



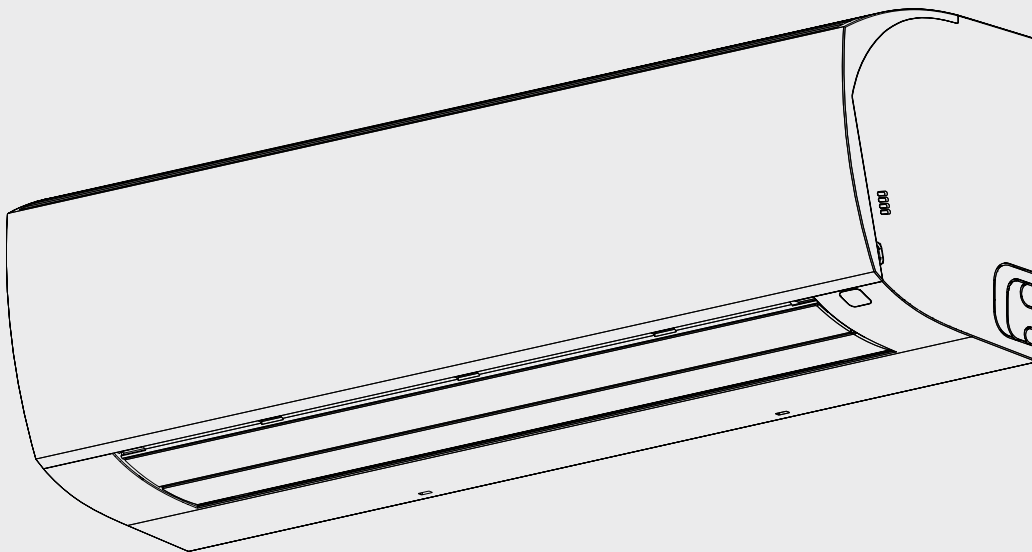
BOSCH

Installation and Operating Instructions

Bosch IDS Heat Pump

Edge Multi Series - Wall Mounted

7K-18K Capacity | R-454B



BTC 762003325 B / 04.2026



Table of Contents

1	Key to Symbols and Safety Instructions	4	11	Wiring Diagrams	42
1.1	Key to Symbols	4	12	Fault Codes and Status Codes	44
1.2	Explanation of Symbols Displayed on the Unit	4	13	Operating Status Codes and Definitions (Non-Error)	46
1.3	Safety	4	14	Disposal Guidelines	47
2	General	15			
2.1	Precautions For Transporting and Lifting the Air Conditioner	15			
2.2	Forbidden Installation Sites	15			
2.3	Recommended Installation Sites	15			
2.4	Dimensions	16			
2.5	Components	17			
2.6	A2L Refrigerant Sensor	18			
3	Preparations Before Installation	18			
4	Installation Materials	19			
4.1	Accessories	19			
4.2	Field Supply Accessories	19			
4.3	Insulation Material Requirements	19			
5	Indoor Unit Mounting	20			
5.1	Mounting Plate Dimensions	20			
5.2	Installation Distance	20			
5.3	Pipe Routing Direction	21			
5.4	Instructions on Cutting Left and Right Knockouts	21			
6	Refrigerant Piping	22			
6.1	Pipe Layout	22			
6.2	Pipe Connection Steps	23			
6.3	Pipe Connection	23			
7	Insulation Treatment	26			
8	Drain pipe installation	27			
8.1	Install the Drain Hose	27			
8.2	Extend the Drain Pipe (Optional)	29			
8.3	Install the Wall Sleeve	29			
8.4	Hook the Indoor Unit on the Installation Plate	29			
8.5	Installation Requirement for Drain Pipe	30			
8.6	Connection Method of the Drain Pipe	31			
8.7	Water Drainage Test	32			
8.8	Lay and Insulate Pipes	32			
9	Electrical Wiring	32			
9.1	Power Supply Cable Connection	33			
9.2	Communicating Set Up	35			
9.3	Electrical Data	37			
9.4	Switch Module	38			
9.5	Layout of Switch Module	38			
9.6	LED1 and LED3 Indicator Description	39			
9.7	ENC1/DRY2 Functions	39			
9.8	24 V Thermostat Function SW1-4 ON	40			
9.9	Wiring Diagram	40			
10	Test Run	41			

1 Key to Symbols and Safety Instructions

1.1 Key to Symbols

Warnings

In warnings, signal words at the beginning of a warning are used to indicate the type and seriousness of the ensuing risk if measures for minimizing danger are not taken.

The following keywords are defined and can be used in this document:

**DANGER**

DANGER indicates a hazardous situation which, if not avoided, will result in death or serious injury.

**WARNING**

WARNING indicates a hazardous situation which, if not avoided, could result in death or serious injury.

**CAUTION**

CAUTION indicates a hazardous situation which, if not avoided, could result in minor to moderate injury.

NOTICE

NOTICE is used to address practices not related to personal injury.

Important information



The info symbol indicates important information where there is no risk to people or property.

1.2 Explanation of Symbols Displayed on the Unit

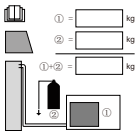
Symbol	
  	WARNING This symbol shows that this appliance uses a mildly flammable refrigerant. If the refrigerant is leaked and exposed to an external ignition source, there is a risk of fire.
	WARNING This symbol shows that appliance shall be installed, operated and stored in a room with a floor area not less than the minimum room area.
	CAUTION This symbol shows that the operation manual should be read carefully.
	CAUTION This symbol shows that a service personnel should be handling this equipment with reference to the installation manual.
	CAUTION This symbol shows that information is available such as the operating manual or installation manual.
	CAUTION This symbol shows that when addition of charge is required by the manufacturer installation instructions for completing the REFRIGERATING SYSTEM. Recorded the resulting total REFRIGERANT CHARGE for each REFRIGERATING SYSTEM.

Table 1

1.3 Safety

Please read safety precautions before installation

**WARNING**

Improper or dangerous operation!

These instructions are intended as an aid to qualified licensed service personnel for proper installation, adjustment and operation of this unit. Read these instructions thoroughly before attempting installation or operation. Failure to follow these instructions may result in improper installation, adjustment, service or maintenance and possibly resulting in fire, electrical shock, property damage, personal injury or death.



This document is customer property and is to remain with this unit. These instructions do not cover all the different variations of systems nor does it provide for every possible contingency to be met in connection with installation.

**WARNING**

Fire, electrical shock, property damage, personal injury, or death!

All phases of this installation must comply with NATIONAL, STATE AND LOCAL CODES. If additional information is required please contact your local distributor.

**WARNING****Fire, electrical shock, property damage, personal injury, or death!**

All phases of this installation must comply with NATIONAL, STATE AND LOCAL CODES. If additional information is required please contact your local distributor.

**WARNING****Electrical shock!**

Disconnect all power to unit before installing or servicing. More than one disconnect switch may be required to deenergize the equipment. Hazardous voltage can cause severe personal injury or death.

**WARNING****Electrical shock!**

If removal of the blower assembly is required, all disconnect switches supplying power to the equipment must be deenergized and locked (if not in sight of unit) so the field power wires can be safely removed from the blower assembly. Failure to do so can cause electrical shock resulting in personal injury or death.

**WARNING****Fire, electrical shock, property damage, personal injury, or death!**

Because of possible damage to equipment or personal injury, installation, service, and maintenance should be performed by trained, qualified service personnel. Consumer service is recommended only for filter cleaning / replacement. Never operate the unit with the access panels removed.

**WARNING****Electrical shock!**

The unit must be permanently grounded. Failure to do so can result in electrical shock causing personal injury or death.

**WARNING****Personal injury!**

- All manufacturer products meet current federal OSHA Guidelines for safety. California Proposition 65 warnings are required for certain products, which are not covered by the OSHA standards.
- California's Proposition 65 requires warnings for products sold in California that contain or produce any of over 600 listed chemicals known to the State of California to cause cancer or birth defects such as fiberglass insulation, lead in brass, and combustion products from natural vapor.
- All "new equipment" shipped for sale in California will have labels stating that the product contains and/or produces Proposition 65 chemicals. Although we have not changed our processes, having the same label on all our products facilitates manufacturing and shipping. We cannot always know "when, or if" products will be sold in the California market.
- You may receive inquiries from customers about chemicals found in, or produced by, some of our heating and air-conditioning equipment, or found in natural vapor used with some of our products.
- Listed below are those chemicals and substances commonly associated with similar equipment in our industry and other manufacturers.
 - Glass Wool (Fiberglass) Insulation
 - Carbon Monoxide (CO)
 - Formaldehyde
 - Benzene
- More details are available on the following websites: OSHA (Occupational Safety and Health Administration), at www.osha.gov and the State of California's OEHHA (Office of Environmental Health Hazard Assessment), at www.oehha.ca.gov. Consumer education is important since the chemicals and substances on the list are found in our daily lives. Most consumers are aware that products present safety and health risks, when improperly used, handled and maintained.

**WARNING****Flammable refrigerant!**

Do not use means to accelerate the defrosting process or to clean, other than those recommended by the manufacturer.

The appliance shall be stored in a room that does not have continuously operating ignition sources (for example: open flames, an operating gas appliance or an operating electric heater).

Do not pierce or burn the unit.

Be aware that refrigerants may not contain an odour.

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

Comply with national gas regulations.

NOTICE**Product damage!**

Only use this unit in well-ventilated spaces and ensure that there are no obstructions that could impede the airflow into and out of the unit. Do not use this unit in the following locations:

- Locations with mineral oil.
- Locations with saline atmospheres, such as seaside locations.
- Locations with sulphurous atmospheres, such as near natural hot springs.
- Where high voltage electricity is present, such as in certain industrial locations.
- On vehicles or vessels, such as trucks or ferry boats.
- Where exposure to oily or very humid air may occur, such as kitchens.
- In proximity to sources of electromagnetic radiation, such as high-frequency transmitters or other high strength radiation devices.

**WARNING****Personal injury, product damage!**

This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or persons who lack experience and knowledge, unless they are supervised or have been given instructions concerning the 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.

Any person who is involved with working on or opening 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 credential.

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 a person competent in the use of flammable refrigerants.

Prior to beginning work on systems containing flammable refrigerants, safety checks are necessary to minimize the risk of ignition.

**WARNING****Electric shock, personal injury, product damage!**

Be sure the air conditioner is grounded. In order to avoid electric shock, make sure that the unit is grounded and that the ground wire is not connected to a gas or water pipe, lightning conductor or telephone earth wire.

Do not operate the air conditioner with wet hands. An electric shock may happen.

Do not touch the heat exchanger fins. These fins are sharp and could cut you.

To avoid oxygen deficiency, ventilate the room sufficiently if equipment with a burner is used together with the air conditioner.

Arrange the drain hose to ensure smooth drainage. Incomplete drainage may cause wetting of the building, furniture, etc.

Never touch the internal parts of the controller.

Do not remove the blower access panel. Some parts inside are dangerous to touch, and machine troubles may occur.

Attention is drawn to the fact that additional transportation regulations may exist with respect to equipment containing flammable gas. The maximum number of pieces of equipment or the configuration of the equipment permitted to be transported together will be determined by the applicable transport regulations.

Signs for similar appliances used in a work area are generally addressed by local regulations and give the minimum requirements for the provision of safety and/or health signs for a work location. All required signs are to be maintained and employers should ensure that employees receive suitable and sufficient instruction and training on the meaning of appropriate safety signs and the actions that need to be taken in connection with these signs.

The effectiveness of signs should not be diminished by too many signs being placed together.

Any pictograms used should be as simple as possible and contain only essential details.

The storage of the appliance should be in accordance with the applicable regulations or instructions, whichever is more stringent.

Storage package protection should be constructed such a way that mechanical damage to the equipment inside the package will not cause a leak of the REFRIGERANT CHARGE.

The maximum number of pieces of equipment permitted to be stored together will be determined by local regulations.

Do not operate the air conditioner when using a room fumigation - type insecticide. Failure to observe this precaution could cause the chemicals to become deposited in the unit, which could endanger the health of those who are hypersensitive to chemicals. It may also cause the refrigerant sensor to alarm.

Do not place appliances which produce open flame in places exposed to the air flow from the unit or under the indoor unit. It may cause incomplete combustion or deformation of the unit due to the heat.

Do not install the air conditioner in a location where flammable gas may leak out. If the gas leaks out and stays around the air conditioner, a fire may occur.

**WARNING****Personal injury!**

The unit must be permanently grounded. Failure to do so may result in electrical shock causing personal injury or death.


WARNING
Personal injury, flammable refrigerant!

When repairing the refrigerating system, comply with the following precautions prior to conducting work on the system:

Work shall be undertaken according to controlled procedures to minimize the risk of the presence of flammable gases or vapors while the work is being performed.

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

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

When carrying out work in relation to a refrigerating system that involves exposing any pipe work, no sources of ignition shall be used 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, repair, or removal and disposal of the unit, during which refrigerant can possibly be released into the surrounding space. Prior to beginning work, 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 clearly displayed.


WARNING
Personal injury, flammable refrigerant!

Ensure that the area is in the open or that it is adequately ventilated before opening 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 surroundings. Where electrical components are being changed, they shall be fit according to their 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.
- Equipment marking must remain visible and legible. Markings and signs that are illegible shall be corrected.


WARNING
Personal injury, flammable refrigerant!

Refrigerating pipe or components are installed in a position where they are unlikely to be exposed to any substances which may corrode refrigerant containing components, unless the components are constructed of materials that are inherently resistant to corrosion or are suitably protected against corrosion.

Repair and maintenance of 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 the fault has been dealt with.

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


WARNING
Flammable refrigerant!

Sealed electrical components shall be replaced.

Intrinsically safe components must be replaced.

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.

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

Electronic leak detectors may be used to detect refrigerant leaks but, in the case of flammable refrigerants, 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 for the refrigerant employed, and the appropriate percentage of gas (25 % maximum) is confirmed.

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

If a leakage of refrigerant which requires brazing is found, 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.

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.

Examples of leak detection fluids are:

- bubble method,
- fluorescent method agents.

 WARNING
Flammable refrigerant!

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 be followed, since flammability is a consideration. The following procedure shall be adhered to:

- safely remove refrigerant following local and national regulations,
- evacuate,
- purge the circuit with inert gas,
- continuously flush or purge with inert gas when using flame to open circuit, and
- open the circuit.

The refrigerant charge shall be recovered into the correct recovery cylinders if venting is not allowed by local and national codes. For appliances containing flammable refrigerants, the system shall be purged with oxygen-free nitrogen to render the appliance safe for flammable refrigerants. This process might need to be repeated several times. Compressed air or oxygen shall not be used for purging refrigerant systems.

For appliances containing flammable 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.

The outlet for the vacuum pump shall not be close to any potential ignition sources, and ventilation shall be available.

Ensure that contamination of different refrigerants does not occur when using charging equipment. Hoses or lines shall be as short as possible to minimize the amount of refrigerant they contain.

Cylinders shall be kept upright. Ensure that the refrigeration system is grounded prior to charging the system with refrigerant.

Label the system when charging is complete (if it is not already labeled).

Take extreme care not to overfill the refrigeration system.

 WARNING
Flammable refrigerant!

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. Before carrying out this procedure, it is essential that the technician is completely familiar with the equipment and all its detail. It is recommended 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 the cylinder is situated on the scales before recovery takes place.
- g. Start the recovery machine and operate it in accordance with the 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 has been 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.

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.

When removing refrigerant from a system, either for servicing or decommissioning, it is recommended 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 is 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.


WARNING
Flammable refrigerant!

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 the flammable refrigerant. If in doubt, the manufacturer should be consulted. 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.

The recovered refrigerant shall be processed according to local legislation 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 compressor body shall not be heated by an open flame or other ignition sources to accelerate this process. When oil is drained from a system, it shall be carried out safely.

Do not use the air conditioner for other purposes. In order to avoid any quality deterioration, do not use the unit for the cooling of precision instruments, food, plants, animals or works of art. Before cleaning, be sure to stop the operation, turn the breaker off or unplug the supply cord. Otherwise, electric shock and injury may occur.

To avoid electric shock or fire, make sure that a leak detector is installed. Never touch the air outlet or the horizontal blades while the swing flap is in operation. Fingers may become caught or the unit may break down.

Never put any objects into the air inlet or outlet. Objects touching the fan at high speed can be dangerous. Never inspect or service the unit by yourself. Ask a qualified service person to perform this task.

Do not dispose of this product as unsorted municipal waste. This waste should be collected separately for special treatment. Do not dispose of electrical appliances as unsorted municipal waste. Use separate collection facilities. Contact your local government for information regarding the connection systems available.

If electrical appliances are disposed of in landfills or dumps, hazardous substances can leak into the groundwater and get into the food chain, hazardous to one's health and well-being.

To prevent refrigerant leak, contact your dealer.

When the system is installed and operates in a small room, it is required to maintain the concentration of the refrigerant below the limit, in case a leak occurs. Otherwise, oxygen in the room may be affected, resulting in a serious accident.

The refrigerant in the air conditioner is safe and normally does not leak.

If the refrigerant leaks into the room and encounters the fire of a burner, a heater or a cooker, a harmful gas could be released.

Turn off any combustible heating devices, ventilate the room, and contact the dealer where the unit was purchased.

Do not use the air conditioner until a service person confirms that the refrigerant leak is repaired.

Keep ventilation openings clear of obstruction.


WARNING
Flammable refrigerant!

The appliance uses R-454B refrigerant.


1.3.1 For R-454B refrigerant charge amount and minimum room area

The indoor and outdoor units are designed to be used together. The indoor unit should be installed at least 7.6ft/2.3m above from the floor, and the minimum room area of operating or storage should be as specified in Table 2.

Room size restriction

The appliances are connected via an air duct system to one or more rooms, the bottom of the air outlet of the air duct in the room should be at a height $\geq 7.3\text{ft}/2.2\text{m}$ from the floor. In UL/CSA 60335-2-40, the R-454B refrigerant belongs to mildly flammable refrigerants, which will limit the room area of the system service. Similarly, the total amount of refrigerant in the system should be less than or equal to the maximum allowable refrigerant charge, which depends on the room area serviced by the system.

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.
- **A_{min}:** The required minimum room area.
- **M_{max}:** The allowable maximum refrigerant charge in a room.
- **Q_{min}:** The minimum circulation airflow.
- **Anv_{min}:** The minimum opening area for connected rooms.
- **TA_{min}:** The total area of the conditioned space (For appliances serving one or more rooms with an air duct system).
- **TA:** The total area of the conditioned space connected by air ducts .

Refrigerant charge and room area limitations

For the purpose of determination of room area (A) when used to calculate the maximum allowable refrigerant charge (m_{max}) in an unventilated space, the following shall apply. The room area (A) shall be defined as the room area enclosed by the projection to the floor of the walls, partitions and doors of the space in which the appliance is installed. Spaces connected by only drop ceilings, ductwork, or similar connections shall not be considered a single space. For units mounted higher than 70-7/8" (1.8m), spaces divided by partition walls which are no higher than 63" (1.6m), shall be considered a single space. For fixed appliances, rooms on the same floor and connected by an open passageway between the spaces can be considered a single room when determining compliance to A_{min} , if the passageway complies with all of the following.

- It is a permanent opening.
- It extends to the floor.
- It is intended for people to walk through.

For fixed appliances, the area of the adjacent rooms, on the same floor, connected by permanent opening in the walls and/or doors between occupied spaces, including gaps between the wall and the floor, can be considered a single room when determining compliance to A_{min} , provided all of the following are met.

- The space shall have appropriate openings according to the next subsection.
- The minimum opening area for natural ventilation Anv_{min} shall not be less than the following:

Height of outlet Ft (m)	A Ft ² (m ²)	Mc Oz (Kg)	M_{max} Oz (kg)	Anv_{min} Ft ² (m ²)
7.2 (2.2)	53.81 (5)	176.35 (5)	94.7 (2.6850)	0.4843 (0.045)
7.2 (2.2)	64.58 (6)	176.35 (5)	103.72 (2.941)	0.4520 (0.042)
7.2 (2.2)	75.34 (7)	176.35 (5)	112.05 (3.177)	0.4089 (0.038)
7.2 (2.2)	86.11 (8)	176.35 (5)	119.77 (3.396)	0.3767 (0.035)
7.2 (2.2)	96.87 (9)	176.35 (5)	127.04 (3.602)	0.3336 (0.031)
7.2 (2.2)	107.63 (10)	176.35 (5)	133.92 (3.797)	0.3013 (0.028)
7.2 (2.2)	118.40 (11)	176.35 (5)	140.48 (3.983)	0.2583 (0.024)
7.2 (2.2)	129.16 (12)	176.35 (5)	146.72 (4.16)	0.2152 (0.02)
7.2 (2.2)	139.93 (13)	176.35 (5)	152.71 (4.33)	0.1722 (0.016)
7.2 (2.2)	150.69 (14)	176.35 (5)	158.46 (4.493)	0.1399 (0.013)
7.2 (2.2)	161.45 (15)	176.35 (5)	164.04 (4.651)	0.0968 (0.009)
7.2 (2.2)	172.22 (16)	176.35 (5)	169.40 (4.803)	0.0538 (0.005)
7.2 (2.2)	182.98 (17)	176.35 (5)	174.62 (4.951)	0.0107 (0.001)

Table 2



Take the $Mc = 5.0\text{kg}$ as an example. For appliances serving one or more rooms with an air duct system, the room area calculation shall be determined based on the total area of the conditioned space (TA) connected by ducts taking into consideration that the circulating airflow distributed to all the rooms by the appliance integral indoor fan will mix and dilute the leaking refrigerant before entering any room.

Opening conditions for connected rooms

When the openings for connected rooms are required, the following conditions shall be applied.

- The area of any openings above 11-13/16" (300mm) from the floor shall not be considered in determining compliance with Anv_{min} .
- At least 50% of the required opening area Anv_{min} shall be below 7-7/8" (200mm) from the floor.
- The bottom of the lowest openings shall not be higher than the point of release when the unit is installed and not more than 3-15/16" (100mm) from the floor.
- Openings are permanent openings which cannot be closed.
 - For openings extending to the floor the height shall not be less than 25/32" (20mm) above the surface of the floor covering
- A second higher opening shall be provided. The total size of the second opening shall not be less than 50% of minimum opening area for Anv_{min} and shall be at least 59" (1.5m) above the floor.



The requirement for the second opening can be met by drop ceilings, ventilation ducts, or similar arrangements that provide an airflow path between the connected rooms.

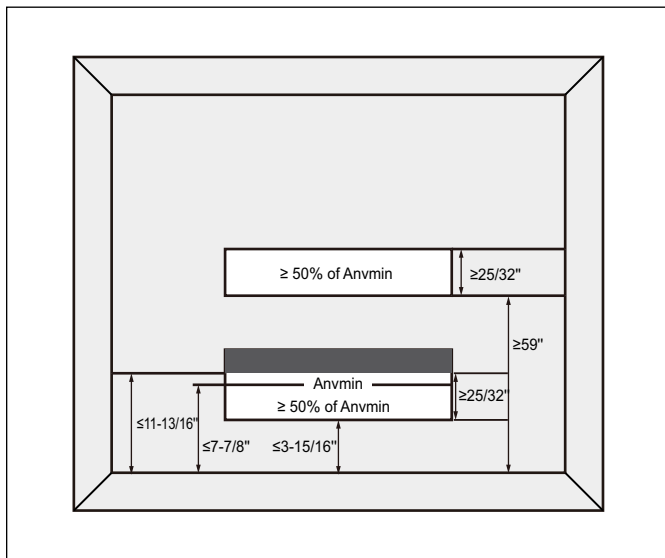


Figure 1

- The room into which refrigerant can leak, plus the connected adjacent room(s) shall have a total area of not less than TA_{min} .
- The room area in which the unit is installed shall be not less than $20\%TA_{min}$.

A_{min} [ft ² /m ²]	hinst [ft/m]				
mc or mREL [oz/kg]	5.9~7.2 / 1.8~2.2	7.5/2.3	8.2/2.5	8.9/2.7	9.8/3.0
≤62.7/1.776	12/1.10				
63.5/1.8	60/5.53	57/5.29	52/4.86	48/4.50	44/4.05
70.5/2	66/6.14	63/5.88	58/5.41	54/5.01	48/4.50
77.6/2.2	73/6.76	70/6.46	64/5.95	57/5.51	53/4.95
84.6/2.4	79/7.37	76/7.05	70/6.49	65/6.01	58/5.41
91.7/2.6	86/7.99	82/7.64	76/7.03	70/6.51	63/5.86
98.8/2.8	93/8.6	89/8.23	81/7.57	75/7.01	68/6.31
105.8/3	99/9.21	95/8.81	87/8.11	81/7.51	73/6.76
112.9/3.2	106/9.83	101/9.4	93/8.65	86/8.01	78/7.21
119.9/3.4	112/10.44	107/9.99	99/9.19	92/8.51	82/7.66
127/3.6	119/11.06	114/10.58	105/9.73	97/9.01	87/8.11
134/3.8	126/11.67	120/11.16	111/10.27	102/9.51	92/8.56
141.1/4	132/12.29	126/11.75	116/10.81	108/10.01	97/9.01
148.1/4.2	139/12.9	133/12.34	122/11.35	113/10.51	102/9.46
155.2/4.4	145/13.51	139/12.93	128/11.89	119/11.01	107/9.91
162.2/4.6	152/14.13	145/13.51	134/12.43	124/11.51	111/10.36
169.3/4.8	159/14.74	152/14.1	140/12.97	129/12.01	116/10.81
176.4/5	165/15.36	158/14.69	145/13.51	135/12.51	121/11.26

Table 3

A_{min} : the required minimum room area in ft² / m²

mc: the actual refrigerant charge in the system in oz/kg

mREL: the refrigerant releasable charge in oz/kg

hinst: the height of the bottom of the appliance relative to the floor of the room after installation.

**WARNING**

Fire, property damage, personal injury, or death!

The minimum area for installation must be met. The minimum room area or minimum room area of conditioned space is based on releasable charge and total system refrigerant charge.

Installation (where refrigerant pipes are allowed)

- 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.
- 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.
- That the installation of pipe-work shall be kept to a minimum.
- That pipe-work shall be protected from physical damage.
- Where refrigerant pipes shall be compliance with national gas regulations.
- That mechanical connections shall be accessible for maintenance purposes.
- Be more careful that foreign matter (oil, water, etc) does not enter the piping. Also, when storing the piping, securely seal the opening by pinching, taping, etc.
- All working procedure that affects safety means shall only be carried by competent persons.
- Appliance shall be stored in a well ventilated area where the room size corresponds to the room area as specific for operation.
- Joints shall be tested with detection equipment with a capability of 5 g/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 after installation. Detachable joints shall NOT be used in the indoor side of the unit (brazed, welded joint could be used).
- In cases that require mechanical ventilation, ventilation openings shall be kept clear of obstruction.
- LEAK DETECTION SYSTEM installed. Unit must be powered except for service. When the refrigerant sensor detects refrigerant leakage, the indoor unit will display a error code (A11) and emit a buzzing sound, the compressor of outdoor unit will immediately stop, and the indoor fan will start running. The service life of the refrigerant sensor is 15 years. When the refrigerant sensor malfunctions, the indoor unit will display the error code "EC1". The refrigerant sensor can not be repaired and can only be replaced by the manufacturer. It shall only be replaced with the sensor specified by the manufacturer.

Flammable Refrigerant

When a FLAMMABLE REFRIGERANT is used, the requirements for installation space of appliance and/or ventilation requirements are determined according to:

- the mass charge amount(M) used in the appliance,
- the installation location,
- the type of ventilation of the location or of the appliance.
- 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, 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.

- that protection devices, piping, and fittings shall be protected as far as possible against adverse environmental effects, for example, the danger of water collecting and freezing in relief pipes or the accumulation of dirt and debris;
- that piping in refrigeration systems shall be so designed and installed to minimize the likelihood of hydraulic shock damaging the system;
- that steel pipes and components shall be protected against corrosion with a rustproof coating before applying any insulation;
- that precautions shall be taken to avoid excessive vibration or pulsation;
- the minimum floor area of the room shall be mentioned in the form of a table or a single figure without reference to a formula;
- after completion of field piping for split systems, the field pipework shall be pressure tested with an inert gas and then vacuum tested prior to refrigerant charging, according to the following requirements:
 - The minimum test pressure for the low side of the system shall be the low side design pressure and the minimum test pressure for the high side of the system shall be the high side design pressure, unless the high side of the system can not be isolated from the low side of the system in which case the entire system shall be pressure tested to the low side design pressure.
 - The test pressure after removal of pressure source shall be maintained for at least 1 h with no decrease of pressure indicated by the test gauge, with test gauge resolution not exceeding 5% of the test pressure.
 - During the evacuation test, after achieving a vacuum level specified in the manual or less, the refrigeration system shall be isolated from the vacuum pump and the pressure shall not rise above 500 microns within 10 min. The vacuum pressure level shall be specified in the manual, and shall be the lesser of 500 microns or the value required for compliance with national and local codes and standards, which may vary between residential, commercial, and industrial buildings. - field-made
- field-made refrigerant joints indoors shall be tightness tested according to the following requirements: The test method shall have a sensitivity of 5 grams per year of refrigerant or better under a pressure of at least 0.25 times the maximum allowable pressure. No leak shall be detected.

Qualification of Workers

Any maintenance, service and repair operations must be required qualification of the working personnel. Every working procedure that affects safety means shall only be carried out by competent persons that joined the training and achieved competence should be documented by a certificate. The training of these procedures is carried out by national training organizations or manufacturers that are accredited to teach the relevant national competency standards that may be set in legislation. All training shall follow the ANNEX HH requirements of UL 60335-2-40 4th Edition. Examples for such working procedures are:

- breaking into the refrigerating circuit;
- opening of sealed components;
- opening of ventilated enclosures.

Ventilated area

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.

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.

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. The following leak detection methods are deemed acceptable for refrigerant systems. Electronic leak detectors may be used to detect refrigerant leaks but, in the case of FLAMMABLE REFRIGERANTS, 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.



Examples of leak detection fluids are:

- bubble method
- fluorescent 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. See the following instructions of removal of refrigerant.

Removal and Evacuation

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 be followed, since flammability is a consideration. The following procedure shall be adhered to:

- safely remove refrigerant following local and national regulations
- purge the circuit with inert gas (optional for A2L)
- evacuate (optional for A2L)
- continuously flush or purge with inert gas when using flame to open circuit; and open the circuit

The refrigerant charge shall be recovered into the correct recovery cylinders if venting is not allowed by local and national codes. For appliances containing flammable refrigerants, the system shall be purged with oxygen-free nitrogen to render the appliance safe for flammable refrigerants. This process might need to be repeated several times. Compressed air or oxygen shall not be used for purging refrigerant systems.

For appliances containing flammable 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 (optional for A2L). This process shall be repeated until no refrigerant is within the system (optional for A2L). When the final oxygen-free nitrogen charge is used, the system shall be vented down to atmospheric pressure to enable work to take place. The outlet for the vacuum pump shall not be close to any potential ignition sources, and ventilation shall be available.

Charging Procedures

In addition to conventional charging procedures, the following requirements shall be followed: Works shall be undertaken with appropriate tools only (In case of uncertainty, please consult the manufacturer of the tools for use with flammable refrigerants) Ensure that contamination of different refrigerants does not occur when using charging equipment. Hoses or lines shall be as short as possible to minimize the amount of refrigerant contained in them. Cylinders shall be kept upright. Ensure that the refrigeration 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 refrigeration system. Prior to recharging the system it shall be pressure tested with oxygen free nitrogen (OFN). 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.

Use ONLY R-454B refrigerant with this product. All other refrigerant types, and the mixing of refrigerant types, is strictly prohibited.

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 is 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 the flammable refrigerant. If in doubt, the manufacturer should be consulted. 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.

The recovered refrigerant shall be processed according to local legislation 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 compressor body shall not be heated by an open flame or other ignition sources to accelerate this process. When oil is drained from a system, it shall be carried out safely.

Transportation, Marking and Storage for Units

1. Transport of equipment containing flammable refrigerants: Must be in compliance with the transport regulations.
2. Marking of equipment using signs: Must be in compliance with local regulations.
3. Disposal of equipment using flammable refrigerants: Must be in compliance with national regulations.
4. Storage of equipment/appliances: The storage of equipment should be in accordance with the manufacturer's instructions.
5. Storage of packed (unsold) equipment: The storage package protection should be constructed such that mechanical damage to the equipment inside the package will not cause a leak of the refrigerant charge. The maximum number of pieces of equipment permitted to be stored together will be determined by local regulations.

2 General

2.1 Precautions For Transporting and Lifting the Air Conditioner

1. Before transporting the air conditioner, determine the path that will be used to move it to the installation site.
2. Do not unpack the air conditioner until it is transported to the installation site.
3. When unpacking and moving the air conditioner, must hold the Lifting Lugs and do not apply force to other parts, especially the refrigerant piping, drain pipe and plastic accessories, so as to avoid damaging the air conditioner and causing personal injury.
4. Before installing the air conditioner, make sure that the refrigerant specified on the nameplate is being used.

2.2 Forbidden Installation Sites



WARNING

Fire, explosion, flammable refrigerant, product damage, property damage!

Do not install or use the air conditioner in the following places:

- A place filled with mineral oil, fumes or mist, like a kitchen. Plastic parts will age and the heat exchanger will become dirty, eventually causing the air conditioner performance to deteriorate or leak water. Connecting pipes and copper welds will be corroded, resulting in refrigerant leakage.
- A place where there are corrosive gases, such as acid or alkaline gases. Connecting pipes and copper welds will be corroded, resulting in refrigerant leakage.
- A place exposed to combustible gases and using volatile combustible gases such as diluent or gasoline. The electronics in the air conditioner may cause the surrounding gas to ignite.
- A place where there is equipment emitting electromagnetic radiation. The control system will fail and the air conditioner will not function properly.
- A place where there is a high salt content in the air like a coastal area.
- Do not use the air conditioner in an environment where an explosion may occur.
- The unit cannot be installed on moving vehicles such as truck and ship.
- Factories with major voltage fluctuations in the power supplies.
- Other special environmental conditions.



Figure 2

NOTICE

Improper operation, product damage!

Air conditioner units of this series are designed to provide comfort. Don't install the unit in mechanical rooms and rooms with precision instruments, food, plants, animals, or artwork.

Avoid installation in an environment with a lot of organic compounds such as ink and siloxane.

The total refrigerant charge in the system cannot exceed the requirements for minimum room size of the smallest one that is served.



WARNING

Flammable refrigerant, product damage!

Wooden buildings, newly renovated houses, and frequent use of disinfectants may contain acidic components in the air, such as formic acid, acetic acid, and hypochlorous acid, which can corrode copper pipes and solder joints, leading to refrigerant leaks.

Factories, chemical plants, livestock farms, vegetable markets, sewage pits, and other environment may contain sulfides, acid gases such as sulfur dioxide, ammonia, and chlorides in the air, which can corrode copper pipes and solder joints, leading to refrigerant leaks.

Please contact a dealer for assistance.

2.3 Recommended Installation Sites

It is recommended to install the air conditioner according to the design drawing of the HVAC engineer. The selection principle for the installation site is as follows:

- Ensure that the airflow in and out of the indoor unit is reasonably organized to form an air circulation in the room.
- Prevent the air conditioner from blowing directly at the human body.
- Keep the air-conditioning return air away from direct exposure to the sun in the room.
- The indoor unit should not be lifted in the places like load-bearing beams and columns that affect the structural safety of the house.

Choose a site that fully complies with the following conditions and user requirements to install the air conditioning unit:

- There is enough space for installation and maintenance.
- Airflow in/out of the unit is not obstructed.
- It is easy to supply airflow to every corner of the room.
- It is easy to drain for water drain piping.
- There is no direct heat radiation.
- Avoid installation in narrow spaces or where there are more stringent noise requirements.
- Install the indoor unit at a place 98-1/2 in (2.5 m) above ground.
- The length of the piping between the indoor and outdoor units is within the permitted range. Refer to the Installation and Operation Manual attached with the outdoor unit.



WARNING

Personal injury, product damage, property damage!

Ensure the location that can support the weight of the unit and take necessary reinforcement measures if needed.

Failure to do so may result in the unit falling and causing personal injury.

Before starting the wiring and pipe layout, ensure that the installation area is safe and free of any potential hazards such as water, power, gas, or other potential dangers.

Ensure the unit is level.

Failure to do so may result in the condensation water dripping.

2.4 Dimensions

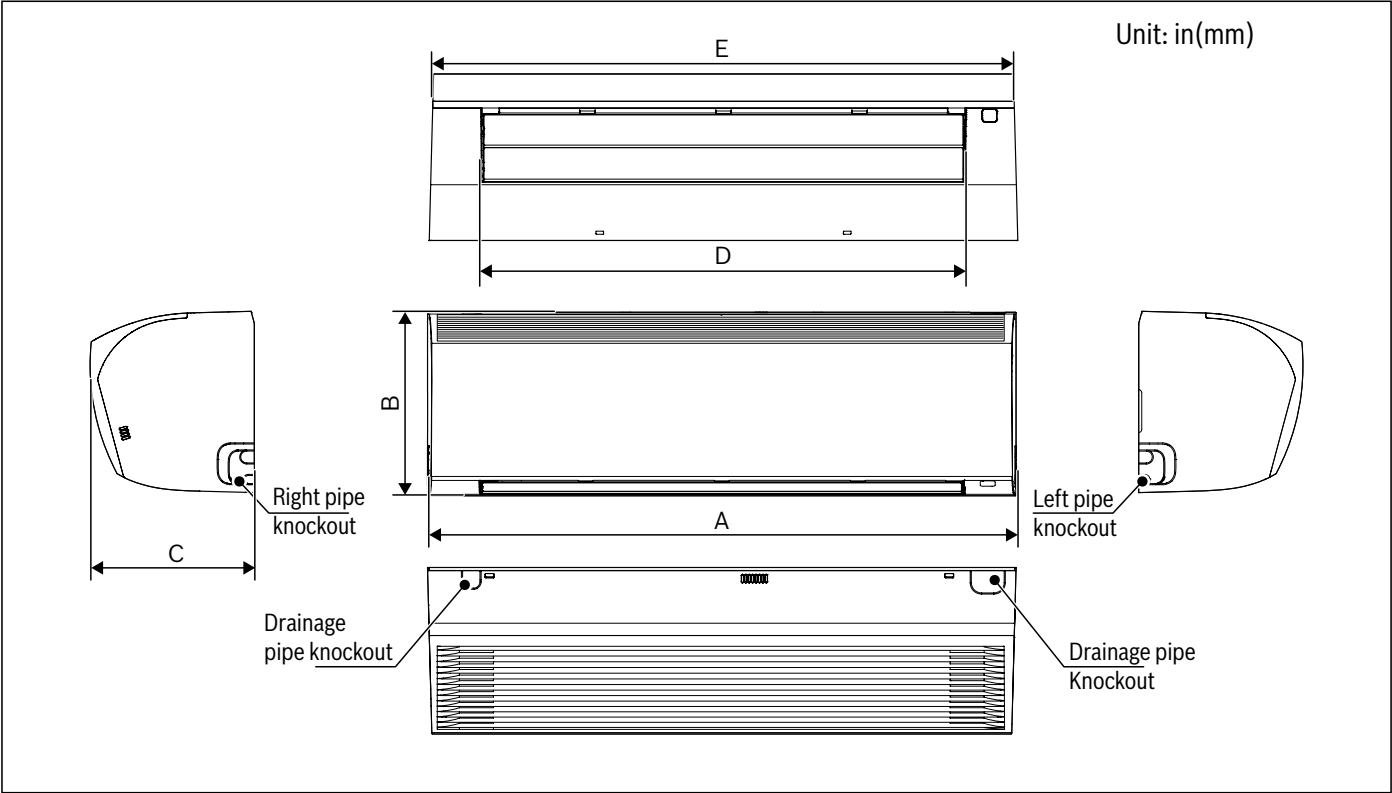


Figure 3

Capacity (kBtuh/h)	Dimensions in (mm)				
	A	B	C	D	E
7	29-1/2(750)	11-5/8(295)	10-7/16(265)	22-7/8(581)	29(736)
9	29-1/2(750)	11-5/8(295)	10-7/16(265)	22-7/8(581)	29(736)
12	29-1/2(750)	11-5/8(295)	10-7/16(265)	22-7/8(581)	29(736)
18	37-3/8(950)	11-5/8(295)	10-7/16(265)	30-3/4(781)	36-7/8(936)

Table 4

2.5 Components

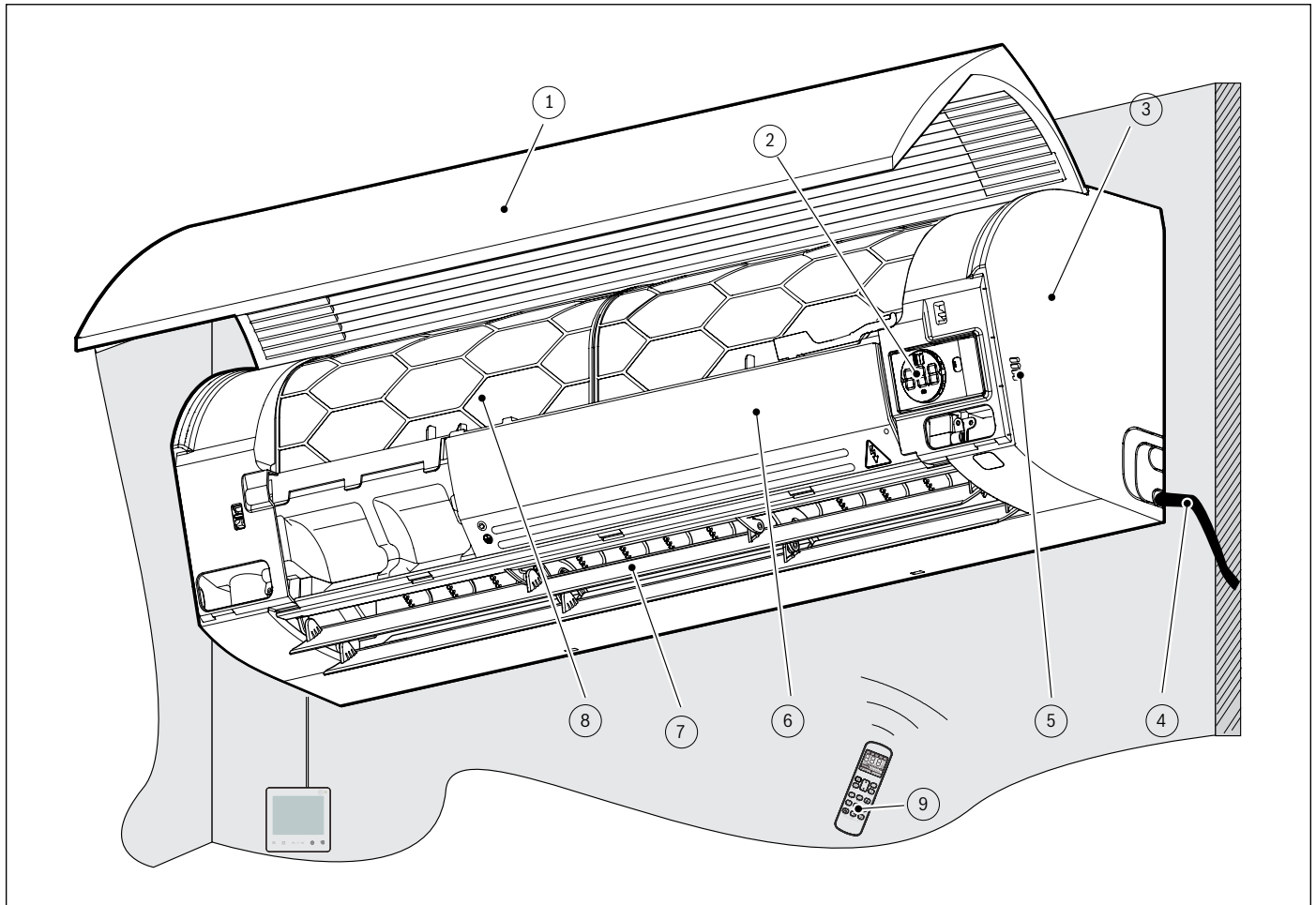


Figure 4

1. Panel assembly
2. Display panel
3. Panel frame
4. *Power supply cable and earth wires
5. Room temperature sensor
6. Electric control parts
7. Upper and lower louvers
8. Air filter
9. Remote controller

*To be purchased separately on site.

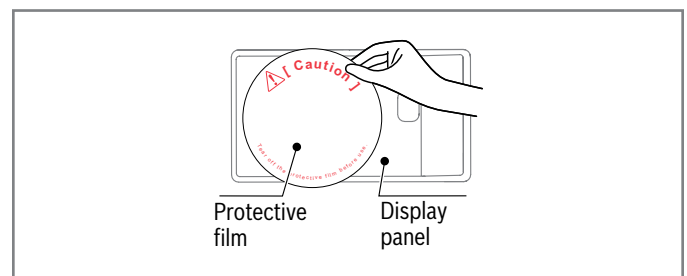


Figure 5

NOTICE

Improper operation!

Remove the protective film and sticker from the display panel, otherwise may result in reduced display quality. Refer to Figure 5.

All the optional accessories should be from local dealer.

For optional accessories such as wired controllers, please refer to the manuals of these accessories.

All the figures in the manual explain only the general appearance and functions of the product. The appearance and functions of the purchased product may not be completely consistent with those listed in the figures. Please refer to the actual product.

2.6 A2L Refrigerant Sensor

R-454B refrigerant leakage sensor is configured for the indoor unit: To meet different installation scenarios, the refrigerant sensor has two installation positions. Before installing the indoor unit, check whether the refrigerant sensor is correctly installed according to Section 2.

CAUTION

Fire hazard!

Only the factory supplied or specified refrigerant leakage sensor model in the manual shall be used.

The R-454B refrigerant leakage sensor must be used to activate the refrigerant shut-off device, the alarm device, incorporated circulation airflow or other emergency controls, which shall give an electrical signal at a predetermined alarm setpoint in response to leaked refrigerant.

The location of leakage sensors shall be chosen in relation to the different installation scenarios. Please refer to the indoor unit installation manual for specific requirements.

The installation of the refrigerant leakage sensor shall allow access for checking, repair or replacement by an authorized person.

The refrigerant leakage sensor shall be installed so its function can be verified easily.

The refrigerant leakage sensor shall be protected to prevent tampering or unauthorized resetting of the pre-set value.

To be effective, the refrigerant leakage sensor must be electrically powered at all times after installation, other than when servicing.

If the refrigerant leakage sensor detects a refrigerant leak, the fan will be turned on to the maximum, the compressor will stop running. You should immediately leave the leak area and notify a professional for handling.

The service life of the refrigerant sensor is 15 years, and it should be replaced after the service life. The user interface displays error "d43" 3 months before the end of the sensor lifetime and error "EC1" after the end of the sensor lifetime.

WARNING

Fire, explosion, personal injury!

LEAK DETECTION SYSTEM installed on indoor unit. Unit must be powered except for service.

3 Preparations Before Installation

1. After unpacking, check whether the packing materials are in good condition, whether the accessories that come with the product are complete, whether the air conditioner is intact, whether the surfaces of the heat exchanger and other parts are not worn, and whether there are oil stains on the stop valves of the unit.
2. Check the two sealing nuts of the refrigerant pipe, and observe whether the red dot on the surface of the sealing nut of the gas pipe bulges. If it bulges, the refrigerant system is well sealed; if it retracts, it is leaking, and need to contact local dealer.
3. Check the model before installation.
4. After indoor unit and outdoor unit inspection, pack them with plastic bags to avoid intake of foreign matters.

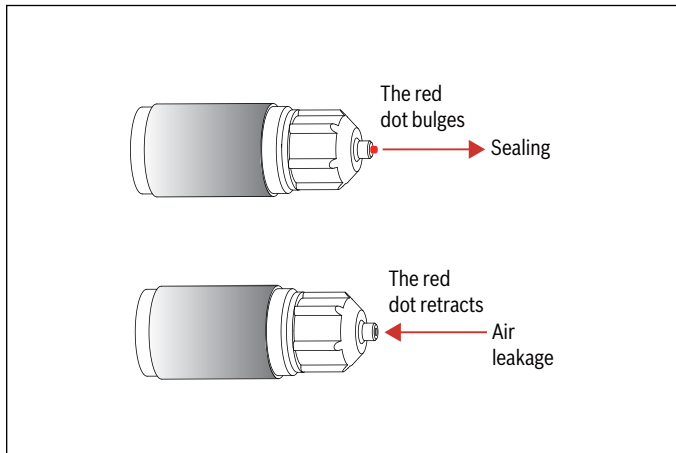


Figure 6

4 Installation Materials

4.1 Accessories

1. Installation and Operating Instructions (x 1) (Make sure to hand it over to the user)
2. Flare Nut (x 2) For use in the installation of connecting pipe
3. Drain Hose (x 1)
4. Installation Plate (x 1)
5. Plastic Expansion Screw Anchor (x 4)
6. Wall Sleeve (x 1)
7. Wall Sleeve Cover (x 1)
8. Binding tape (x 1)
9. Power Cable Clamp (x 2)
10. Screw ST3.9*25 (x 4)
11. Screw ST3.9*6.5 (x 4)
12. Warning label (x 2)
13. Remote controller (x 1)

4.2 Field Supply Accessories

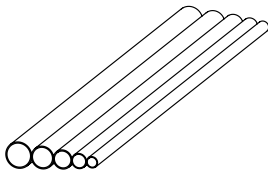
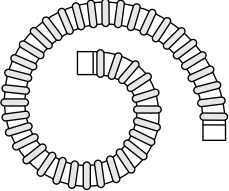
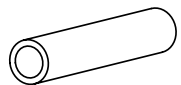
Connecting pipe [Unit: in(mm)]			
	Capacity (kBtu/h) Piping	Liquid	Gas
	7K, 9K, 12K	Φ 1/4 (6.35)	Φ 1/2 (12.7)
	18K	Φ 3/8 (9.52)	Φ 5/8 (15.9)
	Remarks	For connection of the indoor unit refrigerant system, it is recommended to use a soft connecting pipe (T2M), with the length selected according to the actual situation.	
	Extension drain hose	Thermal insulation pipe	
	This is used as the indoor unit's drain pipe, 1 in (25 mm) in diameter. The length is determined according to actual needs.		The thickness of the insulation pipe for the connecting pipe is usually 9/16 in (15 mm) or above; and the thickness of the insulation pipe for the UPVC plastic tube is usually 3/8 in (10 mm) or above. If the pipe is used in a closed humid area, the thickness should be increased.

Table 5

4.3 Insulation Material Requirements

1. The insulation work should only be carried out after the successful completion of the air tight test.
2. Use polyethylene foam as insulation material, fire rating class is B1 and heat resistance is over 248 °F(120 °C).
3. Thickness of the insulation pipe:
 - When the pipe diameter is equal to or greater than 5/8 in(15.9 mm), the insulation thickness is at least 13/16 in(20 mm).
 - When the pipe diameter is equal to or smaller than 1/2 in(12.7 mm), the insulation thickness is at least 9/16 in(15 mm).
4. In cold climates, for heating application, the insulation thickness of outdoor refrigerant pipe is at least 1-9/16 in(40 mm), the insulation thickness of indoor refrigerant pipe is at least 13/16 in(20 mm).

NOTICE

Improper operation!

Do not throw away any accessories that may be required for installation until the installation is complete.

NOTICE

Improper operation!

Materials, including connecting pipes, drain hoses, various fasteners (such as pipe supports, clamps, and screws), power supply cable, and signal cables to be used for field installation need to be purchased on site by the installation operator. Materials and specifications must comply with relevant national or industry standards.

5 Indoor Unit Mounting

5.1 Mounting Plate Dimensions

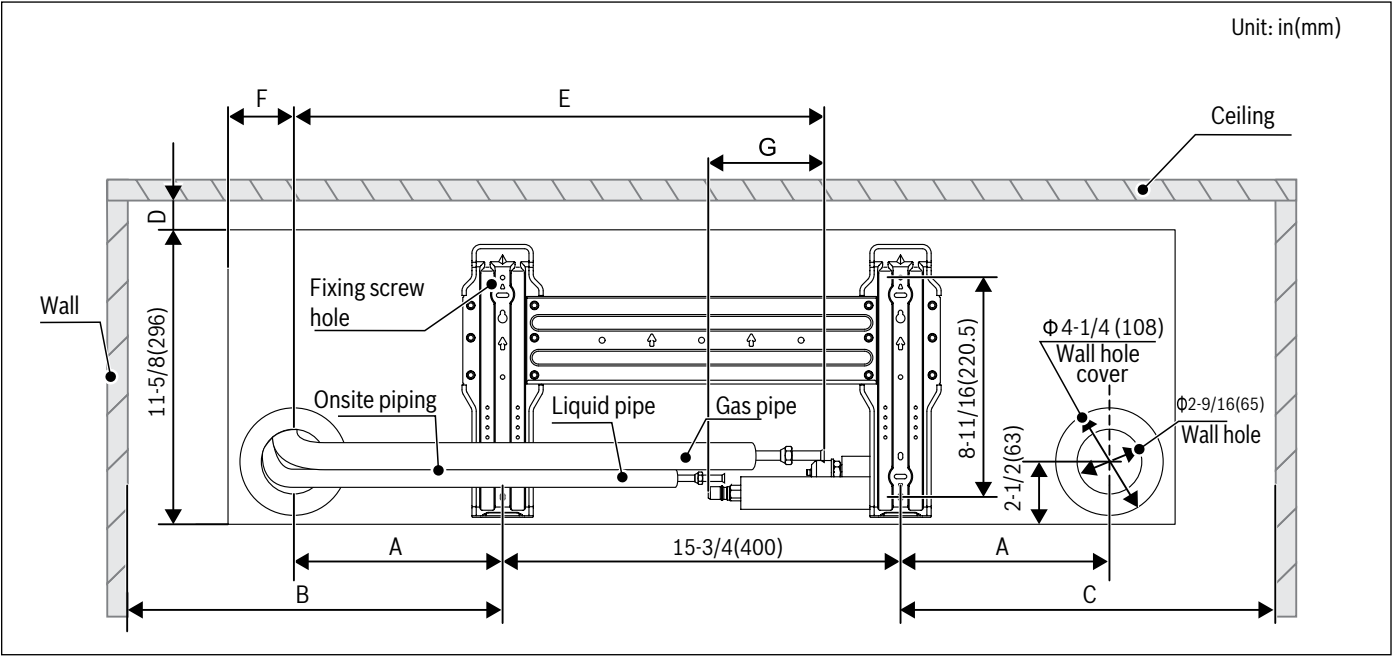


Figure 7

Capacity (kBtuh/h)	Dimensions [in (mm)]				
	A	B	C	D	E
7	29-1/2(750)	11-5/8(295)	10-7/16(265)	22-7/8(581)	29(736)
9	29-1/2(750)	11-5/8(295)	10-7/16(265)	22-7/8(581)	29(736)
12	29-1/2(750)	11-5/8(295)	10-7/16(265)	22-7/8(581)	29(736)
18	37-3/8(950)	11-5/8(295)	10-7/16(265)	30-3/4(781)	36-7/8(936)

Table 6

5.2 Installation Distance

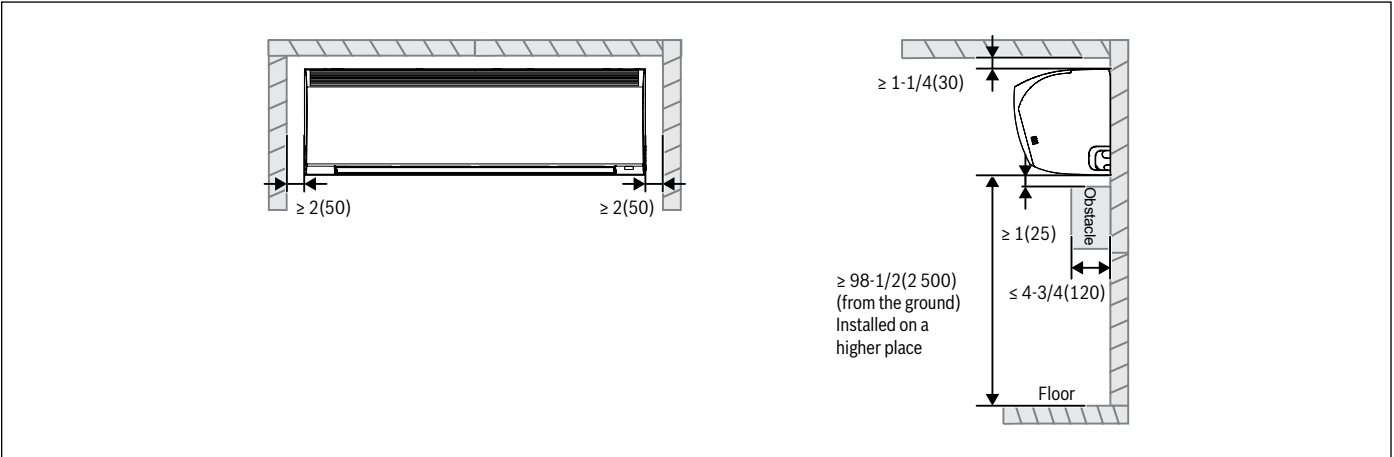


Figure 8

5.3 Pipe Routing Direction

The refrigerant pipes can be arranged from four directions: left, left rear, right, and right rear. Corresponding knockouts need to be cut on the panel frame. The drainage pipes can be arranged from four directions: left, left rear, right, and right rear.

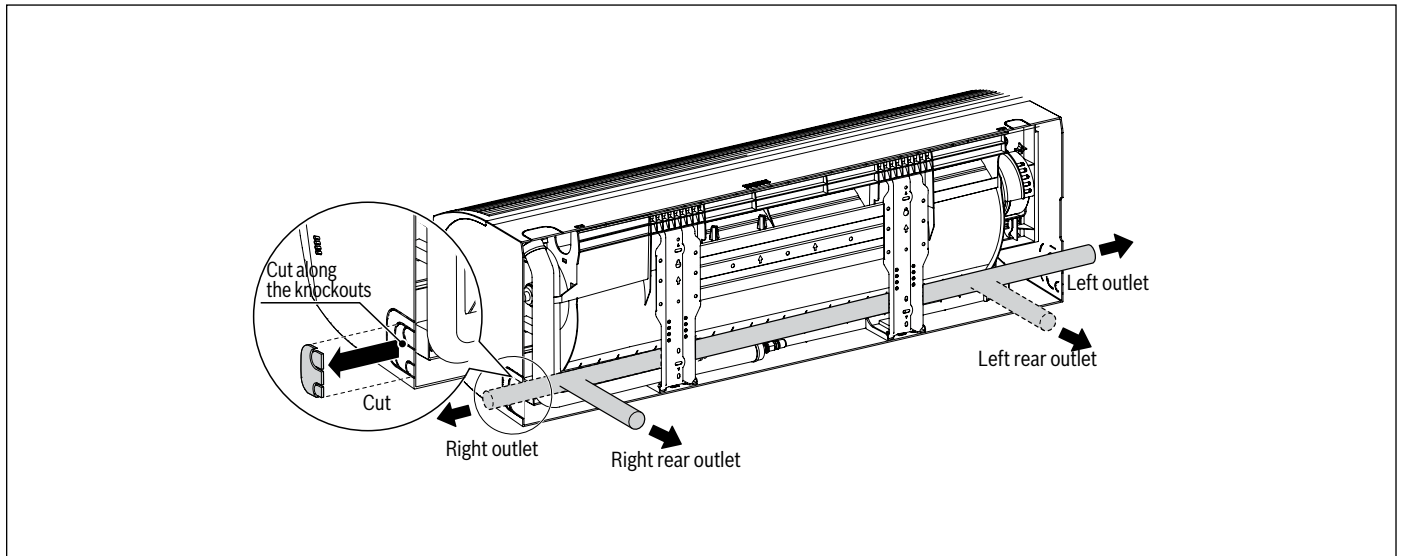


Figure 9

5.4 Instructions on Cutting Left and Right Knockouts

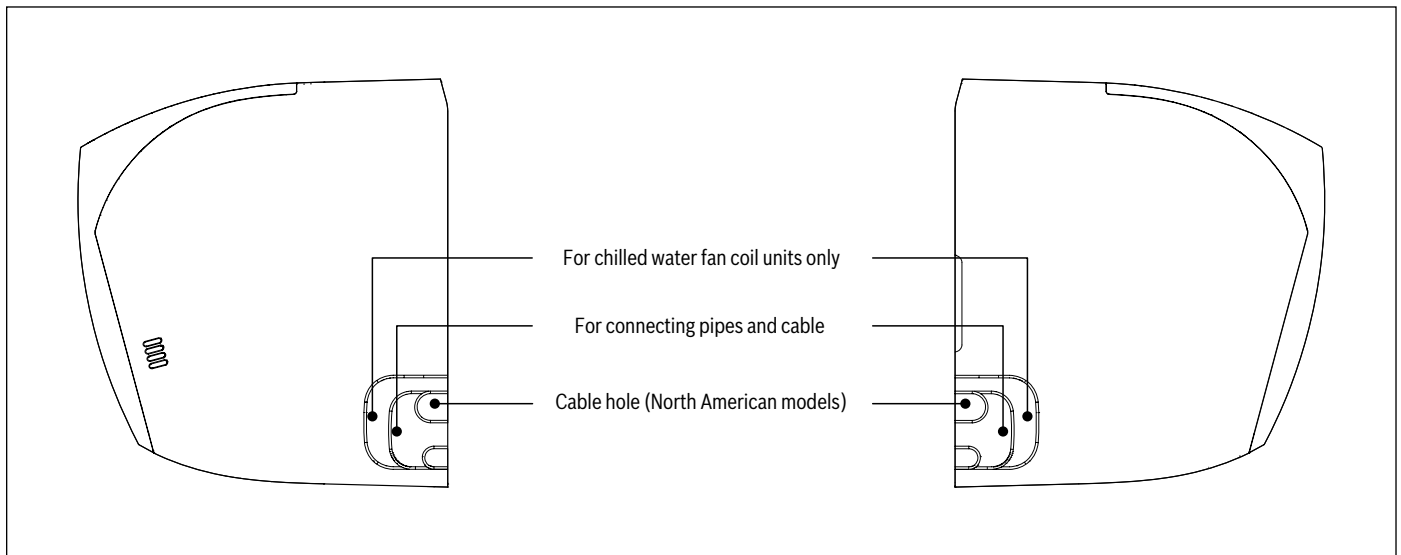


Figure 10

6 Refrigerant Piping

CAUTION

Flammable refrigerant, product damage!

The installation of pipe-work shall be kept to a minimum.

During the installation of the connecting pipes, do not allow air, dust, and other debris to penetrate the piping system, and make sure the interior of the pipes is dry.

Install the connecting pipes only when the indoor units and outdoor units are mounted.

When installing the connecting pipes, record the actual installation length of the liquid pipe so that additional refrigerant can be added.

The connecting pipes must be wrapped with thermal insulation materials when they are installed.

In the event of refrigerant gas leakage during operation, please ventilate immediately.

6.1 Pipe Layout

1. The deformed pipe area must not exceed 15 %.
2. A protective sleeve should be installed at the wall or floor hole.
3. The weld joint must not be inside the insulation.
4. The drill hole on the external wall must be sealed.

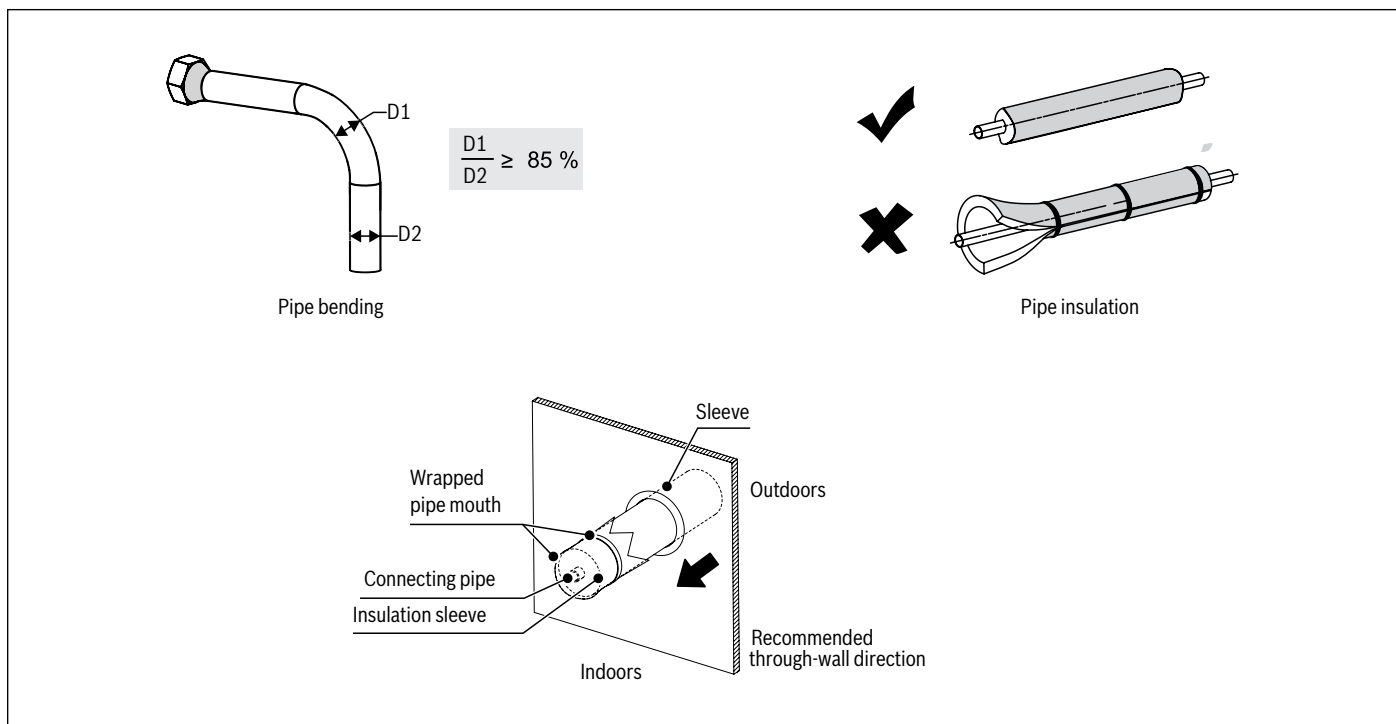


Figure 11

6.2 Pipe Connection Steps



CAUTION

Product damage!

Bend and arrange pipes carefully without damaging the pipes and their insulating layers.



CAUTION

Improper operation, product damage!

Do not let the interface of the indoor unit bear the weight of the connecting pipe; otherwise, the connecting pipe may be crushed and deformed, which will affect the cooling (heating) effect, or the thermal insulation materials may be compressed, resulting in air leakage and condensation.

For information about the connecting pipes to the outdoor units, please refer the Installation and Operation Manual of the outdoor units.

6.3 Pipe Connection

Processing Method

Mechanical bending processing: Wider application [Φ 1/4 in (6.35 mm) to Φ 1-1/8 in (28 mm)], using spring pipe bender, manual pipe bender or electric pipe bender.



CAUTION

Product damage!

The bending angle should not exceed 90°; otherwise, wrinkles will be formed in the pipe, which can easily break.

The bending radius should not be smaller than 3.5D (pipe diameter) and should be as large as possible to prevent the pipe from becoming flattened or crushed.

When mechanically bending the pipe, the pipe bender inserted into the connecting pipe must be cleaned.

1. Brazing pipes

When brazing pipes, fill the pipes with nitrogen.



CAUTION

Improper operation, product damage!

When it is necessary to fill the piping with nitrogen during brazing, the pressure must be kept at 20 Pa (0.2 bar) using a pressure relief valve.

Do not use flux when brazing the piping. Use a phosphor copper that does not require flux.

Do not use any antioxidants when brazing the piping. The piping may become clogged with residual antioxidants, which may block components such as electronic expansion valves during operation.

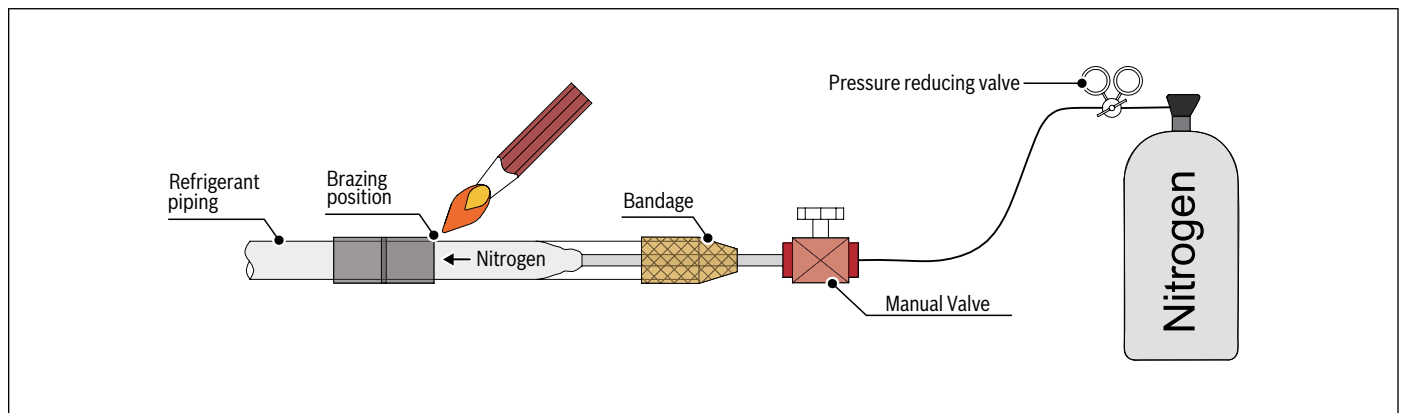


Figure 12

2. Flaring

To cut the piping with a pipe cutter, rotate the pipe cutter repeatedly.

Put the pipe into the connecting nut flaring, and both the gas pipe and liquid pipe of the indoor unit are connected by flaring.

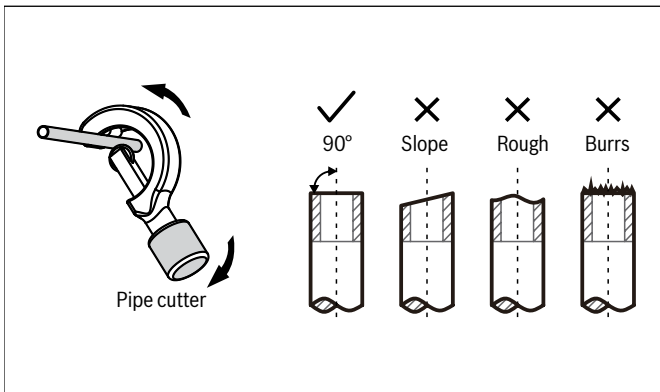


Figure 13

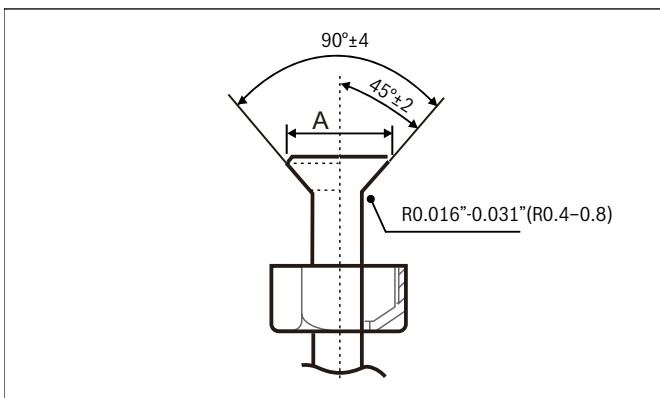


Figure 14

Outer diameter [in(mm)]	A[in(mm)]	
	Max.	Min.
Φ 1/4(6.35)	5/16(8.7)	5/16(8.3)
Φ 3/8(9.52)	1/2(12.4)	1/2(12.0)
Φ 1/2(12.7)	5/8(15.8)	5/8(15.4)
Φ 5/8(15.9)	3/4(19.1)	3/4(18.6)
Φ 3/4(19.1)	15/16(23.3)	7/8(22.9)

Table 7

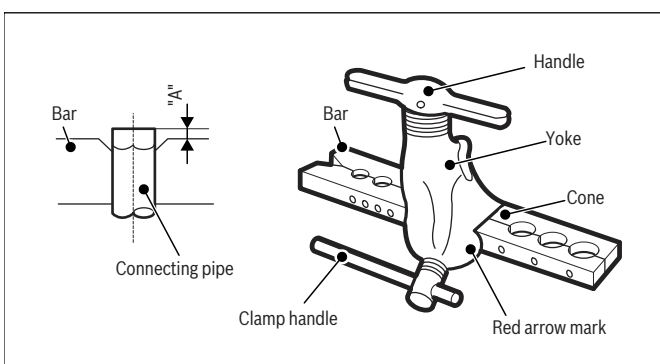


Figure 15

3. Nut fastening

1. Connect the indoor unit first, then connect the outdoor unit. Before tightening the flare nut, apply refrigeration oil on the inner and outer surface of the pipe flare (must use refrigeration oil compatible with the refrigerant for this model), and turn it 3 turns or 4 turns by hand to tighten it. When connecting or removing a pipe, use two wrenches at the same time.
2. Align the connecting piping, firstly tighten most of the thread of the connecting nut by hand, and then use a torque wrench to tighten the last 1 to 2 turns of the thread as shown in the figure below.
3. The brazing is done on site, and the bell mouth cannot be used indoors.
4. The protective nut is a one-time part, it can not be reused. In case it is removed, it should be replaced with a new one.

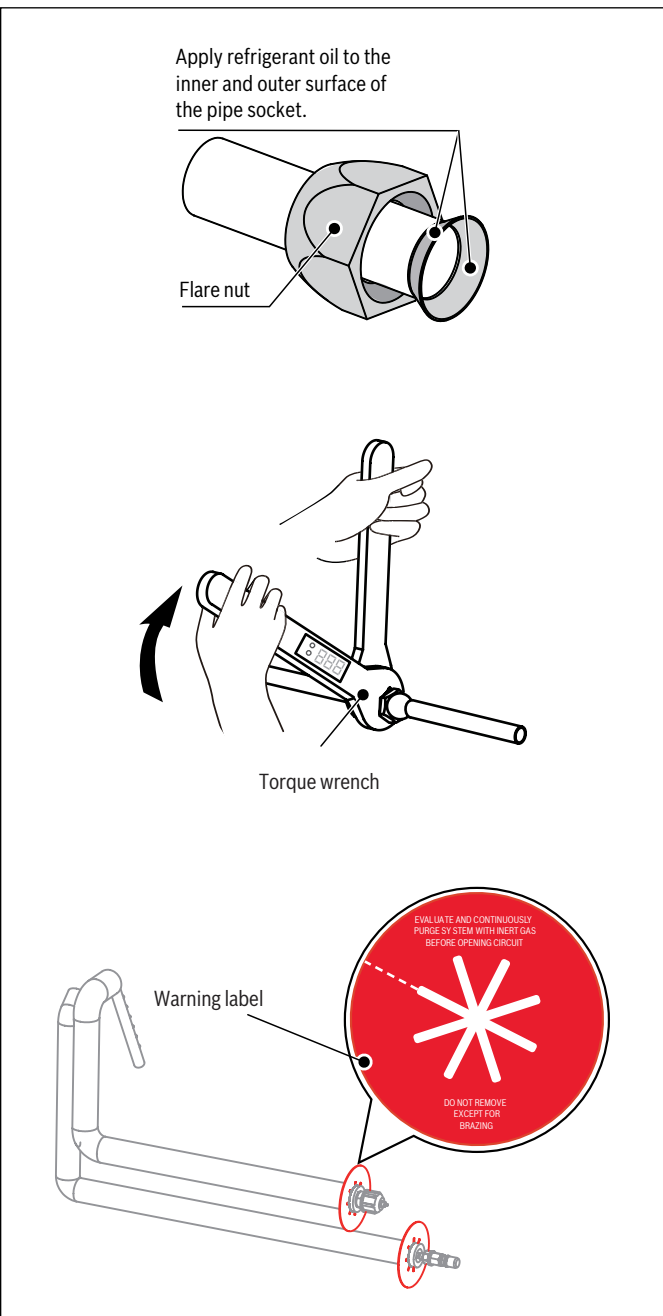


Figure 16

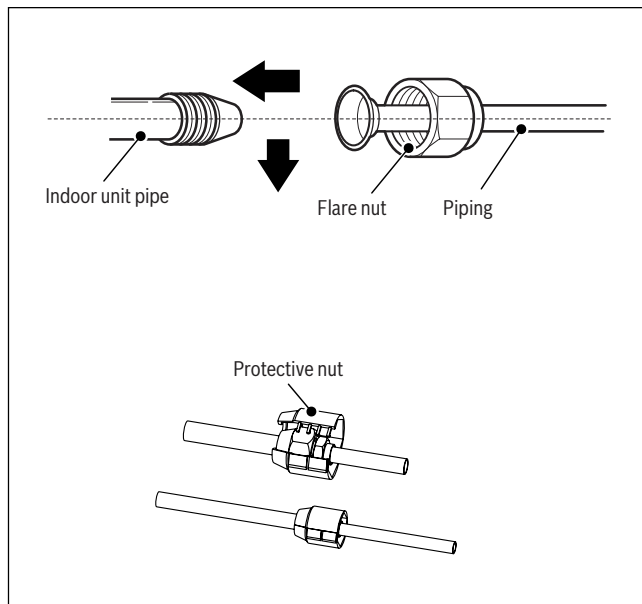


Figure 17

 CAUTION

Improper operation!

When flared joints are reused indoors, the flare part should be re-fabricated. Mechanical connectors used indoors shall comply with ISO 14903.

Flare Fitting Size (in)	Torque [Ft-lbs (Nm)]
1/4	11.6 (15.7)
3/8	26.8 (36.3)
1/2	40.5 (54.9)
5/8	50.6 (68.6)
3/4	79.6 (107.9)

Table 8

 CAUTION

Improper operation, product damage!

Excessive torque will damage the flared mouth and nut, and too small torque cannot tighten the nut, which will cause refrigerant leakage. Please refer to the above table to determine the appropriate tightening torque.

4. Refrigerant piping fixing

Angle iron brackets or round steel hangers should be used for fixing. When the liquid pipe and gas pipe are suspended together, the size of the liquid pipe shall prevail.

Pipe outer diameter [in(mm)]	≤ 13/16 (20)	13/16~1-9/16 (20~40)	≥ 9/16 (40)
Horizontal pipe distance [in(m)]	39-3/8(1.0)	59-1/16(1.5)	78-3/4(2.0)
Stand pipe distance [in(m)]	59-1/16(1.5)	78-3/4(2.0)	98-7/16(2.5)

Table 9

5. Vacuum pumping

Connect the vacuuming unit through a manifold to the service port of all stop valves.

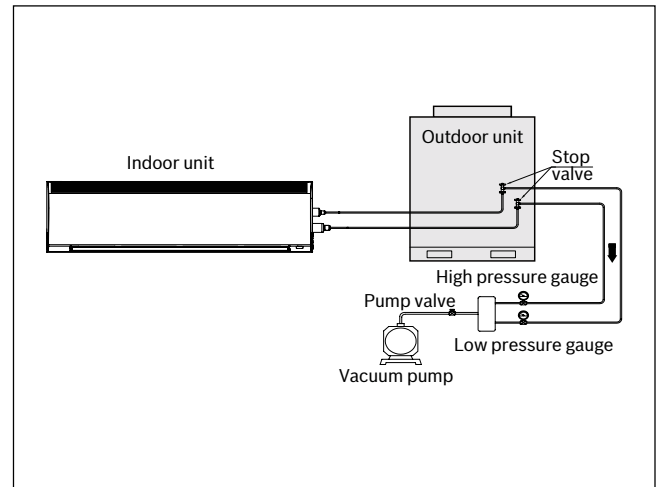


Figure 18

 CAUTION

Risk of fire, improper operation!

Do not purge the air with refrigerant of outdoor unit, it will cause fire or system malfunction.

7 Insulation Treatment

Pipes on the liquid and gas sides have a low temperature during cooling. Take sufficient insulation measures to prevent condensation.

- Be sure to use a thermal insulation material with a heat resistance of 248 °F (120 °C) or higher for the gas pipe.
- The attached insulation material for the part of the indoor unit where the pipe connects must undergo heat insulation treatment that leaves no gaps.
- For outdoor pipelines, additional protective treatments should be performed, such as adding metal duct boxes or wrapping the pipes with aluminum foil materials. Thermal insulation materials directly exposed to the open air will degrade and lose their insulating properties.

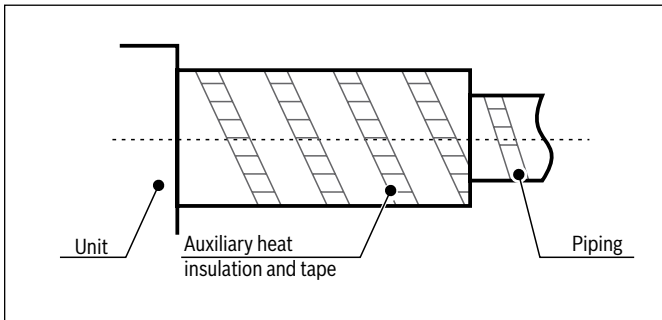


Figure 19

1. Steps for insulating refrigerant piping

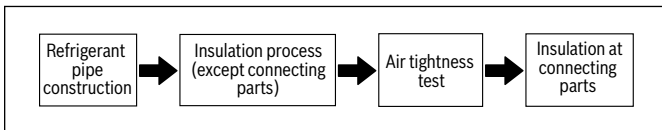


Figure 20

Connecting parts: For example, brazing area, flare, or connections shall be insulated after passing the air tightness test.

2. Reasons why refrigerant piping shall be insulated

- The gas pipes and liquid pipes can become extremely hot or cool while in operation. Therefore, they should be insulated. Otherwise, the cooling and heating effects will be seriously impacted, and the compressor may become burnt.
- The pipes are cold when the unit operates in cooling mode. If they are not properly insulated, they may cause condensation and water leakage.
- The pipes are hot [usually 122 °F to 212 °F (50 °C to 100 °C)] when the unit operates in heating mode, and accidental contact with the pipes will cause burns. To avoid burns, the pipes should be insulated.

3. Selection of insulation materials for refrigerant piping

Use the closed-cell foam insulation material, which has a flame retardant level of B1 and heat resistance of over 248 °F (120 °C).

4. Thickness of the insulation layer

When the outer diameter of the connecting pipe is not greater than $\Phi 1/2$ in (12.7 mm), the thickness of insulation layer is greater than 9/16 in (15 mm).

When the outer diameter of the connecting pipe is not smaller than $\Phi 5/8$ in (15.9 mm), the thickness of insulation layer is greater than 13/16 in (20 mm).



CAUTION

Product damage!

The above thickness should be increased if the place is hot and humid.

The pipes outdoors should be protected by metal covers to avoid sunlight, rain, weathering, external force or artificial damage.

5. Installation and insulation tips

Pipe connectors shall be properly insulated.

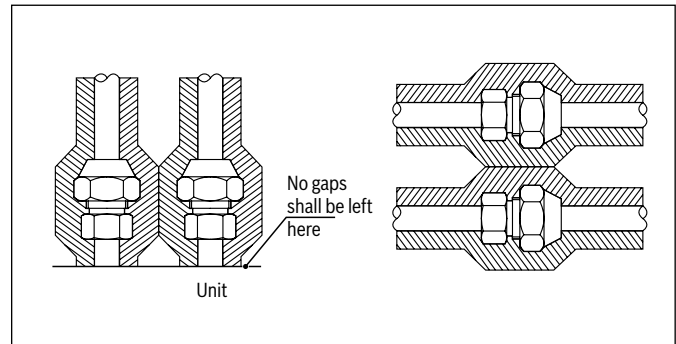


Figure 21



CAUTION

Improper operation!

Avoid any gaps where the insulation materials connect.

Pulling or wrapping the connecting sections too tightly can cause them to shrink, resulting in condensation and dripping.

Avoid squeezing out the air in the materials, as this can reduce their insulation effects.

Stress generated by tight wrapping will accelerate the aging and peeling of the tape over time.

Don't wrap the insulated pipes of the concealed sections of the indoor unit, otherwise the insulation performance will be reduced.

Steps to repair insulation pipe: (see the figure below).

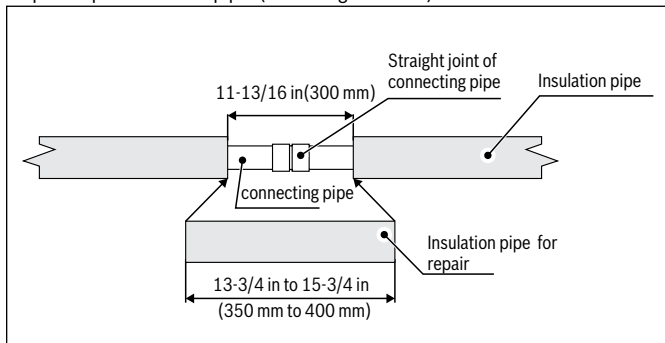


Figure 22

Cut a section of insulation pipe longer than the gap, cut one side along the centerline, install the insulation pipe to the connecting pipe, and apply glue to the all joints.



Tips for repairing insulation layer:

- The length of the insulation pipe for repair (protection sponge used to fill the gap) must be 2 in to 3-15/16 in (50 mm to 100 mm) longer than the gap.
- The insulation pipe for repair must be cut neatly.
- Tightly insert the insulation pipe for repair into the gap.
- All the sectional areas and cuts must be glued.
- Wrap the joints with tape.

NOTICE

Improper operation!

When installing the insulation pipe on site, please cut it according to the actual needs. Refer to Figure 23. (Either method (a) or (b) is OK. Method (c) is incorrect. There must be no gap between the insulation pipe and connecting pipe.)

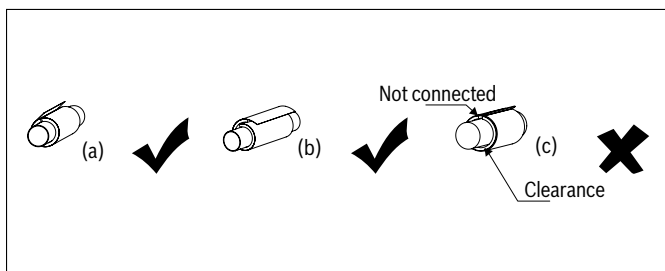


Figure 23

8 Drain pipe installation



CAUTION

Property damage, product damage!

Before installation of the drain pipe, determine its direction and elevation to avoid intersection with other pipelines to ensure that the slope is straight.

The highest point of the drain pipe should be equipped with a vent port to ensure the smooth drainage of condensate water, and the vent port must face downwards to prevent dirt from entering the pipe.

Do not connect the drain pipe to the wastewater pipe, sewage pipe, or other pipes that produce corrosive gases or odors. Otherwise, the indoor unit (especially the heat exchanger) may be corroded and odor may enter the room, negatively impacting the heat exchange effects and user experience. The user will assume responsibility for any consequences resulting from failure to abide by instructions.

After the pipeline connection is completed, a water test and a full water test should be done to check whether the drainage is smooth and whether the pipeline system leaks.

The air conditioner drain pipe must be installed separately from other sewage pipes, rainwater pipes and drain pipes in the building.

Adverse slope, convex and concave pipes are prohibited, as improper airflow will cause poor drainage.

Drain pipes need to be evenly wrapped with thermal insulation pipes to prevent condensation.

All joints of the drainage system must be sealed to prevent water leakage. Please connect the drain pipes in the following ways. Improper installation of the pipes may result in water leakage and damage to furniture and property.

8.1 Install the Drain Hose

1. Connect the drain hose to the water discharge pipe of the indoor unit.
2. Wrap the joint with waterproof tape, cover the exposed drain hoses with insulation material, and tie them with a binding tape.
3. Insert the end of the drain hose outdoors into the drain pipe.



The drain hose is at the outer layer of the indoor unit drain pipe. Try to connect the two pipes until the end.

1. Location of drainage outlet

Connect the drain hose to the gravity drainage outlet.

CAUTION

Improper operation, product damage, property damage!

Incorrect drainage location installation will result in improper drainage. See Figure below.

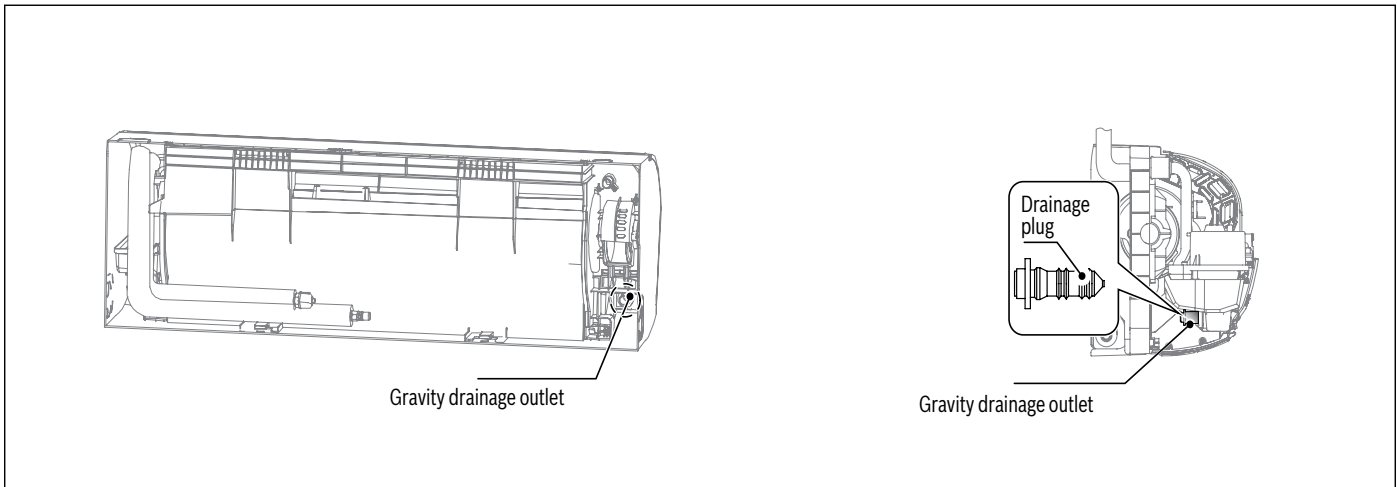


Figure 24

2. Connection

1. Connect the drain hose to the drainage outlet.
2. Wrap the joints, exposed drain hose, and refrigerant connecting pipes with waterproof insulating tape, and tie them with binding tape.



Drain hose is below the refrigerant pipes. See Figure below.



Install the wall sleeve cover after laying the refrigerant piping and drain pipe.

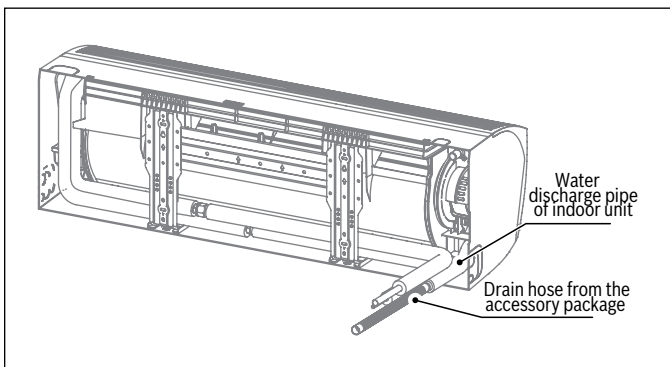


Figure 25

Insert the wall sleeve into the unit.

8.2 Extend the Drain Pipe (Optional)

1. To extend the length of a drain pipe, purchase an extension drain hose locally. Ensure the extension portion of the drain hose indoors undergoes heat insulation treatment.

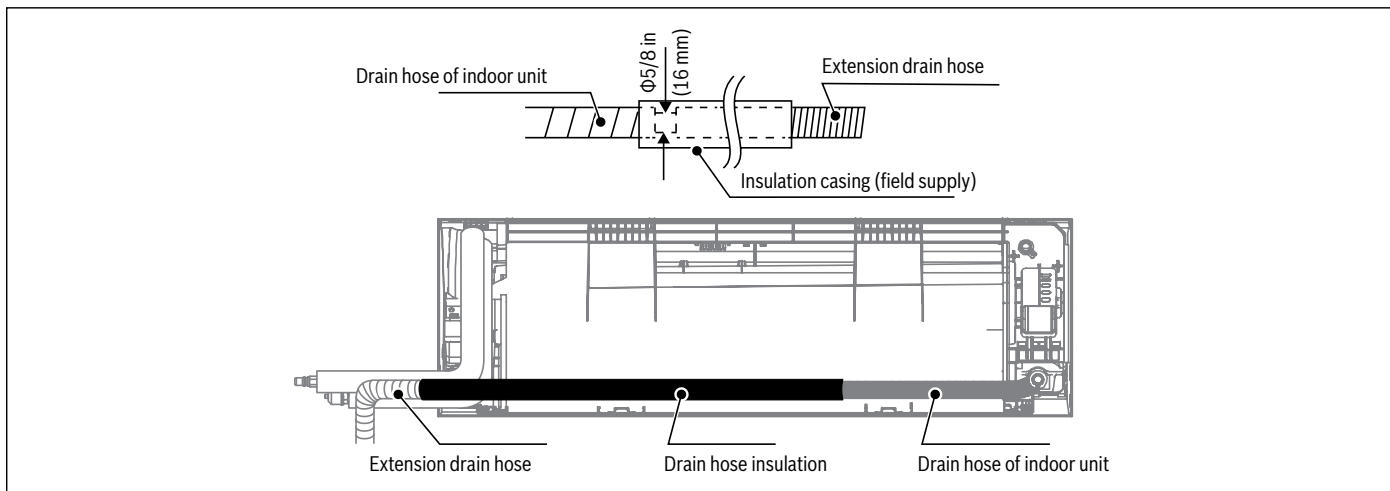


Figure 26

NOTICE

Improper operation!

Indoor parts of the drain hose shall be insulated to prevent condensation, and drain hose insulation should be thicker than 3/8 in (10 mm).

If the pipe is not wholly insulated, ensure to reinsulate the cut part.

Use glue or clamp to connect the joints and cuts of the thermal insulation pipe, and ensure clamp header is at the top of the pipes.

8.3 Install the Wall Sleeve

Drill a 3-1/8 in (80 mm) feed-through hole in the wall with a downward slope towards the outside.

8.4 Hook the Indoor Unit on the Installation Plate

1. Pass the properly bundled pipeline and connection cables through the wall hole, ensure the connecting pipes are free of sand and dust.
2. Hang the buckle at the back of the indoor unit on the upper hook of the installation plate. Push the indoor unit left and right to check that the unit is securely and firmly mounted.
3. Push the lower part of the indoor unit against the wall, and push the indoor unit up and down and left and right to check that the connection is secure.
4. Until the indoor unit can be connected properly, make sure that the indoor unit is buckled into the slots. Use your hands to shake the unit to check that it does not move up, down, left or right.
5. Use a level to verify that the indoor unit is level.

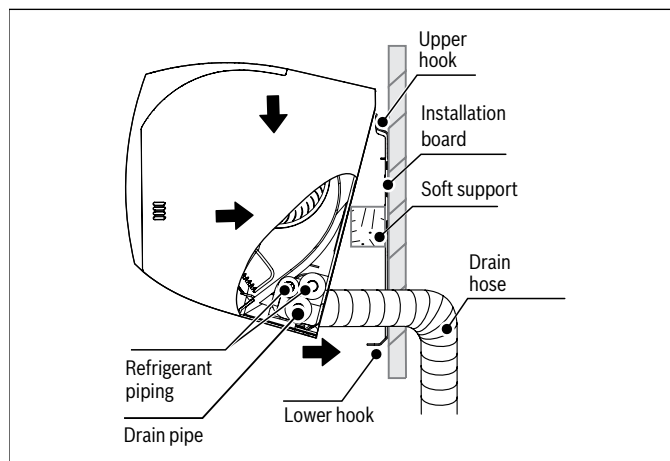


Figure 27

8.5 Installation Requirement for Drain Pipe

The drain pipe must be inclined downwards (1/100 or above) to avoid condensate water dropping.

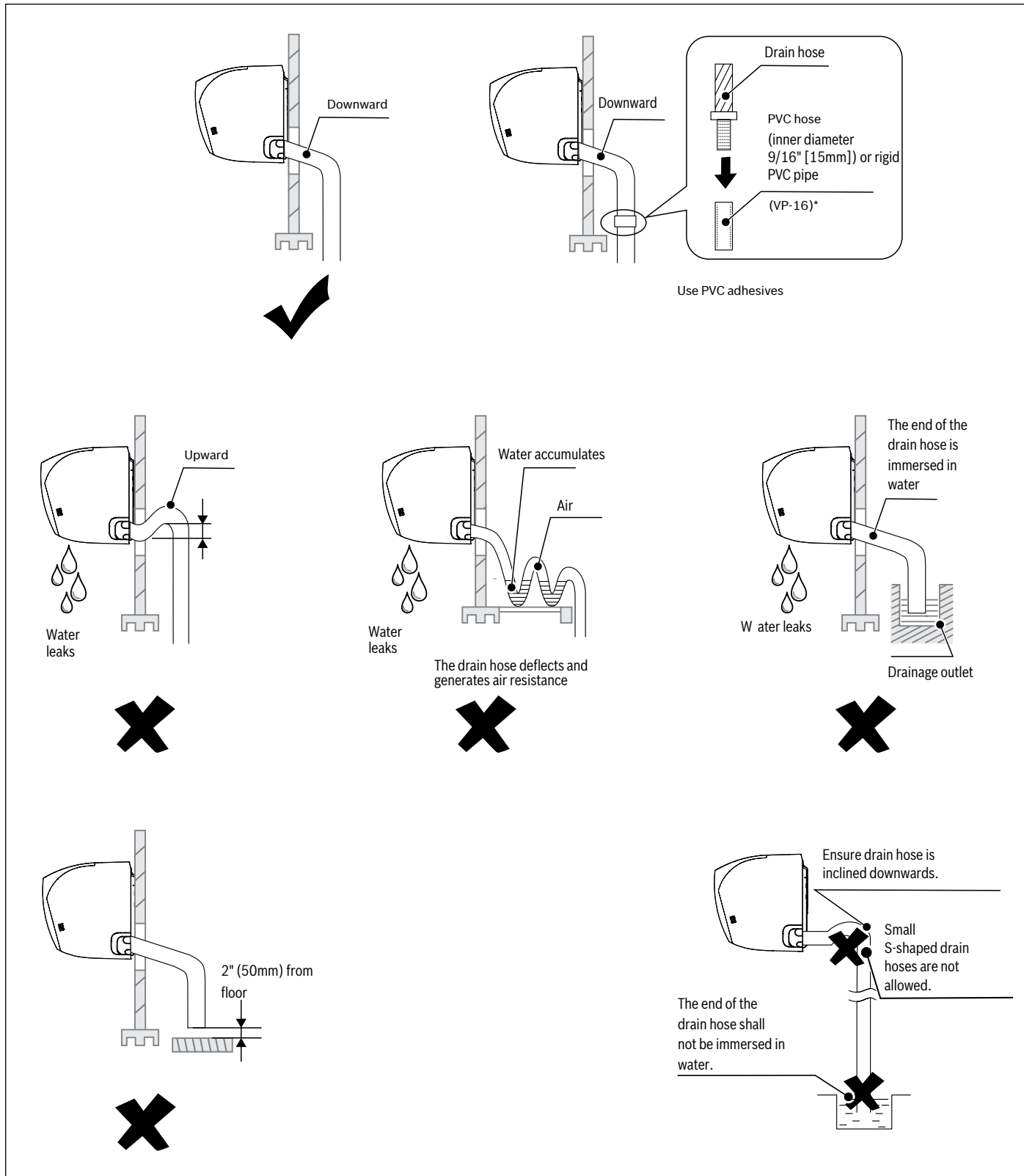


Figure 28

8.6 Connection Method of the Drain Pipe

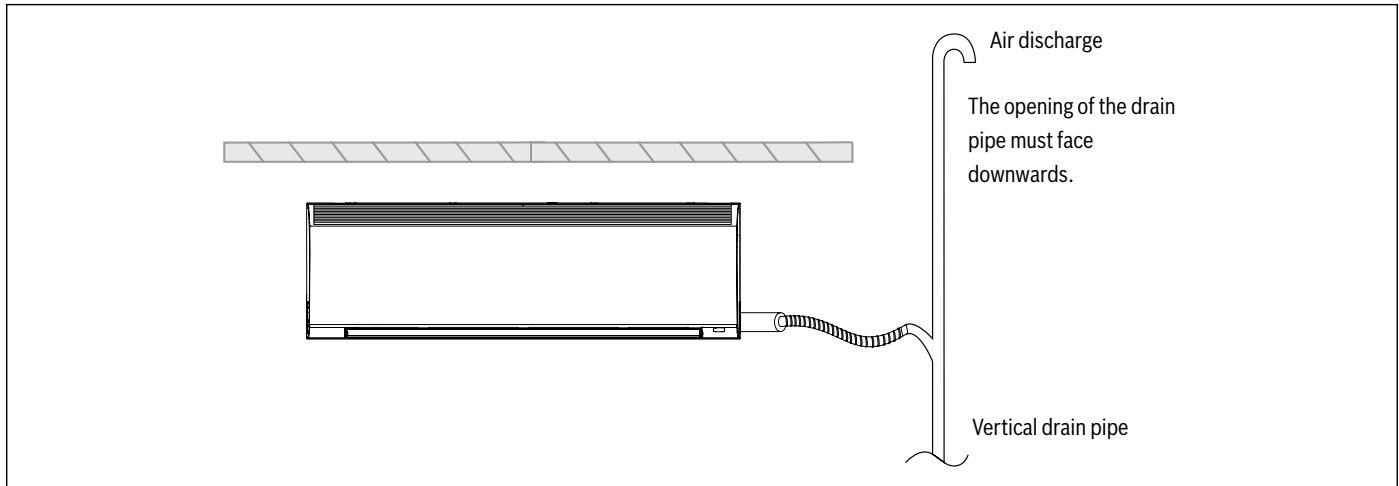


Figure 29



CAUTION

Improper operation, product damage!

Requirements for slope of the drain pipe:

1. The horizontal drain pipe shall have a slope of at least 1 % that follows the direction of water flow. Lifting bolts shall be placed every 39-3/8 in (1 m) to 59-1/16 in (1.5 m) at a horizontal drain pipe and every 59-1/16 in (1.5 m) to 78-3/4 in (2.0 m) at a vertical drain pipe. Each vertical drain pipe shall have at least two fixing points for branch pipes and lifting bolts.
2. Adverse slopes are prohibited, and no water may accumulate in the elbow pipe. The outlet end shall not be immersed in liquid.

8.7 Water Drainage Test

1. Open the panel assembly and remove the air filter.
2. Pour water into the drain pan.
3. After confirming that the drainage is smooth and free of water leakage, install the air filter and close the panel assembly.

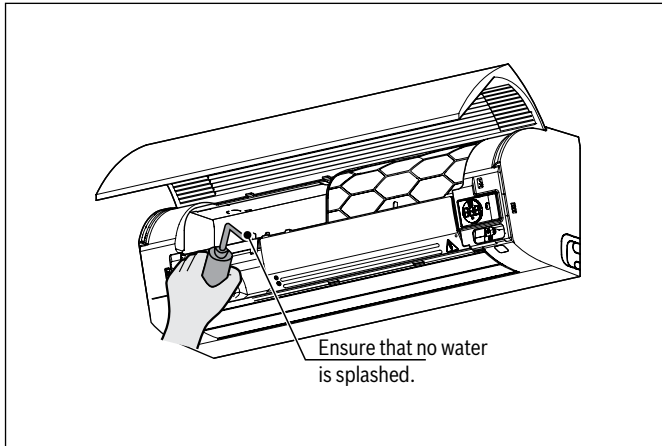


Figure 30

8.8 Lay and Insulate Pipes

1. Straighten and place the connecting pipes on the floor, and lay the drain pipe and various cables (remember to distinguish the two ends of the cable) around the connecting pipes.
2. Measure and adjust the distances of the gas pipe, liquid pipe and various cables based on the connecting point of the drain pipe, and bind them together with cable ties.
3. Lay the pipes and cables in the following sequence: drain pipe at the bottom, connecting pipe in the middle, and power supply cable at the top.
4. Use binding tape to tie the pipes and cable together.

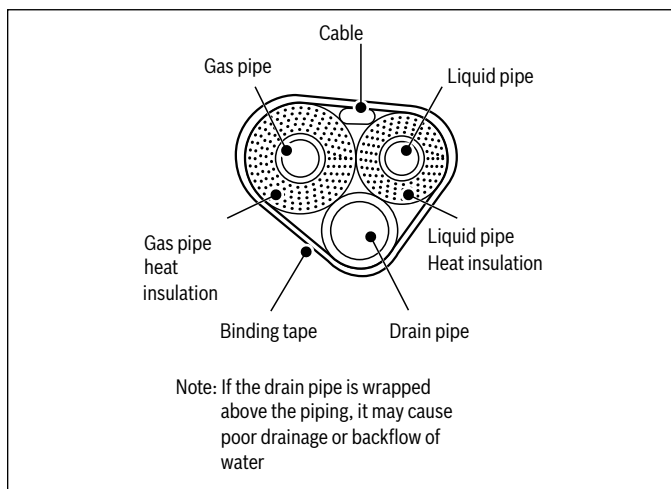


Figure 31

9 Electrical Wiring

Field wiring must comply with the National Electric Code (C.E.C. in Canada) and any applicable local ordinances.



WARNING

Electrical shock!

Disconnect all power to unit before installing or servicing. More than one disconnect switch may be required to deenergize the equipment. Hazardous voltage can cause severe personal injury or death.

1. Open the indoor unit's electric control box cover.
Loosen the screws on the right side of the electric control box cover and remove the electric control box cover.

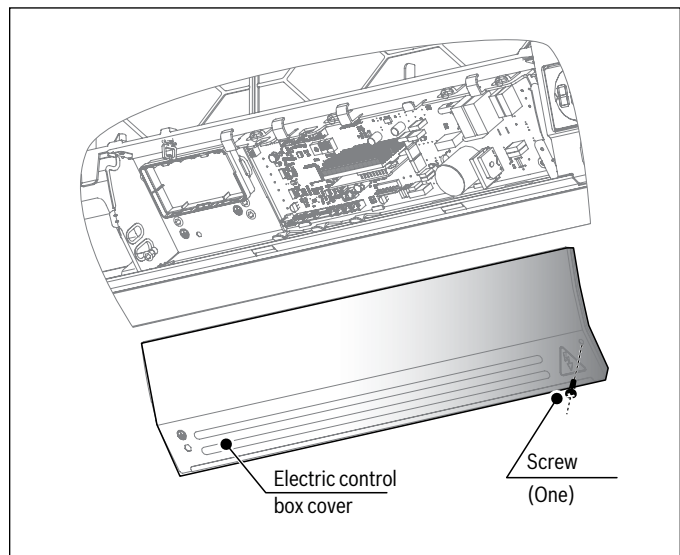


Figure 32

2. Connect the strong current wires (power supply cable, alarm signal output wires, and strong current sterilization wires) and weak current wires (communication wiring, remote switch communication wiring, expansion board communication wiring) to the electric control box through the strong and weak current inlets of electric control box.

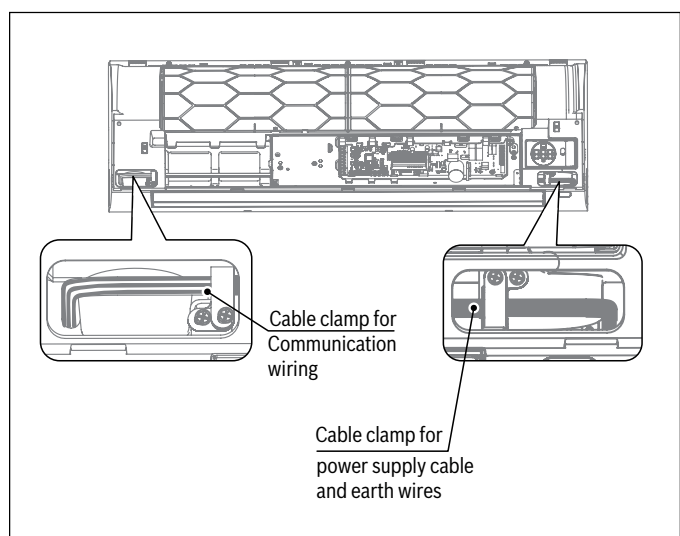


Figure 33

When there are multiple communication wires, it may not be possible to fix all the wires on the drain pan. In this case, use two ST3.9*6.5 self-tapping screws and clamps from the accessory pack to fix the wires on the installation plate.

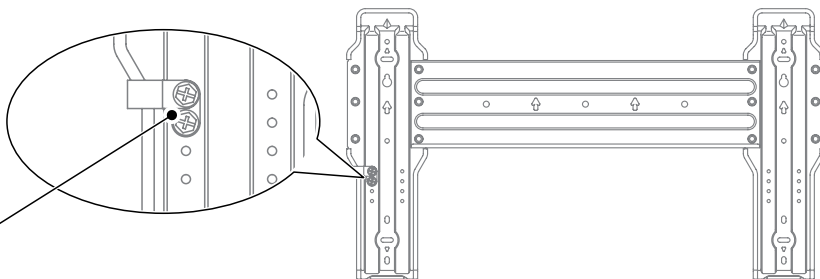


Figure 34



CAUTION

Product damage!

Power supply cable must be routed separately from the other cable such as communication wiring and display box communication wiring.

Water level switch terminals are shorted when the water level switch is unavailable.

9.1 Power Supply Cable Connection

Power supply cable connection

1. **Connection between the power supply cable and power supply terminal.** The power supply terminal of the indoor unit is fixed on the main control board, the power supply cable is connected to the power supply terminal labeled "CN1" on the main control board. The live and neutral wires are connected according to the main control board logos "L1" and "L2", and the earth wires is directly connected to the electric control box sheet metal part.

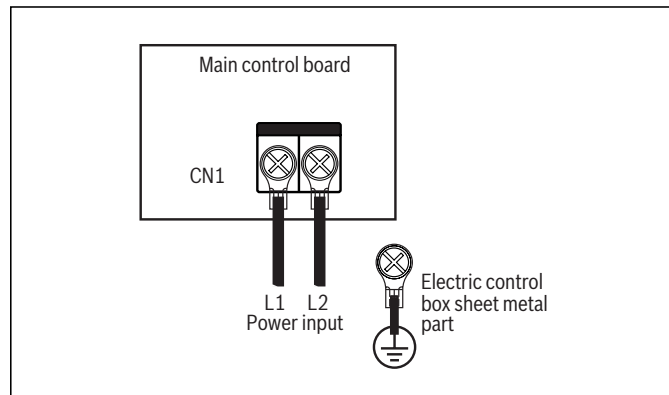


Figure 35



CAUTION

Risk of fire!

Use copper conductors only. Do not bond and connect the power supply cable. Bonding and connecting the power supply cable may cause it to heat up, resulting in a fire.



CAUTION

Electric shock!

The power supply cable must be crimped reliably using an insulated circular terminal block, and then connected to the power supply terminal of the indoor unit, as shown in Figure 36.

If it fails to crimp the insulated circular terminal block due to on-site limitations, connect the power supply cable of the same diameter to both sides of the power supply terminal block of the indoor unit, as shown in Figure 37.



CAUTION

Electric shock!

Do not press the power supply cable of the same wire diameter on the same side of the terminal. Do not use two power supply cables of different wire diameters for the same terminal blocks; otherwise, they can easily loosen due to uneven pressure and cause accidents, as shown in Figure 38.

 CAUTION

Electric shock, risk of fire!

The connected power supply cable should be secured with a wire clamp to prevent loosening, as shown in Figure 39.

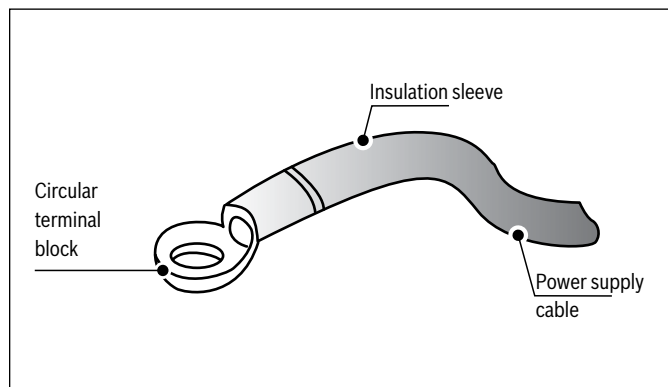


Figure 36

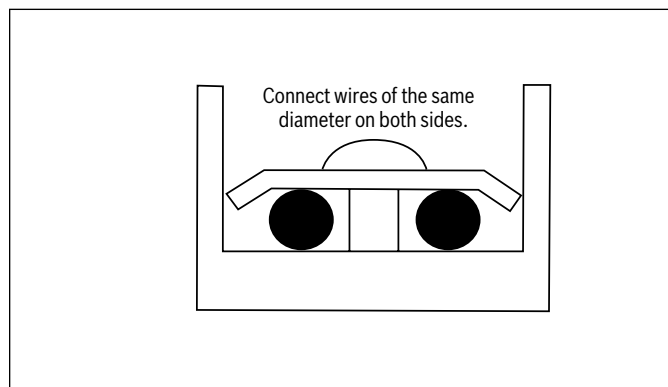


Figure 37

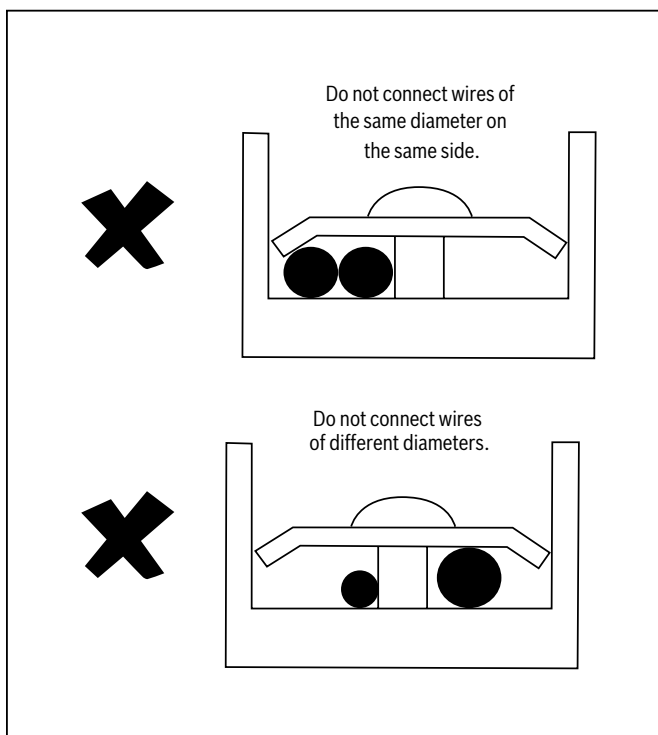


Figure 38

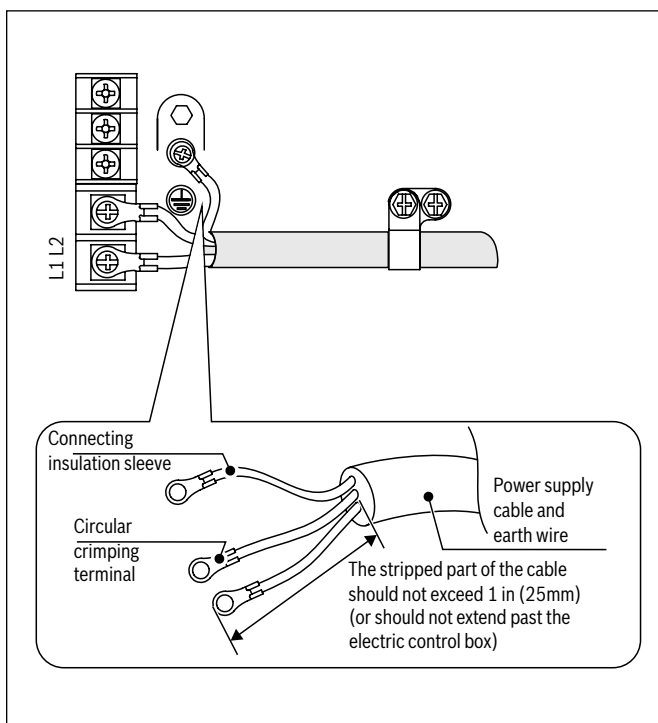


Figure 39

2. **Power supply cable system connection** Use a dedicated power supply for the indoor unit that is different from the power supply for the outdoor unit.
Refer to local electrical code for wiring indoor units

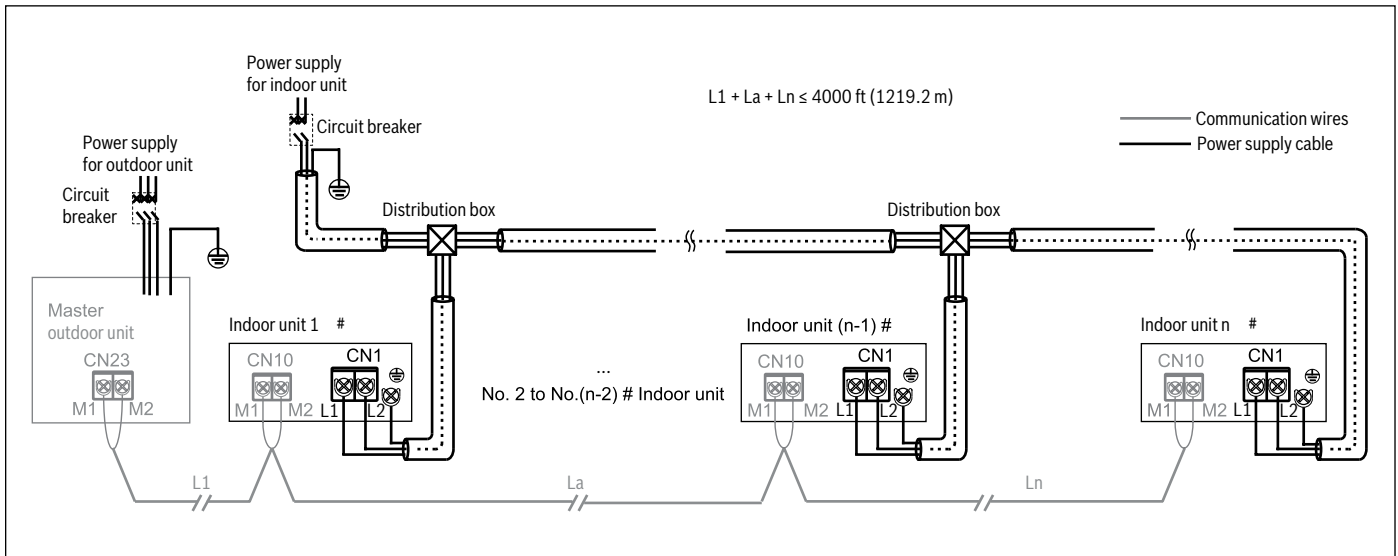


Figure 40

9.2 Communicating Set Up



The factory default mode is Hyper-Link(M1 M2) communication between the outdoor and indoor units.

- Hyper-Link(M1 M2) communication mode is only available with a matched outdoor unit which has Hyper-Link(M1 M2) communication function.
- If there are 2 or more systems (communication) in the same area, make sure the low voltage wires are connected to the right unit that are connected to the same refrigerant line.
- The IDS Edge Wall-Mounted (BIWA18) can only be configured to communicating mode when installed with an IDS Edge ODU/Max ODU (BOHA18) .

Maximum Low Voltage Wiring Length can be seen in Table 10.

See wiring diagram located on inside of the display panel for proper wiring instruction.

After installation, ensure separation of low voltage and high voltage wiring is maintained.



Hyper-Link(M1 M2) Communication Mode is only available for specified models.

1. Explanation of Communication Methods between indoor unit and outdoor unit.

The HyperLink (M1M2) communication method is used between the indoor unit and outdoor unit, which has the following characteristics:

- Any topology connection of communication wiring.
- Two-core and non-polar communication for M1M2.



CAUTION

Improper operation!

Do not connect the HyperLink (M1M2) communication line to the RS-485 communication interface, such as D1D2.

2. Communication wire guage

Hyper-Link (M1 M2) Communication Wire Size	Max Length
16/18 AWG	4000 ft. (1219.2m)

Table 10

 CAUTION
Improper operation, product damage!

Please select the communication wiring according to the requirements in the above reference table. Use shielded cables for communication when strong magnetism or interference is present.

On-site wiring must comply with the relevant regulations of the local country/region and must be completed by professionals.

Do not connect the communication wiring when the power is on.

Do not connect the power supply cable to the communication terminal; otherwise, the main control board may be damaged.

The standard value of the screw torque of the communication wiring terminal is 4.4 in·lb (0.5 N·m). Insufficient torque may cause poor contact; excessive torque may damage the screws and power supply terminals.

Do not bundle the communication wiring with the refrigerant pipeline, power supply cable, etc. When the power supply cable and the communication wiring are laid in parallel, a distance of more than 2" (5cm) should be maintained to prevent interference from the signal source.

Bonding and connecting the communication wiring should be avoided, but if it is used, at the very least, ensure a reliable connection by crimping or soldering and make sure the copper wire at the connection is not exposed; otherwise, communication failure may occur.

3. Indoor unit and outdoor unit communication cable connection

Single unit: M1 and M2 ports are located at terminal block "CN10" of the main control board. There is no distinction between negative and positive electrodes. For details, see the figure below.

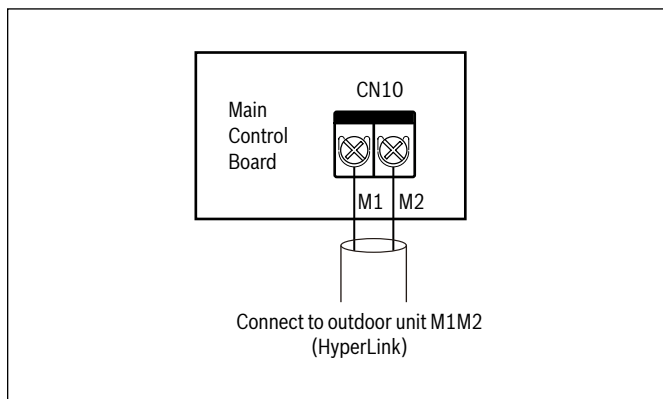


Figure 41

 CAUTION
Improper operation!

Do not connect the HyperLink (M1M2) communication wiring to the D1D2 communication wiring.

Multi-zone Communication Wiring

When wiring communication lines for multiple indoor units, follow the same method used for a single-zone system:

1. Connect M1 to M1 on every unit.
2. Connect M2 to M2 on every unit.
3. Make sure the total length of the communication wire chain does not exceed 4000 ft. (1219.2m). Exceeding this limit can cause data loss. See figure below.

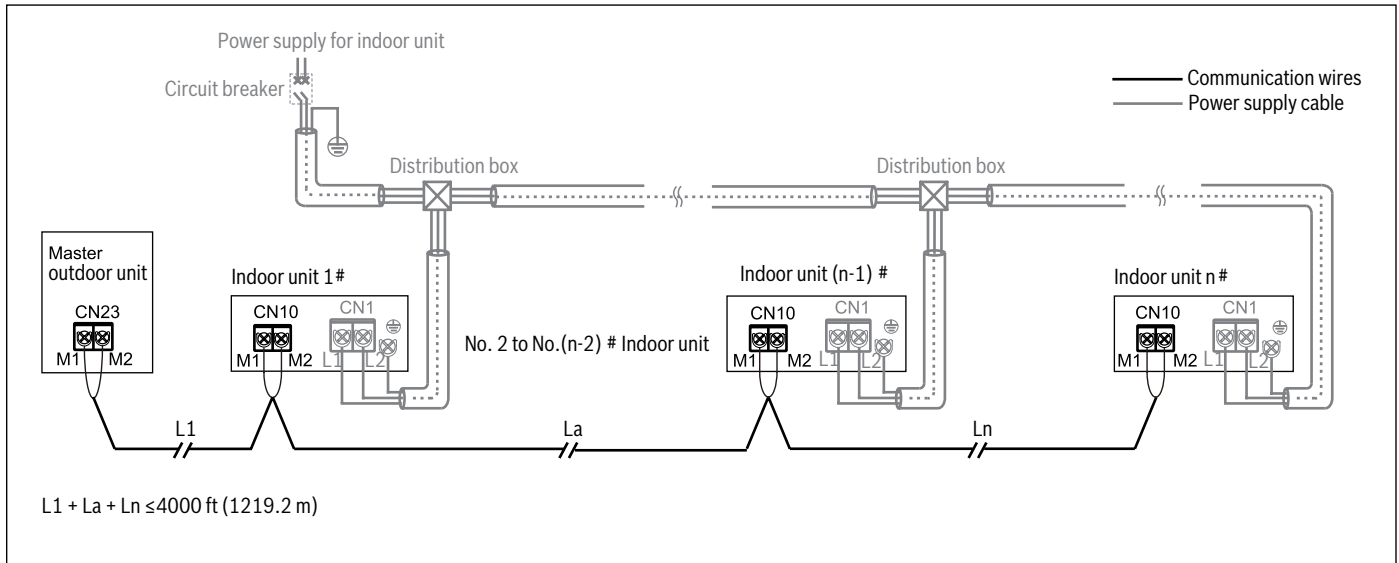


Figure 42

9.3 Electrical Data

Capacity (kBtu/h)	Electric specifications of the indoor unit				Indoor fan motor
	Frequency (Hz)	Voltage (V)	MCA (A)	MOP (A)	Rated motor output (hp)
7	60	208/230	0.55	10	1/32
9			0.68		1/32
12			0.70		1/32
18			0.83		1/32

Table 11

9.4 Switch Module

9.5 Layout of Switch Module

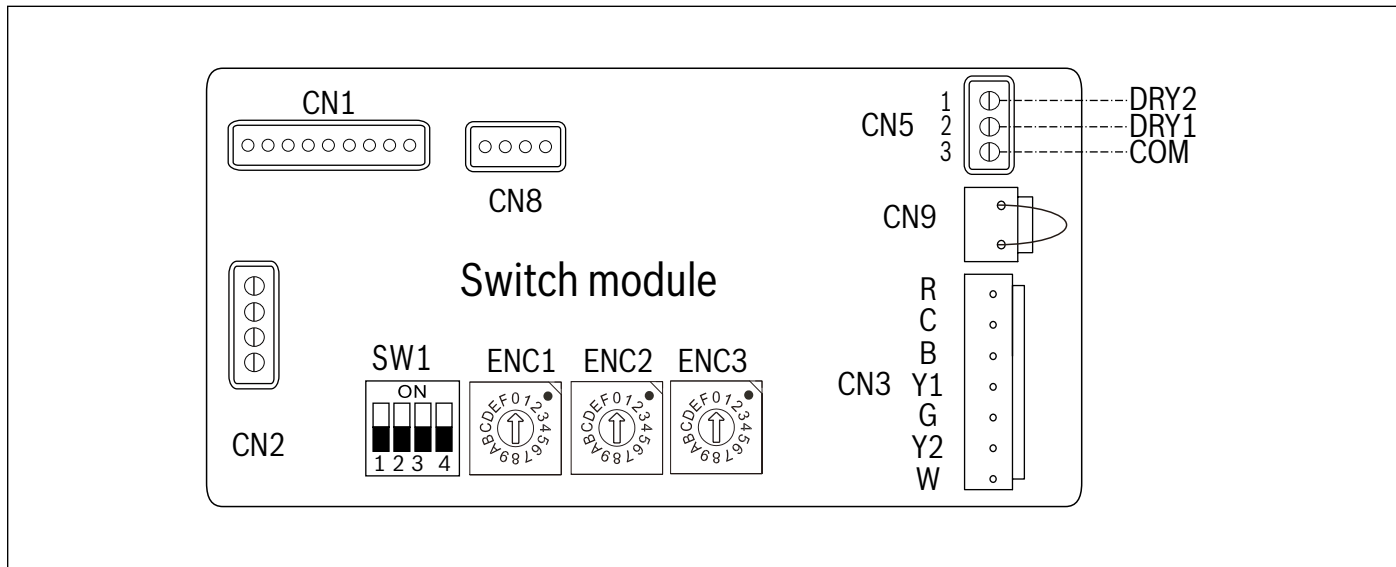


Figure 43

Port definition and function description:

Port	Attribute	Function
CN1	Output	Connects the switch module to the main indoor control board via CN18 for communication between the two boards
CN2	Reserved	Reserved
CN3	Thermostat Wiring	Transformer needs to be field supplied. Conventional 24V Thermostat Wire Signals
CN5	Output	A passive multi-function dry contact set by the ENC1 dip switch. The function depends on the ENC1 dip switch setting. Refer to Table 14
CN8	Input	Connect the A2L refrigerant sensor
CN9	Input	Short circuit, No function definition
SW1-1	Reserved	Reserve
SW1-2		
SW1-3		
SW1-4	Setting	Transformer needs to be field supplied. OFF: 24 V thermostat disabled ON: 24 V thermostat enabled
ENC1	Setting	Multi-function dry contact definition
ENC2	Reserved	Reserved
ENC3		

Table 12

9.6 LED1 and LED3 Indicator Description

No.	Definition	Display	Description
LED1	Refrigerant sensor communication indicator (green)	OFF	No communication history between the switch module and the refrigerant sensor
		Stays on	Normal communication between the switch module and the refrigerant sensor
		Blink	Abnormal communication between the switch module and refrigerant sensor
LED3	Communication indicator (red)	OFF	Communication between the switch module and the indoor unit main control board fails
		Stays on	Normal communication between the switch module and the indoor unit main control board
		Blink	Abnormal communication between the switch module and indoor unit main control board

Table 13

9.7 ENC1/DRY2 Functions

Dry Contact: The CN5 port serves as a DRY contact for accessory use.

Dry 2: multi-function dry contact. The specific logic varies according to the dip switch value of ENC 1. The corresponding logic takes effect only after the Switch value is set to a function and the indoor unit is powered on again.

See Table 14 for the setting definition of ENC1 and their effects on the CN5 DRY contact.

ENC1	Dry2 Signal Type	Display	Common External Device
0	No function	/	/
1	Indoor unit fan status output	ON/OFF ≤ 24 V DC/AC 1A	Air valve, FAPU, Air discharge device
2	Shutdown/ non- shutdown output	ON/OFF ≤ 24 V DC/AC 1A	Fire Alarm Peripheral Unit (FAPU)
3	Third-party heater output (air duct installed inside)	ON/OFF ≤ 24 V DC/AC 1A	Electric heating Tube
4	Fault alarm output	ON/OFF ≤ 24 V DC/AC 1A	Alarm equipment
5	Third-party humidifier control	ON/OFF ≤ 24 V DC/AC 1A	Humidifier
6	Dehumidifier control	ON/OFF ≤ 24 V DC/AC 1A	Dehumidifier
7	Preheater control	ON/OFF ≤ 24 V DC/AC 1A	Fresh air preheater
8	Third-party heater output (air ducts installed outside)	ON/OFF ≤ 24 V DC/AC 1A	Wall-mounted heater
9	Cooling operation output	ON/OFF ≤ 24 V DC/AC 1A	External device
A	Heating operation output	ON/OFF ≤ 24 V DC/AC 1A	External device
B	Human detection sensor status output	ON/OFF ≤ 24 V DC/AC 1A	Indicator /window off control
C	Defrosting operation output	ON/OFF ≤ 24 V DC/AC 1A	External device
D	Economizer control	ON/OFF ≤ 24 V DC/AC 1A	Air-side economizer
E	No function	/	/
F	No function	/	/

Table 14

9.8 24 V Thermostat Function SW1-4 ON

Check whether the DIP switch is correct according to the wiring nameplate after the electrical wiring is complete. In the switch settings when there is a Y1 or G signal, run at the lower speed, when there is a Y1+Y2 signal, run at the higher speed.

The factory default will prevent cold air from blowing into the room as the initial stage of heating.

	Mode	Y or G (MIN)	Y1 + Y2 (MAX)
Fan Speed	COOL	4	7
	HEAT	4	7

Table 15

9.9 Wiring Diagram

NOTICE

Field supplied accessory required!

24 V linear transformer needs to be provided by the customer on site.

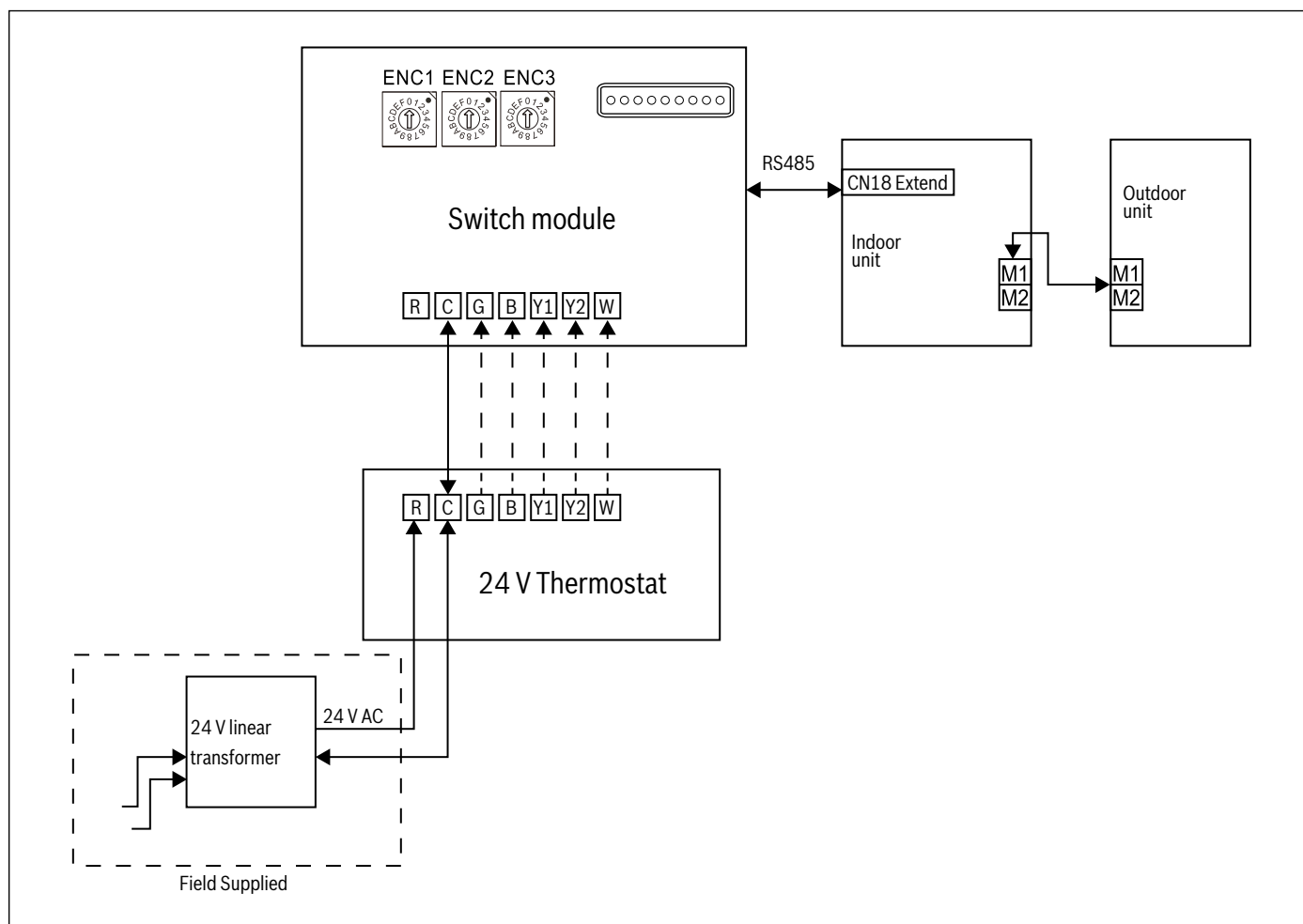


Figure 44

10 Test Run

Checklist Before Test Run

After the installation of the unit, check the items listed below first.



WARNING

Personal injury, product damage!

Do not power on the system.

Pass/Fail	Checklist
☐	Read the complete installation and operation manual.
☐	Installation Check that the units are properly installed, to avoid abnormal noises and vibrations when starting up the units.
☐	Compressor and others shipping brackets removed.
☐	'The Piping Length' and 'Additional Refrigerant Charge' are calculated and recorded on the table of the unit.
☐	Be sure that the stop valves are open on both liquid and gas side.
☐	All Controllers installed and all control wiring is installed and properly connected at each terminal block.
☐	All drain piping is connected, including indoor units tie-in, and insulated as required.
☐	Refrigerant lines are completely insulated including flare nut connections at Indoor Units.
☐	All ductwork is connected and air filters installed.
☐	Air inlet/outlet Check that the air inlet and outlet of the unit is not obstructed by paper sheets, cardboard, or any other material.
☐	Field wiring Be sure that the field wiring has been carried out according to the instructions described in the manual and according to the applicable legislation.
☐	Grounding Be sure that the earth wires have been connected properly and that the ground terminals are tightened.
☐	Insulation test of the main power circuit Using a megatester for 500 V, check that the insulation resistance of 2 MΩ or more is attained by applying a voltage of 500 V DC between power terminals and earth. NEVER use the megatester for the communication wiring.
☐	Fuses, circuit breakers, or protection devices Check that the fuses, circuit breakers, or the locally installed protection devices are of the specified size and type. Do not bypass a fuse and a protection device.
☐	Internal wiring Visually check the electrical component box and the inside of the unit for loose connections or damaged electrical components.
☐	Components damage Check for damaged components and extruded piping inside the unit. Consistency Check between Refrigeration Pipelines and Communication wirings. Check and confirm that the refrigerant piping and communication wirings connected to the indoor and outdoor units belong to the same refrigeration system.
☐	Oil leak Check if there is oil leaking from the compressor and piping. If there is an oil leak, try to repair the leak. If the repair is not successful, call the local agent.
☐	Refrigerant leak Check for refrigerant leaks inside the unit. If there is a refrigerant leak, try to repair the leak. If the repair is not successful, call the local agent. Do not come into contact with the refrigerant leaking from the refrigerant piping connections. It may cause frostbite.
☐	Flammable refrigerant. If there is a refrigerant leak, keep ventilation to avoid the risk of refrigerant stagnating. 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.
☐	Line Voltage is checked and verified to be within specified range for all system components.
☐	Power the outdoor units 12 hours before operation in order to have power running to the crankcase heater and to protect the compressor.

Table 16

Indoor Unit

- The display of the remote controller is normal, the function keys work normally, the room temperature adjustment is normal, and the air flow and direction adjustment are normal.
- The LED indicator is on.
- Water drainage is normal.
- Check the indoor units one by one for normal operation, and the cooling and heating functions are normal without vibration or abnormal sound.

Outdoor unit

- There are no vibrations or strange sounds during operation.
- The fan, noise and condensation do not affect the neighbors.
- There is no refrigerant leakage.

11 Wiring Diagrams**WARNING****Electrical shock!**

Disconnect all power before servicing or installing this unit. Multiple power sources may be present. Failure to do so may cause property damage, personal injury or death.

**DANGER****Electrical shock!**

This unit must be properly grounded and protected by a circuit breaker or fuse.

**WARNING****Electrical shock!**

These units must be wired and installed in accordance with all National and Local Safety Codes.

- To avoid electrical shock, please ensure:
 - The heat pump is properly grounded
 - The main power plug to the heat pump has been joined with the ground wiring (DO NOT ALTER THIS).
- Do not strain the power wiring.

Low-voltage wires include indoor unit connect with outdoor unit and the indoor unit connect with the thermostats.

Hyper-Link (M1 M2) communication mode is only available for specified models.

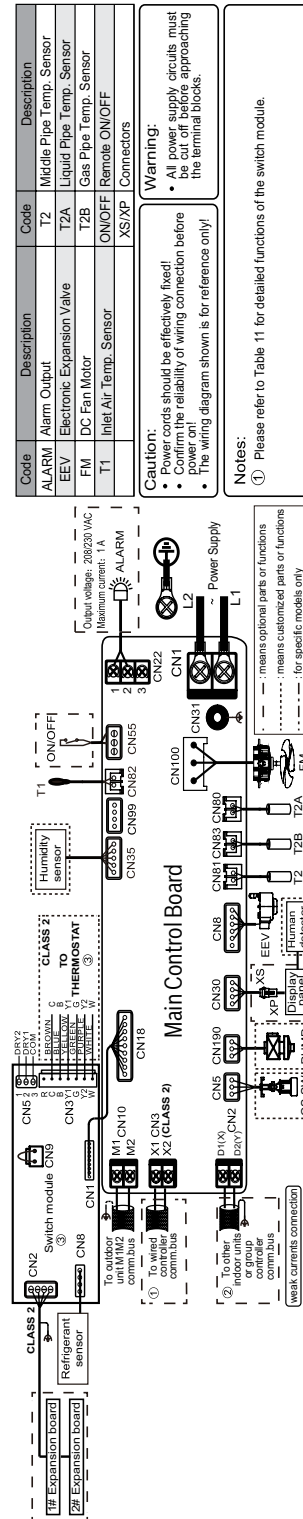


Figure 45

12 Fault Codes and Status Codes

When the indoor unit encounters a fault, an error code will be displayed on the display panel. These error codes are described in the tables below.

Definition	Error code	Digital display
Emergency stop	A01	A01
R-454B refrigerant leak detected  DANGER IDU will self-clear code after 5 minutes of below-threshold measurement of R454B. ODU power cycle required for re-start.	A11	A11
Outdoor unit fault	A51	A51
Self-check fault	A81	A81
Mode conflict	A91	A91
1# EEV coil fault	b11	b11
1# EEV body fault	b12	b12
Duplicate indoor unit address code	C11	C11
Abnormal communication between the indoor unit and outdoor unit	C21	C21
Abnormal communication between the indoor unit main control board and fan drive board	C41	C41
Abnormal communication between the indoor unit main control board and display board	C61	C61
Abnormal communication between the indoor unit main control board and Switch board	C79	C79
Reminder for expiration of life of refrigerant leakage sensor	d43	d43
T1 (Indoor unit return air temperature sensor) short-circuits or cuts off	E24	E24
R454B refrigerant leakage sensor fault	EC1	EC1
T2A (heat exchanger inlet temperature sensor) short-circuits or cuts off	F01	F01
T2 (heat exchanger middle temperature sensor) short-circuits or cuts off	F11	F11
T2 (heat exchanger middle temperature sensor) overtemperature protection	F12	F12
T2B (heat exchanger outlet temperature sensor) short-circuits or cuts off	F21	F21
Fan drive board input side overcurrent protection	P31	P31
At least 6 times P31 fault codes detected within 60 minutes	P34	P34
Power supply voltage is too low fault	P52	P52

Definition	Error code	Digital display
Main control board EEPROM fault	P71	P71
Indoor unit display control board EEPROM fault	P72	P72
Address code not detected	U38	U38
Motor failed more than once	J01	001
IPM (fan module) overcurrent protection	J1E	11E
Instantaneous overcurrent protection for phase current	J11	001
Low bus voltage fault	J3E	13E
High bus voltage fault	J31	031
Phase current sample bias error	J43	143
Motor and indoor unit are unmatched	J45	045
IPM and indoor unit are unmatched	J47	147
Motor startup failure	J5E	05E
Motor blocking protection	J52	152
Phase lack protection of motor	J6E	06E

Table 17

13 Operating Status Codes and Definitions (Non-Error)

Definition	Code	Digital display
Oil return or preheating operation	d0	
Mode conflict	dd	
Defrosting	dF	
Remote shutdown	d61	

Table 18

Online Help Resources

Alternatively, please visit our Service & Support webpage to find FAQs, videos, service bulletins, and more; bosch-homecomfort.us/service or use your cellphone to scan the code below.

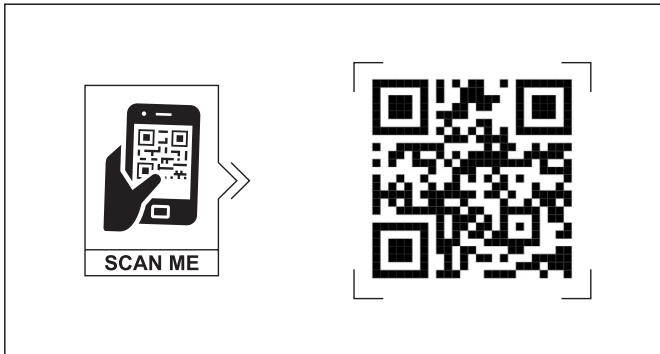


Figure 46

14 Disposal Guidelines

Components

Many parts in the Air Conditioner can be fully recycled in the end of the product life. Contact your city authorities for information about the disposal of recyclable products.

Refrigerant

At the end of the service life of this appliance and prior to its environmental disposal, a person qualified to work with refrigerant circuits must recover the refrigerant from within the sealed system.



WARNING

Contains refrigerant !

Improper disposal of this appliance endangers your health and is bad for the environment. Hazardous substances may leak into the ground water and enter the food chain.

Disposing of this product correctly will help ensure that the waste undergoes the necessary treatment, recovery and recycling.

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