



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.

Original instruction

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www.lg.com

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SAFETY INSTRUCTIONS

The following symbols are displayed on indoor and outdoor units.

	Read the precautions in this manual carefully before operating the unit.		This appliance is filled with flammable refrigerant (for R32)
	This symbol indicates that the Operation Manual should be read carefully.		This symbol indicates that a service personnel should be handling this equipment with reference to the Installation Manual.

The following safety guidelines are intended to prevent unforeseen risks or damage from unsafe or incorrect operation of the appliance.

The guidelines are separated into 'WARNING' and 'CAUTION' as described below.



This symbol is displayed to indicate matters and operations that can cause risk. Read the part with this symbol carefully and follow the instructions in order to avoid risk.



WARNING

This indicates that the failure to follow the instructions can cause serious injury or death.



CAUTION

This indicates that the failure to follow the instructions can cause the minor injury or damage to the product.



WARNING

- Installation or repairs made by unqualified persons can result in hazards to you and others.
- Installation work must be performed in accordance with the National Electric Code by qualified and authorized personnel only.
- The information contained in the manual is intended for use by a qualified service technician familiar with safety procedures and equipped with the proper tools and test instruments.
- Failure to carefully read and follow all instructions in this manual can result in equipment malfunction, property damage, personal injury and/or death.
- Compliance with national gas regulations shall be observed (for R32)
- Any person who is involved with working on or breaking into a refrigerant circuit should hold a current valid certificate from an industry-accredited assessment authority, which authorizes their competence to handle refrigerants safely in accordance with an industry recognized assessment specification. (for R32)

- Servicing shall only be performed as recommended by the equipment manufacturer. Maintenance and repair requiring the assistance of other skilled personnel shall be carried out under the supervision of the person competent in the use of flammable refrigerants. (for R32)
- Ducts connected to an appliance shall not contain a potential ignition source. (for R32)
- This equipment shall be provided with a supply conductor complying with the national regulation.
- If the supply cord is damaged, it must be replaced by the manufacturer, its service agent or similarly qualified persons in order to avoid a hazard.
- The appliance shall be installed in accordance with national wiring regulations.
- A warning that if appliances with A2L refrigerants connected via an air duct system to one or more rooms are installed in a room with an area less than A_{min} as determined in Clause GG.2, that room shall be without continuously operating open flames (for example an operating gas appliance) or other potential ignition sources (for example an operating electric heater, hot surfaces). A flame-producing device may be installed in the same space if the device is provided with an effective flame arrest. (For R32)
- For installations with field applied mechanical joints which are exposed in the occupied space, the instructions shall state that a sensor shall be located remote located within 2 m horizontal distance in line of sight of the unit and on a wall within the room in which the unit is installed; and (For R32)
 - 100 mm above the floor where h_0 is not more than 300 mm from the floor; or
 - 300 mm above the floor where h_0 is greater than 300 mm from the floor.
- Auxiliary devices which may be a potential ignition source shall not be installed in the duct work. Examples of such potential ignition sources are hot surfaces with a temperature exceeding 700°C and electric switching devices. (for R32)
- Only auxiliary devices approved by the appliance manufacturer or declared suitable with the refrigerant shall be installed in connecting ductwork. (for R32)

Installation

- Do not use a defective or underrated circuit breaker. Use the correctly rated breaker and fuse.
 - There is risk of fire or electric shock.
- For electrical work, contact the dealer, seller, a qualified electrician, or an Authorized Service Center. Do not disassemble or repair the product 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.
- 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.
- 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.
- 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.
- Do not touch refrigerant pipe and water pipe or any internal parts while the unit is operating or immediately after operation.
 - It can cause a burn or frostbite.
- Keep any required ventilation openings clear of obstruction.(for R32)
- Mechanical connections shall be accessible for maintenance purposes.(for R32)

Operation

- 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.
- 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.
- 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 sound, 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.
- 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.
- When flammable gas leaks, turn off the gas and open a window for ventilation before turning on the product. Do not use the telephone or turn switches on or off.
 - There is risk of explosion or fire.
- Make sure to ventilate sufficiently when this air conditioner and a heating appliance such as a heater are used simultaneously.
 - Failure to do so may result in fire, serious injury, or product failure.
- Do not use means to accelerate the defrosting process or to clean, other than those recommended by the manufacturer. (for R32)
- The appliance shall be stored in a room without continuously operating ignition sources (for example: open flames, an operating gas appliance or an operating electric heater.) (for R32)
- Do not pierce or burn. (for R32)
- Be aware that refrigerants may not contain an odour. (for R32)
- When mechanical connectors are reused indoors, sealing parts shall be renewed.(for R32)
- When flared joints are reused indoors, the flare part shall be re-fabricated.(for R32)
- If the supply cord is damaged, it must be replaced by a special cord or assembly available from the manufacturer of its service agent.

CAUTION

Installation

- 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.
- The appliance shall be stored so as to prevent mechanical damage from occurring. (for R32)
- The manufacturer should specify other potential continuously operating sources known to cause ignition of the refrigerant used. (for R32)
- Refrigerant tubing shall be protected or enclosed to avoid damage. (for R32)
- Flexible refrigerant connectors (such as connecting lines between the indoor and outdoor unit) that may be displaced during normal operations shall be protected against mechanical damage. (for R32)
- The installation of pipe-work shall be kept to a minimum. (for R32)
- A brazed, welded, or mechanical connection shall be made before opening the valves to permit refrigerant to flow between the refrigerating system parts. (for R32)
- Pipe-work shall be protected from physical damage.
- Use the deoxidized copper as piping materials to install.
- If anyone other than a licensed Professional installs, repairs, or alters LG Electronics Air Conditioning Products, the warranty is voided.
 - All costs associated with repair are then the full responsibility of the owner.
- Do not insert a drain hose in drain or soil pipe.
 - Bad smells can occur and it results in a corrosion of a heat exchanger or pipe.
- Do not install the unit in potentially explosive atmospheres.
- (Australia only) This product must be installed by a professional installer.
 - After the installation of the product in the customer premises, fully remove all product packaging (including any expanded or moulded plastic packaging materials) and recycle or dispose of such packaging responsibly. Do not dispose any expanded plastic packaging in the household bin.

Operation

- 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.

- Means for disconnection must be incorporated in the fixed wiring in accordance with the wiring rules.
- Appliance shall be disconnected from its power source during service and when replacing parts.
- 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.
- If you swallow the battery fluid from a leak, wash out the inside of your mouth thoroughly and then consult a doctor.
 - Failure to do so may result in serious health complications.

- 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.
- 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.
- This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety. Children should be supervised to ensure that they do not play with the appliance.
- This appliance can be used by children aged from 8 years and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning use of the appliance in a safe way and understand the hazards involved. Children shall not play with the appliance. Cleaning and user maintenance shall not be made by children without supervision.

Servicing shall be performed only as recommended by the manufacturer.

Recovery (For R32)

When removing refrigerant from a system, either for servicing or decommissioning, it is recommended good practice that all refrigerants are removed safely.

When transferring refrigerant into cylinders, ensure that only appropriate refrigerant recovery cylinders are employed. Ensure that the correct number of cylinders for holding the total system charge are available. All cylinders to be used are designated for the recovered refrigerant and labelled for that refrigerant (i.e. special cylinders for the recovery of refrigerant). Cylinders shall be complete with pressure relief valve and associated shut-off valves in good working order. Empty recovery cylinders are evacuated and, if possible, cooled before recovery occurs. The recovery equipment shall be in good working order with a set of instructions concerning the equipment that is at hand and shall be suitable for the recovery of flammable refrigerants. In addition, a set of calibrated weighing scales shall be available and in good working order. Hoses shall be complete with leak-free disconnect couplings and in good condition. Before using the recovery machine, check that it is in satisfactory working order, has been properly maintained and that any associated electrical components are sealed to prevent ignition in the event of a refrigerant release. Consult manufacturer if in doubt. The recovered refrigerant shall be returned to the refrigerant supplier in the correct recovery cylinder, and the relevant Waste Transfer Note arranged. Do not mix refrigerants in recovery units and especially not in cylinders. If compressors or compressor oils are to be removed, ensure that they have been evacuated to an acceptable level to make certain that flammable refrigerant does not remain within the lubricant. The evacuation process shall be carried out prior to returning the compressor to the suppliers. Only electric heating to the compressor body shall be employed to accelerate this process. When oil is drained from a system, it shall be carried out safely.

Cabling (For R32)

Cabling will not be subject to wear, corrosion, excessive pressure, vibration, sharp edges or any other adverse environmental effects. The check shall also take into account the effects of ageing or continual vibration from sources such as compressors or fans.

Charging procedures (For R32)

In addition to conventional charging procedures, the following requirements shall be followed.

- Ensure that contamination of different refrigerants does not occur when using charging equipment. Hoses or lines shall be as short as possible to minimise the amount of refrigerant contained in them.
- Cylinders shall be kept in an appropriate position according to the instruction.
- Ensure that the refrigerating system is earthed prior to charging the system with refrigerant.
- Label the system when charging is complete (if not already).
- Extreme care shall be taken not to overfill the refrigerating system.

Prior to recharging the system, it shall be pressure tested with the appropriate purging gas. The system shall be leak-tested on completion of charging but prior to commissioning. A follow up leak test shall be carried out prior to leaving the site.

Removal and evacuation (For R32)

When breaking into the refrigerant circuit to make repairs – or for any other purpose – conventional procedures shall be used. However, for flammable refrigerants it is important that best practice is followed since flammability is a consideration.

The following procedure shall be adhered to:

- Remove refrigerant;
- Purge the circuit with inert gas (optional for A2L);
- Evacuate (optional for A2L);
- Purge with inert gas (optional for A2L);
- Open the circuit by cutting or brazing

The refrigerant charge shall be recovered into the correct recovery cylinders. For appliances containing flammable refrigerants other than A2L refrigerants, the system shall be purged with oxygen-free nitrogen to render the appliance safe for flammable refrigerants. This process may need to be repeated several times. Compressed air or oxygen shall not be used for purging refrigerant systems.

For appliances containing flammable refrigerants, other than A2L refrigerants, refrigerants purging shall be achieved by breaking the vacuum in the system with oxygen-free nitrogen and continuing to fill until the working pressure is achieved, then venting to atmosphere, and finally pulling down to a vacuum. This process shall be repeated until no refrigerant is within the system. When the final oxygen-free nitrogen charge is used, the system shall be vented down to atmospheric pressure to enable work to take place. This operation is absolutely vital if brazing operations on the pipe-work are to take place.

Ensure that the outlet for the vacuum pump is not close to any potential ignition sources and that ventilation is available.

Leak detection methods (For R32)

The following leak detection methods are deemed acceptable for systems containing flammable refrigerants.

Electronic leak detectors shall be used to detect flammable refrigerants, but the sensitivity may not be adequate, or may need re-calibration. (Detection equipment shall be calibrated in a refrigerant-free area.)

Ensure that the detector is not a potential source of ignition and is suitable for the refrigerant used. Leak detection equipment shall be set at a percentage of the LFL of the refrigerant and shall be calibrated to the refrigerant employed and the appropriate percentage of gas (25 % maximum) is confirmed.

Leak detection fluids are also suitable for use with most refrigerants but the use of detergents containing chlorine shall be avoided as the chlorine may react with the refrigerant and corrode the copper pipe-work.

NOTE

Examples of leak detection fluids are

- Bubble method
- Gluorescent method agents

If a leak is suspected, all naked flames shall be removed/extinguished.

If a leakage of refrigerant is found which requires brazing, all of the refrigerant shall be recovered from the system, or isolated (by means of shut off valves) in a part of the system remote from the leak. Removal of refrigerant shall be according to removal and evacuation procedure.

This unit is equipped with a refrigerant leak detector for safety. To be effective, the unit must be electrically powered at all times after installation, other than when servicing.

This unit is equipped with electrically powered safety measures. To be effective, the unit must be electrically powered at all times after installation, other than when servicing.

Ventilated area (For R32)

Ensure that the area is in the open or that it is adequately ventilated before breaking into the system or conducting any hot work. A degree of ventilation shall continue during the period that the work is carried out. The ventilation should safely disperse any released refrigerant and preferably expel it externally into the atmosphere.

Detection of flammable refrigerants (For R32)

Under no circumstances shall potential sources of ignition be used in the searching for or detection of refrigerant leaks. A halide torch (or any other detector using a naked flame) shall not be used.

Qualification of workers (For R32)

The manual shall contain specific information about the required qualification of the working personnel for maintenance, service and repair operations. Every working procedure that affects safety means shall only be carried out by competent persons according to Annex HH.

Examples for such working procedures are:

- Breaking into the refrigerating circuit;
- Opening of sealed components;
- Opening of ventilated enclosures.

Checks to the area (For R32)

Prior to beginning work on systems containing flammable refrigerants, safety checks are necessary to ensure that the risk of ignition is minimised. For repair to the refrigerating system, the following precautions shall be complied with prior to conducting work on the system.

Work procedure (For R32)

Work shall be undertaken under a controlled procedure so as to minimise the risk of a flammable gas or vapour being present while the work is being performed.

General work area (For R32)

All maintenance staff and others working in the local area shall be instructed on the nature of work being carried out. Work in confined spaces shall be avoided.

Checking for presence of refrigerant (For R32)

The area shall be checked with an appropriate refrigerant detector prior to and during work, to ensure the technician is aware of potentially flammable atmospheres. Ensure that the leak detection equipment being used is suitable for use with flammable refrigerants, i.e. non-sparking, adequately sealed or intrinsically safe.

Presence of fire extinguisher (For R32)

If any hot work is to be conducted on the refrigeration equipment or any associated parts, appropriate fire extinguishing equipment shall be available to hand. Have a dry powder or CO₂ fire extinguisher adjacent to the charging area.

No ignition sources (For R32)

No person carrying out work in relation to a refrigeration system which involves exposing any pipe work that contains or has contained flammable refrigerant shall use any sources of ignition in such a manner that it may lead to the risk of fire or explosion. All possible ignition sources, including cigarette smoking, should be kept sufficiently far away from the site of installation, repairing, removing and disposal, during which flammable refrigerant can possibly be released to the surrounding space. Prior to work taking place, the area around the equipment is to be surveyed to make sure that there are no flammable hazards or ignition risks. "No Smoking" signs shall be displayed.

Checks to the refrigeration equipment (For R32)

Where electrical components are being changed, they shall be fit for the purpose and to the correct specification. At all times the manufacturer's maintenance and service guidelines shall be followed. If in doubt consult the manufacturer's technical department for assistance.

The following checks shall be applied to installations using flammable refrigerants:

- The actual refrigerant charge is in accordance with the room size within which the refrigerant containing parts are installed
- The ventilation machinery and outlets are operating adequately and are not obstructed
- If an indirect refrigerating circuit is being used, the secondary circuit shall be checked for the presence of refrigerant
- Marking to the equipment continues to be visible and legible. Markings and signs that are illegible shall be corrected
- Refrigeration pipe or components are installed in a position where they are unlikely to be exposed to any substance which may corrode refrigerant containing components, unless the components are constructed of materials which are inherently resistant to being corroded or are suitably protected against being so corroded.

Checks to electrical devices (For R32)

Repair and maintenance to electrical components shall include initial safety checks and component inspection procedures. If a fault exists that could compromise safety, then no electrical supply shall be connected to the circuit until it is satisfactorily dealt with. If the fault cannot be corrected immediately but it is necessary to continue operation, an adequate temporary solution shall be used. This shall be reported to the owner of the equipment so all parties are advised.

Initial safety checks shall include (For R32)

- Capacitors are discharged: this shall be done in a safe manner to avoid possibility of sparking.
- No live electrical components and wiring are exposed While charging, recovering or purging the system. Continuity of earth bonding

Repairs to sealed components (For R32)

During repairs to sealed components, all electrical supplies shall be disconnected from the equipment being worked upon prior to any removal of sealed covers, etc. If it is absolutely necessary to have an electrical supply to equipment during servicing, then a permanently operating form of leak detection shall be located at the most critical point to warn of a potentially hazardous situation. Particular attention shall be paid to the following to ensure that by working on electrical components, the casing is not altered in such a way that the level of protection is affected. This shall include damage to cables, excessive number of connections, terminals not made to original specification, damage to seals, incorrect fitting of glands, etc. Ensure that apparatus is mounted securely. Ensure that seals or sealing materials have not degraded such that they no longer serve the purpose of preventing the ingress of flammable atmospheres. Replacement parts shall be in accordance with the manufacturer's specifications

Repair to intrinsically safe components (For R32)

Do not apply any permanent inductive or capacitance loads to the circuit without ensuring that this will not exceed the permissible voltage and current permitted for the equipment in use. Intrinsically safe components are the only types that can be worked on while live in the presence of a flammable atmosphere. The test apparatus shall be at the correct rating. Replace components only with parts specified by the manufacturer. Other parts may result in the ignition of refrigerant in the atmosphere from a leak.

NOTE

The use of silicon sealant can inhibit the effectiveness of some types of leak detection equipment.
Intrinsically safe components do not have to be isolated prior to working on them.

Decommissioning (For R32)

Before carrying out this procedure, it is essential that the technician is completely familiar with the equipment and all its detail. It is recommended good practice that all refrigerants are recovered safely. Prior to the task being carried out, an oil and refrigerant sample shall be taken in case analysis is required prior to re-use of reclaimed refrigerant. It is essential that electrical power is available before the task is commenced.

- a) Become familiar with the equipment and its operation.
- b) Isolate system electrically.
- c) Before attempting the procedure ensure that:
 - Mechanical handling equipment is available, if required, for handling refrigerant cylinders;
 - All personal protective equipment is available and being used correctly;
 - The recovery process is supervised at all times by a competent person;
 - Recovery equipment and cylinders conform to the appropriate standards.
- d) Pump down refrigerant system, if possible.
- e) If a vacuum is not possible, make a manifold so that refrigerant can be removed from various parts of the system.
- f) Make sure that cylinder is situated on the scales before recovery takes place.
- g) Start the recovery machine and operate in accordance with manufacturer's instructions.
- h) Do not overfill cylinders. (No more than 80 % volume liquid charge).
- i) Do not exceed the maximum working pressure of the cylinder, even temporarily.
- j) When the cylinders have been filled correctly and the process completed, make sure that the cylinders and the equipment are removed from site promptly and all isolation valves on the equipment are closed off.
- k) Recovered refrigerant shall not be charged into another refrigeration system unless it has been cleaned and checked.

Labelling (For R32)

Equipment shall be labelled stating that it has been de-commissioned and emptied of refrigerant. The label shall be dated and signed. Ensure that there are labels on the equipment stating the equipment contains flammable refrigerant.

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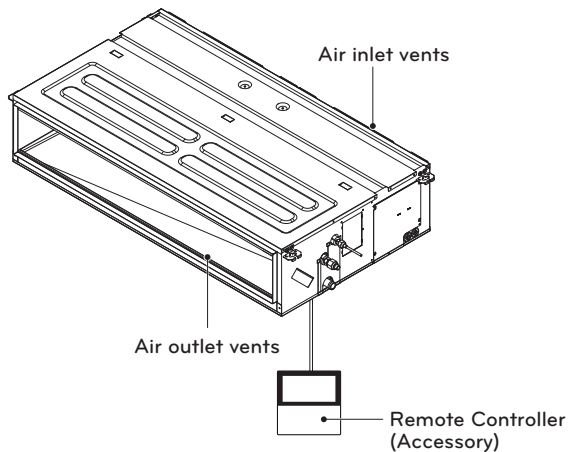
65 Installer Setting - Static Pressure Step Setting

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INTRODUCTION

[Ceiling Concealed Duct]



Installation Tool

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

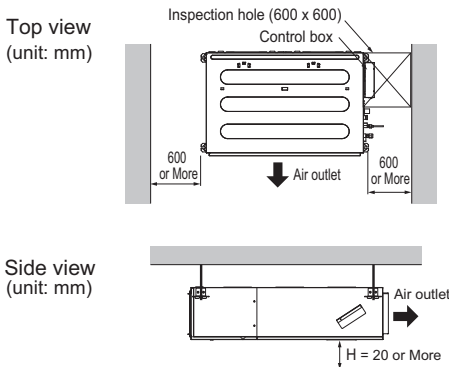
INSTALLATION PLACES

Select the best Location

[Ceiling Concealed Duct]

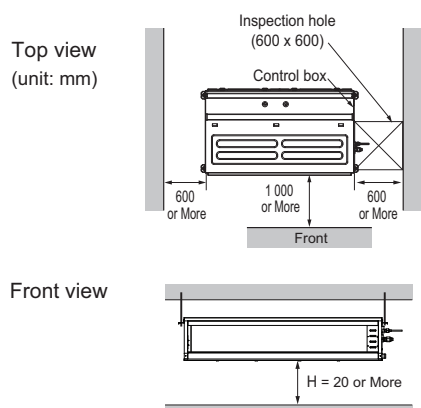
- The place shall easily bear a load exceeding four times the indoor unit's weight.
- The place shall be able to inspect the unit as the figure.
- The place where the unit shall be leveled.
- The place shall allow easy water drainage.
(Suitable dimension "H" is necessary to get a slope to drain as figure.)
- The place shall easily connect with the outdoor unit.
- The place where the unit is not affected by an electrical noise.
- The place where air circulation in the room will be good .
- There should not be any heat source or steam near the unit.

Ceiling Concealed Duct – Low Static



- Suitable dimension "H" is necessary to get a slope to drain as shown in the figure

Ceiling Concealed Duct – Mid Static



CAUTION

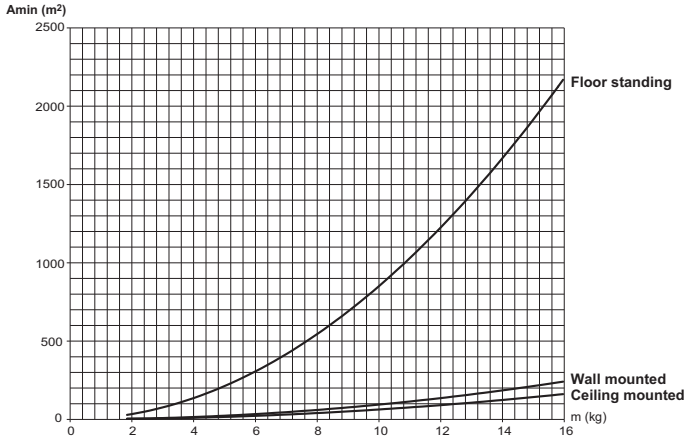
- In case that the unit is installed near the sea, the installation parts may be corroded by salt, The installation parts (and the unit) should be taken appropriate anti-corrosion measures.

Inspection Hole Standard

Number of Inspection hole	Distance between False ceiling & Actual ceiling	Remarks
1	More than 100 cm	Sufficient space in the ceiling for servicing.
2	20 cm to 100 cm	Insufficient space. Difficult for servicing
Hole size should be more than the size of IDU.	Less than 20 cm	Minimum height for motor replacement.

Minimum floor area (for R32)

- The appliance shall be installed, operated and stored in a room with a floor area larger than the minimum area.
- Use the graph of table to determine the minimum area.



- m : Total refrigerant amount in the system
- Total refrigerant amount : factory refrigerant charge + additional refrigerant amount
- Amin : minimum area for installation

Floor standing	
m (kg)	Amin (m²)
< 1.842	-
1.842	28.88
2.00	34.04
2.20	41.19
2.40	49.02
2.60	57.53
2.80	66.72
3.00	76.60
3.20	87.15
3.40	98.39
3.60	110.30
3.80	122.90
4.00	136.17
4.20	150.13
4.40	164.77
4.60	180.09
4.80	196.09
5.00	212.77
5.20	230.13
5.40	248.18
5.60	266.90
5.80	286.30
6.00	306.39
6.20	327.16
6.40	348.60
6.60	370.73
6.80	393.54
7.00	417.03
7.20	441.20
7.40	466.05
7.60	491.59
7.80	517.80
8.00	544.69
8.20	572.27
8.40	600.52
8.60	629.46
8.80	659.08

Floor standing	
m (kg)	Amin (m²)
9.00	689.38
9.20	720.36
9.40	752.02
9.60	784.36
9.80	817.38
10.00	851.08
10.20	885.47
10.40	920.53
10.60	956.28
10.80	992.70
11.00	1029.81
11.20	1067.60
11.40	1106.07
11.60	1145.22
11.80	1185.05
12.00	1225.56
12.20	1266.75
12.40	1308.62
12.60	1351.18
12.80	1394.41
13.00	1438.33
13.20	1482.93
13.40	1528.20
13.60	1574.16
13.80	1620.80
14.00	1668.12
14.20	1716.12
14.40	1764.80
14.60	1814.17
14.80	1864.21
15.00	1914.94
15.20	1966.34
15.40	2018.43
15.60	2071.19
15.80	2124.64
15.964	2168.98

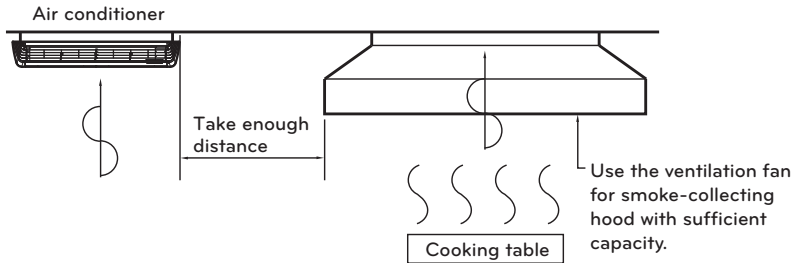
Wall mounted	
m (kg)	Amin (m²)
< 1.842	-
1.842	4.44
2.00	4.83
2.20	5.31
2.40	5.79
2.60	6.39
2.80	7.41
3.00	8.51
3.20	9.68
3.40	10.93
3.60	12.26
3.80	13.66
4.00	15.13
4.20	16.68
4.40	18.31
4.60	20.01
4.80	21.79
5.00	23.64
5.20	25.57
5.40	27.58
5.60	29.66
5.80	31.81
6.00	34.04
6.20	36.35
6.40	38.73
6.60	41.19
6.80	43.73
7.00	46.34
7.20	49.02
7.40	51.78
7.60	54.62
7.80	57.53
8.00	60.52
8.20	63.59
8.40	66.72
8.60	69.94
8.80	73.23

Wall mounted	
m (kg)	Amin (m²)
9.00	76.60
9.20	80.04
9.40	83.56
9.60	87.15
9.80	90.82
10.00	94.56
10.20	98.39
10.40	102.28
10.60	106.25
10.80	110.30
11.00	114.42
11.20	118.62
11.40	122.90
11.60	127.25
11.80	131.67
12.00	136.17
12.20	140.75
12.40	145.40
12.60	150.13
12.80	154.93
13.00	159.81
13.20	164.77
13.40	169.80
13.60	174.91
13.80	180.09
14.00	185.35
14.20	190.68
14.40	196.09
14.60	201.57
14.80	207.13
15.00	212.77
15.20	218.48
15.40	224.27
15.60	230.13
15.80	236.07
15.964	241.00

Ceiling Mounted	
m (kg)	Amin (m²)
< 1.842	-
1.842	3.64
2.00	3.95
2.20	4.34
2.40	4.74
2.60	5.13
2.80	5.53
3.00	5.92
3.20	6.48
3.40	7.32
3.60	8.20
3.80	9.14
4.00	10.13
4.20	11.17
4.40	12.26
4.60	13.40
4.80	14.59
5.00	15.83
5.20	17.12
5.40	18.46
5.60	19.85
5.80	21.30
6.00	22.79
6.20	24.33
6.40	25.93
6.60	27.58
6.80	29.27
7.00	31.02
7.20	32.82
7.40	34.67
7.60	36.56
7.80	38.51
8.00	40.51
8.20	42.57
8.40	44.67
8.60	46.82
8.80	49.02

Ceiling Mounted	
m (kg)	Amin (m²)
9.00	51.28
9.20	53.58
9.40	55.94
9.60	58.34
9.80	60.80
10.00	63.30
10.20	65.86
10.40	68.47
10.60	71.13
10.80	73.84
11.00	76.60
11.20	79.41
11.40	82.27
11.60	85.18
11.80	88.14
12.00	91.16
12.20	94.22
12.40	97.34
12.60	100.50
12.80	103.72
13.00	106.98
13.20	110.30
13.40	113.67
13.60	117.09
13.80	120.56
14.00	124.08
14.20	127.65
14.40	131.27
14.60	134.94
14.80	138.66
15.00	142.43
15.20	146.26
15.40	150.13
15.60	154.06
15.80	158.03
15.964	161.33

THE INDOOR UNIT INSTALLATION



CAUTION

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

NOTE

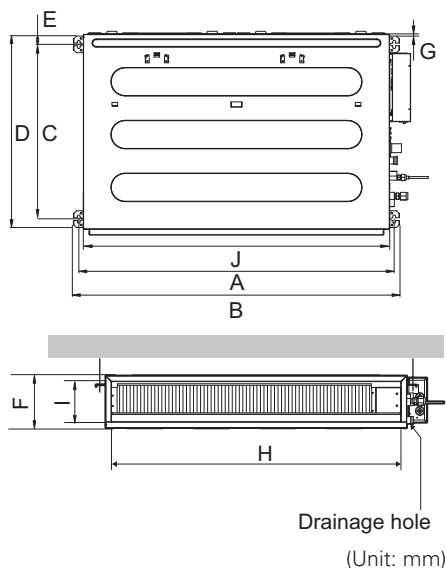
- Avoid the following installation location.
 1. Such places as restaurants and kitchen where considerable amount of oil steam and flour is generated. These may cause heat exchange efficiency reduction, or water drops, drain pump mal-function. In these cases, take the following actions;
 - Make sure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

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

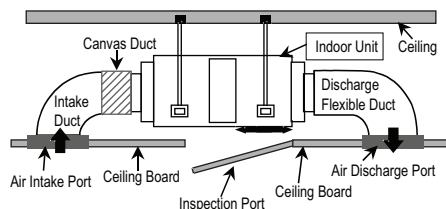
Position of suspension Bolt

- Apply a joint-canvas between the unit and duct to absorb unnecessary vibration.
- Apply a filter Accessory at air return hole.

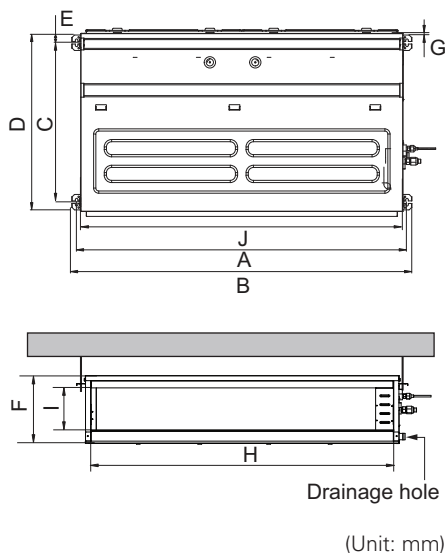
[Ceiling Concealed Duct – Low Static]



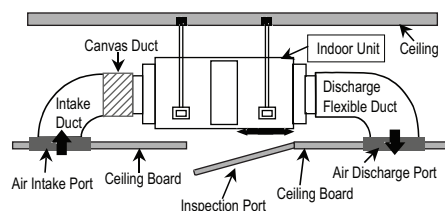
Dimension		A	B	C	D	E	F	G	H	I	J
Chassis											
Low Static	L1	733	772	628	700	36	190	20	660	155	700
	L2	933	972	628	700	36	190	20	860	155	900
	L3	1133	1172	628	700	36	190	20	1060	155	1100
	L4	733	772	338	460	36	190	20	660	148	700
	L5	933	972	338	460	36	190	20	860	148	900
	L6	1133	1172	338	460	36	190	20	1060	148	1100



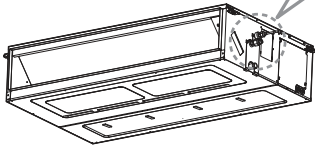
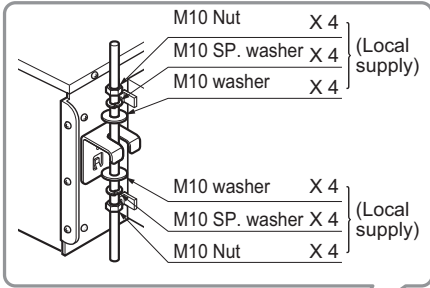
[Ceiling Concealed Duct – Mid Static]



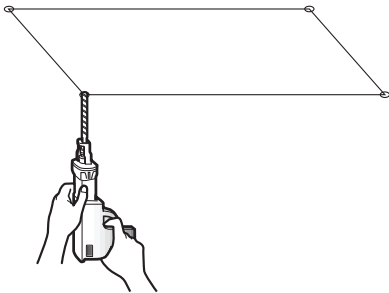
Dimension		A	B	C	D	E	F	G	H	I	J
Chassis											
Mid Static	M1	933.4	971.6	619.2	700	30	270	15.2	858	201.4	900
	M2	1283.4	1321.6	619.2	689.6	30	270	15.2	1208	201.4	1250
	M3	1283.4	1321.6	619.2	689.6	30	360	15.2	1208	291.4	1250



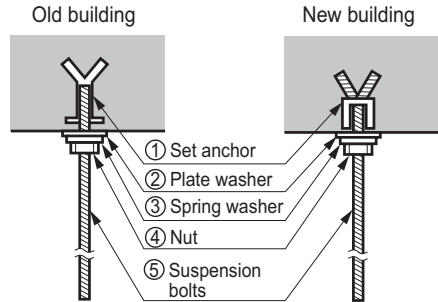
- A place where the unit will be leveled and that can support the weight of the unit.
- A place where the unit can withstand its vibration.
- A place where service can be easily performed.



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



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



• Local supply

- ① Set anchor
- ② Plate washer - M10
- ③ Spring washer - M10
- ④ Nut - W3/8 or M10
- ⑤ Suspension bolt - W3/8 or M10

⚠ CAUTION

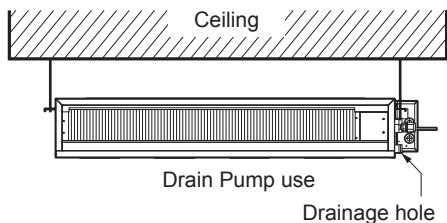
- Tighten the nut and bolt to prevent unit falling.

⚠ CAUTION

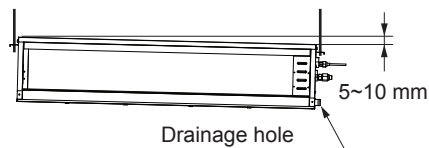
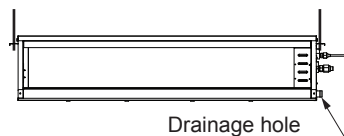
1. Install declination of the indoor unit is very important for the drain of the duct type air conditioner.
2. Minimum thickness of the insulation for the connecting pipe shall be 10 mm.

Front of view

- The unit must be horizontal or declined to the drain hose connected when finished installation.

**Ceiling Concealed Duct – Low static**

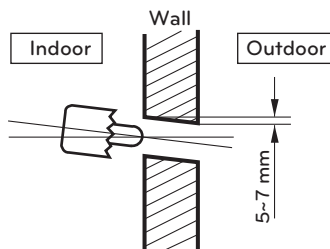
- The unit must be declined to the drain hose connected when finished installation.

CORRECT**INCORRECT**

Drill the piping hole on the wall slightly tilted to the outdoor side using a $\varnothing 70$ hole-core drill.

**CAUTION**

Tighten the nut and bolt to prevent unit falling.



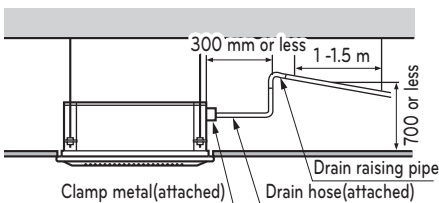
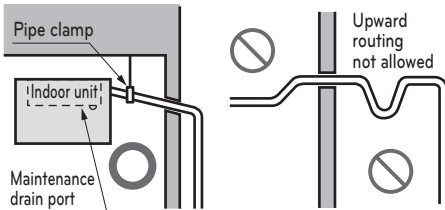
Indoor Unit Drain Piping

[Ceiling Concealed Duct]

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

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

- Be sure to execute heat insulation on the drain piping.
- Install the drain raising pipes at a right angle to the indoor unit and no more than 300 mm from the unit.



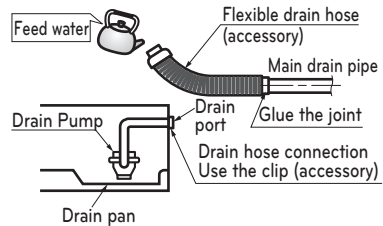
Heat insulation material: Polyethylene foam with thickness more than 8 mm.

Drain test

The air conditioner uses a drain pump to drain water.

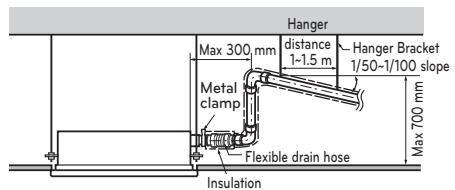
Use the following procedure to test the drain pump operation:

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



CAUTION

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

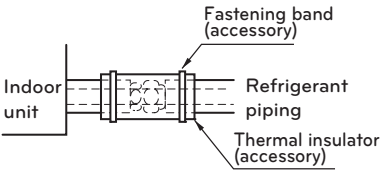


HEAT INSULATION

- Use the heat insulation material for the refrigerant piping which has an excellent heat-resistance (over 120 °C).

- Precautions in high humidity circumstance:

This air conditioner has been tested according to the "KS Standard Conditions with Mist" and confirmed that there is not any default. However, if it is operated for a long time in high humid atmosphere (dew point temperature: more than 23 °C), water drops are liable to fall. In this case, add heat insulation material according to the following procedure:



- Heat insulation material to be prepared... Adiabatic EPDM or NBR with thickness 10 to 20 mm.

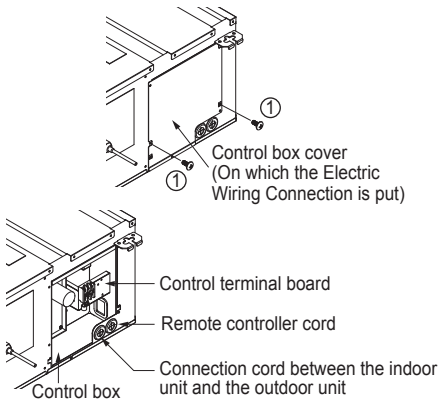
- Stick glass wool on all air conditioners that are located in ceiling atmosphere.

applies to	Insulation material standard (mm) (besides normal conditions for residential use)		Insulation material standard (mm) - residential		Insulation material standard (mm) (unfavorable conditions)
			If installed in an air-conditioned place (CASE 1) (ex: bedroom, living room, etc.)	If installed in a non-air conditioned place (CASE 2) (ex: hallway, outdoors, etc.)	
	Refrigerant piping dimensions (mm)	EPDM	EPDM	EPDM	EPDM
Gas piping	6.35	19	13	19	19
	9.52	19	13	19	25
	12.7	19	13	19	25
	15.88	19	13	19	25
	19.05	19	13	19	25
	22.22	19	13	19	32
	25.40	19	19	19	32
	28.58	19	19	19	32
	31.75	19	19	19	32
	38.1	25	19	25	32
	44.45	25	19	25	32
Liquid piping	6.35	9	9	9	9
	9.52	9	9	9	9
	12.7~44.45	13	13	13	13

- Normal conditions: Temperature of 30 °C, relative humidity of 85 %
- Unfavorable conditions: Temperature of 30 °C, relative humidity of 90 % (humid places such as bathrooms, swimming pools, etc.: air supply and exhaust fan installation)

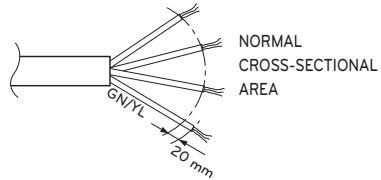
Wiring Connection

- * The feature can be changed according a type of model.
- * Pipes and wires should be purchased separately for installation of the product.
- Open the control box cover and connect the Remote controller cord and Indoor power wires.
- Remove the control box cover for electrical connection between the indoor and outdoor unit. (Remove screws ①)
- Use the cord clamber to fix the cord.



CAUTION

- The connecting cable connected to the indoor and outdoor unit should be complied with the following specifications (Rubber insulation, type H05RN-F approved by HAR or SAA).



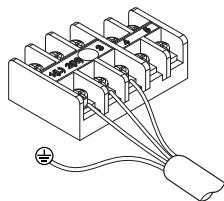
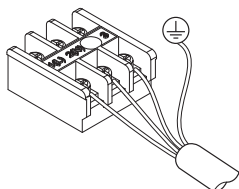
Rated current of appliance A.	Nominal cross-sectional area mm ²
≤ 0.2	Tinsel cord
> 0.2 and ≤ 3	0.5
> 3 and ≤ 6	0.75
> 6 and ≤ 10	1.0 (0.75)
> 10 and ≤ 16	1.5 (1.0)
> 16 and ≤ 25	2.5
> 25 and ≤ 32	4
> 32 and ≤ 40	6
> 40 and ≤ 63	10

NOTE For **supply cords** supplied with multi-phase appliances, the nominal cross-sectional area of the conductors is based on the maximum cross-sectional area of the conductors per phase at the **supply cord** connection to the appliance terminals.

- If the supply cord is damaged, it must be replaced by a special cord or assembly available from the manufacturer of its service agent.

! CAUTION

- The circuit diagram is a subject to change without notice.
- The earth wire should be longer than the common wires.
- When installing, refer to the circuit diagram on the chassis cover.
- Connect the wires firmly so that they may not be pulled out easily.
- Connect the wires according to color codes, referring to the wiring diagram.



Precautions when laying power wiring

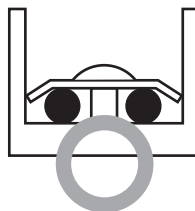
Use round pressure terminals for connections to the power terminal block.



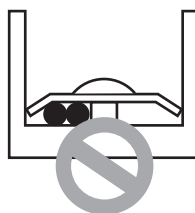
When none are available, follow the instructions below.

- 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.

Connect same thickness wiring to both sides.



It is forbidden to connect two to one side.



It is forbidden to connect wiring of different thicknesses.



- For wiring, use the designated power wire and connect firmly, then secure to prevent outside pressure being exerted on the terminal block.
- Use an appropriate screwdriver for tightening the terminal screws. A screwdriver with a small head will strip the head and make proper tightening impossible.
- Over-tightening the terminal screws may break them.

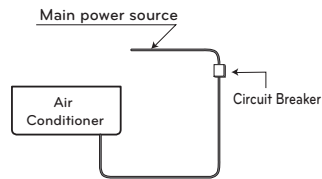
⚠ CAUTION

According to 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 The screw which fasten the wiring in the casing of electrical fittings are liable to come loose from vibrations to which the unit is subjected during the course of transportation. Check them and make sure that they are all tightly fastened. (If they are loose, it could cause burn-out of the wires.)
- 3 Specification of power source.
- 4 Confirm that electrical capacity is sufficient.
- 5 See 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 Always 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 3 mm in each active(phase) conductors.
- 10 Open the terminal cover block before connecting the indoor side wire.

Electrical Wiring

- 1 All wiring must comply with LOCAL REGULATIONS.
- 2 Select a power source that is capable of supplying the current required by the air conditioner.
- 3 Feed the power source to the unit via a distribution switch board designed for this purpose.
- 4 The terminal screws inside the control box may be loose due to vibration during transport. Check the screws for loose connection. (Running the air conditioner with loose connection can overload and damage electrical components.)
- 5 Always ground the air conditioner with a grounding wire and connector to meet the LOCAL REGULATION.



⚠ CAUTION

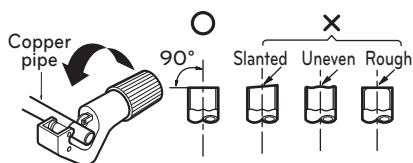
- The circuit diagram is not subject to change without notice.
- Be sure to connect wires according to the wiring diagram.
- Connect the wires firmly, so that not to be pulled out easily.
- Connect the wires according to color codes by referring the wiring diagram.

Flaring Work

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

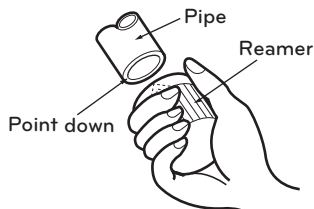
Cut the pipes and the cable

- 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 1.5 m longer than the pipe length.



Burrs removal

1. Completely remove all burrs from the cut cross section of pipe/tube.
2. While removing burrs put the end of the copper tube/pipe in a downward direction while removing burrs location is also changed in order to avoid dropping burrs into the tubing.

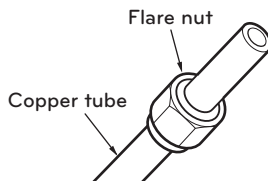


CAUTION

Copper in contact with refrigerants shall be oxygen-free or de-oxygenized, for example Cu-DHP as specified in EN 12735-1 and EN 12735-2

Putting nut on

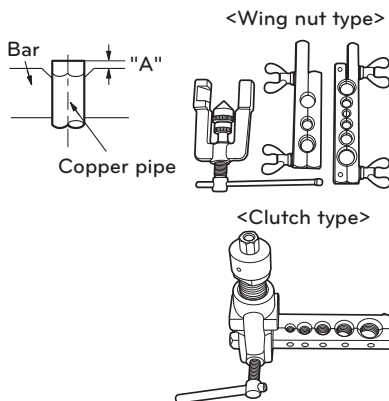
- Remove flare nuts attached to indoor and outdoor unit, then put them on pipe/tube having completed burr removal. (not possible to put them on after finishing flare work)



Flaring work

- 1 Firmly hold copper pipe in a bar with the dimension shown in below table below.
- 2 Carry out flaring work with the flaring tool.

Pipe diameter Inch (mm)	A inch (mm)	
	Wing nut type	Clutch type
Ø 1/4 (Ø 6.35)	0.04~0.05 (1.1~1.3)	0~0.02 (0~0.5)
Ø 3/8 (Ø 9.52)	0.06~0.07 (1.5~1.7)	
Ø 1/2 (Ø 12.7)	0.06~0.07 (1.6~1.8)	
Ø 5/8 (Ø 15.88)	0.06~0.07 (1.6~1.8)	
Ø 3/4 (Ø 19.05)	0.07~0.08 (1.9~2.1)	

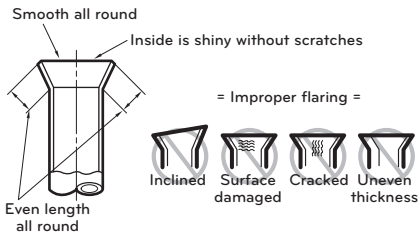


CAUTION

- The installation of pipe-work shall be kept to a minimum
- Flared joint shall be restricted to use with annealed pipe only, and to pipe sizes not exceeding a diameter of 20 mm outside diameter.

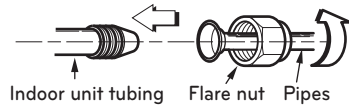
Check

- 1 Compare the flared work with the figure by.
- 2 If a flared section is defective, cut it off and do flaring work again.



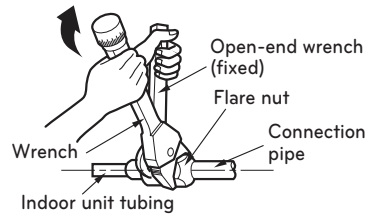
Connecting the installation pipe and drain hose to the indoor unit.

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



- 2 Tighten the flare nut with a wrench

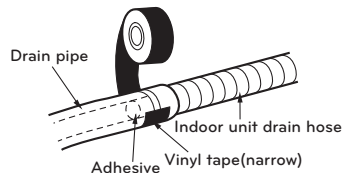
Outside diameter		Torque
mm	inch	kgf·m
Ø 6.35	1/4	1.8~2.5
Ø 9.52	3/8	3.4~4.2
Ø 12.7	1/2	5.5~6.5
Ø 15.88	5/8	6.3~8.2
Ø 19.05	3/4	9.9~12.1



CAUTION

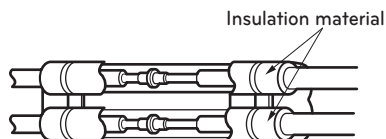
- When mechanical connectors are reused indoors, sealing parts shall be renewed.
- When flared joints are reused indoors, the flare part shall be re-fabricated.

- 3 When needed to extend the drain hose of indoor unit, assembly the drain pipe as shown on the drawing

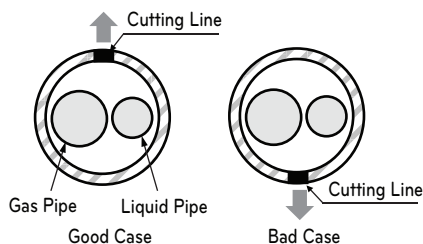


Wrap the insulation material around the connecting portion.

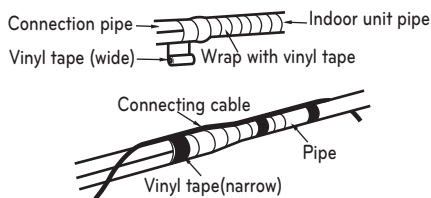
- 1 Overlap the connection pipe insulation material and the indoor unit pipe insulation material. Bind them together with vinyl tape so that there may be no gap.



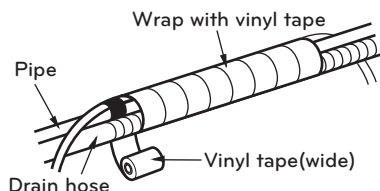
- 2 Set the tubing cutting line upward. Wrap the area which accommodates the rear piping housing section with vinyl tape



* Tubing cutting line have to be upward.



- 3 Bundle the piping and drain hose together by wrapping them with vinyl tape sufficient enough to cover where they fit into the rear piping housing section.



Test Running

- Check that all tubing and wiring are properly connected.
- Check that the gas and liquid side service valves are fully open.

Pump Down

This is performed when the unit is relocated or the refrigerant circuit is serviced.

the outdoor unit without the loss of refrigerant.

NOTE

Be sure to perform Pump Down procedure in the cooling mode.

WARNING

It may cause explosion or injury.

After pump down, power must be turned off before removing the pipe. When operating this product without connecting the pipe, there will be high pressure inside the compressor due to the entry of air, possibly causing explosion or injury.

Pump Down Procedure

- Connect a low-pressure gauge manifold hose to the charge port on the gas side service valve.
- Open the gas side service valve halfway and purge the air in the manifold hose using the refrigerant.
- Close the liquid side service valve(all the way).
- Turn on the unit's operating switch and start the cooling operation.
- When the low-pressure gauge reading becomes 1 to 0.5 kg/cm² G(14.2 to 7.1 P.S.I.G.), fully close the gas side valve and then quickly turn off the unit. Now Pump Down procedure is completed, and all refrigerant is collected into the outdoor unit.

Pump Down

This is performed when the unit is relocated or the refrigerant circuit is serviced.

Pump Down means collecting all refrigerant into the outdoor unit without the loss of refrigerant.

NOTE

Be sure to perform Pump Down procedure in the cooling mode.



WARNING

It may cause explosion or injury.

After pump down, power must be turned off before removing the pipe. When operating this product without connecting the pipe, there will be high pressure inside the compressor due to the entry of air, possibly causing explosion or injury.

PRECAUTIONS IN TEST RUN

- The initial power supply must provide at least 90 % of the rated voltage. Otherwise, the air conditioner should not be operated.



CAUTION

- For test run, carry out the cooling operation firstly even during heating season. If heating operation is carried out firstly, it leads to the trouble of compressor. Then attention must be paid.
- Carry out the test run more than 5 minutes without fail.
(Test run will be cancelled 18 minutes later automatically)

- To cancel the test run, press any button.

Pump Down Procedure

- Connect a low-pressure gauge manifold hose to the charge port on the gas side service valve.
- Open the gas side service valve halfway and purge the air in the manifold hose using the refrigerant.
- Close the liquid side service valve(all the way).
- Turn on the unit's operating switch and start the cooling operation.
- When the low-pressure gauge reading becomes 1 to 0.5 kg/cm² G(14.2 to 7.1 P.S.I.G.), fully close the gas side valve and then quickly turn off the unit. Now Pump Down procedure is completed, and all refrigerant is collected into the outdoor unit.

CHECK THE FOLLOWING ITEMS WHEN INSTALLATION IS COMPLETED

- After completing work, be sure to measure and record trial run properties, and store measured data, etc.
- Measuring items are room temperature, outside temperature, suction temperature, blow out temperature, wind velocity, wind volume, voltage, current, presence of abnormal vibration and noise, operating pressure, piping temperature, compressive pressure.
- As to the structure and appearance, check following items.
 - * Is the circulation of air adequate?
 - * Is the draining smooth?
 - * Is the heat insulation complete (refrigerant and drain piping)?
 - * Is there any leakage of refrigerant?
 - * Is the remote controller switch operated?
 - * Is there any faulty wiring?
 - * Are not terminal screws loosened?

M4.....118 N ·cm{12 kgf·cm}

M5.....196 N ·cm{20 kgf·cm}

M6.....245 N ·cm{25 kgf·cm}

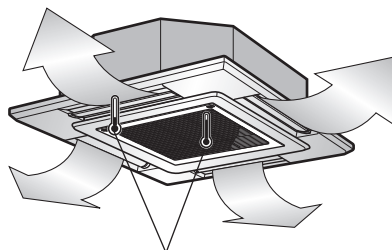
M8.....588 N ·cm{60 kgf·cm}

Connection of power supply

- Connect the power supply cord to the independent power supply.
Circuit breaker is required.
- Operate the unit for 15 minutes or more.

Evaluation of the performance

- Measure the temperature of the intake and discharge air.
- Ensure the difference between the intake temperature and the discharge one is more than 8 ° C (Cooling) or reversely (Heating).



Thermometer

Installer Setting - Static Pressure Step Setting

This function is applied to only duct type. Setting this in other cases will cause malfunction.

This function is only available on some products.

This is the function that static pressure of the product is divided in 11 steps for setting.

Ceiling Concealed Duct – Low static

Table 1

Chassis	Capacity (kW)	Step	CMM	Static Pressure [mmAq(Pa)]					
				0(0)	1(10)	2(20)	3(29)	4(39)	5(49)
				Setting Value					
				32:01	32:02	32:03	32:04	32:05	32:06
L5	2.5	LOW	8	76	87	96	106	116	116
		MID	9.5	87	96	106	114	120	120
		HIGH	11.5	101	109	118	125	130	130
L5	3.5	LOW	8	76	87	96	106	116	116
		MID	9.5	87	96	106	114	120	120
		HIGH	11.5	101	109	118	125	130	130
L6	5	LOW	10	82	87	90	96	106	116
		MID	12.5	92	98	105	109	119	128
		HIGH	15	100	106	112	122	129	137

NOTE

1. The above table shows the correlation between the air rates and E.S.P.
2. Be sure to set the value referring table 1. Unexpected set value will cause mal-function.
3. Table 1 is based at 230 V. According to the fluctuation of voltage, air flow rate varies.

Ceiling Concealed Duct – Mid static**Table 2**

Chassis	Capacity (kW)	Step	CMM	Static Pressure [mmAq(Pa)]											
				2(20)	2.5(25)	3(29)	4(39)	6(59)	8(78)	10(98)	12(118)	13(127)	14(137)	15(147)	
				Setting Value											
				32:01	32:02	32:03	32:04	32:05	32:06	32:07	32:08	32:09	32:10	32:11	
M1	7	LOW	14.5	76	77	86	89	97	106	114	121	124	127	130	
		MID	16.5	86	87	90	94	103	111	118	125	128	131	134	
		HIGH	18	90	92	95	99	108	115	122	129	132	135	138	

Chassis	Capacity (kW)	Step	CMM	Static Pressure [mmAq(Pa)]											
				2.5(25)	4(39)	5(49)	6(59)	7(69)	8(78)	9(88)	10(98)	11(108)	13(127)	15(147)	
				Setting Value											
				32:01	32:02	32:03	32:04	32:05	32:06	32:07	32:08	32:09	32:10	32:11	
M1	8.5	LOW	18	96	102	107	110	114	118	122	125	127	130	132	
		MID	20	102	110	114	118	121	125	127	130	133	134	136	
		HIGH	22	110	117	121	124	127	130	133	136	137	138	140	

Chassis	Capacity(kW)	Step	CMM	Static Pressure [mmAq(Pa)]											
				4(39)	5(49)	6(59)	7(69)	8(78)	9(88)	10(98)	11(108)	12(118)	13(127)	15(147)	
				Setting Value											
				32:01	32:02	32:03	32:04	32:05	32:06	32:07	32:08	32:09	32:10	32:11	
M2	10	LOW	24	88	91	95	100	101	108	113	115	118	118	118	
		MID	28	93	97	101	105	108	115	118	120	124	124	124	
		HIGH	32	101	105	109	112	115	119	123	126	128	128	128	
M3	14	LOW	28	74	76	79	82	89	92	94	96	99	102	107	
		MID	34	78	82	84	89	94	96	98	101	104	106	112	
		HIGH	40	83	89	92	94	98	100	102	105	108	110	116	

Chassis	Capacity (kW)	Step	CMM	Static Pressure [mmAq(Pa)]											
				5(49)	6(59)	7(69)	8(78)	9(88)	10(98)	11(108)	12(118)	13(127)	14(137)	15(147)	
				Setting Value											
				32:01	32:02	32:03	32:04	32:05	32:06	32:07	32:08	32:09	32:10	32:11	
M2	12.5	LOW	28	100	103	106	110	114	118	121	125	128	133	136	
		MID	33	108	111	114	118	122	125	128	131	134	138	140	
		HIGH	38	117	120	124	127	130	133	135	138	140	144	147	

NOTE

1. Be sure to set the value referring table 2. Unexpected set value will cause mal-function.
2. Table 2 is based at 230 V. According to the fluctuation of voltage, air flow rate varies.
3. Factory Set(External Static Pressure) each Model

Capacity (kW)	Factory set (E.S.P.) mmAq(Pa)
2.5/ 3.5	1(10)
5	0
7 / 8.5 / 10 / 12.5 / 14	6(59)

* If it is zero static pressure, please set value below Maximum value.

Chassis	Maximum value
M1	115
M2	120
M3	98

Installer Setting - Auto ESP

This function automatically sets the rotation speed of the fans corresponding to each step of rated airflow for easy installation.

Please refer to the manual for separately sold remote control for detailed setup.

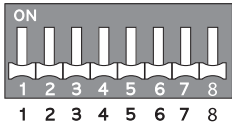
NOTE

If this function is incorrectly set especially, in case of mismatching the voltage, the air conditioner may malfunction.
this function must be set by the installation specialist that holds an installation license.
(please check the product type)

NOTE

- If the heat exchanger is not dry, please set the device to operate in air circulation mode for 15 minutes.
- The air filter must be properly attached to the suction side of the product.
- Adjust the dampers so that each air inlet and outlet exhaust the required air.
- Please do not use the set auto air flow function when using various booster fans (outdoor air treatment device or ERV through ducts).
- Please reinitiate the set auto air flow function if the duct shape has changed since its initial installation.
- When setting the voltage manually, the set air flow will differ from the actual air flow if the set voltage is different from the actual voltage.
- When setting voltage manually, measure the actual voltage and select the set voltage on the remote control.
- Failure to follow the above method may cause the actual air flow to differ from the rated air flow.

DIP SWITCH SETTING



Function		Description	Setting Off	Setting On	Default
SW3	Group Control	Selection of Master or Slave	Master	Slave	Off
SW4	Dry Contact Mode	Selection of Dry Contact Mode	Wired/Wireless remote controller Selection of Manual or Auto operation Mode	Auto	Off
SW5	Installation	Fan continuous operation	Continuous operation Removal	Working	Off

