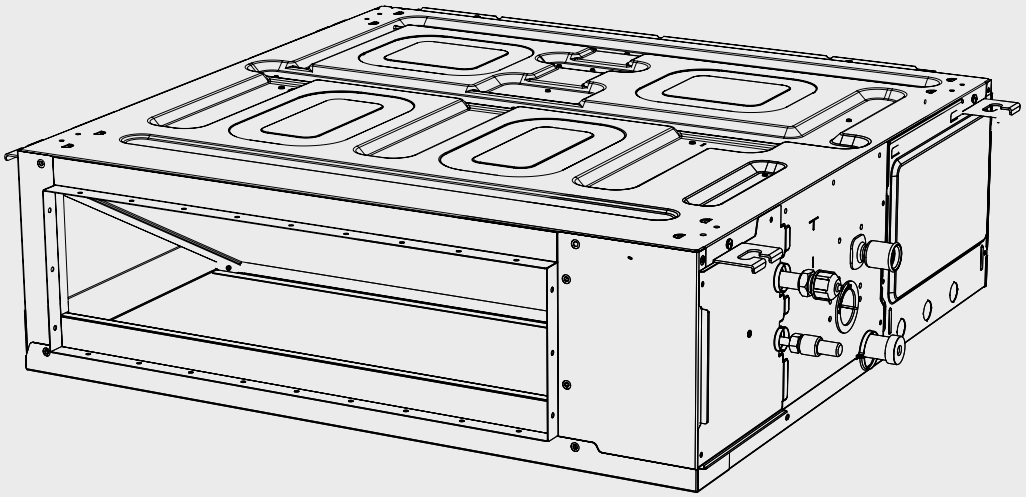
BOSCH

Installation and Operating Instructions

# Bosch IDS Heat Pump
# **Edge Multi Series - Slim Ducted**

0.6 - 0.8 - 1 - 1.5 Ton Capacity | R-454B



BTC 762003322 A / 11.2025

ENERGY STAR

AHRI CERTIFIED
www.ahridirectory.org
Unitary Small HP
AHRI Standard 210/240
Certification applies only when the complete system is listed with AHRI.

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Intertek

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# 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 Indoor Unit / Outdoor Unit

| Symbol | |
|---|---|
|   | WARNING<br>This symbol shows that this appliance used a flammable refrigerant. If the refrigerant is leaked and exposed to an external ignition source, there is a risk of fire. |
|  | CAUTION<br>This symbol shows that the operation manual should be read carefully. |
|  | CAUTION<br>This symbol shows that a service personnel should be handling this equipment with reference to the installation manual. |
|  | |
|  | CAUTION<br>This symbol shows that information is available such as the operating manual or installation manual. |

*Table 1*

## 1.3 Safety

**Please read safety precautions before installation**

Incorrect installation due to ignoring instructions can cause serious damage or injury.

**WARNING**

**Improper or dangerous operation!**

Installation must be performed by a licensed contractor, and per the instructions in the installation manual. Improper installation can cause water leakage, electrical shock, or fire.

In North America, installation must be performed in accordance with the requirement of NEC (National Electric Code) and CEC (Canadian Electric Code) by licensed and qualified personnel only.

Only contact a licensed contractor for repair or maintenance of this unit.

**WARNING**

**Electrical hazard!**

Do not modify the length of the power supply cord or use an extension cord to power the unit.

Do not share the electrical outlet with other appliances. Improper or insufficient power supply can cause fire or electrical shock.

**WARNING**

**Contains lead!**

This product can expose you to chemicals including Lead and Lead components, which are known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

***NOTICE***

**Improper operation, product damage!**

Generation 4 Mini-Split (R-454B) cannot be combined or paired with previous Mini-Split generations (R-410A).

**WARNING**

**Installation requirements!**

Installation must be performed by a licensed contractor, and per the instructions in the installation manual. Improper installation can cause water leakage, electrical shock, or fire.

In North America, installation must be performed in accordance with the requirement of NEC (National Electric Code) and CEC (Canadian Electric Code) by licensed and qualified personnel only.

Only contact a licensed contractor for repair or maintenance of this unit.

Only use the included accessories, parts, and specified parts for installation. Using non-standard parts can cause water leakage, electrical shock, fire, and can cause the unit to fail.

Install the unit in a solid location that can support the unit's weight. If the chosen location cannot support the unit's weight, or the installation is not done properly, the unit may drop and cause serious injury and/or damage.

**WARNING**

**Electrical hazard!**

For all electrical work, follow all local and national wiring standards, regulations, and the Installation Manual. The power supply to the outdoor unit requires a service disconnect at the unit. Only use a dedicated circuit. Never share a power source connected to this system. Insufficient electrical capacity or defects in electrical work can cause electrical shock or fire.

For all electrical work, use the specified cables. Connect cables tightly, and clamp them securely to prevent external forces from damaging the terminal. Improper electrical connections can overheat and cause fire, and may also cause shock.

All wiring must be properly arranged to ensure that the control board cover can close properly. If the control board cover is not closed properly, it can lead to corrosion and cause the connection points on the terminal to heat up, catch fire, or cause electrical shock.

In certain functional environments, such as kitchens, server rooms, etc., the use of specially designed air-conditioning units is highly recommended.

If the power supply cord is damaged, it must be replaced by the manufacturer, its service agent or similarly qualified persons such as a licensed electrician in order to avoid a hazard.

The product must be properly grounded at the time of installation, or electrical shock may occur.

If connecting power to fixed wiring, an all-pole disconnection device which has at least 3mm clearances in all poles, and have a leakage current that may exceed 10mA, the residual current device(RCD) having a rated residual operating current not exceeding 30mA, and disconnection must be incorporated in the fixed wiring in accordance with the wiring rules.

**CAUTION**

**Fire hazard!**

For units that have an auxiliary electric heater, do not install the unit within 1 meter (3 feet) of any combustible materials.

Do not install the unit in a location that may be exposed to combustible gas leaks. If combustible gas accumulates around the unit, it may cause fire.

Do not operate your air conditioner in a wet room such as a bathroom or laundry room. Too much exposure to water can cause electrical components to short circuit.

***NOTICE***

**Property damage!**

Install condensate drainage piping according to the instructions in this manual. Improper condensate drainage may cause water damage to your home and property.

**CAUTION**

**Contains refrigerant!**

This air-conditioning unit contains fluorinated gases. For specific information on the type of gas and the amount, please refer to the relevant label on the outdoor unit itself.

Installation, service, maintenance and repair of this unit must be performed by a certified technician.

Product removal and recycling must be performed by a certified technician.

If the system has a leak-detection system installed, it must be checked for leaks at least every 12 months.

When the unit is checked for leaks, proper record-keeping of all checks is strongly recommended.

***NOTICE***

**Product damage!**

Fuse specifications: The air conditioner's circuit board (PCB) is designed with a fuse to provide overcurrent protection. The specifications of the fuse are printed on the circuit board , for example : T3.15AL/250VAC, T5AL/250VAC, T3.15A/250VAC, T5A/250VAC, T20A/250VAC, T30A/250VAC,etc.

Only blast-proof ceramic fuses can be used.

**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 without continuously operating ignition sources (for example: open flames, an operating gas appliance or an operating electric heater).

Do not pierce or burn.

Be aware that refrigerants may not contain an odor.

**CAUTION**

**Fire, personal injury, product damage!**

Remove all static electricity before touching units.

**WARNING**

**Flammable refrigerant!**

The appliance uses R454B refrigerant.


**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 be come 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.

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

The indoor and outdoor units are designed to be used together. Please verify the unit you purchased per Table 2. 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 4.

**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 ≥7.3ft/2.2m 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 1,8 m, spaces divided by partition walls which are no higher than 1,6 m 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 Sec.2.
- The minimum opening area for natural ventilation $Anv_{min}$ shall not be less than the following:

| Height of outlet Ft (m) | A Ft2 / ($m^2$) | Mc Oz (Kg) | $M_{max}$ Oz (kg) | $Anv_{min}$ Ft2 ($m^2$) |
|---|---|---|---|---|
| 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 =5.0kg 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 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 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 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 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 1.5 m 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.

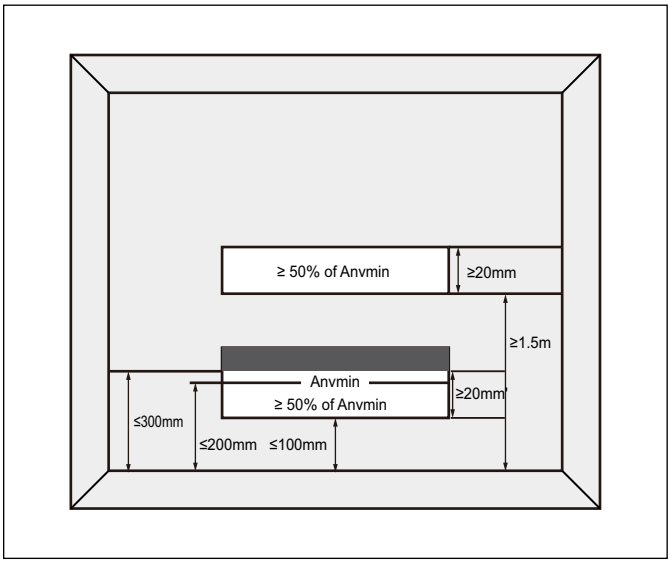



*Figure 1*

- 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*

***Amin**: the required minimum room area in $ft^2$ /$m^2$*
***mc**: the actual refrigerant charge in the system in oz/kg*
***mREL**: the refrigerant releaseable 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. For the unit with refrigerant sensor, when the refrigerant sensor detects refrigerant leakage, the indoor unit will display a error code (EL0C) 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 “FHCC”. The refrigerant sensor can not be repaired and can only be replaced by the manufacture. It shall only be replaced with the sensor specified by the manufacture.

### 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:
  a. 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.
  b. 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.
  c. 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 lessor 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-o 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 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.

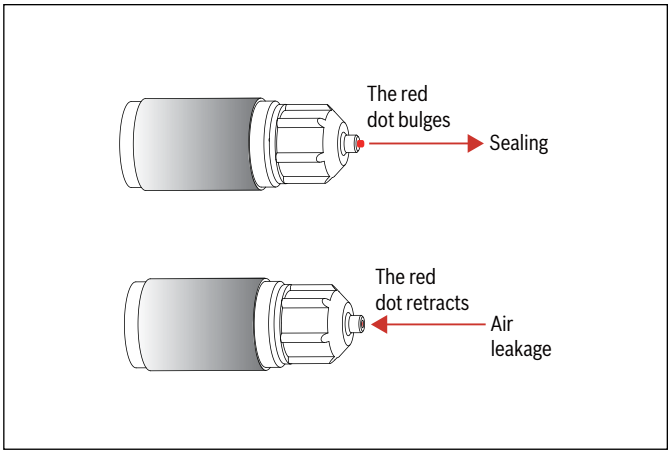
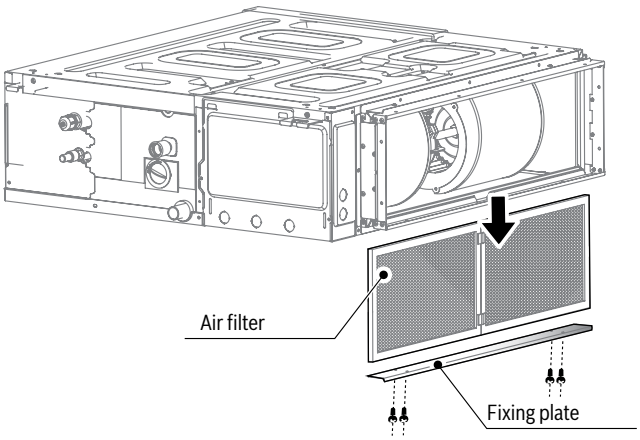



*Figure 3*

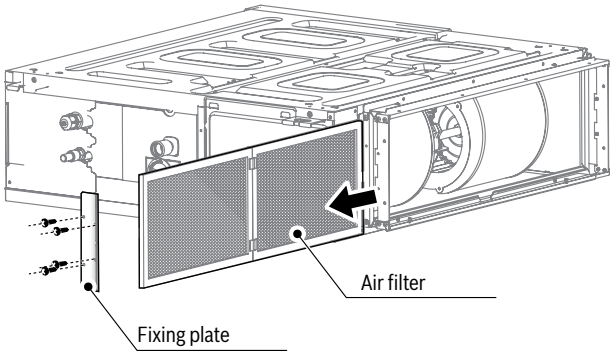
### Take out the package inside the fan casing

Before lifting the unit, always check the air outlet and air return plenum to ensure that the package and accessory package are taken out. Note that some models contain packaging material inside the fan casing. Follow the steps below to remove it.

**1. Pull out the air filter from bottom.**




**2. Pull out the air filter from**




**3. Take out the accessory pack.**

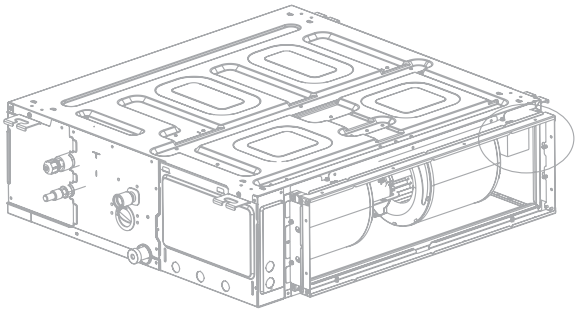


*Figure 2*

# 3 Installation Materials

## 3.1 Accessories

1. **Installation And Operation Manual X 1** (Make sure to hand it over to the user)
2. **Flare Nut X 2** For use in the in allation of connecting pipe (the quantity is one for models with a process pipe)
3. **Display Box X 1**
4. **Cable Tie X 4** To tighten the drain hose tightly to the drainage outlet and PVC piping of the indoor unit.
5. **Thermal Insulation Pipe X 2** Used for insulation and anti-condensation at pipe connections.
6. **Protective Nut X 2**

***NOTICE***

**TBD!**

When installing the insulation pipe on site, please cut it according to the actual needs. Refer to Figure 4 (Either method (a) or (b) is OK. Method (c) is incorrect. There must be no gap between the insulation pipe and connecting pipe.).

Check the accessory kit for the above items and contact your local dealer for any missing items.

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

Customers are free to choose to buy wired controllers, display boxes, remote controllers (with a seven-speed wind controller) and other optional accessories.

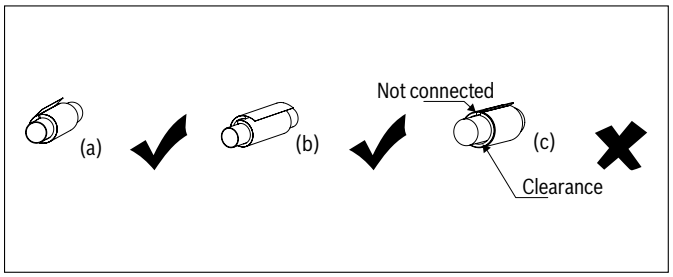



*Figure 4*

***NOTICE***

**TBD!**

The materials necessary for onsite installation of the connecting pipe, air duct, flexible hose connecting the air outlet, drain pipe, lifting screw, air supply and return grille, various fasteners (pipeline bracket, Victaulic connector, screw, etc.), power supply cable, signal line, etc. need to be purchased by the installer. The materials and specifications must comply with the corresponding local or industrial standards.

**Locally Purchased Accessories**

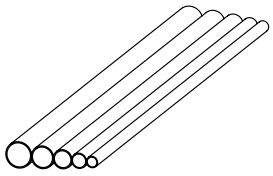
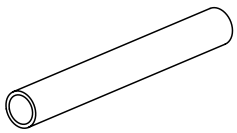
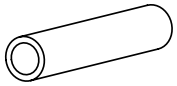
| Connecting pipe [Unit: mm(in)] | | | |
|---|---|---|---|
|  | Capacity(kBtu/h) Piping | Liquid side | Gas side |
| | kBtu/h ≤ 18 | Φ 1/4 (6.35) × 0.75 | Φ 11/2 (2.7) × 0.75 |
| | 18 kBtu/h ≤ 48 | Φ 3/8 (9.52) × 0.75 | Φ 5/8 (15.9) × 1.0 |
| | Remarks | For connection of the indoor unit refrigerant system, it is recommended to use a soft connecting pipe (T2M), with the length selected according to the actual situation. | |
|  | PVC water drain pipe |  | Thermal insulation pipe |
| | This is used as the indoor unit's drain pipe, 25 mm(1 in) in diameter. The length is determined according to actual needs. | | The thickness of the insulation pipe for the connecting pipe is usually 15 mm(9/16 in) or above; and the thickness of the insulation pipe for the rigid polyethylene plastic tube is usually 10 mm(3/8 in) or above. If the pipe is used in a closed humid area, the thickness should be increased. |

*Table 4*

## 4 Indoor Unit Installation

**Step 1: Select installation location**

Before installing the indoor unit, you must choose an appropriate location. The following are standards that will help you choose an appropriate location for the unit.

- Proper installation locations meet the following standards:
  - Good air circulation
  - Convenient drainage of condensate
  - Noise from the unit will not disturb other people
  - Firm and solid – the location will not vibrate
  - Strong enough to support the weight of the unit and other parts
  - A location at least three feet from all other electrical devices (e.g., TV, radio, computer)
- DO NOT install unit in the following locations:
  - Near any source of heat, steam, or combustible gas
  - Near flammable items such as curtains or clothing
  - Near any obstacle that might block air circulation
  - Near the doorway
  - In a location subject to direct sunlight

**Required space for installation**

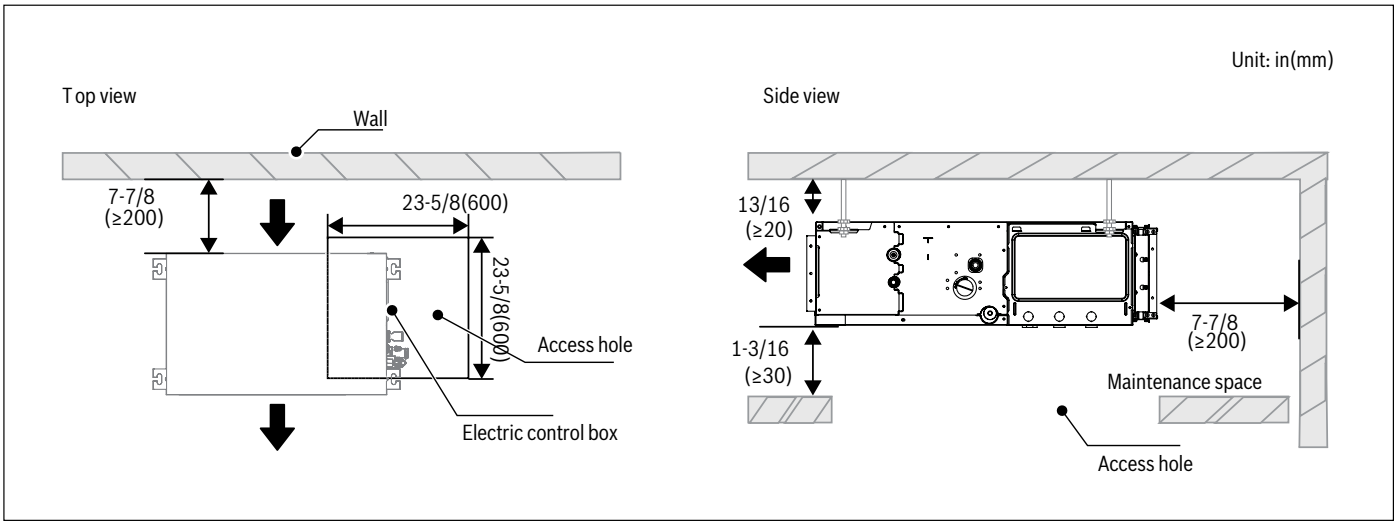



*Figure 5*

**Site Adjustment of Air Return**

There are two air return modes for this series of models.

1. One is the back air return which is the factory default.
2. The other is the bottom air return which can be customized or adjusted on-site. Refer to the following two figures on the adjustment method.

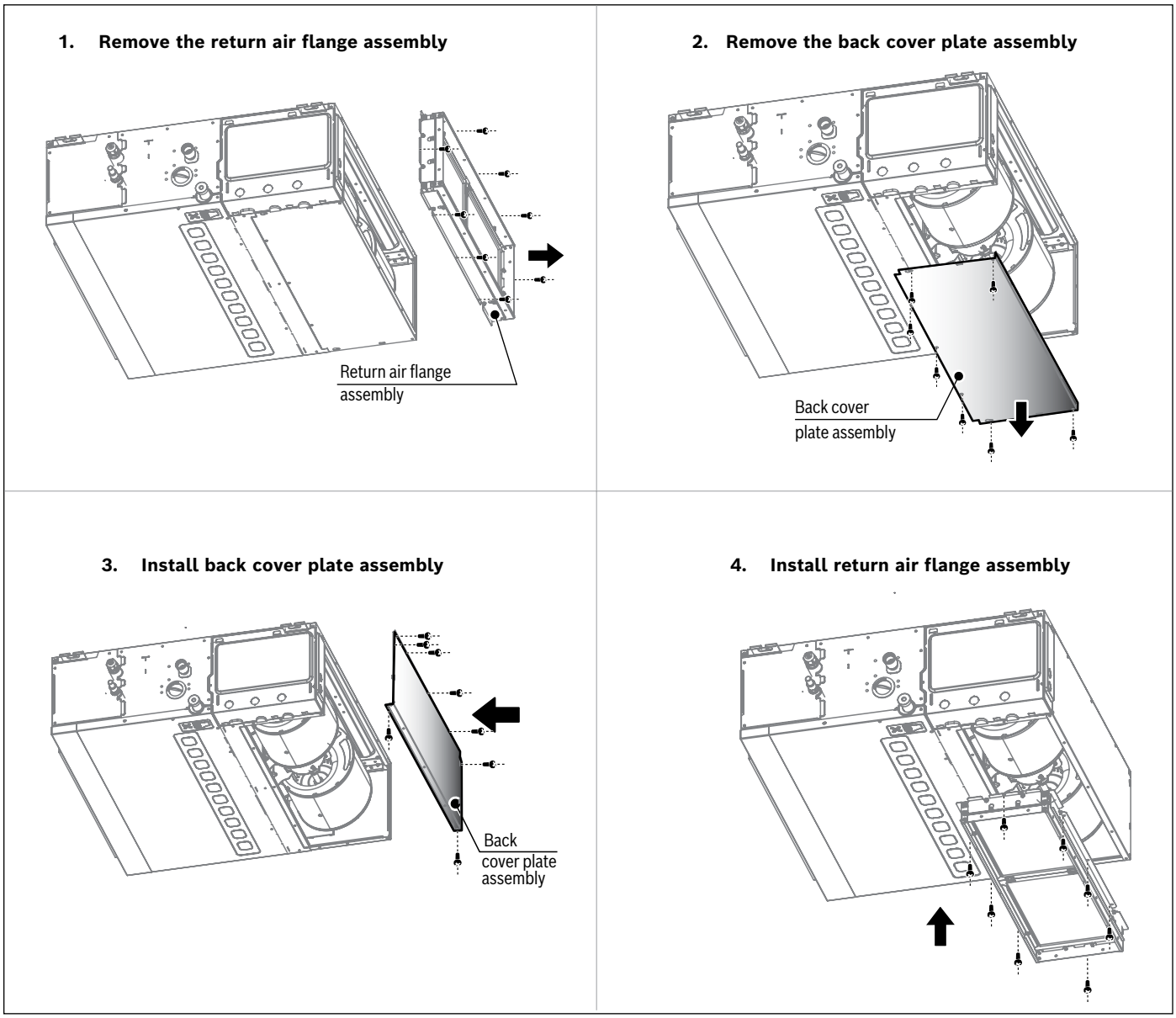



*Figure 6*

## 5 Dimensions

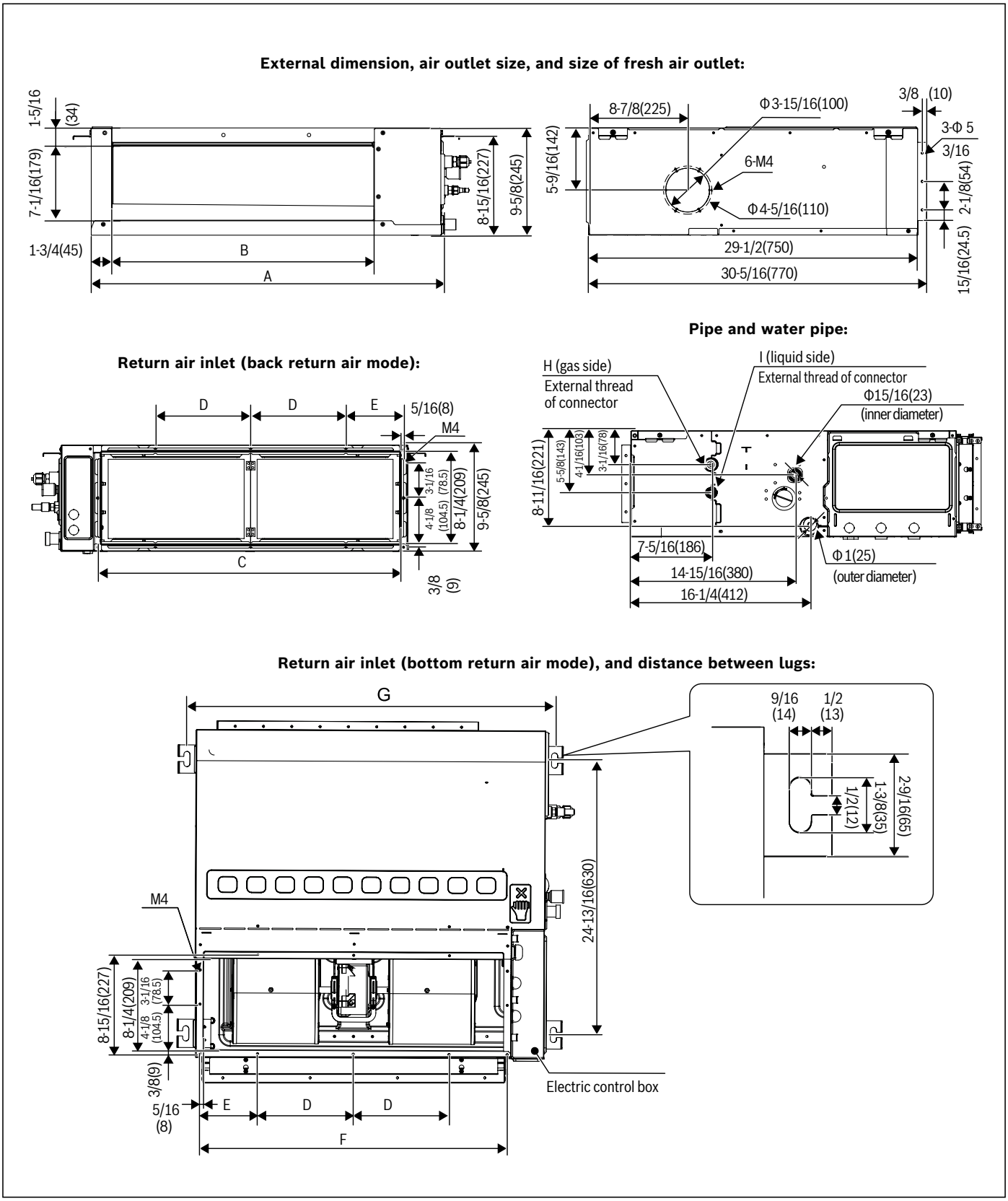



*Figure 7*

**Dimensions Table**

| Capacity (kBtu/h) | A | B | C | D | E | F | G | H | I |
|---|---|---|---|---|---|---|---|---|---|
| kBtu/h ≤ 9 | 23-5/8 (600) | 15-3/4 (400) | 19-5/16 (490) | 3-7/16 (87.5) | 6-1/2 (165) | 19-15/16 (506) | 25-3/8 (645) | 3/4-16 UNF | 7/16-20 UNF |
| 9 < kBtu/h ≤12 | 31-1/2 (800) | 23-5/8 (600) | 27-3/16 (690) | 8-11/16 (220) | 5-1/4 (134) | 27-13/16 (706) | 33-1/4 (845) | 7/8-14 UNF | 5/8-18 UNF |
| 12 < kBtu/h ≤ 24 | 41-5/16 (1 050) | 33-7/16 (850) | 37 (940) | 8-11/16 (220) | 5-3/4 (146) | 37-5/8 (956) | 43-1/8 (1 095) | 7/8-14 UNF | 5/8-18 UNF |

*Table 5*

# 6 Indoor Unit Installation

**WARNING**

**TBD!**

Install the air conditioner in a location with sufficient strength to support the weight of the unit. Take reinforcement measures when necessary.

Ensure that appliance is mounted securely.

The unit may fall and cause personal injury if the location is not strong enough. Unstable installation may cause the unit to fall and cause an accident.

Before wiring/piping layout, make sure that the installation area (walls and floor) is safe and free of water, power, gas, and other hidden dangers.

### Installation of suspension bolts

1. Using a pencil, mark the positions on the ceiling where the suspension bolts need to be fixed based on the distance between the four hanging holes on the indoor unit. After drilling the holes, install 4 anchors bolts and fasten them, using turnbuckle nuts connecting or welding 4 suspension bolts (Φ3/8 in(10 mm)) with fully threaded bolt that is 490 mm(19-5/16 in) long to the 4 anchors bolts, and attach three nuts to the each suspension bolt, divide the nuts into two groups, with one nut on top as one group and two nuts at the bottom as another group, then install the indoor unit through the four lugs and nuts.
2. The diameter of the suspension bolt shall not be less than 3/8 in(10 mm).
3. When the length of the hanger rod exceeds 59-1/16 in(1.5 m), it is necessary to add two diagonal support rods to enhance stability.
4. Because the ceilings and other architectural structures vary, it is necessary to discuss building details with the owner.

   a. Ceiling treatment: Reinforce the ceiling joist to make sure that the ceiling is level and to prevent ceiling vibrations.

   b. Cut off and dismantle the ceiling joist .

   c. Reinforce the remaining surface after the ceiling is removed. Add further reinforcements to the joist on two ends of the ceiling.

   d. Once the main unit has been lifted and mounted, carry out the piping and wiring tasks within the ceiling. Determine the outlet direction of the piping after the installation site has been finalized.

For sites where the ceiling is already available, first connect and put in position the refrigerant piping, water drain pipe, and connecting wires of the indoor unit and wired controller before hoist and mount the unit.

**CAUTION**

**TBD!**

High-quality carbon steel bolts (galvanized or with other anti-rust paint applied) or stainless steel bolts are used.

How the ceiling is treated will differ with the type of building. For specific measures, please consult the building and renovation engineers.

How the suspension bolt is secured varies according to the specific situation, and it must be secure and reliable.

Refer to the following figure on installation using the suspension bolts.

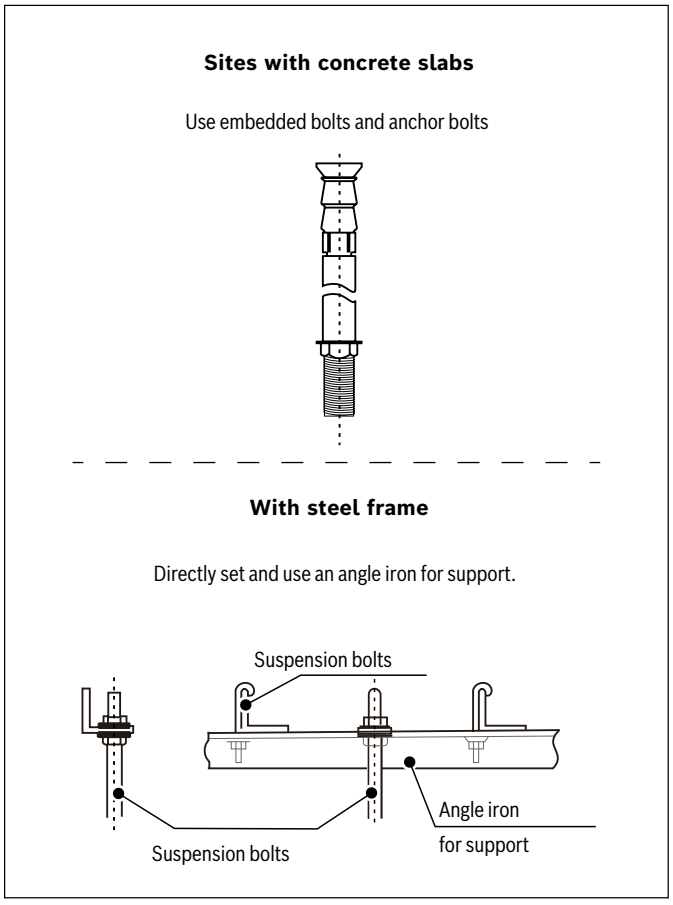



*Figure 8*

**Indoor Unit Installation**

**CAUTION**

**TBD!**

The indoor unit must not be too close to the ceiling. It shall be installed level or at an angle within 1° towards the drainage side. (For units without a drain pump, ensure a slope of 1/100 towards the drainage side. Do not tilt towards the non-drainage side.) Otherwise, water cannot drain smoothly and leaks can easily occur.

Keep the indoor unit free from dust or foreign particles. Use the plastic bags provided with the product to cover the unit.

1. Adjust the positions of the nuts. The size of the gap between the washer (bottom) and the ceiling should be based on the actual environment where the unit is being installed. The distance h between the lifting lug and the bottom of the suspension bolt shall be kept within the range of 1-9/16 in (40 mm) to 3-1/8 in (80 mm), so as to facilitate the pipe connection and assembly and disassembly of the electrical box cover.

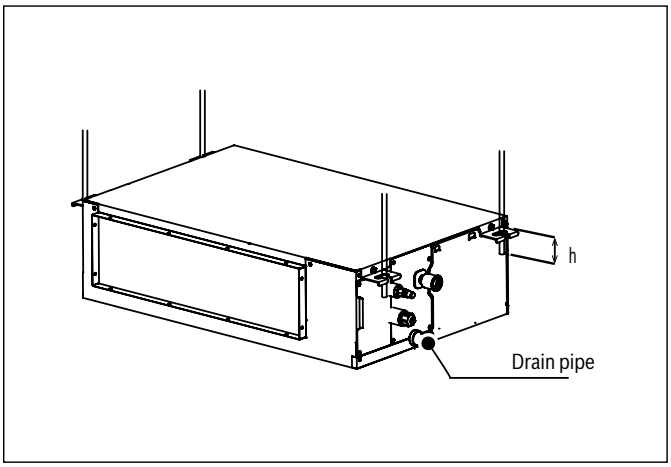



*Figure 9*

2. Slot the suspension bolts in the oblong holes of the lifting lugs. Secure the top and bottom of lugs with washers and nuts.

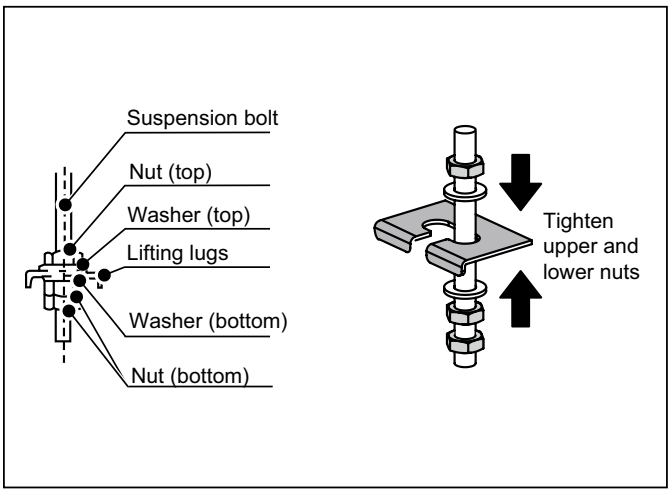



*Figure 10*

3. Keep the unit level. Use a transparent hose to observe the water level (principle of communicating vessels) and verify the levelness of the unit in the depth direction.

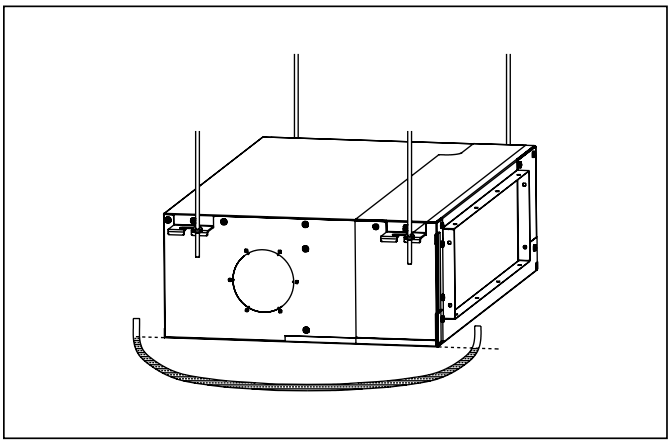


*Figure 11*

4. Use a transparent hose to observe water level (principle of communicating vessels) and verify the tilt angle of the unit in the length direction. It shall be installed level or at an angle within 1° towards the drainage side. (For units without a drain pump, ensure a slope of 1/100 towards the drainage side. Do not tilt towards the non-drainage side.) Otherwise, water cannot drain smoothly and leaks can easily occur.

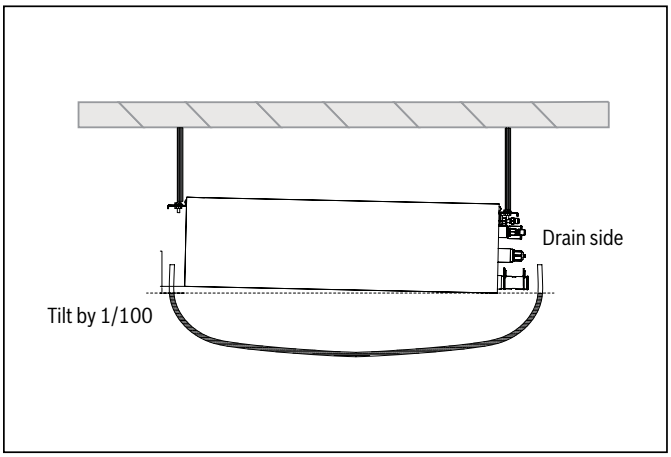



*Figure 12*

5. For units with fresh air functions, before installing indoor units, use diagonal pliers to remove the knockout at the fresh air unit at one side of the unit in advance. Install fresh air flanges at the fresh air unit and secure it with the flange connecting screws.

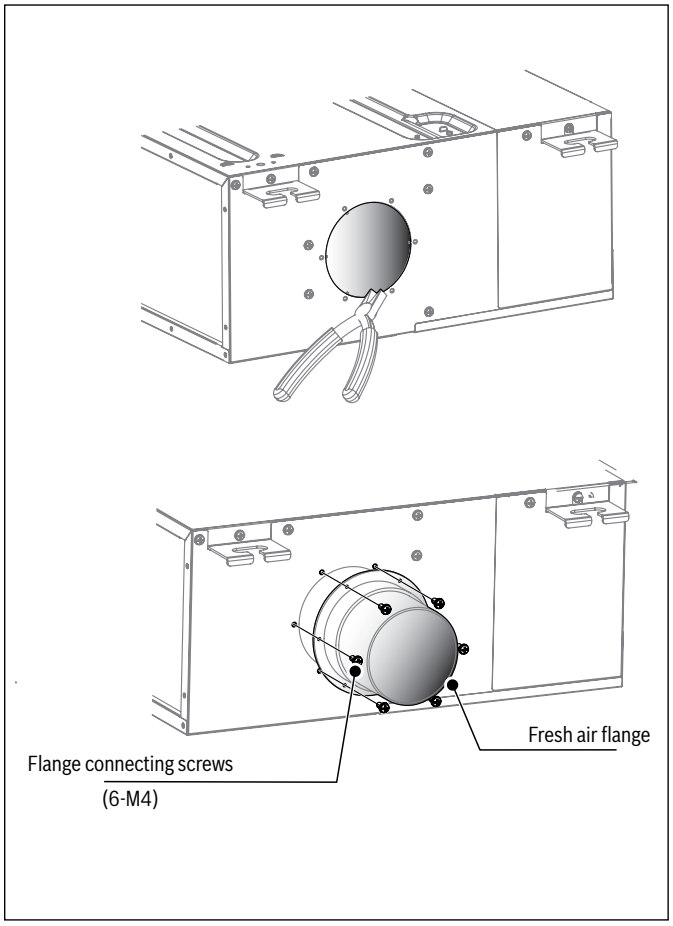



*Figure 13*

**WARNING**

**TBD!**

When connecting the fresh air unit, insulate the fresh air pipe with polyethylene foam insulation materials that are at least 3/8 in(10 mm) thick.

The temperature difference between the fresh air provided by the fresh air unit to the indoor unit and the indoor temperature shall not exceed 41℉(5℃), otherwise there is a risk of condensation in the return air area of the air conditioner. Please use a fresh air unit equipped with a temperature regulation function. Or cover the enclosure of the fresh air outlet of the air conditioner with polyethylene foam insulation material with a thickness of at least 3/8 in(10 mm). The area and thickness of the insulation material should be adjusted depending on the actual situation.

6. Remove the display box and its supporting board from the accessories, fix the supporting board onto the cover of the electronic control box, place the display box inside the supporting board, and secure it with screws.

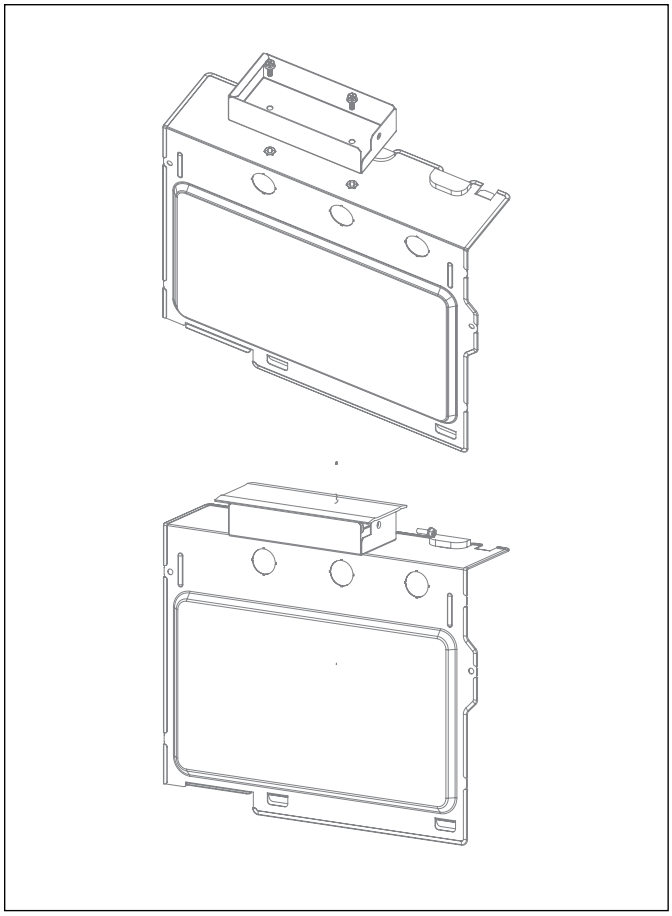


*Figure 14*

### Air Inlet Grille

**NOTICE**

**TBD!**

When designing the air inlet panel of the air return plenum, pay attention to the distance between the vanes of the air inlet grille and try to keep the vanes in parallel with the air inlet direction. Refer to Figure 15.

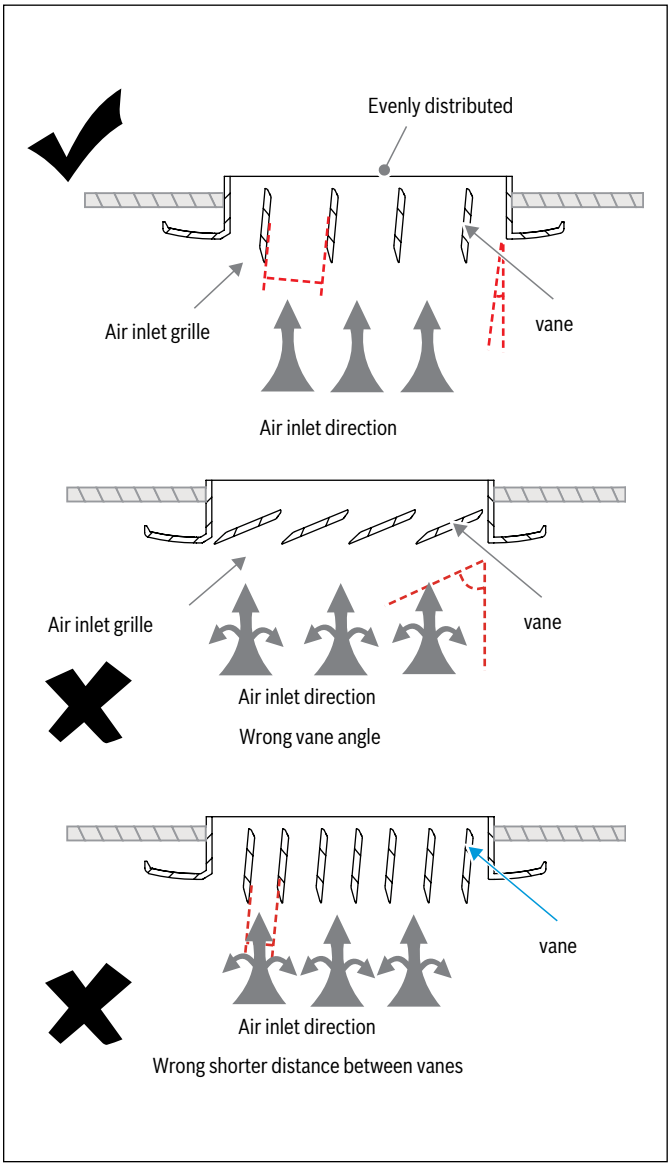



*Figure 15*

**NOTICE**

**TBD!**

If the air outlet panel is far away from the unit and needs to be connected to the outlet air flange through a metal air duct, make sure to attach polyethylene foam to the metal contact surface to guarantee insulation. Refer to Figure 16.

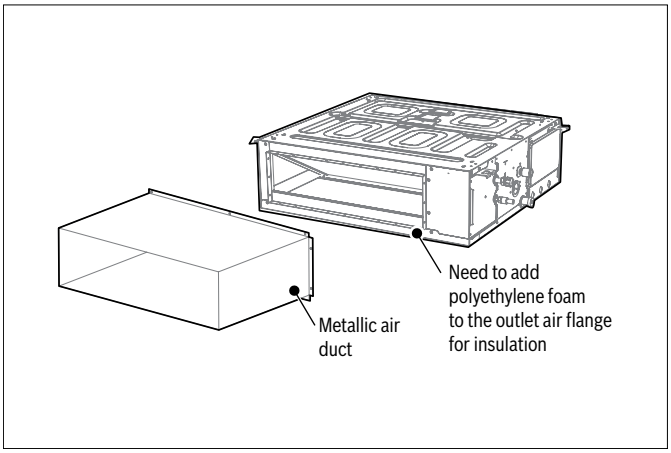



*Figure 16*

## 7 Drain Pipe Installation

**CAUTION**

**TBD!**

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.

**Installation Of Water Drain Pipe for the Indoor Unit**

1. **Units without pumps:** Use the attached drain hose to connect to the drain pan outlet and PVC pipe, and fasten the two ends of the drain hose with a cable tie. Then push the thermal insulation pipe to be closely attached to the indoor unit, and finally fasten the end with a cable tie.

   **Units with pumps:** Connect a PVC pipe to the water pump outlet, and fasten it with a cable tie. Then push the thermal insulation pipe until it is closely attached to the indoor unit, and finally fasten the end with a cable tie.

   The connection between the two ends of the drain pipes and the connection of the water pump outlet need to be fastened with a cable tie, in combination with PVC/rubber adhesives. Pay attention to the instructions for the use of the adhesives to prevent corrosion to the EPDM rubber. Use hard PVC adhesives for connecting to other water piping. Check that the connections are tight with no leakage.

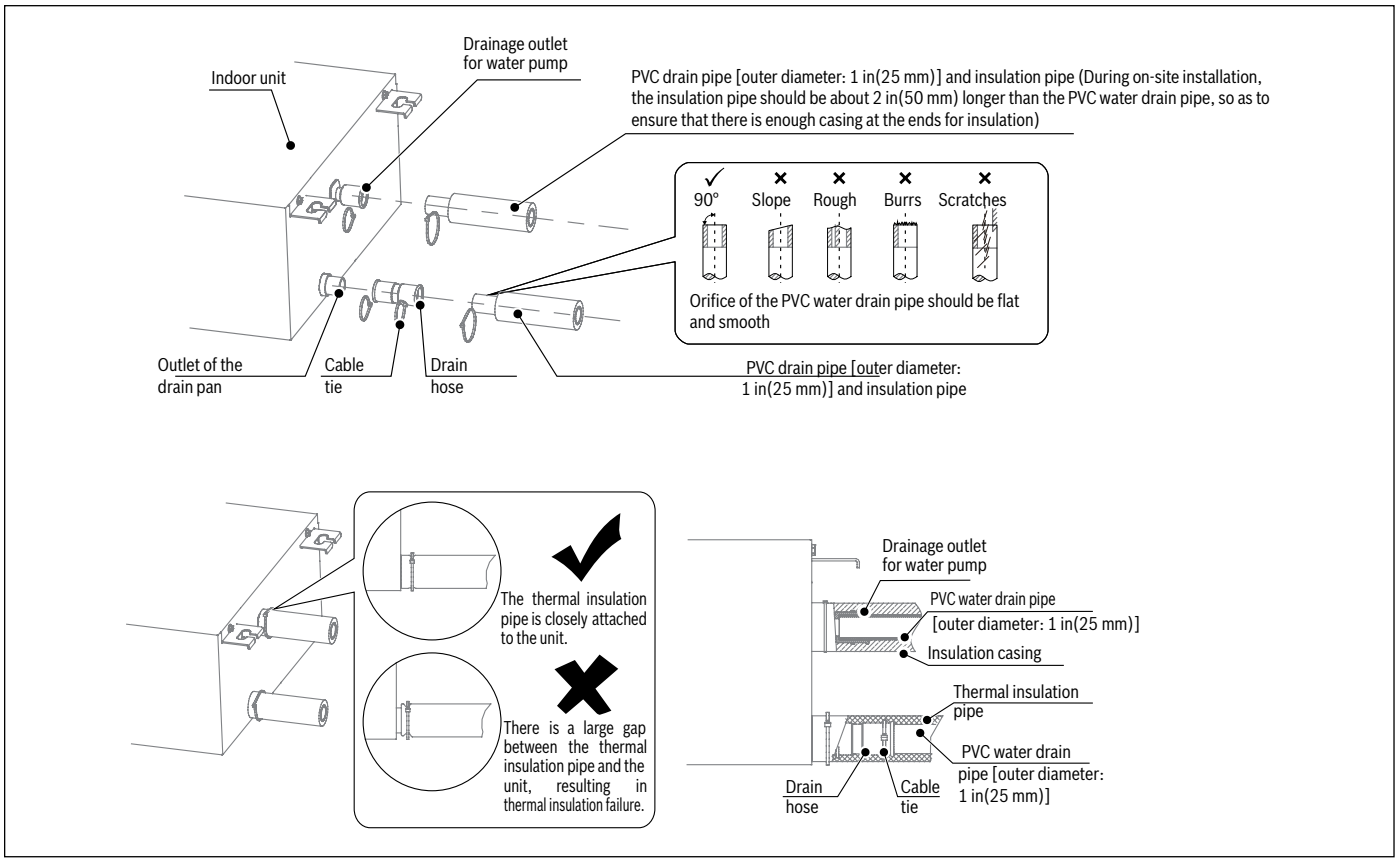



*Figure 17*

2. The water pump connecting pipe and drain pipe (in the indoor part) must be wrapped with heat insulation pipe evenly and bound with cable ties to prevent air from entering and producing condensate.

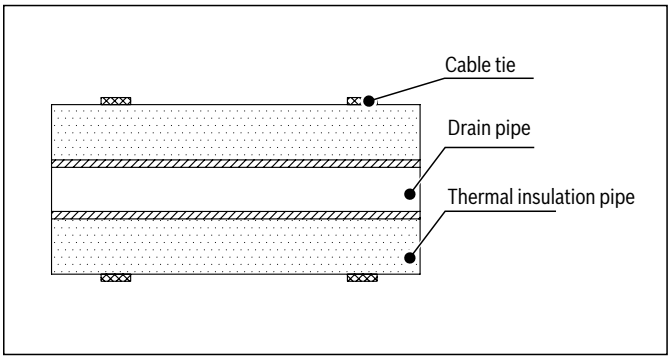



*Figure 18*

3. To prevent water from flowing back into the air conditioner when it stops running, the drain pipe should be inclined downward to the outdoor side (drainage side), with a downward slope of 1/100 or above. The drain pipe should be positioned in the same direction as the drainage outlet of the unit in the left and right direction, so that the drain pipe does not expand and collect water; otherwise, it may cause abnormal noise.

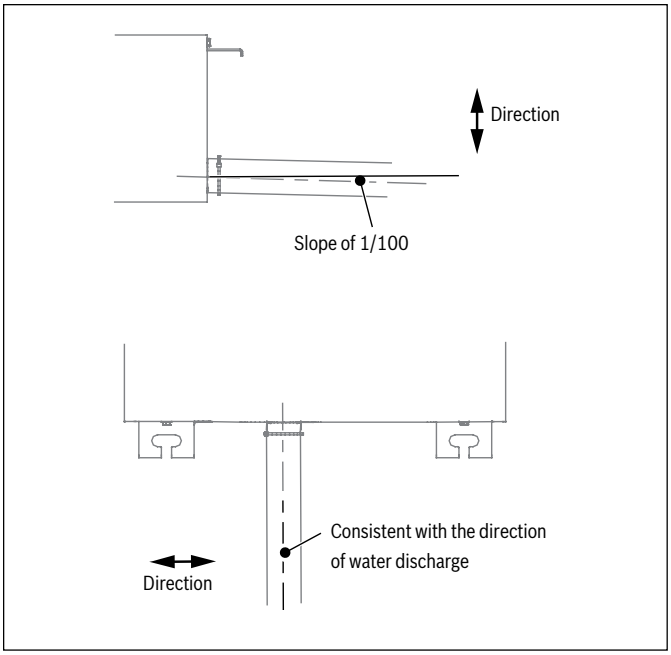



*Figure 19*

4. When connecting the drain pipe, do not pull the drain pipe forcefully, or it may become loose. The lateral length of the drain pipe should be within 65.7 ft (20 m), and a support point should be set every 2.6 ft (0.8 m) to 1.0 m(3.3 ft) to avoid air resistance caused by the deformation of the drain pipe. The drain pipe shall be equipped with a support point every 1.5 m(4.9 ft) to 2.0 m(6.6 ft).

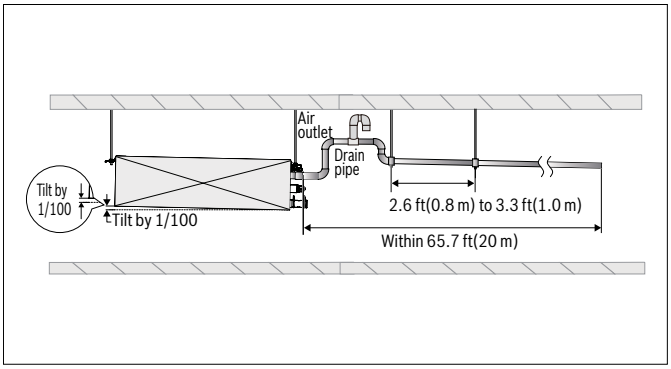



*Figure 20*

5. The end of the drain pipe must be more than 50 mm(2 in) above the ground or from the base of the water drainage slot. In addition, do not submerge it in water. To drain the condensed water directly into a ditch, the water drain pipe must bend upwards to form a U-shaped water plug to stop odors from entering the room via the water drain pipe.

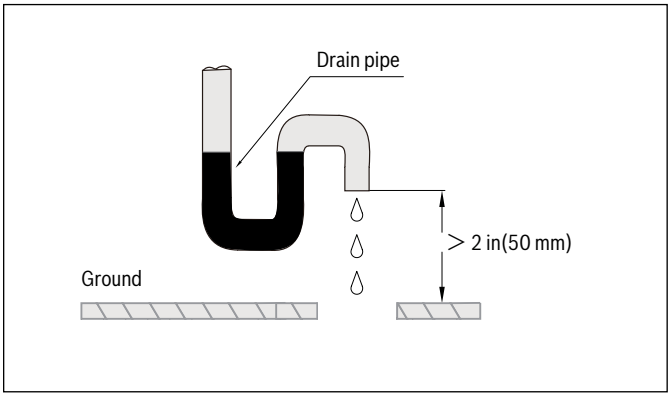



*Figure 21*

- Method to drain water with the drain pump:

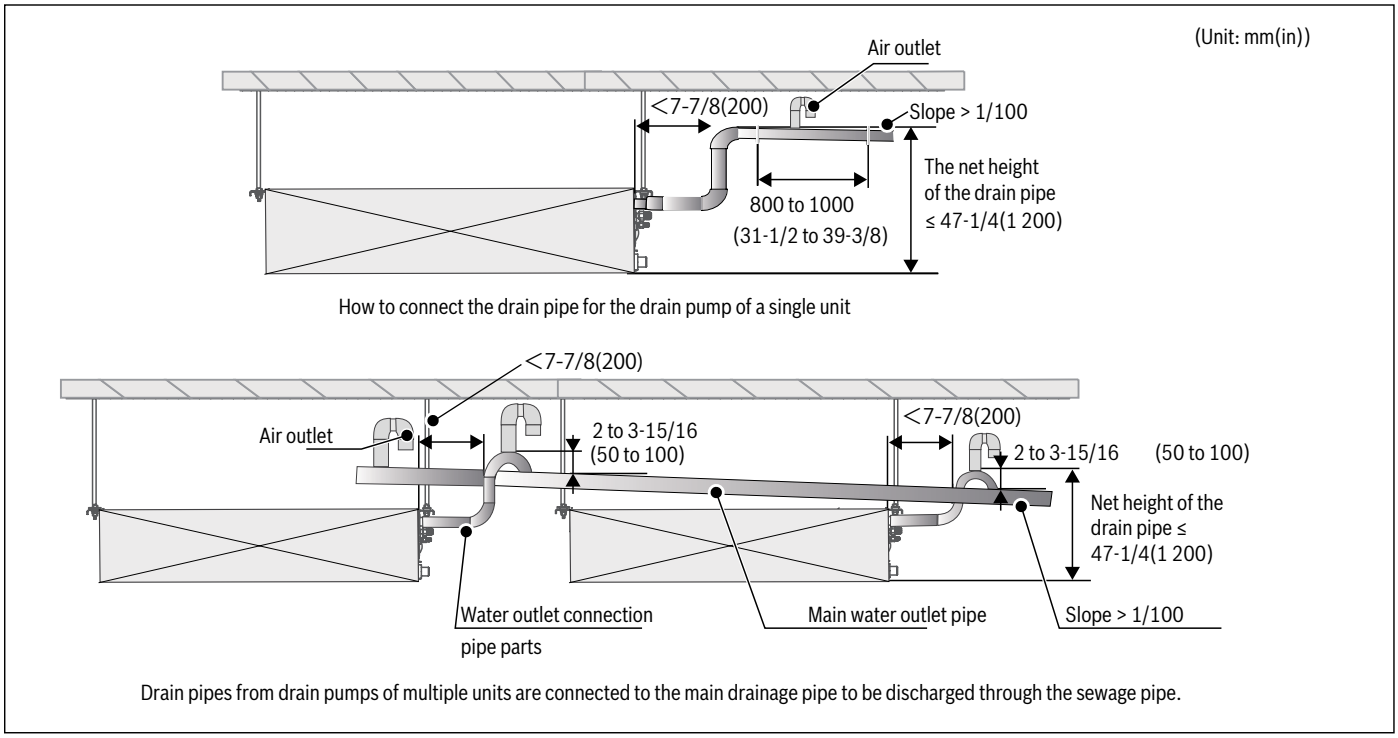



*Figure 22*

- Inconsistent drainage directions must be prevented for horizontal drain pipes to avoid adverse slopes and poor drainage.

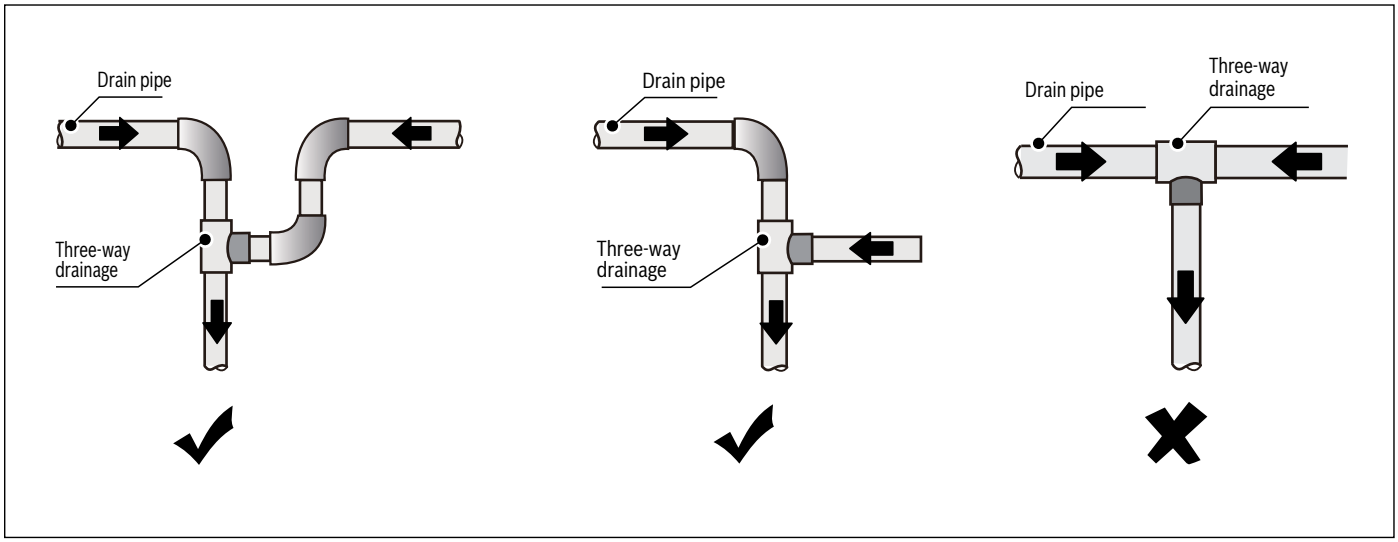



*Figure 23*

- How to drain water without the drain pump:

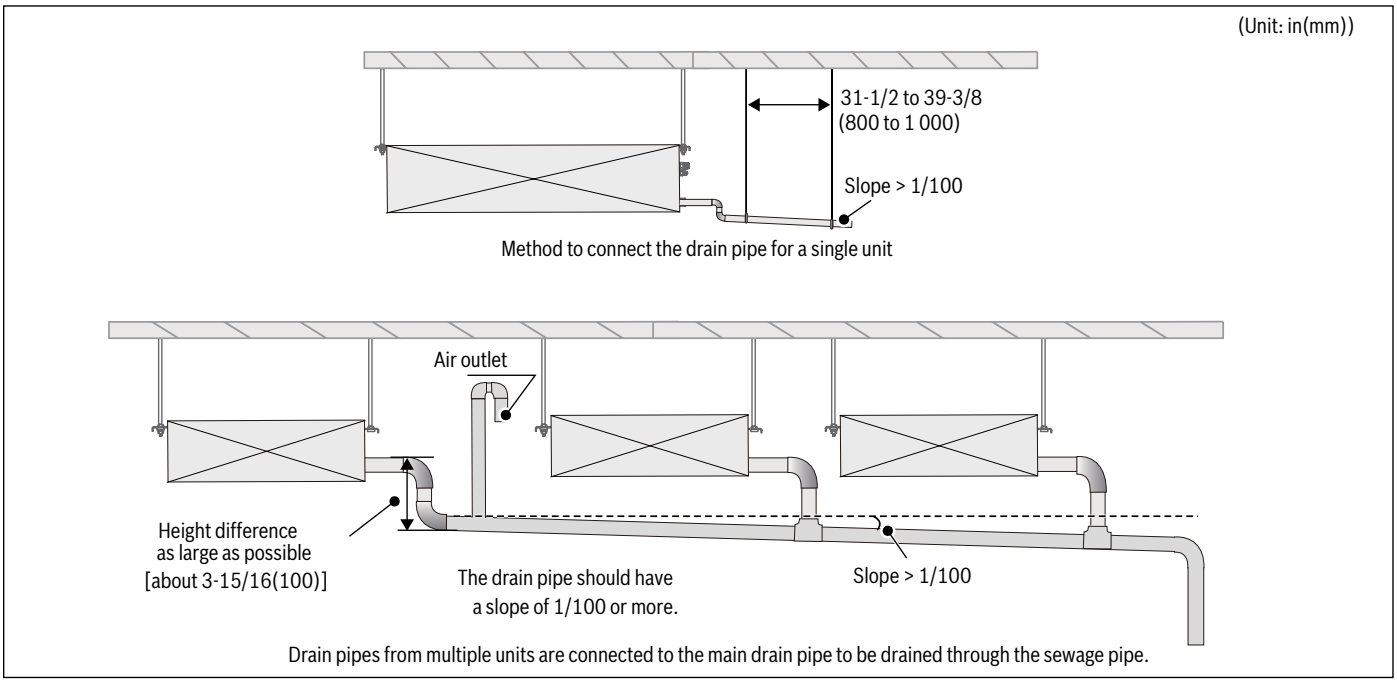



*Figure 24*

**Water Drainage Test**

1. Before the test, make sure that the water drain piping is smooth, and check that each connection is properly sealed.
2. Conduct the water drainage test in a new room before the ceiling is plastered.

- Inject water into the drain pan with the water injection pipe. The amount of water injected is shown in the table below.
- Connect the power supply, and set the air conditioner to operate in cooling mode. Check whether drainage outlets normally drain water (based on drain pipe length, water will be drained 1 minute later), and check connectors for leakage.
- If water is drained through the indoor unit drain pump, loosen the water cover (black round plastic piece) on the unit during the drainage test and check whether the drain pump is operating. If the drain pump has not been started, check whether the drain pump has malfunctioned. Note: The drain pump only starts in cooling mode. While in heating mode, the drain pump remains turned off. After the water drainage test is completed, install the water cover assembly in position. For details on the water cover assembly and the water injection pipe, see Figure 25 and Figure 26.

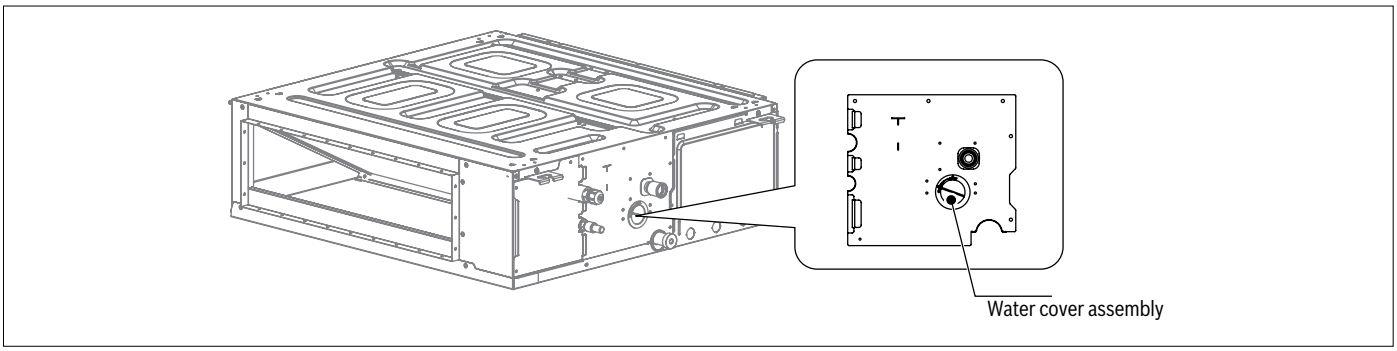



*Figure 25*

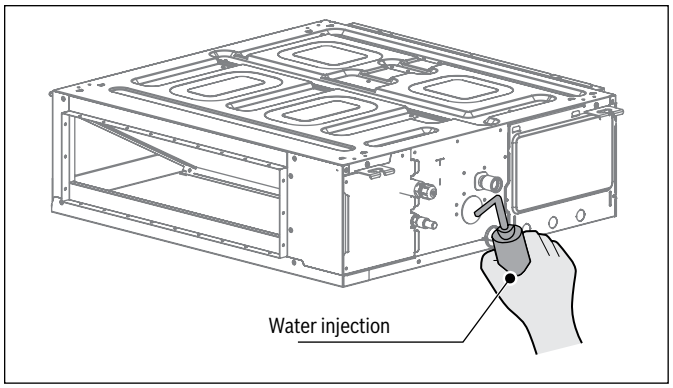



*Figure 26*

| Water Injection Amount | |
|---|---|
| Indoor unit capacity (kBtu/h) | Water injection amount |
| kBtu/h ≤ 9 | 1 500 |
| 9 < kBtu/h ≤ 12 | 1 800 |
| 12 < kBtu/h ≤ 24 | 2 200 |

*Table 6*

## 7.1 Connecting Piping to Indoor Unit

1. When connecting the flare nuts, apply a thin coat of refrigeration oil to the flared ends of the pipes.
2. Align the center of the two pipes that you will connect. See Figure 27.

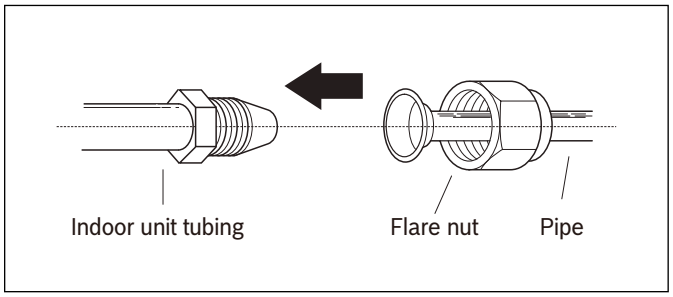



*Figure 27*

3. Tighten the flare nut as tightly as possible by hand.
4. Using a wrench, hold the nut on the unit tubing.
5. While firmly holding the nut on the unit tubing, use a torque wrench to tighten the flare nut according to the torque values in the Torque Requirements Table 7. Loosen the flaring nut slightly, then tighten again.

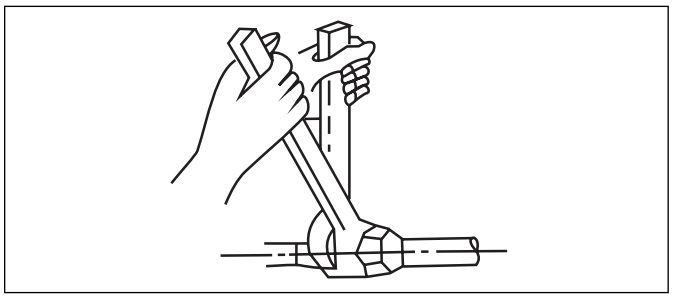


*Figure 28*

| Torque Requirements | |
|---|---|
| Pipe size [in(mm)] | Tightening torque [ N.m (kgf.cm)] |
| Φ 1/4 (6.35) | 14.2–17.2(144–176) |
| Φ 3/8 (9.52) | 32.7–39.9(333–407) |
| Φ 1/2 (12.7) | 49.5–60.3(504–616) |
| Φ 5/8 (15.9) | 61.8–75.4(630–770) |
| Φ 3/4 (19.1) | 97.2–118.6(990–1 210) |

*Table 7*

***NOTICE***

**Product damage - do not use excessive torque!**

Excessive force can break the nut or damage the refrigerant piping. You must not exceed torque requirements shown in the table above.

# 8 Connecting Signal/Power Cable

**DANGER**

**Electrical hazard !**

Before performing any electrical or wiring work, turn off the main power to the system.

**WARNING**

**Electrical hazard !**

Before performing electrical work, read these regulations:

1. All wiring must comply with local and national electrical codes, and must be installed by a licensed electrician.
2. All electrical connections must be made according to the Electrical Connection Diagram located on the panels of the indoor and outdoor units.
3. If there is a serious safety issue with the power supply, stop work immediately. Explain your reasoning to the client and refuse to install the unit until the safety issue is properly resolved.
4. Power voltage should be within 90-110% of rated voltage. Insufficient power supply can cause malfunction, electrical shock, or fire.
5. When connecting power to fixed wiring, install a surge protector and main power switch with a capacity of 1.5 times the maximum current of the unit.
6. When connecting power to fixed wiring, a switch or circuit breaker that disconnects all poles and has a contact separation of at least 1/8in (3mm) must be incorporated in the fixed wiring. The licensed electrician must use an approved/listed circuit breaker.
7. Only connect the unit to an individual branch /dedicated circuit. Do not connect another appliance to that circuit.
8. Make sure to properly ground the outdoor unit.
9. Every wire must be firmly connected. Loose wiring can cause the terminal to overheat, resulting in product malfunction and possible fire.
10. Do not let wires touch or rest against refrigerant tubing, the compressor, or any moving parts within the unit.

The signal/power cable enables communication between the indoor and outdoor units. You must first choose the right cable size before preparing it for connection.

## 8.1 Wiring

- Open the indoor unit's electric control box cover.

1. Remove the two screws at the positions shown in the figure;
2. Pull the bottom end of the electric control box cover horizontally outward;
3. Remove the electric control box cover by pulling downwards.

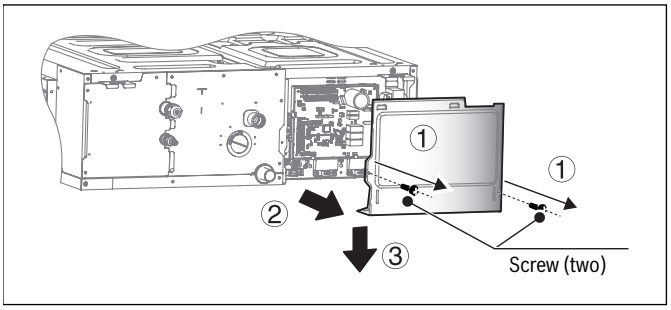



*Figure 29*

- Connect the strong current wires (power supply cable and alarm signal output wires) and weak current wires (communication wiring, display box 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.

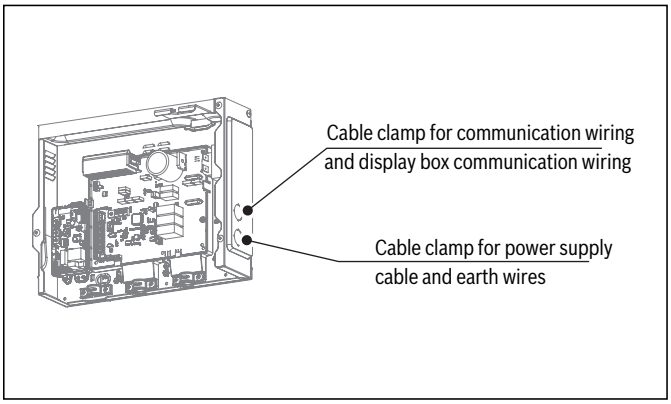



*Figure 30*

**CAUTION**

**TBD!**

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

The strong and weak current wires must be separated.

The expansion board are optional.

**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.

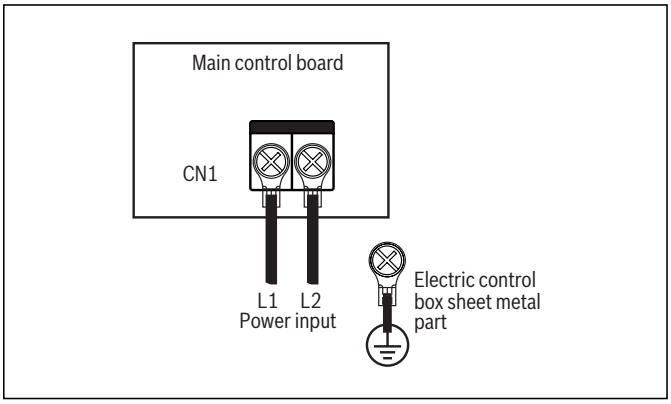



*Figure 31*

**CAUTION**

**TBD!**

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**

**TBD!**

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 32.

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 33.

**CAUTION**

**TBD!**

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 cable 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 34.

**CAUTION**

**TBD!**

The connected power supply cable should be routed outside the cable conduit, as shown in Figure 35.

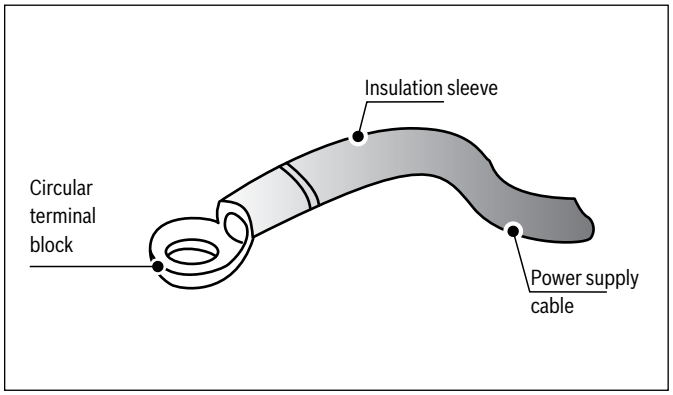



*Figure 32*

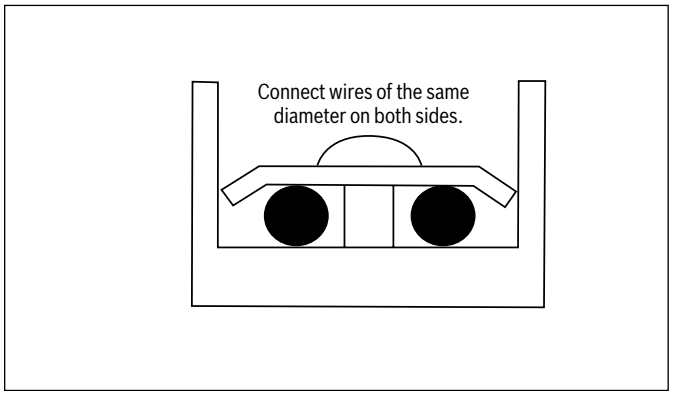



*Figure 33*

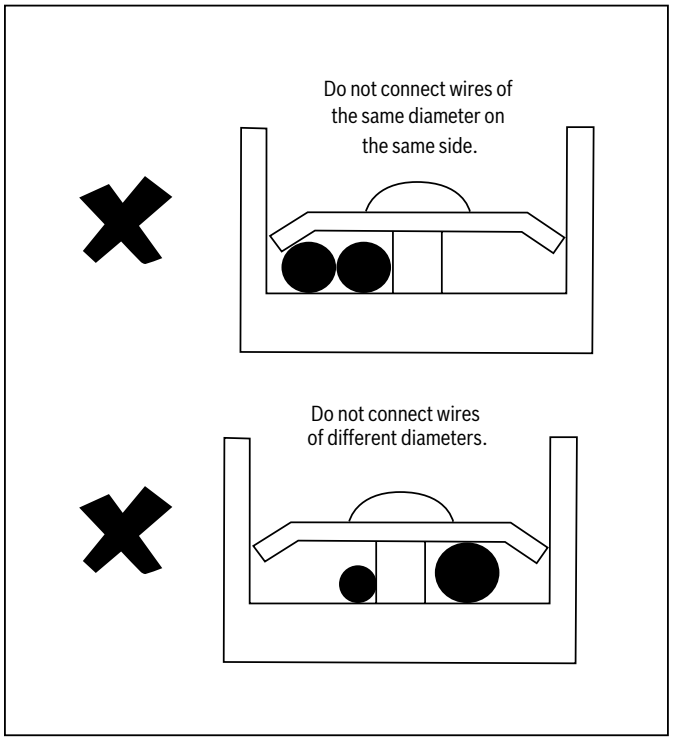



*Figure 34*

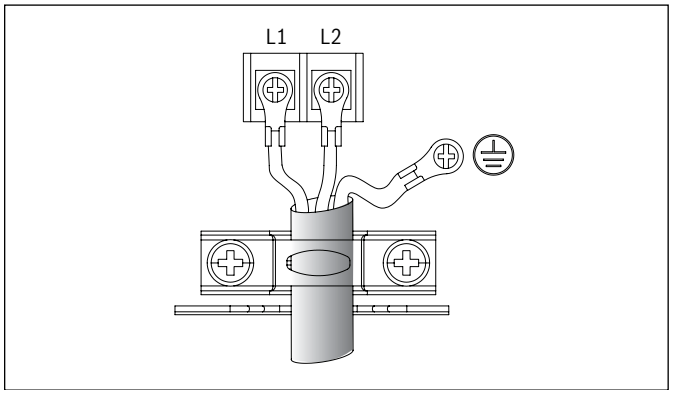



*Figure 35*

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. Use the same power supply, circuit breaker and leakage protective device for the indoor units connected to the same outdoor unit.

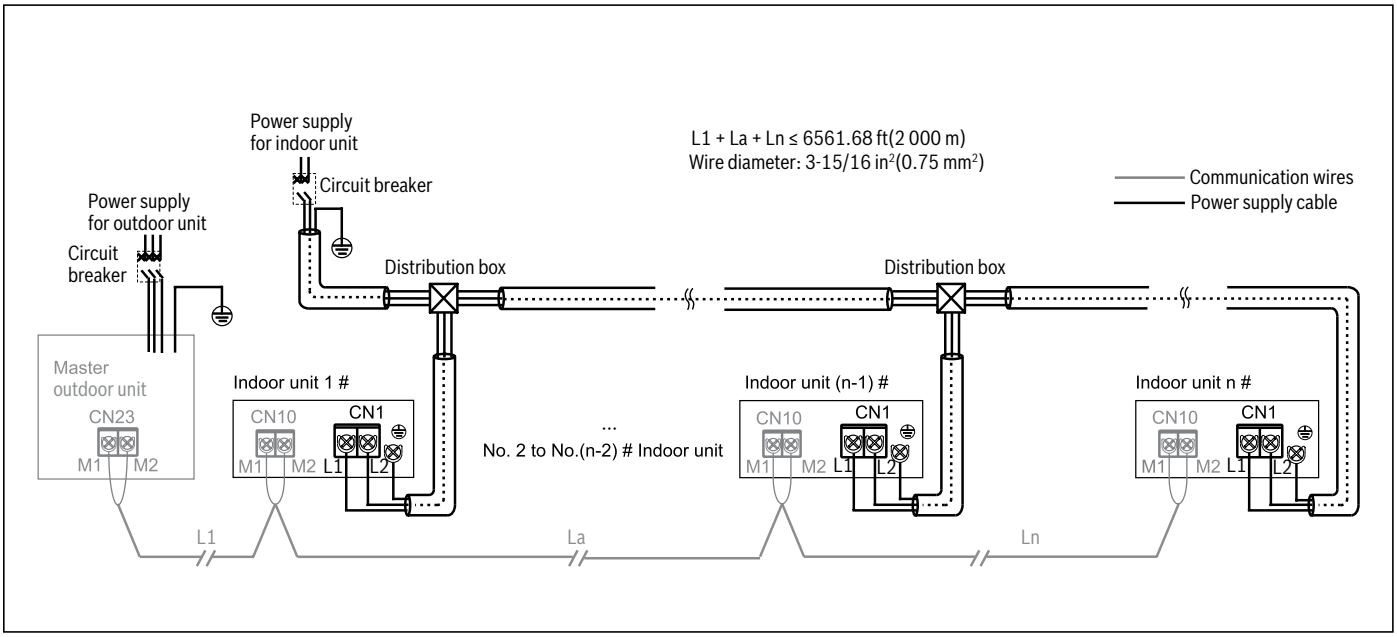



*Figure 36*

## 9 Wiring Diagram

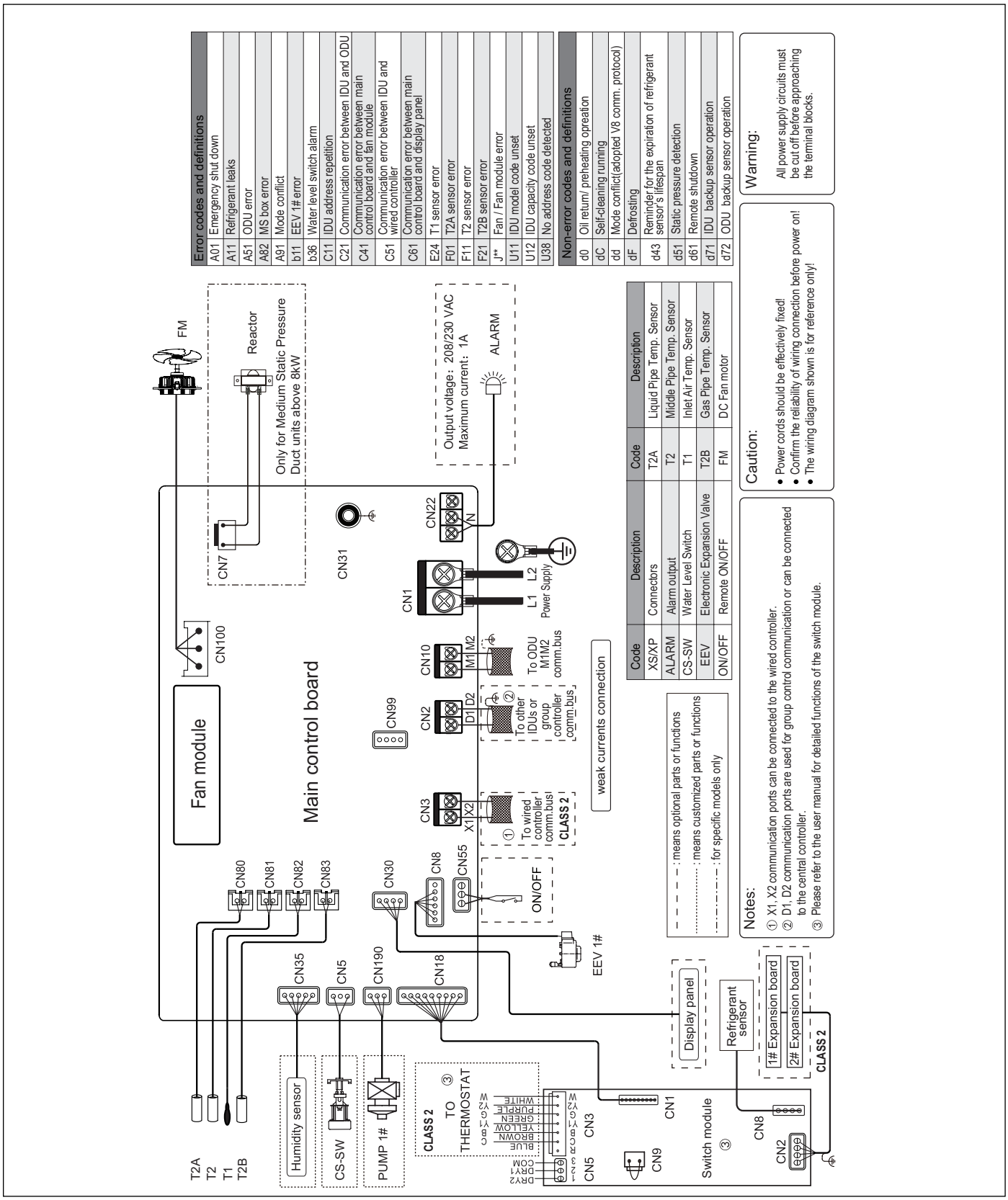



*Figure 37*

## 10 Errors and Definitions

| Definition | Error code | Digital display |
|---|---|---|
| Emergency stop | A01 |  |
| R-454B refrigerant leaks, ⚠ **DANGER** requiring shutdown immediately | A11 |  |
| Outdoor unit fault | A51 |  |
| Interlocking control Heat Recovery Ventilation Unit fault( in-series application) | A71 |  |
| The Humidity Unit fault | A72 |  |
| Interlocking control Heat Recovery Ventilation Unit fault non-serial application) | A73 |  |
| The AHU Kit slave unit fault | A74 |  |
| Self-check fault | A81 |  |
| MS (refrigerant flow direction switching device) fault | A82 |  |
| Mode conflict | A91 |  |
| 1# EEV coil fault | b11 |  |
| 1# EEV body fault | b12 |  |
| 2# EEV coil fault | b13 |  |
| 2# EEV body fault | b14 |  |
| Protection on 1 # water pump | b34 |  |
| Protection on 2 # water pump | b35 |  |
| Water level switch alarm | b36 |  |
| Reheating electric heater fault | b71 |  |
| Preprocessing electric heater fault | b72 |  |
| Humidifier fault | b81 |  |
| Duplicate indoor unit address code | C11 |  |
| Abnormal communication between the indoor unit and outdoor unit | C21 |  |

| Definition | Error code | Digital display |
|---|---|---|
| Abnormal communication between the indoor unit main control board and fan drive board | C41 |  |
| Abnormal communication between the indoor unit and wired controller | C51 |  |
| Abnormal communication between the indoor unit and Wi-Fi Kit | C52 |  |
| Abnormal communication between the indoor unit main control board and display board | C61 |  |
| Abnormal communication between the AHU Kit slave unit and master unit | C71 |  |
| Number of AHU Kits is not the same as the set number | C72 |  |
| Abnormal communication between the linked humidifying indoor unit and master indoor unit | C73 |  |
| Abnormal communication between the linked FAPU and master indoor unit (series setting) | C74 |  |
| Abnormal communication between the linked FAPU and master indoor unit (non-series setting) | C75 |  |
| Abnormal communication between the main wired controller and secondary wired controller | C76 |  |
| Abnormal communication between the indoor unit main control board and 1 # Expansion board | C77 |  |
| Abnormal communication between the indoor unit main control board and 2 # Expansion board | C78 |  |
| Abnormal communication between the indoor unit main control board and Switch board | C79 |  |
| The indoor unit is in power-off state | C81 |  |
| Air inlet temperature of the indoor unit is too low in heating mode | d16 |  |
| Air inlet temperature of the indoor unit is too high in cooling mode | d17 |  |
| Reminder for expiration of life of refrigerant leakage sensor | d43 |  |
| Alarm for exceeding temperature and humidity range | d81 |  |
| Sensor control board fault | dE1 |  |
| PM2.5 sensor fault | dE2 |  |
| CO2 sensor fault | dE3 |  |
| Formaldehyde sensor fault | dE4 |  |
| Human Detect sensor fault | dE5 |  |
| T0 (fresh inlet air temperature sensor) short-circuits or cuts off | E21 |  |
| The upper dry bulb temperature sensor short-circuits or cuts off | E22 |  |
| The lower dry bulb temperature sensor short-circuits or cuts off | E23 |  |

| Definition | Error code | Digital display |
|---|---|---|
| T1 (Indoor unit return air temperature sensor) short-circuits or cuts off | E24 |  |
| The built-in room temperature sensor of the wired controller short-circuits or cuts off | E31 |  |
| The wireless temperature sensor short-circuits or cuts off | E32 |  |
| The external room temperature sensor short-circuits or cuts off | E33 |  |
| Tcp (pre-cooled fresh air temperature sensor) short-circuits or cuts off | E61 |  |
| Tph (pre-heated fresh air temperature sensor) short-circuits or cuts off | E62 |  |
| TA (outlet air temperature sensor) short-circuits or cuts off | E81 |  |
| Outlet air humidity sensor fault | EA1 |  |
| Return air humidity sensor fault | EA2 |  |
| Upper wet bulb sensor fault | EA3 |  |
| Lower wet bulb sensor fault | EA4 |  |
| R-454B refrigerant leakage sensor fault | EC1 |  |
| T2A (heat exchanger inlet temperature sensor) short-circuits or cuts off | F01 |  |
| T2 (heat exchanger middle temperature sensor) short-circuits or cuts off | F11 |  |
| T2 (heat exchanger middle temperature sensor) overtemperature protection | F12 |  |
| T2B (heat exchanger outlet temperature sensor) short-circuits or cuts off | F21 |  |
| Fan drive board input side overcurrent protection | P31 |  |
| At least 6 times P31 fault codes detected within 60 minutes | P34 |  |
| Power supply voltage is too low fault | P52 |  |
| Main control board EEPROM fault | P71 |  |
| Indoor unit display control board EEPROM fault | P72 |  |
| Locked (electronic lock) | U01 |  |
| Unit model code not set | U11 |  |
| Capacity(HP) code not set | U12 |  |
| Capacity(HP) code setting error | U14 |  |
| AHU Kit fan control input signal DIP setting error | U15 |  |

| Definition | Error code | Digital display |
|---|---|---|
| Address code not detected | U38 |  |
| Motor failed more than once | J01 |  |
| IPM (fan module) overcurrent protection | J1E |  |
| Instantaneous overcurrent protection for phase current | J11 |  |
| Low bus voltage fault | J3E |  |
| High bus voltage fault | J31 |  |
| Phase current sample bias error | J43 |  |
| Motor and indoor unit are unmatched | J45 |  |
| IPM and indoor unit are unmatched | J47 |  |
| Motor startup failure | J5E |  |
| Motor blocking protection | J52 |  |
| Speed control mode setting error | J55 |  |
| Phase lack protection of motor | J6E |  |

*Table 8*

## 11 Operating Status Codes and Definitions (Non-Error)

| Definition | Code | Digital display |
|---|---|---|
| Oil return or preheating operation | d0 |  |
| Self-cleaning | dC |  |
| Mode conflict | dd |  |
| Defrosting | dF |  |
| Outdoor unit running in heating mode | dH |  |
| Static pressure detection | d51 |  |
| Remote shutdown | d61 |  |
| Indoor unit backup operation | d71 |  |
| outdoor unit backup operation | d72 |  |
| Main control program upgrading | OTA |  |

*Table 9*

**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.

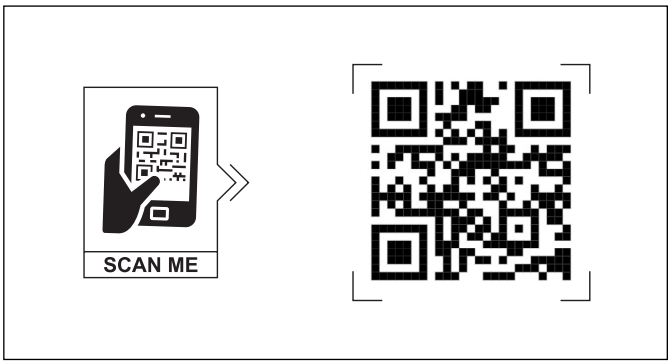



*Figure 38*

## 12 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.

**NOTES:**

**United States and Canada**
**Bosch Thermotechnology Corp.**
**65 Grove St.**
**Watertown, MA 02472**

**Tel: 800-283-3787**
**www.bosch-homecomfort.us**

**BTC 762003322 A / 11.2025**



**Version Française**