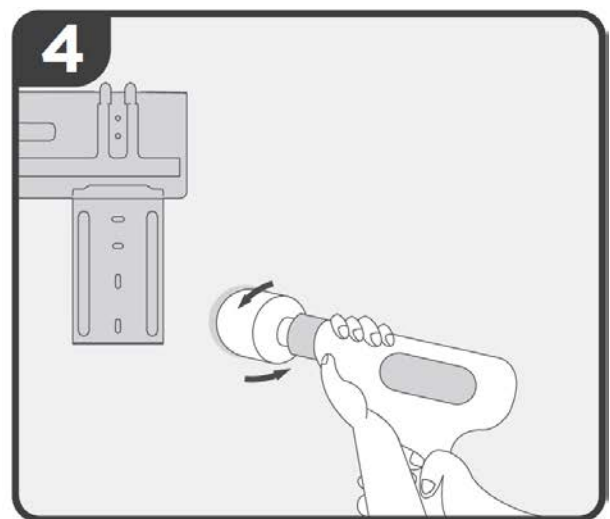
Select Installation Location



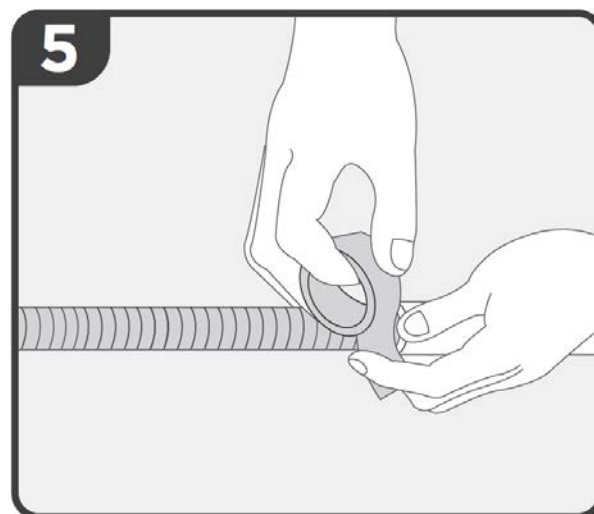
Attach Mounting Plate



Determine Wall Hole Position

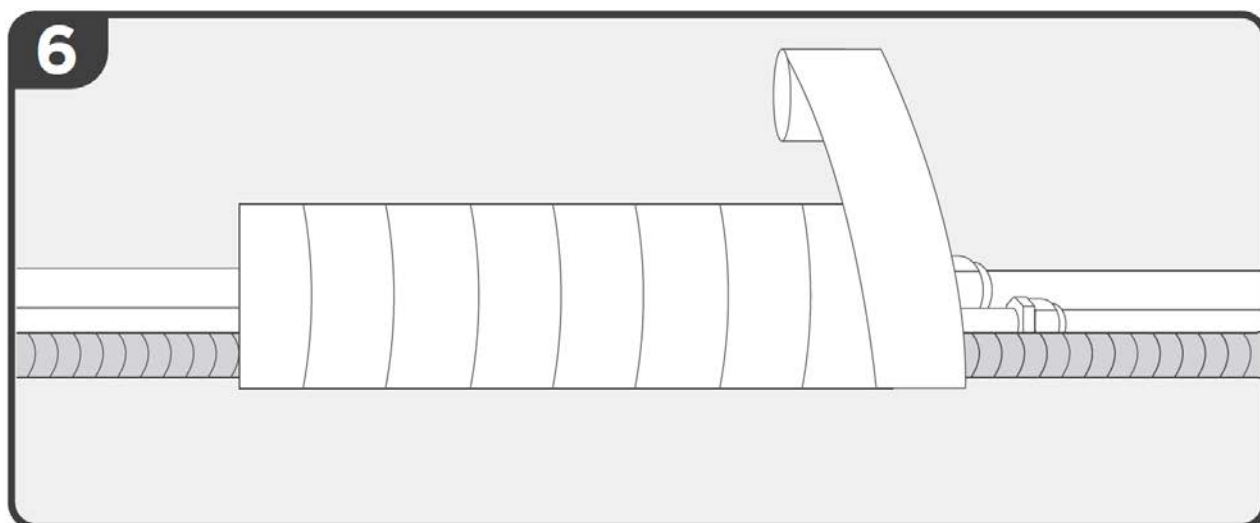


Drill Wall Hole

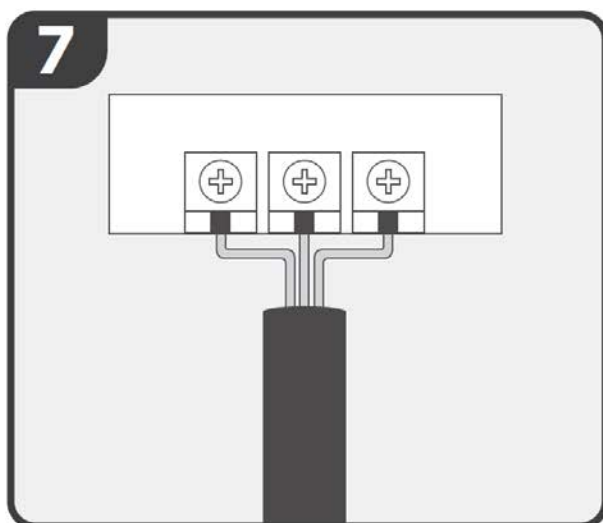


Prepare Drain Hose

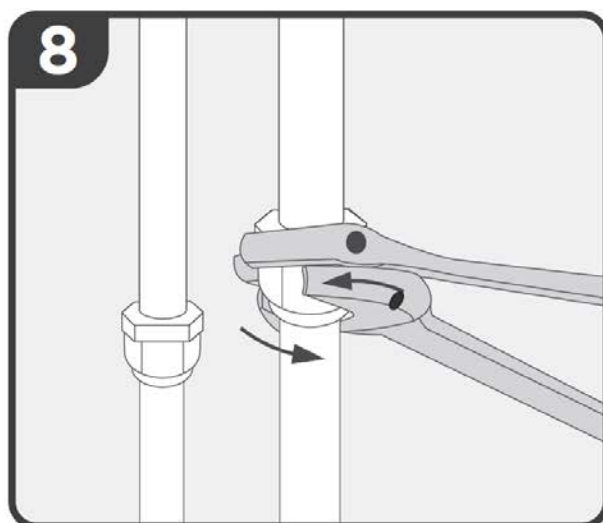
3 INDOOR UNIT INSTALLATION



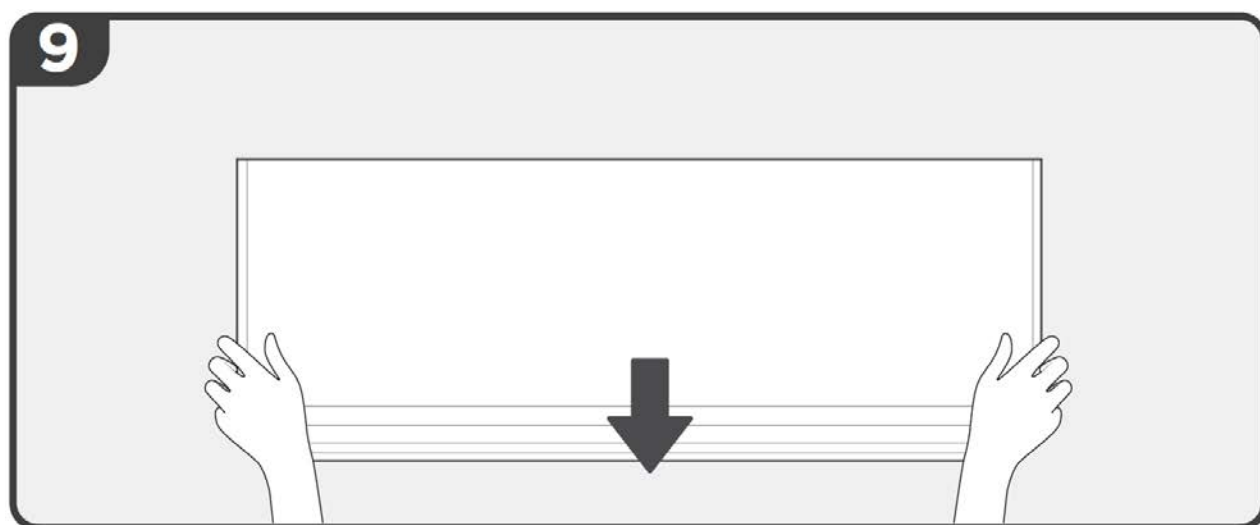
Wrap Piping & Drain Hose



Connect Wiring



Connect Piping



Mount Indoor Unit

3 INDOOR UNIT INSTALLATION

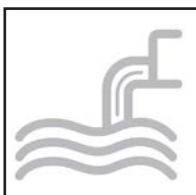
3.4 Installation Location

Note: Before you begin installation, refer to the label on the product box to make sure that the model number of the indoor unit matches the model number of the outdoor unit.

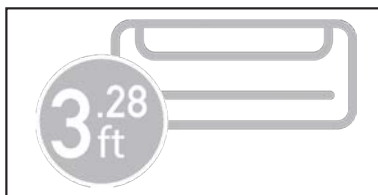
The following standards will help you choose an appropriate location for the unit. Proper installation must meet the following specifications:



☑ Good air circulation & ventilation.



☑ Convenient Drainage



☑ A location at least 3.28ft (1m) from all other electrical devices (e.g., TV, radio, computer)



☑ Noise from the unit will not disturb other people.



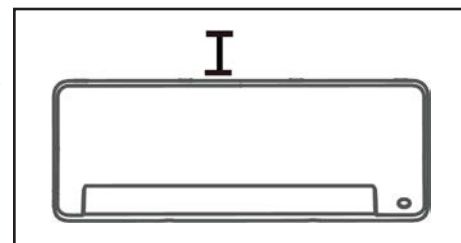
☑ Firm & Solid - the location will not vibrate & is strong enough to support the weight of the unit.

Ceiling Distance:

Distance from the ceiling is determined by the installation method.

If the refrigerant piping and cables are going to be connected to the indoor unit **before** it is mounted to the wall, **2 in (5 cm)** is an *allowable* amount of clearance from the ceiling but this could reduce system performance. In order to ensure there is enough space to allow for the removal and installation of the air filter, **the clearance should be at least 4 in (10 cm).**

If the refrigerant piping and cables are going to be connected **after** the indoor unit is mounted to the wall with the front panel opened, the minimum clearance from the ceiling should be at least **8.7 in (22 cm)**. If the piping and cables are connected with the front panel removed, **the minimum clearance should be 4.3 in (11 cm).**



Do NOT install the unit in the following locations:

- ⊘ Near any source of heat, steam, or combustible gas.
- ⊘ Near flammable items such as curtains or clothing.
- ⊘ Near any obstacle that might block air circulation.
- ⊘ Near a doorway.
- ⊘ In a location that is subject to direct sunlight.

Note for Product Installation:

When choosing a location, be aware that you should leave ample room for a wall hole (see steps for drilling a wall hole for connecting piping) for the signal cable and refrigerant piping that connect the indoor and outdoor units. The default position for all piping is the right side of the indoor unit (when facing the unit).

For R454B Refrigerant Charge Amount and Minimum Room Area:

See below for unit refrigerant specifications. The indoor and outdoor units are designed to be used together. Double check for the correct specifications for your purchased unit. The indoor unit should be installed at least 6.0ft/1.8m above the floor. The height of the room cannot be less than 7.3ft/2.2m. The minimum room area of operation or storage should be according to the table below:

Amin [ft ² /m ²]	hinst[ft/m]					
mc or mREL [oz/kg]	6.0~7.3/ 1.8~2.2	7.6/2.3	7.9/2.4	8.6/2.6	9.2/2.8	9.9/3.0
<=62.6/1.776	12/1.10					
63.4/1.8	60/5.53	57/5.29	55/5.07	51/4.68	47/4.35	44/4.06
70.5/2.0	67/6.15	64/5.88	61/5.64	56/5.2	52/4.83	49/4.51
77.5/2.2	73/6.76	70/6.47	67/6.2	62/5.72	58/5.31	54/4.96
84.6/2.4	80/7.38	76/7.06	73/6.76	68/6.24	63/5.8	59/5.41
91.7/2.6	86/7.99	83/7.64	79/7.32	73/6.76	68/6.28	64/5.86
98.7/2.8	93/8.6	89/8.23	85/7.89	79/7.28	73/6.76	68/6.31
105.8/3.0	100/9.22	95/8.82	91/8.45	84/7.8	78/7.24	73/6.76
112.8/3.2	106/9.83	102/9.41	97/9.01	90/8.32	84/7.73	78/7.21
119.9/3.4	113/10.45	108/9.99	104/9.58	96/8.84	89/8.21	83/7.66
126.9/3.6	120/11.06	114/10.58	110/10.14	101/9.36	94/8.69	88/8.11
134/3.8	126/11.68	121/11.17	116/10.7	107/9.88	99/9.17	93/8.56
141.1/4.0	133/12.29	127/11.76	122/11.27	112/10.4	104/9.66	97/9.01
148.1/4.2	139/12.9	133/12.34	128/11.83	118/10.92	110/10.14	102/9.46
155.1/4.4	146/13.52	140/12.93	134/12.39	124/11.44	115/10.62	107/9.91
162.2/4.6	153/14.13	146/13.52	140/12.96	129/11.96	120/11.11	112/10.37
169.2/4.8	159/14.75	152/14.11	146/13.52	135/12.48	125/11.59	117/10.82
176.3/5.0	166/15.36	159/14.69	152/14.69	140/13	130/12.07	122/11.27

Area Formula:

Amin is the required minimum room area in ft²/m²

mc is the actual refrigerant charge in the system oz/kg

m_{REL} is the refrigerant releasable charge in oz/kg
(Applicable to the unit with the refrigerant sensor only.)

hinst is the height of the bottom of the appliance relative to the floor of the room after installation.

When the unit detects a refrigerant leak, the minimum airflow of the indoor unit is as follows:

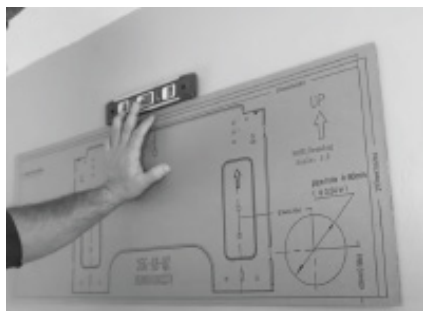
Model	Indoor Unit	Indoor Normal Air Volume	
9K	O-09-HP-WMAH-230C-O	550m ³ /h	325CFM
12K	O-12-HP-WMAH-230C-O	550m ³ /h	325CFM
18K	O-18-HP-WMAH-230C-O	850m ³ /h	500CFM
24K	O-24-HP-WMAH-230C-O	1050m ³ /h	620 CFM

! WARNING

The minimum room area or minimum room area of conditioned space is based on releasable charge and total system refrigerant charge.

3 INDOOR UNIT INSTALLATION

3.5 Drill Wall Opening

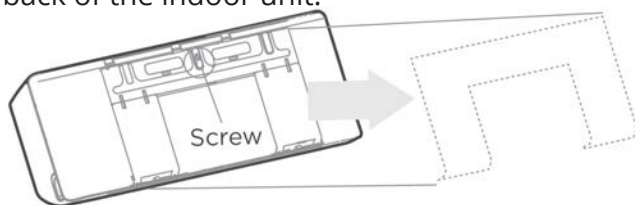


A cardboard template of the mounting plate is included to aid in installation. It can be placed against the wall in place of the actual mounting plate before drilling into the wall.

Determining Wall Opening Location

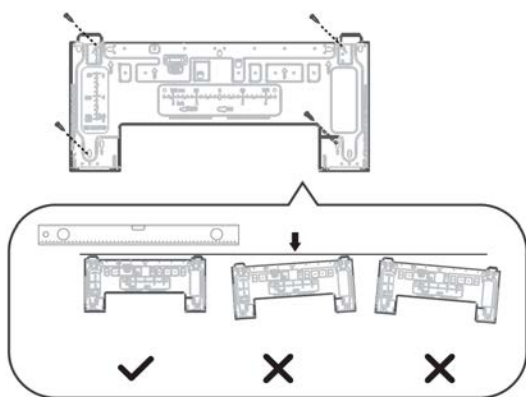
Step 1:

Remove the screw that attaches the mounting plate to the back of the indoor unit.



Step 2:

Secure the mounting plate to the wall with the screws provided. Ensure the mounting plate is flat against the wall.

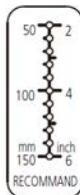
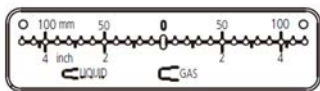


Correct orientation of Mounting Plate

Step 3:

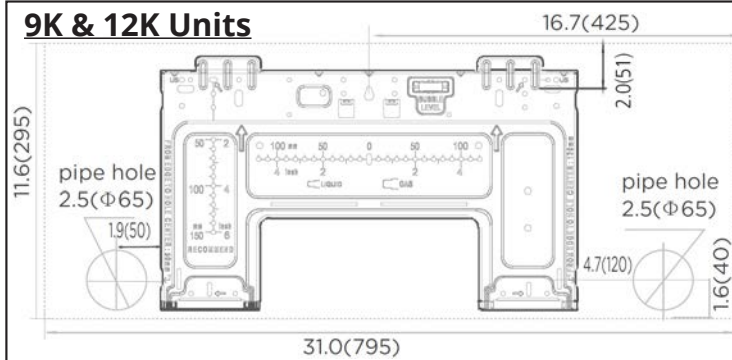
Determine the location of the wall hole based on the position of the mounting plate. The dotted rectangular box on the right figure shows the size of your product. There are bubble level, carved dimensions on the mounting plate. The bubble level cannot be removed.

Horizontal direction ruler

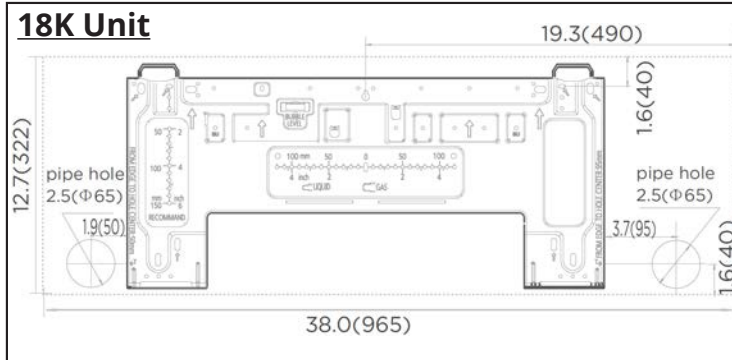


Vertical direction ruler

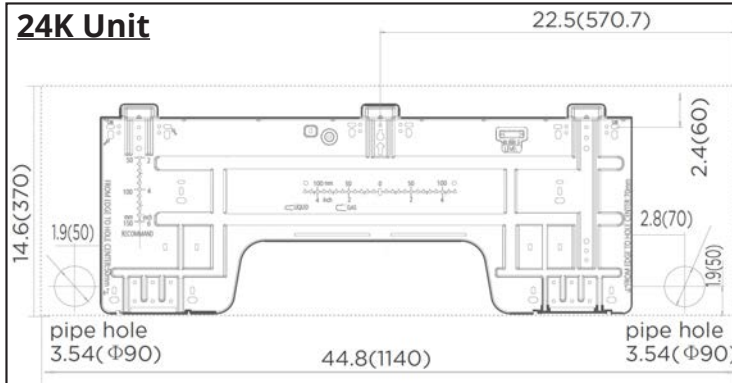
9K & 12K Units



18K Unit



24K Unit



NOTE: WALL HOLE SIZE

The size of the wall hole is determined by the connecting pipes. When the pipe size of the gas side is $\Phi 5/8$ in ($\Phi 16$ mm) or more, the wall hole should be $\Phi 3.54$ in ($\Phi 90$ mm). When the pipe size of the gas side is less than $\Phi 5/8$ in ($\Phi 16$ mm), the wall hole should be $\Phi 2.5$ in ($\Phi 65$ mm).

3 INDOOR UNIT INSTALLATION

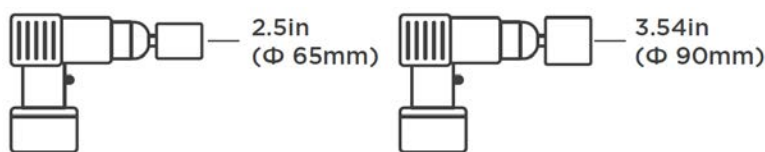
Drill Wall Hole

! CAUTION

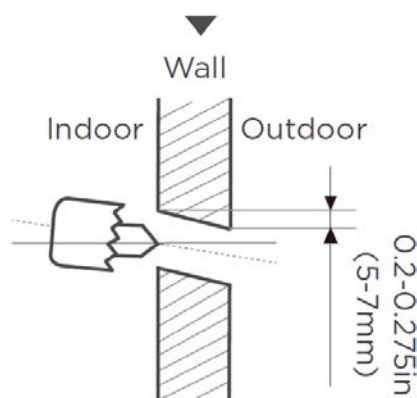
When drilling the wall hole, make sure to avoid wires, plumbing, and other sensitive components.

Step 1:

Using a 2.5in (65mm) or 3.54 (90mm) core drill, drill a hole in the wall. Make sure that the hole is drilled at a slight downward angle, so that the outdoor end of the hole is lower than the indoor end by about 0.2-0.275in (5-7mm). This will ensure proper water drainage.



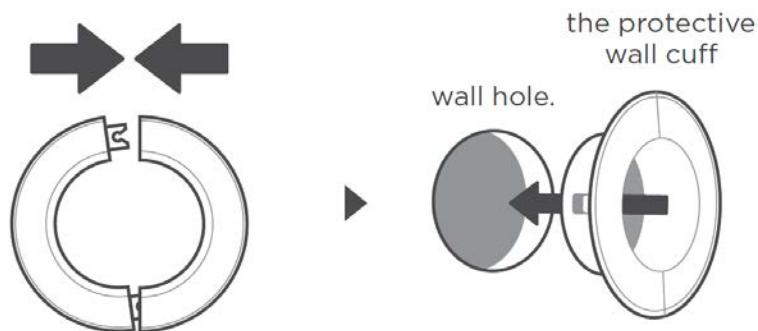
Using a 2.5in(65mm) or 3.54in(90mm) core drill(according to the unit you purchased)



Drill the wall hole

Note for Concrete or Brick Walls:

If the wall is made of brick, concrete, or similar material, drill 0.2in-diameter (5mm-diameter) holes in the wall and insert the sleeve anchors provided. Then, secure the mounting plate to the wall by tightening the screws directly into the clip anchors.



Step 2:

Place the protective wall cuff in the hole. This protects the edges of the hole and will help seal it when you finish the installation process.

Place the protective wall cuff in the hole.

3 INDOOR UNIT INSTALLATION

3.6 Refrigerant Pipe & Drain Hose Installation

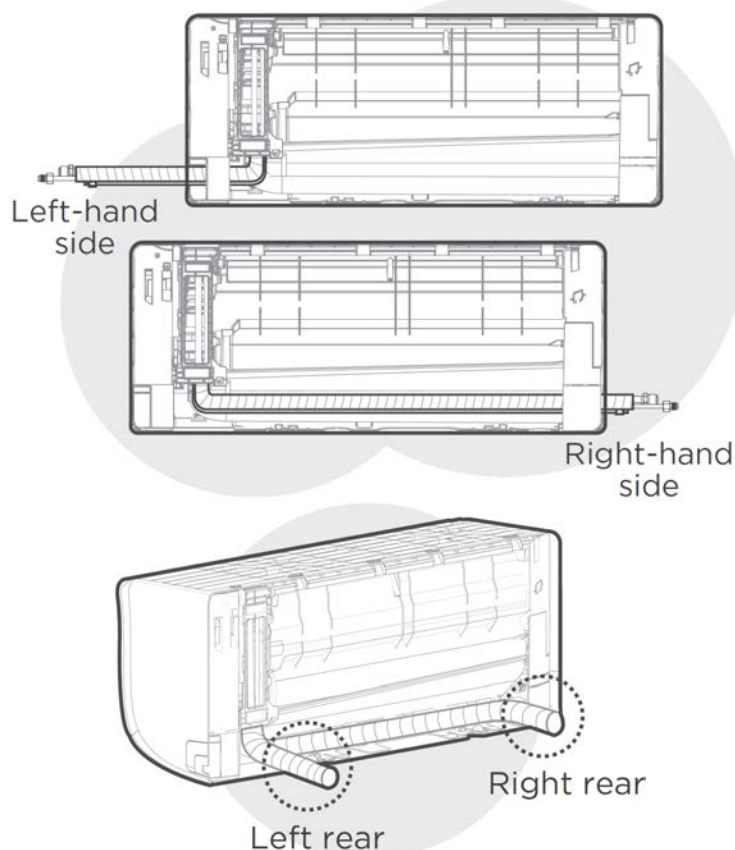
Step 1:

Based on the position of the wall hole relative to the mounting plate, choose the side from which the piping will exit the unit. You have four options for the exit direction of the piping.

NOTE ON PIPING CONNECTING:

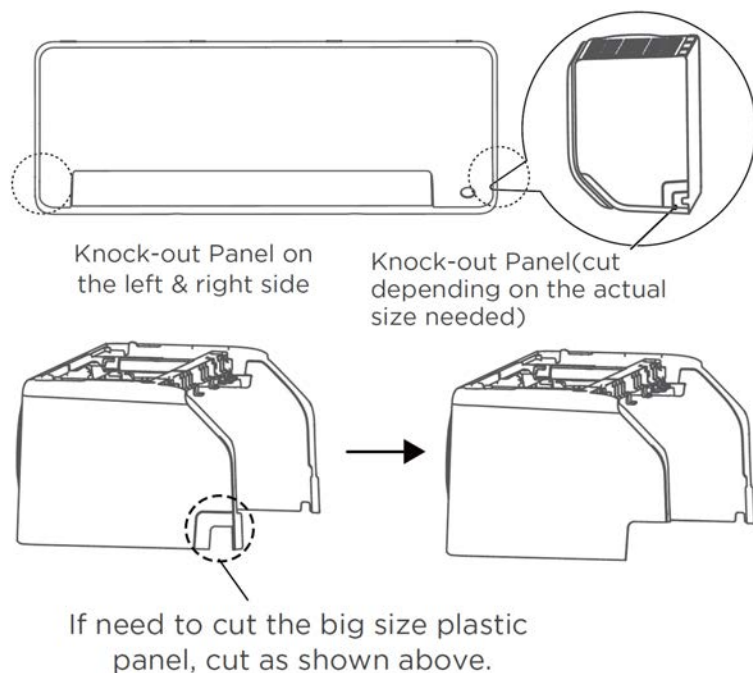
In North America, a conduit tube must be used to connect the cable. To ensure enough space for the pipes with the machine against the wall after installation, it is recommended to attach the drain hose to the right-hand side (when you're facing the back of the unit).

When choosing left or right side piping, make sure that the pipes come out horizontally so as not to affect the lower panel installation.



Step 2:

If the wall hole is behind the unit, keep the knock-out panel in place. If the wall hole is to the side of the indoor unit, remove the plastic knock-out panel from that side of the unit. Use needle-nose pliers if the plastic panel is too difficult to remove by hand.



Step 3:

Use the holder at the back of the unit to prop up the unit, giving you enough room to connect the refrigerant piping and drain hose.

Step 4:

Connect the indoor unit's refrigerant piping to the connective piping that will join the indoor and outdoor units. Refer to the Refrigerant Piping Connection section of the manual for detailed instructions.

Step 5:

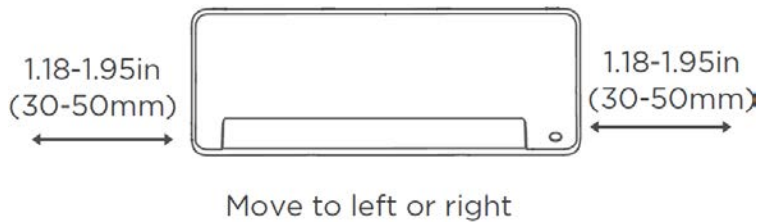
Based on the position of the wall hole relative to the mounting plate, determine the necessary angle of your piping. Grip the refrigerant piping at the base of the bend. Slowly, with even pressure, bend the piping towards the hole. Do not dent or damage the piping during the process.

! CAUTION

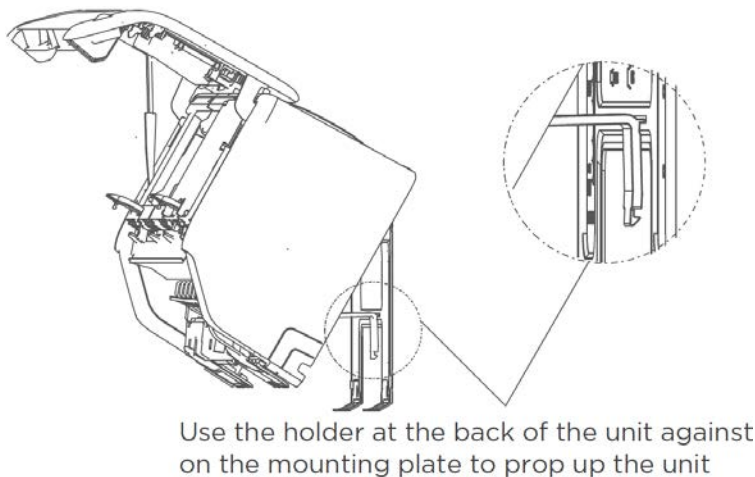
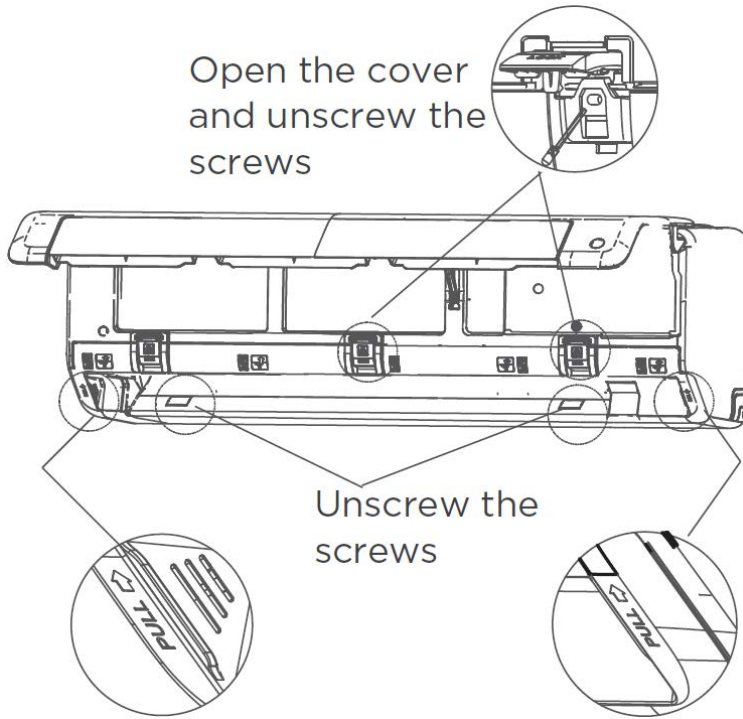
Be extremely careful not to dent or damage the piping while bending away from the unit. Any dents in the piping will affect the unit's performance.

3 INDOOR UNIT INSTALLATION

If the refrigerant piping is already embedded in the wall, do the following:



Open the cover and unscrew the screws



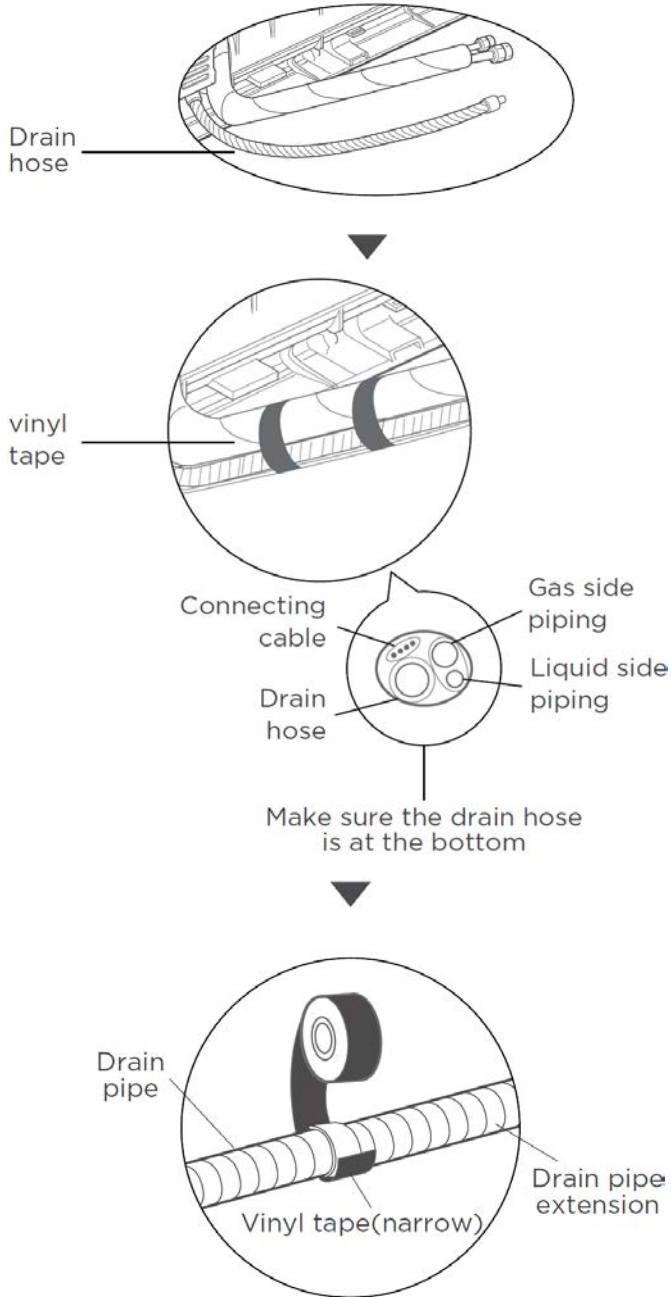
NOTE: UNIT IS ADJUSTABLE

Keep in mind that the hooks on the mounting plate are smaller than the holes on the back of the unit. If you find that you don't have ample room to connect embedded pipes to the indoor unit, the unit can be adjusted left or right by about 1.18-1.95in (30-50mm), depending on the model.

- Open and fix the position of the panel, then, open the covers of the two lock blocks. Unscrew the screw shown in the image, then hold both sides of the lower panel in the place marked "PULL". Pull it upwards to release the buckles, then take the lower panel down.
- Use the holder at the back of the unit to prop up the unit, giving you enough room to connect the refrigerant piping and drain hose.
- Connect the drain hose and refrigerant piping (refer to the Refrigerant Piping Connection section of this manual for instructions).
- Keep the pipe connecting point exposed to perform the leak test (refer to the Electrical Checks and Leak Checks section of this manual).
- After the leak test, wrap the connection point with insulation tape.
- Release the holder that is propping up the unit.
- Using even pressure, push down on the bottom half of the unit. Keep pushing down until the unit snaps onto the hooks along the bottom of the mounting plate.

3 INDOOR UNIT INSTALLATION

Connect Drain Hose



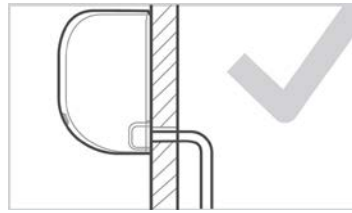
Step 1:

The drain hose can be attached to the left or right side. To ensure proper drainage, attach the drain hose on the same side that the refrigerant piping exits the unit. Attach a drain hose extension (purchased separately) to the end of the drain hose.

- Wrap the connection point firmly with Teflon tape to ensure a good seal to prevent leaks.
- For the portion of the drain hose that will remain indoors, wrap it with foam pipe insulation to prevent condensation.
- Remove the air filter and pour a small amount of water into the drain pan to ensure the water flows from the unit smoothly.

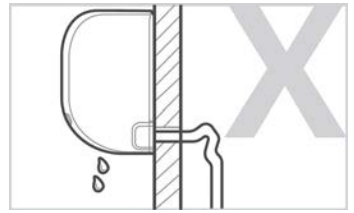
NOTE ON DRAIN HOSE PLACEMENT

Make sure to arrange the drain hose according to the following figures.



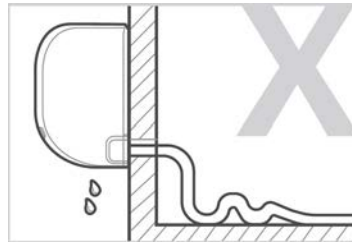
CORRECT

Make sure there are no kinks or dents in the drain hose to ensure proper drainage.



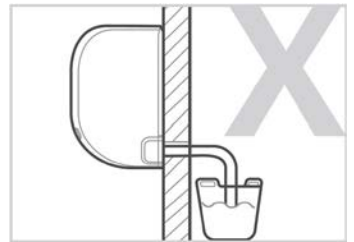
NOT CORRECT

Kinks in the drain hose will create water traps.



NOT CORRECT

Kinks in the drain hose will create water traps.



NOT CORRECT

Do not place the end of the drain hose in water or in containers that collect water. This will prevent proper drainage.

PLUG THE UNUSED DRAIN HOLE

To prevent unwanted leaks you must plug the unused drain hole with the rubber plug provided.



3.7 Electrical Wiring

! WARNING

- Before performing any electrical work, read the following regulations, and disconnect the main power to the system.
- All wiring must comply with local and national electrical codes, regulations, and must be installed by a licensed electrician.
 - All electrical connections must be made according to the Electrical Connection Diagram located on the panels of the indoor and outdoor units.
 - If there is a serious safety issue with the power supply, stop work immediately. Explain your reasoning to the client, and refuse to install the unit until the safety issue is properly resolved.
 - If connecting power to fixed wiring, a surge protector and main power switch should be installed.
 - Only connect the unit to an individual branch circuit outlet. Do not connect another appliance to that outlet.
 - Make sure to properly ground the unit.
 - Every wire must be firmly connected. Loose wiring can cause the terminal to overheat, resulting in product malfunction and possible fire.
 - Do not let wires touch or rest against refrigerant tubing, the compressor, or any moving parts within the unit.
 - To avoid getting an electric shock, never touch the electrical components soon after the power supply has been turned off. After turning off the power, always wait 10 minutes or more before you touch the electrical components.

! WARNING

All wiring must be performed strictly in accordance with the wiring diagram located on the back of the indoor unit's front panel.

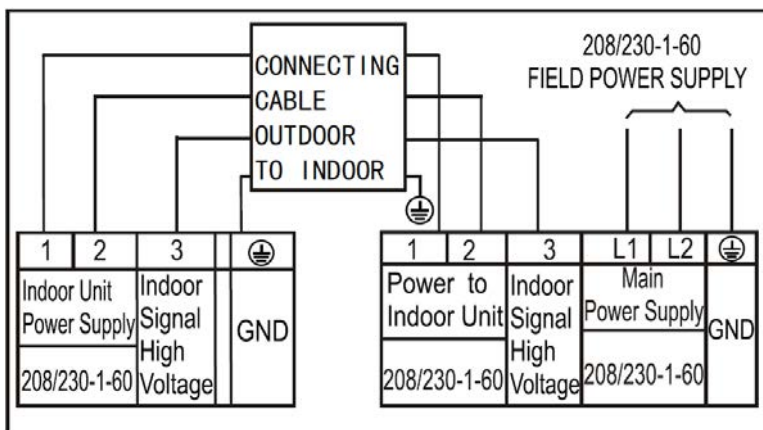
Connect Signal & Power Cables

The signal cable enables communication between the indoor and outdoor units. You must first choose the right cable size before preparing it for connection.

NOTE: Choose the cable type according to local electrical codes and regulations. Please choose the right cable size according to the Minimum Circuit Ampacity located on the nameplate of the unit.

DO NOT MIX LIVE AND NULL WIRES.

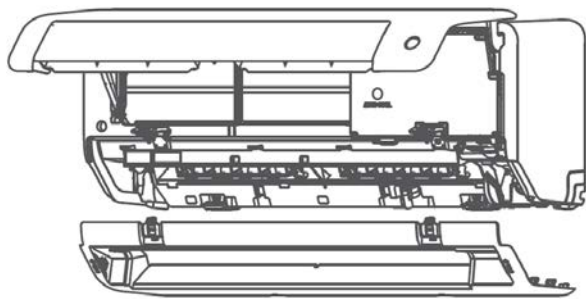
This is dangerous, and can cause the unit to malfunction.



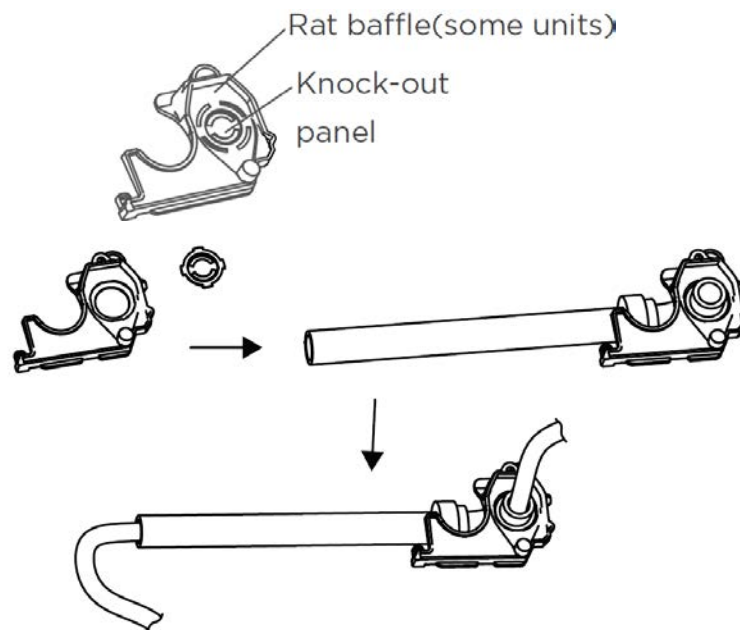
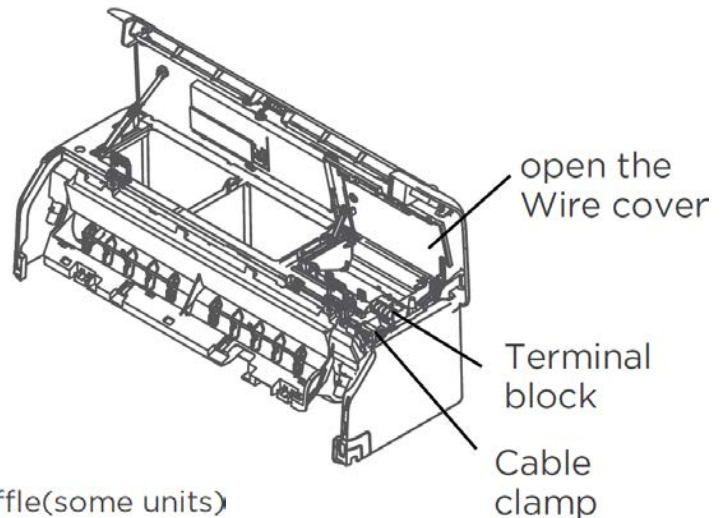
Connection Diagram (208/230V)

3 INDOOR UNIT INSTALLATION

1. Open and fix the position of the panel, then open the covers of the two lock blocks, remove the screw, then hold both sides of the lower panel in the place marked "PULL". Pull it upwards to release the buckles, then take the lower panel down.
2. Open the wire box cover on the right side of the unit. This will reveal the terminal block.
3. Unscrew the cable clamp below the terminal block and place it to the side.
4. Facing the back of the unit, remove the plastic panel on the bottom left-hand side.
5. Feed the signal wire through this slot, from the back of the unit to the front.
6. Facing the front of the unit, connect the wire according to the indoor unit's wiring diagram, then connect the u-lug and firmly screw each wire to its corresponding terminal.
7. After checking to make sure every connection is secure, use the cable clamp to fasten the signal cable to the unit. Screw the cable clamp down tightly.
8. Replace the wire cover on the front of the unit, and the plastic panel on the back.



First open the front panel, then remove the lower panel.



First remove the knock-out panel to create a slot through which the conduit tube can be installed. Then place the cable through the conduit tube and connect to the indoor unit.

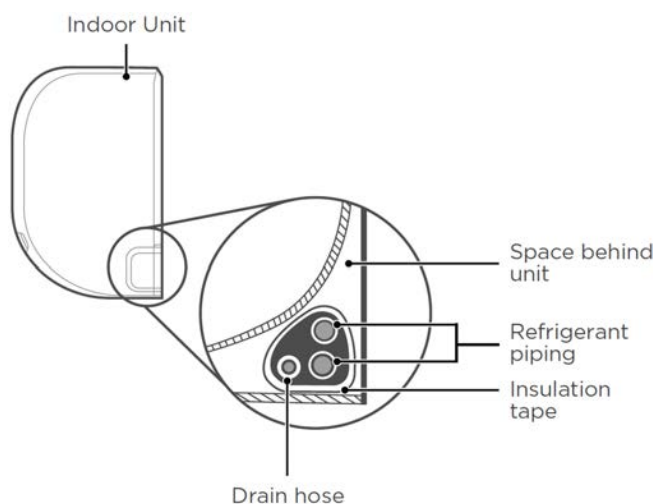
3.8 Wrap Piping & Cables

NOTE

Before passing the piping and drain hose through the wall hole, you must bundle them together to save space, protect them, and insulate them.

Step 1:

Bundle the drain hose and refrigerant pipes as shown below.

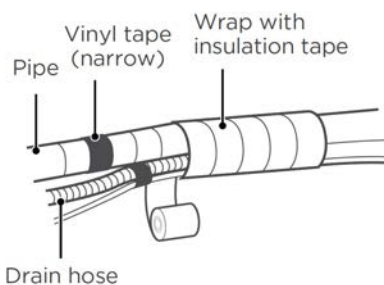


Step 2:

Using adhesive vinyl tape, attach the drain hose to the underside of the refrigerant pipes.

Step 3:

Using insulation tape, wrap the refrigerant pipes and drain hose tightly together. Double-check that all items are bundled.



DRAIN HOSE MUST BE ON BOTTOM

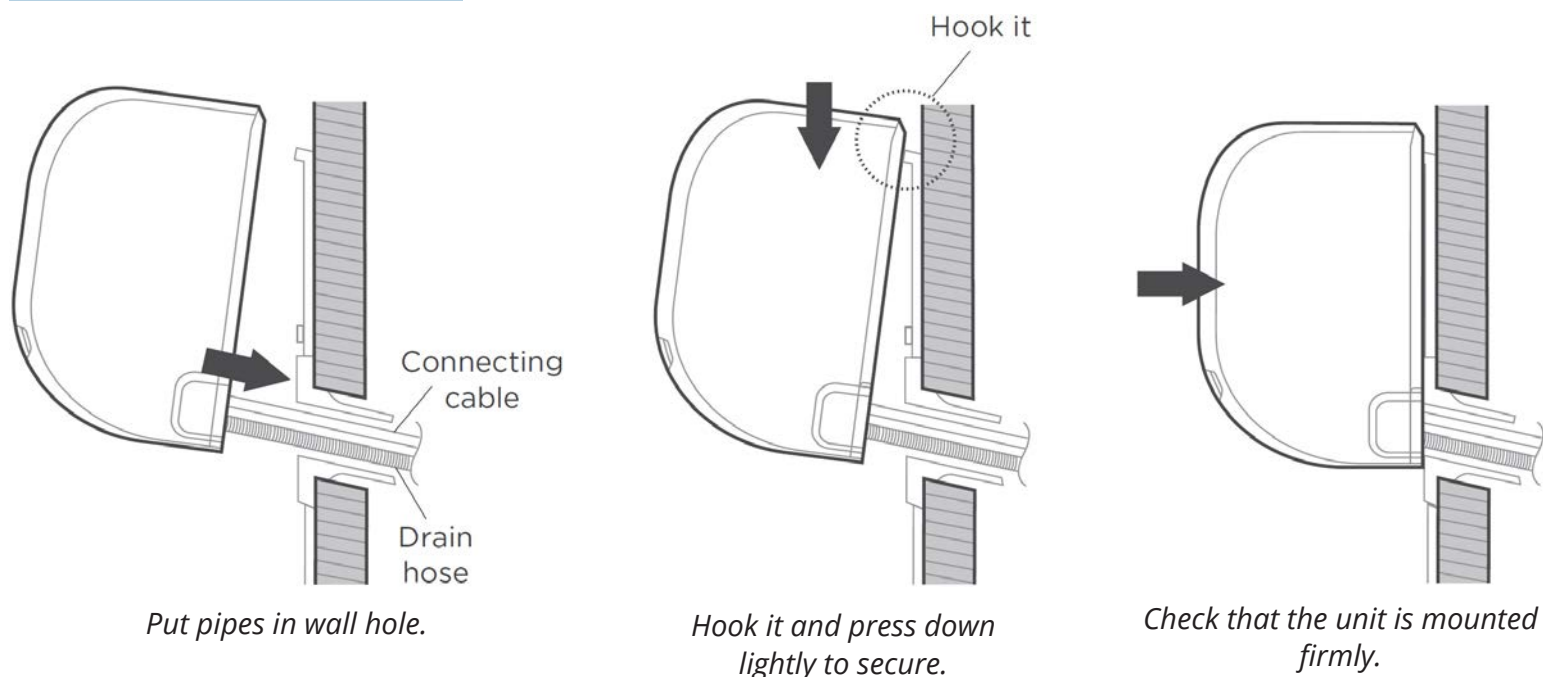
Make sure the drain hose is at the bottom of the bundle. Putting the drain hose at the top of the bundle can cause the drain pan to overflow, which can lead to fire or water damage.

DO NOT WRAP ENDS OF PIPING

When wrapping the bundle, keep the ends of the piping unwrapped. You need to access them to test for leaks at the end of the installation process.

3 INDOOR UNIT INSTALLATION

3.9 Mount Indoor Unit

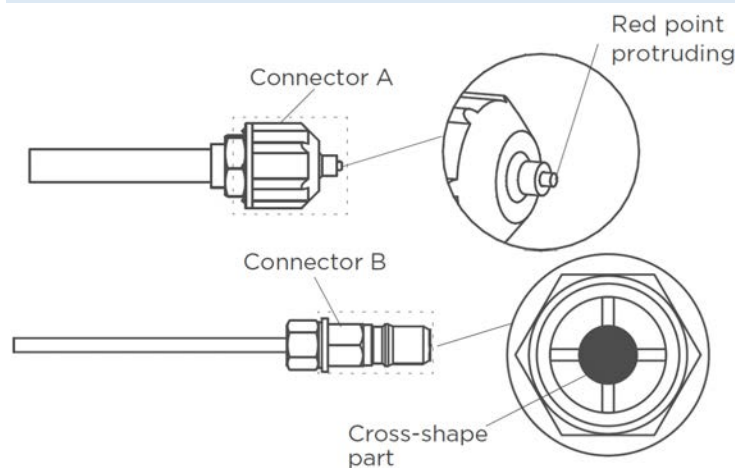


If you installed new connective piping to the outdoor unit, do the following:

- If you have already passed the refrigerant piping through the hole in the wall, proceed to Step 3.
1. Double-check that the ends of the refrigerant pipes are sealed to prevent dirt or foreign materials from entering the pipes.
 2. Slowly pass the wrapped bundle of refrigerant pipes, drain hose, and signal wire through the hole in the wall.
 3. Hook the top of the indoor unit on the upper hook of the mounting plate.
 4. Check that the unit is hooked firmly on the mounting plate by applying slight pressure to the left and right-hand sides of the unit. The unit should not jiggle or shift.
 5. Using even pressure, push down on the on the bottom half of the unit. Keep pushing down until the unit snaps onto the hooks along the bottom of the mounting plate.
 6. Again, check that the unit is firmly mounted by applying slight pressure to the left and the right-hand sides of the unit.

! CAUTION

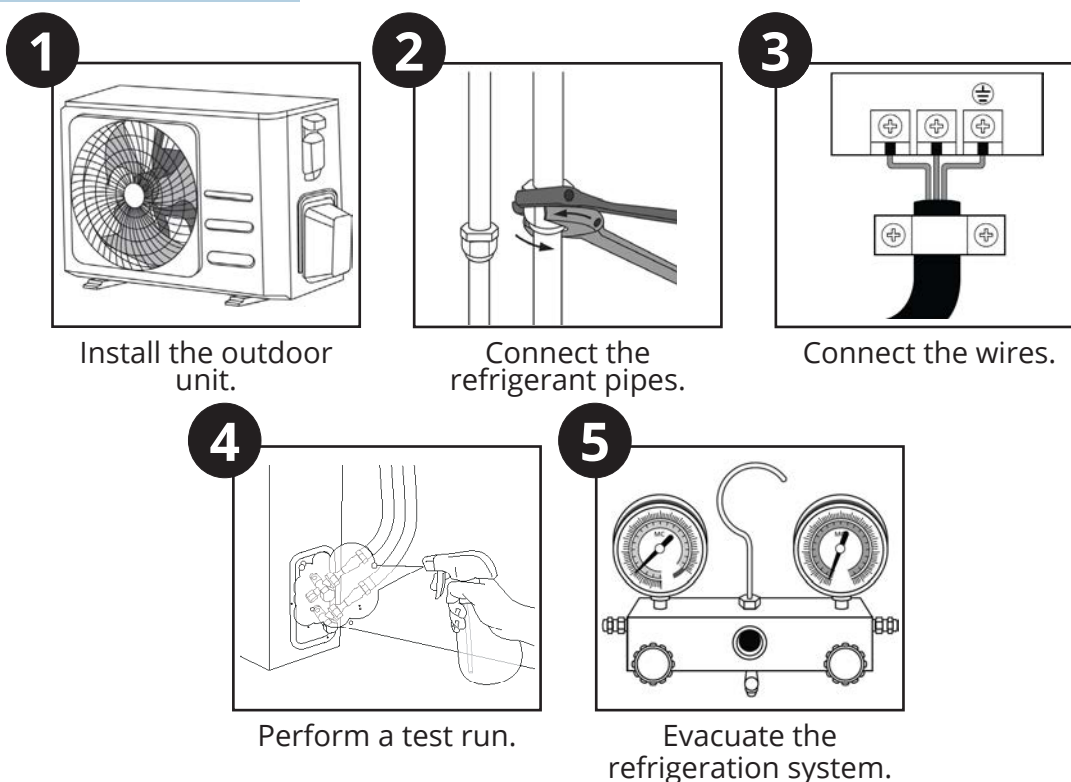
For the units that adopt the following pipe connectors, strictly perform the piping work in accordance with the following instructions.



1. Before performing the refrigerant piping connection, always wear work gloves and goggles, and remember that the connectors A and B are not allowed to face people directly.
2. Keep pressing the cross-shape part of connector B with a tool for approximately 5-10 seconds until the red protruding point of Connector A retracts completely.
3. Remove connectors A and B, then perform the refrigerant piping connection between the indoor unit and the outdoor unit.

4 OUTDOOR UNIT INSTALLATION

4.1 Installation Summary



4.2 Location Selection

NOTE: PRIOR TO INSTALLATION

Before installing the outdoor unit, you must choose an appropriate location. The following are standards that will help you choose an appropriate location for the unit.

Proper Installation Locations Meet the Following Standards:

☒ Meets all spatial requirements shown in Installation requirements above,.	☒ Good air circulation & ventilation.	☒ Firm & solid-the location can support the unit & will not vibrate.	☒ Noise from the unit will not disturb other people.
	☒ Protected from prolonged periods of direct sunlight or rain.		☒ Where snowfall is anticipated, take appropriate measures to prevent ice buildup & coil damage.

NOTE: Install the unit by following local codes and regulations. These may differ slightly between different regions.

4 OUTDOOR UNIT INSTALLATION

! CAUTION: SPECIAL CONSIDERATIONS FOR EXTREME WEATHER

If the unit is exposed to heavy wind:

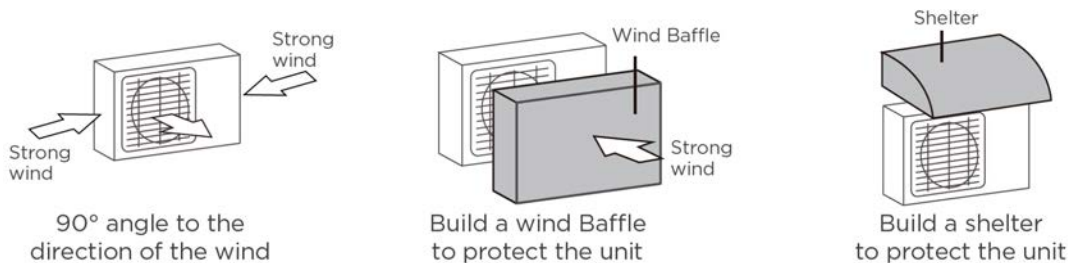
Install the unit so that the air outlet fan is at a 90° angle to the direction of the wind. If needed, build a barrier in front of the unit to protect it from extremely heavy winds.

If the unit is frequently exposed to heavy rain or snow:

Build a shelter above the unit to protect it from the rain or snow. Be careful not to obstruct air flow around the unit.

If the unit is frequently exposed to salty air (seaside):

Use outdoor unit that is specially designed to resist corrosion.



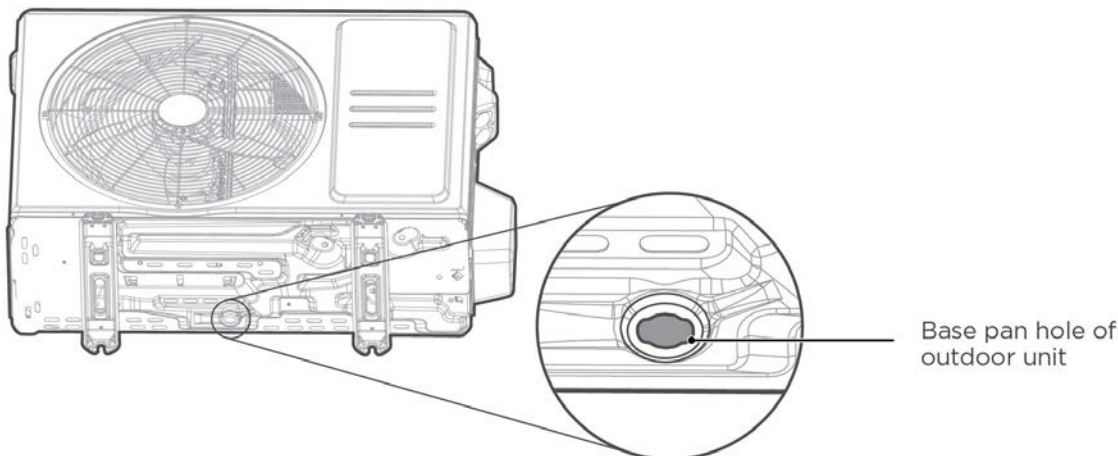
DO NOT install the unit in the following locations:

- Near an obstacle that will block air inlets & outlets.
- Near animals or plants that will be harmed by hot air discharge.
- Near a public street, crowded areas, or where noise from the unit will disturb others.
- Near any source of combustible gas.
- In a location exposed to excessive amounts of salty air.
- In a location exposed to large amounts of dust.

4.3 Drain Joint Installation

NOTE: PRIOR TO INSTALLATION

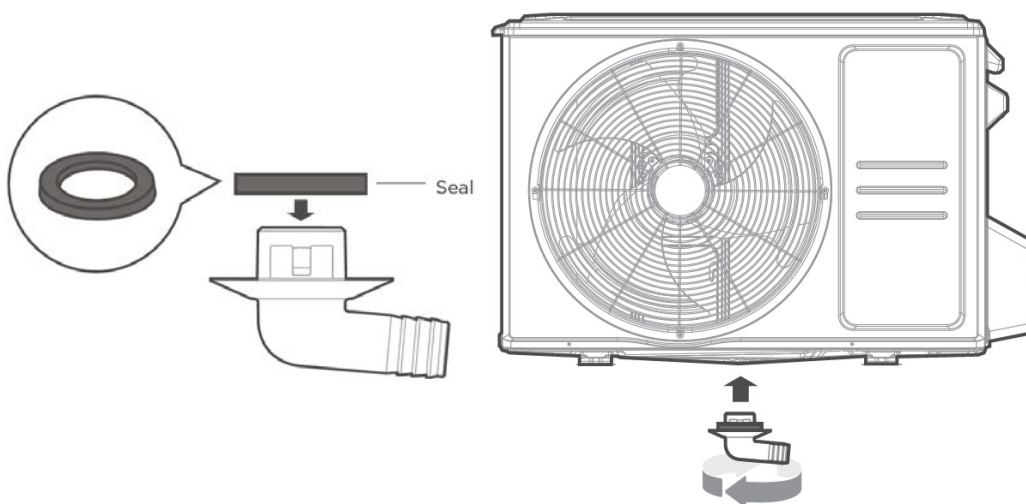
Before bolting the outdoor unit in place, you must install the drain joint at the bottom of the unit. For the units with base pan built-in with multiple holes for proper draining during defrost, the drain joint does not need to be installed.



Step 1:

Find the base pan hole on the outdoor unit.

4 OUTDOOR UNIT INSTALLATION



Step 2:

- Fit the rubber seal on the end of the drain joint that will connect to the outdoor unit.
- Insert the drain joint into the hole in the base pan of the unit.
- Connect a drain hose extension (not included) to the drain joint to redirect water from the unit during heating mode.

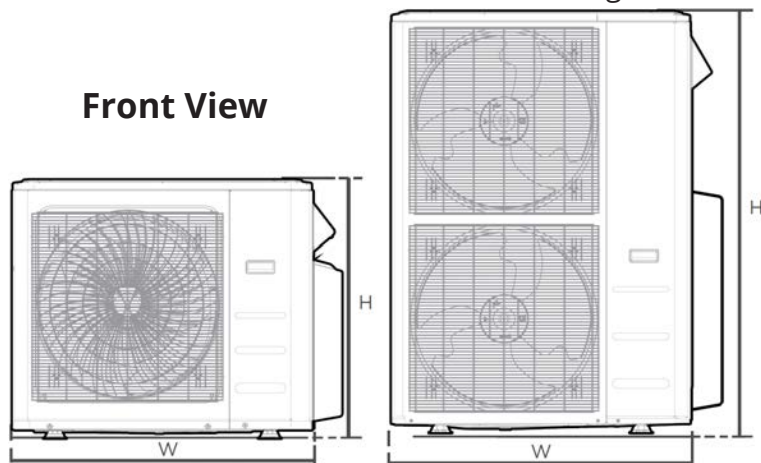
NOTE: In cold climates, ensure that the drain hose is as vertical as possible to ensure swift water drainage. If water drains too slowly, it can freeze in the hose and flood the unit.

4.4 Anchor Outdoor Unit

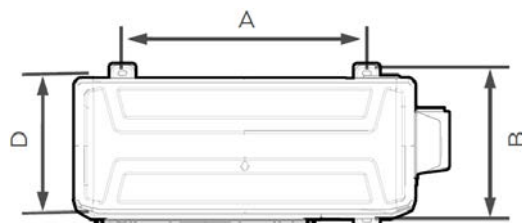
! WARNING

When drilling into concrete, eye protection is recommended at all times.

- The outdoor unit can be anchored to the ground or to a wall-mounted bracket with bolts (M10). Prepare the installation base on the unit according to the dimensions below.
- The following is a list of different outdoor unit sizes and the distance between their mounting feet. Prepare the installation base of the unit according to the dimensions below.



Top View



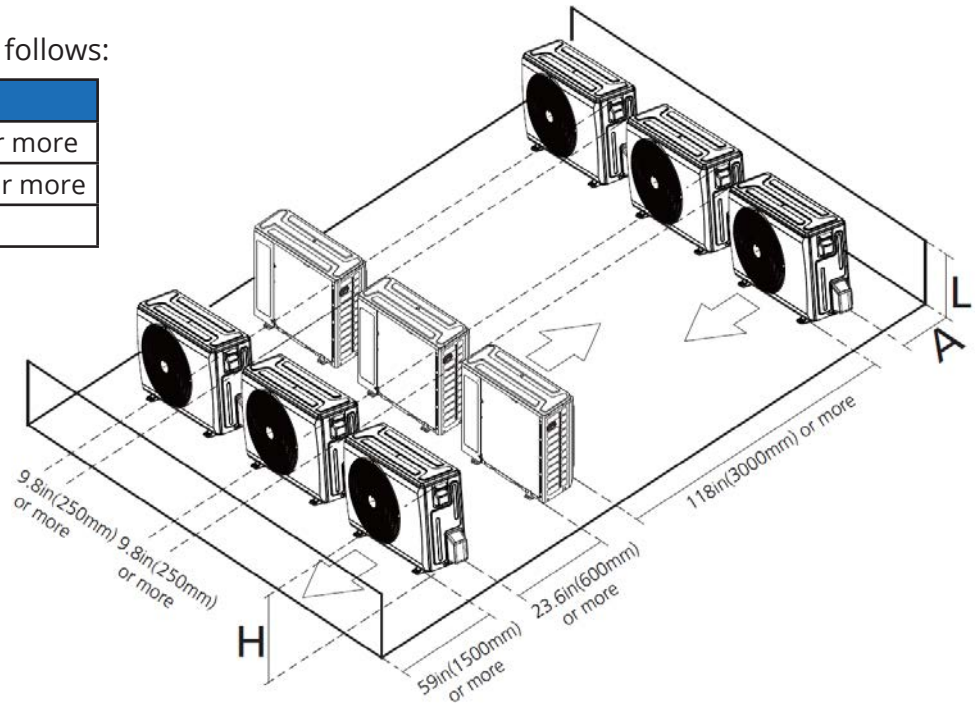
Outdoor Unit Model	Outdoor Unit Dimensions W x H x D	Mounting Dimensions	
		Distance A	Distance B
MULTI3-18HP230C-O	35.0in x 26.5in x 13.5in (890mm x 673mm x 342mm)	26.1in (663mm)	13.9in (354mm)
MULTI4-27HP230C-O	37.2in x 31.9in x 16.14in (946mm x 810mm x 410mm)	26.5in (673mm)	15.87in (403mm)
MULTI5-36HP230C-O			
MULTI6-48HP230C-O	37.5in x 52.5in x 16.34in (952mm x 1333mm x 415mm)	24.96in (634mm)	15.9in (404mm)

4 OUTDOOR UNIT INSTALLATION

Rows of Series Installation

The relations between H, A, and L are as follows:

	L	A
$L \leq H$	$L \leq 1/2H$	9.8in (250mm) or more
	$1/2H < L \leq H$	11.8in (300mm) or more
$L > H$	Cannot be installed	



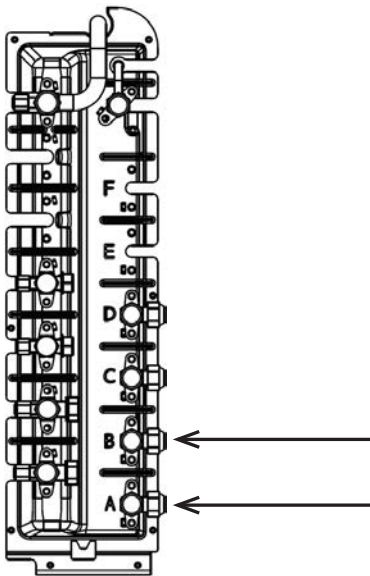
4.5 Drill Wall Hole

You must drill a hole in the wall for the refrigerant piping and the signal cable that will connect the indoor and outdoor units.

1. Determine the location of the wall hole based on the location of the outdoor unit.
2. Using a 2.5in (65mm) core drill, drill a hole in the wall. **NOTE: When drilling the wall hole, make sure to avoid wires, plumbing, and other sensitive components.**
3. Place the protective wall cuff in the hole. This protects the edges of the hole and helps seal it when you finish the installation process.

For Maximum Performance:

If you are connecting a 24K or 36K indoor unit, utilize the "A" port demonstrated on the image below. If you are connecting two 24K or 36K indoor units, utilize the "A" and "B" ports demonstrated on the image below.



The connection ports on the outdoor condenser are labeled A, B, C, D, E, etc. The capacities of the air handlers you use will determine which ports they should be connected to. The largest capacity air handler should be connected to the "A" port. Then, the next largest capacity air handler should be connected to the "B" port and so on. To distinguish the connectors to be connected to the indoor units and outdoor unit, the refrigerant pipe connectors have been labeled "A", "B", "C", "D", and "E". Ensure the marks on the connectors match the indoor units and outdoor unit respectively during connection.

4.6 Refrigerant Connection Instructions

When connecting refrigerant piping, do not let substances or gases other than the specified refrigerant enter the unit. The presence of other gases or substances will lower the unit's capacity, and can cause abnormally high pressure in the refrigeration cycle. This can cause explosion and injury.

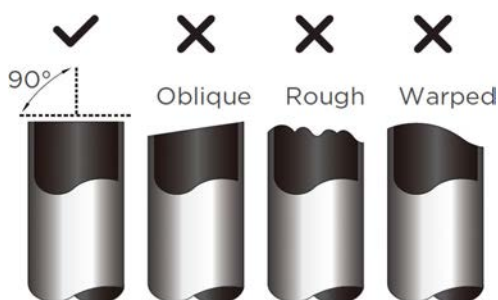
! CAUTION

- The branching pipe must be installed horizontally. An angle of more than 10° may cause malfunction.
- DO NOT install the connecting pipe until both indoor and outdoor units have been installed.
- Insulate both the gas and liquid piping to prevent condensation.

Step 1: Cut Pipes

When preparing refrigerant pipes, take extra care to cut and flare them properly. This will ensure efficient operation and minimize the need for future maintenance.

1. Measure the distance between indoor and outdoor units.
2. Using a pipe cutter, cut the pipe a little longer than the measured distance.
3. Make sure that the pipe is cut at a perfect 90° angle.



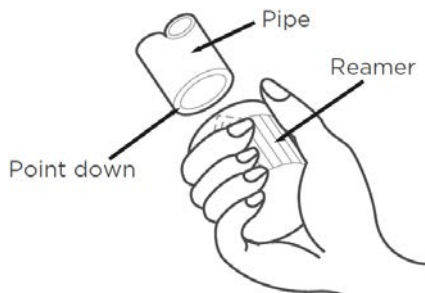
DO NOT DEFORM PIPE WHILE CUTTING

Take extra precautions to not damage or deform the pipe while cutting. This will drastically reduce the heating efficiency of the unit.

Step 2: Remove Burrs

Burrs can affect the air-tight seal of refrigerant piping connection. They must be completely removed.

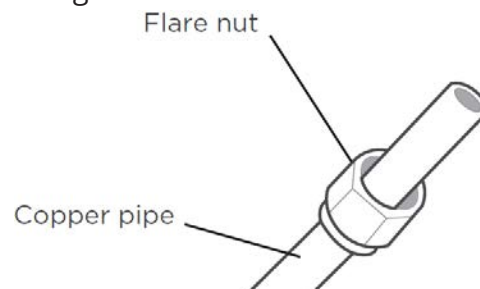
1. Hold the pipe at a downward angle to prevent burrs from falling into the pipe.
2. Using a reamer or deburring tool, remove all burrs from the cut section of the pipe.



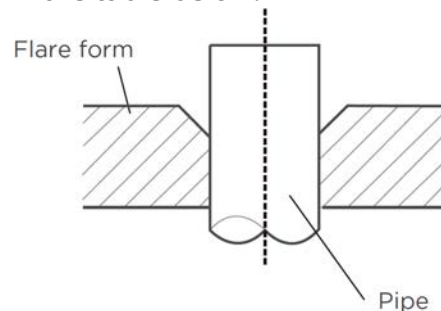
Step 3: Flare Pipe Ends

Proper flaring is essential to achieve an airtight seal.

1. After removing burrs from the cut pipe, seal the ends with PVC tape to prevent foreign materials from entering the pipe.
2. Sheath the pipe with insulating material.
3. Place flare nuts on both ends of the pipe. Make sure they are facing in the right direction. **Note:** You can not put them on or change their direction after flaring.



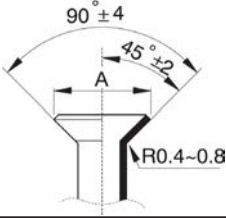
4. When ready to perform flaring work, remove PVC tape from the ends of the pipe.
5. Clamp flare form on the end of the pipe. The end of the pipe must extend beyond the edge of the flare form in accordance with the dimensions shown in the table below.



6. Place flaring tool onto the form.
7. Turn handle of the flaring tool clockwise until the pipe is fully flared.
8. Remove the flaring tool and flare form, then inspect the end of the pipe for cracks and even flaring.

4 OUTDOOR UNIT INSTALLATION

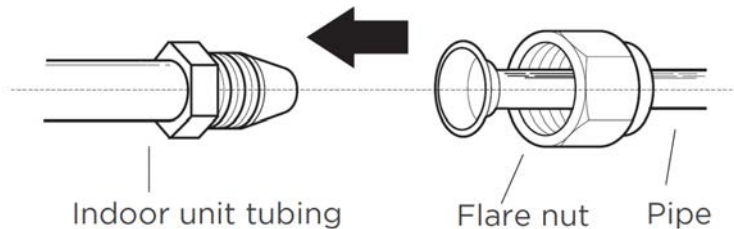
Piping Extension Beyond Flare Form

Pipe Gauge	Tightening Torque	Flare Dimension (A)
Ø1/4in (Ø6.35mm)	18~20N.m (180~200kgf.cm)	0.33~0.34in (8.4~8.7mm)
Ø3/8in (Ø9.52mm)	32~39N.m (320~390kgf.cm)	0.52~0.53in (13.2~13.5mm)
Ø1/2in (Ø12.7mm)	49~59N.m (490~590kgf.cm)	0.64~0.65in (16.2~16.5mm)
Ø5/8in (Ø16mm)	57~71N.m (570~710kgf.cm)	0.76~0.78in (19.2~19.7mm)
Flare Shape		
		

Step 4: Connect Pipes

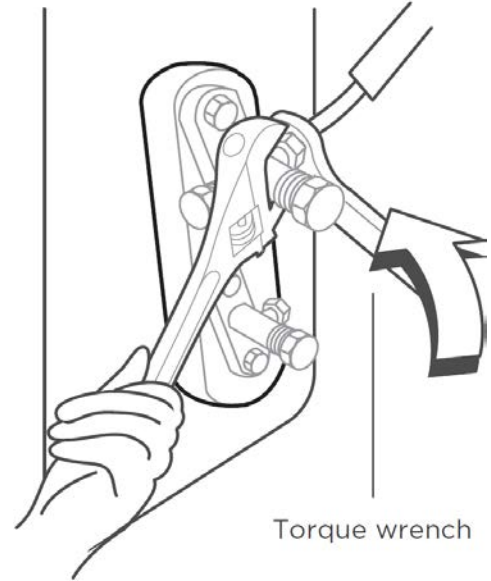
Connect the copper pipes to the indoor unit first, then connect it to the outdoor unit. You should first connect the low-pressure pipe, then the high-pressure pipe.

- When connecting the flare nuts, apply a thin coat of refrigeration oil to the flared ends of the pipes.
- Align the center of the two pipes that you will connect.



- Tighten the flare nut snugly by hand.
- Using a wrench, grip the nut on the unit tubing.
- While firmly gripping the nut, use a torque wrench to tighten the flare nut according to the torque values in above tables.

NOTE: Use both a spanner and a torque wrench when connecting or disconnecting pipes to/from the unit.



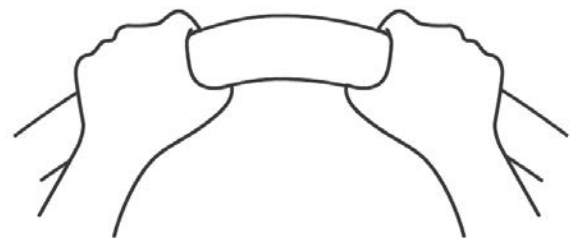
! CAUTION

- Be sure to wrap insulation around the piping. Direct contact with the bare piping may result in burns or frostbite.
- Make sure the pipe is properly connected. Over-tightening may damage the bell mouth and under-tightening may lead to leakage.

NOTICE-MINIMUM BEND RADIUS

Carefully bend the tubing in the middle according to the diagram below. DO NOT bend the tubing more than 90° or more than 3 times.

Use appropriate tool



min-radius 10cm(3.9")

- After connecting the copper pipes to the indoor unit, wrap the power cable, signal cable, and the piping together with binding tape.

NOTICE

DO NOT intertwine or cross the signal cable with any other wiring.

4 OUTDOOR UNIT INSTALLATION

4.7 Wiring Precautions

! WARNING

Before performing any electrical work, read the following warnings.

1. All wiring must comply with local and national electrical codes, regulations, and must be installed by a licensed electrician.
2. All electrical connections must be made according to the electrical connection diagram located on the panels of the indoor and outdoor units.
3. If there is a serious safety issue with the power supply, stop work immediately. Explain your reasoning to the client, and refuse to install the unit until the safety issue has been resolved properly.
4. Power voltage should be within 90-110% of rated voltage. Insufficient power supply can cause malfunction, electrical shock, or fire.
5. Installation of an external surge suppressor at the outdoor disconnect is recommended.
6. If connecting power to fixed wiring, a switch or circuit breaker that disconnects all poles and has a contact separation of at least 1/8in. (3mm) must be incorporated in the fixed wiring. The qualified technician must use an approved circuit breaker or switch.
7. Only connect the unit to an individual branch circuit outlet. Do not connect another appliance to that outlet.
8. Make sure to properly ground the unit.
9. Every wire must be firmly connected. Loose wiring can cause the terminal to overheat, resulting in product malfunction and possible fire.
10. Do not let wires touch or rest against refrigerant tubing, the compressor, or any moving parts within the unit.
11. To avoid getting an electric shock, never touch the electrical components soon after the power supply has been turned off. After turning off the power, always wait 10 minutes or more before you touch the electrical components.
12. Make sure not to cross your electrical wiring with your signal wiring. This may cause distortion, interference, or possibly damage to the circuit boards.
13. No other equipment should be connected to the same power circuit.
14. Connect the outdoor wires before connecting the indoor wires.

! WARNING

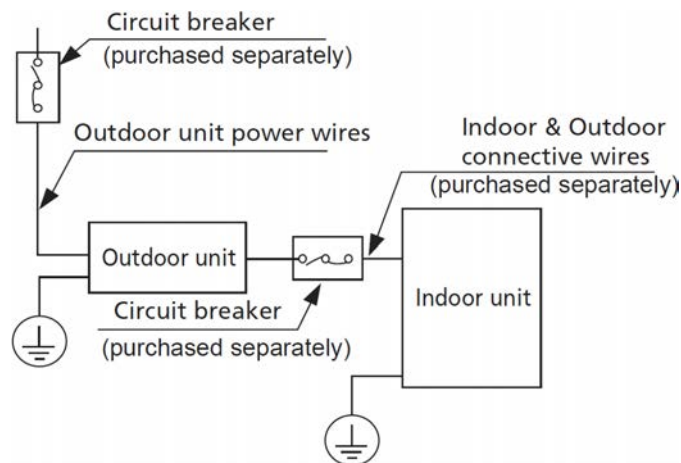
Before performing any electrical or wiring work, turn off the main power to the system.

NOTE ON CIRCUIT BREAKER:

When the maximum current of the unit is more than 16A, a circuit breaker or leakage protection switch with protective device shall be used (purchased separately). When the maximum current of the air conditioner is less than 16A, the power cord of the unit shall be equipped with a plug (purchased separately). In North America, the appliance should be wired according to the NEC and CEC requirements.

NOTE:

The illustrations are for explanatory purposes only. Your unit may be slightly different. The actual shape shall prevail.



4 OUTDOOR UNIT INSTALLATION

4.8 Outdoor Unit Wiring

1. Prepare cable for connection.

a. Choose the right cable size.

The size of the power supply cable, signal cable, fuse, and switch needed is determined by the maximum current of the unit. Refer to the nameplate to choose the right cable, fuse, and switch.

NOTE: In North America, please choose the right cable size according to the Minimum Circuit Ampacity indicated on the nameplate of the unit.

b. Using wire strippers, strip the rubber jacket from both ends of the signal cable to reveal approximately 5.9in. (150mm) of wire.

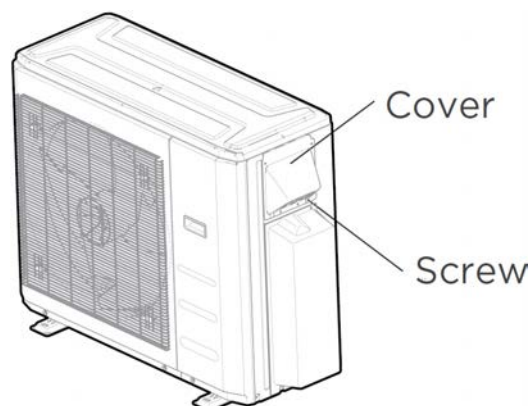
c. Strip the insulation from the ends.

d. Using a wire crimper, crimp u-lugs on the ends.

NOTE:

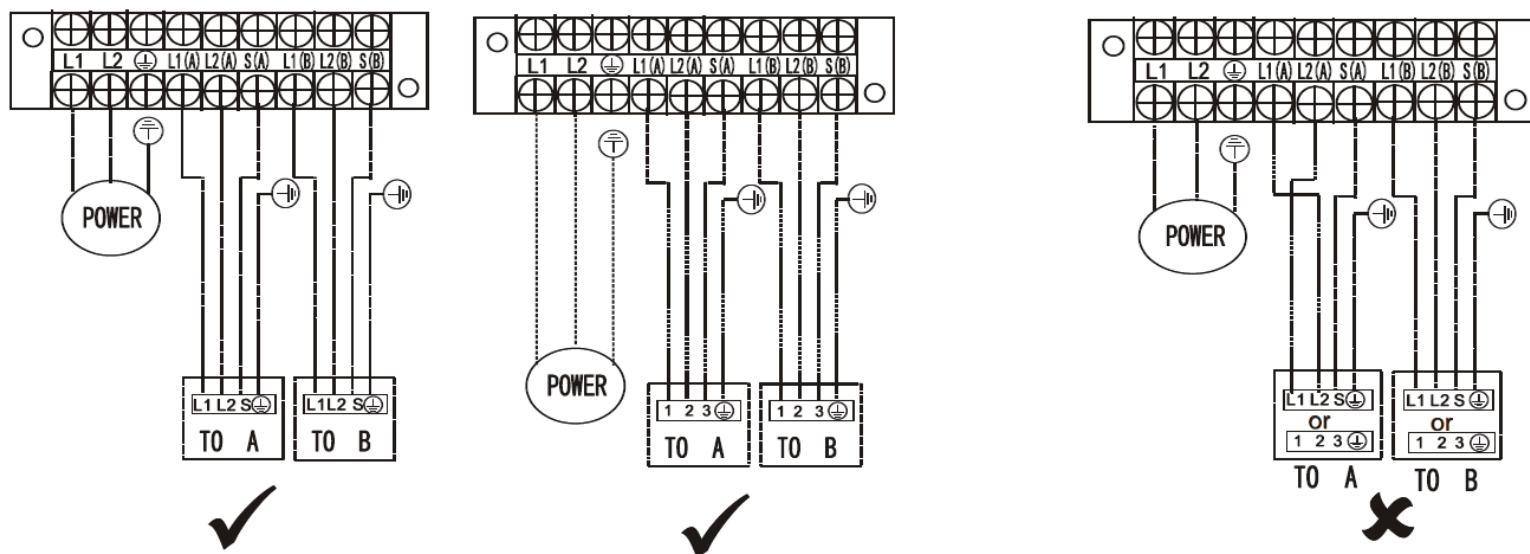
When connecting the wires, strictly follow the wiring diagram found inside the electrical box cover.

2. Remove the electric cover of the outdoor unit. If there is no cover on the outdoor unit, take off the bolts from the maintenance board and remove the protection board.
3. Connect the u-lugs to the terminals. Match the wire colors/labels with the labels of each wire to its corresponding terminal.
4. Clamp down the cable with the cable clamp.
5. Insulate unused wires with electrical tape. Keep them away from any electrical or metal parts.
6. Reinstall the cover of the electric control box.



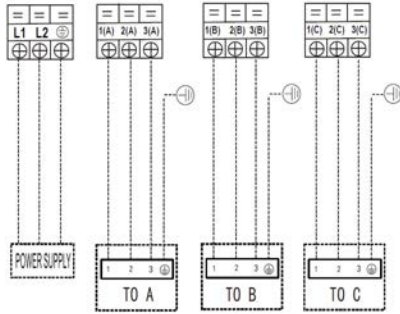
! CAUTION

Connect the connective cables to the terminals as identified, with their matching numbers on the terminal block of the indoor and outdoor units. For example, Terminal L1(A) of the outdoor unit must connect with terminal L1/1 on the indoor unit. The outdoor unit can match different types of indoor units. The numbers on the terminal block of the indoor unit may be slightly different. Please pay special attention when connecting the wires.

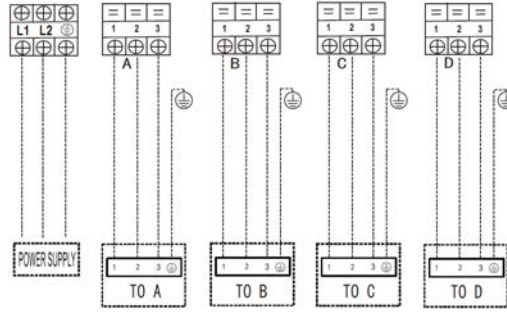


4 OUTDOOR UNIT INSTALLATION

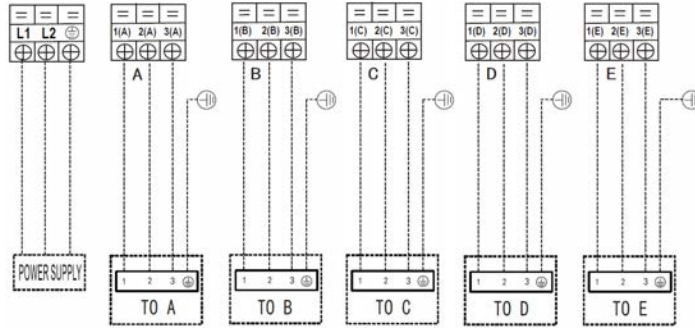
3-Zone Models:



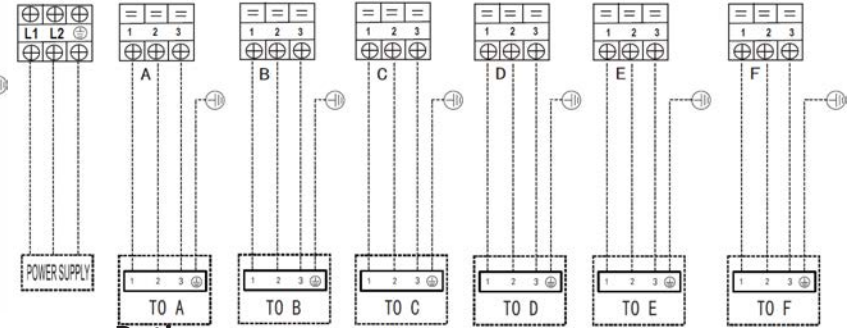
4-Zone Models:



5-Zone Models:



6-Zone Models:



Amperage Rating

Outdoor Unit Model	Capacity (Btu/h)	Power Supply	Amperage		AWG
			MCA	MOP	Min.
MULTI3-18-HP230C-O	18k	208/230V~, 60Hz, 1 Phase	16	20	12
MULTI4-27HP230C-O	27K		23	25	12
MULTI5-36HP230C-O	36K		30.5	35	8
MULTI6-48HP230C-O	48K		34	40	8

* Wire size is a recommendation based on the MCA, always follow local codes and inspector recommendations.

! CAUTION

After confirmation of the above conditions, follow these guidelines when performing wiring:

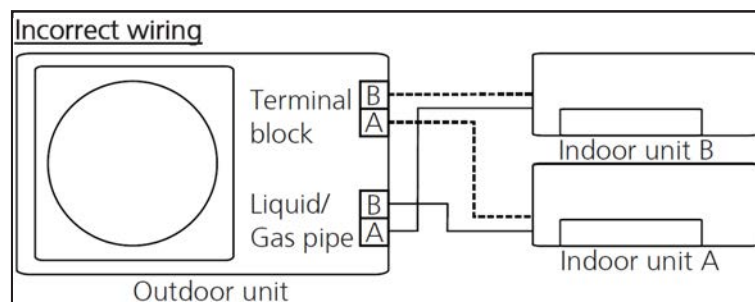
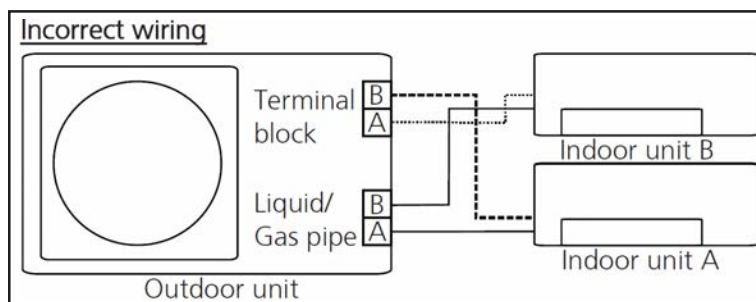
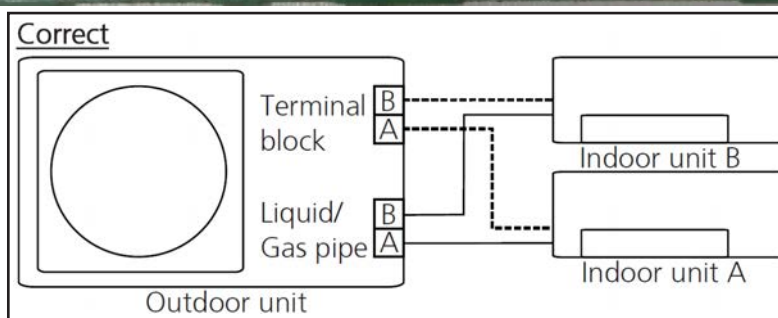
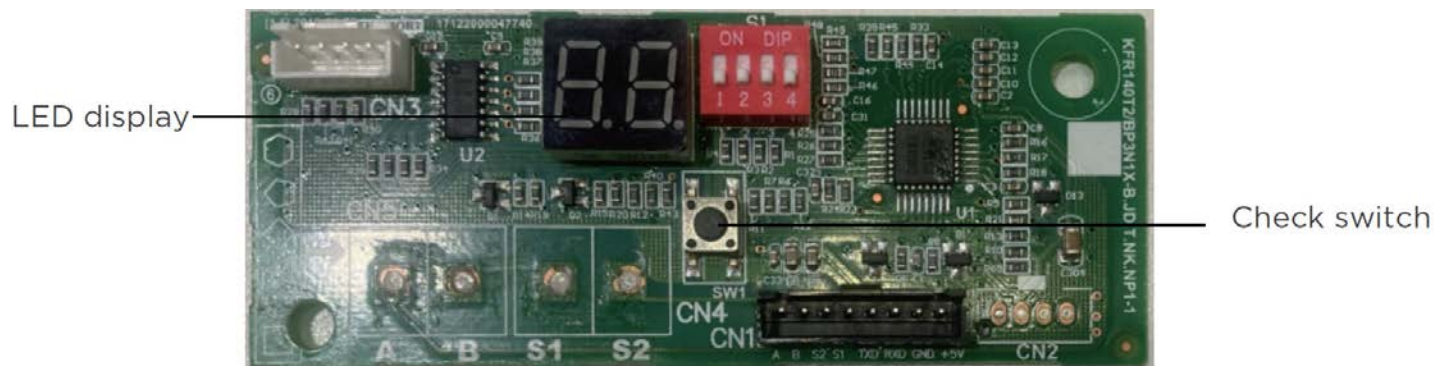
- Always have an individual power circuit specifically for the unit. Always follow the circuit diagram posted on the inside of the control cover.
- Screws fastening the wiring in the casing of electrical fittings may come loose during transportation. Because loose screws may cause wire burn-out, check that the screws are tightly fastened.
- Check the specifications for the power source.
- Confirm that the electrical capacity is sufficient.
- Confirm that starting voltage is maintained at more than 90% of the rated voltage marked on the name plate.
- Confirm that the cable thickness is as specified in the power source specifications.
- Always install an earth leakage circuit breaker in wet or moist areas.
- The following can be caused by a drop in voltage: vibration of a magnetic switch, damaging the contact point, broken fuses, and disturbance of normal functioning.
- Disconnection from a power supply must be incorporated into the fixed wiring. It must have an air gap contact separation of at least 0.12in (3mm) in each active (phase) conductors.
- Before accessing terminals, all supply circuits must be disconnected.

NOTE: To satisfy the EMC compulsory regulations, which is required by the international standard CISPR14-1:2005/ A2:2011 in specific countries or districts. Make sure to apply the correct magnetic rings on your equipment according to the wiring diagram that adhere to the your equipment. Contact the distributor or installer to get further information and purchase magnetic rings.

4 OUTDOOR UNIT INSTALLATION

4.9 Automatic Wiring/Piping Connection

This feature allows for automatic correction of wiring/piping errors. Press the "check switch" on the outdoor unit PCB board for 5 seconds until the LED displays "CE", indicating that this function is working. Approximately 5-10 minutes after the switch is pressed, the "CE" disappears, meaning that the wiring/piping error is corrected and all wiring/piping is properly connected.



How to Activate this Function:

1. Check that outside temperature is above 41°F (5°C). (This function does not work when the outside temperature is not above 41°F (5°C).)
2. Check that the stop valves of the liquid pipe and gas pipe are open.
3. Turn on the breaker and wait at least 2 minutes.
4. Press and hold the check switch on the outdoor PCB board unit until the LED displays "CE".

4 OUTDOOR UNIT INSTALLATION

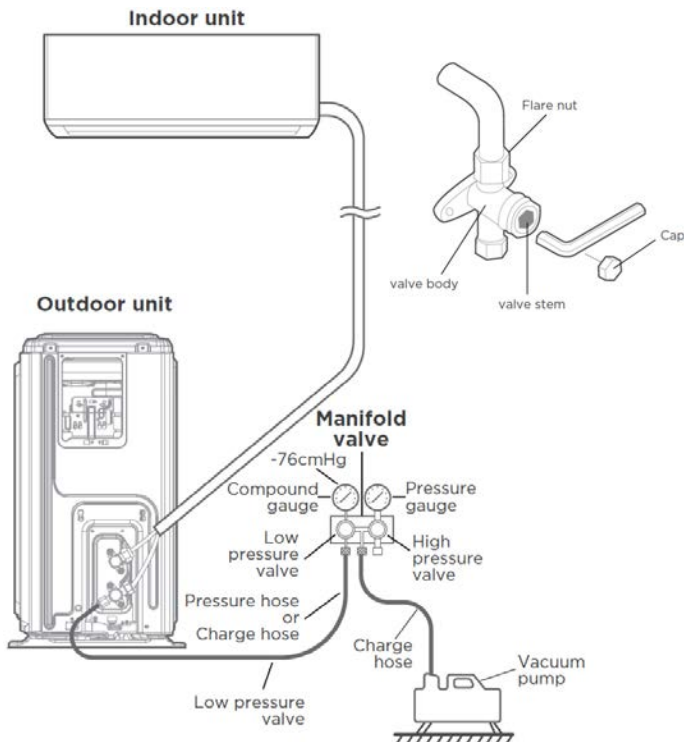
4.10 Evacuation Instructions

Note: Air and foreign matter in the refrigerant circuit can cause abnormal rises in pressure, which can damage the unit, reduce efficiency, and cause injury. Make sure to evacuate the air inside the indoor unit and pipes with vacuum pump. Use a vacuum pump and manifold gauge to evacuate the refrigerant circuit, removing any non-condensable gas and moisture from the system. Evacuation should be performed upon initial installation, and during unit relocation. Incorrect installation due to ignoring instructions will cause serious problems with the unit.

BEFORE PERFORMING EVACUATION

1. Make sure the connective pipes between the indoor and outdoor units are connected properly.
2. Check to ensure all wiring is connected properly.

1. Connect the charge hose of the manifold gauge to service port on the outdoor unit's low pressure valve.
2. Connect another charge hose from the manifold gauge to the vacuum pump.
3. Open the Low Pressure side of the manifold gauge. Keep the High Pressure side closed.
4. Turn on the vacuum pump to evacuate the system.
5. Run the vacuum for at least 15 minutes, or until the vacuum measured using micron gauge to 500 microns.
6. Close the Low Pressure side of the manifold gauge, then turn off the vacuum pump.
7. Wait for 5 minutes, then check that there has been no change in system pressure.
8. If there is a change in system pressure, refer to Gas Leak Check section for information on how to check for leaks.



9. If there is no change in system pressure, unscrew the cap from the packed valve (High Pressure Valve). Insert hexagonal wrench into the packed valve (high pressure valve) and open the valve by turning the wrench in a 1/4 counterclockwise turn. Listen for gas to exit the system, then close the valve after 5 seconds.
10. Watch the Pressure Gauge for one minute to make sure that there is no change in pressure. The pressure gauge should read slightly higher than atmospheric pressure.
11. Remove the charge hose from the service port.
12. Using a hexagonal wrench, fully open both the high pressure and low pressure valves.
13. Tighten valve caps on all three valves (service port, high pressure, low pressure) by hand. You may tighten it further by using a torque wrench if needed.

! CAUTION

- Refrigerant charging must be performed after wiring, vacuuming, and the leak testing.
- DO NOT exceed the maximum allowable quantity of refrigerant or overcharge the system. Doing so can damage the unit or impact its functioning.
- Charging with unsuitable substances may cause explosions or accidents. Ensure that the appropriate refrigerant is used.
- Refrigerant containers must be opened slowly. Always use protective gear when charging the system.
- DO NOT mix refrigerant types.

5 POST-INSTALLATION

Note: Adding Refrigerant

Depending on the length of connective piping or the pressure of the evacuated system, you may need to add refrigerant. Refer to the table below for refrigerant amounts to be added:

Additional Refrigerant Per Pipe Length

Connective Pipe Length (m)	Air Purging Method	Additional Refrigerant	
< Standard Pipe Length	Vacuum Pump	N/A	
> Standard Pipe Length	Vacuum Pump	Liquid Side: Ø1/4in (Ø6.35mm) R454B: (Total pipe length-standard length*N) x15g/m (Total pipe length-standard length*N) x0.16oz/ft	Liquid Side: Ø3/8in (Ø9.52mm) R454B: (Total pipe length-standard length*N) x30g/m (Total pipe length-standard length*N) x0.32oz/ft

Note:

- The standard pipe length for each indoor unit is 24.6ft/7.5m.
- N=3 for 3-zone models, N=4 for 4-zone models, N=5 for 5-zone models, N=6 for 6-zone models.
- Additional 17.6oz (0.5kg) refrigerant shall be added when AHU units are used in the system.

5.1 Electrical & Gas Leak Checks

! WARNING-RISK OF ELECTRIC SHOCK

All wiring must comply with local and national electrical codes and must be installed by a licensed electrician.

Electrical Safety Checks

After installation, confirm that all electrical wiring is installed in accordance with local and national regulations, and according to the installation manual.

Gas Leak Checks

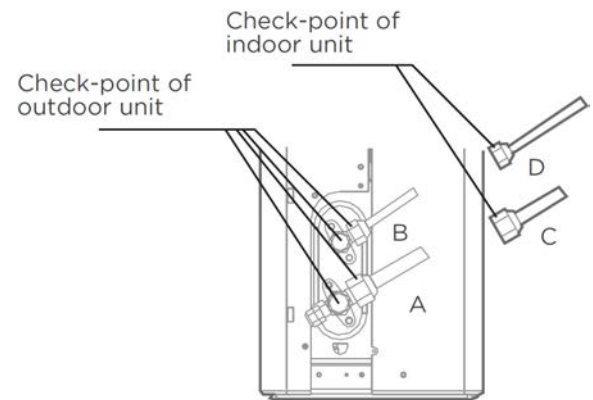
There are two different methods to check for gas leaks.

Soap & Water Method:

Using a soft brush, apply soapy water or liquid detergent to all pipe connection points on the indoor unit and outdoor unit. The presence of bubbles indicates a leak.

Leak Detector Method:

If using a leak detector, refer to the device's operation manual for proper usage instructions.



A: Low Pressure Stop Valve
B: High Pressure Stop Valve
C & D: Indoor Unit Flare Nuts

AFTER PERFORMING GAS LEAK CHECKS: After confirming that all of the pipe connection points do not leak, replace the valve cover on the outside unit.

5.2 Test Run

Before Test Run

A test run must be performed after the entire system has been completely installed. Complete and confirm the list of checks before performing a test run.

Before Test Run Checkpoints
The indoor & Outdoor units are properly installed.
Piping and wiring are properly connected.
No obstacles near the inlet and outlet of the unit that might cause poor performance or product malfunction.
The refrigeration system does not leak.
Drainage system is unimpeded and draining to a safe location.
The heating insulation is properly installed.
The grounding wires are properly connected.
The length of the piping and additional refrigerant stow capacity have been recorded.
The power voltage is the correct voltage for the unit.
The wall hole sleeve is packed airtight.
Ensure all connection valves and King valves on the outdoor condenser are fully opened.

Test Run Instructions

You should perform the Test Run for at least 30 minutes.

1. Open both the liquid and gas stop valves.
2. Connect power to the unit. Then, turn on the main power switch and allow the unit to warm up.
3. Press the **ON/OFF** button on the remote control to turn on the system.
4. Press the **Mode** button to scroll through the following functions, one at a time:
 - **COOL** - Select the lowest possible temperature
 - **HEAT** - Select the highest possible temperature
5. Let each function run for 5 minutes and then perform the checks listed in the tables below.

Indoor Unit Checks:
Ensure the remote control and its buttons work properly.
Ensure the louvers move properly and can be changed using the remote control.
Double-check to see if the room temperature is being registered correctly.
Ensure the indicators on the remote control and the display panel on the indoor unit work properly.
Ensure the manual buttons on the indoor unit works properly.
Check to see that the drainage system is unimpeded and draining smoothly.
Ensure there is no vibration or abnormal noise during operation.

Outdoor Unit Checks:
Check to see if the refrigeration system is leaking.
Make sure there is no vibration or abnormal noise during operation.
Ensure the wind, noise, and water generated by the unit do not disturb your neighbors or pose a safety hazard.

NOTE: If the unit malfunctions or does not operate according to your expectations, refer to the troubleshooting section of this manual before calling customer service.

5.3 Care & Maintenance

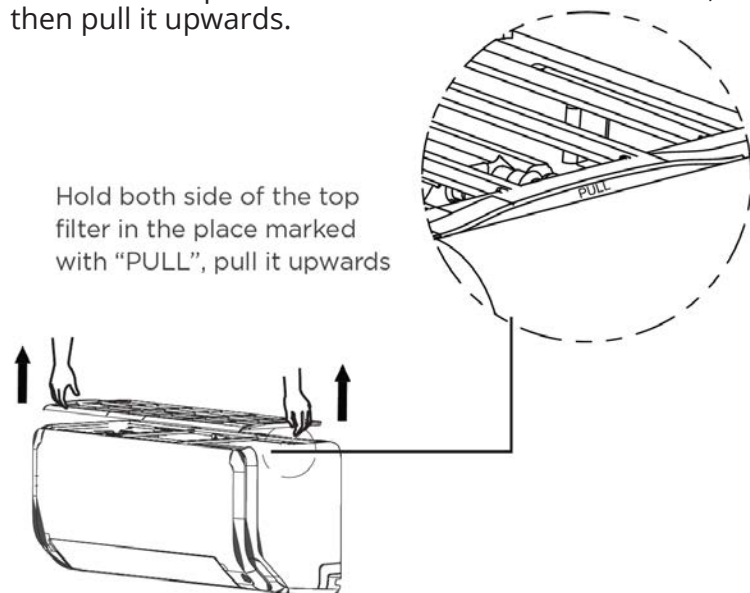
! CAUTION

- Clean the filter on your unit every two weeks. Failing to do so can lead to reduced cooling efficiency or damage to your health.
- Always turn off the system and disconnect its power supply before cleaning or maintenance.
- Do not touch the filter within 10 minutes after turning off the unit.
- Only use a soft, dry cloth to wipe the unit clean. You can use a cloth soaked in warm water to wipe it clean if the unit is especially dirty.
- Do not use chemicals or chemically treated cloths to clean the unit.
- Do not use benzene, paint thinner, polishing powder, or other solvents to clean the unit. They can cause the plastic surface to crack or deform.
- Do not use water hotter than 104°F (40°C) to clean the front panel. This can cause the panel to deform or become discolored.

Cleaning the Air Filter

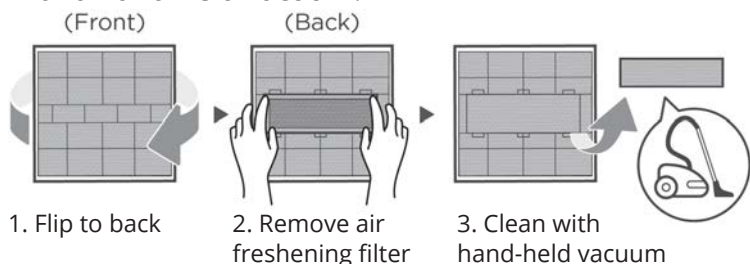
Step 1:

The air filter is on the top of the indoor unit. Hold both sides of the top filter in the location marked "PULL", then pull it upwards.



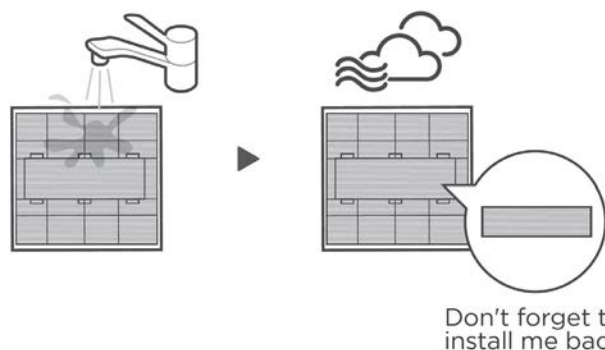
Step 2:

If your filter has a small air freshening filter, unclip it from the larger filter. Clean this air freshening filter with a hand-held vacuum.



Step 3:

Clean the large air filter with warm, soapy water. Be sure to use a mild detergent. Rinse the filter with fresh water, then shake off excess water. Dry it in a cool, dry place, and refrain from exposing it to direct sunlight.



Step 4:

When dry, re-clip the air freshening filter to the larger filter, then slide it back into the indoor unit. Finally, close the front panel of the indoor unit.



! CAUTION

- Before changing the filter or cleaning, turn off the unit and disconnect its power supply.
- When removing the filter, do not touch metal parts in the unit. The metal edges are sharp.
- Do not use water to clean the inside of the indoor unit. This can destroy insulation and cause electrical shock.
- Do not expose the filter to direct sunlight when drying. This can shrink the filter.
- Any maintenance and cleaning of the outdoor unit should be performed by an authorized dealer or a licensed service provider.
- Any unit repairs should be performed by an authorized dealer or service provider.

Maintaining the Unit

Long Periods of Non-Use

If you plan not to use the unit for an extended period of time, do the following:



Clean all filters.



Turn on fan function until unit dries out completely.



Turn off the unit & disconnect the power.



Remove batteries from remote control.

Pre-Season Inspection

After long periods of non-use, or before periods of frequent use, do the following:



Check for damaged wires.



Clean all filters.



Check for leaks.



Replace batteries.



Ensure nothing is blocking the air inlets & outlets.



5 POST-INSTALLATION

5.4 Troubleshooting

! CAUTION

If any of the following conditions occur, turn off the unit immediately.

- The wire is damaged or abnormally warm.
- You smell a burning odor.
- The unit emits loud or abnormal sounds.
- A power fuse blows or the circuit breaker frequently trips.
- Water or other objects fall into or out of the unit.

DO NOT ATTEMPT TO FIX THESE YOURSELF! CONTACT AN AUTHORIZED SERVICE PROVIDER IMMEDIATELY.

Issue	Possible Causes
Unit does not turn on when pressing ON/OFF button.	The unit has a 3-minute protection feature that prevents the unit from overloading. The unit cannot be restarted within 3 minutes of being turned off.
	If the Operation light and PRE-DEF (Pre-heating/defrost) indicators are illuminated, the outdoor temperature is too cold and the unit's anti-cold wind is activated in order to defrost the unit.
The unit changes from COOL/HEAT mode to FAN mode.	The unit may change its setting to prevent frost from forming on the unit. Once the temperature increases, the unit will start operating in the previously selected mode again. The set temperature has been reached, at which point the unit turns off the compressor. The unit will continue operating when the temperature fluctuates again.
The indoor unit emits white mist.	In humid regions, a large temperature difference between the room's air and the conditioned air can cause white mist.
Both the indoor and outdoor units emit white mist.	When the unit restarts in heat mode after defrosting, white mist may be emitted due to moisture generated from the defrosting process.
The indoor unit makes noises.	A rushing air sound may occur when the louver resets its position.
	A squeaking sound may occur after running the unit in heat mode due to expansion and contraction of the unit's plastic parts.
Both the indoor unit and the outdoor unit make noises.	Low hissing sound during operation: this is normal and is caused by refrigerant gas flowing through both indoor and outdoor units.
	Low hissing sound when the system starts, has just stopped running, or is defrosting: This noise is normal and is caused by the refrigerant gas stopping or changing direction.
	Squeaking sound: Normal expansion and contraction of plastic and metal parts caused by temperature changes during operation can cause squeaking noises.
The outdoor unit makes noises.	The unit will make different sounds based on its current operating mode.
Dust is emitted from either the indoor or outdoor unit.	The unit may accumulate dust during extended periods of non-use, which will be emitted when the unit is turned on. This can be mitigated by covering the unit during long periods of inactivity.
The unit emits a bad odor.	The unit may absorb odors from the environment (such as furniture, cooking, cigarettes, etc.) which will be emitted during operation.
	The unit's filters have become moldy and should be cleaned.
The fan of the outdoor unit does not operate.	During operation, the fan speed is controlled to optimize product operation.
Operation is erratic, unpredictable, or the unit is unresponsive.	Interference from cell phone towers and remote boosters may cause the unit to malfunction. In this case, try the following: • Disconnect the power, then reconnect. • Press the ON/OFF button on the remote control to restart operation.

Note: If a problem persists, contact a local dealer or MRCOOL® customer service. Provide them with a detailed description of the unit malfunction as well as your model number.

! CAUTION

Before contacting a repair company, check the following points.

Note: If the problem persists after performing the checks and diagnostics above, turn off the unit immediately and contact MRCOOL®.

Problem	Possible Causes	Solution
Poor Cooling Performance	Temperature setting may be higher than ambient room temperature.	Lower the temperature setting.
	The heat exchanger on the indoor or outdoor unit is dirty.	Use the Clean function by remote control to clean the affected heat exchanger.
	The air filter is dirty.	Remove the filter and clean it according to instructions.
	The air inlet or outlet of either unit is blocked.	Turn the unit off, remove the obstruction and turn it back on.
	Doors and windows are open.	Make sure that all doors and windows are closed while operating the unit.
	Excessive heat is generated by sunlight.	Close windows and curtains during periods of high heat or bright sunshine.
	Too many sources of heat in the room (people, computers, electronics, etc.)	Reduce the amount of heat sources.
	Low refrigerant due to leak or long-term use.	Check for leaks, re-seal if necessary, and top off refrigerant.
	Silence function is activated (optional function)	Silence function can lower product performance by reducing operating frequency. Turn off Silence function.
The unit is not working	Power failure	Wait for the power to be restored.
	The power is turned off.	Turn on the power.
	The fuse is burned out.	Call a technician to replace the fuse.
	Remote control batteries are dead.	Replace batteries
	The unit's 3-minute protection has been activated.	Wait three minutes after restarting the unit.
	Timer is activated.	Turn timer off.
The unit starts and stops frequently.	System circuit is blocked	Determine which circuit is blocked and replace the malfunctioning piece of equipment.
	There's too much or too little refrigerant in the system.	Call a technician to check for leaks and recharge the system with refrigerant.
	Incompressible gas or moisture has entered the system.	Call a technician to evacuate and recharge the system with refrigerant.
	The compressor is broken.	Call a technician to replace the compressor.
	The voltage is too high or too low.	Install a manostat to regulate the voltage.
Poor heating performance	The outdoor temperature is lower than 44.5°F (7°C).	Check for leaks and recharge the system with refrigerant.
	Cold air is entering through doors and windows.	Make sure that all doors and windows are closed during use.
	Low refrigerant due to leak or long-term use.	Call technician to check for leaks, re-seal if necessary, and top off refrigerant.
Indicator lamps continue flashing	The unit may stop operation or continue to run safely. If the indicator lamps continue to flash or error codes appear, wait for about 10 minutes. The problem may resolve itself. If not, disconnect the power, then connect it again. Turn the unit on. If the problem persists, disconnect the power and contact MRCOOL®.	
Error code appears and begins with the following letters in the display area: <i>E(x), P(x), F(x), EH(xx), EL(xx), EC(xx), PH(xx), PL(xx), PC(xx)</i>		

5 POST-INSTALLATION

5.5 Error Display (Indoor Unit)

When the indoor unit encounters a recognized error, an error code will be displayed; the error codes are described in the tables below:

Display	Error Information	Solution
dF	Defrost	Normal Display, not error code
CL	Active Clean	
FP	Heating in Room Temperature under 46.4°F (8°C)	
FC	Forced Cooling	
AP	AP Mode of Wifi Connection	
CP	Remote Switched Off	
EH 00	IDU EEPROM Malfunction	TS01-IDU
EH 0A	Indoor EEPROM Parameter Error	TS01-IDU
EL 01	IDU & ODU Communication Error	TS02-S-INV
EH 02	Zero-Crossing Signal Detection Error	TS03
EH 03	IDU Fan Speed Out of Control	TS04-S-IDU
EC 51	ODU EEPROM Parameter Error	TS01-ODU
EC 52	ODU Coil Temperature Sensor (T3) Error	TS05-ODU
EC 53	ODU Ambient Temperature Sensor (T4) Error	TS05-ODU
EC 54	Comp. Discharge Temperature Sensor (TP) Error	TS05-ODU
EC 56	IDU Coil Outlet Temperature Sensor (T2B) Error (Multi-Zone)	TS05-ODU
EH 60	IDU Room Temperature Sensor (T1) Error	TS05-IDU
EH 61	IDU Pipe Temperature (T2) Sensor Error	TS05-IDU
EC 07	ODU Fan Speed Out of Control	TS04-ODU
EH 0b	IDU Main Control Board & Display Board Communication Error	TS07
FH CC	Refrigerant Sensor Error	TS05-N10
EH C1	Refrigerant Sensor Detects Leakage	TS06-N10
EH C2	Refrigerant Sensor is Out of Range & Leakage is Detected	TS06-N10
EH C3	Refrigerant Sensor is Out of Range	TS05-N10
EC C1	Other IDU Refrigerant Sensor Detects Leakage (Multi-Zone)	TS06-N10
EL 0C	System Lacks Refrigerant	TS06-INV
PC 00	ODU IPM Module Protection	TS09-S
PC 01	ODU Voltage Protection	TS10-S
PC 02	Compressor Top (or IPM) Temperature Protection	TS11-S-INV
PC 04	Inverter Compressor Drive Error	TS12-S
PC 03	Pressure Protection (low or high pressure)	TS26-INV
PC 0L	Low Ambient Temperature Protection	LP
----	IDUs Mode Conflict (Multi-Zone)	TS14

For other errors:

The display board may show a garbled code or a code undefined by the service manual. Ensure that this code is not a temperature reading.

Troubleshooting:

Test the unit using the remote control. If the unit does not respond to the remote, the indoor PCB requires replacement. If the unit responds, the display board requires replacement.

5.6 Error Display (Outdoor Unit with Auxiliary Board)

Display	Error Information	Solution
dF	Defrost	Normal display, not error code
FE	Forced cooling	
EE 51	ODU EEPROM Parameter Error	TS12
EL 01	IDU & ODU Communication Error	TS13
PE 40	Communication Error between Outdoor Main Chip & Compressor-Driven Chip	TS26
PE 08	ODU Overcurrent Protection	TS19
PE 10	ODU Low AC Voltage Protection	TS23
PE 11	ODU Main Control Board DC Bus High Voltage Protection	TS23
PE 12	ODU Main Control Board DC Bus Low Voltage Protection/341 MCE Error	TS23
PE 00	IPM module protection	TS21
PE 0F	PFC Module Protection	TS27
EE 71	Over Current Failure of ODU DC Fan Motor	TS16
EE 72	Lack Phase Failure of ODU DC Fan Motor	TS23
EE 07	ODU Fan Speed Out of Control	TS16
PE 43	ODU Compressor Lack Phase Protection	TS39
PE 44	ODU Zero Speed Protection	TS19
PE 45	ODU IR Chip Drive Failure	TS40
PE 46	Compressor Speed Out of Control	TS19
PE 49	Compressor Overcurrent Failure	TS19
PE 30	System High Pressure Protection	TS34
PE 31	System Low Pressure Protection	TS36
PE 0A	High Temperature Protection of Condenser	TS30
PE 06	Discharge Temperature Protection of Compressor	TS29
LE 06	High Temperature Protection of Inverter Module (IPM)	TS32
PE 02	Compressor Top (or IPM) Temperature Protection	TS32
EE 52	ODU Coil Temperature Sensor (T3) Error	TS18
EE 53	ODU Ambient Temperature Sensor (T4) Error	TS18
EE 54	Comp. Discharge Temperature Sensor (TP) Error	TS18
EE 50	ODU Temp. Sensor error (T3, T4, TP)	TS18
PE 0L	Low Ambient Temperature Protection	--
EE 55	ODU IPM module temperature sensor malfunction	TS42
EE 56	IDU coil outlet temp. sensor (T2B) error	TS18
EE 57	Refrigerant pipe temperature sensor error	TS18
EE 5A	Failure of enthalpy inlet temperature sensor	TS18
EE 5b	Failure of enthalpy outlet temperature sensor	TS18
EE 5E	Condenser temperature sensor (T3B) failure	TS18
EE 5C	Pressure sensor failure	TS43
EH C1	Refrigerant sensor detects leakage	TS41
PE 13	The AC power is cut off or the AC voltage detection circuit fails	TS44
PE 11	Condensation protection of refrigerant pipe	TS45

5 POST-INSTALLATION

5.7 Quick Maintenance by Error Code

If you do not have the time to test which specific parts are faulty, you can change the required parts according to the error code. You can find the parts to replace by error code in the following table.

Part Requiring Replacement	Error Code											
	EL 01	EC 50	EC 51	EC 52	EC 53	EC 54	EC 55	EC 56	EC 57	EC 5A	EC 5B	EC 5E
Indoor PCB	✓	X	X	X	X	X	X	X	X	X	X	X
Outdoor PCB	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
ODU Coil Temperature Sensor	X	✓	X	✓	X	X	X	X	X	X	X	X
ODU Ambient Temperature Sensor	X	✓	X	X	✓	X	X	X	X	X	X	X
COMP. Discharge Temperature Sensor	X	✓	X	X	X	✓	X	X	X	X	X	X
IPM Module Temperature Sensor	X	X	X	X	X	X	✓	X	X	X	X	X
IDU Coil Outlet Temperature Sensor	X	X	X	X	X	X	X	✓	X	X	X	X
Refrigerant Pipe Temperature Sensor	X	X	X	X	X	X	X	X	✓	X	X	X
Enthalpy Inlet Temperature Sensor	X	X	X	X	X	X	X	X	X	✓	X	X
Enthalpy Outlet Temperature Sensor	X	X	X	X	X	X	X	X	X	X	✓	X
Condenser Temperature Sensor	X	X	X	X	X	X	X	X	X	X	X	✓
Reactor	✓	X	X	X	X	X	X	X	X	X	X	X
IPM Module Board	✓	X	X	X	X	X	X	X	X	X	X	X

Part Requiring Replacement	Error Code									
	EC 5C	EH 01	EC 07/ EC 71	PC 00	PC 01/ PC 10/ PC 11/ PC 12	PC 02	PC 08/ PC 44/ PC 46/ PC 49	PC 13	PC R1	PC 0F
Outdoor PCB	✓	X	✓	✓	✓	✓	✓	✓	✓	✓
Outdoor Fan Motor	X	X	✓	✓	X	X	✓	X	X	X
Reactor or Inductance	X	X	X	✓	✓	X	✓	X	X	✓
Compressor	X	X	X	✓	X	X	X	X	X	X
IPM Module Board	X	X	X	✓	✓	X	✓	X	X	X
Bridge Rectifier	X	X	X	✓	✓	X	✓	X	X	X
Pressure Sensor	✓	X	X	X	X	X	X	X	X	X
PFC Module	X	X	X	X	X	X	X	X	X	✓
Additional Refrigerant	X	✓	X	X	X	X	X	X	X	X
Overload Protector	X	X	X	X	X	✓	X	X	X	X
ODU Ambient Temperature Sensor	X	X	X	X	X	X	X	X	✓	X
Refrigerant Temperature Sensor	X	X	X	X	X	X	X	X	✓	X

Part Requiring Replacement	Error Code							
	PC 40	EC 72	PC 43	PC 45	PC 06	PC 08	PC 30	PC 31
Outdoor PCB	✓	X	✓	✓	✓	✓	✓	✓
Outdoor Fan Motor	X	X	✓	✓	X	X	✓	X
ODU Coil Temperature Sensor	X	X	X	✓	✓	X	✓	X
COMP. Discharge Temperature Sensor	X	X	X	✓	X	X	X	X
Compressor	X	X	X	✓	✓	X	✓	X
IPM Module Board	X	X	X	✓	✓	X	✓	X
Additional Refrigerant	✓	X	X	X	X	X	X	X
Electric Control Box	X	X	X	X	X	X	X	X
High Pressure Switch	X	✓	X	X	X	X	X	X
Low Pressure Switch	X	X	X	X	X	✓	X	X



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



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