LG
Life's Good

INSTALLATION MANUAL

AIR CONDITIONER

- Please read this installation manual completely before installing the product.
- Installation work must be performed in accordance with the national wiring standards by authorized personnel only.
- Please retain this installation manual for future reference after reading it thoroughly.

TYPE : Multi Type



P/NO : MFL39817323

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Required Tools

- ❑ Level gauge
- ❑ Screw driver
- ❑ Electric drill
- ❑ Hole core drill (ø65mm)
- ❑ 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.)
- ❑ Spanner .....Half union

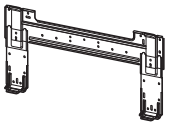
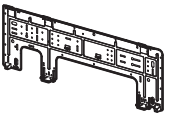
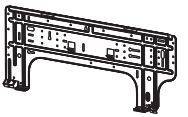
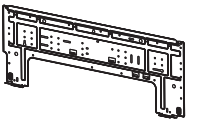
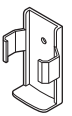
- ❑ A glass of water
- ❑ Screw driver

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

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

Installation Parts Provided

Standard Type

<table>
<tr><td colspan="4">Installation plate</td></tr>
<tr><td></td><td></td><td></td><td></td></tr>
<tr><td colspan="4">Type "B" screws</td></tr>
<tr><td colspan="4">
(2EA)</td></tr>
<tr><td>Type "A" screw</td><td>Type "A" screw</td><td>Type "A" and "C" screw</td><td>Type "A" and "C" screw</td></tr>
<tr><td>
(6 EA)</td><td>
(8 EA)</td><td>
(5 EA) (2 EA)</td><td>
(5 EA) (2 EA)</td></tr>
<tr><td colspan="4">Holder Remote Control</td></tr>
<tr><td colspan="4"></td></tr>
</table>

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

Do not disassemble or repair the product.

• Contact your dealer or service center.

Always earth the product.

• It will cause fire or electric shock.

Do not handle the flamable gas or explosive materials near the product.

• Otherwise, it may cause fire or failure of product.

Do not install where flamable gas could leak.

• Otherwise, it may cause esplosion or fire.

Do not install the product on a defected installation stand.

• Otherwise, It may cause injury or accident.

Be cautious when unpacking and installing the product.

• Sharp edges could cause injury.

For installation, always contact the dealer or service center.

• Otherwise, it may cause fire, electric shock, explosion or injury."

For electric work, contact the dealer or service center.

• Otherwise, It will cause fire or electric shock.

Do not use damaged power cable.

• It will cause fire or electric shock.

Always intstall a circuit breaker and main breaker.

• No installation may cause fire and electric shock.

Do not touch(operate) product with wet hands.

• Otherwise, it may cause fire or electric shock.

If strange sound, smell or smoke come from product, turn the breaker off.

• Otherwise, it may cause electric shock or fire.

Do not put the heater, etc. near the power cable.

• Otherwise, it may cause fire and electric shock.

Cover the electric part.

• Otherwise, it may cause fire or electric shock.

Do not turn the breaker on/off during operation.

• Otherwise, it may cause fire or electric shock.

Do not open the suction inlet of the product during operation.

• Otherwise, it may cause electric shock or failure.

Do not touch the metal parts of the product when removing the air filter.

• Otherwise, it may cause personal injury.

Do not step or put anyting on the product.

• Otherwise, it may cause personal injury and failure of product.

Fix the outdoor unit on the floor.

• Otherwise, it can be blown away by the strong wind. It will cause injury or accident.

Do not use the aluminum pipe while installing the product.

• It will cause gas leakage.

Use a vacuum pump or Inert (nitrogen) gas when doing leakage test or air purge. Do not compress air or Oxygen and Do not use Flammable gases. Otherwise, it may cause fire or explosion.

• There is the risk of death, injury, fire or explosion.

⚠CAUTION

Always inspect gas leakage after installation and repair of product.

• Otherwise, it may cause failure of product.

Install the drain hose to ensure that drain can be securely done.

• Otherwise, it may cause water leakage.

Keep the level even while installing the product.

• Otherwise, it may cause vibration or water leakage.

Do not install the product where the noise or hot wind from the outdoor unit could give any casualty to the neighborhood

• Otherwise, it may cause dispute with the neighborhoods.

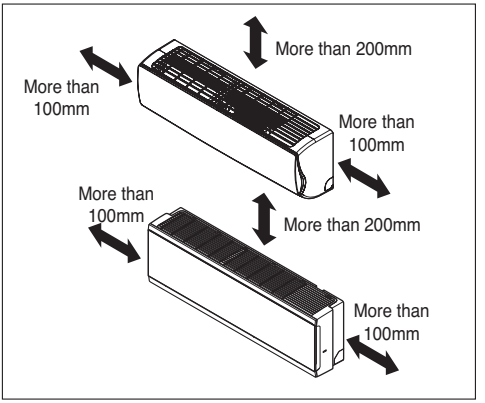
Installation of Indoor, Outdoor Unit

Read completely, then follow step by step.

Select the best location

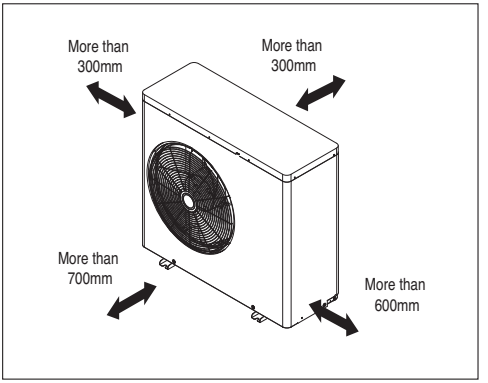
Indoor unit

1. Do not allow any heat or steam to be 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 outdoors.
4. Install as far away from a doorway as possible for better performance.
5. Ensure the unit is unobstructed, allow proper space on all sides according to the arrows and distance measurements in the figure at right.
6. Use a stud finder to locate studs to prevent unnecessary damage to the wall.



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 heat pump is not restricted.
2. Ensure the unit is unobstructed, allow proper space on all sides according to the arrows and distance measurements in the figure at right.
3. Do not allow animals or plants to remain the in path of the discharging 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:

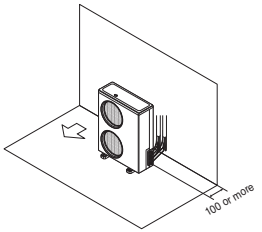
If the outdoor unit is installed on a rooftop, be sure to level the unit. Ensure the rooftop and anchoring method are adequate for the unit location. Consult local codes regarding rooftop mounting.

Clearance of side discharge unit (Unit:mm)

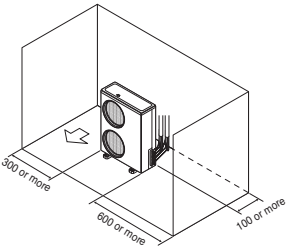
1) Where there is an obstacle on the air intake side:

■ **No obstacle above**

• Obstacle on the suction side only

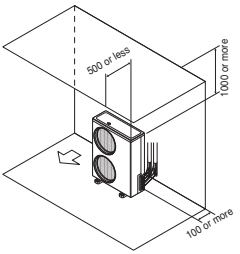


• Obstacle on the both sides

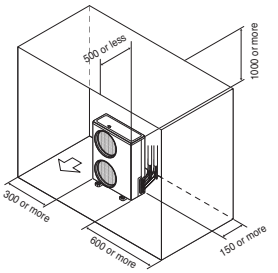


■ **Obstacle above, too**

• Obstacle on the air intake side, too

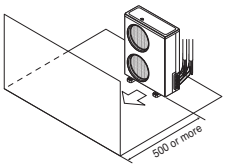


• Obstacle on the air intake side, and both sides

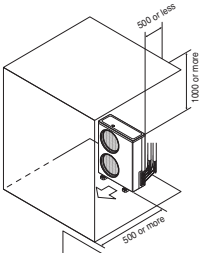


2) Where there is an obstacle on the discharge side:

■ **No obstacle above**



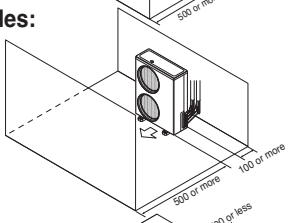
■ Obstacle above, too



3) Where there are obstacles on both suction and discharge sides:

■ **Where the obstacles on the discharge side is higher than the unit:**

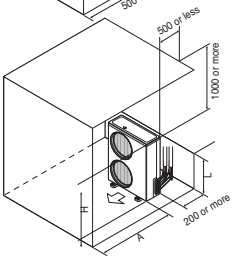
• No obstacle above



• Obstacle above, too

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

	L	A
L ≤ H	0 < L ≤ 1/2H	750
	1/2H < L	1000
H < L	Set the stand as: L ≤ H	

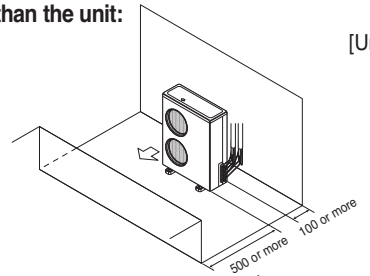


Close the bottom of the installation frame to prevent the discharged air from being bypassed.

■ **Where the obstacles on the discharge side is lower than the unit:**

• No obstacle above

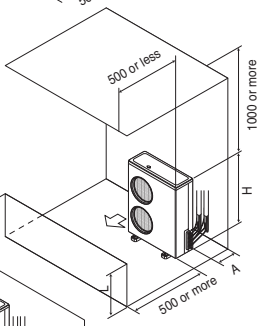
[Unit : mm]



• Obstacle above, too

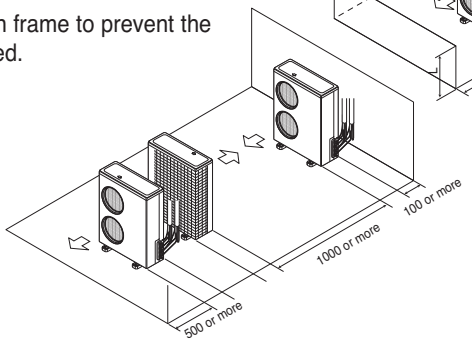
The relations between H, A and L are as follows:

	L	A
L ≤ H	0 < L ≤ 1/2H	100
	1/2H < L	200
H < L	Set the stand as: L ≤ H	



Close the bottom of the installation frame to prevent the discharged air from being bypassed.

4) Series installation



Air guide work

In case of out door unit is located outdoor cabin of apartment or flats, then the efficiency can drop and system pressure increases thus finally damaging the compressor or other components in the system by heat short circuit.

[Example]



<Without air guide>
Safety dorice activation



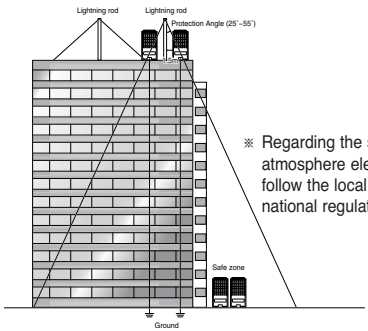
<With air guide>
Normal operation

Lightning safety zone

1) To protect outdoor unit from lightning, it should be placed within lightning safety zone.

Safety zone

Building Height [m]	20	30	45	60
Protection Angle [˚]	55	45	35	25



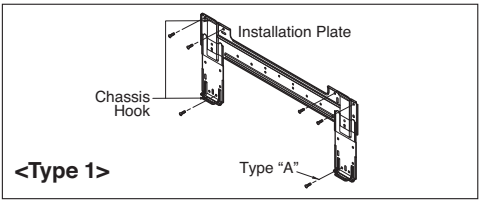
※ Regarding the safety from atmosphere electricity, follow the local or national regulations

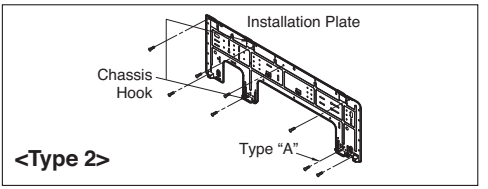
2) Power cable and communication cable should be 1.5m away from lightning rod.
3) High resistance grounded system should be performed against induced lightning or indirect stroke.
4) If the building has no lightning protection, outdoor may be damage from lightning. This should be informed to customer or building owner in advance.

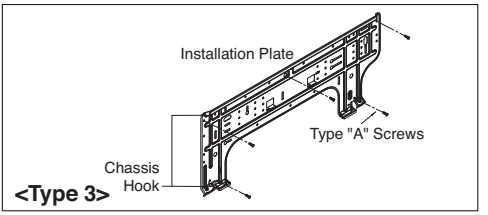
Fixing Installation Plate

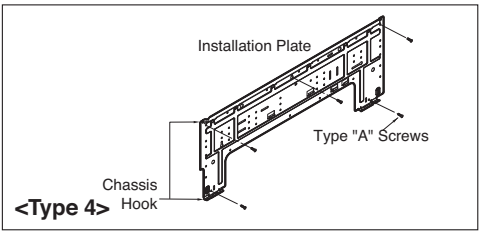
The wall you select should be strong and solid enough to prevent vibration

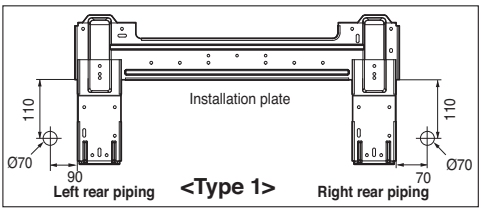
1. Mount the installation plate on the wall with type "A" screws. If mounting the unit on a concrete wall, use anchor bolts.
   • Mount the installation plate horizontally by aligning the centerline using a level.
2. Measure the wall and mark the centerline. It is also important to use caution concerning 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.

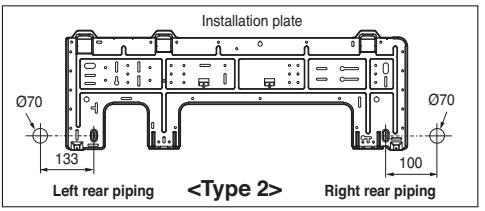


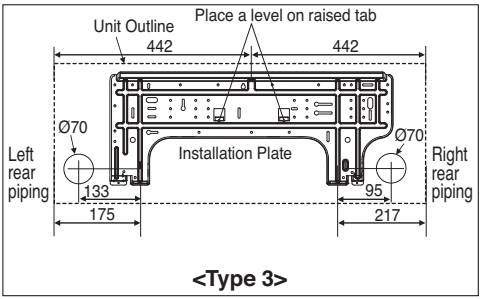


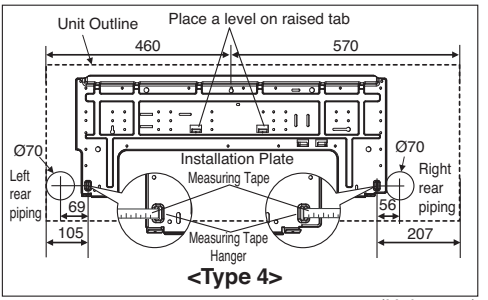










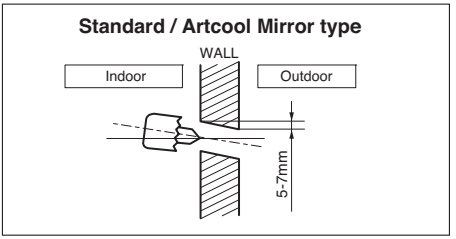


(Unit : mm)

Indoor Type	Capacity (kBtu/h)	Type
Wall mounted	9,12	3
	18,24	4
ART COOL Mirror	9,12	1
	18,24	2

Drill a hole in the wall

• Drill the piping hole with a ø70mm hole core drill. Drill the piping hole at either the right or the left with the hole slightly slanted to the outdoor side.



Piping length and elevation

Multi Piping Type

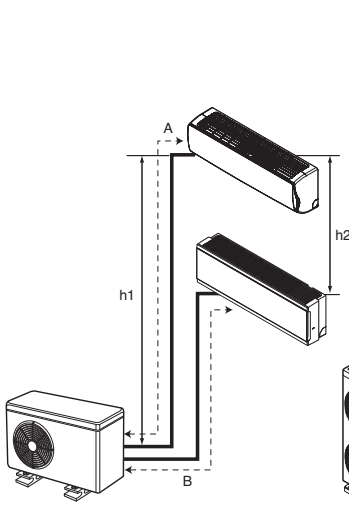
(Unit: m)

Capacity(kBtu/h)	Total Length	Max Length(A/B)	Max Elevation (h1)	In - In Elevation (h2)
18	50	25	15	7.5
26	60	25	15	7.5
30	70	25	15	7.5

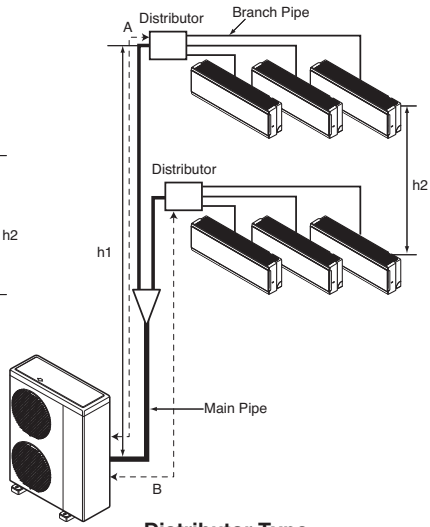
Distributor Type

(Unit: m)

Capacity (kBtu/h)	Total Length	Max Main Pipe Length (A/B)	Total Branch Pipe Length	Max Branch Pipe Length	Max Elevation (h1)	In - In Elevation (h2)
40	100	50	50	15	30	15
48	135	55	80	15	30	15
56	145	55	90	15	30	15



Multi Piping Type



Distributor Type

Refrigerant charge

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

Multiple Piping Models

Model	Standard length(m)	Max piping for one room(m)	Max total Piping Length(m)	Additional Charge(g/m)
18	7.5	25	50	20
26	7.5	25	60	20
30	7.5	25	70	20

Distributor type Models

Model	Main Piping length		Branch piping length	
	Standard length(m)	Additional refrigerant(g/m)	Standard length(m)	Additional refrigerant(g/m)
40	5	50	5	20
48	5	50	5	20
56	5	50	5	20

■ Multiple Piping Models

Additional charge (g) = ((A Room Installation Length – Standard Length) x 20g/m
+ (B Room Installation Length – Standard Length) x 20g/m +..)
- CF(Correction Factor) x 150

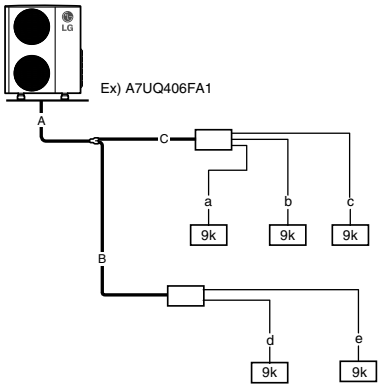
❉ CF = Max. number of connectable indoor unit – Total number of connected indoor unit

■ Distributor type Models

Additional charge (g) = ((Total Main piping Length - Main Standard Length) x 50g/m
+ (A Room Branch Length – Standard Length) x 20g/m
+ (B Room Branch Length – Standard Length) x 20g/m
+ (C Room Branch Length – Standard Length) x 20g/m +..)
- CF(Correction Factor) x 100

❉ CF = Max. number of connectable indoor unit – Total number of connected indoor unit

Additional Charge Calculation Example-1



- Total main pipe(A+B+C) = 30m
- Each branch pipe
  a = 10m
  b = 8m
  c = 5m
  d = 3m
  e = 10m

❖ Additional Charge

=((30-5) x 50 + (10-5) x 20 + (8-5) x 20
+ (5-5) x 20 + (3-5) x 20 + (10-5) x 20)
- (7-5) x 100 = 1270g

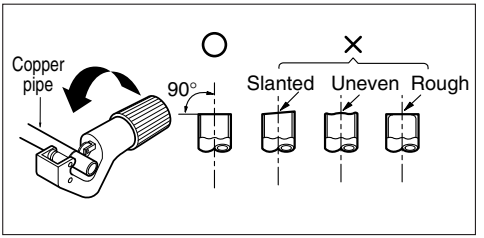
Flaring Work and Connection of Piping

Flaring work

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

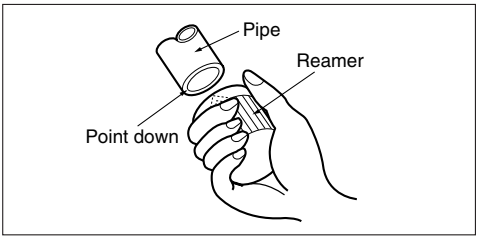
Cut the pipes and the cable.

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.



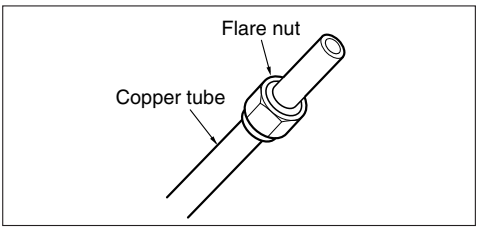
Burrs removal

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

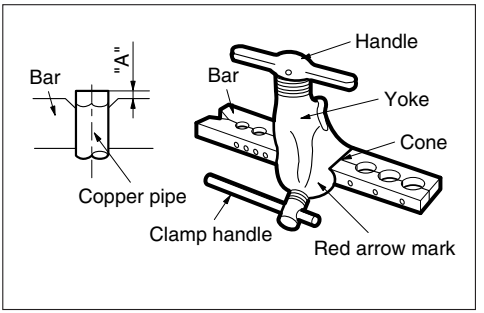
- Remove flare nuts attached to indoor and outdoor unit, then put them on pipe/tube having completed burr removal.
  (not possible to put them on after flaring work)



Flaring work

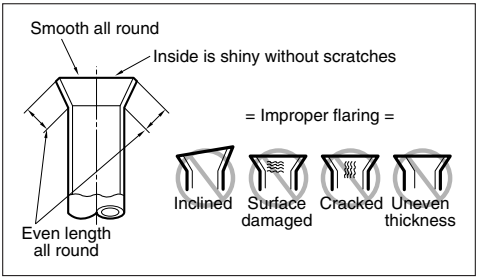
- Carry out flaring work using flaring tool as shown below.
- Firmly hold copper pipe in a die in the dimension shown in the table above.

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



Check

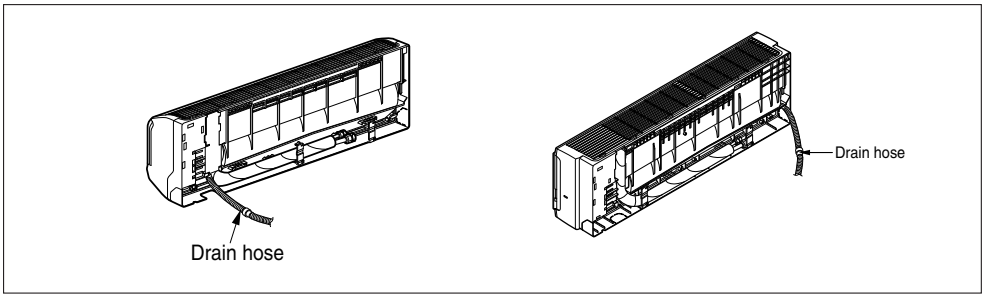
1. Compare the flared work with figure below.
2. If flare is noted to be defective, cut off the flared section and do flaring work again.



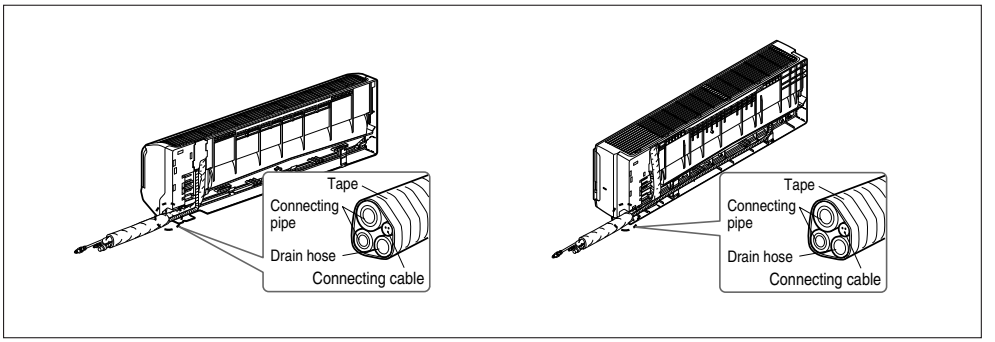
Connection of piping - Indoor

Preparing the indoor unit's piping and drain hose for installation through the wall.

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



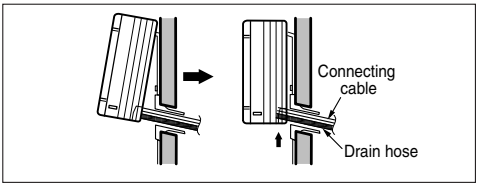
2. Tape the tubing, drain hose and the connecting cable. Be sure that the drain hose is located at the lowest side of the bundle. Locating at the upper side can cause drain pan to overflow inside the unit.

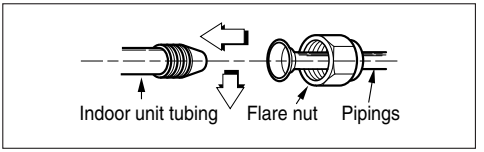


CAUTION: If the drain hose is routed inside the room, insulate the hose with an insulation material* so that dripping from "sweating"(condensation) will not damage furniture or floors.
***Foamed polyethylene or equivalent is recommended.**

Indoor unit installation

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).

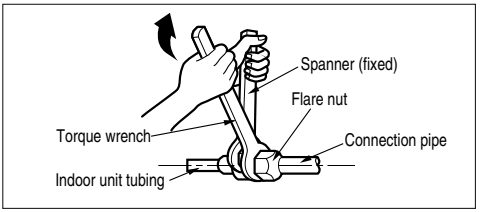




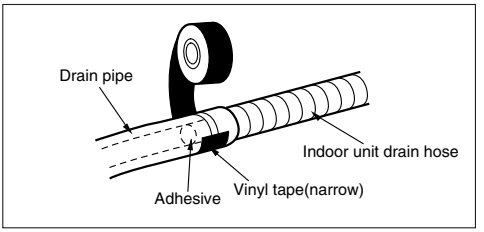
Connecting the pipings to the in door unit and drain hose to drain pipe

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	kg·m
Ø6.35	1/4	1.8~2.5
Ø9.52	3/8	3.4~4.2
Ø12.7	1/2	5.5~6.6
Ø15.88	5/8	6.6~8.2
Ø19.05	3/4	9.9~12.1

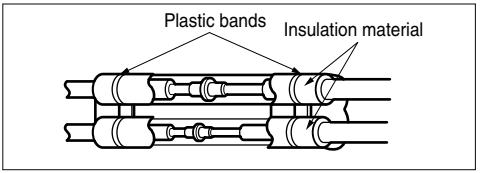


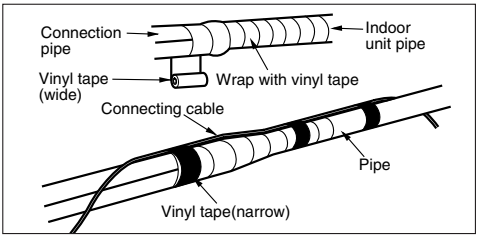
3. When extending the drain hose at the indoor unit, install the drain pipe.



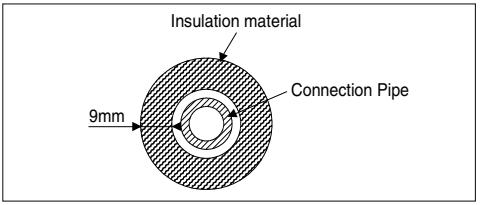
Wrap the insulation material around the connecting portion.

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.

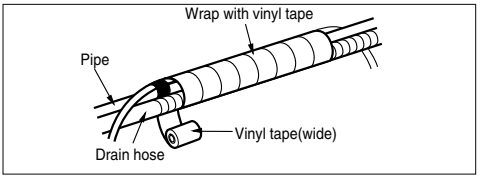




* Insulate the connection pipe with an insulation material so that dripping from "sweating" (condensation) will not damage furniture or floors.
A minimum thickness of 9mm insulation material is required.



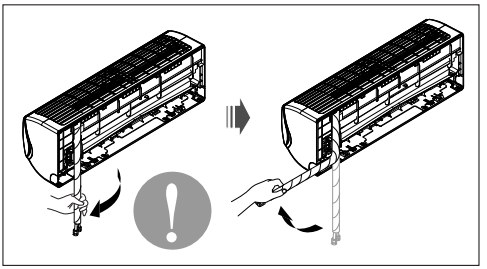
3. Bundle the piping and drain hose together by wrapping them with vinyl tape over the range within which they fit into the rear piping housing section.



CAUTION: Installation Information (For right piping)
For right piping, follow the instruction below.

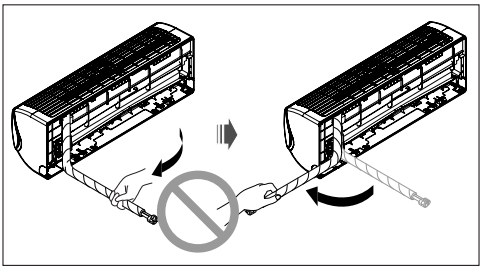
Good case

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



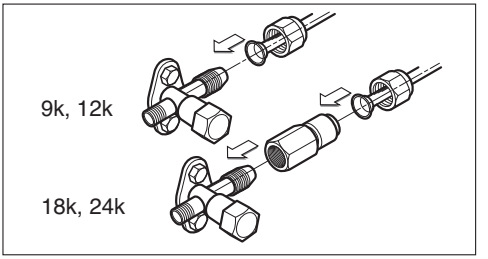
Bad case

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



Connection of piping - Outdoor

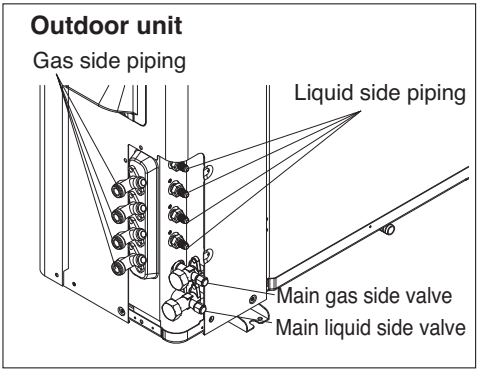
Align the center of the piping and sufficiently tighten the flare nut by hand.



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.

Outside diameter		A
mm	inch	mm
Ø6.35	1/4	1.8~2.5
Ø9.52	3/8	3.4~4.2
Ø12.7	1/2	5.5~6.6
Ø15.88	5/8	6.6~8.2
Ø19.05	3/4	9.2~12.1

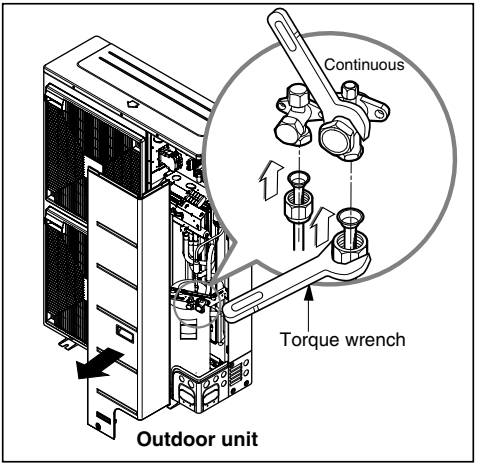


❊ The figure may be slightly different according to the model.

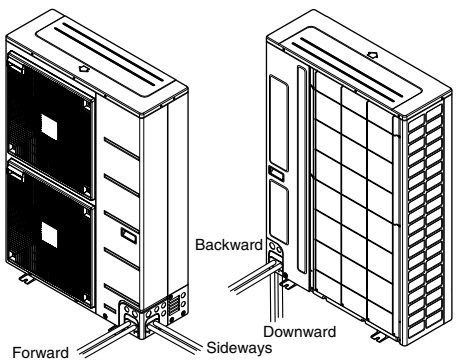
- For the units with capacity more than 48 kBtu/h, the installation piping is connectable in four directions.(refer to figure 1)
- When connecting in a downward direction, knock out the knockout hole of the base pan. (refer to figure 2)

Preventing foreign objects from entering (Figure3)

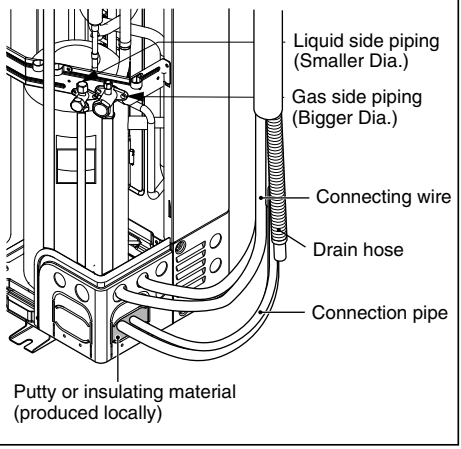
- Plug the pipe through-holes with putty or insulation material(procured locally)to stop up all gaps,as shown in the figure 3.
- Insects or small animals entering the outdoor unit may cause a short circuit in the electrical box.



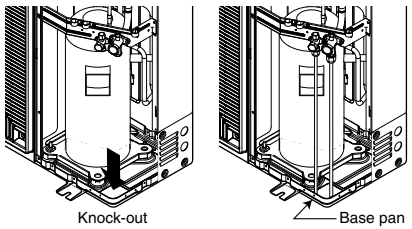
<Figure 1>



<Figure 3>

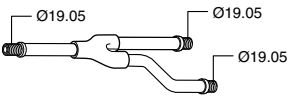
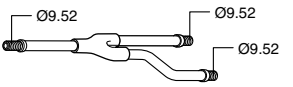
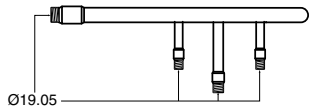
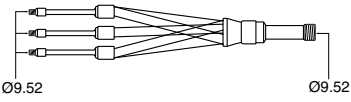


<Figure 2>

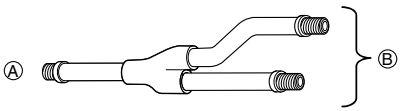


Branch

[unit:mm]

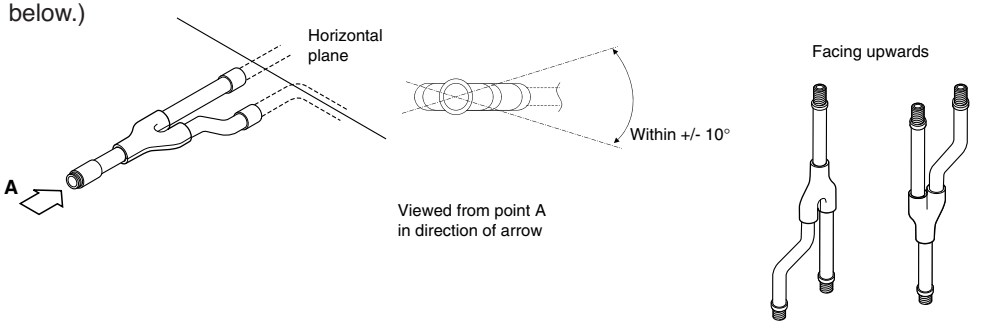
Model	Gas Pipe	Liquid Pipe
PMBL5620		
PMBL1203F0		

■ Y branch

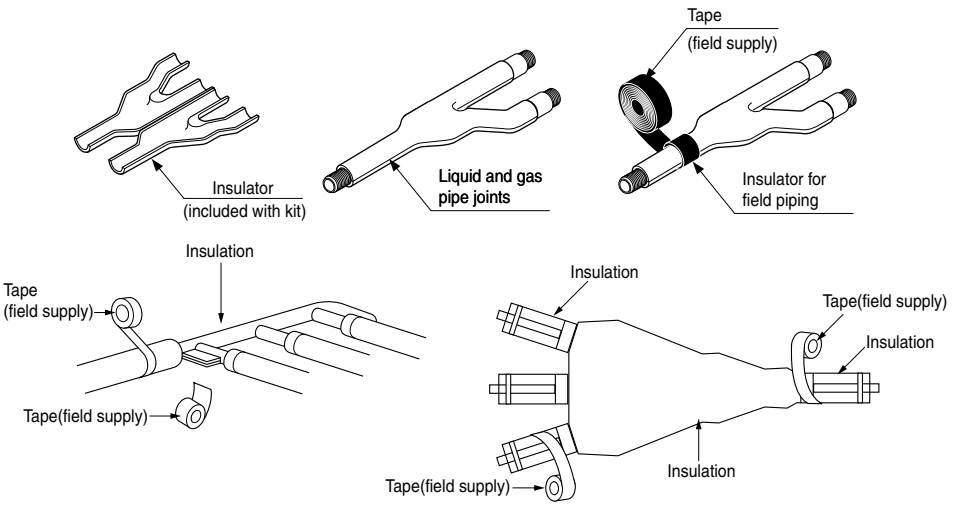


Ⓐ To Outdoor Unit
Ⓑ To BD Unit

• Ensure that the branch pipes are attached horizontally or vertically (see the diagram below.)

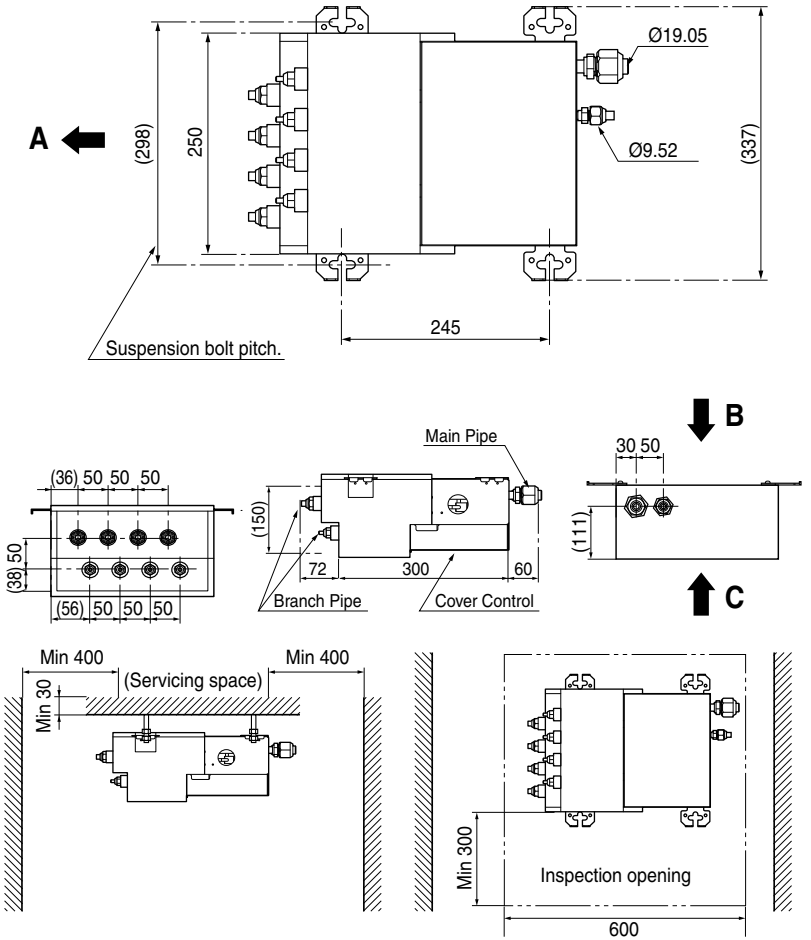


• Branch pipe should be insulated with the insulator in each kit.



Installation

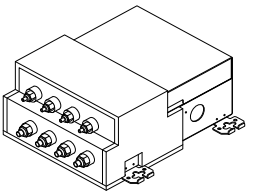
- This unit may be installed suspended from the ceiling or mounted on the wall.
- This unit may only be installed horizontally , as shown in the diagram below.(Side B is facing up) However, it may be freely installed in any direction forward or back, and to the sides.
- Be sure to leave a 600mm square opening for service and inspection as shown in the diagram below, for both ceiling - suspended installation and wall-mounted installation.
- This unit "does not require drain treatment" as it uses internal foam treatment as low-pressure piping insulation.
- Service direction is the side B and C
- The piping for the indoor unit may be led around in direction A
- The inclination of side B must be within ±5 degrees forward or back or to the sides.



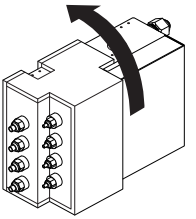
Installation of The Main Unit

NOTICE :

- This unit has two different installation types: (1) Ceiling-suspended type and (2) wall-mounted type.
- Choose the proper installation pattern according to the location of installation.
- The installation location for printed wiring board can be changed.
  Follow the procedure specified in the "CONNECTING THE WIRING" section to change the location.

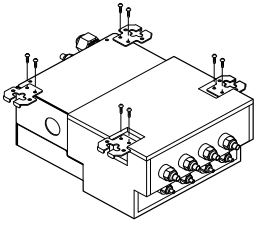


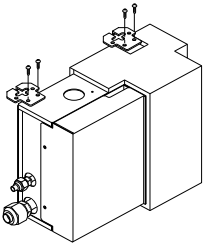
(1) Ceiling-suspended type



(2) Wall-mountde type

(1) Ceiling-suspended type





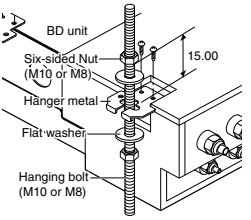
Procedure

(1) Fix the furnished hanger metal with two screws.(4 locations in total).

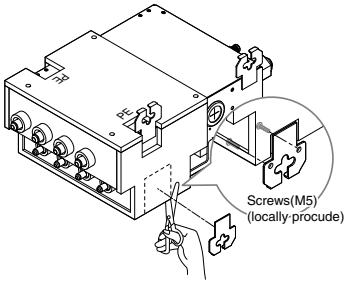
(2) Using an insert-hole-in- anchor, hang the hanging bolt.

(3) Install a hexagon nut and a flat washer (locally-procured)to the hanging bolt as shown in the figure in the left, and lift the main unit to hang on the hanger metal.

(4) After checking with a level that the unit is level, tighten the hexagon nut.
  * The tilt of the unit should be within ±5° in front/back and left/right.



(2) Wall-mounted type



Procedure

(1) Fix the furnished hanger metal with two screws. (3 locations in total).

(2) After checking with a level that the unit is level, fix the unit with the furnished wood screws.
  * The tilt of the unit should be within ±5° in front/back and left/right.

* Block up the parts of hanger holes (2 places) by using insulation PE after installing the hanger.

CAUTIONS

- **Once a screw-hole on the main unit has had a screw hammered in, make sure to either hammer it again or cover it with alumium tape.(This is to prevent condensation)**
- **Be sure to install the unit with the ceiling-side up.**
- **Do not install near bedrooms. the sound of refrigerant flowing through the piping may sometimes be audible.**

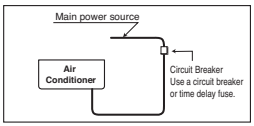
Connecting the Cable between Indoor Unit and Outdoor Unit

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.**

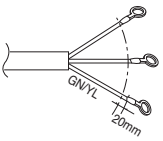
CAUTION: Provide a circuit breaker between power source and the unit as shown below.



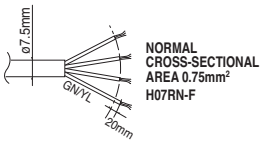
CAUTION: The power cord connected to the outdoor unit should be complied with the following specifications (Cable type approved by HAR or SAA).

(mm²)

Capacity (kBtu/h)	18	26	30	40	48	56
NORMAL CROSS SECTIONAL AREA	2.5	2.5	2.5	3.5	4.0	4.0
Cable Type	H07RN-F					

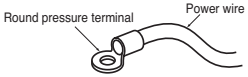


The power connecting cable connected to the indoor and outdoor unit should be complied with the following specifications (Type "B" approved by HAR or SAA).



Precautions when laying power wiring

Use round pressure terminals for connections to the power terminal block.



When none are available, follow the instructions below.

- Do not connect wiring of different thicknesses to the power terminal block. (Slack in the power wiring may cause abnormal heat.)
- When connecting wiring which is the same thickness, do as shown in the figure below.



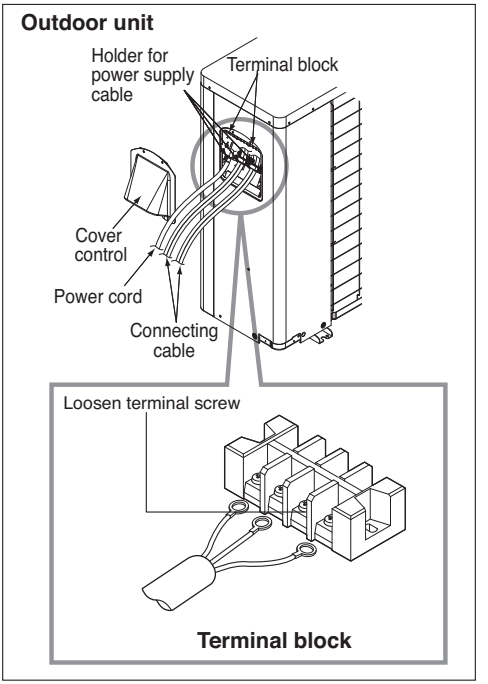
WARNING:
Make sure that the screws of the terminal are free from looseness.

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 (clamper).
3. Refix the cover control to the original position with the screw.
4. Use a recongnized circuit breaker between the power source and the unit. A disconnection device to adequately disconnect all supply lines must be fitted.

1Ø Models

Capacity (kBtu/h)	18	26	30	40	48	56
Circuit Breaker (A)	20	25	25	30	40	40



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.**

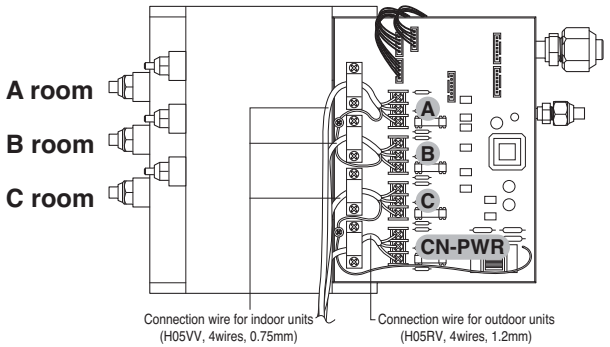
Connection of Wiring

- Connect refrigerant pipes and connection wires to the appropriate ports maked with matching alphabets (A, B and C) on this unit.
- Follow the instructions on the wiring nameplate to connect the connection wires of indoor/outdoor units to terminal board numbers.(1, 2 and 3) Always fix each ground wire separately with a ground screw.(See the figure below.)
- After completing the wiring, fix the outer coating of wires securely with wire clamps. The wire clamp on indoor unit side is furnished. Follow the procedure below to install.
- Refer to the circuit diagram on the control cover inside outdoor unit.

NOTICE :

The terminal board numbers are arranged from top to bottom in order of 1, 2 and 3.

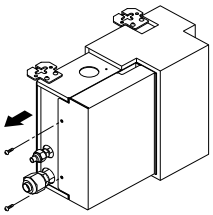
In Case of 3 rooms



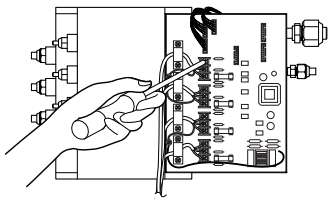
Warning

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

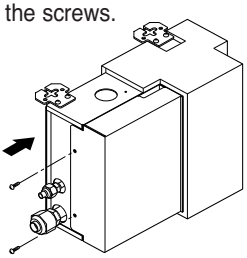
(1) Remove the control cover. Loosen the two screws, and slide the cover in the direction of the arrow.



(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).



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

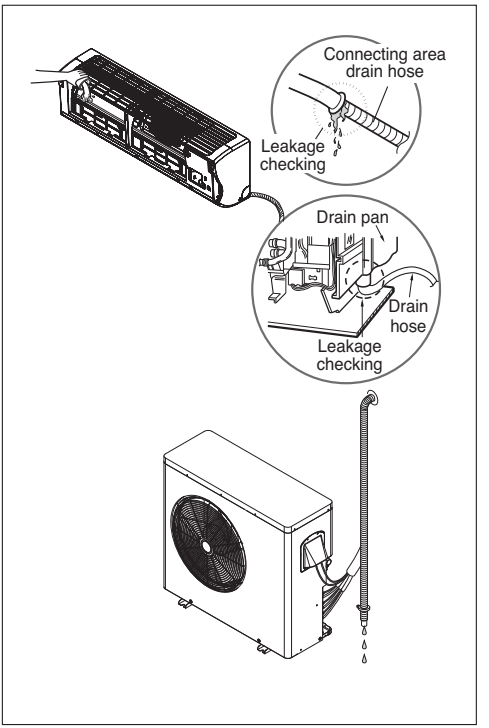


Checking the Drainage, Forming the Pipings and Long Pipe Setting

Checking the drainage

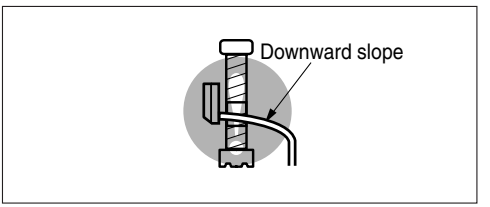
To check the drainage.

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.

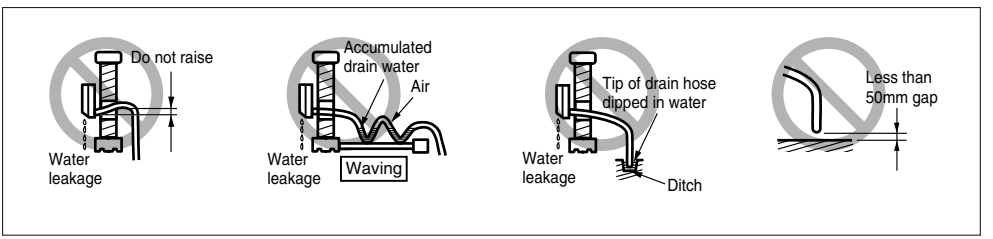


Drain piping

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.

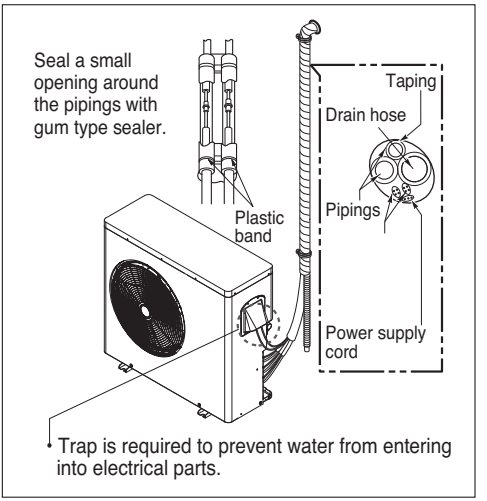
- If you want to connect an additional drain hose, the end of the drain outlet should be routed above the ground. Secure the drain hose appropriately.

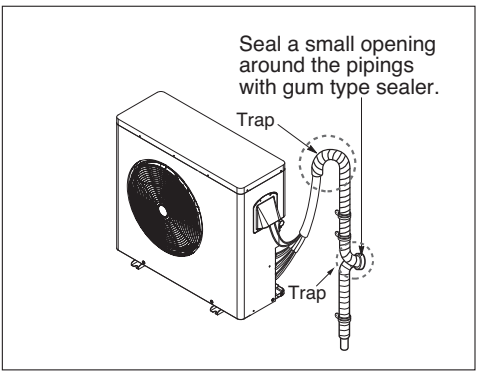
In cases where the outdoor unit is installed below the indoor unit perform the following.

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.





Current limit switch setting and long pipe setting

❉ The function referred below is differently applied to model.
- Set the dip switch to a long pipe mode when the length of total pipes is over standard pipe of each model.
- Set the dip switch to a changing ampere limitation mode when the current is limited by regulation.

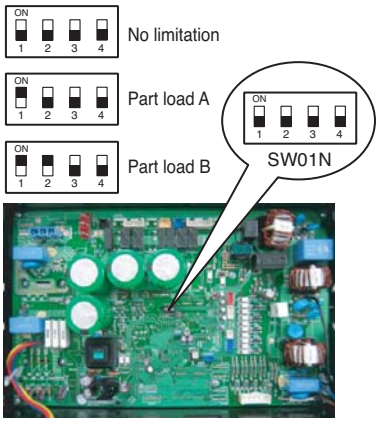
❉ Please turn off main power while changing long pipe or current limit setting, and wait 3~5 minutes until residual electricity discharges.

1. Open the top cover of outdoor unit.
2. Select one of the two selectable modes as follows.
3. Set the Zone as shown in Fig.
4. Close the top cover and check whether the product works normally.

WARNING: Do NOT open the top cover or set the pipe length while operating the product.

❉ Changing ampere limitation mode.

18kBtu/h, 26kBtu/h, 30kBtu/h



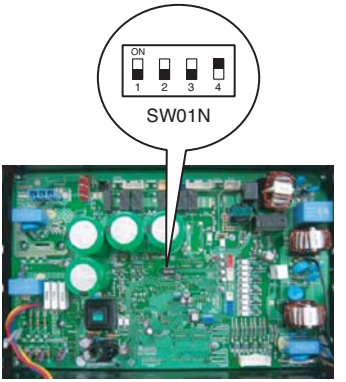
Operation current (A)

Capacity(Btu/h)	18k	26k	30k
Part load A	8.5	8.5	11
Part load B	11	11	17

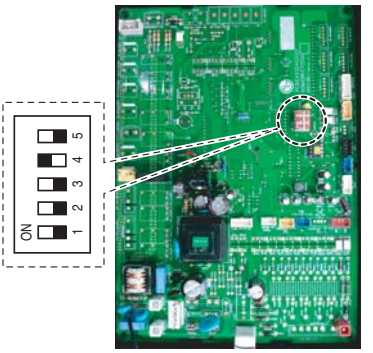
❉ Factory default setting is all-off.

❉ Long pipe setting mode.

18kBtu/h, 26kBtu/h, 30kBtu/h
40kBtu/h



48kBtu/h, 56kBtu/h



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 incondensible 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

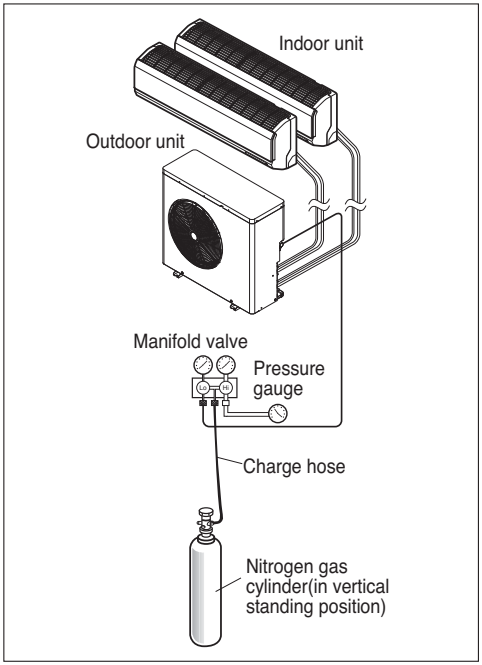
- Connect the manifold valve(with pressure gauges) and dry nitrogen gas cylinder to this service port with charge hoses.

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 150 P.S.I.G. with dry nitrogen gas and close the cylinder valve when the gauge reading reached 150 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.



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.

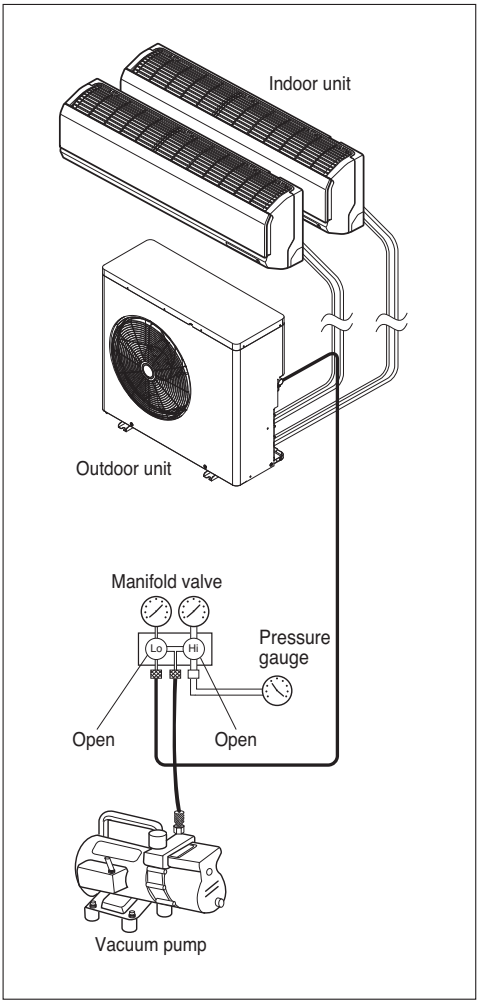
Required time for evacuation when 30 gal/h vacuum pump is used	
If tubing length is less than 10m (33ft)	If tubing length is longer than 10m (33ft)
Less than 0.5 Torr	Less than 0.5 Torr

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.

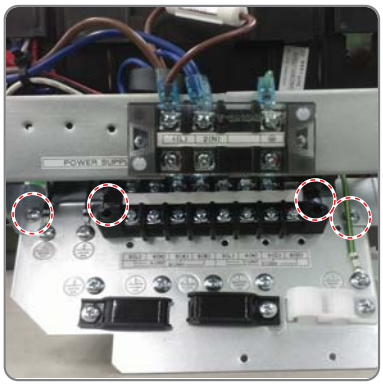


Installation PI485

- **Fix the PI485 PCB as shown in Fig.**

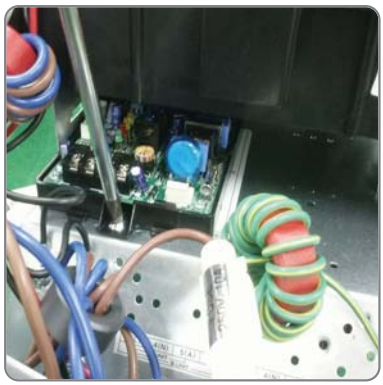
  Detailed installation method refer to PI485 Installation Manual.

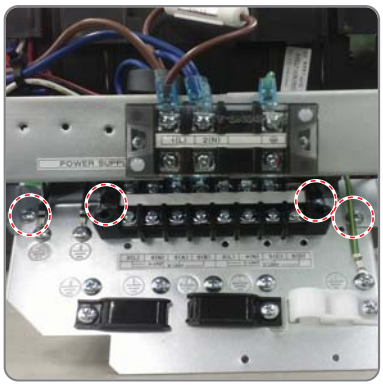
18kBtu/h
26kBtu/h



❉ Loose the 4 screw







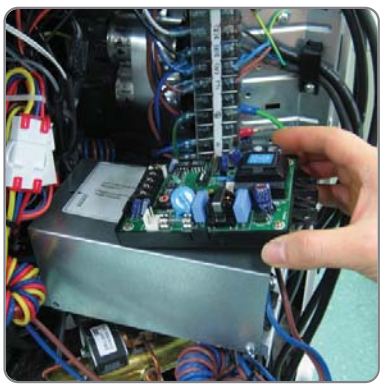
❉ Tighten the 4 screw

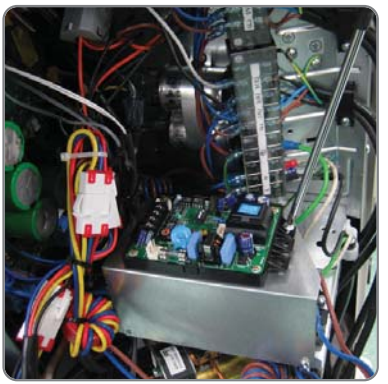
30kBtu/h



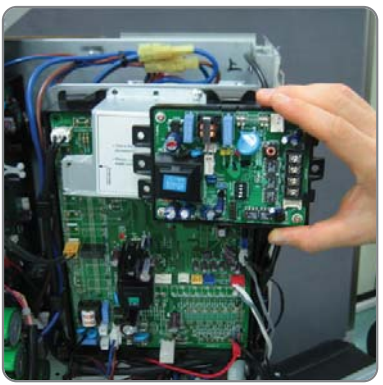


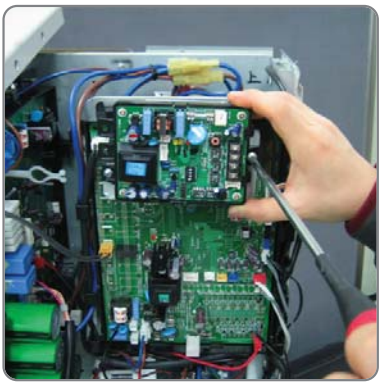
40kBtu/h





48kBtu/h
56kBtu/h





Test Running

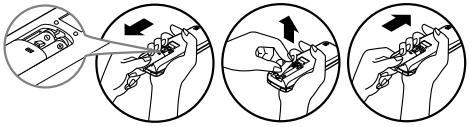
1. Check that all tubing and wiring have been properly connected.
2. Check that the gas and liquid side service valves are fully open.

Prepare remote control

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

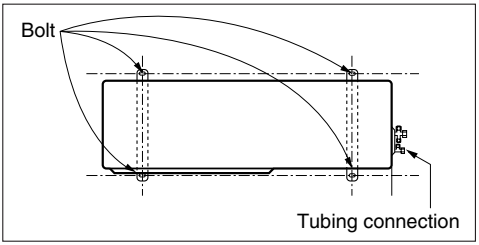
Insert new batteries making sure that the (+) and (–) of battery are installed correctly.

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.

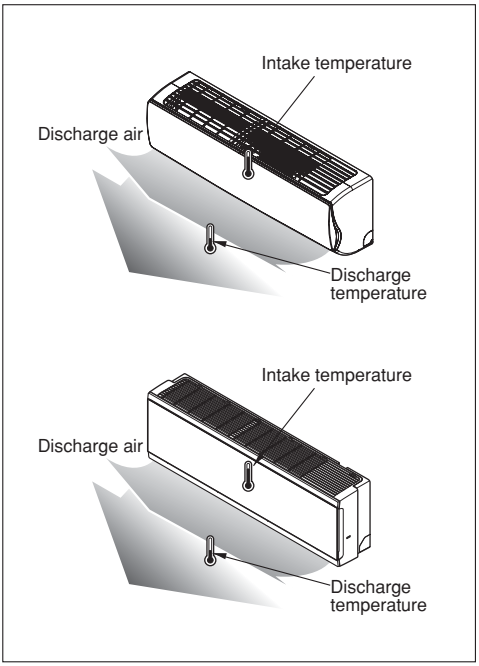


Evaluation of the performance

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. Ensure the difference between the intake temperature and the discharge is more than 8°C
4. For reference, the gas side pressure of optimum condition is as below.(Cooling)

Refrigerant	Outside ambient TEMP.	The pressure of the gas side service valve.
R410A	35°C (95°F)	8.5~9.5kg/cm²G(120~135 P.S.I.G.)



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.

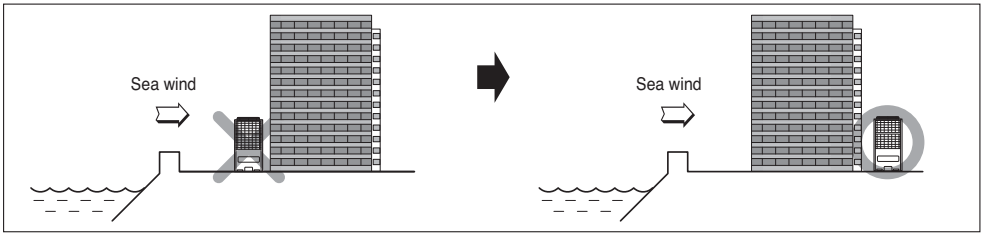
Installation guide at the seaside

CAUTION

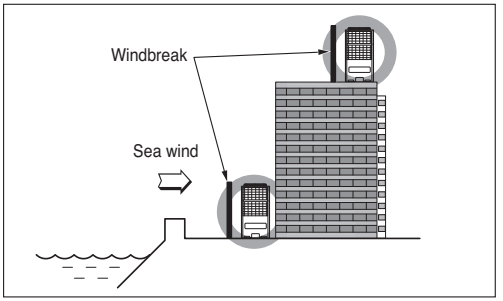
1. **Air conditioners should not be installed in areas where corrosive gases, such as acid or alkaline gas, are produced.**
2. **Do not install the product where it could be exposed to sea wind (salty wind) directly. It can result corrosion on the product. Corrosion, particularly on the condenser and 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.

- Periodic (more than once/year) cleaning of the dust or salt particles stuck on the heat exchanger by using water.


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