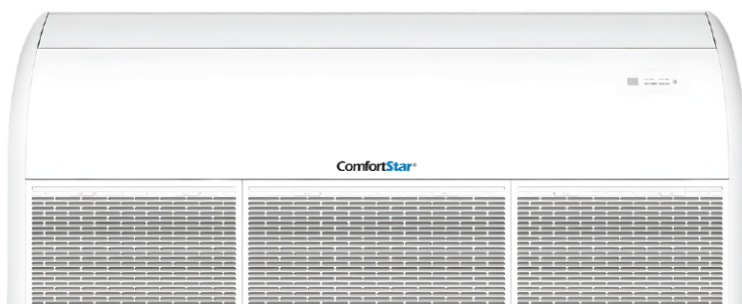


ComfortStar®

Air Conditioning & Heating Products

SPLIT TYPE AIR CONDITIONER INSTRUCTION MANUAL



FPA32-18CD(I)

FPA32-24CD(I)

This instruction manual contains important information and recommendations that we would ask you to comply with to obtain best results from air conditioner.

Thank you once again.

www.comfortstarusa.com

Safety Notice

 A2L	Caution: Risk of fire. The air conditioner is charged with inflammable refrigerant R32/R454B.
	Before using the air conditioner, please read the instruction manual first.
	Before installing the air conditioner, please read the instruction manual first.
	Before repairing the air conditioner, please read the technical service manual first.

Compared with common refrigerant, R32/R454B is an environmentally friendly refrigerant that has no harm to the ozone layer and weak greenhouse effect. Its GWP is 675/466. Because of its thermodynamic characteristics, R32/R454B requires a smaller charging quantity to reach high energy efficiency. It is inflammable and odorless, but may cause explosion under certain circumstances.

CONTENTS

- Safety Precautions1
- Instruction for Servicing (R32/R454B) 4
- Refrigerant Sensor (Optional)18
- Parts and Functions.....19
- Display Panel 22
- Indoor Unit Installation..... 23
- Drainage Pipe Connection..... 29
- Outdoor Unit Installation..... 32
- Refrigerant Pipes Installation 36
- Electric Wiring 42
- Test Run 45
- Checks Before Operation.....46
- Adjusting Air Flow Direction 47
- Maintenance.....48
- Important Safety Information49
- Disposal Guideline50

Safety Precautions

Safety Rules and Recommendations for the Installer

1. **R**ead this guide before installing and using the appliance.
2. **D**uring the installation of the indoor and outdoor units, access to the working area should be forbidden to children. Unforeseeable accidents could happen.
3. **M**ake sure that the base of the outdoor unit is firmly fixed.
4. **C**heck that air cannot enter the refrigerant system and check for refrigerant leaks before turning on the air conditioner.
5. **C**arry out a test cycle after installing the air conditioner and record the operating data.
6. **P**rotect the unit with a fuse of suitable capacity for the maximum input current or with another overload protection device.
7. **E**nsure that the mains voltage matches the voltage indicated on the nameplate. Keep the switch clean and ensure that the power cord terminals are correctly connected to the circuit. This prevents the risk of electric shock or fire caused by poor contact.
8. **T**he appliance must be equipped with devices capable of disconnection from the mains power supply, have a contact separation in all poles to provide full disconnection under "over voltage category III conditions", these devices must also be incorporated into the fixed wiring in accordance with the wiring rules.
9. **T**he air conditioner must be installed by professional or qualified persons. Do not try to install the conditioner by yourself, always contact specialized technical personnel.
10. **D**o not install the appliance at a distance of less than 50 cm from inflammable substances (alcohol, etc.) or from pressurized containers (e.g. spray cans).
11. **I**f the appliance is used in areas without the possibility of ventilation, precautions must be taken to prevent any leaks of refrigerant gas from remaining in the environment and creating a danger of fire.
12. **T**he packaging materials are recyclable and should be disposed of in the separate waste bins. Take the air conditioner at the end of its useful life to a special waste collection center for disposal.
13. **O**nly use the air conditioner as instructed in this booklet. These instructions are not intended to cover every possible condition and situation. As with any electrical household appliance, common sense and caution are therefore always recommended for installation, operation and maintenance.
14. **T**he appliance must be installed in accordance with applicable national regulations.
15. **B**efore accessing the terminals, all the power circuits must be disconnected from the power supply.

16. **T**his 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.
17. **C**leaning and maintenance must be carried out by specialized technical personnel. In any case disconnect the appliance from the mains electricity supply before carrying out any cleaning or maintenance.
18. **T**his appliance has been made for air conditioning domestic environments and must not be used for any other purpose, such as for drying clothes, cooling food, etc.
19. **A**lways use the appliance with the air filter mounted. Air conditioning without air filter could cause an excessive accumulation of dust and/or lead to inner parts function failure.
20. **T**he user is responsible for having the appliance installed by a qualified technician, who must check that earthing/grounding is done in accordance with current legislation and insert a thermal-magnetic circuit breaker.
21. **T**he batteries in the remote controller must be recycled or disposed of properly. For disposal of scrap batteries, please discard the batteries as sorted municipal waste at the accessible collection point.
22. **N**ever remain directly exposed to the flow of cold air for a long time. The direct and prolonged exposure to cold air could be dangerous for your health. Particular care should be taken in the rooms where there are children, old or sick people.
23. **I**f the appliance gives off smoke or there is a smell of burning, immediately cut off the power supply and contact the Service Center. The prolonged use of the device in such conditions could cause fire or electrocution.
24. **H**ave repairs carried out only by an authorized Service Center of the manufacturer. Incorrect repair could expose the user to the risk of electric shock, etc.
25. **U**nhook the switch if you do not plan to use the device for a long time. The airflow direction must be properly adjusted.
26. **T**he flaps must be directed downwards in the heating mode and upwards in the cooling mode.
27. **E**nsure that the appliance is disconnected from the power supply when it is intended to remain inoperative for a long period and before carrying out any cleaning or maintenance.
28. **S**electing the most suitable temperature can prevent damage to the appliance.

Safety Rules and Prohibitions

1. **D**o not bend, tug or compress the power cord since this could damage it. Electrical shocks or fire are probably due to a damaged power cord. Only specialized technical personnel are recommended to replace a damaged power cord.
2. **D**o not use extensions or gang modules.
3. **D**o not touch the appliance when barefoot or parts of the body are wet or damp.
4. **D**o not obstruct the air inlet or outlet of the indoor or the outdoor unit. The obstruction of these openings causes a reduction in the operative efficiency of the conditioner with possible consequent failures or damages.
5. **I**n no way alter the characteristics of the appliance.
6. **D**o not install the appliance in environments where the air could contain flammable gas, oil or sulfur or near sources of heat.
7. **T**his 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.
8. **D**o not climb onto or place any heavy or hot objects on top of the appliance.
9. **D**o not leave windows or doors open for a long time when the air conditioner is operating.
10. **D**o not direct the airflow onto plants or animals.
11. **L**ong direct exposure to the flow of cold air of the conditioner could have negative effects on plants and animals.
12. **D**o not put the conditioner in contact with water. The electrical insulation could be damaged and thus cause electrocution.
13. **D**o not climb onto or place any objects on the outdoor unit.
14. **N**ever insert a stick or similar object into the appliance. It could cause injury.
15. **C**hildren should be supervised to ensure that they do not play with the appliance.
16. **T**his unit is equipped with a refrigerant leak detector for safety.
17. **T**his refrigerant sensor is only replaced with a manufacturer approved sensor. If the sensor is replaced only as part of the component assembly, the component should be labeled.

(Some models have refrigerant leak sensors, subject to the actual product received.)
18. **T**he appliance shall be installed according to the manufacturer's instructions, and the ventilation pipe shall not exceed the maximum length and number of turns specified by the manufacturer.
19. **A**ppliances shall be installed according to the instructions. Appliances that can

be installed in different locations should be tested in all locations permitted by the manufacturer. The intake or exhaust openings should not be covered and the manufacturer's recommended air filter should be installed according to the instructions.

 NOTE (WiFi models only)

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference.
2. This device must accept any interference received, including interference that may cause undesired operation.

Instruction for Servicing (R32/R454B)

1. Check the information in this manual to find out the dimensions of space needed for proper installation of the device, including the minimum distances allowed compared to adjacent structures.
2. Appliance shall be installed, operated and stored in a room with a floor area larger than 4m².
3. The installation of pipe-work shall be kept to a minimum.
4. The pipe-work shall be protected from physical damage, and shall not be installed in an unventilated space if the space is smaller than 4m².
5. The compliance with national gas regulations shall be observed.
6. The mechanical connections shall be accessible for maintenance purposes.
7. Follow the instructions given in this manual for handling, installing, cleaning, maintaining and disposing of the refrigerant.
8. Make sure ventilation openings are clear of obstruction.

9. Notice: The servicing shall be performed only as recommended by the manufacturer.

10. Warning: The appliance shall be stored in a well-ventilated area where the room size corresponds to the room area as specified for operation.

11. Warning: The appliance shall be stored in a room without continuously operating open flames (for example an operating gas appliance) and ignition sources (for example an operating electric heater).

12. The appliance shall be stored so as to prevent mechanical damage from occurring.
13. It is appropriate that anyone who is called upon to work on a refrigerant circuit should hold a valid and up-to-date certificate from an assessment authority accredited by the industry and recognizing their competence to handle refrigerants, in accordance with the assessment specification recognized in the industrial sector concerned. Service

operations should only be carried out in accordance with the recommendations of the equipment manufacturer. Maintenance and repair operations that require the assistance of other qualified persons must be conducted under the supervision of the person competent for the use of flammable refrigerants.

14. Every working procedure that affects safety factors shall only be carried out by specialized persons.

15. Warning:

- * Do not use any means to accelerate the defrosting process or clean the frost on your own. Follow the recommended guidelines from the manufacturer.
- * 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).
- * Do not pierce or burn.
- * Be aware that refrigerants may not contain an odor.

Important Considerations

1. The air conditioner must be installed by professional personnel and the Installation manual is used only for the professional installation personnel! The installation specifications should be subject to our after-sale service regulations.
2. When filling the combustible refrigerant, any of your rough handling may cause serious damage or injuries to human body and objects.
3. A leak test must be done after the installation is completed.
4. It is a must to do the safety inspection before maintaining or repairing an air conditioner using combustible refrigerant in order to ensure that the fire risk is reduced to minimum.
5. It is necessary to operate the machine under a controlled procedure in order to ensure that any risk arising from the combustible gas or vapor during the operation is reduced to a minimum.
6. Requirements for the total weight of filled refrigerant and the area of a room to be equipped with an air conditioner (are shown as in the following Tables GG.1 and GG.2)

Refrigerant Charge and Room Area Limitations

In UL/CSA 60335-2-40, R32/R454B refrigerant is classified as class A2L, which is mildly flammable.

Therefore, R32/R454B refrigerant is suitable for systems needing additional refrigerant charge and which will limit the area of the rooms being served by the system. Similarly, the total amount of refrigerant in the system shall be less than or equal to the allowable maximum refrigerant charge. The allowable maximum refrigerant charge depends on the area of the rooms being served by the system.

NOTE:

The nouns in this section are explained as follows:

Mc: The actual refrigerant charge in the system.

A: The actual room area where the appliance is installed.

Amin: The required minimum room area.

Mmax: The allowable maximum refrigerant charge in a room.

Qmin: The minimum circulation airflow.

Anvmin: The minimum opening area for connected rooms.

R32:

The maximum charge and the required minimum floor area

$$m_1 = (6 \text{ m}^3) \times \text{LFL}, m_2 = (52 \text{ m}^3) \times \text{LFL}, m_3 = (260 \text{ m}^3) \times \text{LFL}$$

Where LFL is the lower flammable limit in kg/m³, R32 LFL is 0.306 kg/m³.

For the appliances with a charge amount $m_1 < M = m_2$:

The maximum charge in a room shall be in accordance with the following:

$$M_{\max} = 2.5 \times (\text{LFL})^{(5/4)} \times h_0 \times (A)^{1/2}, \text{ not to exceed } M_{\max} = \text{SF} \times \text{LFL} \times h_0 \times A \text{ (GG. 3DV)}$$

The required minimum floor area $A_{\min}$ to install an appliance with refrigerant charge M (kg)

shall be in accordance with following: $A_{\min} = (M / (2.5 \times (\text{LFL})^{(5/4)} \times h_0))^2$, not less than $A_{\min} = M / (\text{SF} \times \text{LFL} \times h_0)$ (GG. 4DV)

Non-ducted supply to a single room (Annex GG.2.2.1DV)

The minimum circulation airflow shall be:

$$Q_{\max} = 30 \times m_c / \text{LFL}$$

Non-ducted supply to a single room (Annex GG.8.2.2 & GG.1.3 & GG.1.4)

The minimum opening area for natural ventilation shall be calculated using the following equation:

Opening Area Requirements:

$$A_{\text{nvmin}} = \frac{m_c - m_{\max}}{\text{LFL} \times 104} \times \sqrt{\frac{A}{g \times m_{\max}}} \times \frac{M}{M - 29}$$

Table GG.1 - Maximum charge (kg)

Category	LFL (kg/ m ³)	h ₀ (m)	Floor area (m ²)						
			4	7	10	15	20	30	50
R32	0.306	2.5	1.53	2.68	3.83	5.51	6.36	7.79	10.06
		2.8	1.71	3.00	4.28	6.17	7.12	8.73	11.27
		3	1.84	3.21	4.59	6.61	7.63	9.35	12.07

Category	LFL (kg/ ft ³)	h ₀ (ft)	Floor area (ft ²)						
			43	75.3	107.6	161.4	215.2	322.9	538.1
R32	0.019	8.2	16.5	28.8	41.2	59.3	36.5	83.9	108.2
		9.2	18.4	32.3	46.1	66.4	76.3	94.0	121.3
		9.8	19.8	34.6	49.4	71.1	82.1	100.6	129.9

For R32 refrigerant charge amount and minimum room area:

The machine you purchased may be one of the types in the table below. The indoor and outdoor units are designed to be used together. Please check the machine you purchased. The indoor unit should be installed at least 8.2ft/2.5m above the floor, and the minimum room area of operating or storage should be as specified in the following table:

Table GG.2 - Minimum room area (m²)

Category	LFL (kg/ m ³)	h ₀ (m)	Charge amount (M) (kg) Minimum room area (m ²)						
			0.58	0.60	1.00	1.07	1.20	1.58	2.00
R32	0.306	2.5	1.52	1.57	2.61	2.80	3.14	4.13	5.23
		2.8	1.35	1.40	2.33	2.50	2.80	3.69	4.67
		3	1.26	1.31	2.18	2.33	2.61	3.44	4.36

Category	LFL (lb/ft ³)	h ₀ (ft)	Charge amount (M) (lb) Minimum room area (ft ²)						
			0.58	0.60	1.00	1.07	1.20	1.58	2.00
R32	0.019	8.2	16.4	16.9	28.1	30.1	33.8	44.5	56.3
		9.2	14.5	15.1	25.1	26.9	30.1	39.7	50.3
		9.8	13.6	14.1	23.5	25.1	28.1	37.0	46.9

R454B:

The maximum charge and the required minimum floor area

$$m_1 = (6 \text{ m}^3) \times \text{LFL}, m_2 = (52 \text{ m}^3) \times \text{LFL}, m_3 = (260 \text{ m}^3) \times \text{LFL}$$

Where LFL is the lower flammable limit in kg/ m³, R454B LFL is 0.296 kg/ m³.

For the appliances with a charge amount $m_1 < M = m_2$:

The maximum charge in a room shall be in accordance with the following:

$$M_{\text{max}} = 2.5 \times (\text{LFL})^{(5/4)} \times h_0 \times (A)^{1/2}, \text{ NOT TO EXCEED } M_{\text{max}} = \text{SF} \times \text{LFL} \times h_0 \times A$$

The required minimum floor area A_{min} to install an appliance with refrigerant charge M(kg) shall be in accordance with following:

$$A_{\text{min}} = (M / (2.5 \times (\text{LFL})^{(5/4)} \times h_0))^2, \text{ NOT LESS THAN } A_{\text{min}} = M / (\text{SF} \times \text{LFL} \times h_0)$$

Table GG.1 - Maximum charge (kg)

Category	LFL (kg/ m ³)	h ₀ (m)	Floor area (m ²)						
			4	7	10	15	20	30	50
R454B	0.296	2.5	1.48	2.59	3.70	5.28	6.10	7.47	9.65
		2.8	1.66	2.90	4.14	5.92	6.83	8.37	10.81
		3.0	1.78	3.11	4.44	6.36	7.32	8.97	11.58

Category	LFL (lb/ft ³)	h ₀ (ft)	Floor area (ft ²)						
			43	75.3	107.6	161.4	215.2	322.9	538.1
R454B	0.0185	8.2	15.9	27.9	39.8	56.8	65.7	80.4	103.9
		9.2	17.9	31.2	44.6	63.7	73.5	90.1	116.4
		9.8	19.2	33.5	47.8	68.5	78.8	96.6	124.6

For R454B refrigerant charge amount and minimum room area:

The machine you purchased may be one of the types in the table below. The indoor and outdoor units are designed to be used together. Please check the machine you purchased. The indoor unit should be installed at least 8.2ft /2.5m above the floor, and the minimum room area of operating or storage should be as specified in the following table:

Table GG.2 - Minimum room area

Category	LFL (kg/ m ³)	h ₀ (m)	Charge amount (M) (kg) Minimum room area (m ²)						
			0.71kg	0.8kg	1kg	1.29kg	1.56kg	1.8kg	2kg
R454B	0.296	2.5	1.92	2.16	2.7	3.49	4.22	4.86	5.41
		2.8	1.71	1.93	2.41	3.11	3.76	4.34	4.83
		3.0	1.60	1.80	2.25	2.91	3.51	4.05	4.50

Category	LFL (lb/ft ³)	h ₀ (ft)	Charge amount (M) (kg) Minimum room area (ft ²)						
			0.71kg	0.8kg	1kg	1.29kg	1.56kg	1.8kg	2kg
R454B	0.0185	8.2	20.7	23.3	29.1	37.6	45.4	82.3	58.2
		9.2	18.4	20.8	25.9	33.5	40.5	46.7	52.0
		9.8	17.2	19.4	24.2	31.3	37.8	43.6	48.4



Caution: Risk of fire



A2L



Read operator's manual



Operating instructions



Read technical manual

16. Information on servicing:

1) Checks to the area

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

2) Work procedure

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

3) General work area

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. The area around the workspace shall be sectioned off. Ensure that the conditions within the area have been made safe by control of flammable material.

4) Checking for presence of refrigerant

The area shall be checked with an appropriate refrigerant detector prior to and during work, to ensure the technician is aware of potential 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.

5) Presence of fire extinguisher

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.

6) No ignition sources

No person carrying out work in relation to a refrigeration system which involves exposing any pipe work 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 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.

7) Ventilated area

Ensure that the area is in the open or that it is adequately ventilated before breaking into the system or conducting any work that will produce heat. 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.

8) Checks to the refrigeration equipment

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 installation using flammable refrigerant:

- The charge size 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.

9) Checks to electrical devices

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:

- That capacitors are discharged: This shall be done in a safe manner to avoid possibility of sparking;
- That no live electrical components and wiring are exposed while charging, recovering or purging the system;
- That there is continuity of earth bonding.

17. Repairs to sealed components

Sealed electrical components shall be replaced.

18. Repair to intrinsically safe components

Intrinsically safe components must be replaced.

19. Cabling

Check that 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 aging or continual vibration from sources such as compressors or fans.

20. Detection of flammable refrigerants

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.

21. Leak detection methods

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 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. 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. Oxygen free nitrogen (OFN) shall then be purged through the system both before and during the brazing process.

22. Removal and evacuation

When breaking into the refrigerant circuit to make repairs or for any other purpose conventional procedures shall be used. However, it is important that best practice is followed since inflammability is a consideration. The following procedure shall be adhered to:

- Remove refrigerant;
- Purge the circuit with inert gas;
- Evacuate;
- Purge again with inert gas;
- Open the circuit by cutting or brazing.

The refrigerant charge shall be recovered into the correct recovery cylinders. The system shall be flushed with OFN to render the unit safe. This process may need to be repeated several times.

Compressed air or oxygen shall not be used for this task.

Flushing shall be achieved by breaking the vacuum in the system with OFN 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 OFN 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 ignition sources and there is ventilation available.

23. Decommissioning

Before carrying out this procedure, it is essential that the technician is completely familiar with the equipment and all its details. 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.

- 1) Become familiar with the equipment and its operation.
- 2) Isolate system electrically.
- 3) 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.
- 4) Pump down refrigerant system, if possible.
- 5) If a vacuum is not possible, make a manifold so that refrigerant can be removed from various parts of the system.
- 6) Make sure that cylinder is situated on the scales before recovery takes place.
- 7) Start the recovery machine and operate in accordance with manufacturer's instructions.
- 8) Do not overfill cylinders. (No more than 80% volume liquid charge).
- 9) Do not exceed the maximum working pressure of the cylinder, even temporarily.
- 10) 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.
- 11) Recovered refrigerant shall not be charged into another refrigeration system unless it has been cleaned and checked.

24. Labeling

Equipment shall be labeled 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.

25. Recovery

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 labeled 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 all appropriate refrigerants including, when applicable, 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.

26. Warning:

- 1) Do not use means to accelerate the defrosting process or to clean, other than those recommended by the manufacturer.
- 1) Ne pas utiliser de produits permettant d'accélérer le dégel ou de produits de nettoyage autres que ceux recommandés par le fabricant.
- 2) 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).
- 2) L'appareil doit être entreposé dans un endroit sans source d'allumage fonctionnant en continu (par exemple: Flamme nue, appareil au gaz en marche ou radiateur électrique en

marche).

3) Do not pierce or burn.

3) Ne pas percer ni brûler.

4) Be aware that refrigerants may not contain an odor.

4) Attention: Les frigorigènes peuvent être inodores.

27. Statement

1) Please use the flammable gas detector to check before unloading and opening the container.

2) No ignition sources or smoking.

3) That pipe work shall be protected from physical damage and, in the case of FLAMMABLE REFRIGERANTS, shall not be installed in an unventilated space, if that space is smaller than Amin in Annex GG, except for A2L REFRIGERANTS where the installed pipes comply with UL 60335-2-40 Clause. In case of field charge, the effect on REFRIGERANT CHARGE caused by the different pipe length has to be quantified.

4) That compliance with national gas regulations shall be observed.

5) Be shipped with a FLAMMABLE REFRIGERANT CHARGE. Joints made in the installation between parts of the REFRIGERATING SYSTEM, with at least one part charged, shall be made in accordance with the following.

- A brazed, welded, or mechanical connection shall be made before opening the valves to permit refrigerant to flow between the REFRIGERATING SYSTEM parts. A vacuum valve shall be provided to evacuate the interconnecting pipe and/or any uncharged REFRIGERATING SYSTEM part.
- Mechanical connectors used indoors shall comply with ISO 14903. When mechanical connectors are reused indoors, sealing parts shall be renewed. When flared joints are reused indoors, the flare part shall be re-fabricated.
- Refrigerant tubing shall be protected or enclosed to avoid damage.
- Flexible refrigerant connectors (such as connecting lines between the indoor and outdoor unit) that may be displaced during NORMAL OPERATION shall be protected against mechanical damage.

6) That pipe work including piping material, pipe routing, and installation shall include protection from physical damage in operation and service, and be in compliance with national and local codes and standards, such as ASHRAE 15, ASHRAE 15.2, IAPMO Uniform Mechanical Code, ICC International Mechanical Code, or CSA B52. All field joints shall be accessible for inspection prior to being covered or enclosed.

7) That after completion of field piping for split systems, the field pipe work shall be pressure tested with an inert gas and then vacuum tested prior to refrigerant charging, according to the following requirements.

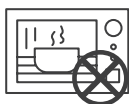
- 8) The appliance shall be stored so as to prevent mechanical damage from occurring.
- 9) Working personnel for maintenance, service and repair operations. Every working procedure that affects safety means shall only be carried out by competent persons according to Annex HH. Examples for such working procedures are:
- Breaking into the refrigerating circuit;
 - Opening of sealed components;
 - Opening of ventilated enclosures.

Installation Safety Principles

1. Site Safety



Open Flames Prohibited



Ventilation Necessary

2. Operation Safety



Mind Static Electricity



Must wear protective clothing and anti-static gloves



Don't use mobile phone

3. Installation Safety

- Refrigerant Leak Detector
- Appropriate Installation Location



The left picture is the schematic diagram of a refrigerant leak detector.

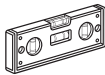
Please note that:

- 1) The installation site should be well-ventilated.
- 2) The sites for installing and maintaining an air conditioner using Refrigerant R32/R454B should be free from open fire or welding, smoking, drying oven or any other heat source higher than 548°C which easily produces open fire.
- 3) When installing an air conditioner, it is necessary to take appropriate anti-static measures such as wear anti-static clothing.
- 4) It is necessary to choose the site convenient for installation or maintenance wherein the air inlets and outlets of the indoor and outdoor units should not be surrounded by obstacles or closed to any heat source or combustible or explosive environment.
- 5) If the indoor unit suffers refrigerant leak during the installation, it is necessary to

immediately turn off the valve of the outdoor unit and all the personnel should leave the area until the refrigerant leaks completely for 15 minutes. If the product is damaged, it is necessary to carry such damaged product back to the maintenance station and it is prohibited to weld the refrigerant pipe or conduct other operations on the user's site.

- 6) It is necessary to avoid the places where there are other electrical products, power switch plugs and sockets, kitchen cabinet, bed, sofa and other valuables right under the lines on two sides of the indoor unit.

Suggested Tools

Tool	Picture	Tool	Picture	Tool	Picture
Standard Wrench		Pipe Cutter		Vacuum Pump	
Adjustable/ Crescent Wrench		Screwdrivers (Phillips & Flat blade)		Safety Glasses	
Torque Wrench		Manifold and Gauges		Work Gloves	
Hex Keys or Allen Wrenches		Level		Refrigerant Scale	
Drill & Drill Bits		Flaring tool		Micron Gauge	
Hole Saw		Clamp on Amp Meter		Welding Gun	

Operating condition

Inverter air conditioner:

HEATING	Room temperature: 0°C-27°C (32°F-81°F)
	Outdoor temperature: -25°C-24°C (-13°F-75°F)
COOLING/DRY	Room temperature: 17°C-32°C (63°F-90°F)
	Outdoor temperature: T1 climate: -15°C-55°C (5°F-131°F)

Please consult the dealer for the actual operating temperature range of the outdoor unit. For some models, the minimum operating temperature for heating maybe -20°C (-4°F), the maximum operating temperature for cooling maybe 53°C (127°F).

With the power supply connected, restart the air conditioner after shutdown, or switch it to other mode during operation, and the air conditioner protection device will start. The compressor will resume operation after 3 minutes.

Noise pollution

- Install the air conditioner in a place that can bear its weight in order to operate more quietly.
- Install the outdoor unit in a place where the air discharged and the operation noise do not annoy your neighbors.
- Do not place any obstacles in front of the outlet of the outdoor unit for fear it affects operation and increases the noise level.

Features of protector

1. The protective device will trip in the following cases.

- Stop the appliance and restart it at once or change other modes during operation, you have to wait 3 minutes before restarting.
- After switching on the power circuit breaker and then turn on the air conditioner at once, you have to wait about 20 seconds.

2. In case all operations have stopped, you need.

- Press "ON/OFF" button again to restart it.
- Set TIMER once again if it has been canceled.

Inspection

After a long time of operation, the air conditioner should be inspected for the following items.

- Abnormal heating of the power supply cord or even a burnt smell.
- Abnormal operating noise or vibration.
- Water leakage from indoor unit.
- Metal cabinet electrified.
- Stop using the air conditioner if the above problems occur.
- It is advisable that the air conditioner should be given a detailed check-up after using for five years even if none of the above happen.

Features of HEATING mode

Preheat

2-5 minutes are necessary to preheat the indoor heat exchanger at the beginning of "HEATING" operation, lest cold air be discharged.

Defrost

In "HEATING" operation the appliance will defrost automatically. This procedure lasts 2-10 minutes, then returns to "HEATING" mode automatically. During defrosting, indoor fan stops running and returns to heating mode operation automatically when defrosting has finished.

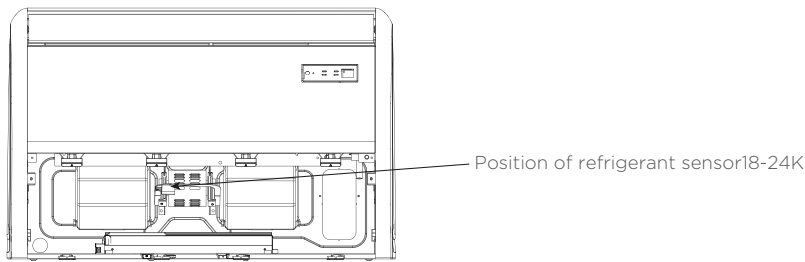
Refrigerant Sensor (Optional)

Important notes:

- 1. The refrigerant sensor must be maintained by a professional and only the specified sensor by the manufacturer can be replaced.
- 2. The design life of the refrigerant sensor is 15 years, please replace the sensor within the range of the service life.
- 3. The refrigerant sensor automatically detects the condition of the machine while in operation, and will automatically start the circulating air flow and stop the compressor when the concentration reaches the alarm range.
- 4. The alarm signal of the refrigerant sensor is as follows table:

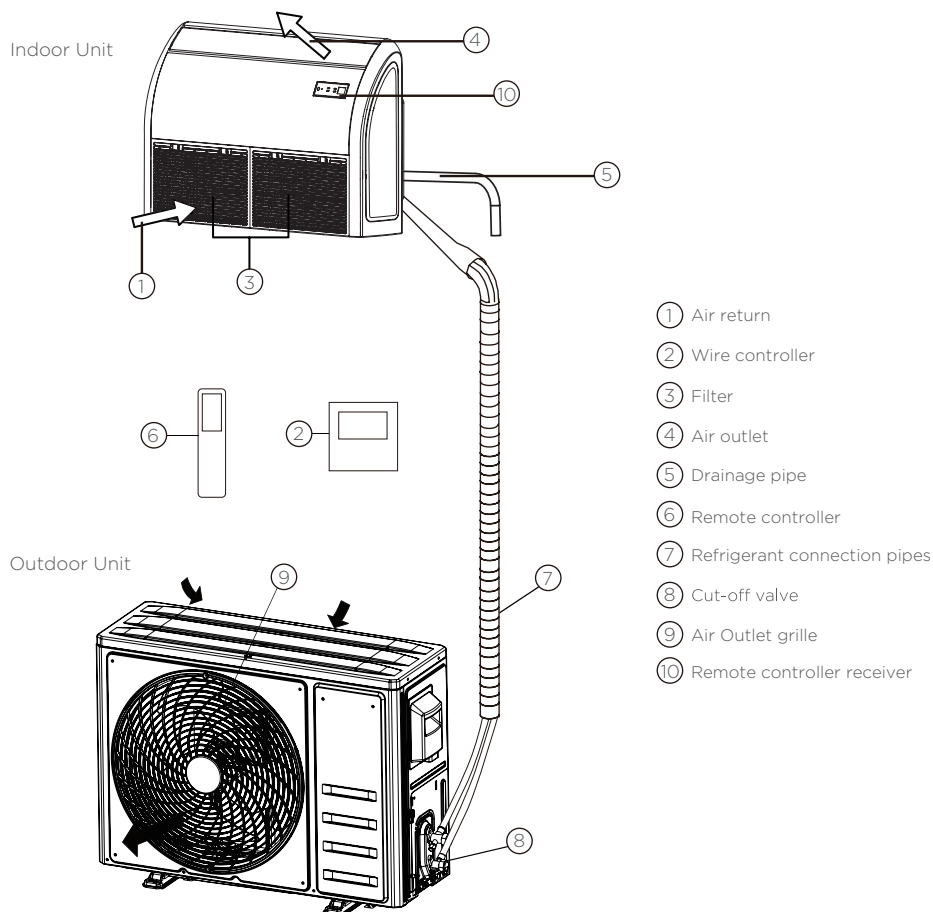
	Error Code
Refrigerant Leak Protection	Display “Hd”
The communication of the refrigerant sensor is abnormal	Display “Fd”

- 5. The installation position of the refrigerant sensor is shown in the figure below (for example, the appearance of different cabinets may be different).



- 6. 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 if you foresee not to use the device for a long time.
- 7. This refrigerant sensor shall only be replaced with manufacturer approved sensor.
- 8. LEAK DETECTION SYSTEM installed. Unit must be powered except for if you foresee not to use the device for a long time.

Parts and Functions



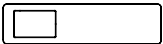
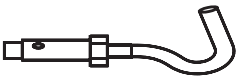
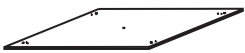
Actual product may vary from the image.

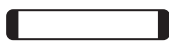
Requirements

- When the air temperature is below -15°C , the air conditioner cannot be started up until it is powered on for 2 hours. Furthermore, in case of a shutdown lasting for about one day only, please do not cut off the electricity supply.
- Notice that the air inlet/outlet must not be choked up. If choke up takes place, the air conditioner behavior may be affected, or air conditioner cannot run because of actuation of protector.

Please check whether the following list of accessories are of full scope. If there are some spare items, please store them carefully aside.

Packing list:

Serial number	Name	Quantity	Illustration
1	Remote control unit	x1	
2	Battery	x2	
3	Soundproof / insulation sheath (some models)	x1	
4	Soundproof / insulation sheath (some models)	x1	
5	Outlet pipe clamp ring assembly	x1	
6	Outlet pipe clasp (some models)	1-2 (Depending on models)	
7	Drain pipe assembly (some models)	x1	
8	Copper nut	2-4 (Depending on models)	
9	Instruction book	x1	
10	Suspension bolt (some models)	x4	
11	Ceiling hook (some models)	x4	
12	Throttle (some units)	x1	
13	Belt (some models)	x4	
14	Conduit installation plate (some models)	x1	
15	Hose clamp (some models)	x2	
16	Installation paper template (some models)	x1	

17	Anti-shock rubber (some models)	x1	
18	Drain joint (some models)	x1	
19	Seal ring (some models)	x1	
20	Magnetic ring (wrap the electric wires S1&S2 (P&Q&E) around the magnetic ring twice) (some models)	x1	
21	Magnetic ring (Hitch it on the connective cable between indoor unit and outdoor unit after installation.)(some models)	Varies by model	
22	Tapping screw (some models)	x4	
23	Mounting foot pads for the outdoor unit (some models)	x2	
24	Cable Clamp (some models)	x2	
25	Wired controller plate (some models)	x1	
26	Connecting pipe (some models)	x1	
27	Connecting wire (some models)	x1	
28	Drain joint (indoor unit)(some models)	x1	

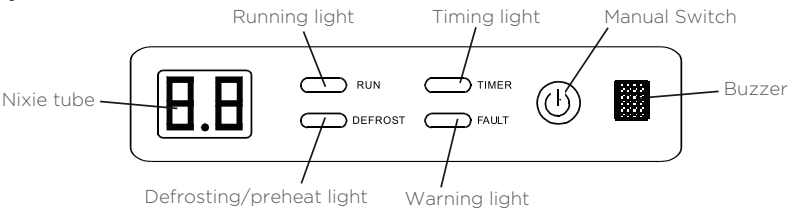
Display Panel

Infrared signal receiver: Reception of signal from the remote controller.

To make your remote controller operation more efficient, please let remote controller emit or aim at infrared signal receiver.

Buzzer: Firstly power supplied or any of remote controller operations will make the buzzer sound once. Some obstacles occurring in the system will be recognized by intelligent recognition system of unit, lighting on the DISPLAY PANEL flashing shows the type of obstacles.

Display panel



Display function declaration:

LED indicates the state of running light.

When powered on for the first time, the running light twinkles, while the digital tube does not light up.

When started up normally, the running light is on, while the digital tube shows the set temperature.

When operating normally, the running light is on, while the digital tube shows the set temperature.

When closed down, both the LED and the double-8 digital tube go out.

LED indicates the state of timing light.

When timing is set, the timing light is on, and the digital tube flashes to show the time setting within 5 seconds, then shows the set temperature.

When there is no time setting, the timing light goes out, while the digital tube returns to the original state.

LED indicates the state of defrosting/preheat light.

When in the state of defrost, oil return, or cold-wind proof, the defrosting/preheat light is on, while the digital tube shows the set temperature. (One-driven-one does not show the oil return state).

When out of the state of defrost, oil return, or cold-wind proof, the defrosting/preheat light goes out, while the digital tube shows the set temperature. (One-driven-one does not show the oil return state).

LED indicates the state of warning light.

When the digital tube shows E* or P*, the running light goes out, while the warning light is on.

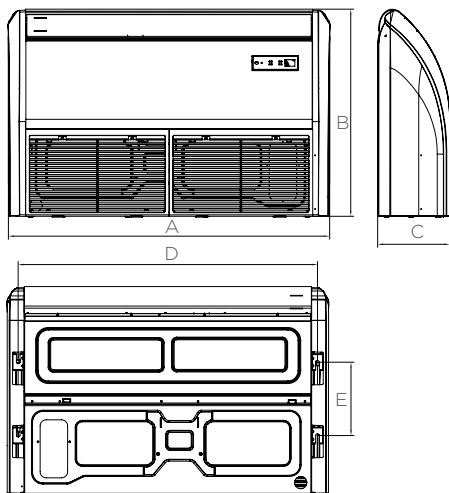
Indoor Unit Installation

Please select the space to install indoor unit according to the dimension shown above, then install correctly, and have enough space for maintenance.

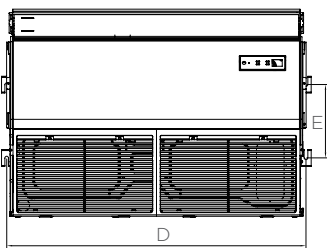
Select installation location considering piping and wiring connection after the Indoor Unit has been hung. Then decide the piping wiring leading direction.

- Be sure to lead the refrigerant pipe, drain pipe and connection wires out to its connection location before hanging the unit.
- Confirm sizes of the indoor unit.

1.The positioning of ceiling hole,
Indoor unit and hanging screw bolts



2.Size of mounted hook



Unit: in.

Dimension Capacity	A	B	C	D	E
18K/24K	41-1/2	26-5/8	9-1/4	38-5/8	9-1/2

Unit: mm

Dimension Capacity	A	B	C	D	E
18K/24K	1055	675	235	980	240

Installation locations



CAUTIONS

1. Location in the following places may cause malfunction of the machine. (If unavoidable, please consult your local dealer)
 - 1) A place where there is flammable gas leakage.
 - 2) There is salty air surrounding (near the coast).
 - 3) There is caustic gas(the sulfide, for example) existing in the air (near a hot fountain).
 - 4) A place that cannot bear the weight of the machine.
 - 5) In kitchen where it is full of oil gas.
 - 6) There is strong electromagnetic wave existing.
 - 7) There is acid or alkaline liquid evaporating.
 - 8) A place where air circulation is not enough.
 - 9) The appliance shall not be installed in the laundry
2. Electrical Insulation must be done on the air conditioner and the building complying with National Regulations.

Choose installation location

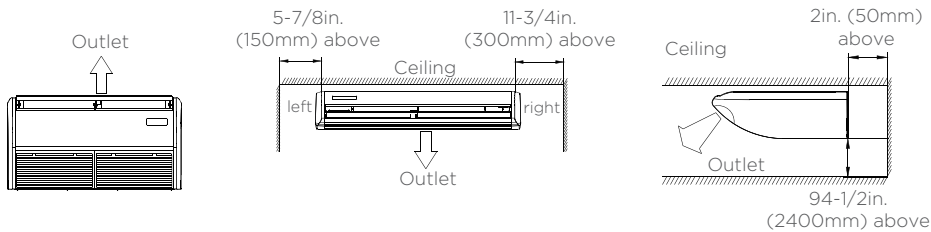
1. A place where there is sufficient space for repair.
2. Hung ceiling that can bear the weight of the machine.
3. A place without air inlet and outlet is not hindered and without influence from outdoor air.
4. A place without heat source like smoke, fire or toxic pollution.
5. A place where air flow can be transmitted everywhere in the room
6. A place convenient for installation.

Installation space

Ensure sufficient space for installation and repair.

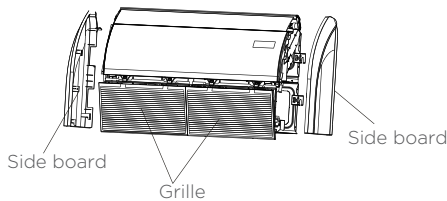
GENERAL: This INSTALLATION INSTRUCTION SHEET briefly outlines where and how to install the air conditioning system. Please read over the entire set of instructions for the indoor and outdoor units and make sure all accessory parts listed are with the system before beginning.

- Floor console
- Under ceiling



Installation procedure

Please remove the grille and the side board.

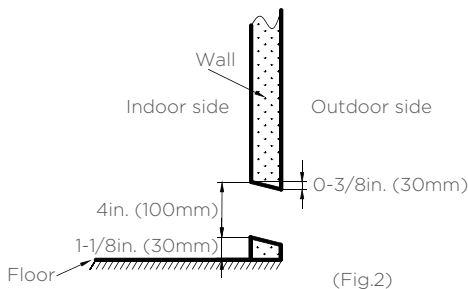
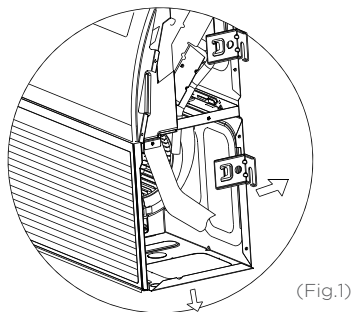


Floor console type

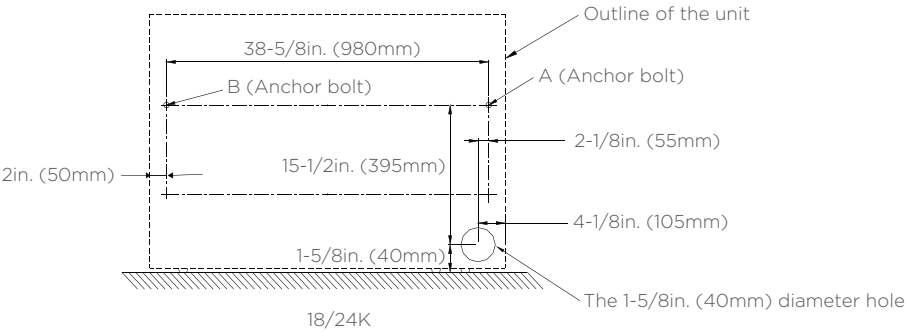
1. Select the piping and drainage directions.

The piping and drain can be made in two directions shown as (fig.1).

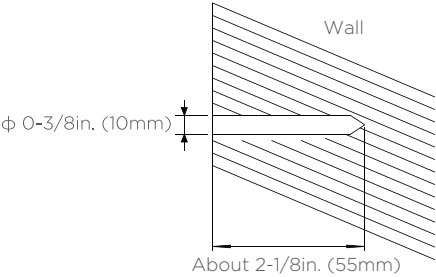
When the direction is selected, please drill a 4in. (100mm) diameter hole on the wall, and the hole must be tilted downward towards the outdoor for smooth water flow. When the pipe is led out from the rear side, make a hole in figure, at the position shown as (fig.2).



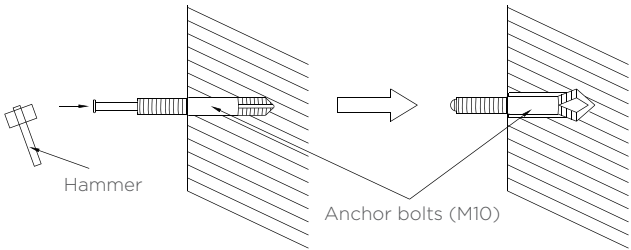
2. Drill holes for anchor bolts and install the anchor bolts (M10). According to the hole positions, install two expandable anchor bolts (A and B) at the positions shown in the figure.



With a concrete drill, drill two ϕ 3/8in. (10mm) diameter holes at the position (A and B) on the wall.



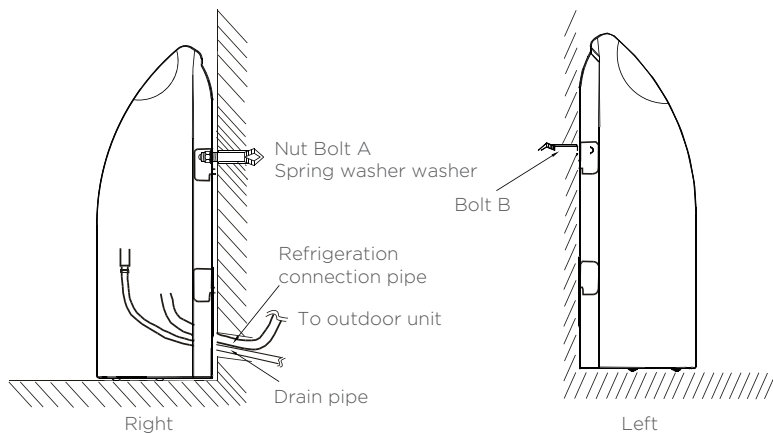
Insert the anchor bolts into the drilled holes, and drive the pins completely into the anchor bolts with a hammer.



Install the unit on the wall with nuts, washers and spring washers.

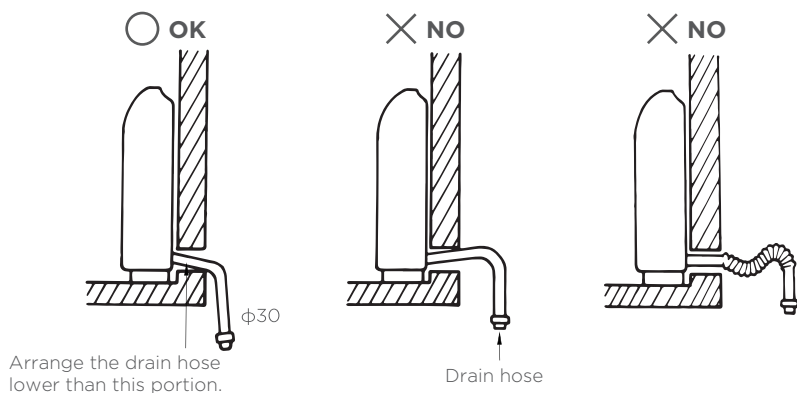
NOTE

The installation angle should not exceed 15 degrees.



CAUTIONS

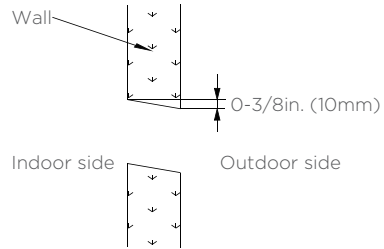
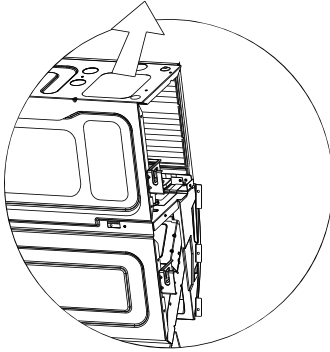
Be sure to arrange the drain hose so that it is leveled lower than the drain hose connecting port of the indoor unit.



Under Ceiling Type

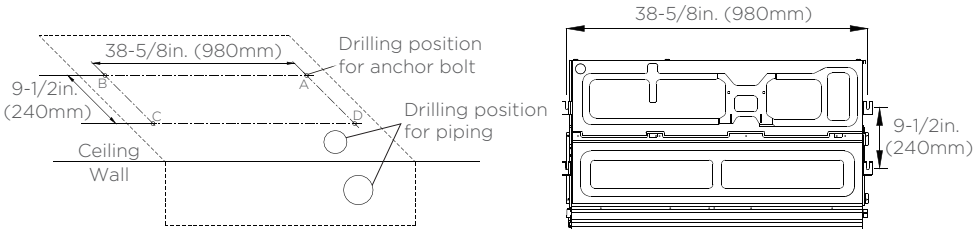
1. Select piping and drain directions.

CAUTION: Install the drainage hose at the rear side, it should not be installed on the top. When the directions are selected, drill 3-1/8in. (80mm) and 2in. (50mm) or 6in. (150mm) dia. hole on the wall so that the hole is tilted downward toward the outdoor for smooth water flow.



2. Drill holes for anchor bolts and install the anchor bolts (M10).

Please drill four holes for anchor bolts at the position A, B, C and D.



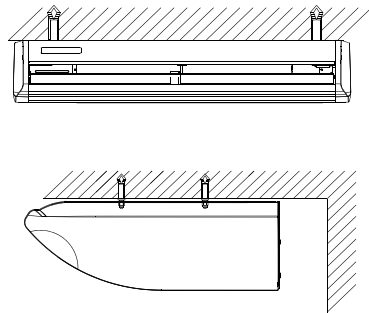
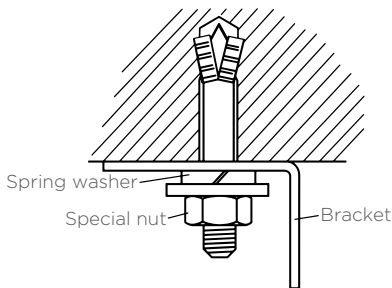
18/24K

3. Installing indoor unit

Now, securely tighten nuts to each bolt with washers and spring washers.

NOTE: The installation angle should not exceed 10 degrees.

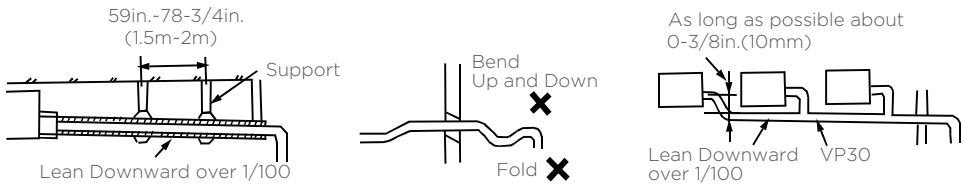
Mount the unit to the anchor bolts



Drainage Pipe Connection

⚠ CAUTIONS

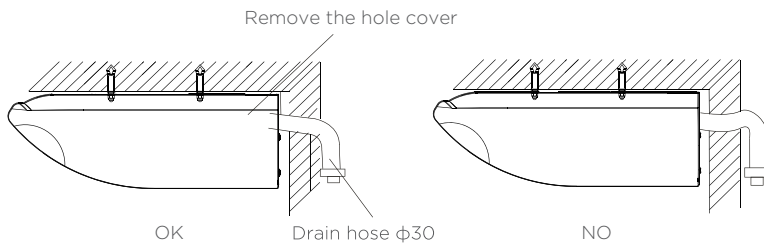
- The drain pipe of the indoor unit must be heat - insulated; otherwise, it will condense dew, and the same applies to the connections of the indoor unit.
- The downward slope of the drain pipe should be more than 1/100, with no kinks or bends.
- The total length of the drain pipe when pulled horizontally shall not exceed 787-3/8in. (20m). If the pipe is too long, a support stand must be installed every 59in. (1.5m) to 78-3/4in. (2m) to prevent kinking.
- Refer to the following diagrams for the pipe installation.
- Do not apply any pressure to the connection part of the drain pipe.



1. Installing the drain hose

Insert the drain hose into the drain pan, then secure the drain hose with a nylon fastener (we have connected the drain hose to the drain pan in the factory, you just need to connect the drain pipe.).

Wrap the insulation (drain hose) around the drain hose connection. Be sure to arrange the drain hose so that it is leveled lower than the drain hose connecting port of the indoor unit.



2. Drainage test

A. Check whether the drain pipe is unobstructed and each joint is airtight.

B. Inject 2000mL of water into the drain pan to test whether the water drains smoothly.

Drainage Pipe Material, Heat-insulating Material

The listed material should be used:

Drainage Pipe Material	Polyvinyl chloride pipe
Heat Insulation Material	Foamed polyethylene insulation plate

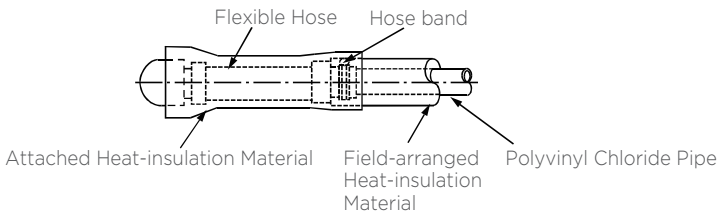
Connection Procedure

Connect the transparent pipe with the polyvinyl chloride pipe.

- Use polyvinyl chloride glue at the connection part of the drainage pipe, and make sure there is no water leakage.
- Apply glue to the front 40mm of the polyvinyl chloride pipe, then insert it into the transparent pipe.
- It needs 10 minutes for the glue to dry. Do not impose pressure on the connection during the drying period.

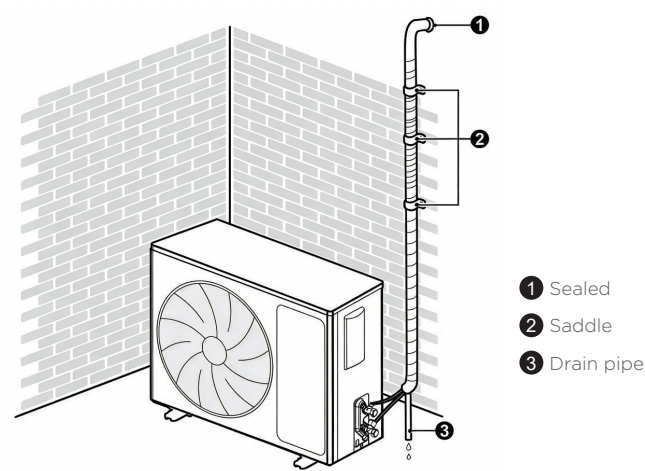
Heat Insulation

Wrap the flexible hose carefully with the attached heat insulation material from the start to the end (to indoor part)

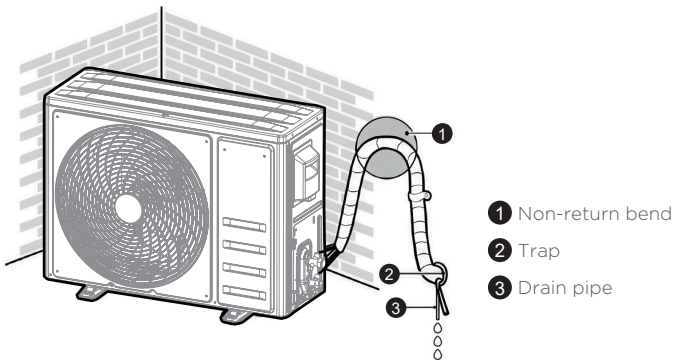


Outdoor Side Drain Pipe

1. If the outdoor unit is underneath the indoor unit, arrange the pipeline according to the following diagram.
- 1) Drain hose should be placed on the ground and its end should not be immersed into water. The whole pipeline should be supported and fixed onto the wall.
- 2) Wind the insulating tape from bottom to top.
- 3) The whole pipeline should be wound with insulating tape and fixed onto the wall with saddles.



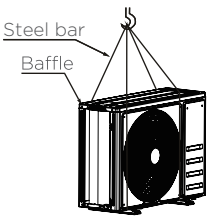
2. If the outdoor unit is above the indoor unit, arrange the pipeline according to the following diagram.
- 1) Wind the insulating tape from bottom to top.
- 2) The whole pipeline should be wound together to avoid water returning to the room.
- 3) Use saddles to fix the whole pipeline onto the wall.



Outdoor Unit Installation

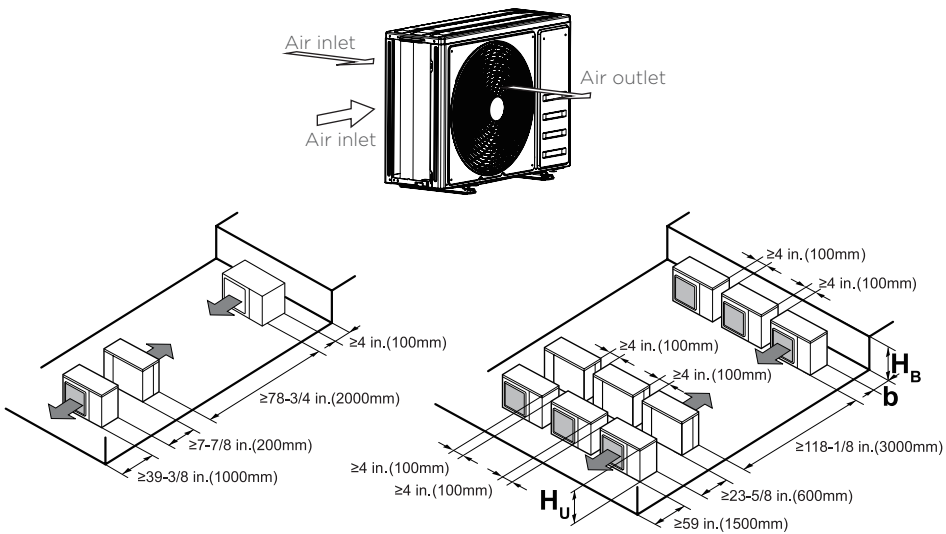
Move outdoor unit

1. Please use 4 pieces of 0-1/4in. (6mm) steel wire to lift the outdoor unit and move it to the desired location.
2. To prevent the outdoor unit from being deformed, please add baffles on the surface of the outdoor unit where the steel wires may come into contact.
3. After moving, please remove the wooden tray from the bottom.



Installation space

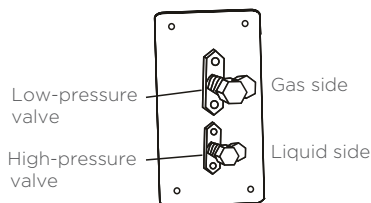
1. After leaving repair space as illustrated below, install the outdoor unit with power supply equipment installed at the side of the outdoor unit. Please refer to ELECTRIC SUPPLY INSTALLATION MANUAL for the installation method.
2. Please make sure necessary space for installation and repair.



$H_B H_U$	b
$H_B \leq \frac{1}{2} H_U$	$b \geq 9-7/8 \text{ in. } (b \geq 250 \text{ mm})$
$\frac{1}{2} H_U < H_B \leq H_U$	$b \geq 11-3/4 \text{ in. } (b \geq 300 \text{ mm})$
$H_B > H_U$	/

Refrigerant pipes

1. The junction is inside the cover of the right panel. Please remove the cover first.
2. Route the pipe through the side gap of the cover.
3. After connecting via the valve opening, reinstall the cover from the left, right, or back for installation.
4. The diagram on the right is the schematic diagram of the outdoor unit's valve installation panel. The gas side (low-pressure side) is oriented upward, and the liquid side is oriented downward.



Installation

Pre-installation precautions

- Please confirm that the installation personnel are qualified for relevant installation work. If the air conditioner is installed by persons without special skills, normal operations will not be ensured, and even personal and property safety will be affected.

User guideline

- The user's installation site should be provided with a regular power supply conforming to that indicated on the air conditioner's nameplate, and its voltage should be within the range of 90% - 110% of the rated voltage value.
- The power circuit should be equipped with a protective device, such as a leakage protector or an air switch, which should have a capacity greater than 1.5 times the maximum current value of the air conditioner.
- Always use a dedicated circuit and a properly-grounded socket compatible with the air conditioner's attached plug. The attached plug is equipped with a grounding pin, and it must not be modified at will.
- Please use the fuse or circuit breaker prescribed in the Installation Instructions.
- Only a qualified electrician is allowed to carry out wiring tasks strictly according to electrical safety requirements.
- Do ensure proper grounding of the air conditioner; in other words, the main power switch of the air conditioner must be connected to a reliable ground wire.

Precautions

- The air conditioner should be installed securely; otherwise poor installation may lead to abnormal noise and vibration.
- Outdoor unit should be installed at a spot ensuring that its air outlet noises and hot exhaust will not disturb your neighbors.

Unit body installation

1. Mark the installation position for expansion bolts according to the outdoor unit's installation dimensions.
2. Drill holes, clean the concrete dust, and insert the expansion bolts.
3. If applicable, install 4 rubber pads on the installation holes before placing the outdoor unit (Optional).
4. Doing so will reduce vibrations and noise.
5. Place the outdoor unit onto the bolts and pre-drilled holes.
6. Use a wrench to firmly secure the outdoor unit with the bolts.

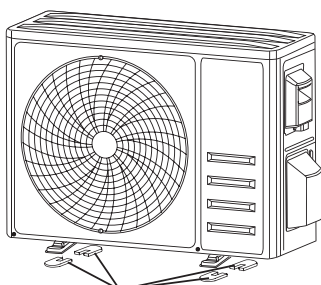


NOTE:

The outdoor unit can be fixed on a wall-mounting bracket.

Follow the wall-mounting bracket's instructions to attach the bracket to the wall. Then, fasten the outdoor unit to the bracket and ensure it is level.

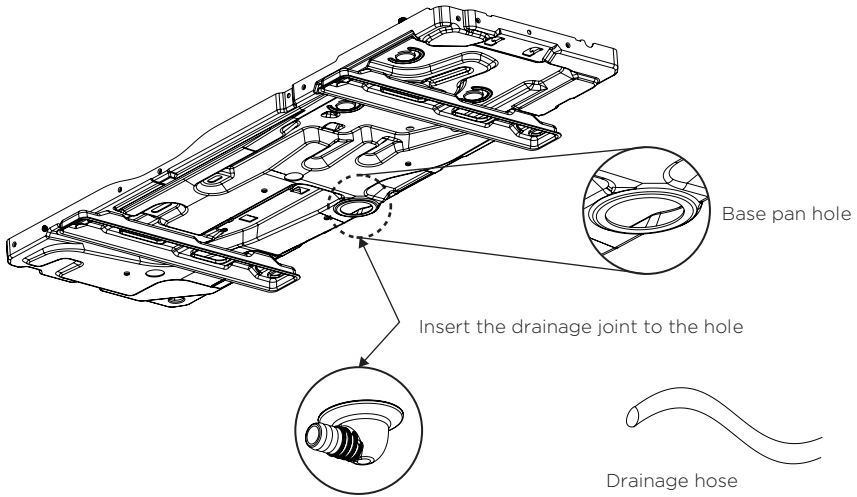
The wall-mounting bracket must support at least 4 times the weight of the outdoor unit.



Install 4 rubber pads (Optional)

Install Drainage Hose

1. This step only for heat pump models or RCACs.
2. Insert the drainage joint to the hole at the bottom of the outdoor unit.
3. Connect the drainage hose to the joint and make the connection firmly.



NOTE:

Before bolting the outdoor unit in place, you must install the drain joint at the bottom of the unit. For units with a base pan built-in (with multiple holes for proper draining during defrost), the drain joint does not need to be installed.

In cold climates, ensure the drain hose is as vertical as possible to ensure swift water drainage. If water drains too slowly it can freeze in the hose and flood the unit.

Refrigerant Pipes Installation

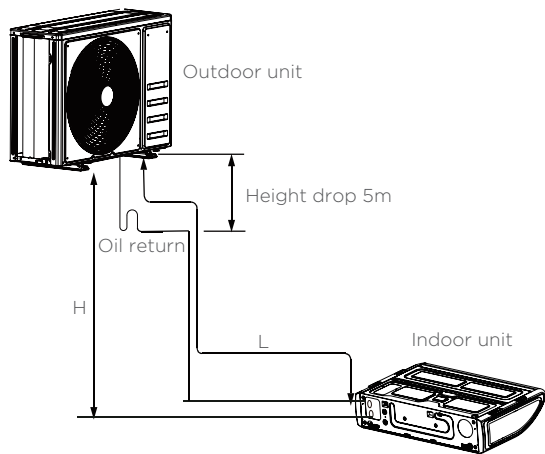
Pipe dimension and ways of installation

Outdoor pipe dimension and ways of installation (in sequence of cooling capacity).

Pipe Material		Copper Pipe for Air Conditioner	
Model		9-18K	24K
Size(mm)	Liquid side	Φ6.35 (1/4inch)	Φ6.35 (1/4inch)
	Gas side	Φ9.52(3/8inch)	Φ12.7(1/2inch)

Please refer to refrigerant pipe connection for detail.

Allowed length and height drop.



Remove objects and water

- Use high-pressure nitrogen to clean the pipe instead of using outdoor refrigerant for this cleaning process.
- Before installing the refrigerant pipe, please clean the pipe to prevent foreign objects from being inside.

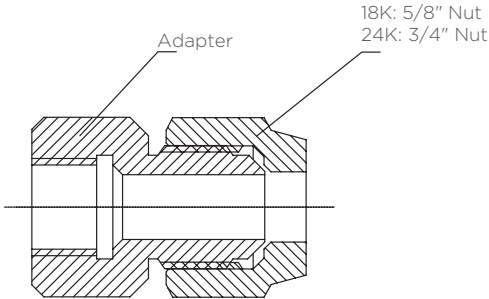
Additional refrigerant charge

- The additional charge is based on the diameter and length of the outlet and inlet liquid pipes.
- This AC has been charged with a standard amount of refrigerant for 7.5m connection pipes. Connection pipes beyond 7.5m should be additionally charged as follows.

Inverter Models Capacity (Btu/h)	9K	12K	18K	24K
Length of pipe with standard charge	7.5m/25ft	7.5m/25ft	7.5m/25ft	7.5m/25ft
Maximum distance between indoor and outdoor unit	15m/49ft	15m/49ft	20m/65ft	20m/65ft
Additional refrigerant charge	10g/m	10g/m	10g/m	10g/m
Max. diff. in level between indoor and outdoor unit	10m/33ft	10m/33ft	15m/49ft	15m/49ft
Type of refrigerant	R32/R454B			

NOTE:

Some connecting pipe sizes differ from the outdoor unit specifications. An adapter is required for installation.



Refrigerant charge label

Please fill in with indelible ink.

- ① The factory refrigerant charge of the product,
- ② The additional refrigerant amount charged in the field and
- ① + ② the total refrigerant charge on the refrigerant charge label supplied with the product.

Affix the refrigerant charge label near the manufacturer's label after filling it out.

R32/R454B

① =

kg

lb

1

② =

kg

lb

2

① + ② =

kg

lb

3

5

4

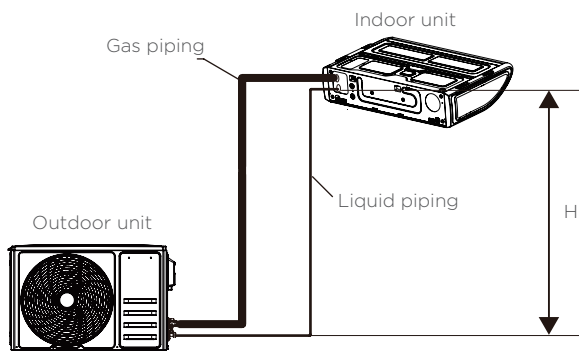
1. Factory refrigerant charge of the product: See unit manufacturer's label.
2. Additional refrigerant amount charged in the field.

3. Total refrigerant charge.
4. Outdoor unit.
5. Refrigerant cylinder and manifold for charging.

Non-return bend and oil return bend

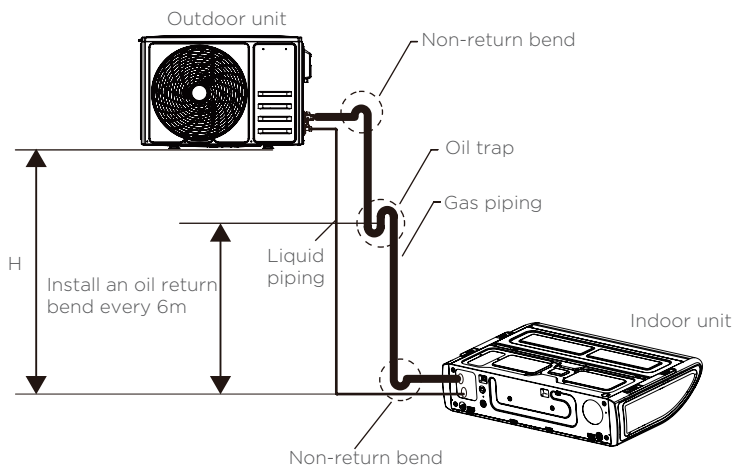
1) When outdoor unit is beneath the indoor unit.

There's no need to add non-return bend at the lowest or highest position of the vertical pipe, as shown below:

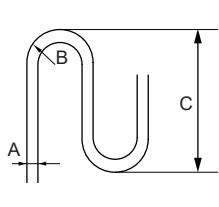


2) When outdoor unit is above the indoor unit.

It's necessary to add oil return bend and non-return bend at the lowest and highest position of the vertical pipe, as shown below:

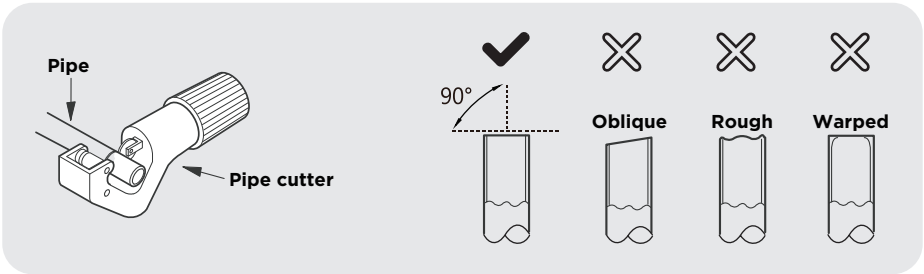


Dimensions for the making of oil return bend are as follows:

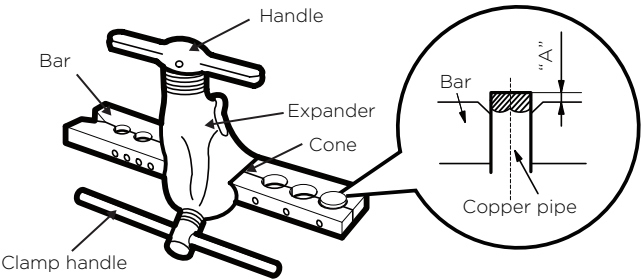
	A (inch)	B	C
	Φ3/8	≥ 0-3/4 in. (20mm)	≤ 5-7/8 in. (150mm)
	Φ1/2	≥ 1 in. (26mm)	≤ 5-7/8 in. (150mm)
	Φ5/8	≥ 1-1/4 in. (33mm)	≤ 5-7/8 in. (150mm)

Flaring

1. Cut the refrigerant pipe off with a pipe cutter.



2. Flare the pipe after putting it into the connection nut.



Outer diameter(mm)	A(mm)	
	Max	Min
Φ6 - 6.35 (1/4")	1.3	0.7
Φ9.52 (3/8")	1.6	1.0
Φ12 - 12.70 (1/2")	1.8	1.0
Φ16 - 15.88 (5/8")	2.4	2.2

Stop valve operation item

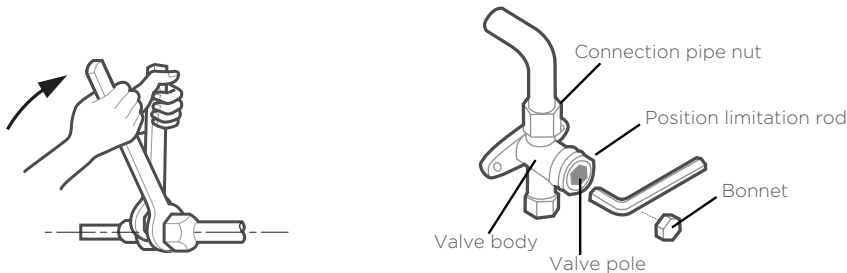
- Open the valve rod until it reaches the stop position. Do not attempt to open it further.
- Fasten the valve bonnet with a spanner or other similar tools.
- Ensure the valve rod bonnet is securely fastened.

Junction Fixture

Aim at the connection pipe, fix the nut of the connection pipe, and then tighten it with a spanner as shown in the following diagram.

 NOTE:

According to the installation conditions, an excessively large tightening torque will damage the nut.

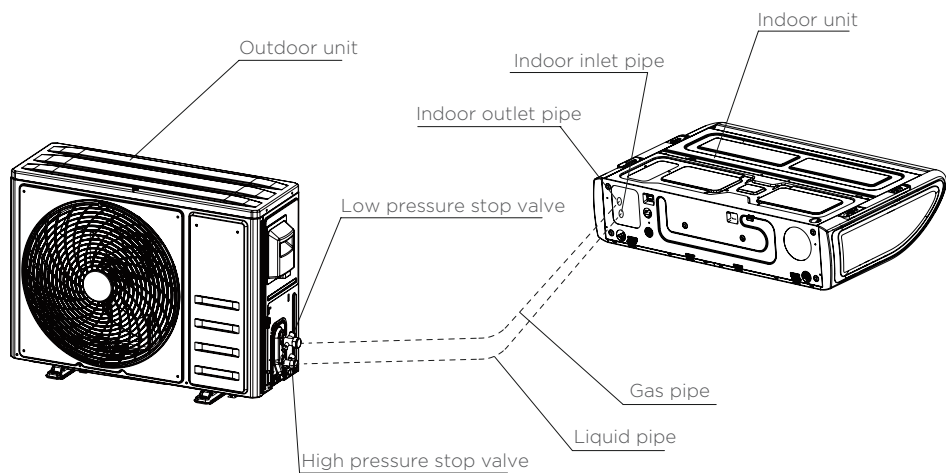


Pipe Size	Newton meter(N x m)	Pound-force foot(lbf-ft)	Kilogram-force meter(kgf-m)
1/4" (φ6.35)	15-20	11.1-14.8	1.5-2.0
3/8" (φ9.52)	31-35	22.9-25.8	3.2-3.6
1/2" (φ12)	45-50	33.2-36.9	4.6-5.1
5/8" (φ15.88)	60-65	44.3-48.0	6.1-6.6

 NOTE:

This table is only for reference, the installation shall meet the requirements of local laws and regulations.

- The following figure only shows the assembly relationship of the indoor unit, outdoor unit and refrigerant pipes.
- Please refer to the following figures to install.



NOTE:

- The throttle subassembly has been installed in the outdoor unit.
- Use two spanners to connect the pipe with indoor/outdoor pipes to avoid the copper pipe cracking.
- Please pay attention to the connection orientation when connecting.

Joints shall be tested with detection equipment with a capability of 5g/year of refrigerant or better, with the equipment in standstill and under operation or under a pressure of at least these standstill or operation conditions.

Electric Wiring

CAUTION

- Be sure to install Current Leakage Protection Switch.
 - Or electric shock may occur.
 - The appliance must be positioned so that the plug is accessible.
 - The appliance shall be installed in accordance with national wiring regulations.
1. Power cord is to be selected according to national regulations.
 2. Outdoor unit power cord should be selected and connected according to the outdoor unit installation manual.
 3. Wiring should be away from high temperature components, or the insulation layer of the wires may melt down.
 4. Use wire clamp to fix the wires and terminal block after connection.
 5. Control wire should be wrapped together with heat insulated refrigerant pipes.
 6. Connect the indoor unit to power only after the system has been vacuumed.
 7. Don't connect the power wire to the signal wire connection end.

Panel Wiring

Connect the Swing Motor terminal block according to cassette indoor unit wiring diagram.

Terminal Board Diagram

Please refer to cassette indoor unit wiring for the wiring.

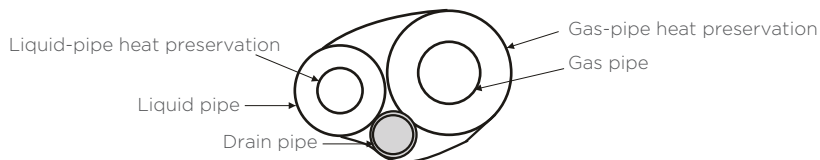
1. Binding treatment

Once the connecting wires have been properly connected, bind the connecting tubing, connecting wire and drain pipe by binding tapes.

After binding treatment, the cross section is shown in the figure below:

Notice: Drain pipe must not be flattened during binding treatment.

Drain pipe outlet should be led to a place that can avoid affecting the environment.

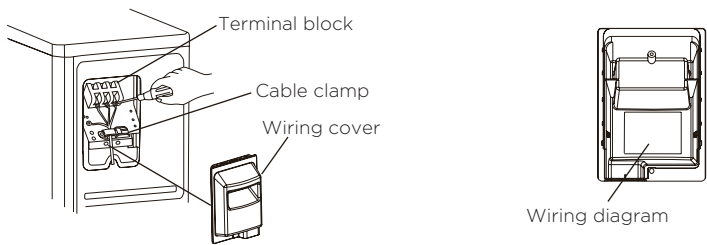


- Open or close incorrectly.
- Objects or water into the AC.
- Fuse or electric leakage protector breaks several times.

Install Wiring

- 1. Use a Phillips screwdriver to unscrew wiring cover, grasp and press it down gently to take it down.
- 2. Unscrew the cable clamp and take it down.
- 3. According to the wiring diagram pasted inside the wiring cover, connect the connecting wires to the corresponding terminals, and ensure all connections are firm and secure.
- 4. Reinstall the cable clamp and wiring cover.

When connecting the wires of indoor and outdoor units, the power should be cut off.



Dedicated Distribution Device and Wire for Air Conditioner

Wiring material ampacities	AWG
4	22
7	20
10	18
13	16
18	14
25	12
30	10
40	8
55	6
70	4

⚠ NOTE:

This table is only for reference, the installation shall meet the requirements of local laws and regulations. The suitable temperature for selecting wire gauge is 25°C±5°C.

Vacuum Pumping

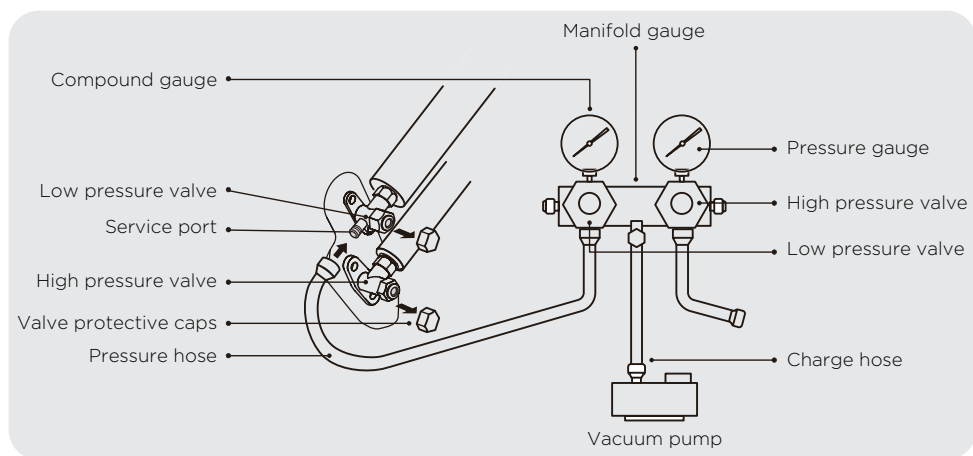
Use a vacuum pump to vacuum from the gas-side refrigerant charging port of the outdoor unit.

If air and moisture remain inside the refrigeration system, they may have the following adverse effects:

- A rise in pressure inside the refrigeration system;
- A decrease in cooling effect;
- Moisture freezing and blocking the refrigeration system;
- Rusting of certain system components.
- Don't use the outdoor unit's refrigerant to perform vacuuming. (A certain volume of refrigerant was added to the outdoor unit at the factory.)
- When a vacuum pump is used, each low-pressure valve must be operated as follows.

Please refer to the operation manual for the usage of the manifold valve.

1. Use a spanner to take down the protective caps from the service port, low pressure valve and high pressure valve of the outdoor unit.
 2. Connect the pressure hose of manifold gauge to the service port on the outdoor unit low pressure valve.
 3. Connect the charge hose from the manifold gauge to the vacuum pump.
 4. Open the low pressure valve of the manifold gauge and close the high pressure valve.
 5. Turn on the vacuum pump to vacuum the system.
 6. The vacuum time should not be less than 15 minutes, or make sure the compound gauge indicates -0.1 MPa(-76 cmHg).
 7. Close the low pressure valve of the manifold gauge and turn off the vacuum.
 8. Wait for 5 minutes, then check that there has been no change in system pressure.
 9. Open the low pressure valve counterclockwise for 1/4 turn with hexagonal wrench to let a little refrigerant fill in the system, and close the low pressure valve after 5 seconds and quickly remove the pressure hose.
 10. Check all indoor and outdoor joints for leakage with soapy water or leak detector.
 11. Fully open the low pressure valve and high pressure valve of the outdoor unit with hexagonal wrench.
 12. Reinstall the protective caps of the service port, low pressure valve and high pressure valve of the outdoor unit.
 13. Reinstall the valve cover.
- The following figure only shows the assembly relationship of the indoor unit, outdoor unit, and refrigerant pipes.
 - Please refer to the following figures to install.



Test Run

Before testing

1. Check if piping, drainage and external wiring have been finished correctly.
2. Check if the power supply complies with requirements; if there is refrigerant leakage; if all the wires and cables are correctly connected and well fixed.

Function test

1. After checking, energize your appliance and press the buttons on the control panel to see if the buttons function;
2. Check if the LCD screen displays normally.



NOTE:

1. Please read these operating and installation instructions carefully.
2. Do not let air in or refrigerant out during installing or reinstalling the appliance.
3. Test run the air conditioner after finishing installation and keep the record.
4. Type of fuse for controller of indoor unit is 50CT/524, rated specification is T5A, 250VAC. Fuse for the whole unit is not supplied by the manufacturer, so the installer must employ a suitable fuse or other over-current protective device for the power supply circuit according to the maximum power input as required.
5. The air conditioner operates safely when ambient static pressure is 0.8-1.05 standard atmosphere pressure.

Checks Before Operation

CAUTIONS

1. Check that the wiring is not broken off or disconnected.
2. Check that the air filter is installed. (Some air-conditioners have no air filters)
3. Check that the outdoor unit air outlet or inlet is not blocked. Disconnect the power supply before cleaning the air conditioner.
4. Check the access control and dry contact interfaces on the electrical control board—they cannot be connected simultaneously. Only one should be connected at a time.

Clean the air filter

- The air filter can prevent the dust or other particulate from going inside. In case of blockage of the filter, the working efficiency of the air conditioner may greatly decrease. Therefore, the filter must be cleaned once every two weeks during long time usage.
- If the air conditioner is positioned in a dusty place, the cleaning frequency of the air filter must be increased.
- If the accumulated dust is too heavy to be cleaned, please replace the filter with a new one (replaceable air filter is an optional fitting).

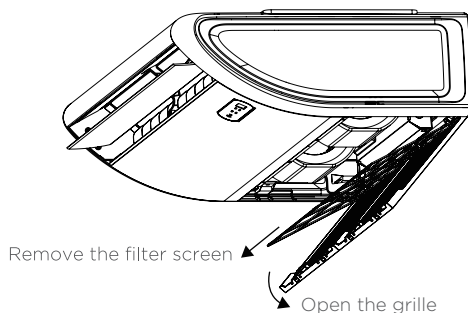
Cassette Type

1. Open the air grille

Push the grille switches towards the middle simultaneously as indicated in sketch A. Then pull down the air-in grille.

Caution:

The control box cables, which are originally connected with the main body electrical terminators, must be pulled off before doing as indicated below.



2. Take out the air-in grille (together with the air filter shown in Sketch B) Pull the air-in grille down at 45 ° and lift it up to take out the grille.

3. Dismantle the air filter.
4. Clean the air filter (Vacuum cleaner or pure water may be used to clean the air filter. If the dust accumulation is too heavy, please use a soft brush and mild detergent to clean it and dry out in a cool place).

Adjusting Air Flow Direction

While the unit is in operation, you can adjust the air flow louver to change the flow direction and equalize the room temperature.

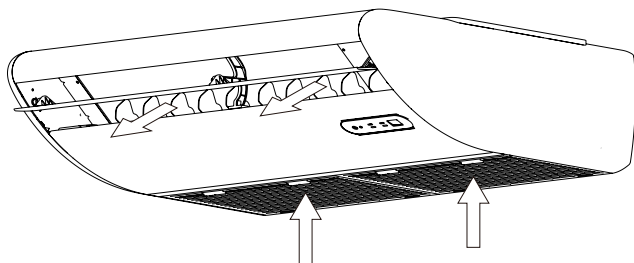
Thus you can enjoy greater comfort.

1. Set the desired air flow direction.

Push the SWING button to adjust the louver to the desired position and push this button again to maintain the louver at this position.

2. Adjust the air flow direction automatically.

Push the SWING button, the louver will swing automatically.



While this function is set, the swing fan of indoor unit runs; otherwise, the swing fan doesn't run.

When the air conditioner isn't in operation (including when TIMER ON is set), the SWING button will be disabled.

Maintenance



WARNING

Disconnect the power supply before cleaning the air conditioner.

Cleaning the indoor unit and remote controller.



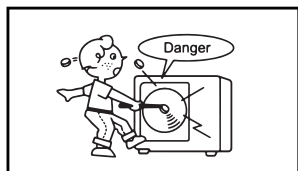
CAUTIONS

1. Use a dry cloth to wipe the indoor unit and remote controller.
2. A cloth dampened with cold water may be used on the indoor unit if it is very dirty.
3. Never use a damp cloth on the remote controller.
4. Do not use a chemically-treated duster for wiping or leave such material on the unit for long, because it may damage or fade the surface of the unit.
5. Do not use benzine, thinner, polishing powder, or similar solvents for cleaning. These may cause the plastic surface to crack or deform.

If you do not plan to use the unit for at least 1 month:

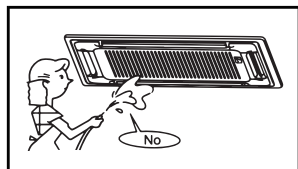
1. Operate the fan for about half a day to dry the inside of the unit.
2. Stop the air conditioner and disconnect power.
3. Remove the batteries from the remote controller.

Important Safety Information



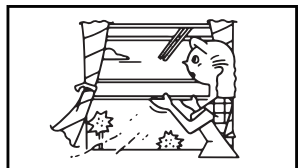
⚠ CAUTION

Do not attempt to install this unit by yourself. This unit requires installation by qualified persons.



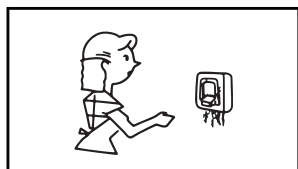
⚠ DANGER

Do not attempt to service the unit yourself. This unit has no user serviceable components. Opening or removing the cover will expose you to dangerous voltage. Turning off the power supply will not prevent potential electric shock.



⚠ DANGER

Never put hands or objects into the air outlet of indoor or outdoor units. These units are installed with a fan running at high speed. To touch the moving fan will cause serious injury.



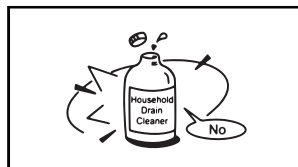
⚠ DANGER

To avoid the risk of serious electrical shock, never sprinkle or spill water or liquids on unit.



⚠ WARNING

Ventilate the room regularly while the air conditioner is in use, especially if there is also a gas appliance in use in this room. Failure to follow these directions may result in a loss of oxygen in the room.



⚠ WARNING

To prevent electric shock, be sure to turn off the power before cleaning or maintenance.

⚠ WARNING

Do not use liquid cleaners or aerosol cleaners. Use a soft and dry cloth for cleaning the unit. To avoid electric shock, never attempt to clean the units by sprinkling water.

⚠ CAUTION

Do not use caustic household drain cleaners in the unit. Drain cleaners can quickly destroy the unit components (drain pan and heat exchanger coil etc).

⚠ NOTE

For proper performance, operate the unit in temperature and humidity ranges indicated in this owner's manual. If the unit is operated beyond these conditions, it may cause malfunctions of the unit or dew dripping from the unit.

Disposal Guideline

- 1) Minimum installation height, minimum room area (operating or storage) refer to installation manual.
- 1) La taille minimale d'installation, la surface minimale de pièce (opération ou stockage) se réfèrent au manuel d'installation.
- 2) Risk of fire-auxiliary devices which may be ignition sources shall not be installed in the ductwork, other than auxiliary devices listed for use with the specific appliance. See instructions.
- 2) Risque d'incendie-l'équipement auxiliaire qui peut être une source d'inflammation ne doit pas être installé dans le système de tuyauterie, à l'exception de l'équipement auxiliaire utilisé avec un équipement spécifique. Voir les instructions.
- 3) Mount with the lowest moving parts at least 2.5m (8.2ft) above floor or grade level.
- 3) Installé avec la partie mobile la plus basse au moins 2.5m (8.2ft) au-dessus du sol ou du plan du sol.
- 4) Risk of electric shock. Can cause injury or death. Disconnect all remote electric power supplies before servicing.
- 4) Risque de choc électrique. Causer des blessures ou la mort. Avant la réparation, débranchez toute alimentation à distance.
- 5) Risk of fire. Flammable refrigerant used. To be repaired only by trained service personnel. Do not puncture refrigerant tubing.
- 5) Risque d'incendie. Utilisation de réfrigérants inflammables. L'entretien ne peut être effectué que par un personnel de maintenance formé. Ne pas percer la ligne de réfrigérant.
- 6) Risk of fire. Dispose of properly in accordance with federal or local regulations. Flammable refrigerant used.
- 6) Risque d'incendie. Disposer correctement conformément à la réglementation fédérale ou locale. Utilisation de réfrigérants inflammables.
- 7) Risk of fire. Flammable refrigerant used. Consult repair manual/owner's guide before attempting to service this product. All safety precautions must be followed.
- 7) Risque d'incendie. Utilisation de réfrigérants inflammables. Veuillez consulter le manuel de réparation/guide de l'utilisateur avant d'essayer de réparer ce produit. Toutes les précautions de sécurité doivent être respectées.
- 8) Risk of fire. Due to flammable refrigerant used. Follow handling instructions carefully in compliance with national regulations.
- 8) Risque d'incendie causé par l'utilisation de réfrigérants inflammables. Suivez attentivement les instructions de manutention conformément aux réglementations nationales.
- 9) Warning: Before accessing the terminals, all power supply circuits must be disconnected.
- 9) Avertissement: Avant d'accéder aux bornes de raccordement, tous les circuits d'alimentation doivent être déconnectés.





TECHNICAL BULLETIN FOR INVERTER UNITS
Heat Sink Compound (Thermal Paste)

Make sure to use Heat Sink Compound (**not provided**) when replacing Mini-Split electronic boards. Clean up thoroughly old paste on chips located underneath the board, and radiator (fin surface). ***Evenly spread*** new paste on chips and radiator, and gently screw board back on radiator to maximize heat exchange.

The design and specifications are subject to change without prior notice for product improvement. Consult with the sales agency or manufacturer for details.