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LG

ENGLISH

ESPAÑOL

PORTUGUESE

LG

Multi Type Air Conditioner

INSTALLATION MANUAL



IMPORTANT

- Please read this installation manual completely before installing the product.
- When the power cord is damaged, replacement work shall be performed by authorized personnel only.
- Installation work must be performed in accordance with the national wiring standards by authorized personnel only.

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Required Tools

- ☐ Level gauge
- ☐ Screw driver
- ☐ Electric drill
- ☐ Hole core drill (ø50mm)
- ☐ Horizontal meter

- ☐ Flaring tool set
- ☐ Specified torque wrenches
1.8kg.m, 4.2kg.m, 5.5kg.m, 6.6kg.m
(different depending on model No.)
- ☐ SpannerHalf union

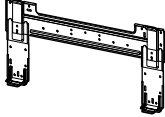
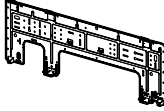
- ☐ A glass of water
- ☐ Screw driver

- ☐ Hexagonal wrench(4mm)
- ☐ Gas-leak detector
- ☐ Vacuum pump
- ☐ Gauge manifold

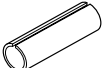
- ☐ Owner's manual
- ☐ Thermometer
- ☐ Holder Remote Control

Installation Parts

[Wall Mounted /Artcool Mirror Type]

Type 1	Type 2
Installation plate	Installation plate
	
Type "B" screw	Type "B" screw
	
Type "A" screw (6 EA)	Type "A" screw (8 EA)
	
Remote control holder	Remote control holder
	

[Ceiling Concealed Duct Type]

Name	Drain hose	Clamp metal	Washer for hanging bracket	Clamp (Tie Wrap)	Insulation for fitting
Quantity	1 EA	2 EA	8 EA	4 EA	1 SET
Shape					 for gas pipe  for liquid pipe

[Ceiling Cassette Type]

Name	Clamp metal	Drain hose	Insulation for fitting	Washer for hanging bracket	Clamp (Tie Wrap)	Bolt	Screw
Quantity	2 EA	1 EA	1 set	8 EA	4 EA	4 EA	3 EA
Shape			 for gas pipe  for liquid pipe				

Safety Precautions

To prevent injury to the user or other people and property damage, the following instructions must be followed.

- Incorrect operation due to ignoring instruction will cause harm or damage. The seriousness is classified by the following indications.

⚠ WARNING This symbol indicates the possibility of death or serious injury.

⚠ CAUTION This symbol indicates the possibility of injury or damage.

- Meanings of symbols used in this manual are as shown below.

	Be sure not to do.
	Be sure to follow the instruction.

⚠ WARNING

■ Installation

Do not use a defective or underrated circuit breaker. Use this appliance on a dedicated circuit.

- There is risk of fire or electric shock.

For electrical work, contact the dealer, seller, a qualified electrician, or an Authorized Service Center.

- Do not disassemble or repair the product. There is risk of fire or electric shock.

Always ground the product.

- There is risk of fire or electric shock.

Install the panel and the cover of control box securely.

- There is risk of fire or electric shock.

Always install a dedicated circuit and breaker.

- Improper wiring or installation may cause fire or electric shock

Use the correctly rated breaker or fuse.

- There is risk of fire or electric shock.

Do not modify or extend the power cable.

- There is risk of fire or electric shock.

Be cautious when unpacking and installing the product.

- Sharp edges could cause injury. Be especially careful of the case edges and the fins on the condenser and evaporator.

For installation, always contact the dealer or an Authorized Service Center.

- There is risk of fire, electric shock, explosion, or injury.

Do not install the product on a defective installation stand.

- It may cause injury, accident, or damage to the product.

Be sure the installation area does not deteriorate with age.

- If the base collapses, the air conditioner could fall with it, causing property damage, product failure, and personal injury.

Do not let the air conditioner run for a long time when the humidity is very high and a door or a window is left open.

- Moisture may condense and wet or damage furniture.

■ Operation

Do not store or use flammable gas or combustibles near the product.

- There is risk of fire or failure of product.

CAUTION

■ Installation

Always check for gas (refrigerant) leakage after installation or repair of product.

- Low refrigerant levels may cause failure of product.

Install the drain hose to ensure that water is drained away properly.

- A bad connection may cause water leakage.

Keep level even when installing the product.

- To avoid vibration or water leakage.

Do not install the product where the noise or hot air from the outdoor unit could damage the neighborhoods.

- It may cause a problem for your neighbors.

Use two or more people to lift and transport the product.

- Avoid personal injury.

Do not install the product where it will be exposed to sea wind (salt spray) directly.

- It may cause corrosion on the product. Corrosion, particularly on the condenser and evaporator fins, could cause product malfunction or inefficient operation.

Installation of Indoor, Outdoor Unit

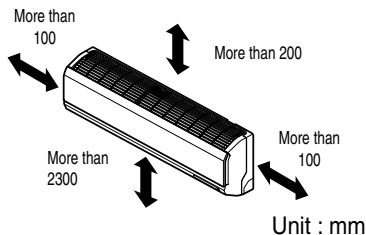
Read completely, then follow step by step.

Select the best location

Indoor unit

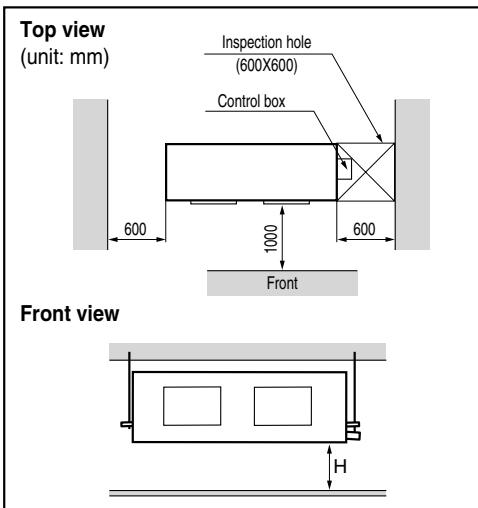
1. Do not have any heat or steam near the unit.
2. Select a place where there are no obstacles in front of the unit.
3. Make sure that condensation drainage can be conveniently routed away.
4. Do not install near a doorway.
5. Ensure the unit is unobstructed, allow proper space on all sides according to the arrows and distance measurements in the figures.
6. Use a Metal Detector or Metal Scanner to locate studs to prevent unnecessary damage to the wall.

[Wall Mounted /Artcool Mirror Type]

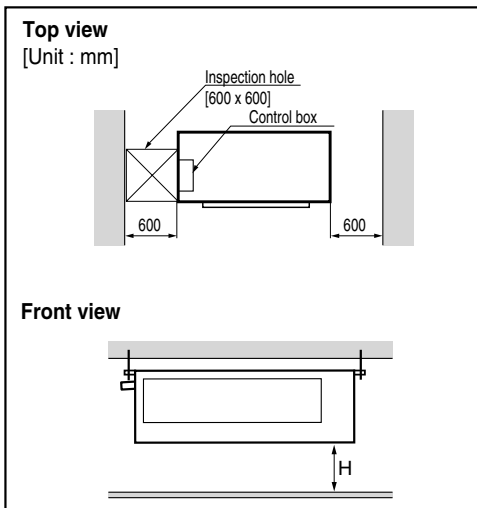


CAUTION: Install the indoor unit on the wall where the height from the floors more than 2.3 meters.

[Ceiling Concealed Duct Type]



High static duct type

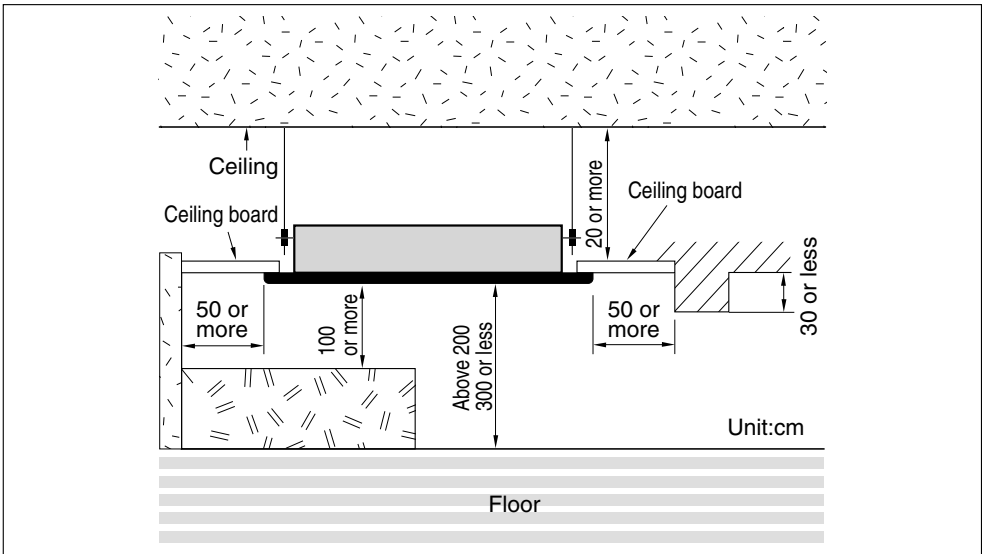


Low static duct type



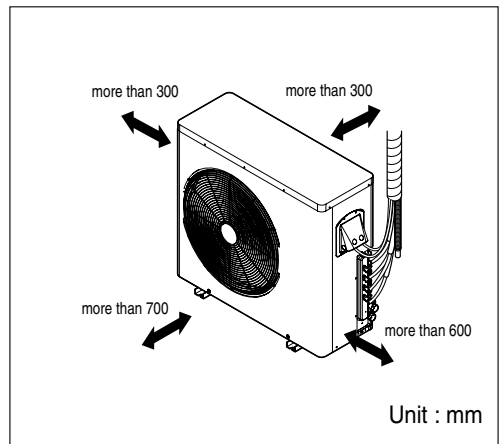
CAUTION : Suitable dimension “H” is necessary to get a slope to drain as figure.

[Ceiling Cassette Type]



Outdoor unit

1. If an awning is built over the unit to prevent direct sunlight or rain exposure, make sure that heat radiation from the condenser is not restricted.
2. Ensure the unit is unobstructed, allow proper space on all sides according to the arrows and distance measurements in the figures.
3. Do not place animals and plants in the path of the warm air.
4. Take the air conditioner weight into account and select a place where noise and vibration are minimum.
5. Select a place so that the warm air and sound from the air conditioner does not disturb neighbors.



※ The figure may be slightly different according to the model.

Rooftop Installations:

If the outdoor unit is installed on a roof structure, be sure to level the unit. Ensure the roof structure and anchoring method are adequate for the unit location. Consult local codes regarding rooftop mounting.

Piping length and elevation

Multi Piping Type

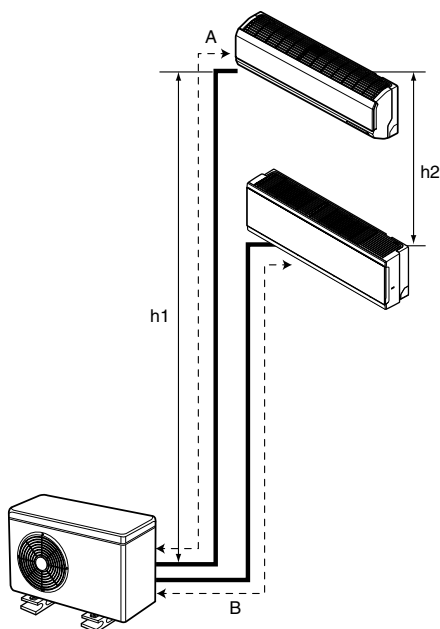
(Unit: m)

Capacity(kBtu/h)	Total Piping Length (A+B)	Max Piping Length (A/B)	Max Elevation (h1)	In - In Elevation (h2)
24	40	20	7.5	7.5
30	50	20	7.5	7.5
36	70	20	7.5	7.5

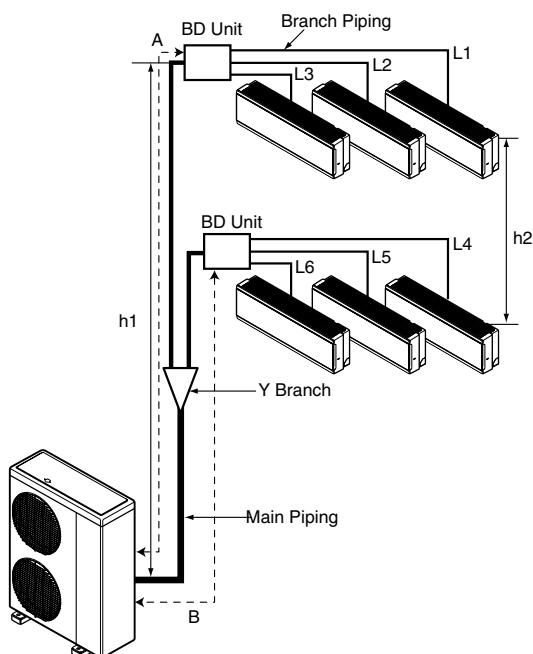
Distributor Type

(Unit: m)

Capacity (kBtu/h)	Total Piping Length (A+B)+ (L1+L2+...+L6)	Max Main Piping Length(A+B)	Total Branch Piping Length (L1+L2+...+L6)	Max Branch Piping Length (L1/L2/.../L6)	Max Elevation (h1)	In - In Elevation (h2)
50	75	25	50	25	15	7.5



Multi Piping Type



Distributor Type



CAUTION: Capacity is based on standard length and maximum allowance length is on the basis of reliability. Oil trap should be installed every 5~7 meters.

Refrigerant charge

The calculation of the additional charge should be taken in account for the length of extra pipe.

Multiple Piping Models

Capacity (kBtu/h)	Standard Piping length(m)	Max piping for one room(m)	Max total Piping Length(m)	Additional Refrigerant(g/m)
24	7.5	20	40	20
30	7.5	20	50	30
36	7.5	20	70	30

Distributor type Models

Capacity (kBtu/h)	Main Piping length		Branch piping length	
	Standard Piping length(m)	Additional Refrigerant(g/m)	Standard Piping length(m)	Additional Refrigerant(g/m)
50	5	40	S	20/30

■ Multiple Piping Models

Additional charge (g) = (Total Piping Length-Standard Piping Length) X Additional Refrigerant

■ Distributor type Models

Additional charge (g) = (Main piping length - 5) x 40 g/m

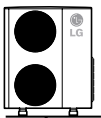
+ (branch piping length of 9 kBtu/h indoor unit - S) x 20 g/m

+ (branch piping length of over 9 kBtu/h indoor unit - S) x 30 g/m

$$\text{Main piping length} = A + B + C, S = \frac{30 \text{ m}}{\text{No. of the installed Indoor units}}$$

* If the value of the calculation is minus, you have only to operate the system by the base refrigerant amount.

► Example of the additional refrigerant amount calculation



• Main piping length (A + B + C) = 15m

• Branch piping length

- a : 3 m
- b : 10 m
- c : 25 m
- d : 5 m
- e : 15 m

$$S = \frac{30 \text{ m}}{\text{Number of installed indoor units}} = \frac{30}{5} = 6$$

Additional refrigerant amount

$$\begin{aligned}
 &= (15-5) \times 40 \\
 &\quad + (3-6) \times 20 \\
 &\quad + (10-6) \times 20 \\
 &\quad + (25-6) \times 20 \\
 &\quad + (5-6) \times 20 \\
 &\quad + (15-6) \times 30 \\
 &= 400-60+80+380-20+270 \\
 &= 1050\text{g}
 \end{aligned}$$

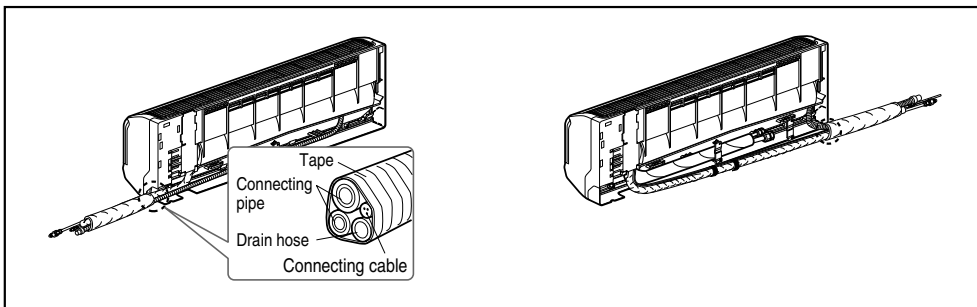
* When you insert the refrigerant, you must insert the regular amount using the balance.

Installation

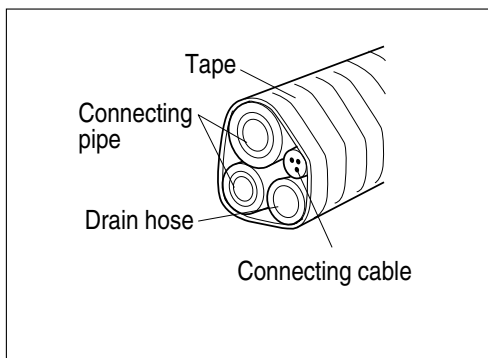
[Wall Mounted /Artcool Mirror Type]

Connecting the piping

1. Route the indoor tubing and the drain hose in the direction of rear left or right



2. Tape the tubing, drain hose and the connecting cable. Be sure that the drain hose is located at the lowest side of the bundle. Locating at the upper side can cause drain pan to overflow inside the unit.



CAUTION: If the drain hose is routed inside the room, insulate the hose with an insulation material* so that dripping from "sweating"(condensation) will not damage furniture or floors.

*Foamed polyethylene or equivalent is recommended.

■ Indoor unit installation on installation plate

1. Hook the indoor unit onto the upper portion of the installation plate.(Engage the two hooks of the rear top of the indoor unit with the upper edge of the installation plate.) Ensure that the hooks are properly seated on the installation plate by moving it left and right. Press the lower left and right sides of the unit against the installation plate until the hooks engage into their slots(clicking sound).

Connecting the pipings to the indoor unit and drain hose to drain pipe

1. Align the center of the pipings and sufficiently tighten the flare nut by hand.
2. Tighten the flare nut with a wrench.

Outside diameter		Torque
mm	inch	kgf-cm
Ø6.35	1/4	180~250
Ø9.52	3/8	340~420
Ø12.7	1/2	550~560
Ø15.88	5/8	630~820
Ø19.05	3/4	990~1 210

3. When extending the drain hose at the indoor unit, install the drain pipe.

Wrap the insulation material around the connecting portion.

1. Overlap the connection pipe insulation material and the indoor unit pipe insulation material. Bind them together with vinyl tape so that there is no gap.
2. Wrap the area which accommodates the rear piping housing section with vinyl tape.

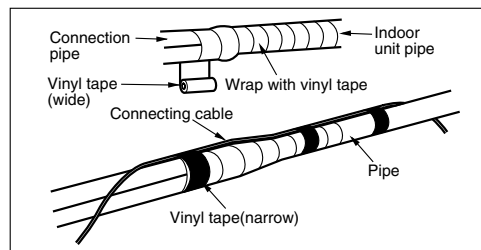
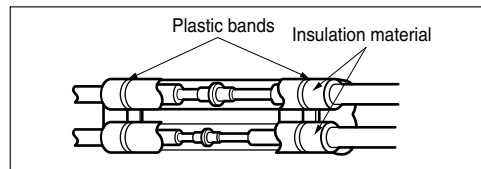
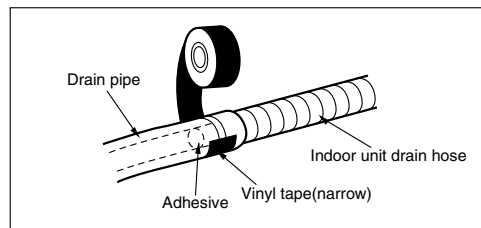
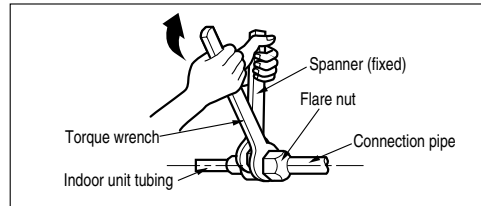
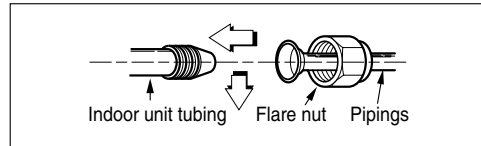
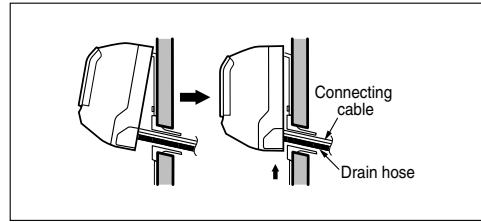
NOTICE : Recommended Insulation material

Material: FOAM PE

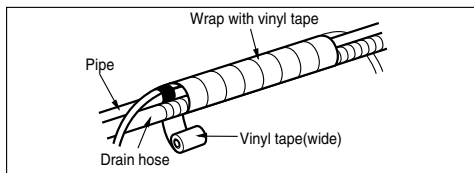
Thickness: 10mm

Density: less than $0.032 \pm 0.005(\text{g/cm}^3)$

Thermal conductivity: less than 0.03
(kcal/m·h·°C)



- Bundle the piping and drain hose together by wrapping them with vinyl tape over the range within which they fit into the rear piping housing section.

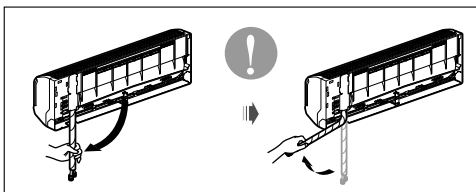


CAUTION: Installation Information (For right piping)

For right piping, follow the instruction below.

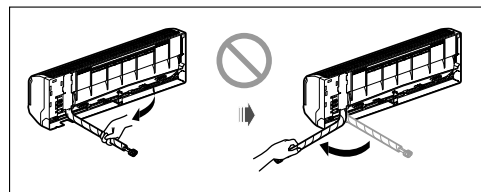
Good case

- Press on the upper side of clamp and unfold the tubing to downward slowly.



Bad case

- Following bending type from left to right could cause problem of pipe damage.



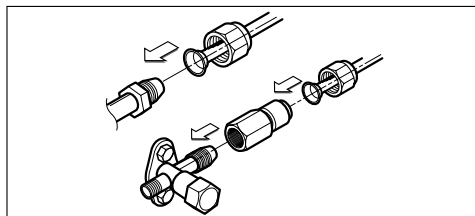
Connecting Pipings and the cable to Outdoor unit

Connecting the pipings to the Outdoor unit

- When piping installation work you must be used the connector.

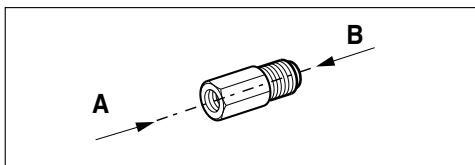
Indoor Units (Btu/h)	Gas A → B	Liquid
9k	Ø12.7→Ø9.52	Not available
24k	Ø12.7→Ø15.88	Not available

- Align the center of the pipings and sufficiently tighten the flare nut by hand



- Finally, tighten the flare nut with torque wrench until the wrench clicks.

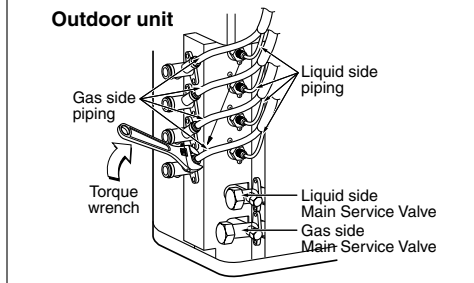
- When tightening the flare nut with torque wrench, ensure the direction for tightening follows the arrow on the wrench.



*Connecting pipe size

Indoor Units (Btu/h)	Gas side	Liquid side
9k	Ø9.52(3/8")	Ø6.35(1/4")
12/18k	Ø12.7(1/2")	Ø6.35(1/4")
24k	Ø15.88(5/8")	Ø6.35(1/4")

Outdoor unit

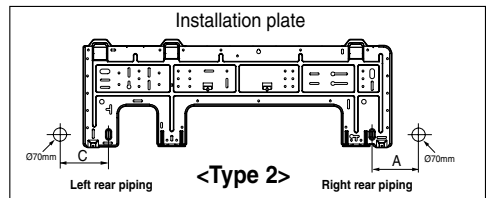
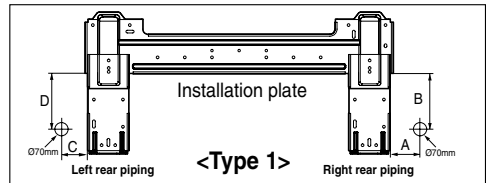
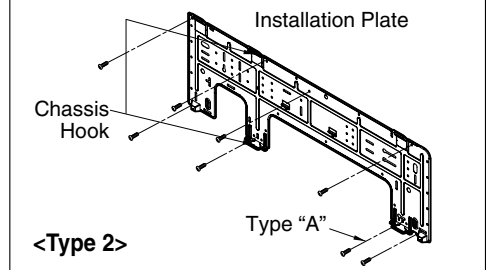
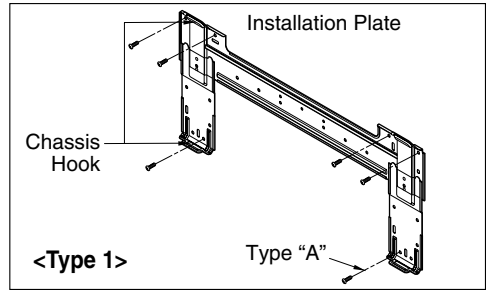


* The figure may be slightly different according to the model.

■ How to fix installation plate

The wall you select should be strong and solid enough to prevent vibration

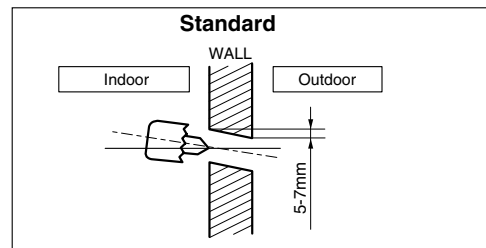
1. Mount the installation plate on the wall with type "A" screws. If mounting the unit on a concrete wall, use anchor bolts.
 - Mount the installation plate horizontally by aligning the centerline using a level.
2. Measure the wall and mark the centerline. It is also important to use caution concerning the location of the installation plate-routing of the wiring to power outlets is through the walls typically. Drilling the hole through the wall for piping connections must be done safely.



Indoor Type	Capacity (kBtu/h)	Distance (mm)				Type
		A	B	C	D	
Wall Mounted	9,12	55	105	64	105	1
	18,24	100		133		2
ART COOL Mirror	9,12	70	110	90	110	1
	18,24	100		133		2

■ Drill a hole in the wall

- Drill the piping hole with a $\phi 70\text{mm}$ hole core drill. Drill the piping hole at either the right or the left with the hole slightly slanted to the outdoor side.



[Ceiling Concealed Duct Type]

Ceiling dimension and hanging bolt location

Installation of Unit

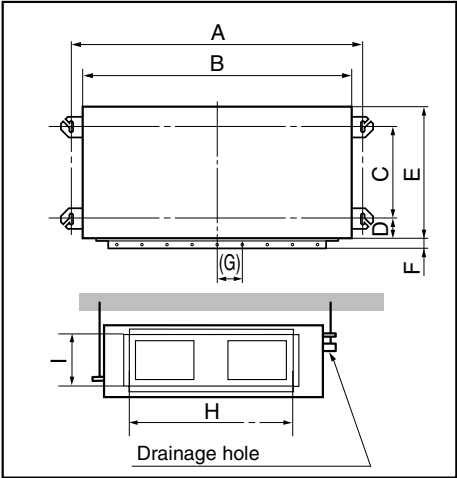
Install the unit above the ceiling correctly.

Case 1-1(High Static Pressure)

- Apply a joint-canvas between the unit and duct to absorb unnecessary vibration.

POSITION OF SUSPENSION BOLT

Unit:mm									
Dimension Capacity Btu/h class	A	B	C	D	E	F	G	H	I
18/24k	932	882	355	47	450	30	87	750	158



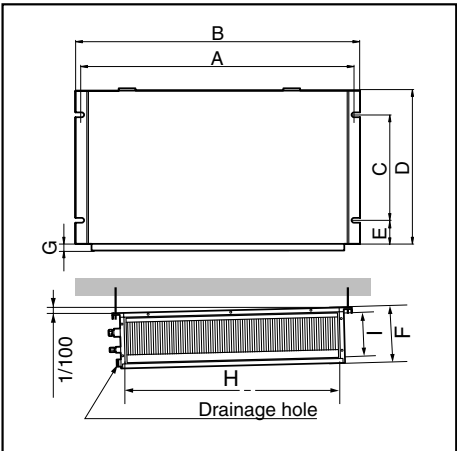
Case 1-2(Low Static Pressure)

- Apply a joint-canvas between the unit and duct to absorb unnecessary vibration.

POSITION OF SUSPENSION BOLT

Unit:mm

Dimension Capacity Btu/h class	A	B	C	D	E	F	G	H	I
9/12k	850	900	383	570	93.5	190	20.6	795	163
18k	1130	1180	383	570	93.5	190	20.6	1065	163

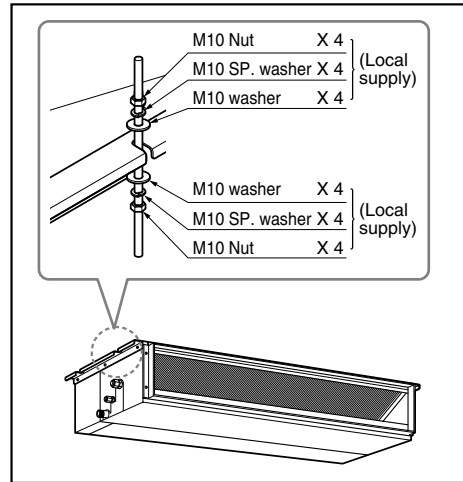


CASE 2

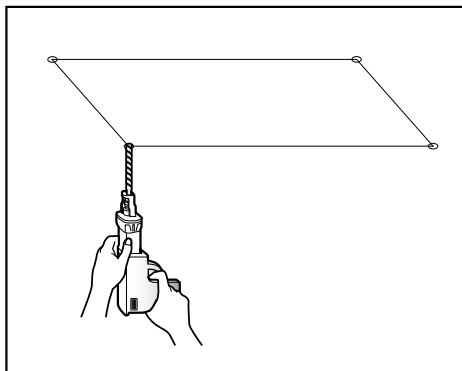
- Install the unit leaning to a drainage hole side as a figure for easy water drainage.

POSITION OF CONSOLE BOLT

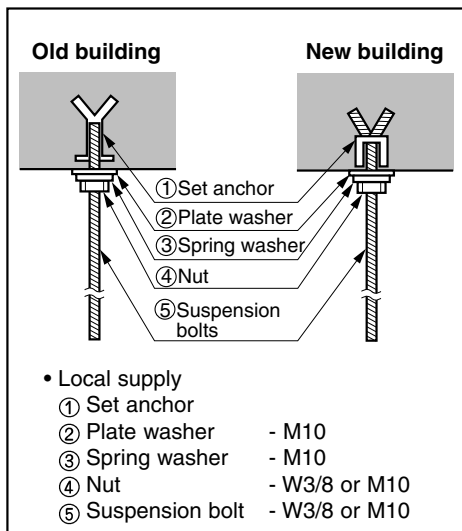
- A place where the unit will be leveled and that can support the weight of the unit.
- A place where the unit can withstand its vibration.
- A place where service can be easily performed.



- Select and mark the position for fixing bolts.
- Drill the hole for set anchor on the face of ceiling.



- Insert the set anchor and washer onto the suspension bolts for locking the suspension bolts on the ceiling.
- Mount the suspension bolts to the set anchor firmly.
- Secure the installation plates onto the suspension bolts (adjust level roughly) using nuts, washers and spring washers.

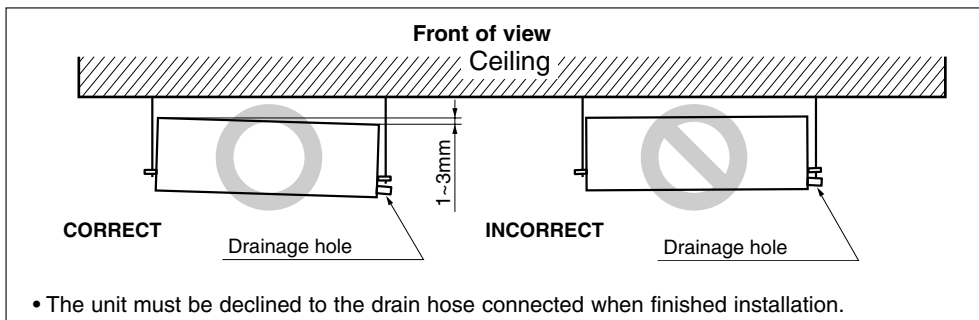


CAUTION: Tighten the nut and bolt to prevent unit falling



CAUTION:

1. **Install declination** of the indoor unit is very **important for the drain** of the duct type air conditioner.
2. Minimum thickness of the insulation for the connecting pipe shall be 5mm.

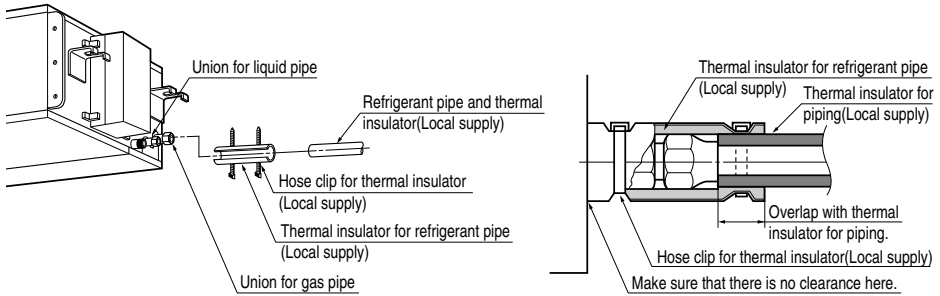


Insulation, others

Insulate the joint and tubes completely.

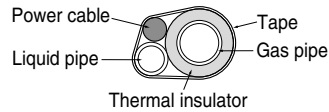
THERMAL INSULATION

All thermal insulation must comply with local requirement.



REFRIGERANT PIPE

- Insulate and tape the gas piping.



TEST AND CHECK

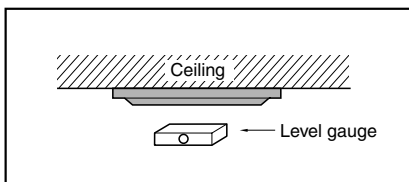
■ After all workings are finished, check the working and operation.

- Air distribution _____ Is the air circulation good?
- Drain _____ Is the drainage smooth and no sweating?
- Gas leakage _____ Is the piping connection correct?
- Wiring _____ Is the wiring connection correct?
- Lock-bolt _____ Is the lock-bolt of compressor loosened?

[Ceiling Cassette Type]

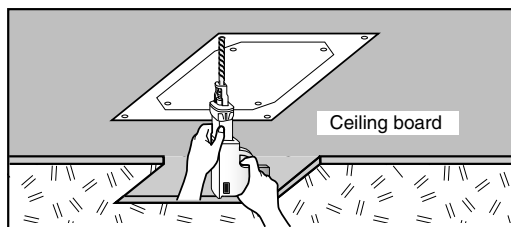
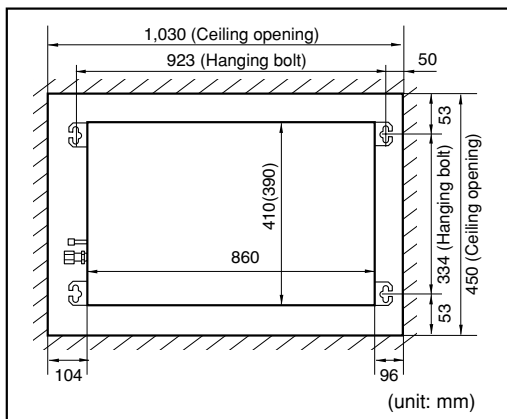
Ceiling dimension and hanging bolt location

- The dimensions of the paper model for installation are the same as those of the ceiling opening dimensions.



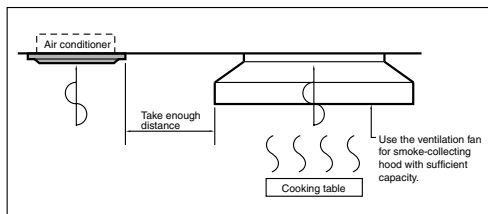
CAUTION :

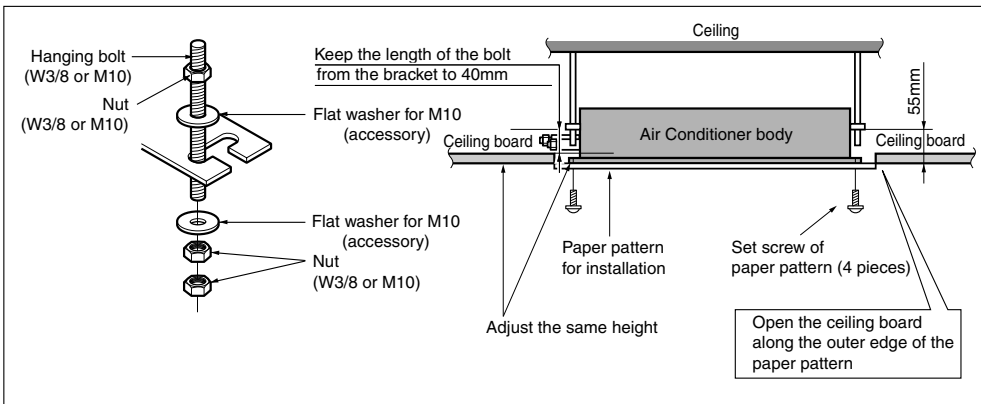
- This air-conditioner uses a drain pump.
 - Install the unit horizontally using a level gauge.
 - During the installation, care should be taken not to damage electric wires.
-
- Select and mark the position for fixing bolts and piping hole.
 - Decide the position for fixing bolts slightly tilted to the drain direction after considering the direction of drain hose.
 - Drill the hole for anchor bolt on the wall.



NOTICE

- Avoid the following installation location.
- Such places as restaurants and kitchen where considerable amount of oil steam and flour is generated. These may cause heat exchange efficiency reduction, or water drops, drain pump mal-function. In these cases, take the following actions;
 - Make sure that ventilation fan is enough to cover all noxious gases from this place.
 - Ensure enough distance from the cooking room to install the air conditioner in such a place where it may not suck oily steam.
 - Avoid installing air conditioner in such places where cooking oil or iron powder is generated.
 - Avoid places where inflammable gas is generated.
 - Avoid place where noxious gas is generated.
 - Avoid places near high frequency generators.





• The following parts are local purchasing.

- ① Hanging Bolt - W 3/8 or M10
- ② Nut - W 3/8 or M10
- ③ Spring Washer - M10
- ④ Plate Washer - M10



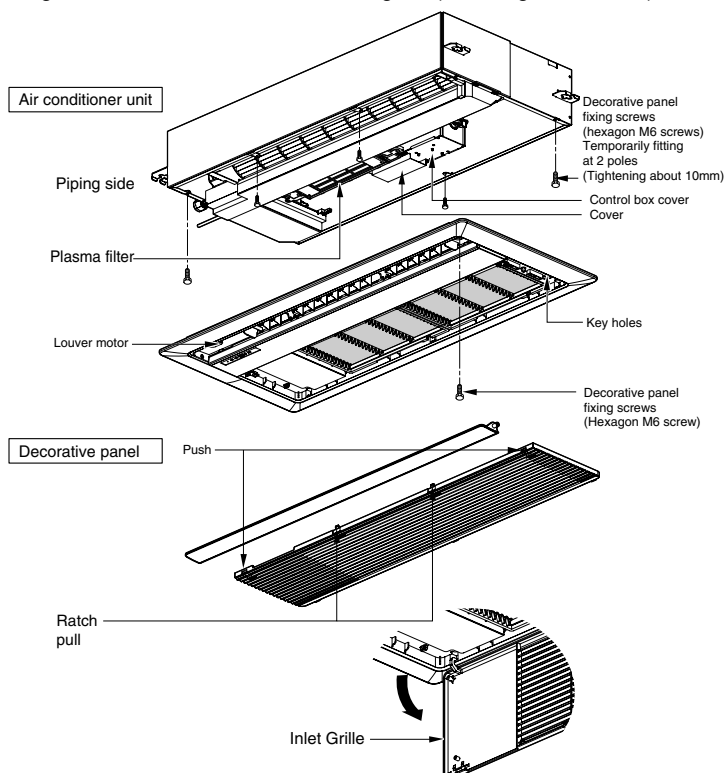
CAUTION : Tighten the nut and bolt to prevent the unit from falling.

Installation of Decoration Panel

The decoration panel has its installation direction.

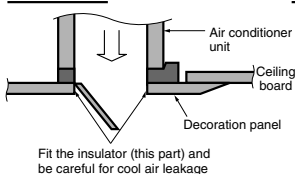
Before installing the decoration panel, always remove the paper template.

1. Temporarily fix two decoration panel fixing screws (hexagon M5 screw) on the unit body. (Tighten by amount 10mm in length.)
The fixing screws (hexagon M5 screw) are included in the indoor unit box.
2. Remove the air inlet grille from the decoration panel. (Remove the hook for the air inlet grille cord.)
3. Hook the decoration panel key hole () on the screws fixed in step above, and slide the panel so that the screws reach the key hole edge.
4. Retighten completely two temporarily fixed screws and other two screws. (Total 4 screws)
5. Connect the louver motor connector and display connector.
6. After tightening these screws, install the air inlet grille (including the air filter).

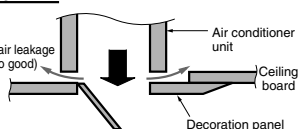


CAUTION : Install certainly the decoration panel. Cool air leakage causes sweating.
 **Water drops fall.**

Correct method



Wrong method



Drain Piping

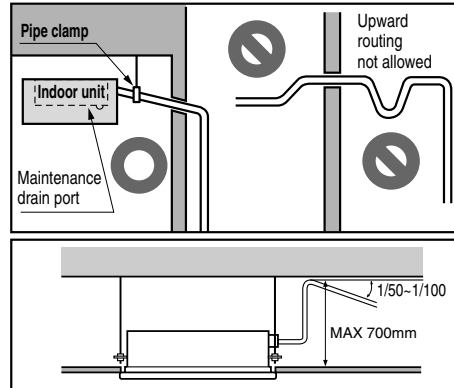
[Ceiling Concealed Duct/Ceiling Cassette Type]

- Drain piping must have down-slope (1/50 to 1/100): be sure not to provide up-and-down slope to prevent reversal flow.
- During drain piping connection, be careful not to exert extra force on the drain port on the indoor unit.
- The outside diameter of the drain connection on the indoor unit is 32mm.

Piping material: Polyvinyl chloride pipe VP-25 and pipe fittings

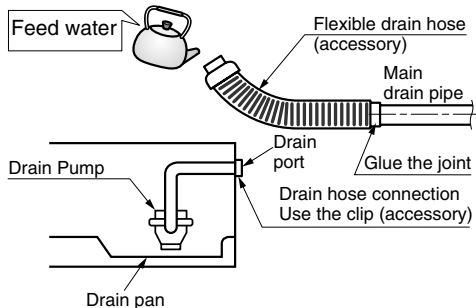
- Be sure to install heat insulation on the drain piping.

Heat insulation material: Polyethylene foam with thickness more than 8 mm.



Drain test

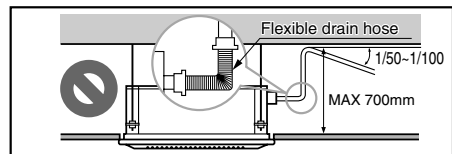
The air conditioner uses a drain pump to drain water.
Use the following procedure to test the drain pump operation:



- Connect the main drain pipe to the exterior and leave it provisionally until the test comes to an end.
- Feed water to the flexible drain hose and check the piping for leakage.
- Be sure to check the drain pump for normal operating and noise when electrical wiring is complete.
- When the test is complete, connect the flexible drain hose to the drain port on the indoor unit.



CAUTION : The supplied flexible drain hose should not be curved, neither screwed. The curved or screwed hose may cause a leakage of water.



installation of remote control box

Install the remote control box and cord correctly.

POINT OF REMOTE CONTROLLER INSTALLATION

- Although the room temperature sensor is in the indoor unit, the remote control box should be installed in such places away from direct sunlight and high humidity.

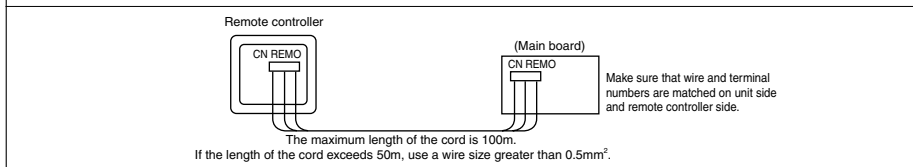
INSTALLATION OF THE REMOTE CONTROL BOX

- Select places that is not splashed by water.
- Select control position after receiving customer approval.
- The room temperature sensor of the thermostat for temperature control is built in the indoor unit.
- This remote controller equipped with liquid crystal display. If this position is higher or lower, display is difficult to see.
(The standard height is 1.2~1.5m high)

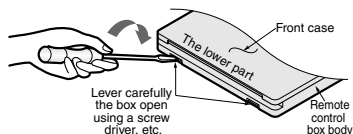
ROUTING OF THE REMOTE CONTROL CORD

- Keep the remote control cord away from the refrigerant piping and the drain piping.
- To protect the remote control cord from electrical noise, place the cord at least 5cm away from other power cables. (Audio equipment, Television set, etc)
- If the remote control cord is secured to a wall, provide a trap at the top of the cord to prevent water droplets from running.

ELECTRICAL WIRING TO THE INDOOR UNIT



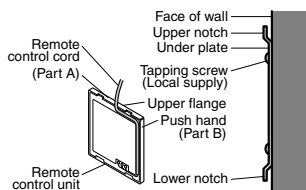
DISASSEMBLING OF THE REMOTE CONTROLLER



WHEN THE REMOTE CONTROL BOX IS INSTALLED WITH THE CORD EXPOSED.

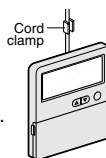
PROCEDURE OF INSTALLATION

1. Fix the under plate on the wall by self tapping screws (accessory).
2. Make a slit (Part A) at the top side of the remote control box by nipper.
3. Route the cord as shown in the following figure. In this case, push the cord into the around of case (Part B).
4. Hook the remote control unit on the under plate.



FIXING OF REMOTE CONTROL CORD

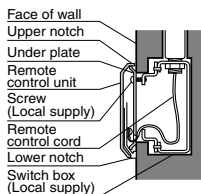
1. Fix the cord clamps on the wall by $\phi 3$ tapping screws (Local supply).
2. Fix the remote control cord.



WHEN THE REMOTE CONTROL BOX IS INSTALLED WITH THE CORD BURIED.

PROCEDURE OF INSTALLATION

1. Fix the under plate on the switch box by screws (Local supply). In this case, fit the under plate on the wall, and be careful of deformation.
2. Receive the remote control cord in the switch box.
3. Hook the remote control unit on the under plate.



Wired remote controller installation

- Since the room temperature sensor is in the remote controller, the remote controller box should be installed in a place away from direct sunlight, high humidity and direct supply of cold air to maintain proper space temperature.
Install the remote controller about 5ft(1.5m) above the floor in an area with good air circulation at an average temperature.

Do not install the remote controller where it can be affected by:

- Drafts, or dead spots behind doors and in corners.
- Hot or cold air from ducts.
- Radiant heat from sun or appliances.
- Concealed pipes and chimneys.
- Uncontrolled areas such as an outside wall behind the remote controller.
- This remote controller is equipped with a seven segment LED. display. For proper display of the remote controller LED's, the remote controller should be installed properly as shown in Fig.1.
(The standard height is 1.2~1.5 m from floor level.)

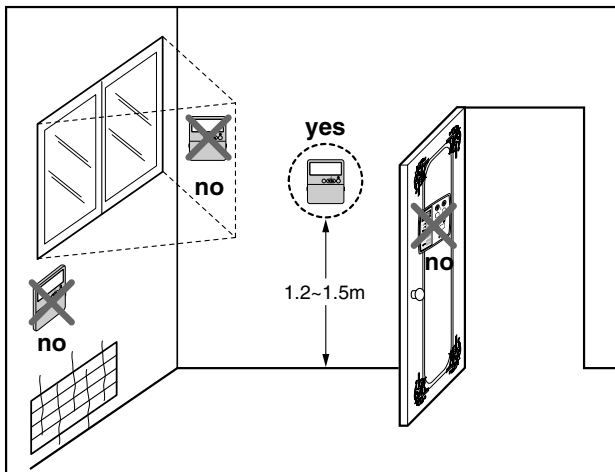


Fig.1 Typical locations for remote controller

Connecting the Cable between Indoor Unit and Outdoor Unit

Connect the cable to the Indoor unit.

Connect the cable to the indoor unit by connecting the wires to the terminals on the control board individually according to the outdoor unit connection. (Ensure that the color of the wires of the outdoor unit and the terminal No. are the same as those of the indoor unit.)

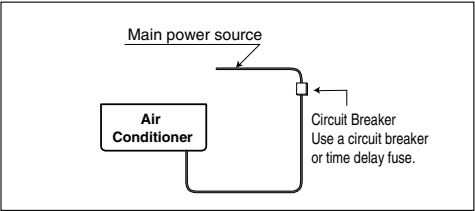
The earth wire should be longer than the common wires.

The circuit diagram is not subject to change without notice.

When installing, refer to the circuit diagram behind the panel front of Indoor Unit the wiring diagram on the Control Cover Inside Outdoor Unit.

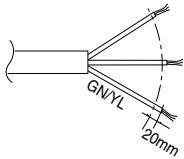
- **CAUTION:**
 - The circuit diagram is not subject to change without notice.
 - Be sure to connect wires according to the wiring diagram.
 - Connect the wires firmly, so that not to be pulled out easily.
 - Connect the wires according to color codes by referring the wiring diagram.

- **CAUTION:** Provide a circuit breaker between power source and the unit as shown below.

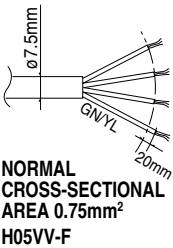


- **CAUTION:** The power cord connected to the outdoor unit should be complied with the following specifications (Cable type approved by HAR or SAA).

Capacity(kBtu/h)	24	30	36	50
NORMAL CROSS SECTIONAL AREA(mm²)	2.5	4.0	6.0	6.0
Cable Type	H07RN-F			



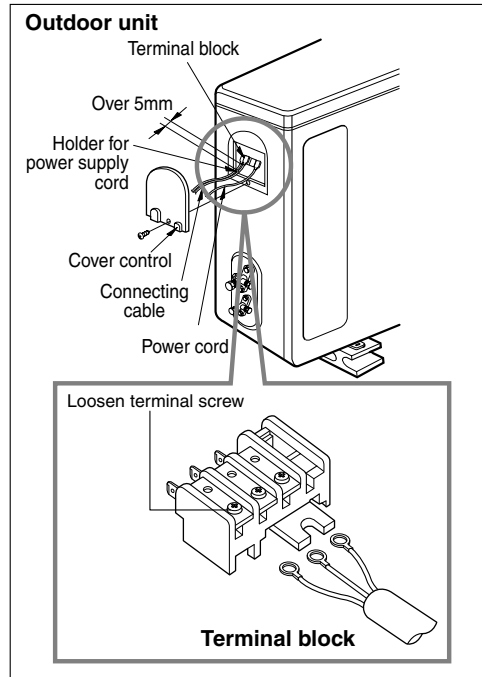
The power connecting cable connected to the indoor and outdoor unit should be complied with the following specifications (Type "B" approved by HAR or SAA).



Connect the cable to the Outdoor unit.

1. Remove the cover control from the unit by loosening the screw.
Connect the wires to the terminals on the control board individually as the following.
2. Secure the cable onto the control board with the holder (clammer).
3. Refix the cover control to the original position with the screw.
4. Use a recognized circuit breaker between the power source and the unit. A disconnection device to adequately disconnect all supply lines must be fitted.

Capacity (kBtu/h)	24	30	36	50
Circuit Braker (A)	20	30	30	40



*The figure may be slightly different according to the model.



CAUTION : After the confirmation of the above conditions, prepare the wiring as follows.

1. Never fail to have an individual power circuit specifically for the air conditioner. As for the method of wiring, be guided by the circuit diagram posted on the inside of control cover.
2. Firmly tighten the terminal screws to prevent them loosening. After tightening, pull the wires lightly to confirm that they do not move. (If they are loose the unit, the unit will not operate normally or it can cause burn-out of the wires.)
3. Specification of power source.
4. Confirm that electrical capacity is sufficient.
5. See to that the starting voltage is maintained at more than 90 percent of the rated voltage marked on the name plate.
6. Confirm that the cable thickness is as specified in the power source specification. (Particularly note the relation between cable length and thickness.)
7. Do not install an earth leakage circuit breaker in a wet or moist area.
8. The following would be caused by voltage drop.
 - Vibration of a magnetic switch, which will damage the contact point, fuse breaking, disturbance of the normal function of the overload.
9. The means for disconnection from a power supply shall be incorporated in the fixed wiring and have an air gap contact separation of at least 3mm in each active(phase) conductors.

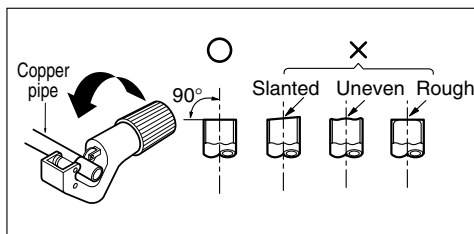
Flaring Work and Connection of Piping

Flaring work

Main cause for gas leakage is due to defect in flaring work. Carry out correct flaring work in the following procedure.

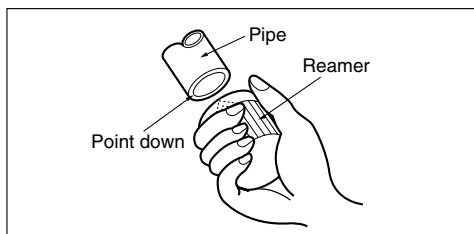
Cut the pipes and the cable.

1. Use the piping kit accessory or the pipes purchased locally.
2. Measure the distance between the indoor and the outdoor unit.
3. Cut the pipes a little longer than measured distance.
4. Cut the cable 1.5m longer than the pipe length.



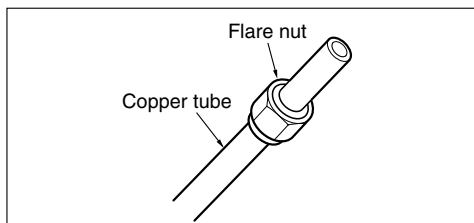
Burrs removal

1. Completely remove all burrs from the cut cross section of pipe/tube.
2. Put the end of the copper tube/pipe in a downward direction as you remove burrs in order to avoid dropping burrs into the tubing.



Putting nut on

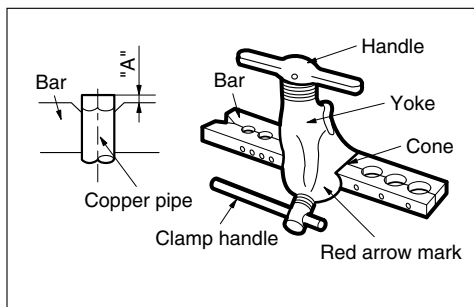
- Remove flare nuts attached to indoor and outdoor unit, then put them on pipe/tube having completed burr removal.
(not possible to put them on after flaring work)



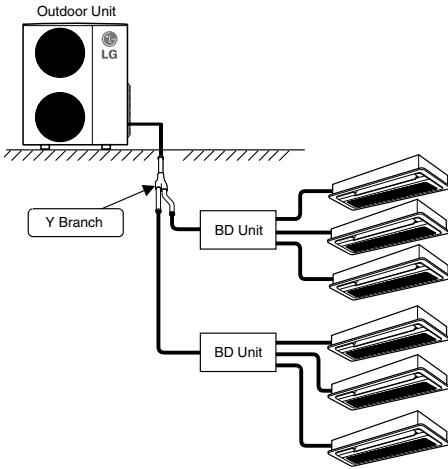
Flaring work

- Carry out flaring work using flaring tool as shown below.
- Firmly hold copper pipe in a die in the dimension shown in the table above.

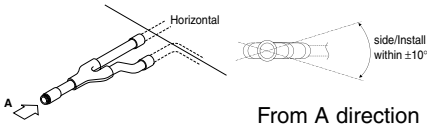
Outside diameter		A
mm	inch	mm
Ø6.35	1/4	1.1~1.3
Ø9.52	3/8	1.5~1.7
Ø12.7	1/2	1.6~1.8
Ø15.88	5/8	1.6~1.8
Ø19.05	3/4	1.9~2.1



Connecting the piping(Distributor Type Only)



- **Horizontal installation is recommended for Y Branch.**



1. When connecting 9k indoor unit pipe, use the socket provided with the indoor unit to connect to the distributor.

2. Y Branch

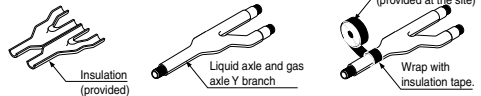
- 1) Used when installing 2 distributors.
- 2) Includes Flare type.

Gas axle	Liquid axle

Connected to the single
piped outdoor unit

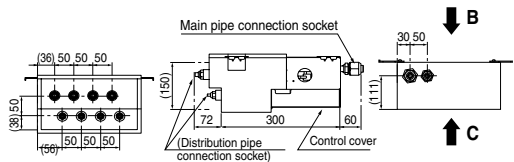
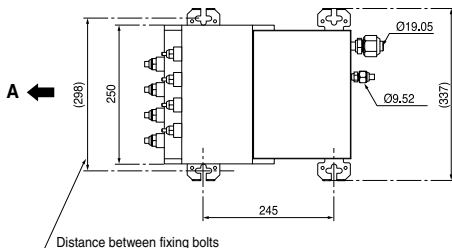
ected to
istributor

- **Be sure to insulate Y Branch with the provided insulation.**



3. Distributor

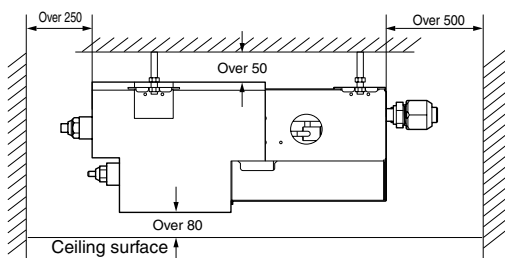
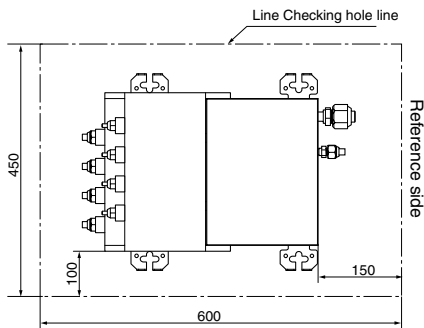
- The distributor should be installed against the wall.
- Install the distributor horizontally.
(Basically, B side should be upward.)
However, other sides excluding B aren't affected by their direction.
- When installing the distributor, 600mm of the service space should be maintained.
- The service direction is B and C.
- The connecting direction of the distribution pipe to the indoor unit is A.
- The installation should be made in such a way that the inclination of B side should be less than 5° to front/back and left/right.



Unit : mm

The dimension of the checking hole

1. Do not install the distributor out of the range of the checking hole(1 dotted line).
2. The indicated dimensions are the minimum figure for checking convenience.

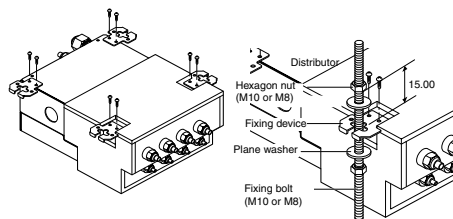


Unit : mm

❖ The distributor can be installed in 2 ways. Choose an appropriate one depending on the place to install.

Installing on the ceiling

1. Use the provided fixing device to fix.
(Total 4 fixing points)
2. Install nuts and plane washer with fixing bolts as shown in the right Fig., and lift the fixing device to adjust the height.
3. Turn nuts to fix.

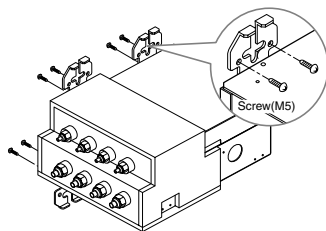


❖ The inclination of the distributor should be less than 5°.

Installing on the wall

1. Use screws to fix the provided fixing device.
(Total 2 points)
2. Fix the distributor.

❖ The inclination of the distributor should be less than 5°.

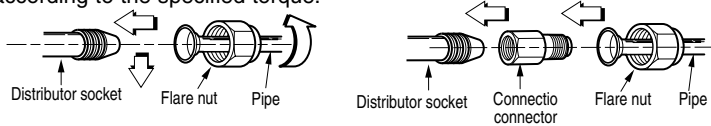
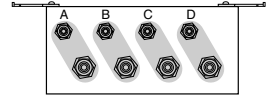


⚠ WARNING

- Tighten again the screws which were already assembled with the distributor or attach the aluminum tape to check if it is securely fixed.
- Do not use near bed room.
Refrigerants flowing sound can be heard from time to time.

Connecting the distribution pipe

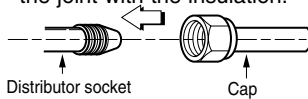
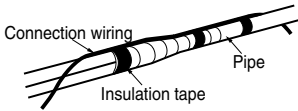
- Check if the distributor corresponds to the distribution pipe and wiring of each indoor unit for each character(A,B,C,D).
- Fit the center of the pipe and securely tighten the flare nut manually.
- If the diagram of the distribution socket isn't fitted with that of indoor unit distribution pipe, use the connection connector provided to the indoor unit to connect each other.
- Tighten the flare nut according to the specified torque.



Pipe Refrigerants pipe assembly torque

Exterior diagram of pipe	6.35mm(1/4")	9.52mm(3/8")	12.7mm(1/2")	15.88mm(5/8")	19.05mm(3/4")
Torque	1.8~2.5kgf.m	3.4~4.2kgf.m	5.5~6.6kgf.m	6.3~8.2kgf.m	9.9~12.1kgf.m

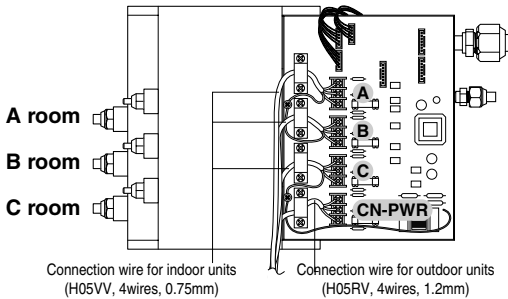
- Wrap the insulation tape on the indoor unit insulation and wrap with the insulation on it not to have any gap and wrap it with finishing tape.
- If the distributor has any socket that is not connected to the pipe, be sure to block it with copper cap of which end is sealed or soldered and wrap the joint with the insulation.



WARNING

- If the cap on the end of the pipe isn't sealed or securely soldered, the refrigerants may leak, causing malfunction.

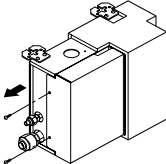
Distributor wiring(e.g. distributor for 3 rooms)



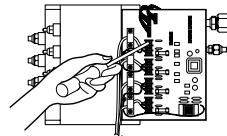
WARNING

Do not use tapped wires, stand wires, extensioncords, or starburst connections, as they may cause overheating, electrical shock, or fire.

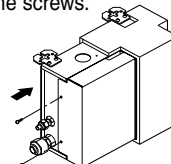
- (1) Remove the control cover. Loosen the two screws, and slide the cover in the direction of the arrow.



- (3) Put in the cover in the direction of the arrow then tighten the screws.



- (2) Perform wiring with reference the wiring diagram on a control cover of outdoor unit. Allow 300 mm for the pulling-out section of harness. Fix the wires completely with wire clamps(4 locations).

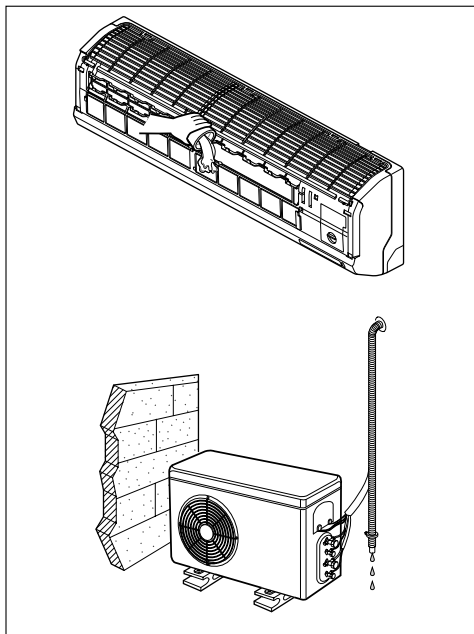


Checking the Drainage, Forming the Pipings

Checking the drainage

To check the drainage.

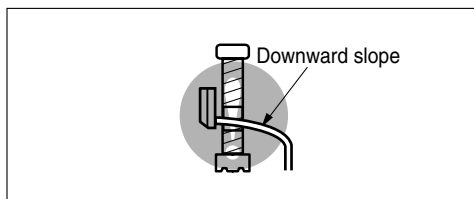
1. Pour a glass of water on the evaporator.
2. Ensure the water flows through the drain hose of the indoor unit without any leakage and goes out the drain exit.



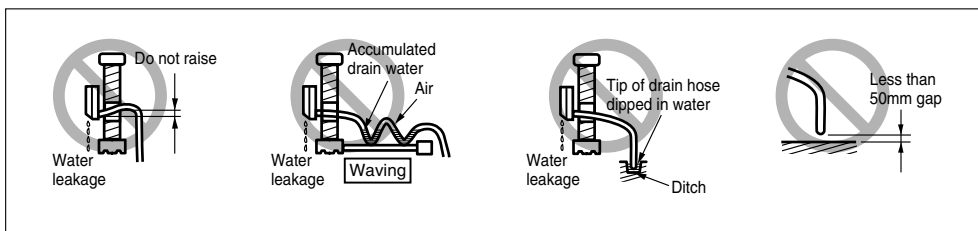
* The figure may be slightly different according to the model.

Drain piping

1. The drain hose should point downward for easy drain flow.



2. Do not make drain piping.



Forming the piping

Form the piping by wrapping the connecting portion of the indoor unit with insulation material and secure it with two kinds of vinyl tape.

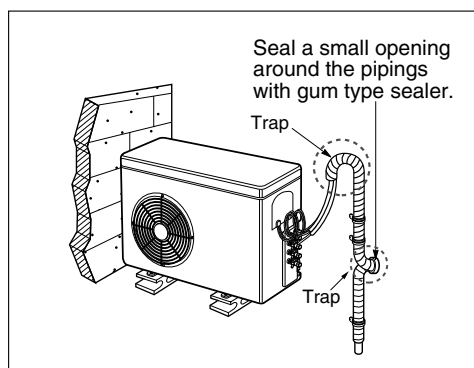
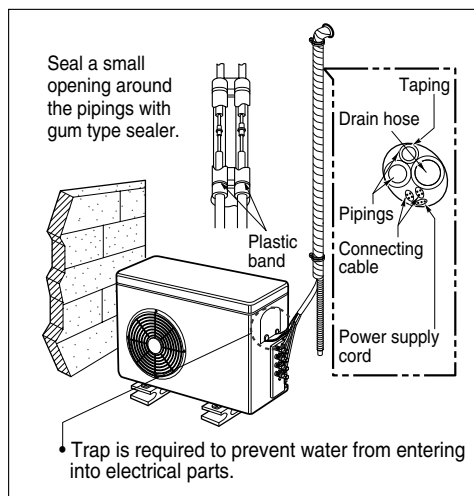
- If you want to connect an additional drain hose, the end of the drain outlet should be routed above the ground. Secure the drain hose appropriately.

In cases where the outdoor unit is installed below the indoor unit perform the following.

1. Tape the piping, drain hose and connecting cable from down to up.
2. Secure the tapped piping along the exterior wall using saddle or equivalent.

In cases where the Outdoor unit is installed above the Indoor unit perform the following.

1. Tape the piping and connecting cable from down to up.
2. Secure the taped piping along the exterior wall. Form a trap to prevent water entering the room.
3. Fix the piping onto the wall by saddle or equivalent.



※ The figure may be slightly different according to the model.

Air Purging and Evacuation

Air and moisture remaining in the refrigerant system have undesirable effects as indicated below.

1. Pressure in the system rises.
2. Operating current rises.
3. Cooling(or heating) efficiency drops.
4. Moisture in the refrigerant circuit may freeze and block capillary tubing.
5. Water may lead to corrosion of parts in the refrigeration system.

Therefore, the indoor/outdoor unit and connecting tube must be checked for leak tight, and vacuumed to remove incondensable gas and moisture in the system.

Checking method

Preparation

- Check that each tube(both liquid and gas side tubes) between the indoor and outdoor units have been properly connected and all wiring for the test run has been completed. Remove the service valve caps from both the gas and the liquid side on the outdoor unit. Check that both the liquid and the gas side service valves on the outdoor unit are kept closed at this stage.

Leakage test

- Connect the manifold valve(with pressure gauges) and dry nitrogen gas cylinder to this service port with charge hoses.



CAUTION: Be sure to use a manifold valve for leakage test.

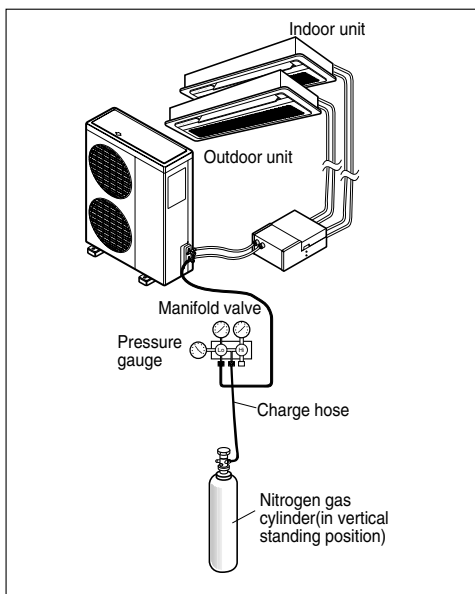
If it is not available, use a stop valve for this purpose. The "Hi" knob of the manifold valve must always be kept close.

- Pressurize the system to no more than 427 P.S.I.G. with dry nitrogen gas and close the cylinder valve when the gauge reading reached 427 P.S.I.G. Next, test for leaks with liquid soap.



CAUTION: To avoid nitrogen entering the refrigerant system in a liquid state, the top of the cylinder must be higher than its bottom when you pressurize the system. Usually, the cylinder is used in a vertical standing position.

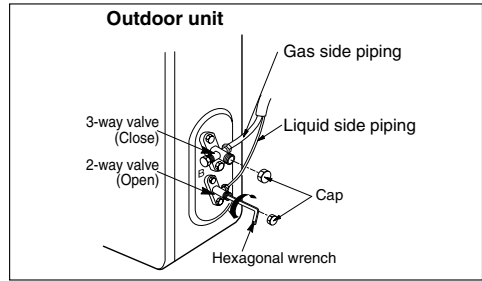
1. Do a leakage test of all joints of the tubing(both indoor and outdoor) and both gas and liquid side service valves. Bubbles indicate a leak. Be sure to wipe off the soap with a clean cloth.
2. After the system is found to be free of leaks, relieve the nitrogen pressure by loosening the charge hose connector at the nitrogen cylinder. When the system pressure is reduced to normal, disconnect the hose from the cylinder.



※ The figure may be slightly different according to the model.

Soap water method

1. Remove the caps from the 2-way and 3-way valves.
2. Remove the service-port cap from the 3-way valve.
3. To open the 2-way valve turn the valve stem counterclockwise approximately 90°, wait for about 2~3 sec, and close it.
4. Apply a soap water or a liquid neutral detergent on the indoor unit connection or outdoor unit connections by a soft brush to check for leakage of the connecting points of the piping.
5. If bubbles come out, the pipes have leakage



※ The figure may be slightly different according to the model.

Evacuation

1. Connect the charge hose end described in the preceding steps to the vacuum pump to evacuate the tubing and indoor unit. Confirm the "Lo" knob of the manifold valve is open. Then, run the vacuum pump. The operation time for evacuation varies with tubing length and capacity of the pump. The following table shows the time required for evacuation.

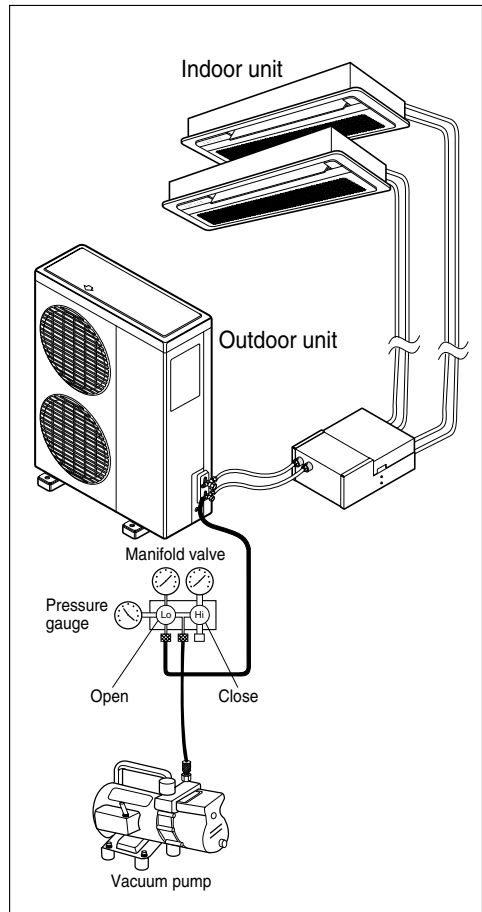
Required time for evacuation when 30 gal/h vacuum pump is used	
If tubing length is less than 10m	If tubing length is longer than 10m
30 min. or more	60 min. or more

2. When the desired vacuum is reached, close the "Lo" knob of the manifold valve and stop the vacuum pump.

Finishing the job

1. With a service valve wrench, turn the valve stem of liquid side valve counter-clockwise to fully open the valve.
2. Turn the valve stem of gas side valve counter-clockwise to fully open the valve.
3. Loosen the charge hose connected to the gas side service port slightly to release the pressure, then remove the hose.
4. Replace the flare nut and its bonnet on the gas side service port and fasten the flare nut securely with an adjustable wrench. This process is very important to prevent leakage from the system.
5. Replace the valve caps at both gas and liquid side service valves and fasten them tight.

This completes air purging with a vacuum pump. The air conditioner is now ready to test run.



※ The figure may be slightly different according to the model.

Test Running

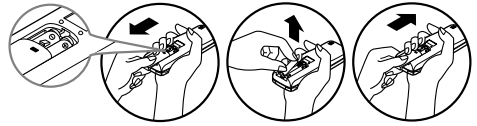
1. Check that all tubing and wiring have been properly connected.
2. Check that the gas and liquid side service valves are fully open.

Prepare remote control

Remove the battery cover by pulling it according to the arrow direction.

Insert new batteries making sure that the (+) and (-) of battery are installed correctly.

Reattach the cover by pushing it back into position.



NOTICE :

- Use 2 AAA(1.5volt) batteries. Do not use rechargeable batteries.
- Remove the batteries from the remote control if the system is not going to be used for a long time.

Evaluation of the performance

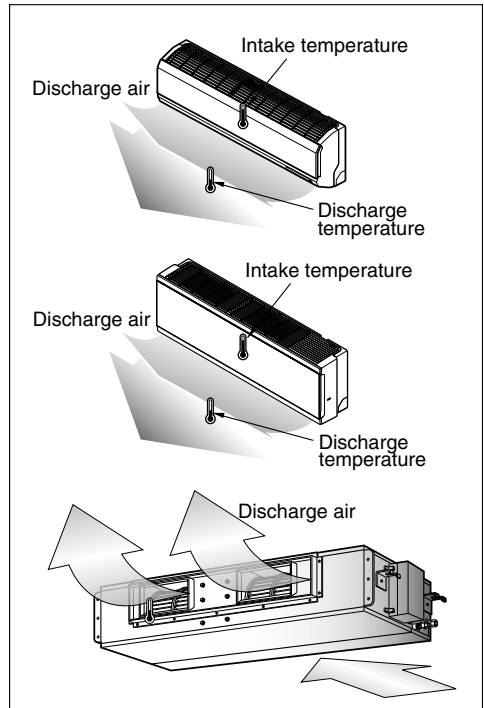
Operate unit for 15~20 minutes, then check the system refrigerant charge:

1. Measure the pressure of the gas side service valve.
2. Measure the temperature of the intake and discharge of air.
3. The intake temperature
- the discharge temperature $\geq 8^{\circ}\text{C}$
4. For reference, the gas side pressure of optimum condition is as below.(Cooling)

Refrigerant	Outside ambient Temperature	The pressure of the gas side service valve.
R22	35°C	4~5kg/cm ² G(56.8~71.0 psig)

NOTICE : If the actual pressure are higher than shown, the system is most likely over-charged, and charge should be removed. If the actual pressure are lower than shown, the system is most likely undercharged, and charge should be added.

The air conditioner is now ready for use.



E.S.P.(External Static Pressure) Setting

Open the rear cover of the wired remote-controller to set the mode.

Select one of three selectable modes as follows.

■ Without Zone System

1. Position V-H, F-H:
 - This position sets the maximum E.S.P as a default set.
2. Position V-L:
 - This position sets the minimum E.S.P as a default set.

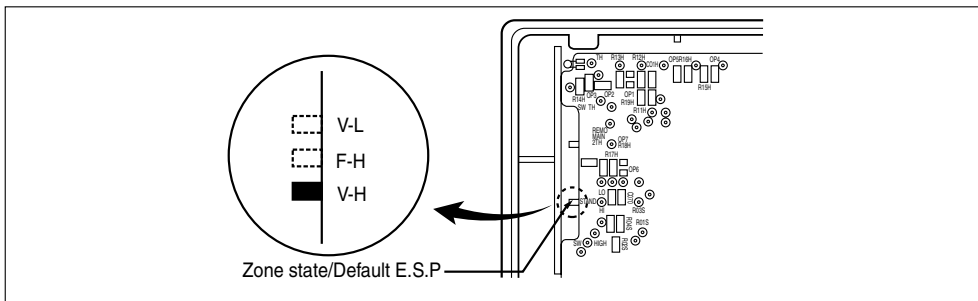
■ With Zone System

1. Position V-H:
 - Maximum E.S.P setting & Fan speed is varied according to the state of dampers by micom.
2. Position F-H:
 - Maximum E.S.P setting & Fan speed doesn't vary according to the opening & Closing of dampers.
3. Position V-L:
 - Minimum E.S.P setting & Fan speed is varied according to the state of dampers by micom.

*Maximum: 18k/24k-8mmAq

Minimum: All-0mmAq

Move the slide switch to set position.



Close the rear cover and check if it works normally.



CAUTION:

- Select the position after checking duct work and E.S.P of the unit.
- Manufactured in the position F-H.

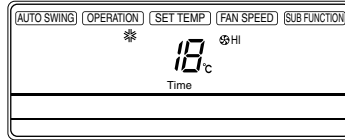
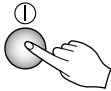
How to Set E.S.P?

Procedure of RPM change:

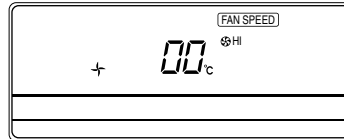
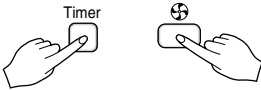
Ex) External Static pressure is 4mmAq for Model Name "LMNH242BHA0"

- To protect the unit, compressor is designed to be off during E.S.P. setting.

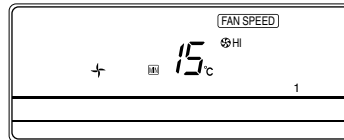
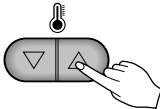
- 1** Push the "On/Off" button.
The unit will start.



- 2** Push the "Timer" and "Wind" button simultaneously for more than 3 seconds.



- 3** Push the "Up" or "Down" button for E.S.P adjustment.
And, adjust the number which you want. (In this example, the number is "115". Refer to the table 1 on the next page.)

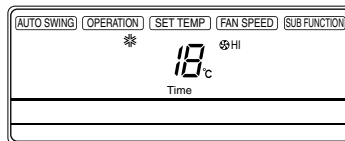
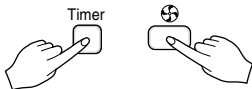


NOTICE The range of selection is from 1~254. Since, the display is two Digit only.
If the range selection is above 100 then the third digit will appear in the screen as shown.

- 4** Shift the fan speed mode by pressing the fan speed button.
And then, Adjust numbers of next steps by repeating the stage 3.
(In this example, the numbers are "140" and "155" respectively)



- 5** Push the "Timer" and "Wind" button simultaneously for more than 3 seconds.
Then, Wind Data is memorized by the EEPROM of the main PCB.



[Table. 1]

Static Pressure(mmAq)			0	2	4	6	8	10
Model Name	Step	CMM(CFM)	Setting Value					
LMNC182BHA0	High	16.5(583)	185	175	165	155	140	-
	Med	14.5(512)	200	190	180	175	160	-
	Low	13(459)	215	200	195	185	175	-
LMNC242BHA0	High	20(706)	120	115	115	100	1	-
	Med	18(636)	145	140	140	130	120	-
	Low	16(565)	165	160	155	155	145	-

- NOTICE**
1. Be sure to set the value refering table 1. Unexpected set value will cause mal-function.

2. Table 1 is based at 220V. According to the fluctuation of voltage, air flow rate varies.

Combination of indoor and outdoor unit

The total capacity index of indoor units is the sum of capacity index of each units and should be within the capacity index of the outdoor unit.

Description				Capacity of Outdoor Units (kBtu/h)			
				24	30	36	50
Model Type	Capacity			No. of Connectable Indoor Units			
	kBtu/h	kW					
Wall Mounted	9	2.6		O	O	O	O
	12	3.5		O	O	O	O
	18	5.3		O	O	O	O
	24	7.0		-	-	-	O
Artcool Mirror	9	2.6		O	O	O	O
	12	3.5		O	O	O	O
	18	5.3		O	O	O	O
	24	7.0			-	-	O
Ceiling Cassette	1way	9	2.6	O	O	O	O
		12	3.5	O	O	O	O
Ceiling Concealed Duct	High Static Pressure	18	5.3	-	-	-	O
		24	7.0	-	-	-	O
	Low Static Pressure	9	2.6	O	O	O	O
		12	3.5	O	O	O	O
		18	5.3	O	O	O	O
		24	7.0	-	-	-	O

- NOTICE** 1. The total capacity index of indoor units is the sum of capacity index of each units and should be within the maximum capacity index of the outdoor unit.

Installation guide at the seaside

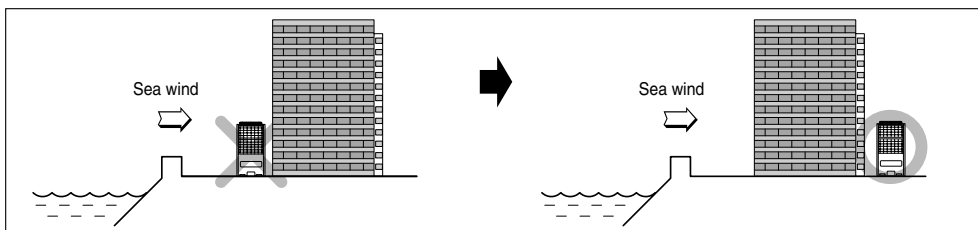


CAUTION

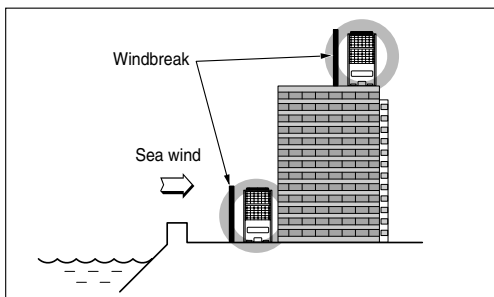
1. Air conditioners should not be installed in areas where corrosive gases, such as acid or alkaline gas, are produced.
2. Do not install the product where it could be exposed to sea wind (salty wind) directly. It can result corrosion on the product. Corrosion, particularly on the condenser and evaporator fins, could cause product malfunction or inefficient performance.
3. If outdoor unit is installed close to the seaside, it should avoid direct exposure to the sea wind. Otherwise it needs additional anticorrosion treatment on the heat exchanger.

Selecting the location(Outdoor Unit)

- 1) If the outdoor unit is to be installed close to the seaside, direct exposure to the sea wind should be avoided. Install the outdoor unit on the opposite side of the sea wind direction.



- 2) In case, to install the outdoor unit on the seaside, set up a windbreak not to be exposed to the sea wind.



- It should be strong enough like concrete to prevent the sea wind from the sea.
- The height and width should be more than 150% of the outdoor unit.
- It should be keep more than 70 cm of space between outdoor unit and the windbreak for easy air flow.

- 3) Select a well-drained place.

1. If you can't meet above guide line in the seaside installation, please contact LG Electronics for the additional anticorrosion treatment.
2. Periodic (more than once/year) cleaning of the dust or salt particles stuck on the heat exchanger by using water

