



SPLIT-TYPE ROOM AIR CONDITIONER / HEAT PUMP


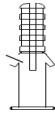







INSTRUCTION MANUAL

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ACCESSORIES

The air conditioning system comes with the following accessories. Use all of the installation parts and accessories to install the air conditioner. Improper installation may result in water leakage, electrical shock and or fire, or cause the equipment to fail.

PARTS NAME	IMAGE	QUANTITY
Mounting plate		1
Clip anchor		5
Mounting plate fixing screw ST3.9X25		5
Remote control		1
Fixing screw for the remote control holder		2
Remote control holder		1
1.5 Volt dry battery		2
Drain Pipe		1
Drain joint		1

SAFETY PRECAUTIONS

The seriousness of potential injuries or damage is classified as follows:

⚠ WARNING

This symbol indicates that failure to follow these instructions could result in death or serious harm.

CAUTION

This symbol indicates that failure to follow these instructions may result in minor injury or harm.

READ ALL SAFETY PRECAUTIONS BEFORE INSTALLATION
Incorrect installation due to ignoring these instructions
may cause serious injury or damage.

NEVER allow children or any unauthorized persons with reduced physical, sensory, or mental abilities to handle this equipment.

INSTALLATION WARNING:

Ask a certified technician to install this air conditioning unit. Inappropriate installation may cause water leakage, electric shock, or fire.
All repairs, maintenance, and relocation of the unit must be performed by an authorized service technician. Inappropriate repairs can lead to serious injury or product failure.

PRODUCT USE WARNING:

If an abnormal situation arises (e.g. burning smell), immediately turn off the unit and the power supply.
Call your dealer for instructions to avoid electric shock, fire, or injury.
Do not insert fingers, rods, or any object into the air inlet or outlet. This may cause injury since the fan may be rotating at high speeds.
Do not use flammable sprays such as hair spray or paint near the unit. This may cause fire or combustion.
Do not operate the air conditioner in places near or around combustible gases. Emitted gas may collect around the unit and cause an explosion.
Do not operate the unit in a wet room (e.g. bathroom, washroom, or laundry room). This can cause electrical shock and cause the product to deteriorate.
Do not expose your body directly to cool air for a prolonged period of time.

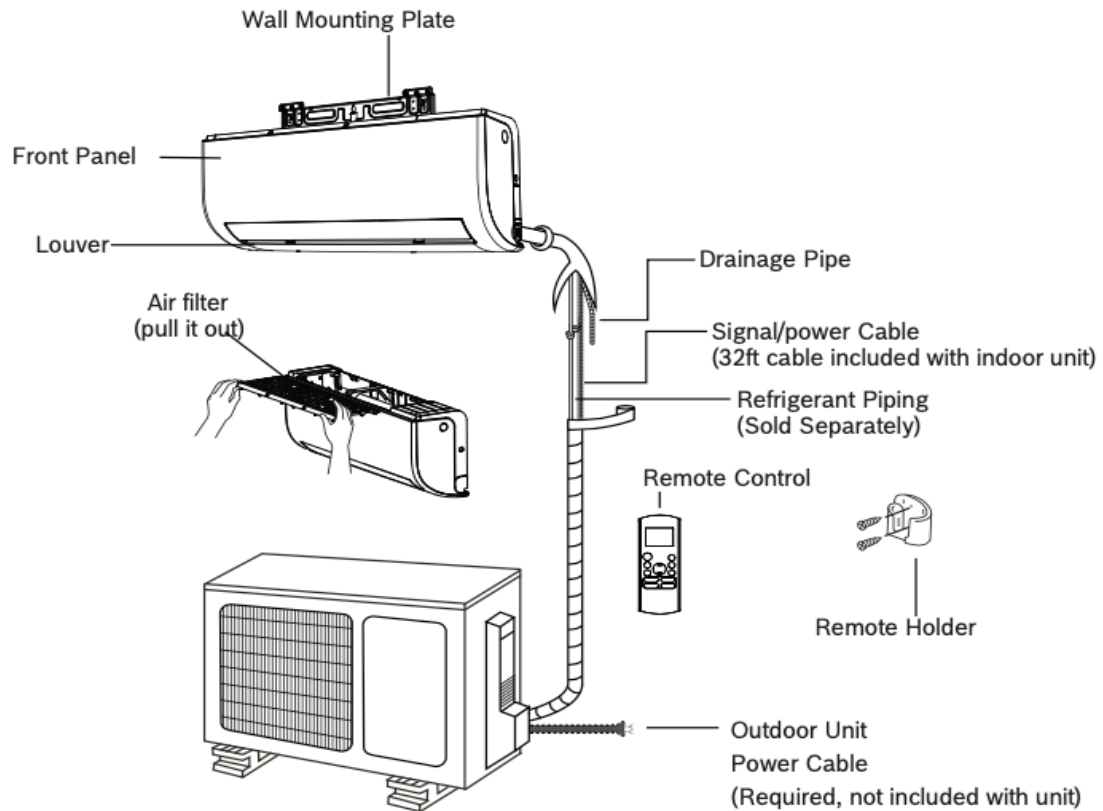
ELECTRICAL WARNING:

Poor electrical connections, poor insulation, and insufficient voltage can cause fire.

CLEANING AND MAINTENANCE WARNING:

Turn off the device and the power supply before cleaning. Failure to do so can cause electrical shock. Do not clean the air conditioner with excessive amounts of water. Do not clean the air conditioner with combustible cleaning agents. Combustible cleaning agents can cause fire or deformation.

PARTS NAMES AND FUNCTIONS



CAUTION

- ▶ If the air conditioner is used together with burners or other heating devices, thoroughly ventilate the room to avoid oxygen deficiency.
- ▶ Turn off the air conditioner and unplug the unit if not in use for a prolonged period of time. Turn off and unplug the unit during storms.
- ▶ Make sure that water condensation can drain unhindered from the unit.
- ▶ Do not operate the air conditioner with wet hands. This may 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.
- ▶ Do not allow the air conditioner to operate for long periods of time with doors or windows open, or if the humidity is very high.

REMOTE CONTROL

SIGNIFICANCE AND OPERATION OF BUTTONS



ON/OFF

Pressing this button on the remote-control will switch the unit to ON or OFF.

TURBO

Pressing this button will activate or deactivate the TURBO function which enables the unit to reach a preset temperature in the shortest time when heating or cooling. This feature is not available in automatic, dehumidification, or fan mode.

ECO

Pressing this button will modulate the speed of the compressor, so that minimal energy is consumed to run the system, while achieving ideal cooling capacity and using less power.

MODE

Pressing this button will select a mode from the following options:

AUTOMATIC COOLING DEHUMIDIFICATION FAN and HEATING in a circular sequence.

The temperature setting in dehumidification mode will remain at 25 degrees Celsius. This temperature setting is not adjustable and will not be displayed on the remote control.

+ Pressing this button will increase set temperature.

- Pressing this button will decrease set temperature.



EXTERNAL PENDULUM WIND

Pressing this button will set the angle in a wind aimed upwards, downwards, or rotate Up and Down in a swinging fashion.



INTERNAL PENDULUM WIND

Pressing this button will set the angle in a wind directed towards the left, the right, or swing LEFT and RIGHT in a perpetual fashion.

TIMER

Pressing this button will initiate the auto-ON or auto-OFF timer. Repeatedly pressing this button will adjust the timer by increments of 1 hr.

FAN

Pressing this button will increase or reduce the fan speed to a setting of LOW, MEDIUM, HIGH or AUTOMATIC.

SLEEP

Pressing this button will activate or cancel the SLEEP function used to maintain the most comfortable temperature while saving energy.

CLEAN

Pressing the TURBO button for 3 seconds will activate the fan to clean and dry the indoor unit.

IFEEL

Pressing the ECO button for 3 seconds will automatically sense the ambient temperature and adjust accordingly.

LIGHT

Pressing the FAN button for 3 seconds will activate the light on the unit.

LOCK

Pressing the SLEEP button for 3 seconds will lock remote control options.



CAUTION

- ▶ Do not place remote control near a heat source such as an electric blanket or a heating furnace. Do not place remote control in direct sunlight.
- ▶ Dropping the remote control may cause it damage.
- ▶ There should not be an obstacle between the signal receiver and the remote control, so as not to affect the transmission and the reception of the signal.
- ▶ To send a command signal, the remote control should be pointed toward the air conditioning unit while pressing a button.
- ▶ If the signal is received correctly, the air conditioner will issue a "beep" prompt.
- ▶ If the remote control is not responding, please replace the battery and try again. If the problem persists, please contact the seller or an authorized service center.

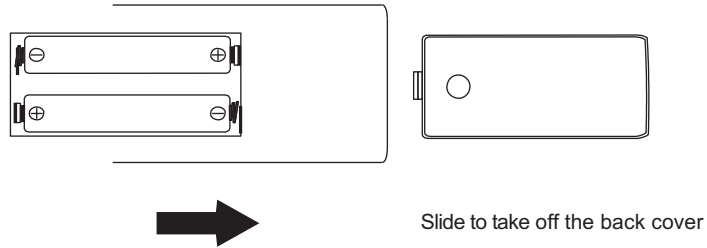
BATTERY REPLACEMENT

The batteries will need to be replaced when the air conditioner is no longer receiving the signal from the remote control or the LCD screen on the remote control is faded.

Remove the depleted batteries by taking off the back cover.

When replacing batteries, pay attention to the "+" and "-" marking on the battery making sure they match the markings inside the remote control.

Install the back cover and set the current time.

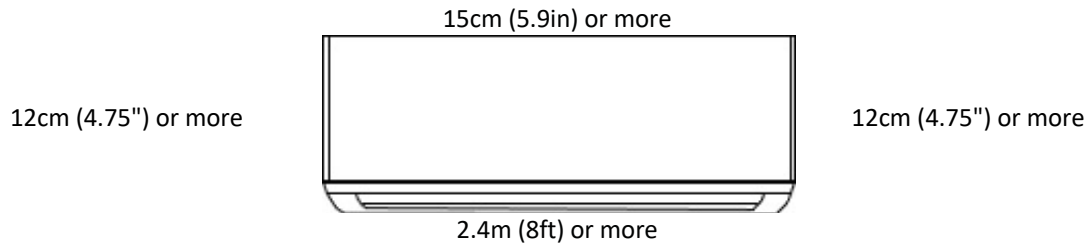


CAUTION

- ▶ Do not use old batteries or mix them with new batteries.
- ▶ Remove batteries when the remote control is idle for an extended period of time.
- ▶ Used batteries should be disposed of according to local requirements.

INDOOR UNIT INSTALLATION

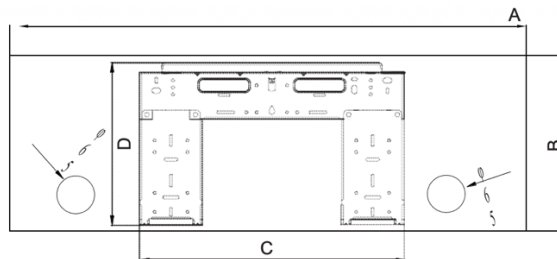
Refer to the image below to ensure proper distances from walls and ceiling when selecting an appropriate location for the unit:



CAUTION

Do **NOT** install the unit in the following locations:

- ▶ near any source of heat, steam, or combustible gas.
- ▶ near flammable objects such as curtains or clothing.
- ▶ near any obstacle that might block air circulation.
- ▶ near the doorway.
- ▶ in a location subject to direct sunlight.
- ▶ less than one meter away from all other electrical devices (e.g., TV, radio, computer).



Refer to the table below for Mounting Plate Dimensions:

Model (KBth/h) \ tems	A	B	C	D
09	715mm	298mm	396mm	272mm
12	865mm	300mm	453mm	277mm
18/24	972mm	320mm	619mm	294mm

STEP ONE: ATTACH MOUNTING PLATE TO WALL

The mounting plate is the device on which the indoor unit will be mounted.

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

Place the mounting plate against the wall in a location that meets the standards mentioned above.

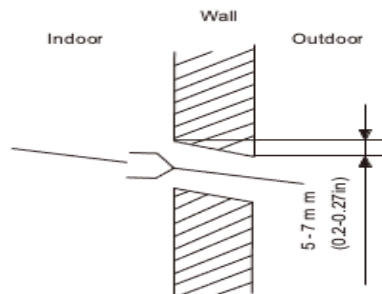
Drill holes for mounting screws in places that:

- a) have studs that can support the weight of the unit.
- b) correspond to screw holes in the mounting plate.

STEP TWO: DRILL WALL HOLE FOR CONNECTIVE PIPING

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

- ▶ Determine the location of the wall hole based on the position of the mounting plate. Refer to the previous section Mounting Plate Dimensions to help determine the optimal position. The wall hole should have a 65mm (2.5in) diameter minimum and be at a slightly lower angle to facilitate drainage.
- ▶ Using a 65mm (2.5in) (or 90mm (3.54in) depending on the model) 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 5mm (0.2in) to 7mm (0.27in). This will ensure proper water drainage.



- ▶ Place the protective wall cuff in the hole. This will protect the edges of the hole and will help seal it when finishing the installation process.
- ▶ If the wall is made of brick, concrete, or similar material, drill 5mm (0.2in) diameter holes in the wall and insert the sleeve anchors provided.
- ▶ Secure the mounting plate to the wall with the screws provided.
- ▶ Make sure that mounting plate is flat against the wall.

CAUTION

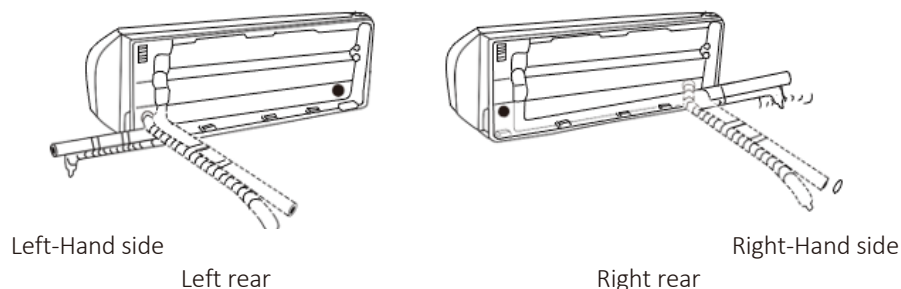
When drilling the wall hole, make sure to avoid wires, plumbing, and other sensitive components.

STEP THREE: PREPARE REFRIGERANT PIPING

The refrigerant piping is inside an insulating sleeve attached to the back of the unit. You must prepare the piping before passing it through the hole in the wall.

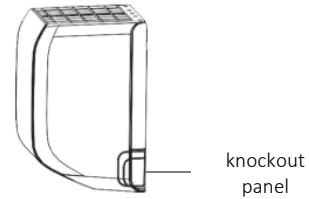
Refer to the Refrigerant Piping Connection section of this manual for detailed instructions on pipe flaring and torque requirements, technique, etc.

NOTE: Refrigerant piping can exit the indoor unit from four different angles.



Based on the position of the wall hole relative to the mounting plate, choose the side from which the piping will exit the unit.

If the wall hole is behind the unit, keep the knockout panel in place. If the wall hole is to the side of the indoor unit, remove the plastic knockout panel from that side of the unit. This will create a slot through which the piping can exit the unit. Use needle nose pliers if the plastic panel is too difficult to remove by hand.



Use scissors to cut down the length of the insulating sleeve to reveal about 15cm (6in) of the refrigerant piping. This serves two purposes:

- 1) To facilitate the Refrigerant Piping Connection process.
- 2) To facilitate gas leak verification and checking for dents in the refrigerant and condensate tubing.

If there is no refrigerant piping embedded in the wall:

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 this manual for more detailed instructions.

Based on the position of the wall hole relative to the mounting plate, determine the necessary angle of piping.

Grip the refrigerant piping at the base of the bend.

Carefully, with even pressure, bend the piping towards the hole.

CAUTION

Be careful not to dent or damage the piping during this process. Any deformation in the piping will affect the unit's performance.

If refrigerant piping is embedded in the wall:

Hook the top of the indoor unit on the upper hook of the mounting plate.

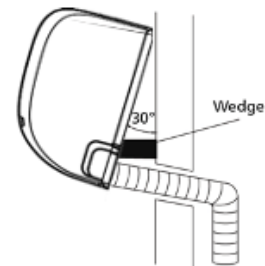
Use a bracket or wedge to prop up the unit, leaving enough room to connect the refrigerant piping, the signal/power cable, and the drain hose (see image for example).

Keep the pipe connection point exposed to perform leak tests.

After the leak test, wrap the connection point with insulation tape.

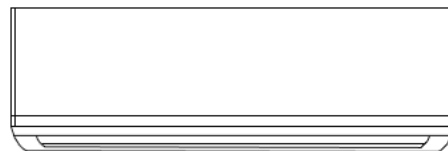
Remove the bracket or wedge that is propping up the unit.

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.



NOTE: The 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 there is not, ample room to connect embedded pipes to the indoor unit, the unit can be adjusted left or right by about 30mm-50mm (1.25-1.95in), depending on the model.



<--move left or right-->
30-50mm (1.2-1.95in)

STEP FOUR: CONNECT DRAIN HOSE

By default, the drain hose is attached to the left-hand side of the unit (when facing the back of the unit). However, it can also be attached to the right-hand side.

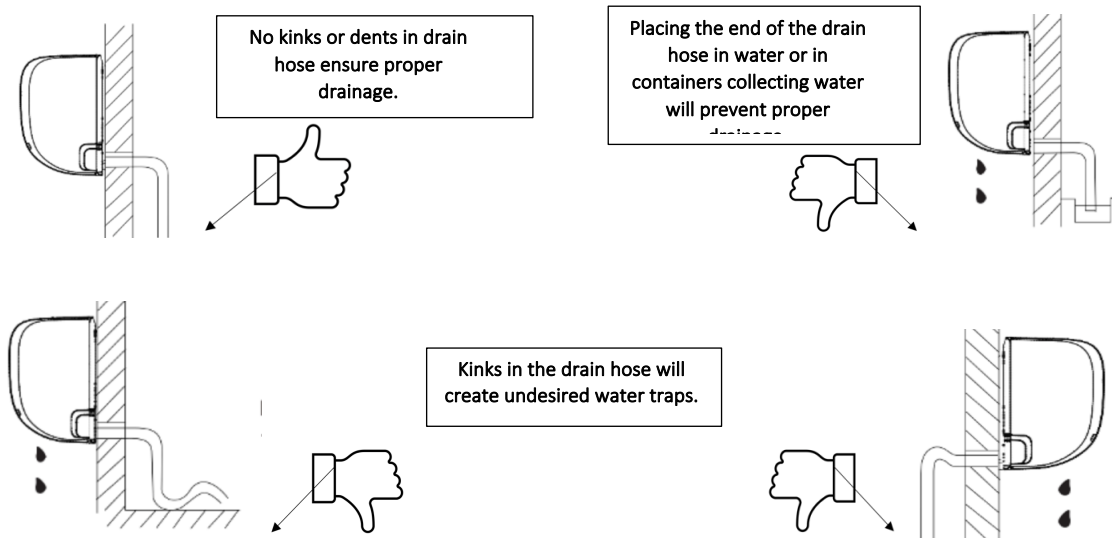
To ensure proper drainage, attach the drain hose on the same side that the refrigerant piping exits the unit. Attach drain hose extension (purchased separately) to the end of drain hose.

Wrap the connection point firmly with Teflon (or similar) tape to ensure a good seal and 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 make sure that water flows from the unit smoothly.

CAUTION

- ▶ **Do not kink the drain hose.**
- ▶ **Do not create a water trap.**
- ▶ **Do not place the end of the drain hose in water or a container that will collect water.**
- ▶ **Plug the unused drain hole with the rubber plug provided to prevent unwanted leaks.**



STEP FIVE: CONNECT SIGNAL/POWER CABLE

Read the following regulations carefully before performing electrical work on the indoor and outdoor units:

- ▶ All wiring must comply with local and national electrical codes 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. Resume installation of the unit once the safety issue is properly resolved.
- ▶ Power voltage should be within 90-100% of rated voltage. Insufficient power supply can cause malfunction, electrical shock, or fire.
- ▶ When connecting power to fixed wiring, install a surge protector and main power switch with a capacity of 1.5 times the maximum current of the unit.
- ▶ When connecting power to fixed wiring, a switch or circuit breaker that disconnects all Poles and has a contact separation of at least 1/8 (3mm) must be incorporated in the fixed wiring. The licensed electrician must use an approved circuit breaker.
- ▶ Only connect the unit to an individual branch circuit outlet. Do not connect another appliance to that outlet.
- ▶ Make sure to properly ground the outdoor unit. The ground cable for the indoor unit shall be in the multi-conductor cord that connects the outdoor unit to the indoor 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.
- ▶ If the unit has an auxiliary electric heater, it must be installed at least 1 meter (40in) away from any combustible materials.

WARNING

Make sure to turn off the main power to the system before performing any electrical or wiring work.

MINIMUM CROSS-SECTIONAL AREA OF POWER AND SIGNAL CABLES

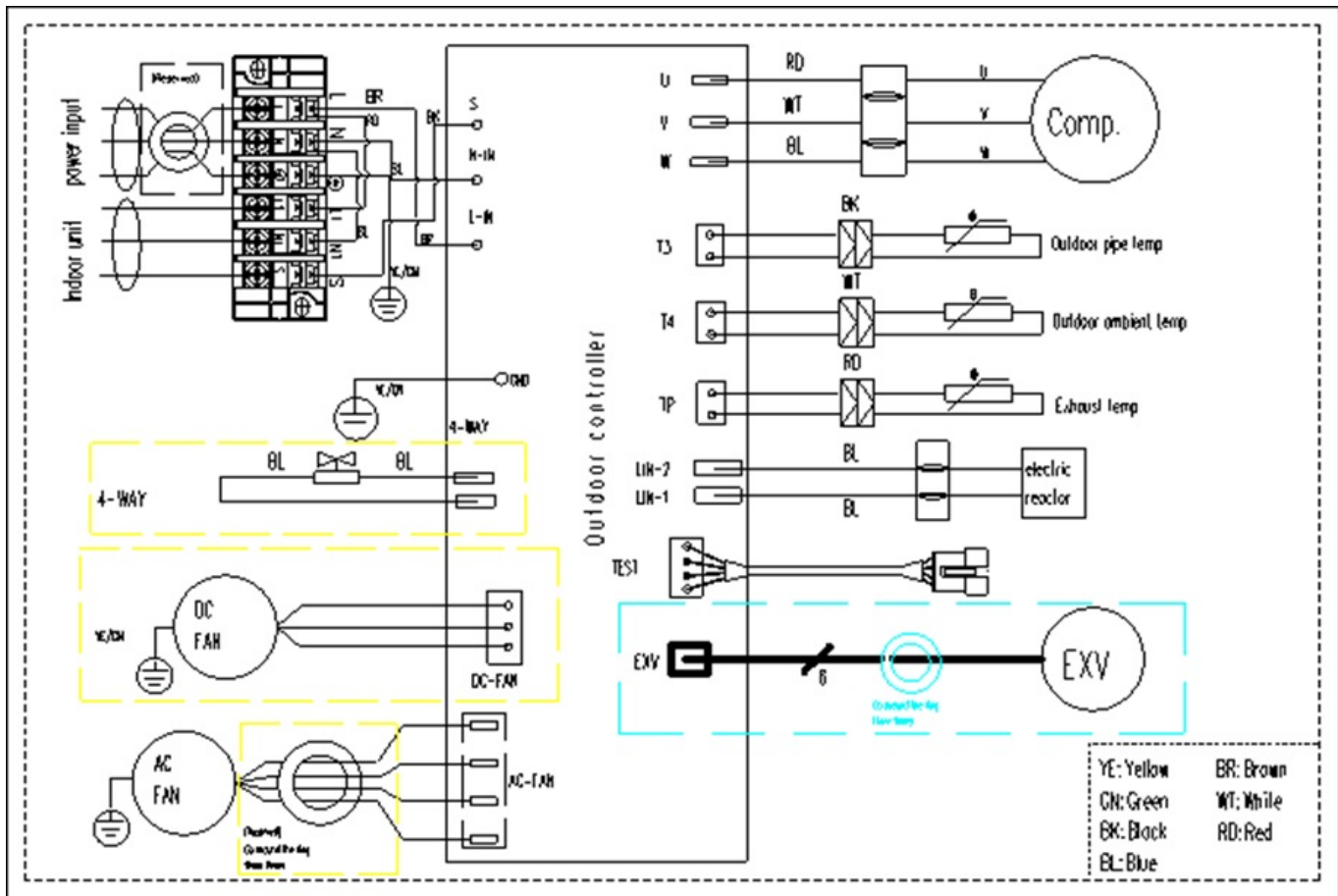
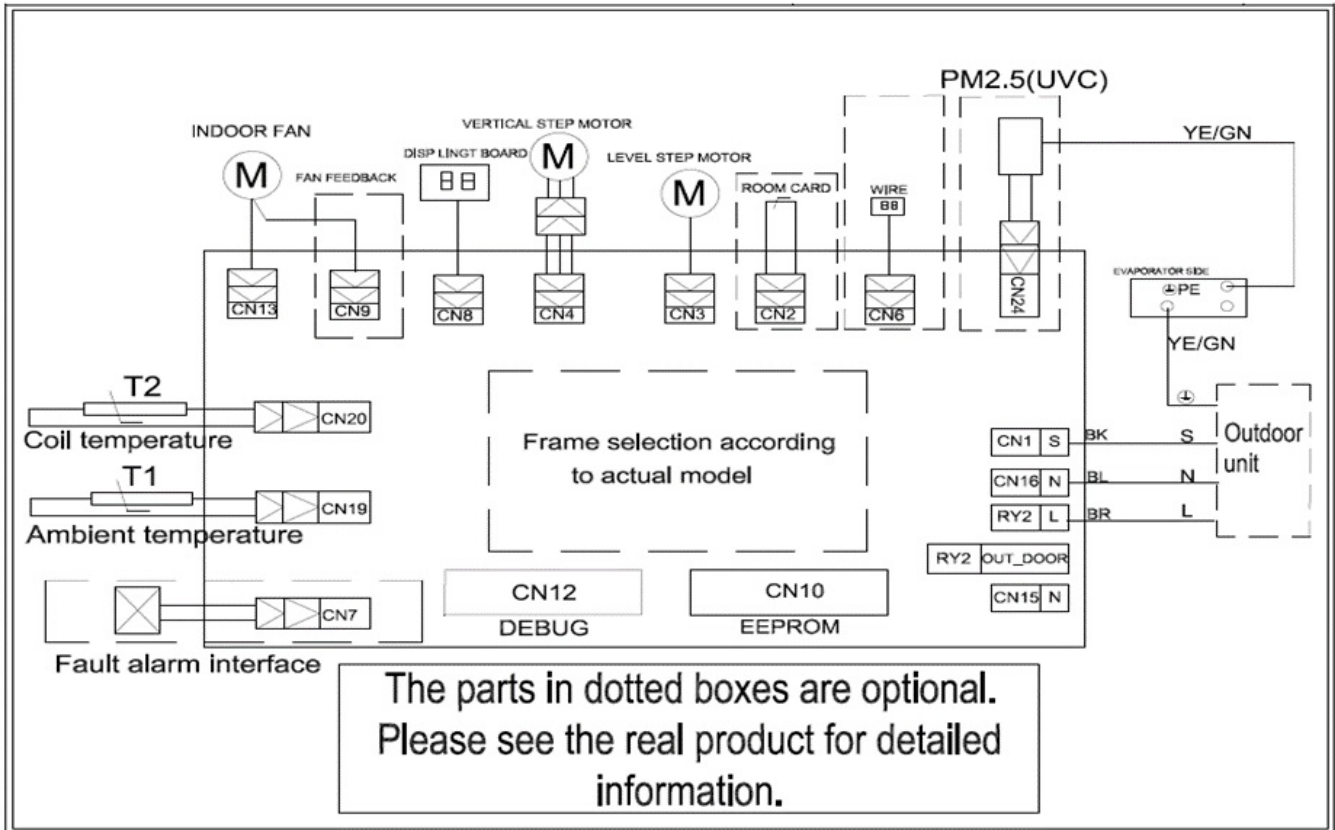
Appliance Amps (A)	AWG
10	18
13	16
18	14
25	12
30	10

CHOOSE THE RIGHT CABLE SIZE

The size of the power supply cable, fuse, and switch needed is determined by the maximum current of the unit. The maximum current is indicated on the nameplate located on the side of the panel of the unit. Refer to this nameplate to choose the right cable, fuse, or switch. The air conditioner's circuit board (PCB) is designed with a fuse to provide over-current protection. The specifications are printed on the circuit board.

PREPARE THE CABLE FOR CONNECTION

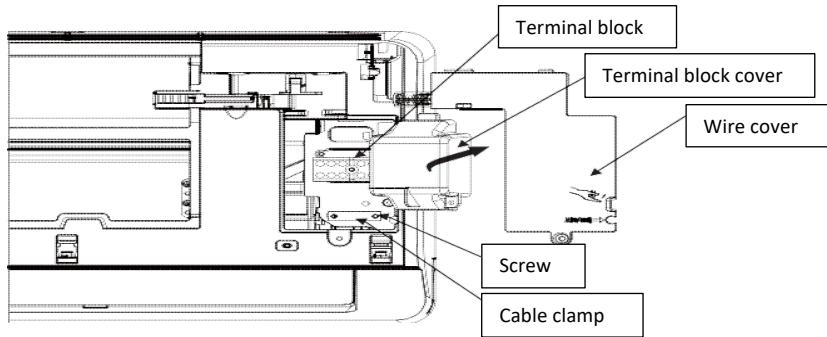
Using wire strippers, strip the rubber jacket from both ends of the signal/power cable to reveal about 40mm (1.57in) of the wires inside. Strip the insulation from the ends of the wires. Using wire crimpers, crimp U-Type terminal cable lugs on the ends of the wires.



CAUTION

While crimping, make sure to clearly distinguish the Live Wire (“L”) from other wires.

Open the front panel of the indoor unit. With the help of a screwdriver, open the wire box cover on the right side of the unit. This will reveal the terminal block. Unscrew the cable clamp located below the terminal block. While facing the back of the unit, remove the plastic panel on the bottom left-hand side. Feed the signal/power wire through the slot from the back of the unit towards the front. Now facing the front of the unit, carefully match the wire colors with the colors on the terminal block, connect the terminal cable lug and firmly screw each wire to its corresponding terminal.



WARNING

All wiring must be performed in full compliance with the wiring diagram presented on the inside of the indoor unit's wire cover.

NOTE: The wiring connection process may differ slightly between units.

CAUTION

Do not mix up live wires with wires not used. This is dangerous and will cause the air conditioning unit to malfunction.

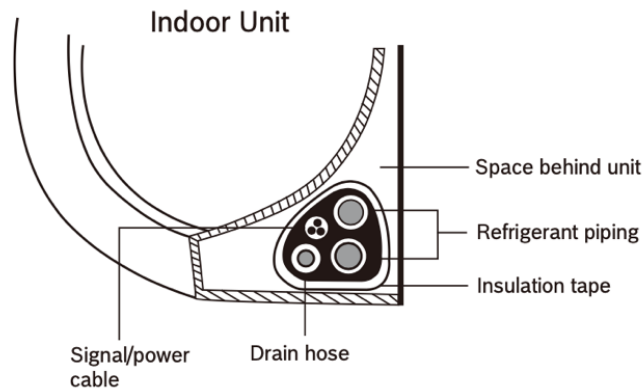
After checking to make sure every connection is secure, use the cable clamp to fasten the signal/power cable to the unit. Screw the cable clamp down tightly. Replace the wire cover on the front of the unit, and the plastic panel on the back.

STEP SIX: WRAP PIPING AND CABLES

Before passing the piping, drain hose, and the signal/power cable through the wall hole, ensure that they are all bundled together to save space, protect them, and insulate them.

NOTE: While bundling these items together, do not intertwine or cross the signal/power cable with any other wiring.

Bundle the drain hose, refrigerant pipes, and signal/power cable according to the following image.



CAUTION

Make sure the drain hose is bound at the bottom of the bundle. Failure to do so can cause the drain pan to overflow, which can lead to fire or water damage.

Using an adhesive vinyl tape, attach the drain hose to the underside of the refrigerant pipes. Using insulation tape, wrap the signal/power wire, the refrigerant pipes, and the drain hose tightly together.

NOTE: When wrapping the bundle, keep the ends of the piping unwrapped, in order to access them to test for leaks at the end of the installation process. Verify that all items are bundled in strict accordance with the image above.

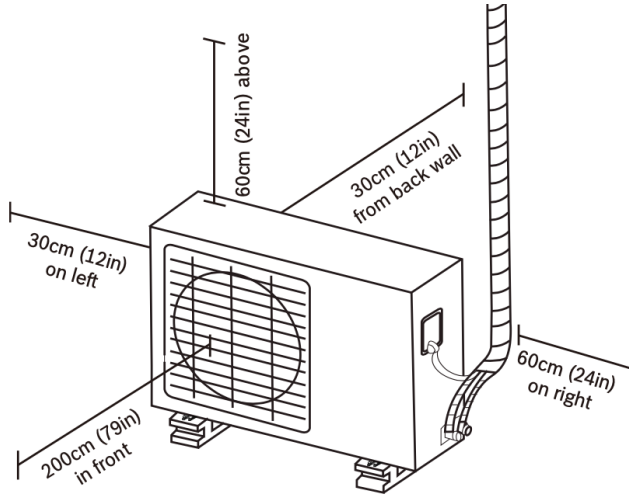
STEP SEVEN: MOUNT INDOOR UNIT

Double check that the ends of the piping are sealed to prevent dirt or foreign materials from entering through the hole in the wall. If not done already, carefully pass the wrapped bundle of refrigerant pipes, drain hose, and signal/power wire through the hole in the wall. Hook the top of the indoor unit on the upper hook of the mounting plate. Check that the unit is firmly attached 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. 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. Again, verify that the unit is firmly mounted by applying slight pressure to the left and the right-hand sides of the unit.

OUTDOOR UNIT INSTALLATION

Before installing the outdoor unit, an appropriate location must be chosen that meets the following standards:

- ▶ All minimum requirements shown here:



- ▶ Good air circulation and ventilation
- ▶ Firm and solid (must support the unit weight and not vibrate)
- ▶ Possible noise from the unit will not disturb others
- ▶ Protected from prolonged exposure to direct sunlight or rain

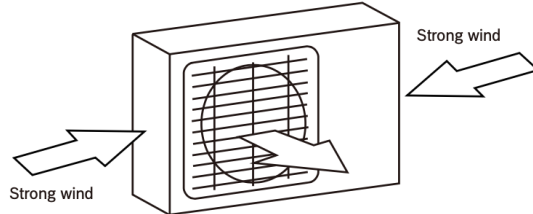
CAUTION

Do ***NOT*** install the unit in the following locations:

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

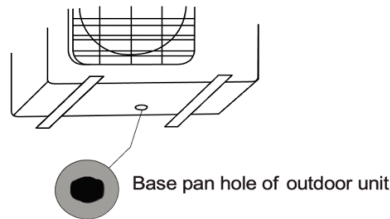
NOTE: Special considerations for extreme weather:

- If the unit is exposed to heavy wind, install it so the air outlet fan is at a 90° angle to the direction of the wind. If necessary, build a barrier in front of the unit to protect it from extremely strong winds.
- If the unit is frequently exposed to heavy rain or snow, build a shelter to protect it from the rain or snow that will not obstruct the airflow around the unit.
- If the unit is frequently exposed to salty air (e.g., seaside), use the outdoor unit that is specifically designed to resist corrosion.



STEP ONE: INSTALL DRAIN JOINT

Heat pump units require a drain joint. Before bolting the outdoor unit in place, ensure that the drain joint is properly installed at the bottom of the unit. Insert the drain joint into the hole in the base pan of the unit. The drain joint will click in place. Connect a drain hose extension (not included) to the drain joint to redirect water from the unit during heating mode.



CAUTION

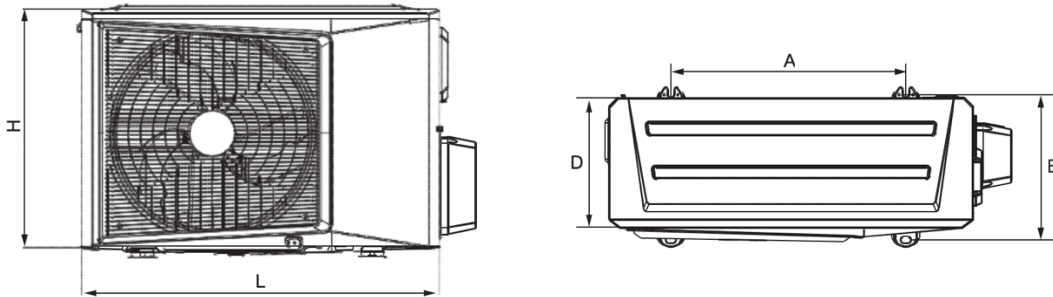
In colder climates, make sure that the drain hose is as vertical as possible to ensure swift water drainage. If water drains too slowly, it can freeze in the hose and flood the unit.

STEP TWO: ANCHOR OUTDOOR UNIT

The outdoor unit can be anchored to the ground on a mounting pad or to a wall-mounted bracket (each sold separately).

Unit Mounting Dimensions:

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.



Unit Capacity	Outdoor Unit Dimensions LxHxD (mm)	Mounting Dimensions (mm)	
		Distance A (mm)	Distance B (mm)
9K/12K	735x475x250	453	280
18K	790x520x280	508	314
24K	848x670x354	544	354

! WARNING

Never mount the unit directly on the ground. It must be anchored according to the following instructions and local building codes.

If installing the unit on a concrete platform, do the following:

- ▶ Mark the positions for four expansion bolts based on dimensions in the Unit Mounting Dimensions chart.
- ▶ Pre-drill the holes for the expansion bolts.
- ▶ Clean concrete dust and debris away from holes.
- ▶ Place a nut on the end of each expansion bolt.
- ▶ Hammer expansion bolts into the pre-drilled holes.
- ▶ Remove the nuts from expansion bolts, and place outdoor unit on bolts.
- ▶ Put washer on each expansion bolt, then replace the nuts.
- ▶ Using a wrench, tighten each nut until snug.

! WARNING

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

If installing the unit on a wall-mounted bracket, do the following:

- ▶ Mark the position of bracket holes based on dimensions in the Unit Mounting Dimensions chart.
- ▶ Pre-drill the holes for the expansion bolts.
- ▶ Clean dust and debris away from holes.
- ▶ Place a washer and nut on the end of each expansion bolt.
- ▶ Thread expansion bolts through holes in mounting brackets, put mounting brackets in position, and hammer expansion bolts into the wall.
- ▶ Check that the mounting brackets are level.
- ▶ Carefully lift unit and place its mounting feet on brackets.
- ▶ Bolt the unit firmly to the brackets.

! WARNING

Before installing a wall-mounted unit, make sure the wall is made of solid brick, concrete, or of similarly strong material. The wall must be able to support at least four times the weight of the unit.

STEP THREE: CONNECT SIGNAL POWER CABLES

The outside unit's terminal block is protected by an electrical wiring cover on the side of the unit. A comprehensive wiring diagram is printed on the inside of the wiring cover.

! WARNING

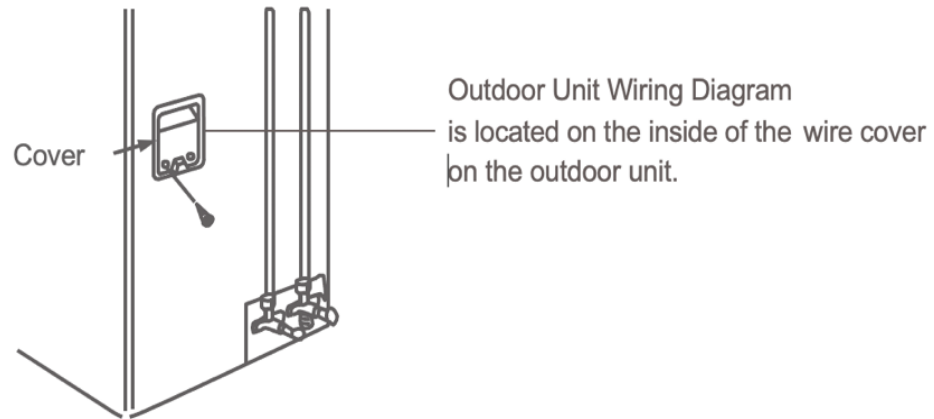
Before performing any electrical wiring work, turn off the main power to the system.

! WARNING

All wiring must be performed strictly in accordance with the wiring diagram located on the inside of the outdoor unit's wire cover.

NOTE: Follow instructions provided in Step Five: Connect Signal/Power Cable from the Indoor Unit Installation Section.

Unscrew the electrical wiring cover and remove it. Unscrew the cable clamp below the terminal block and place it to the side. Match the wire colors/labels with the labels on the terminal block, and firmly screw the u-lug of each wire to its corresponding terminal. After checking to make sure every connection is secure, loop the wires around to prevent rainwater from flowing into the terminal. Using the cable clamp, fasten the cable to the unit. Screw the cable clamp down tightly. Insulate unused wires with PVC electrical tape. Arrange them so that they do not touch any electrical or metal parts. Replace the wire cover on the side of the unit and screw back into place.



REFRIGERANT PIPING CONNECTION

NOTE: The length of the refrigerant piping will affect the performance and energy efficiency of the unit.

Nominal efficiency is tested on units with a pipe length of 5 meters (16.5 ft). A minimum pipe run of 3 meters is required to minimize vibration and excessive noise.

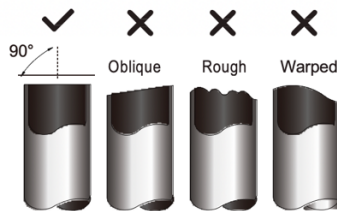
Refer to the table below for specifications on the maximum length and drop height of piping.

Model	Capacity (BTU/h)	Maximum length m (ft)	Maximum drop height m (ft)
Inverter split air conditioner R410A & R32	< 15,000	25 (82)	10 (33)
	15,000 to < 24,000	30 (98.5)	20 (66)
	24,000 to < 36,000	50 (164)	25 (82)
Fixed speed split air conditioner	<18,000	20 (66)	8 (26)
	18,000 to < 36,000	25 (82)	10 (33)

INSTRUCTIONS FOR REFRIGERANT PIPING CONNECTION

STEP ONE: CUT PIPES

When preparing refrigerant pipes, take extra care to cut and flare them properly. This will ensure efficiency and minimize the need for future maintenance. Measure the distance between the indoor and outdoor units. Using a pipe cutter, cut the pipe a little longer than the measured distance. Make sure that the pipe is cut at a perfect 90° angle.

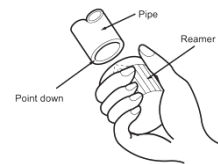


CAUTION

Be extra careful not to damage, dent, or deform the pipe while cutting. This will drastically reduce the heating efficiency of the unit.

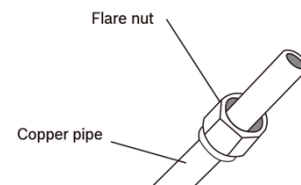
STEP TWO: REMOVE BURRS

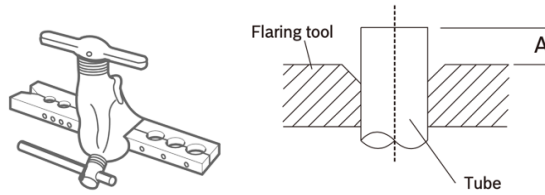
Burrs can affect the airtight seal of refrigerant piping connection. They must be completely removed. Hold the pipe at a downward angle to prevent burrs from falling into the pipe. Using a reamer or deburring tool, remove all burrs from the cut section of the pipe.



STEP THREE: FLARE PIPE ENDS

Proper flaring is essential to achieve an airtight seal. After removing burrs from cut pipe, seal the ends with PVC tape to prevent foreign materials from entering the pipe. Sheath the pipe with insulating material. Place flare nuts on both ends of the pipe. Ensure they are facing in the right direction; no alterations can be made after flaring. Remove PVC tape from ends of the pipe when ready to perform flaring work.





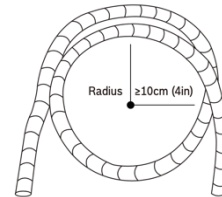
Clamp flare form on the end of the pipe. The end of the pipe must extend beyond the edge of the flare form in accordance with the dimensions shown in the table below. Place flaring tool onto the form. Turn the handle of the flaring tool clockwise until the pipe is fully flared. Remove the flaring tool and flare form, then inspect the end of the pipe for cracks and even flaring.

Piping Extension Beyond Flare Form

Outer diameter of pipe (mm)	A (mm)	
	minimum	maximum
φ 6.35 (φ 0.25)	0.7 (0.0275")	1.3 (0.05")
φ 9.52 (φ 0.375)	1.0 (0.04")	1.6 (0.063")
φ 12.70 (φ 0.5)	1.0 (0.04")	1.8 (0.07")

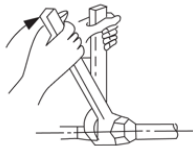
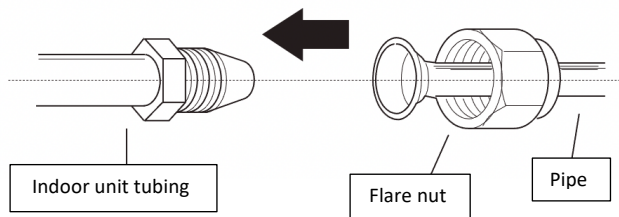
STEP FOUR: CONNECT PIPES

- ▶ When connecting the refrigerant piping, be careful not to use excessive torque or to deform the piping in any way.
- ▶ You should first connect the low-pressure pipe before the high-pressure pipe.
- ▶ When bending connective refrigerant piping, the minimum bending radius is 10cm (4").



INSTRUCTIONS FOR CONNECTING PIPING TO INDOOR UNIT

Align the center of the two pipes that will be connected.



Tighten the flare nut as tightly as possible by hand. Using a spanner, grip the nut on the unit tubing. While firmly gripping the nut on the unit tubing, use a torque wrench to tighten the flare nut according to the torque values in the Torque Requirements table below. Loosen the flaring nut slightly, then tighten again.

Torque Requirements

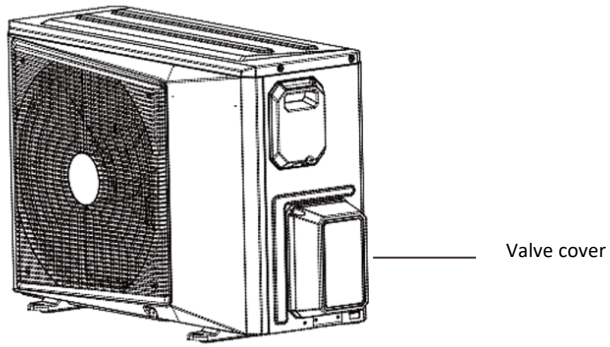
Outer diameter of pipe (mm)	Tightening Torque (N•cm)	Add. Tightening Torque
φ 6.35 (φ 0.25")	1,500 (11lb•ft)	1,600 (11.8lb•ft)
φ 9.52 (φ 0.375")	2,500 (18.4lb•ft)	2,600 (19.18lb•ft)
φ 12.70 (φ 0.5")	3,500 (25.8lb•ft)	3,600 (26.55lb•ft)

CAUTION

Excessive force can break the nut or damage the refrigerant piping. You must not exceed torque requirements shown in the table above.

INSTRUCTIONS FOR CONNECTING PIPING TO OUTDOOR UNIT

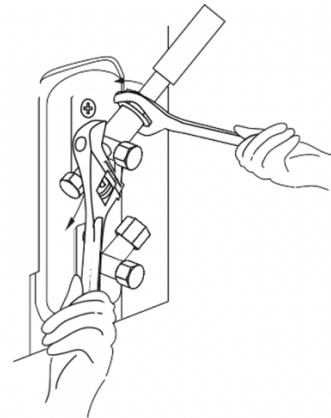
Unscrew the cover from the packed valve on the side of the outdoor unit.



Remove protective caps from ends of valves. Align flared pipe end with each valve and tighten the flare nut as tightly as possible by hand. Using a spanner, grip the body of the valve. Do not grip the nut that seals the service valve. While firmly gripping the body of the valve, use a torque wrench to tighten the flare nut according to the correct torque values. Loosen the flaring nut slightly, then tighten again. Repeat steps for the remaining pipe.

CAUTION

Use spanner to grip main body of the valve. Torque from tightening the flare nut can snap off other parts of valve.



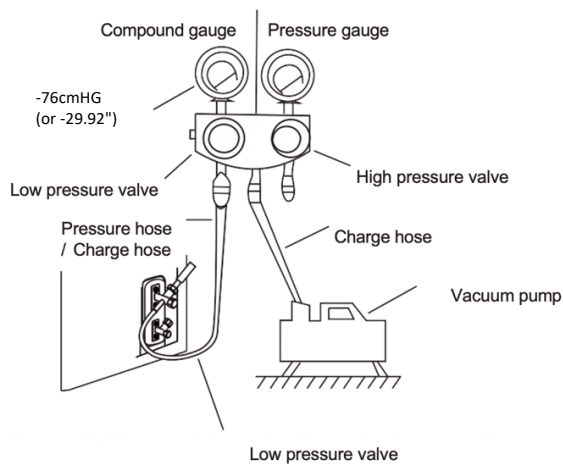
AIR EVACUATION

PREPARATIONS AND PRECAUTIONS

- ▶ Air and foreign matter in the refrigerant circuit can cause abnormal rises in pressure, which can damage the air conditioner, reduce its efficiency, and cause injury. 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 when the unit is relocated.
- ▶ Before performing evacuation:
 - 1) Check to make sure that both high-pressure and low-pressure pipes between the indoor and outdoor units are connected properly in accordance with the Refrigerant Piping Connection section of this manual.
 - 2) Check to make sure all wiring is connected properly.

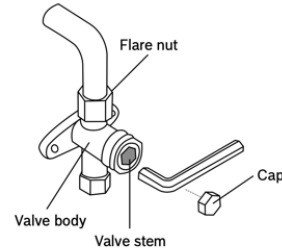
EVACUATION INSTRUCTIONS

Before using the manifold gauge and vacuum pump, read their operation manuals to familiarize yourself with how to use them properly.



- ▶ Connect the charge hose of the manifold gauge to the service port on the outdoor unit's low-pressure valve.
- ▶ Connect another charge hose from the manifold gauge to the vacuum pump.
- ▶ Open the low-pressure side of the manifold gauge. Keep the high-pressure side closed.
- ▶ Turn on the vacuum pump to evacuate the system.
- ▶ Run the vacuum for at least 15 minutes or until the compound meter reads -76cmHG/-29.92"HG (-101kPa).
- ▶ Close the low-pressure side of the manifold gauge and turn off the vacuum pump.
- ▶ Wait 5 minutes and check that there has been no change in system pressure.
- ▶ If there is no change in system pressure, unscrew the cap from the packed valve (high-pressure valve). If there is a change in system pressure, refer to Gas Leak Check section for information on how to check for leaks.
- ▶ Insert a hexagonal wrench into the packed valve (high-pressure valve) and open the valve by turning the wrench in a ¼ counterclockwise turn. Listen for gas to exit the system, after 5 seconds, close the valve.

- ▶ Watch the pressure gauge for one minute to make sure there is no change in pressure. The pressure gauge should read slightly higher than atmospheric pressure.
- ▶ Remove the charge hose from the service port.
- ▶ Using a hexagonal wrench, fully open both the high-pressure valve and the low-pressure valve.
- ▶ Tighten valve caps on all three valves, service port, high-pressure and low-pressure, by hand. You may tighten it further using a torque wrench if needed.



CAUTION

Open the valve stems gently turning the hexagonal wrench until it hits against the stopper. Do not try to force the valve to open further.

ADDING REFRIGERANT

Some systems require additional charging depending on pipe lengths. The standard pipe length is 5m (16') which may vary according to local regulations. In North America, standard pipe length is 7.5m (25'). The additional refrigerant to be charged can be calculated using the following formula:

Connective Pipe	Vacuum pump	Additional Refrigerant	
< Standard pipe length	Vacuum pump	N/A	
> Standard pipe length	Vacuum pump	Liquid Side: $\varnothing 6.35 (\varnothing 0.25")$ Inverter R410A or Fixed- frequency R410A & R32: (Pipe length-standard length) x 15g/m (Pipe length -standard length) x 0.16 oz/ft	Liquid Side: $\varnothing 9.52 (\varnothing 0.375")$ Inverter R410A or Fixed-frequency R401 & R32: (pipe length-standard length) x 30g/m (pipe length -standard length) x 0.32 oz/ft

CAUTION

Do not mix refrigerant types.

MAINTENANCE

CAUTION

Before carrying out maintenance work, make sure to turn off the main power to the system.

BEFORE THE SEASON OF OPERATION:

- ▶ Check if there are any blocking materials in the intake and outlet vents of the indoor and outdoor units.
- ▶ Check if the installation stand is corroded or rusty.
- ▶ Check if the machine is properly grounded.
- ▶ Check if the air filter is clean.
- ▶ Connect to the power source.
- ▶ Put new batteries in the remote controller.

DURING THE SEASON OF OPERATION:

NOTE: Cleaning intervals should be once every two weeks.

- ▶ Remove the air filter screen from the unit.
- ▶ Gently press the two lower ends of the grid and open it.
- ▶ Gently pull up the air filter screen and take it out in the direction of your body.
- ▶ Clean the air filter screen.
If the screen is very dirty, use lukewarm water (about 30°C or 86°F) to clean it.
Air dry after cleaning.

NOTE:

- ▶ **Do not use cold, hot, or boiling water to clean the screen.**
- ▶ **Do not dry the screen over a source of heat or a fire.**
- ▶ **Do not exert too much force in pulling and stretching the screen.**
 - ▶ Install the air filter screen.

NOTE: To operate the air conditioner without the air filter screen on will cause the interior of the machine to get dirty which may lead to poor performance or damage to the unit.

- ▶ Clean the air conditioner:
Use a soft and dry cloth to gently scrub the air conditioner or a vacuum cleaner to clean it.
If the air conditioner is still very dirty, use a cloth and soak it with neutral home-use detergent to do the cleaning.

AFTER THE SEASON OF OPERATION:

- ▶ Set the temperature at 30°C or 86°F and operate the unit in fan mode for about half a day to dry the interior.
- ▶ Stop the operation of the machine and turn off the main power source.
- ▶ The air conditioner will consume about 5W of electrical power after the machine is turned off. For energy saving and safety purposes, it is advisable to switch off the main power source during the non-operational seasons.
- ▶ Clean and install the air filter screen.
- ▶ Clean the indoor and outdoor units.
- ▶ Remove the batteries from the remote control.

NOTE: Blocking the air filter screen with dust, dirt, or debris will affect the performance of cooling and heating. Noise and power consumption will also increase. Therefore, it is important to clean the air filter screen regularly.

TROUBLESHOOTING

Check the following before requesting after sale service from your contractor:

- The air conditioner unit does not operate at all.
 - Is the TIMER set to “ON”?
 - Is there a power failure or a blown fuse?
 - Is the main power source connected to the unit?
- Poor performance of cooling and heating.
 - Is the room temperature setting suitable?
 - Are the air filters clogged/clean?
 - Is (Are) the window(s)/door(s) open?
 - Is direct sunlight entering the room?
 - Is there a heat source in the room?
 - Are there too many people in the room?

WHEN TO CONTACT SOMEONE:

Turn the main power source off and inform the contractor of the following situations:

- Fuse or breaker goes off excessively.
- Abnormal noise is heard during operation.

PERCEIVED PHENOMENA AND THE REASONS THEY OCCUR:

- PROBLEM: The unit will not turn ON even though the light is on.
REASON WHY: There is a 3-minute delay after the power is switched to OFF, before it can restart, to prevent damage caused by excessive turning ON and OFF.
- PROBLEM: The air is not blowing out hot after selecting HEAT mode.
REASON WHY: The air is prevented from blowing in until the cold air from the indoor heat exchanger has had a chance to warm up (2-5min.).
- PROBLEM: It's been 6-12 minutes and the hot air is still not activated.
REASON WHY: When the outdoor temperature is low and the humidity is high, the outdoor unit will perform defrosting automatically. During this time, steam can be observed rising from the outdoor unit.
- PROBLEM: There is noise, like a cracking sound.
REASON WHY: The noise is caused by the refrigerant circulating inside the unit.
- PROBLEM: There is still cracking noise, but the power source to the unit is disconnected.
REASON WHY: Temperature changes are causing the plastic to expand and contract.

DEFINITIONS OF MALFUNCTION DISPLAY:

E1 -----	Communication failure between indoor and outdoor unit
E2 -----	T1 room temperature sensor fault
E3 -----	T2 temperature sensor fault
E4 -----	T2B temperature sensor fault
E5 -----	Outdoor unit fault
E6 -----	IDU - Zero-crossing detection fault
E7 -----	IDU - EEPROM malfunction
E8 -----	IDU – fan motor stall protection
E9 -----	Wired controller communication fault
HC-----	Room card port is not connected

