



**BIO SMART**  
*for a green, healthy environment*

Mini-Split Commercial  
9,000 - 12,000 - 18,000 BTU  
Air Conditioner

OWNER'S MANUAL

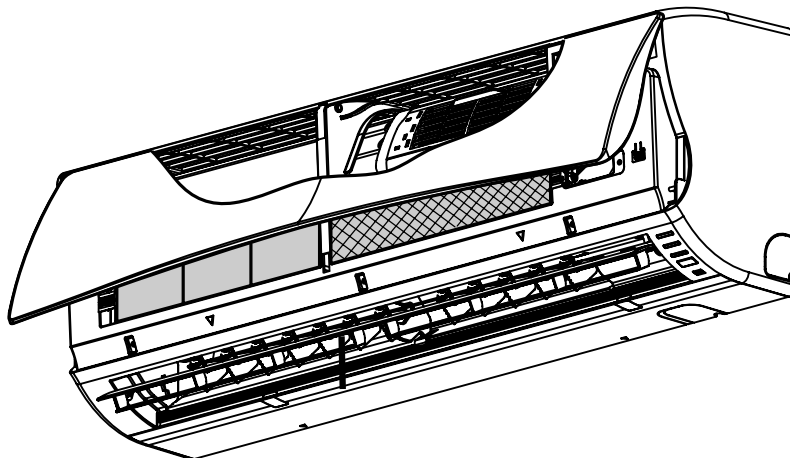
Please read this manual carefully before operating your unit and retain it for future reference.

TYPE : WALL MOUNTED

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# 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.

 <b>WARNING</b> This symbol indicates the possibility of death or serious injury.
 <b>CAUTION</b> 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**

Always use a power plug and socket with a ground terminal.

- There is a risk of electric shock.

Do not use a defective or underrated circuit breaker. Use the correctly rated breaker and fuse.

- There is risk of fire or electric shock .

Do not use a multi consent. Always use this appliance on a dedicated circuit and breaker.

- Otherwise it can cause electric shock or fire.

For electrical work, contact the dealer, seller, a qualified electrician, or an Authorized Service Center. Do not disassemble or repair the product by yourself.

- There is risk of fire or electric shock.

Always ground the product as per the wiring diagram. Do not connect the ground wire to gas or water pipes lightning rod or telephone ground wire.

- 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 due to dust , water etc.

Use the correctly rated breaker or fuse.

- There is risk of fire or electric shock.

Do not modify or extend the power cable. If the power cable or cord has scratches or skin peeled off or deteriorated then it must be replaced.

- There is risk of fire or electric shock.

For installation, removal or reinstall , 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. Be sure that the installation area does not deteriorate with age.

- It may cause product to fall.

Never install the outdoor unit on a moving base or a place from where it can fall down.

- The falling outdoor unit can cause damage or injury or even death of a person.

When the product is soaked (flooded or submerged) in water , contact an Authorized Service Center for repair before using it again.

- There is risk of fire or electric shock.

In outdoor unit the step-up capacitor supplies high voltage electricity to the electrical components. Be sure to discharge the capacitor completely before conducting the repair work.

- An charged capacitor can cause electrical shock.

When installing the unit, use the installation kit provided with the product.

- Otherwise the unit may fall and cause severe injury.

Be sure to use only those parts which are listed in the svc parts list. Never attempt to modify the equipment.

- The use of inappropriate parts can cause an electrical shock, excessive heat generation or fire.

**Indoor/outdoor wiring connections must be secured tightly and the cable should be routed properly so that there is no force pulling the cable from the connection terminals.**

- Improper or loose connections can cause heat generation or fire.

**Safely dispose off the packing materials. Like screws, nails, batteries, broken things etc after installation or svc and then tear away and throw away the plastic packaging bags.**

- Children may play with them and cause injury.

**Make sure to check that the power cable plug is not dirty, loose or broken and then only insert the plug completely.**

- Dirty, loose or broken power plug can cause electric shock or fire.

**Be sure to check the refrigerant to be used. Please read the label on the product.**

- Incorrect refrigerant used can prevent the normal operation of the unit.

**Don't use a power cord, a plug or a loose socket which is damaged.**

- Otherwise it may cause a fire or electrical shock.

**Do not touch, operate, or repair the product with wet hands. Hold the plug by hand when taking out**

- There is risk of electric shock or fire.

**Do not place a heater or other heating appliances near the power cable.**

- There is risk of fire and electric shock.

**Do not allow water to run into electric parts. Install the unit away from water sources.**

- There is risk of fire, failure of the product, or electric shock.

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

- There is risk of fire.

**Do not use the product in a tightly closed space for a long time. Perform ventilation regularly.**

- Oxygen deficiency could occur and hence harm your health.

**Do not open the front grille of the product during operation. (Do not touch the electrostatic filter, if the unit is so equipped.)**

- There is risk of physical injury, electric shock, or product failure.

**If strange sounds, smell or smoke comes from product. Immediately turn the breaker off or disconnect the power supply cable.**

- There is risk of electric shock or fire.

**Ventilate the product room from time to time when operating it together with a stove, or heating element etc.**

- Oxygen deficiency can occur and hence harm your health.

**Turn the main power off and unplug the unit when cleaning or repairing the product.**

- There is risk of electric shock.

**When the product is not to be used for a long time, disconnect the power supply plug or turn off the breaker.**

- There is risk of product damage or failure, or unintended operation.

**Take care to ensure that nobody especially kids could step on or fall onto the outdoor unit.**

- This could result in personal injury and product damage.

**Take care to ensure that power cable could not be pulled out or damaged during operation.**

- There is risk of fire or electric shock.

**Do not place ANYTHING on the power cable.**

- There is risk of fire or electric shock.

**Do not plug or unplug the power supply plug to turn the unit ON/OFF.**

- There is risk of fire or electric shock.

**When flammable gas leaks, turn off the gas and open a window for ventilation before turn the product on.**

- Do not use the telephone or turn switches on or off. There is risk of explosion or fire.

## CAUTION

**Two or more people must 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.

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

- A bad connection may cause water leakage.

**Keep level even when installing the product.**

- To avoid vibration or noise.

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

- It may cause a problem for your neighbors and hence dispute.

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

- Low refrigerant levels may cause failure of product.

Do not use the product for special purposes, such as preserving foods, works of art, etc. It is a consumer air conditioner, not a precision refrigeration system.

- There is risk of damage or loss of property.

Do not block the inlet or outlet of air flow.

- It may cause product failure.

Use a soft cloth to clean. Do not use harsh detergents, solvents or splashing water etc .

- There is risk of fire, electric shock, or damage to the plastic parts of the product.

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

- There is risk of personal injury.

Do not step on or put anything on the product. (outdoor units)

- There is risk of personal injury and failure of product.

Always insert the filter securely after cleaning. Clean the filter every two weeks or more often if necessary.

- A dirty filter reduces the efficiency.

Do not insert hands or other objects through the air inlet or outlet while the product is operating.

- There are sharp and moving parts that could cause personal injury.

Be cautious when unpacking and installing the product.

- Sharp edges could cause injury.

If the refrigerant gas leaks during the repair, do not touch the leaking refrigerant gas.

- The refrigerant gas can cause frostbite (cold burn)

Do not tilt the unit when removing or uninstalling it.

- The condensed water inside can spill .

Do not mix air or gas other than the specified refrigerant used in the system .

- If air enters the refrigerant system, an excessively high pressure results, causing equipment damage or injury.

If the refrigerant gas leaks during the installation, ventilate the area immediately.

- Otherwise it can be harmful for your health.

Dismantling the unit, treatment of the refrigerant oil and eventual parts should be done in accordance with local and national standards.

Replace the all batteries in the remote control with new ones of the same type. Do not mix old and new batteries or different types of batteries.

- There is risk of fire or product failure.

Do not recharge or disassemble the batteries. Do not dispose off batteries in a fire.

- They may burn or explode.

If the liquid from the batteries gets onto your skin or clothes, wash it well with clean water. Do not use the remote if the batteries have leaked.

- The chemicals in batteries could cause burns or other health hazards.

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.

Do not expose your skin or kids or plants to the cool or hot air draft.

- This could harm to your health.

If you eat the liquid from the batteries, brush your teeth and see doctor. Do not use the remote if the batteries have leaked.

- The chemicals in batteries could cause burns or other health hazards.

Do not drink the water drained from the product.

- It is not sanitary and could cause serious health issues.

Use a firm stool or ladder when cleaning, maintaining or repairing the product at an height.

- Be careful and avoid personal injury.

# Electrical Safety

## **⚠ WARNING**

- This appliance must be properly grounded. To minimize the risk of electric shock, you must always plug into a grounded outlet.
- Do not cut or remove the grounding prong from the power plug.
- Attaching the adapter ground terminal to the wall receptacle cover screw does not ground the appliance unless the cover screw is metal and not insulated, and the wall receptacle is grounded through the house wiring.
- If you have any doubt whether the air conditioner is properly grounded, have the wall receptacle and circuit checked by a qualified electrician.

### *Temporary Use of an Adapter*

We strongly discourage the use of an adapter due to potential safety hazards. For temporary connections, use only a genuine adapter, available from most local hardware stores. Ensure that the large slot in the adapter is aligned with the large slot in the receptacle for a proper polarity connection.

To disconnect the power cord from the adapter, use one hand on each to avoid damaging the ground terminal. Avoid frequently unplugging the power cord as this can lead to eventual ground terminal damage.

## **⚠ WARNING**

- Never use the appliance with a broken adapter.

### *Temporary Use of an Extension Cord*

We strongly discourage the use of an extension cord due to potential safety hazards.

## **⚠ WARNING**

This appliance should be installed in accordance with national wiring regulations. This guide acts as a guide to help to explain product features.

### *Symbols used in this Manual*



This symbol alerts you to the risk of electric shock.



This symbol alerts you to hazards that may cause harm to the air conditioner.

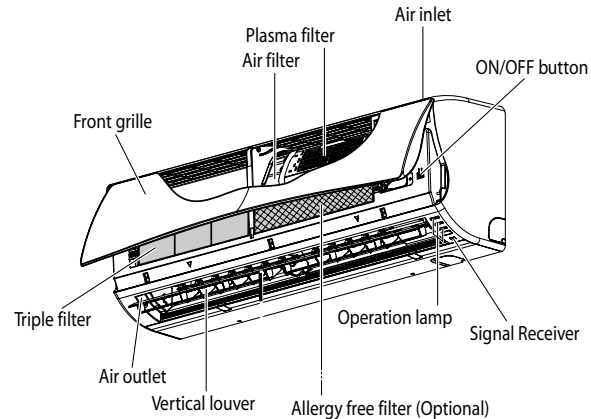
**NOTE**

This symbol indicates special notes.

# Indoor and Outdoor Unit's Outline

Here is a brief introduction of the indoor and outdoor units. Please see the information specific to your indoor unit type.

## Indoor Units



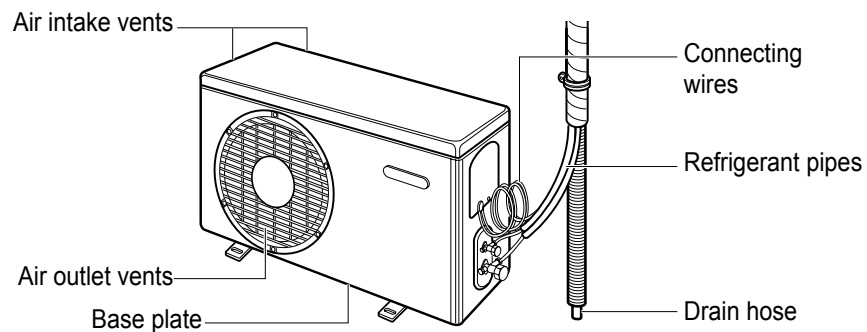
## Operation Indication Lamps

- Power : 'Power' lamp lights up during Cooling Operation
- Timer : 'Timer' lamp lights up during Timer Operation

Please Note:

The Indoor unit exploded view is for your reference only.  
The actual structure and design of indoor unit may vary depending on the indoor designs chosen by you.

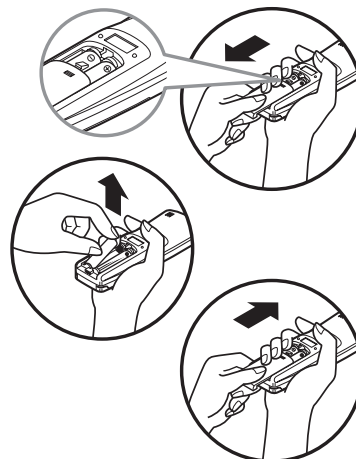
## Outdoor Unit



# Operating Instructions

## How to insert the Batteries

1. Remove the battery cover by pulling it according to the arrow direction.
2. Insert new batteries making sure that the (+) and (-) of battery are installed correctly.
3. Reattach the cover by sliding it back into position.



### NOTE

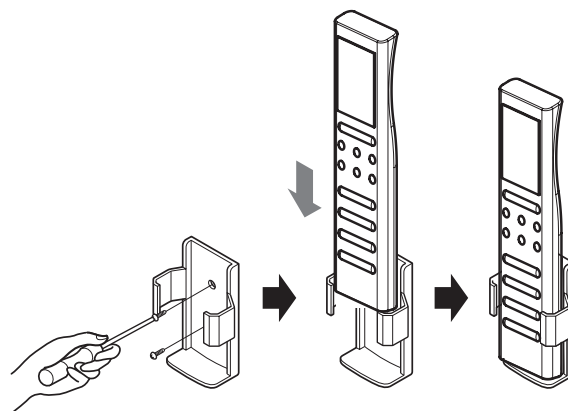
1. Always use/replace both batteries of same type.
2. If the system is not to be used for a long time, remove the batteries to save their working life.
3. If the display screen of remote controller starts fading replace both of the batteries.
4. Use 2 AAA(1.5 volt) batteries.

## Wireless Remote Controller Maintenance

1. Choose a suitable place where its safe & easy to reach.
2. Fix the holder to wall etc with the supplied screws properly.
3. Slide the remote controller inside the holder.

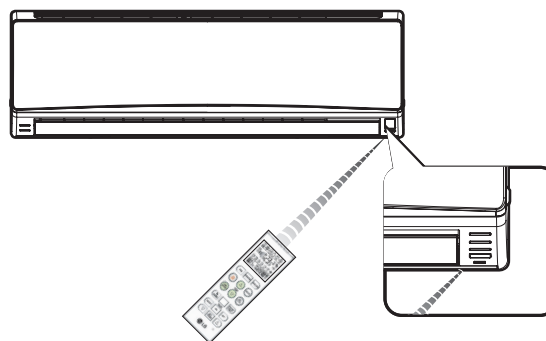
### NOTE

1. Remote controller should never be exposed to direct sunlight.
2. Signal transmitter & receiver should always be clean for proper communication. Use a soft cloth to clean them.
3. In case some other appliances also get operated with remote control, change their position or consult your serviceman.



## Operating Method

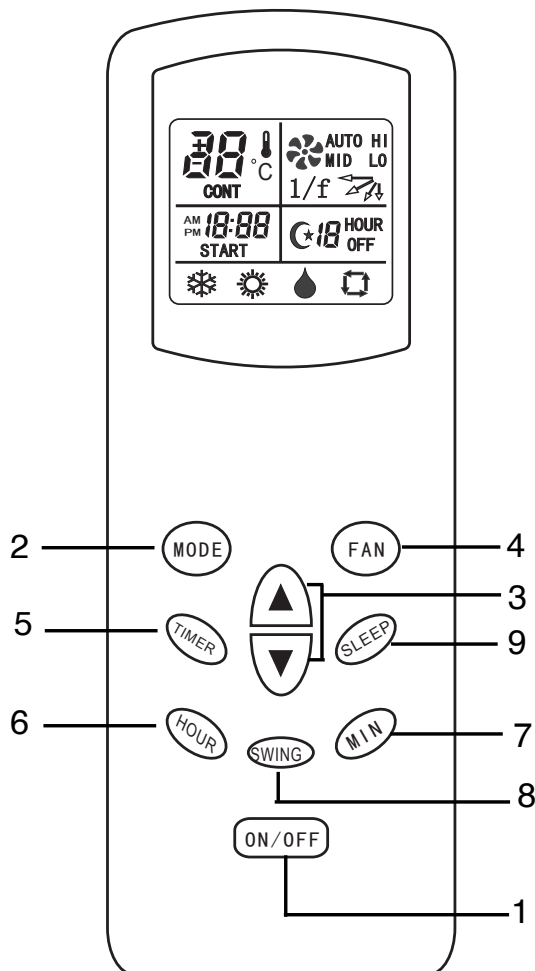
1. The signal receiver is inside the unit.
2. Aim the remote controller towards the unit to operate it. There should not be any blockage in between.





## Wireless Remote Controller

The controls will look like the following.



### 1. ON-OFF BUTTON

Used to turn off/on the unit.

### 2. MODE BUTTON

Used to select the operation mode.

### 3. ROOM TEMPERATURE SETTING BUTTONS

Used to select the room temperature.

### 4. INDOOR FAN SPEED SELECTOR BUTTON

Used to select fan speed in four steps low, medium, high and CHAOS.

### 5. TIMER BUTTONS

Used to set the time of starting operation.

### 6. HOUR BUTTON

Used to adjust the time .

### 7. MIN BUTTON

Used to adjust the time .

### 8. SWING BUTTON

Used to set the air flow direction

### 9. SLEEP FUNCTION

Used to set sleep mode auto operation.

Please note:

- ❄ indicates cooling mode
- ☀ indicates heating mode
- 💧 indicates dehumidifying mode
- 🌀 indicates fan mode
- 🌙 indicates sleeping mode
- 🚪 indicates moving flapper

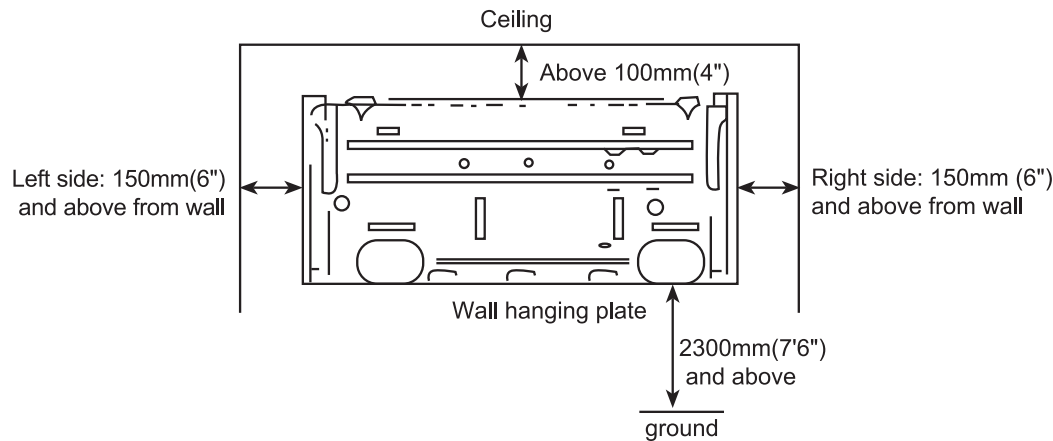
# Installation Preparation

## 【Selection of installation positions for indoor unit】

- To be installed at the position where the air delivered from the unit can reach every corner of the room;
- To avoid being affected by the outdoor air;
- To avoid blockage to the air inlet or outlet of the unit;
- To avoid too much oil smoke or steam;
- To avoid possible generation, inflow, lingering or leakage of flammable gases;
- To avoid high-frequency facilities (such as high frequency arc welders, etc.);
- To avoid the places where acid solutions are frequently used;
- To avoid the places where some special sprayers (sulfides) are frequently used.
- Not to install on top of the musical instruments, TV, computer etc. valuable appliance.
- Not to install a fire alarming device near the air outlet of the unit (during operation, the fire alarm device might be erroneously triggered by the warm air from the unit);

## ■ Make sure of enough space for installation and maintenance.

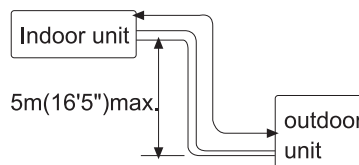
- To take into consideration the operational convenience and safety in installation, it is recommended to ensure enough space between the unit and the walls.



**Attention: If there are some additional function devices to install on the air conditioner, Be sure add to the installation space for the function devices.**

## ■ Height limits of indoor and outdoor units.

- Either the indoor unit or the outdoor unit can be higher, but the height difference must comply the stated requirements.
- Try to reduce the bending of the piping line as much as possible so as to avoid possible negative impacts upon the performances of the units.

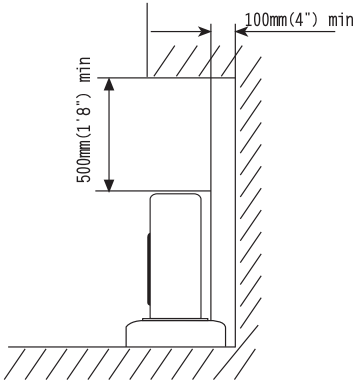
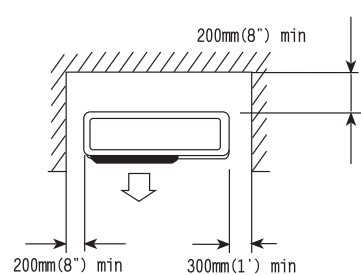
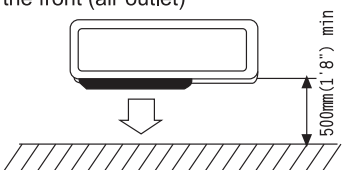
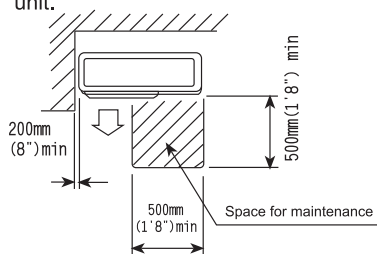
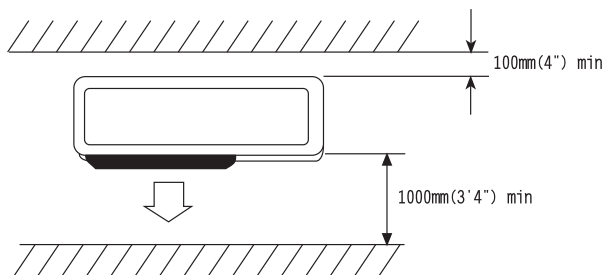
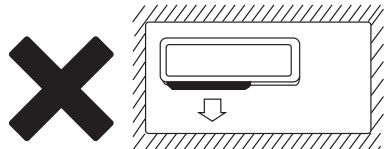


# Installation Preparation

## 【Selection of installation positions for outdoor unit】

- To install the outdoor unit at the places which can stand the load of the machine weight and will not cause big vibrations and noises;
- To install the unit at the places not to be exposed to rain or direct sunshine, and the places with good ventilation;
- The noises generated from the unit will not affect the neighboring places;
- Do not install the unit on non-metal frame;
- Not to install the unit at the places where there might occur the generation, inflow, stay or leakage of inflammable gases;
- Pay attention to the drainage of the condensed water from the base plate during operations;
- To avoid the air outlet being directly against the wind.

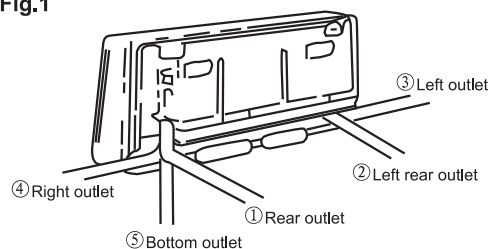
## Detailed space requirements around the outdoor unit

<p>1. When there are obstacles above the unit</p> 	<p>2. When the front (air outlet) is open</p> 	<p>3. When there are obstacles only in the front (air outlet)</p>  <p><b>Space for maintenance</b> Shown as in the following figure. Keep the maintenance space in front of the unit.</p> 
<p>4. When there are obstacles at the front and rear sides.</p> 		<p>5. When there are obstacles all around the unit on four sides. Although the top side is open, the installation is not to be done if there are obstacles all around.</p>  <p>● At least two sides should be kept open.</p>

# Installation Fixture of Indoor Unit

Pipelines can be connected in the directions of ①、②、③、④、 and ⑤ as indicated in Fig.1. When the pipelines are connected to the directions of ③、④ and ⑤, a groove for the pipes has to be opened at the proper place on the base stand.

Fig.1



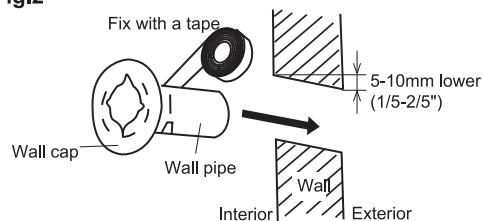
## 1.Installation of wall-mounting plate

Fix the wall-mounting plate firmly on the wall with screws. Make sure of the leveling of the plate. Slanted wall-mounting plate might jeopardize the smooth discharge of the condensed water.

## 2.Drill holes on the wall

Drill holes at places slightly below the wall-mounting plate, with hole diameter of 65mm(2-3/5") and the outer edge of the hole 5-10mm(1/5-2/5") lower (Fig.2) so that the condensed water can smoothly flow out. Cut the wall penetrating pipe to proper length according to the thickness of the wall (3-5mm(1/10-1/5") longer than the wall thickness) and insert the pipe as indicated in Fig.2.

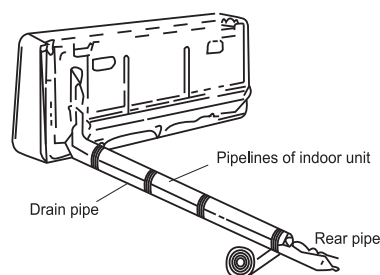
Fig.2



## 3.Installation of drain pipe

Install the pipelines of the indoor unit in accordance with the direction of the wall holes. Wrap tightly the drain pipe and the pipelines with tape. Make sure that the drain pipe is underneath the pipelines. (Fig.3) (When the drain pipe passes the room interior, some condensed water might occur to its surfaces if the humidity is very high).

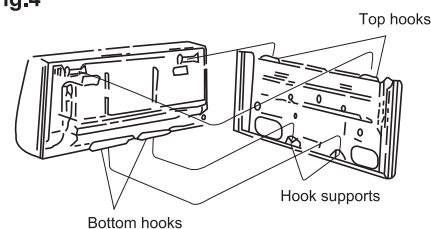
Fig.3



## 4.Installation of indoor unit

Pass the connection wires, connecting pipelines and drain pipe through the wall hole. Hang the indoor unit on the hooks at the top of the wall-mounting plate so that the hooks at the bottom of the indoor unit match the hooks of the wall-mounting plate. (Fig.4)

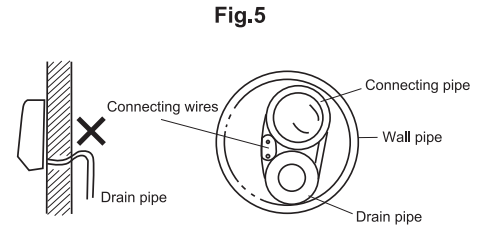
Fig.4



# Installation Fixture of Indoor Unit

## Inspections:

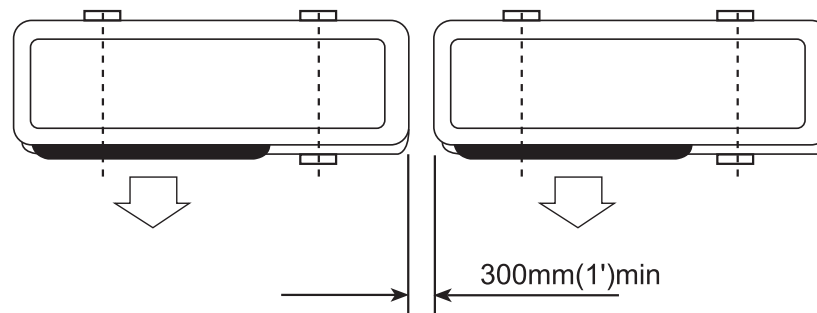
- Check if the hooks at the top and bottom are firmly fixed.
- Check if the position of the master unit is properly leveled.
- The drain pipe should not curve upward (Fig.5).
- The drain pipe should be at the lower part of the wall pipes (Fig. 5).



## 【Installation fixture of outdoor unit】

- Try to ship the product to the installation location in its original package;
- As the gravity center of the unit is not at the installation center, special caution should be taken when using hoisting cables to lift it up;
- During shipping, the outdoor unit must not be slanted to over 45 degrees (Do not store the unit in a horizontal way).
- Use expansion bolts to fix the mounting supports on the wall;
- Use bolts and nuts to fix the outdoor unit firmly on the supports and keep on the same level;
- If the unit is installed on the wall or at the rooftop, the supports have to be firmly fixed so as to resist earthquake or strong wind.

## Dimensions for parallel units installations



## 【Ordinary pipelines connection & Air purging】

- The following ordinary pipelines connection and air purging procedures are just suitable for non-quick coupler model.

### ■ Ordinary pipelines connection

No dust, foreign articles, air or moisture should be allowed to enter the air conditioning system. Careful attention should be paid when pipeline connection for outdoor unit is made. Try to avoid repeated curves as much as possible, otherwise hardening or cracks might be caused to the copper pipes. Suitable wrenches should be used when the pipeline connection is done so as to ensure appropriate torque (refer to following torque Table 1). Excessive torque might damage the joints while too little torque might lead to leakage.

# Installation Fixture of Outdoor Unit

**Table 1** Torque based upon the wrench to be used

Outer diameter of copper pipe	Tightening torque	Strengthened tightening torque
∅ 6.35(1/4")	160kgf.cm(63kgf.inch)	200kgf.cm(79kgf.inch)
∅ 9.52(3/8")	300kgf.cm(118kgf.inch)	350kgf.cm(138kgf.inch)
∅ 12.7(1/2")	500kgf.cm(197kgf.inch)	550kgf.cm(216kgf.inch)
∅ 15.88(5/8")	750kgf.cm(295kgf.inch)	800kgf.cm(315kgf.inch)
∅ 19.05(3/4")	1200kgf.cm(472kgf.inch)	1400kgf.cm(551kgf.inch)

## ■ Air purging with vacuum pump

1. Check that pipelines connection have been properly connected, remove the charging port cap, and connect the manifold gauge and the vacuum pump to the charging valve by service hoses as shown Fig.6.

2. Open the valve of the low pressure side of manifold gauge, then, run the vacuum pump. Vacuum the indoor unit and the connecting pipes until the pressure in them lowers to below 1.5mmHG (The operation time for vacuuming is about 10 minutes). When the desired vacuum is reached, close the valve of the low pressure of the manifold and stop the vacuum pump.

3. Disconnect the service hoses and fit the cap to the charging valve.

4. Remove the blank caps, and fully open the spindles of the 2-way and 3-ways valves with a service valve wrench.

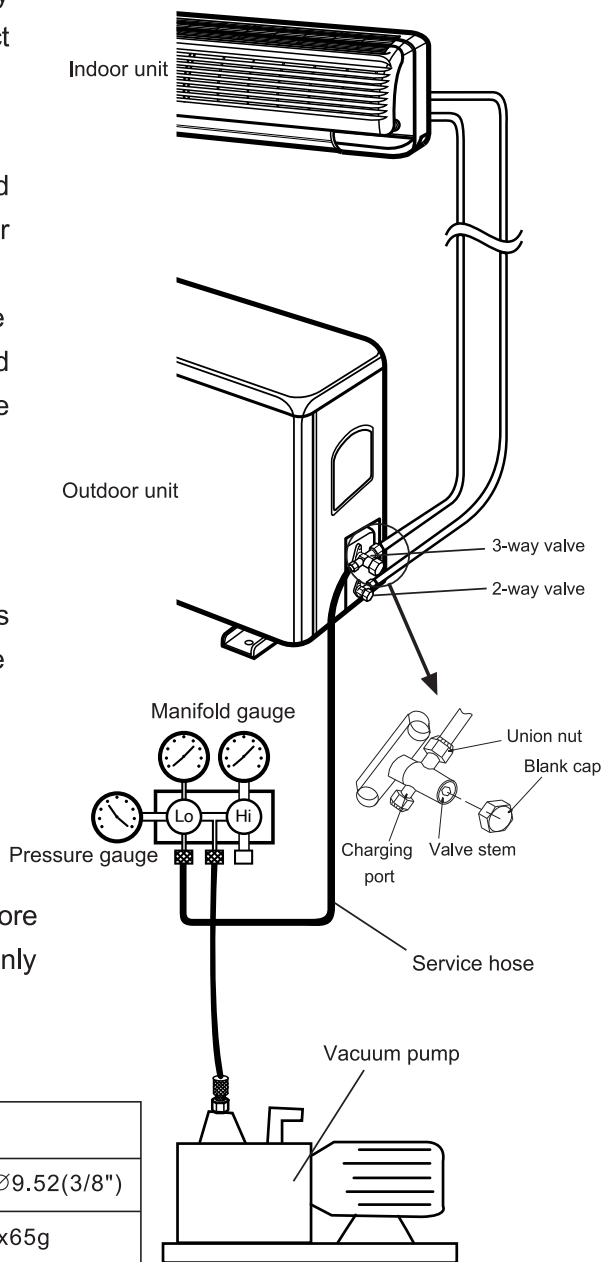
5. Tighten the blank caps of the 2-way and 3-ways valves, applying the above torque Table 1.

## ■ Adding refrigerant

Refrigerant must be added if the piping measures more than 5 metres (16'5") in length. This operation can only be performed by a professional technician, for the additional amount, see the table 2 below.

**Table 2**

Additional refrigerant amount	
Liquid pipe diameter ∅6.35(1/4")	Liquid pipe diameter: ∅9.52(3/8")
(piping length-5)m x 30g or (piping length-16)ft x 0.3oz	(piping length-5)m x 65g or (piping length-16)ft x 0.7oz



**Fig.6**

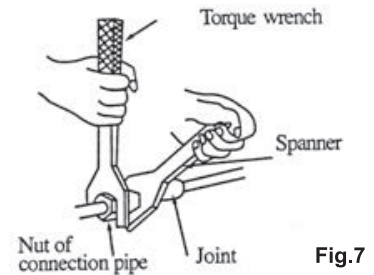
# Gas Leakage Inspection

After the pipeline connection is done, use a leakage inspection device or soap suds to carefully check if there is any leakage at the joints. This is an important step to ensure the quality of installation. Once a leakage is detected, proper treatment should be taken immediately.

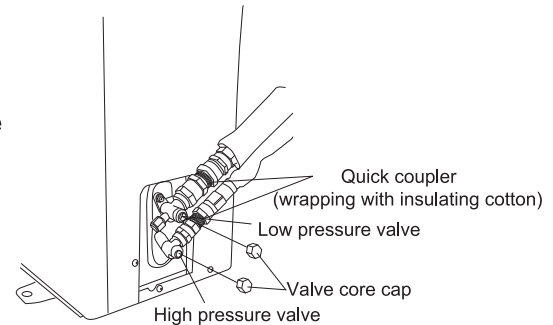
## 【Pipelines connection for Split type quick coupler model】

● If you purchase the machine for split type quick coupler model, please adopt the following pipelines connection procedures:

1. Remove the dust caps from the indoor and outdoor units, and the connecting pipe.
2. Align the joint counter of connecting pipe with the proper indoor and outdoor joint conic surfaces, tighten the connecting nut manually. Then, make it secure with a wrench as shown Fig.7, applying to above torque Table 1.



3. Remove the two valve core caps from the outdoor unit.
4. Turn on the high and low pressure valve cores with a socket wrench, then tighten the two valve core caps of the outdoor unit (Fig.8).
5. Finally, wrap the hot insulating cotton around the joints of indoor and outdoor units.



### ● Notes on installation of quick coupler:

1. Connecting pipe bending minimum radius parameters (Table 3)
2. Quick coupler assembly and disassembly limit: the assembly and disassembly times are inadvisably more than 7.

**Table 3** Minimum bending radius

Normal diameter(mm)	Minimum bending radius(mm)	cooling capacity
DN8(5/16")	80(3")	2100~2300W (7000~8000BTU)
DN10-12 (1/2")	100(4")	2500~5100W (9000~18000BTU)
DN14-16 (5/8")	150(6")	6100~7000W (22000~24000BTU)



# Is the Installation Proper?

## ■ Suitable Installation Position

- Isn't there anything which prevents ventilation or obstructs operation in front of the indoor unit ?

Do not install the unit following place .

- Inflammable gases may leak .
- Oil splashes a lot .
- In case where the unit is used in such places as poisonous or sultry gases are generated or seaside district exposed to sea breezes corrosion may cause malfunction . Consult with your distributor .
- Air conditioner body and remote controller must be 1 m(39-3/4") or more away from a TV or a radio.

Drain the dehumidified water from the indoor unit to a place which drains well .

## ■ Pay attention to operation noise

- When installing the unit , choose a place which can stand the weight of the unit well and does not increase the operation noise or vibration . Especially where there is a possibility that vibration be transmitted to the house , fix the unit by inserting attached vibration -proof pads between the unit and fittings .

- Choose the place where hot air and operation noise from the outlet of the outdoor unit do not annoy the neighborhood .

- Things left near the outlet and inlet of the outdoor unit cause malfunction or increased operation noise . Do not leave obstacles near the outlet and inlet .

- If irregular sound is heard during operation , consult with your distributor .

## ■ Inspection and Maintenance






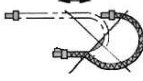




- According to the service conditions and operating environment , the inside of the air conditioner will become dirty after several seasons (3 to 5years ) of service , resulting in decreased operating performance .Inspection and maintenance are recommended in addition to usual cleaning (The air conditioner can be used for a longer period and without anxiety .)

- As to inspection and maintenance , consult your dealer or any one of business offices of dealing companies .(Service charge is required in this case .)

- We recommend to perform inspection and maintenance during an off seasons.



# Is the Installation Proper?

<p>To keep the allowed bending radius, please make the packed soft pipes vertical for expanding.</p>			<p>Please do not expand only one side of the packed soft pipes.</p>
<p>Please make use of semicircle pulley to keep the allowed bending radius.</p>			<p>Extremely bending could damage the pipes.</p>
<p>Please use twisting wheel to avoid improper bending.</p>			<p>Over length soft pipes will lead to irregular bending.</p>
<p>Please use rigid elbow to keep the bending radius while soft pipes operating.</p>			<p>Undersize bending will damage the soft pipe.</p>
<p>Please Keep the minimum bending radius while installing.</p>			<p>Short soft pipes will have them bending undersize, it's not allowed.</p>

# Maintenance and Service

## ▲ CAUTION

Before performing any maintenance, turn off the main power to the system, disconnect the circuit breaker and unplug the power cord.

### Indoor Unit

Clean the unit with a soft dry cloth. Do not use bleach or abrasives.

## ▲ CAUTION

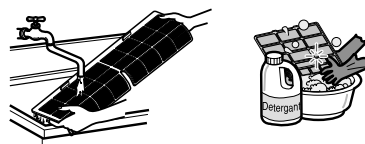
Never use any of these

- Water hotter than 40°C. It may cause deformation and discoloration.
- Volatile substances. They may damage the surface of the air conditioner.



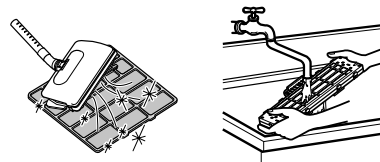
### Air Filters

The air filters behind the front panel / grill should be checked and cleaned once in every 2 weeks or more often if necessary. To remove the filters see the self explanatory diagrams for each model type. Clean the filters with a vacuum cleaner or warm soapy water. If dirt is not easily removed, wash with a solution of detergent in luke warm water. Dry well in shade after washing and reinstall the filters back in place.



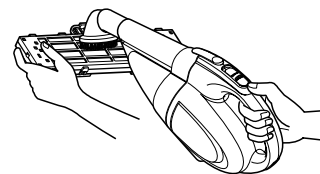
### Plasma Filters)

The plasma filters behind the air filter should be checked and cleaned once in every 3 months or more often if necessary. To remove the filters see the self explanatory diagrams for each model type. Clean the filters with a vacuum cleaner. If it is dirty wash it with water and dry well in shade and install back in place.



### Virus & Allergy safe Filters, Triple Filter

Remove the Virus & Allergy safe Filter and Triple Filters behind the air filter and expose them in direct sunlight for 2 hours. And then insert these filters into original position.

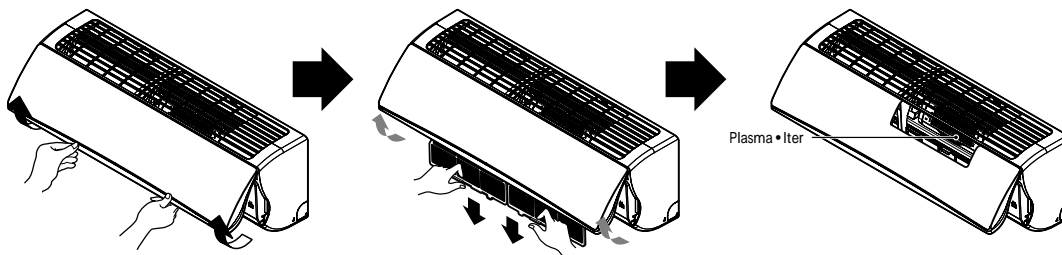


### Removal of Filters

Open the front panel as shown.

Then pull the filter tab slightly forward to remove the air filter.

After removing the air filter remove the plasma and Virus & Allergy safe Filter by slightly pulling downwards.



## ▲ CAUTION

Don't touch this plasma filter within 10 seconds after opening the inlet grille, it may cause an electric shock.

## Outdoor Unit

The heat exchanger coils and panel vents of the outdoor unit should be checked regularly. If clogged with dirt or soot, the heat exchanger and panel vents may be professionally steam cleaned.

### NOTE

Dirty or clogged coils will reduce the operating efficiency of the system and cause higher operating costs.

## Operation Tips!

### Do not overcool the room.

This is not good for the health and wastes electricity.

### Keep blinds or curtains closed.

Do not let direct sunshine enter the room when the air conditioner is in operation.

### Keep the room temperature uniform.

Adjust the vertical and horizontal airflow direction to ensure a uniform temperature in the room.

### Make sure that the doors and windows are shut tight.

Avoid opening doors and windows as much as possible to keep the cool air in the room.

### Clean the air filter regularly.

Blockages in the air filter reduce the airflow and lower cooling and dehumidifying effects. Clean at least once every two weeks.

### Ventilate the room occasionally.

Since windows are kept closed, it is a good idea to open them and ventilate the room now and then.

### Use high fan speed for effective and fast cooling.




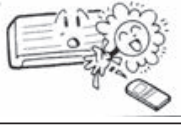
The unit gives its rated cooling capacity when the fan speed is high.

# Troubleshooting

## Following symptoms are not air conditioner's troubles

The following table shows a series of seeming malfunctions.

Please check the following items before calling the Authorized Technical Service.

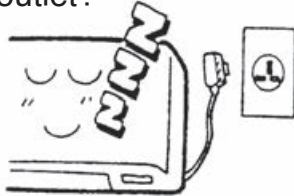
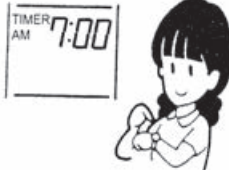

WHAT HAPPENS	REASON
<p>After a stop, the air conditioner does not restarts immediately. (RUNNING Indicator is illuminating).</p> 	<ul style="list-style-type: none"> <li>Restart is stopped for 3 minutes after shut down to protect the Unit.</li> </ul>  <ul style="list-style-type: none"> <li>Three-minute protection timer incorporated in the microcomputer actuates automatically. Except that power is connected, this function does not actuate.</li> </ul>
<p>Air is not blown out at starting of Heating operation.</p>	<ul style="list-style-type: none"> <li>Air blow is stopped to prevent blowing out of cold air until the indoor heat exchanger is warmed (2 to 5 min.). (HOT KEEP)</li> </ul>
<p>The Unit will not stop blowing out the air immediately after shut down at COOL operation.</p>	<ul style="list-style-type: none"> <li>Because the Unit is doing mould proofing operation and indoor fan motor runs at Low speed. The louver will not close down until after 30 seconds.</li> </ul>
<p>Air is not blown out for 6 to 12 min., at HEATING operation.</p>	<ul style="list-style-type: none"> <li>When outdoor temperature is low and humidity is high, the Unit sometimes performs defrosting automatically. Please wait. During defrosting, water or steam are raising from the Outdoor Unit.</li> </ul>
<p>Air is not blown out at DRY operation.</p>	<ul style="list-style-type: none"> <li>Indoor fan is sometimes stopped to prevent vapor of dehumidified moisture and save energy.</li> </ul>
<p>Mist is blown out at COOL operation.</p>	<ul style="list-style-type: none"> <li>This phenomenon sometimes occurs when the temperature and humidity of the room are very high, but it will disappear with the lowering of the temperature and humidity.</li> </ul>
<p>Odor is sent out.</p>	<ul style="list-style-type: none"> <li>Air blown out during operation may smell. This is the smell of tobacco or cosmetics stuck to the Unit.</li> </ul>
<p>Noise is heard cracking sound.</p> 	<ul style="list-style-type: none"> <li>This is caused by the refrigerant that is circulating inside the Unit.</li> </ul>
<p>Noise is heard cracking sound. After a power stoppage or after disconnecting the power supply plug.</p>	<ul style="list-style-type: none"> <li>This is caused by heat expansion or contraction of plastics.</li> </ul>
<p>Operation cannot be restarted even if the power is recovered.</p>	<ul style="list-style-type: none"> <li>The memory circuit of the microcomputer is cleared. Operate the remote controller again to restart the operation.</li> </ul>
<p>Remote control signals are not received.</p>	<ul style="list-style-type: none"> <li>Remote control signals may not be received when signal receiver on the air conditioner body is exposed to direct sunlight or strong lighting. In that case, interrupt the sunlight or darken the lighting.</li> </ul> 
<p>Moisture may form on the air outlet grilles.</p>	<ul style="list-style-type: none"> <li>If the Unit is operated for a long period of time with the high humidity, moisture may form on the air outlet grilles and drip down.</li> </ul>

# Troubleshooting




## Problems and possible solutions

The following table shows a series of problems and their possible reasons and solutions. Please carry out the following checks before contacting the Authorized Technical Service.

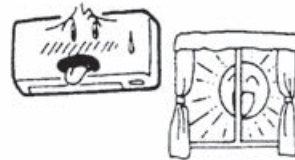


**The air conditioner does not operate at all.**

<p>Is the power plug in an outlet?</p> 	<p>Is the time set to "ON" position?</p> 	<p>Is there a power failure or a blown fuse?</p> 
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**Poor cooling or heating performance.**

<p>Is the room temperature setting suitable?</p> 	<p>Are the air filters clean (not clogged)?</p> 	<p>Are the windows and doors open?</p> 
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**Poor cooling performance.**

<p>Is direct sunlight entering the room?</p> 	<p>Is there a heat source in the room?</p> 	<p>Are there too many people in the room?</p> 
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# Troubleshooting

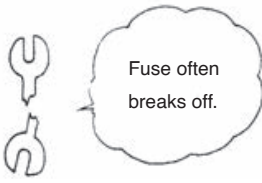

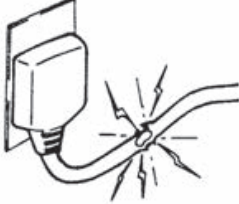






**CAUTION**

**Never try to repair the Air Conditioner by yourself**

**If one of the following malfunctions occur, immediately stop operation, turn off the main switch and contact the Authorized Technical Service:**

- You smell something burning.
- Obstacles or water enter the Unit.
- Water leaks from Indoor Unit.
- Other malfunctions are observed (see the following Table).

<p>Fuse or breaker often breaks off.</p> 	<p>Power plug or cable is excessively hot.</p> 	<p>Covering of power plug or cable is broken.</p> 
<p>Malfunction is observed on TV, radio or other devices.</p> 	<p>Switch does not actuate surely.</p> 	<p>Abnormal noise is heard during operation.</p> 
<p>When faulty operation movement is observed when the ON/OFF button is pressed. Even after pulling out the power plug and restarting the operation after 3 minutes, faulty movement does not disappear.</p> 		

# Specification

MODEL		KF(R)-25GW	KF(R)-35GW	KF(R)-50GW
Function		Cooling & Heating		
Voltage, Frequency		220V / 240V, 60Hz		
Capacity(BTU)	Cooling	9,000	12,000	18,000
	Heating	9,100	11,600	19,000
Rated input power(W)	Cooling	940	1,185	1,890
	Heating	910	1,320	1,860
Rated current(A)	Cooling	4.27	4.7	8.59
	Heating	4.14	6	8.45
Moisture removal(IL/H.r)		0.85	1.30	1.80
EER for cooling (varies by pump) (BTU/W.h, W/W)		10 - 16, 2.65		
Air circulation(m <sup>3</sup> /H)		420	520	750
Refrigerant type (buyers option)		R22		
Noise indoor/outdoor(dB(A))		23 - 39 / 53	23 - 38 / 52	32 - 48 / 55
Net dimensions W×H×D(cm)	Indoor	22 × 250× 75	78 × 27 × 18	20 × 29 × 103
	Outdoor	29 × 49 × 65	78 × 26 × 54	32 × 54 × 77
Packing dimensions W×H×D(cm)	Indoor	28 × 32 × 80	87 × 35 × 25	26 × 36 × 108
	Outdoor	33 × 60 × 73	88 × 33 × 60	36 × 63 × 82
Weight net/gross(kg)	Indoor	9.5	9.5	10.5
	Outdoor	26	30	38
Suitable area(m <sup>2</sup> )		12 - 20	14 - 22	26 - 36

**Due to on-going technological development of the Products by the Manufacturer, we reserve the right to vary the technical specifications at any time and without notice.**

Warranty Registration No.

Dealer/Installer Information

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