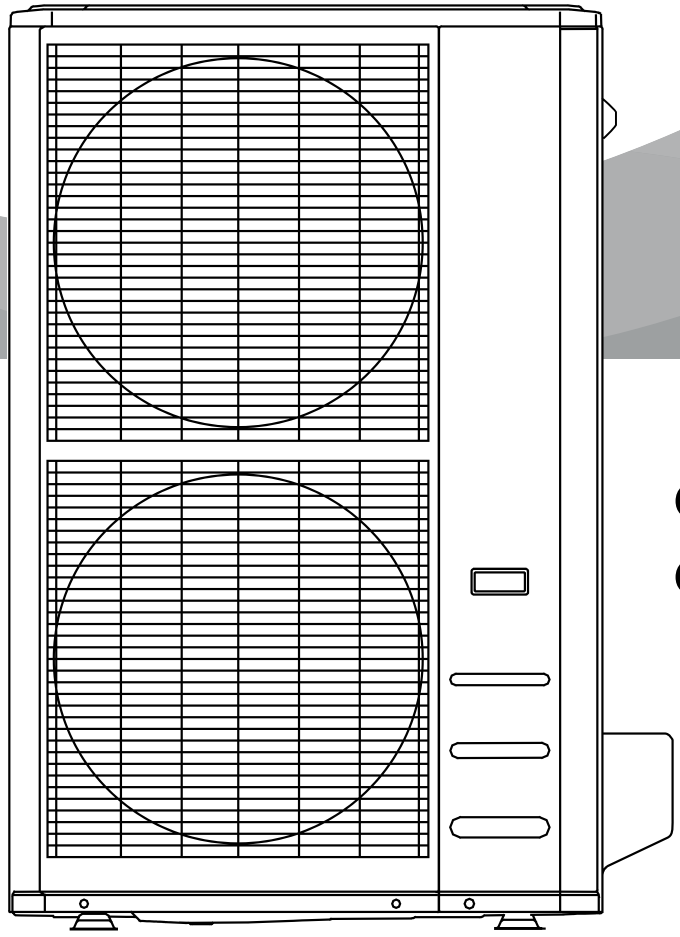
Cooper&Hunter

LIGHT COMMERCIAL

HYPER SPLIT AIR CONDITIONER WITH HEAT PUMP

INSTALLATION MANUAL

OUTDOOR UNIT



CH-HYP36CLUO

CH-HYP48CLUO

IMPORTANT NOTE:

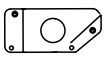
- Read this manual carefully before installing or operating your new air conditioning unit. Make sure to save this manual for future reference.
- This manual only describes the installation of the indoor unit. When installing the outdoor unit, refer to the installation manual of the outdoor unit.

Table of Contents

Installation Manual

Accessories 1

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 fire, or cause the equipment to fail. The items not included with the air conditioner must be purchased separately.

Name of Accessories	Q'ty(pc)	Shape
Soundproof/insulation sheath (some models)	1	
Outlet pipe sheath (some models)	1	
Outlet pipe clasp (some models)	1	
Drain joint (some models)	1	
Seal ring (some models)	1	
Copper nut	2	
Battery (some models)	2	
Remote controller holder (some models)	1	
Fixing screw for remote controller holder (some models)	2	
Magnetic ring (wrap the electric wires S1&S2 (P&Q&E) around the magnetic ring twice) (some models)	1	 S1&S2 (P&Q&E)
Magnetic ring (After installation, hitch this on the connective cable between the indoor unit and outdoor units) (some models)	Varies by model	
Conduit installation plate (some models)	1	

Name	Shape		Quantity
Connecting pipe assembly	Liquid side	Ø 1/4in/6.35 mm	Parts you must purchase separately. Consult your technician for the proper size.
		Ø 3/8in/9.52 mm	
		Ø 1/2in/12.7 mm	
	Gas side	Ø 3/8in/9.52 mm	
		Ø 1/2in/12.7 mm	
		Ø 5/8in/15.9 mm	
		Ø 3/4in/19 mm	
		Ø 7/8in/22.2 mm	

Safety Precautions 2

Read safety precautions before installation

Incorrect installation due to ignoring instructions can cause serious damage or injury.
The seriousness of potential damage or injuries is classified as either a WARNING or CAUTION.

⚠ WARNING

Failure to observe a warning may result in death. The appliance must be installed in accordance with national regulations.

⚠ SAFETY

Failure to observe a caution may result in injury or equipment damage.

⚠ WARNING

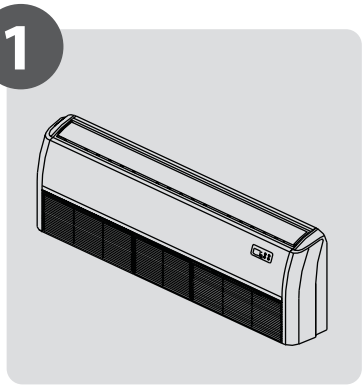
- Carefully read the safety precautions before installation.
- In certain functional environments, such as kitchens, server rooms, etc., the use of specially designed air-conditioning units is highly recommended.
- Only trained and certified technicians should install, repair, and service this air conditioning unit.
- Improper installation may result in electrical shock, short circuit, leaks, fire, or other damage to equipment and personal property.
- Strictly follow the installation instructions set forth in this manual.
- Before you install the unit, consider strong winds, typhoons, and earthquakes that might affect your unit and locate it accordingly. Failure to do so could cause damage to the unit.
- After installation, ensure there are no refrigerant leaks and that the unit is operating properly.
- Refrigerant is toxic and flammable and presents a serious health and safety risk.

NOTE ABOUT FLUORINATED GASSES

1. This air conditioning unit contains fluorinated gasses. For specific information on the type of gas and the amount, please refer to the relevant label on the unit itself.
2. Installation, service, maintenance, and repair of this unit must be performed by a certified technician.
3. Product uninstallation and recycling must be performed by a certified technician.
4. If the system has a leak-detection system installed, it must be checked for leaks at least every 12 months.
5. When the unit is checked for leaks, proper record-keeping of all checks is strongly recommended.

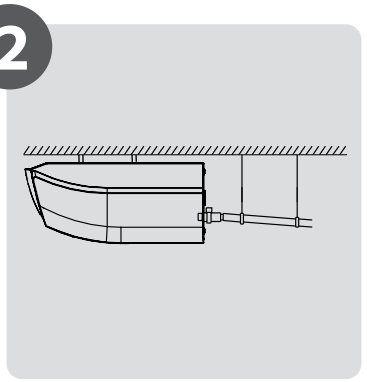
Installation Summary 3

1



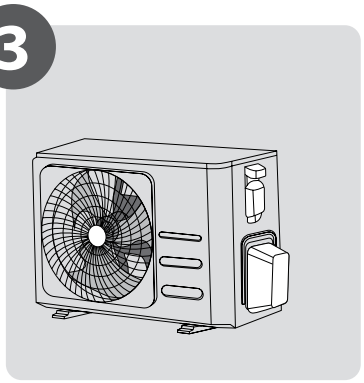
Install the indoor unit

2



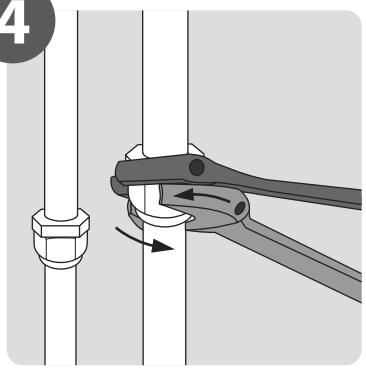
Install the drainpipe

3



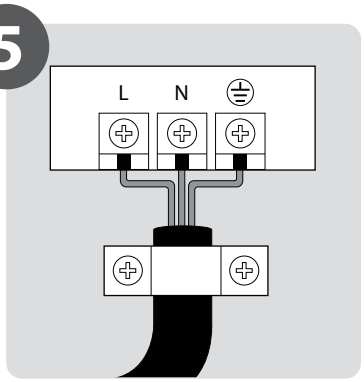
Install the outdoor unit

4



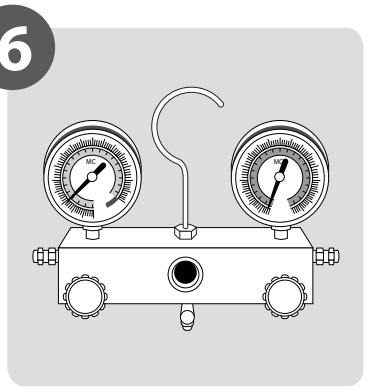
Connect the refrigerant pipes

5



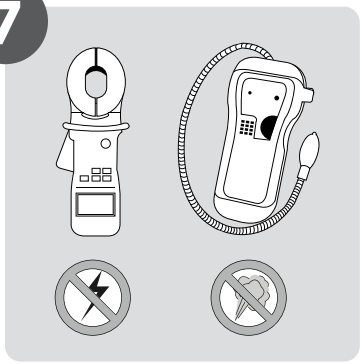
Connect the wires

6



Evacuate the refrigeration system

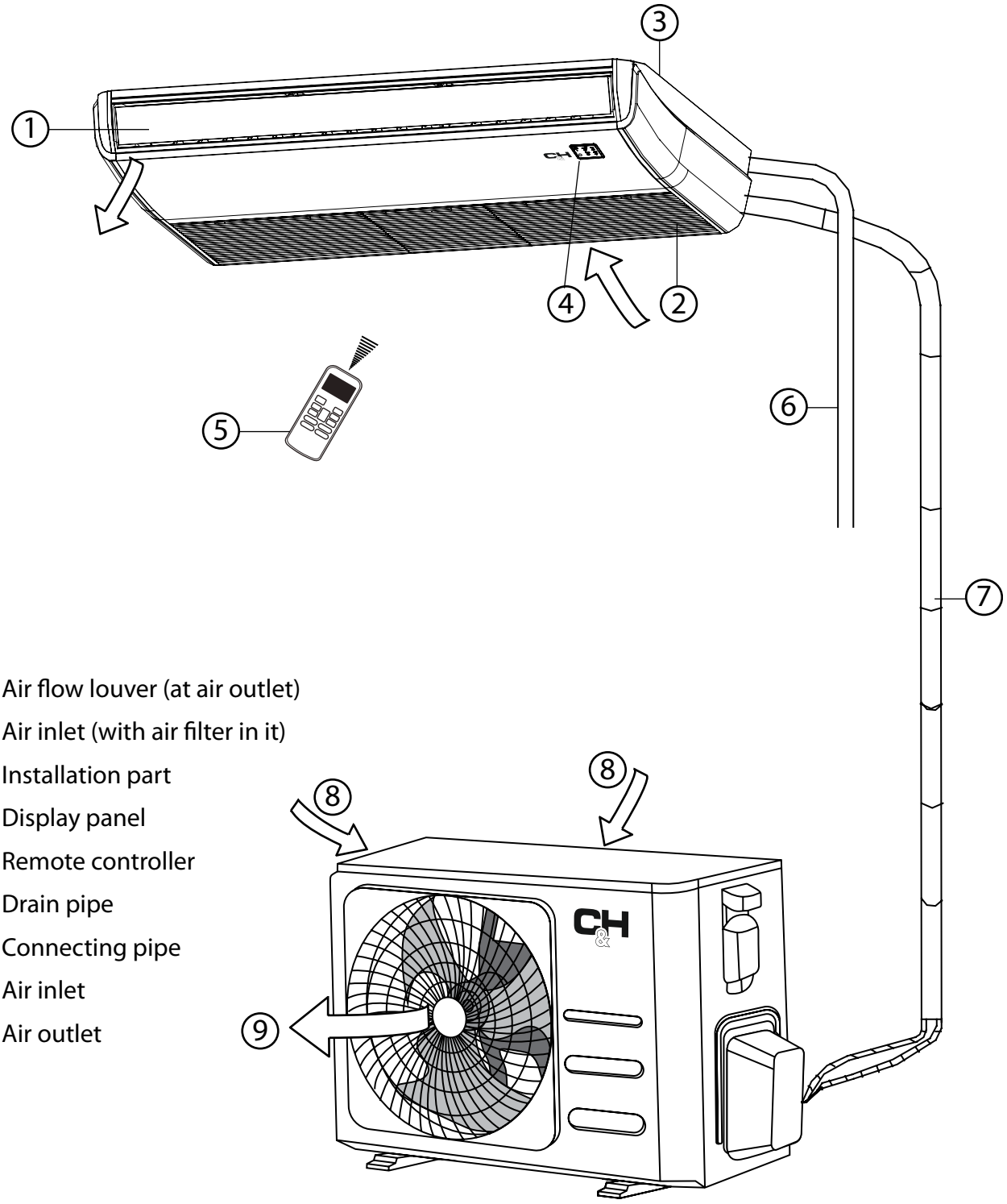
7



Perform a test run

Unit Parts 4

NOTE:
The installation must be performed in accordance with local and national standards.
The installation may be slightly different in different areas.



1. Air flow louver (at air outlet)
2. Air inlet (with air filter in it)
3. Installation part
4. Display panel
5. Remote controller
6. Drain pipe
7. Connecting pipe
8. Air inlet
9. Air outlet

NOTE ON ILLUSTRATIONS:
Illustrations in this manual are for explanatory purposes. The actual shape of your indoor unit may be slightly different. The actual shape shall prevail.

INSTALLATION INSTRUCTIONS – INDOOR UNIT

NOTE:
Panel installation should be performed after piping and wiring have been completed.

Step 1: Select installation location

Before installing the indoor 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:

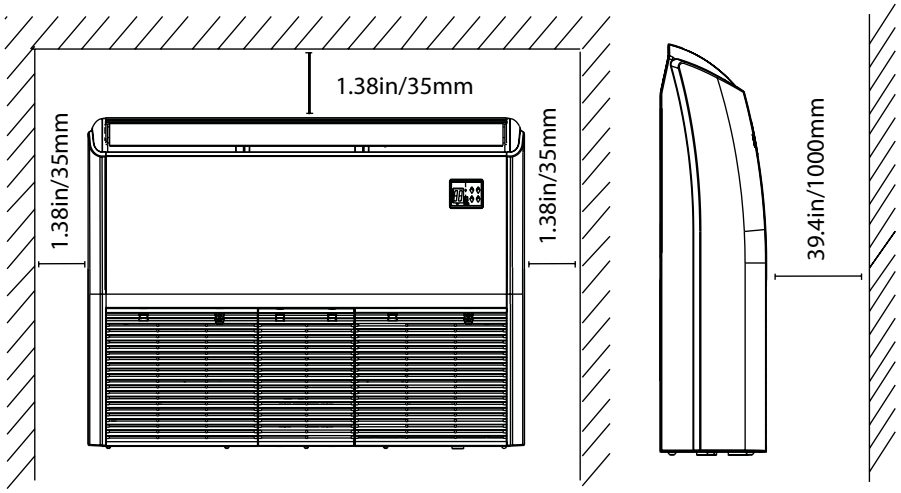
- ⊘ Enough room exists for installation and maintenance.
- ⊘ Enough room exists for connecting the pipe and drainpipe.
- ⊘ The ceiling is horizontal and its structure can sustain the weight of the indoor unit.
- ⊘ The air inlet and outlet are not blocked.
- ⊘ The airflow can fill the entire room.
- ⊘ There is no direct radiation from heaters.

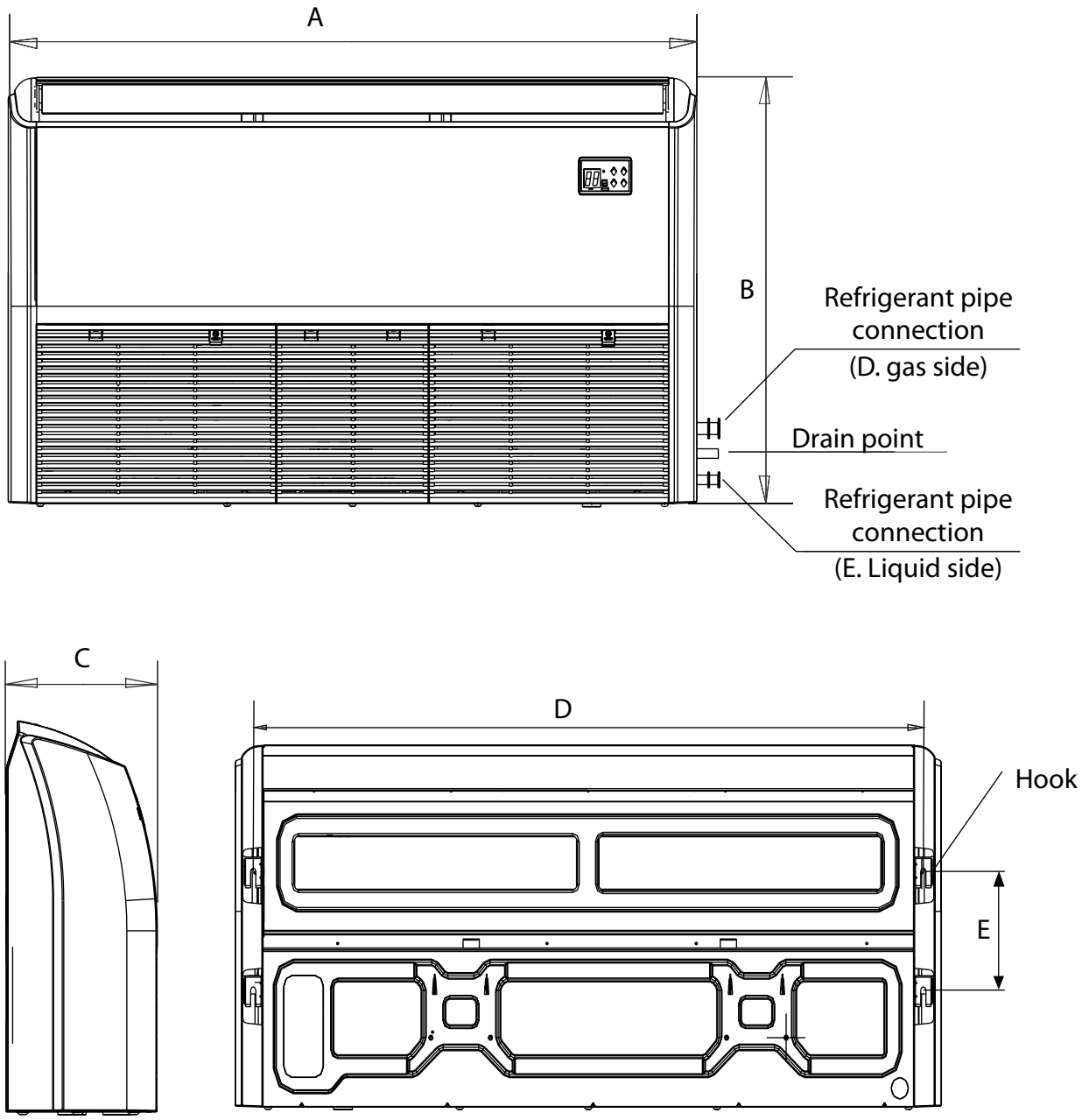
<u>DO NOT</u> install unit in the following locations:

- ⊗ Areas with oil drilling or fracking
- ⊗ Coastal areas with high salt content in the air
- ⊗ Areas with caustic gases in the air, such as hot springs
- ⊗ Areas that experience power fluctuations, such as factories
- ⊗ Enclosed spaces, such as cabinets
- ⊗ Kitchens that use natural gas
- ⊗ Areas with strong electromagnetic waves
- ⊗ Areas that store flammable materials or gas
- ⊗ Rooms with high humidity, such as bathrooms or laundry rooms

Recommended distances surrounding the indoor unit

The distance between the mounted indoor unit should meet the specifications illlustrated in the following diagram.





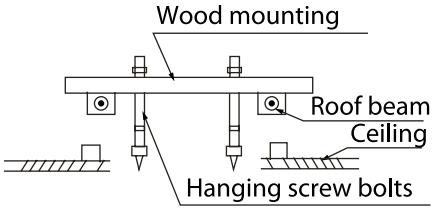
Indoor parts installation size

MODEL(Btu/h)	Length of A (in/mm)	Length of B (in/mm)	Length of C in/mm)	Length of D (in/mm)	Length of E (in/mm)
18k~24k	42/1068	26.6 /675	9.3/235	38.7/983	8.7/220
36k~60k	65/1650	26.6 /675	9.3/235	61.6/1565	8.7/220

Step 2: Hang indoor unit

Wood

Place the wood mounting across the roof beam, then install the hanging screw bolts.

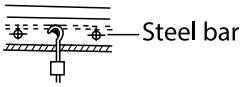


New concrete bricks

Inlay or embed the screw bolts.


(Blade shape insertion)

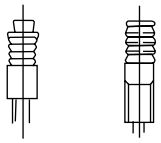

(Slide insertion)



(Pipe hanging and embedding screw bolt)

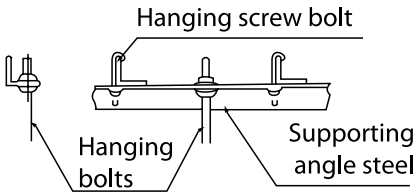
Original concrete bricks

Install the hanging hook with expandable bolt into the concrete to a depth of 1.77~1.97in/ 45~50mm to prevent loosening.



Steel roof beam structure

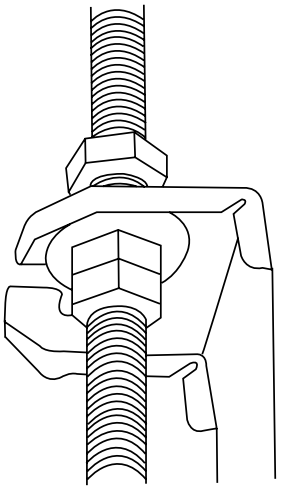
Install and use the supporting steel angle.



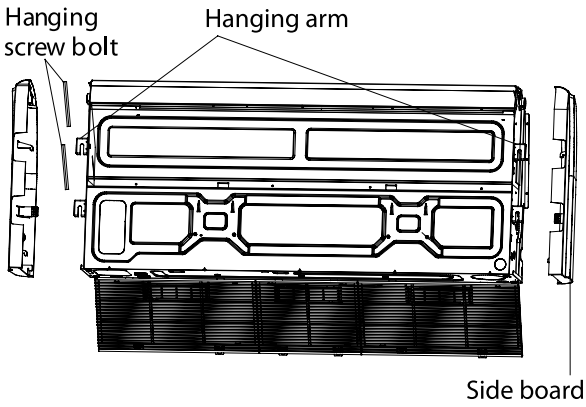
⚠ CAUTION

The unit body must be completely aligned with the hole. Ensure that the unit and the hole are the same size before moving on.

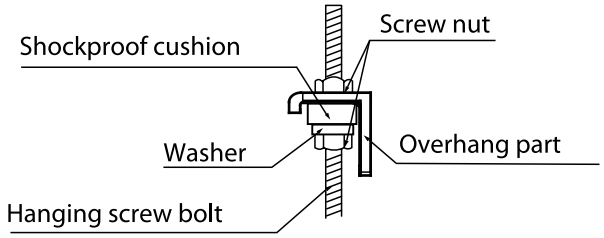
1. Install and fit pipes and wires after you have finished installing the main body. When choosing where to start, determine the direction of the pipes to be drawn out. Especially in cases where there is a ceiling involved, align the refrigerant pipes, drain pipes, and indoor and outdoor lines with their connection points before mounting the unit.
   - The installation of hanging screw bolts.
   - Cut off the roof beam.
2. Strengthen the area at which the cut was made and consolidate the roof beam.
3. After the selection of the installation location, position the refrigerant pipes, drain pipes, and indoor and outdoor wires to the connection points before mounting the machine.
4. Drill 4 holes 4in/10cm deep at the ceiling hook positions in the internal ceiling. Be sure to hold the drill at a 90° angle to the ceiling.
5. Secure the bolt using the included washers and nuts.
6. Install the four suspension bolts.
7. Mount the indoor unit. You will need two people to lift and secure it. Insert suspension bolts into the unit's hanging holes. Fasten them using the included washers and nuts.



8. Remove the side board and the grille.

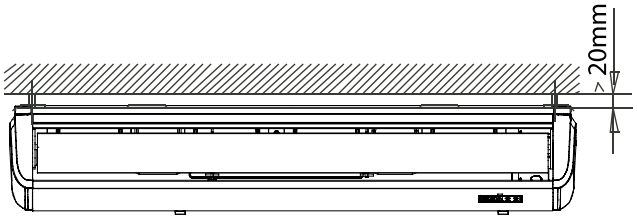


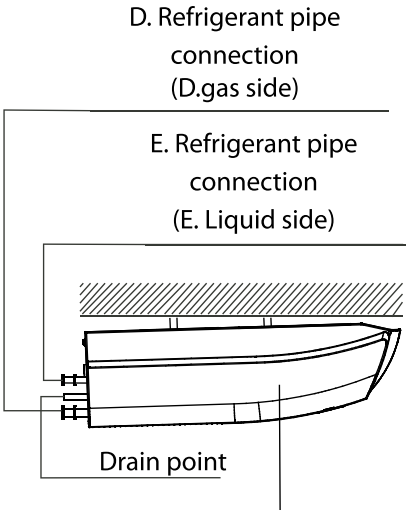
9. Mount the indoor unit onto the hanging screw bolts with a block. Position the indoor unit on a flat level by using a level to prevent leaks.



NOTE:
Confirm the minimum drain tilt is 1/100 or more.

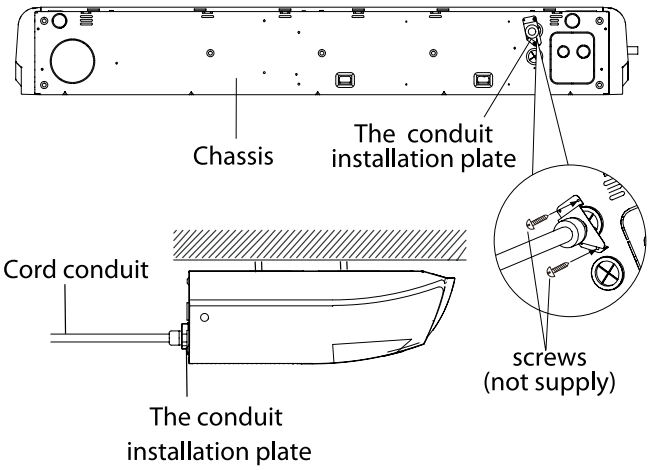
Ceiling Installation



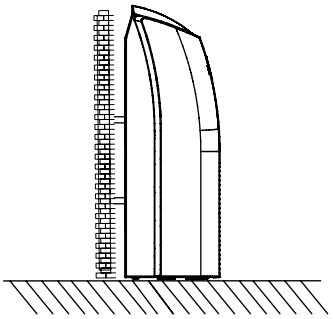


How to install the conduit installation plate (if supplied)

1. Fix the sheath connector (not supply) on the wire hole of the conduit installation plate.
2. Fix the the conduit installation plate on the chassis of the unit.



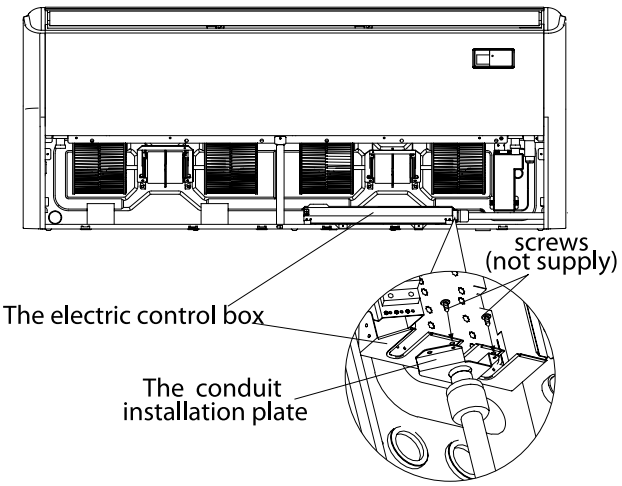
Wall-Mounted Installation



How to install the conduit installation plate (if supplied)

1. Fix the sheath connector (not supply) on the wire hole of the conduit installation plate.

2. Fix the conduit installation plate on the electric control box.

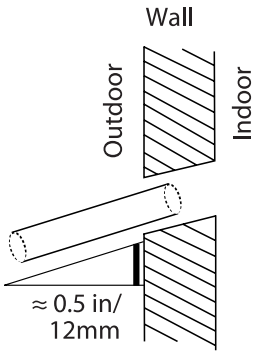


Step 3: Drill wall hole for connective piping

1. Determine the location of the wall hole based on the location of the outdoor unit.

2. Using a 2.5in/65mm or 3.54in/90mm (depending on models) 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 0.5in/12mm. This will ensure proper water drainage.

3. 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.



⚠ CAUTION

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

Step 4: Connect drain hose

The drainpipe is used to drain water away from the unit. Improper installation may cause unit and property damage.

⚠ CAUTION

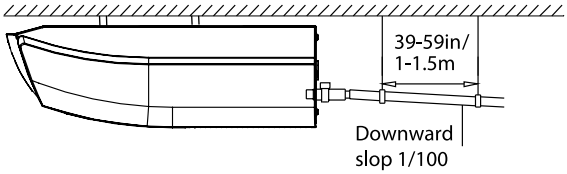
- Insulate all piping to prevent condensation, which could lead to water damage.
- If the drainpipe is bent or installed incorrectly, water may leak and cause a water-level switch malfunction.
- In HEAT mode, the outdoor unit will discharge water. Ensure that the drain hose is placed in an appropriate area to avoid water damage and slippage.
- **DO NOT** pull the drainpipe forcefully. This could disconnect it.

NOTE ON PURCHASING PIPES

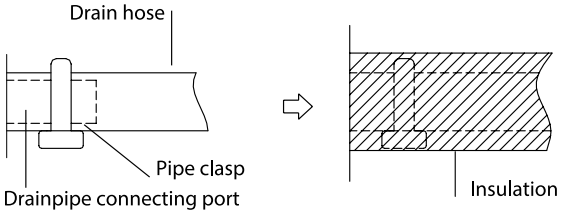
Installation requires a polyethylene tube (exterior diameter = 1.45-1.53in/3.7-3.9cm, interior diameter = 1.26in/3.2cm), which can be obtained at your local hardware store or dealer.

Indoor Drainpipe Installation

Install the drainpipe as illustrated in the following Figure.



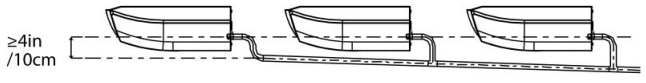
1. Cover the drainpipe with heat insulation to prevent condensation and leakage.
2. Attach the mouth of the drain hose to the unit's outlet pipe. Sheath the mouth of the hose and clip it firmly with a pipe clasp.



NOTE ON DRAINPIPE INSTALLATION

- When using an extended drainpipe, tighten the indoor connection with an additional protection tube to prevent it from pulling loose.
- The drainpipe should slope downward at a gradient of at least 1/100 to prevent water from flowing back into the air conditioner.
- To prevent the pipe from sagging, space hanging wires every 39-59in/1-1.5m.
- Incorrect installation could cause water to flow back into the unit and flood.

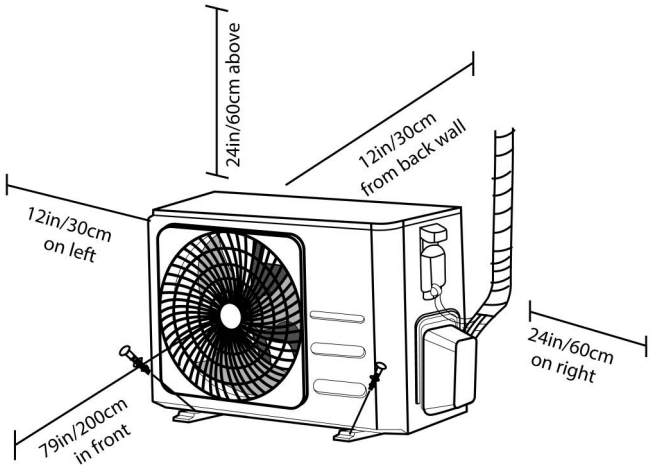
NOTE: When connecting multiple drain-pipes, install the pipes as illustrated in the following Figure.



1. Pass the drain hose through the wall hole. Make sure the water drains to a safe location where it will not cause water damage or a slipping hazard.

NOTE: The drainpipe outlet should be at least 1.9in/5cm above the ground. If it touches the ground, the unit may become blocked and malfunction. If you discharge the water directly into a sewer, make sure that the drain has a U or S pipe to catch odors that might otherwise come back into the house.

Unit must be installed in accordance with local codes and regulations, which may vary from region to region.



INSTALLATION INSTRUCTIONS – OUTDOOR UNIT

Step 1: Select installation location

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 Space Requirements above
- ✓ Good air circulation and ventilation
- ✓ Firm and solid - the location can support the unit and will not vibrate
- ✓ Noise from the unit will not disturb others
- ✓ Protected from prolonged periods of direct sunlight or rain
- ✓ Where snowfall is anticipated, raise the unit above the base pad to prevent ice buildup and coil damage. Mount the unit high enough to be above the average accumulated area snowfall. The minimum height must be 18 inches.

DO NOT install unit in the following locations:

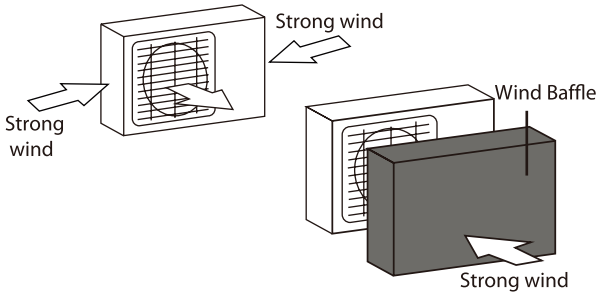
- ⊗ Near an obstacle that will block air inlets and outlets
- ⊗ Near a public street, crowded areas, or where noise from the unit will disturb others
- ⊗ Near animals or plants that will be harmed by hot air discharge
- ⊗ Near any source of combustible gas In a location that is exposed to large amounts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

SPECIAL CONSIDERATIONS FOR EXTREME WEATHER

If the unit is exposed to heavy wind:

Install unit so that 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.

See Figures below.



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.

Step 2: Install drain joint (Heat pump unit only)

Before bolting the outdoor unit in place, you must install the drain joint at the bottom of the unit.

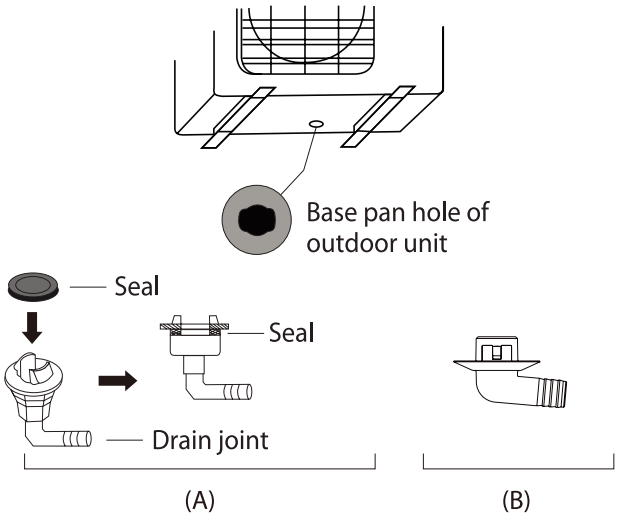
Note that there are two different types of drain joints depending on the type of outdoor unit.

If the drain joint comes with a rubber seal (see **Fig. A**), do the following:

1. Fit the rubber seal on the end of the drain joint that will connect to the outdoor unit.
2. Insert the drain joint into the hole in the base pan of the unit.
3. Rotate the drain joint 90° until it clicks in place facing the front of the unit.
4. Connect a drain hose extension (not included) to the drain joint to redirect water from the unit during heating mode.

If the drain joint doesn't come with a rubber seal (see **Fig. B**), do the following:

1. Insert the drain joint into the hole in the base pan of the unit. The drain joint will click in place.
2. Connect a drain hose extension (not included) to the drain joint to redirect water from the unit during heating mode.



IN COLD CLIMATES

In cold 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 3: Anchor outdoor unit

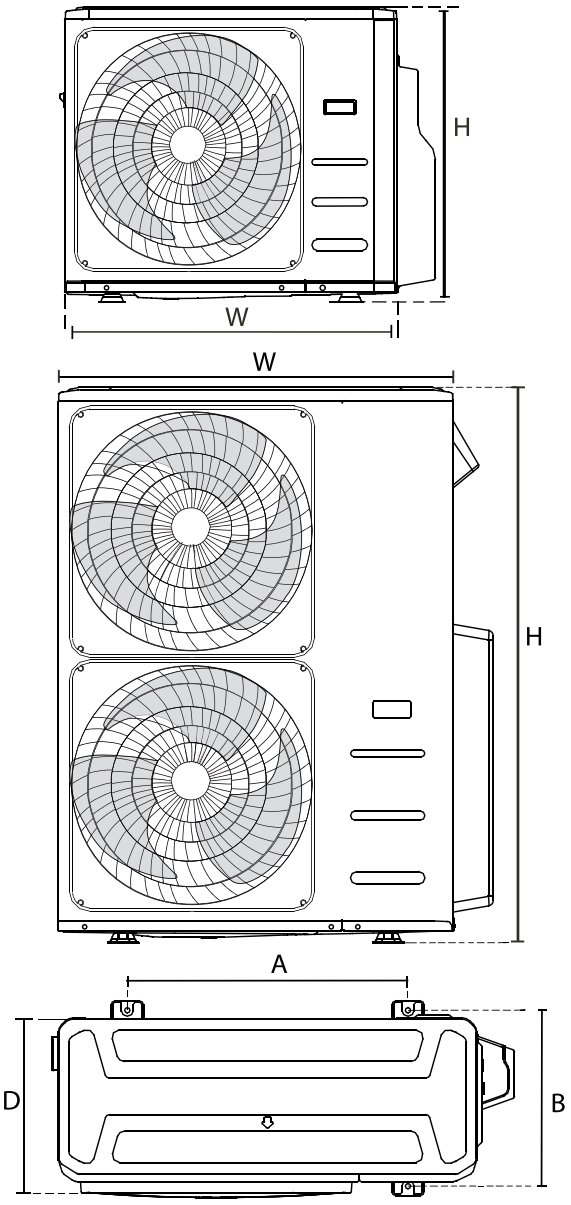
The outdoor unit can be anchored to the ground or to a wall-mounted bracket with bolt (M10). Prepare the installation base of the unit according to the dimensions below.

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.

Outdoor Unit Types and Specifications

Split Type Outdoor Unit



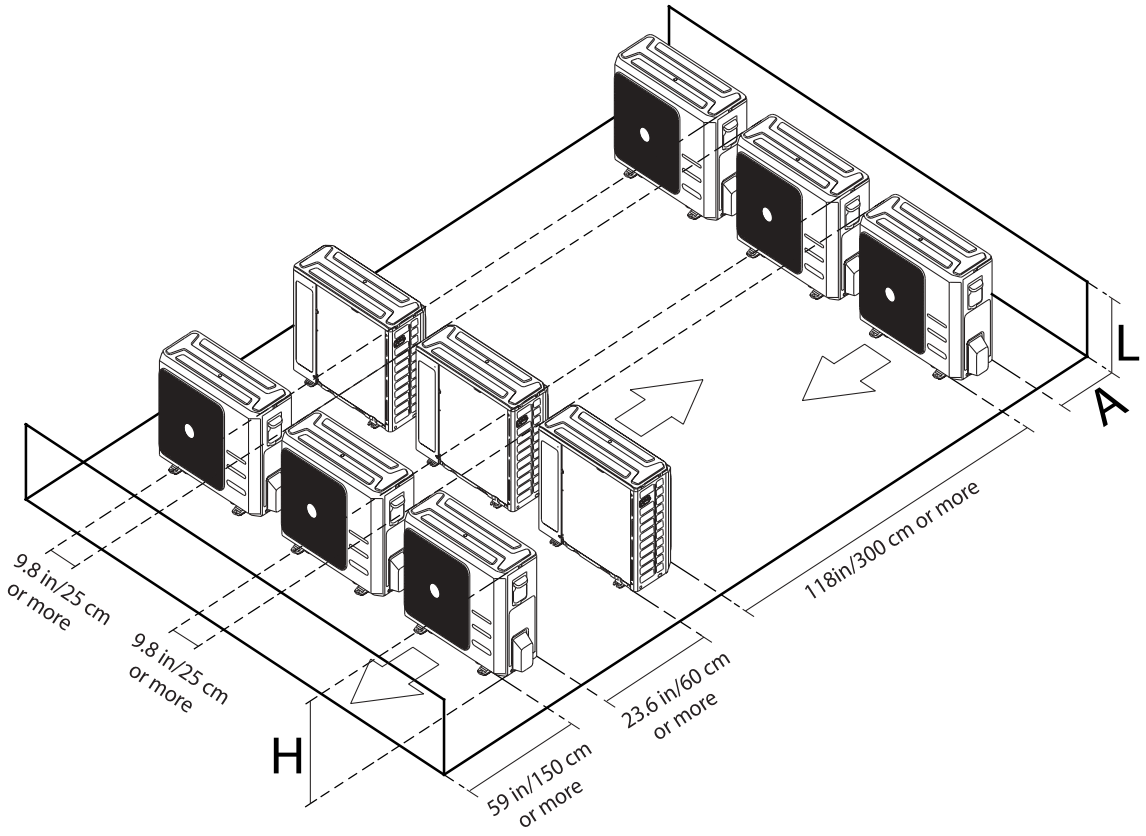
(unit: in/mm)

Outdoor Unit Dimensions, in/mm W x D x H	Mounting Dimensions, in/mm	
	Distance A	Distance B
37.24x16.14x31.89/946x410x810	26.5/673	15.87/403
37.48x16.34x52.48/952x415x1333	24.96 /634	15.9/404

Rows of series installation

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

	L	A
L≤H	L≤H	9.8in/25 cm or more
	1/2H<L≤H	11.8in/30 cm or more
L>H	Can not be installed	



Refrigerant Piping Connection 7

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

Note on Pipe Length

Ensure that the length of the refrigerant pipe, the number of bends, and the drop height between the indoor and outdoor units meets the requirements shown in the following table:

The Maximum Length And Drop Height Based on Models (Unit: ft /m)

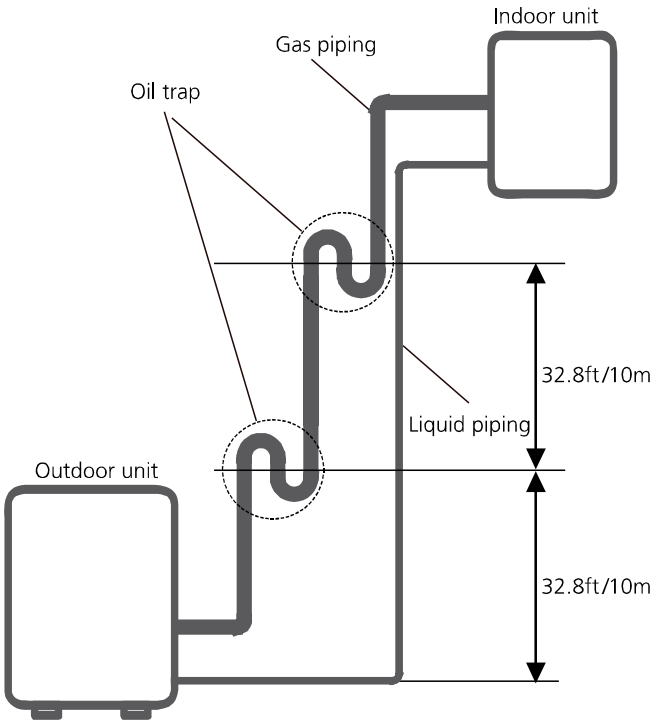
Type of model	Capacity (Btu/h)	Length of piping	Maximum drop height
North America, Australia and the EU frequency conversion Split Type	<15k	82/25	32.8/10
	≥15k - <24k	98.4/30	65.6/20
	≥24k - <36k	164/50	82/25
	≥36k - ≤60k	213/65	98.4/30
Other Split Type	12k	49/15	26/8
	18k-24k	82/25	49/15
	36k	98.4/30	65.6/20
	60k	164/50	98.4/30

⚠ CAUTION

Oil traps

If the indoor unit is installed higher than the outdoor unit:

- If oil flows back into the outdoor unit's compressor, this might cause liquid compression or deterioration of oil return. Oil traps in the rising gas piping can prevent this.
- An oil trap should be installed every 32.8ft/10m of vertical suction line riser.

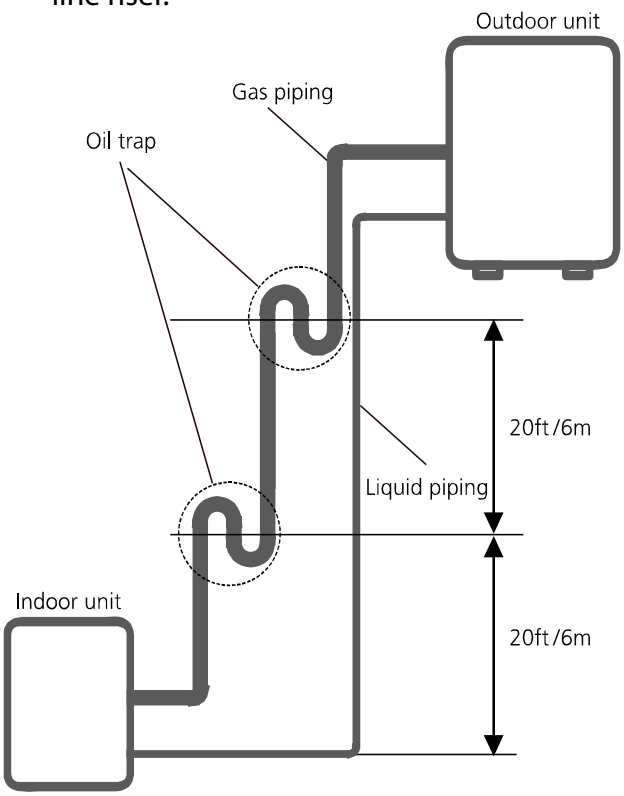


The indoor unit is installed higher than the outdoor unit

⚠ CAUTION

If the outdoor unit is installed higher than the indoor unit:

- It is recommended that vertical suction risers not be upsized. Proper oil return to the compressor should be maintained with suction gas velocity. If velocities drop below 1,500fpm (feet per minute)/7.62m/s oil return will be decreased. An oil trap should be installed every 20ft/6m of vertical suction line riser.



The outdoor unit is installed higher than the indoor unit

Refrigerant Piping Connection Instructions

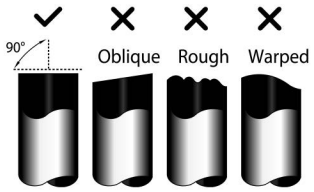
⚠ CAUTION

- 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 water leakage.

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 the 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.



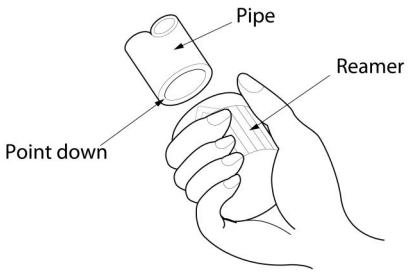
⊗ DO NOT DEFORM PIPE WHILE CUTTING

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

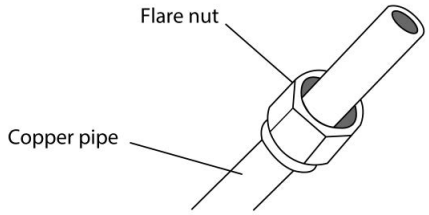


Step 3: Flare pipe ends

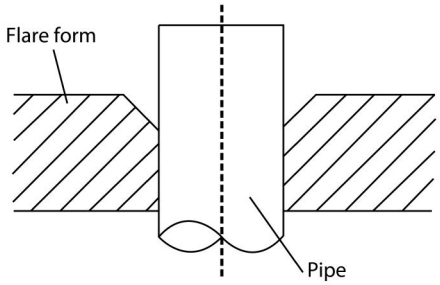
Proper flaring is essential to achieve an airtight seal.

1. After removing burrs from 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 pipe. Make sure they are facing in the right direction, because you can't put them on or change their direction after flaring.

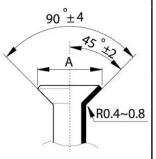


4. Remove PVC tape from ends of pipe when ready to perform flaring work.
5. Clamp flare form on the end of the pipe. The end of the pipe must extend beyond the flare form.



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

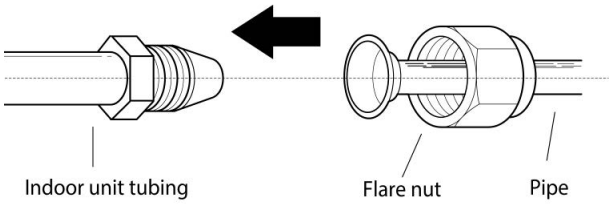
Piping Extension Beyond Flare Form

Pipe gauge (Unit: in/mm)	Tightening torque	Flare dimension (A) (Unit: in/mm)		Flare shape
		Min	Max	
Ø1/4in /6.4cm	18-20 N.m (183-204 kgf.cm)	0.33 /8.4	0.34 /8.7	
Ø3/8in /9.5mm	25-26 N.m (255-265 kgf.cm)	0.52 /13.2	0.53/13.5	
Ø1/2in /12.7mm	35-36 N.m (357-367 kgf.cm)	0.64/16.2	0.65/16.5	
Ø5/8in /15.9mm	45-47 N.m (459-480 kgf.cm)	0.76/19.2	0.78/19.7	
Ø3/4in /19.1mm	65-67 N.m (663-683 kgf.cm)	0.91/23.2	0.93/23.7	
Ø7/8in /22mm	75-85N.m (765-867 kgf.cm)	1.04/26.4	1.06/26.9	

Step 4: Connect pipes

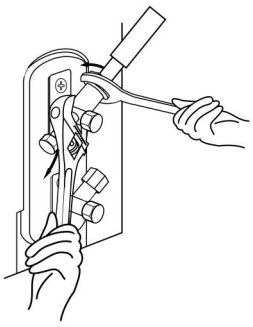
Connect the copper pipes to the indoor unit first, then connect it to the outdoor unit. You should first connect the low-pressure pipe, then the high-pressure pipe.

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



3. Tighten the flare nut as tightly as possible by hand.
4. Using a spanner, grip the nut on the unit tubing.
5. While firmly gripping the nut, use a torque wrench to tighten the flare nut according to the torque values in above table.

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

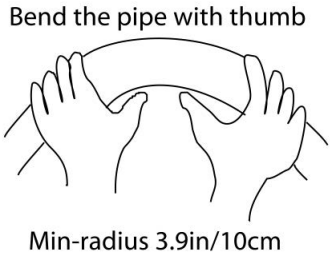


⚠ CAUTION

- 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.

NOTE ON 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.



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

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

6. Thread this pipeline through the wall and connect it to the outdoor unit.
7. Insulate all the piping, including the valves of the outdoor unit.
8. Open the stop valves of the outdoor unit to start the flow of the refrigerant between the indoor and outdoor unit.

⚠ CAUTION

Check to make sure there is no refrigerant leak after completing the installation work. If there is refrigerant leak, ventilate the area immediately and evacuate the system (refer to the Air Evacuation section of this manual).

⚠ WARNING

BEFORE PERFORMING ANY ELECTRICAL WORK, READ THESE REGULATIONS

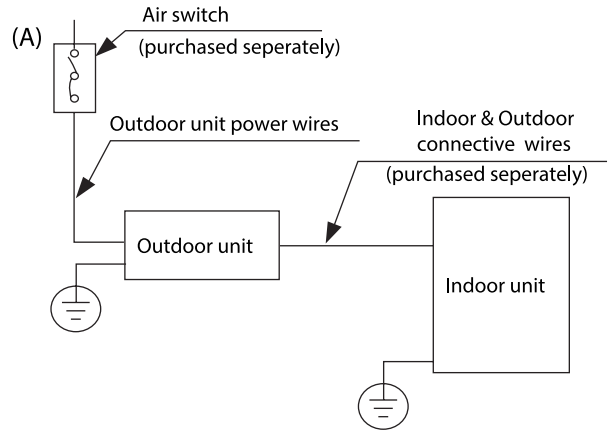
1. All wiring must comply with local and national electrical codes and regulations and must be installed by a licensed electrician.
2. All electrical connections must be made according to the Electrical Connection Diagram located on the panels of the indoor and outdoor units.
3. If there is a serious 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 is properly resolved.
4. Power voltage should be within 90-110% of rated voltage. Insufficient power supply can cause malfunction, electrical shock, or fire.
5. If 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.
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 air conditioner.
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. If the unit has an auxiliary electric heater, it must be installed at least 40in/1m away from any combustible materials.
12. To avoid getting an electric shock, always wait 10 minutes or more before you touch the electrical components after the power supply has been turned off.
13. Make sure that you do not cross your electrical wiring with your signal wiring. This may cause distortion and interference.
14. The unit must be connected to the main outlet. Normally, the power supply must have a impedance of 32 ohms.
15. No other equipment should be connected to the same power circuit.
16. Connect the outdoor wires before connecting the indoor wires.

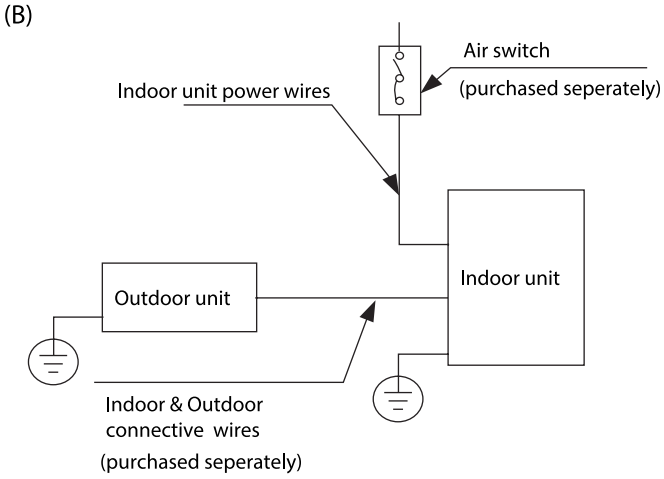
⚠ WARNING

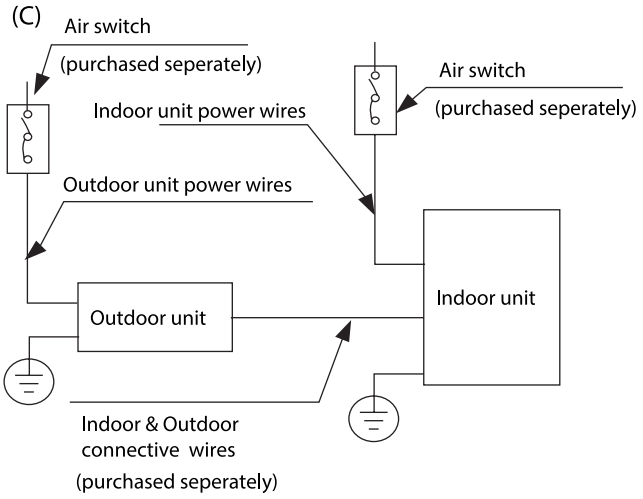
BEFORE PERFORMING ANY ELECTRICAL OR WIRING WORK, TURN OFF THE MAIN POWER TO THE SYSTEM.

NOTE ON AIR SWITCH

When the maximum current of the air conditioner is more than 16A, an air switch or leakage protection switch with protective device shall be used (purchased seperately). When the maximum current of the air conditioner is less than 16A, the power cord of air conditioner shall be equipped with plug (purchased seperately).







NOTE: The cographs are for explanation purpose only. Your machine may be slightly different. The actual shape shall prevail.

Outdoor Unit Wiring

⚠ WARNING

BEFORE PERFORMING ANY ELECTRICAL OR WIRING WORK, TURN OFF THE MAIN POWER TO THE SYSTEM.

1. Prepare the cable for connection

   a. You must first choose the right cable size. Be sure to use H07RN-F cables.

Minimum Cross-Sectional Area of Power and Signal Cables North America

Rated Current of Appliance (A)	Nominal Cross-Sectional Area (mm^2)
> 3 and ≤ 6	0.75
> 6 and ≤10	1
> 10 and ≤16	1.5
> 16 and ≤25	2.5
> 25 and ≤32	4
> 32 and ≤40	6

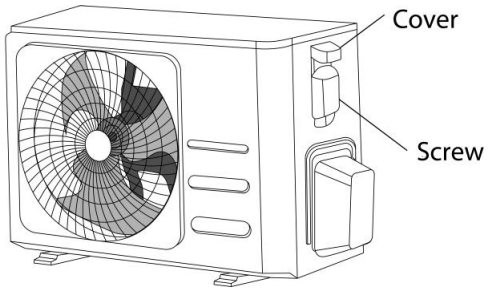
   b. Using wire strippers, strip the rubber jacket from both ends of the signal cable to reveal approximately 5.9in/15cm of wire.

   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.



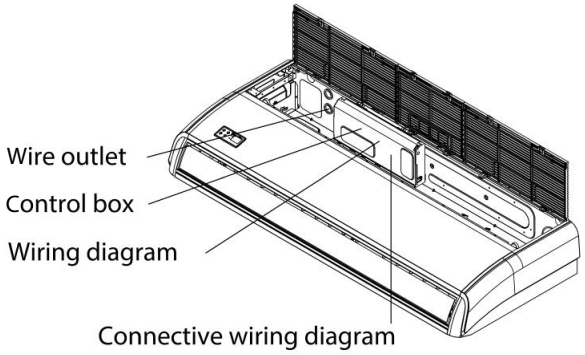
3. Connect the u-lugs to the terminals, match the wire colors/labels with the labels on the terminal block, and firmly screw the u-lug of each wire to its corresponding terminal.
4. Clamp down the cable with designated cable clamp.
5. Insulate unused wires with electrical tape. Keep them away from any electrical or metal parts.
6. Reinstall the cover of the electric control box.

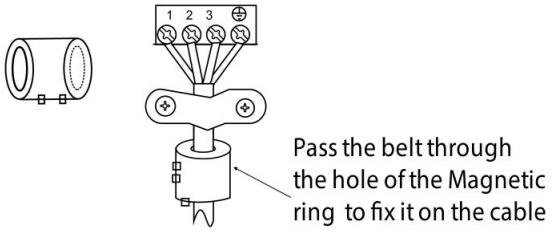
Indoor Unit Wiring

1. Prepare the cable for connection
   A. Using wire strippers, strip the rubber jacket from both ends of the signal cable to reveal about 5.9in/15cm of the wire.
   B. Strip the insulation from the ends of the wires.
   C. Using a wire crimper, crimp the u-lugs to the ends of the wires.
2. Open the front panel of the indoor unit. Using a screwdriver, remove the cover of the electric control box on your indoor unit.
3. Thread the power cable and the signal cable through the wire outlet.
4. Connect the u-lugs to the terminals.

   Match the wire colors/labels with the labels on the terminal block. Firmly screw the u-lug of each wire to its corresponding terminal. Refer to the Serial Number and Wiring Diagram located on the cover of the electric control box.

Magnetic ring (if supplied and packed with the accessories)





⚠ CAUTION

- While connecting the wires, please strictly follow the wiring diagram.
- The refrigerant circuit can become very hot. Keep the interconnection cable away from the copper tube.

5. Clamp down the cable with the cable clamp. The cable must not be loose or pull on the u-lugs.
6. Reattach the electric box cover.

Power Specifications

NOTE: Electric auxiliary heating type circuit breaker/fuse need to add more than 10 A.

Indoor Power Supply Specifications

MODEL(Btu/h)		≤18k	~24k	~36k	~48k	~60k
POWER	PHASE	1 Phase	1 Phase	1 Phase	1 Phase	1 Phase
	VOLT	208-240V	208-240V	208-240V	208-240V	208-240V
CIRCUIT BREAKER/ FUSE(A)		25/20	32/25	50/40	70/55	70/60

Outdoor Power Supply Specifications

MODEL(Btu/h)		≤18k	~24k	~36k	~48k	~60k
POWER	PHASE	1 Phase	1 Phase	1 Phase	1 Phase	1 Phase
	VOLT	208-240V	208-240V	208-240V	208-240V	208-240V
CIRCUIT BREAKER/ FUSE(A)		25/20	32/25	50/40	70/55	70/60

Independent Power Supply Specifications

MODEL(Btu/h)		≤18k	~24k	~36k	~48k	~60k
POWER	PHASE	1 Phase	1 Phase	1 Phase	1 Phase	1 Phase
	VOLT	208-240V	208-240V	208-240V	208-240V	208-240V
CIRCUIT BREAKER/FUSE(A)		15/10	15/10	15/10	15/10	15/10
POWER	PHASE	1 Phase	1 Phase	1 Phase	1 Phase	1 Phase
	VOLT	208-240V	208-240V	208-240V	208-240V	208-240V
CIRCUIT BREAKER/ FUSE(A)		25/20	32/25	50/40	70/55	70/60

Independent Power Supply Specifications

MODEL(Btu/h)		≤18k	~24k	~36k	~48k	~60k
POWER	PHASE	1 Phase	1 Phase	1 Phase	1 Phase	1 Phase
	VOLT	220-240V	220-240V	220-240V	220-240V	220-240V
CIRCUIT BREAKER/FUSE(A)		15/10	15/10	15/10	15/10	15/10
POWER	PHASE	1 Phase	1 Phase	1 Phase	1 Phase	1 Phase
	VOLT	208-240V	208-240V	208-240V	208-240V	208-240V
CIRCUIT BREAKER/ FUSE(A)		25/20	25/20	40/30	50/40	50/40

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 unit is relocated.

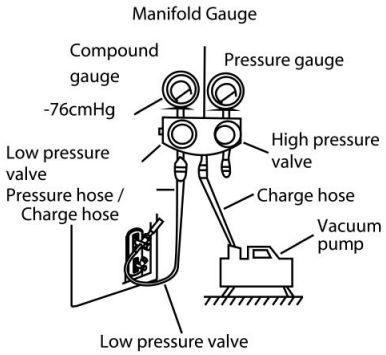
BEFORE PERFORMING EVACUATION

⊘ Check to make sure the connective pipes between the indoor and outdoor units are connected properly .

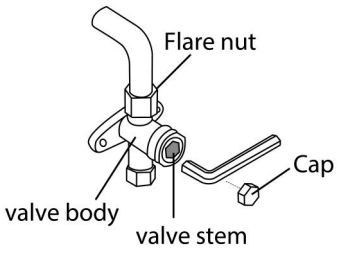
⊘ Check to make sure all wiring is connected properly.

Evacuation Instructions

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 Compound Meter reads -76cmHG (-10^5Pa).



6. Close the Low Pressure side of the manifold gauge, and turn on 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. If there is no change in system pressure, unscrew the cap
9. 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 loosen 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 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 using a torque wrench if needed.

⚠ WARNING

OPEN VALVE STEMS GENTLY

When opening valve stems, turn the hexagonal wrench until it hits against the stopper. Do not try to force the valve to open further.

Indoor Unit Wiring

Some systems require additional charging depending on pipe lengths. The standard pipe length varies according to local regulations. For example, in North America, the standard pipe length is 25ft/7.5m. In other areas, the standard pipe length is 16ft /5m. The refrigerant should be charged from the service port on the outdoor unit's low pressure valve. The additional refrigerant to be charged can be calculated using the following formula:

Liquid Side Diameter

	Ø 1/4in/6.35mm	Ø 3/8in/9.52mm	Ø 1/2in/12.7mm
R22 (orifice tube in the indoor unit):	(Total pipe length - standard pipe length) x0.32oZ(30 g)/m(ft)	(Total pipe length - standard pipe length) x0.69oZ(65 g)/m(ft)	(Total pipe length - standard pipe length) x1.23oZ(115 g)/m(ft)
R22 (orifice tube in the outdoor unit):	(Total pipe length - standard pipe length) x0.16oZ(15 g)/m(ft)	(Total pipe length - standard pipe length) x0.32oZ(30 g)/m(ft)	(Total pipe length - standard pipe length) x0.64oZ(60 g)/m(ft)
R410A: (orifice tube in the indoor unit):	(Total pipe length - standard pipe length) x0.32oZ(30 g)/m(ft)	(Total pipe length - standard pipe length) x0.69oZ(65 g)/m(ft)	(Total pipe length - standard pipe length) x1.23oZ(115 g)/m(ft)
R410A: (orifice tube in the outdoor unit):	(Total pipe length - standard pipe length) x0.16oZ(15 g)/m(ft)	(Total pipe length - standard pipe length) x0.32oZ(30 g)/m(ft)	(Total pipe length - standard pipe length) x0.69oZ(65 g)/m(ft)
R32 :	(Total pipe length - standard pipe length) x0.13oZ(12 g)/m(ft)	(Total pipe length - standard pipe length) x0.26oZ(24 g)/m(ft)	(Total pipe length - standard pipe length) x0.42oZ(40 g)/m(ft)

⚠ CAUTION DO NOT mix refrigerant types.

Test Run 10

Before Test Run

A test run must be performed after the entire system has been completely installed. Confirm the following points before performing the test:

a. Indoor and outdoor units are properly installed.

b. Piping and wiring are properly connected.

c. No obstacles near the inlet and outlet of the unit that might cause poor performance or product malfunction.

d. Refrigeration system does not leak.

e. Drainage system is unimpeded and draining to a safe location.

f. Heating insulation is properly installed.

g. Grounding wires are properly connected.

h. Length of the piping and additional refrigerant stow capacity have been recorded.

i. Power voltage is the correct voltage for the air conditioner.

⚠ CAUTION

Failure to perform the test run may result in unit damage, property damage, or personal injury.

Test Run Instructions

1. Open both the liquid and gas stop valves.
2. Turn on the main power switch and allow the unit to warm up.
3. Set the air conditioner to COOL mode.
4. For the Indoor Unit

a. Ensure the remote control and its buttons work properly.

b. Ensure the louvers move properly and can be changed using the remote control.

c. Double check to see if the room temperature is being registered correctly.

d. Ensure the indicators on the remote control and the display panel on the indoor unit work properly.

e. Ensure the manual buttons on the indoor unit works properly.

f. Check to see that the drainage system is unimpeded and draining smoothly.

g. Ensure there is no vibration or abnormal noise during operation.

5. For the Outdoor Unit

a. Check to see if the refrigeration system is leaking.

b. Make sure there is no vibration or abnormal noise during operation.

c. Ensure the wind, noise, and water generated by the unit do not disturb your neighbors or pose a safety hazard.

6. Drainage Test

a. Ensure the drainpipe flows smoothly. New buildings should perform this test before finishing the ceiling.

b. Remove the test cover. Add 4.23pt /2,000ml of water to the tank through the attached tube.

c. Turn on the main power switch and run the air conditioner in COOL mode.

d. Listen to the sound of the drain pump to see if it makes any unusual noises.

e. Check to see that the water is discharged. It may take up to one minute before the unit begins to drain depending on the drainpipe.

f. Make sure that there are no leaks in any of the piping.

g. Stop the air conditioner. Turn off the main power switch and reinstall the test cover.

NOTE: If the unit malfunctions or does not operate according to your expectations, please refer to the Troubleshooting section of the Owner's Manual before calling customer service.