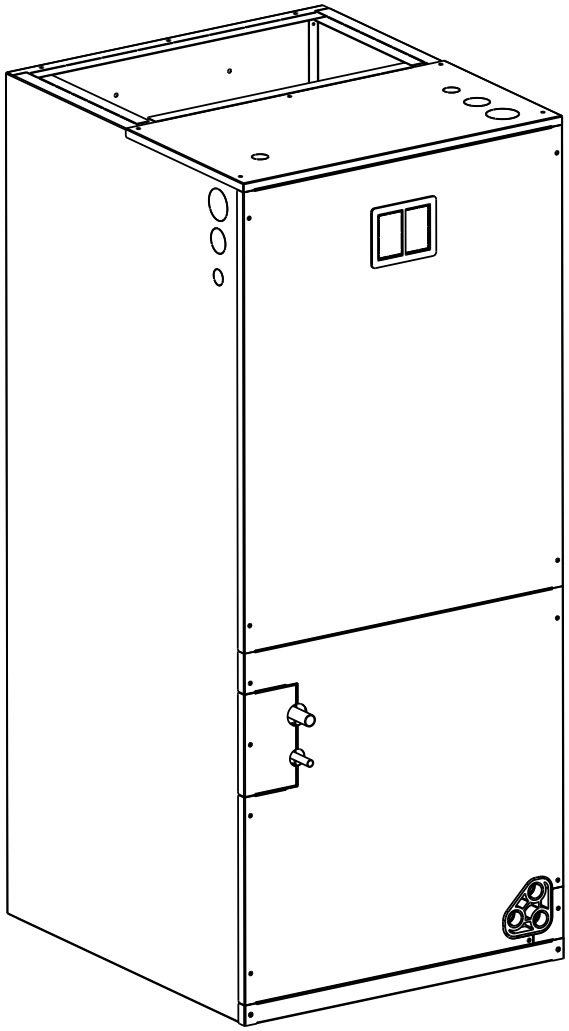
INSTALLATION MANUAL

Air Handler Air Conditioner

UNIT MODEL

VUH24-VA6BA(I) **VUH36-VA6BA(I)**

VUH48-VA6BA(I) **VUH60-VA6BA(I)**



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Zhuhai SAMYOU Environmental Technology Co., Ltd.

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Foreword

I Foreword

Thank you for choosing Our equipment.

⚠ **NOTICE：**

This manual includes necessary information for correct installation, debugging, startup, and maintenance. Please keep this manual safe and carefully read it before installation and operating.

The installation, startup, and maintenance of the equipment may pose risks. Operators need to have professional knowledge and pass training before operating the equipment. If they do not have sufficient understanding of the working principle of the equipment, or do not have sufficient safety knowledge and have not taken relevant safety protection measures, please do not operate the machine in any way to avoid personal injury and equipment failure, which may lead to death or serious personal injury. When operating the equipment, attention should be paid to all the precautions in this manual and the warning and caution labels on the equipment.

The unit strictly follows the design standards during production, ensuring that the unit provides high-quality operating conditions, high reliability, and excellent adaptability.

This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety.

Children should be supervised to ensure that they do not play with the appliance.

Failure to strictly follow the precautions may cause serious accidents such as personal injury or death.

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

Before cleaning the Air Handler, stop it from running and turn it off.

Do not operate the Air Handler, or plug in or unplug the power cord with wet hands to prevent electric shocks.

The warranty coverage must meet the following conditions:
• The installation work must be carried out by trained professionals. • The opening of the machine must be carried out by professional maintenance personnel from the Provider Maintenance Service Center or designated contracted company personnel. Only the various spare parts provided by Provider can be used. • All machine operation and maintenance matters specified in this manual must be strictly carried out according to the specified time and frequency. Violation of any of the above conditions will automatically void the warranty.

The personnel responsible for installing the machine should ensure the safety of the installation process and be responsible for the installation of all refrigerant pipelines, waterways, electrical installation work,

and other necessary ancillary equipment.

Provider shall not be liable for any personal injury or machine damage caused by improper installation, debugging, unnecessary maintenance, failure to follow the provisions and guidance in this manual.

If you have any questions during the installation process, please contact your provider and local provider offices.

Other precautions:

Inspection

When receiving the unit, it is necessary to immediately inspect for any possible damage that may occur during transportation. If there is obvious damage, it should be written on the carrier's transport documents and then claimed according to the instructions on the notice. If there is damage to any part other than the surface, please immediately notify the local repair personnel at Provider.

Storage

- If the unit is ready to be stored for a period of time before installation, some protective measures should be taken to prevent damage, rust, or wear.
- Ensure that all interfaces, such as pipes interfaces, are properly sealed;
- Storage environment temperature range -40℃~55℃, relative humidity less than 90%, avoid direct sunlight;
- The air-cooled coil heat exchanger on the unit should be covered to prevent fins from getting dirty and clogged, especially in construction areas where outdoor storage is not allowed;
- To reduce the possibility of accidental damage (such as being smashed, collided, etc.), the unit should be stored as much as possible in a place with the least occurrence of various activities;
- Regularly inspect during storage.

II Safety Precautions

The Refrigerant

- To realize the function of the air conditioner unit, a special refrigerant circulates in the system. The used refrigerant is the fluoride R32, which is specially cleaned. The refrigerant is flammable and inodorous. Furthermore, it can lead to explosion under certain conditions. But the flammability of the refrigerant is very low. It can be ignited only by fire.
- Compared to common refrigerants, R32 is a nonpolluting refrigerant with no harm to the ozonosphere. The influence upon the greenhouse effect is also lower. R32 has got very good thermodynamic features which lead to a really high energy efficiency. The units therefore need a less filling.

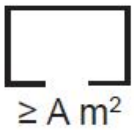


The appliance is filled with flammable gas R32.

WARNING

- 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 odour.

The refrigerant charge of the unit should refer to the nameplate. The minimum operating and storage area for the unit should refer to the table below.



1) Amin is the required minimum room area in square meters (m²) and square feet (ft²), refer to the sticker near nameplate.
2) Mrel is the refrigerant releasable charge in kilograms (kg) and pounds (lb).

Unit Size	Mc (kg/lb)	Amin (m²/ft²)
24K	2.6 / 5.7	7.8 / 83.3
36K	2.6 / 5.7	7.8 / 83.3
48K	3.5 / 7.7	10.4 / 112
60K	3.5 / 7.7	10.4 / 112

Safety Precautions

DANGER

- Before touching electrical parts, turn off all applicable power to the unit.
- When service panels are removed, live parts can be easily touched by accident.
- Never leave the unit unattended during installation or servicing when the service panel is removed.
- Do not touch pipes during and immediately after operation as the pipes may be hot and could burn your hands. To avoid injury, give the piping time to return to normal temperature or be sure to wear protective gloves.
- Do not touch any switch with wet fingers. Touching a switch with wet fingers can cause electrical shock.

WARNING

- Piping material, pipe routing, and installation shall include protection from physical damage in operation and service, and be in compliance with national and local codes and standards, such as ASHRAE 15, ASHRAE 15.2, IAPMO Uniform Mechanical Code, ICC International Mechanical Code, or CSA B52. All field joints shall be accessible for inspection prior to being covered or enclosed.
- For appliances containing FLAMMABLE REFRIGERANTS, the minimum floor area of the room shall be mentioned in the form of a table refer to PAGE 3 table.
- When installing or relocating the unit, be sure to keep the refrigerant circuit free from air or substances other than the specified refrigerant.

  Any presence of air or other foreign substance in the refrigerant circuit will cause system pressure rise or compressor rupture, resulting in injury.
- When installing or moving this unit, do not charge the refrigerant which is not comply with that on the nameplate or unqualified refrigerant.

  Otherwise, it may cause abnormal operation, wrong action, mechanical malfunction or even series safety accident.
- When refrigerant needs to be recovered during relocating or repairing the unit, be sure that the unit is running in cooling mode. Then, fully close the valve at high pressure side (liquid valve). About 30-40 seconds later, fully close the valve at low pressure side (gas valve), immediately stop the unit and disconnect power. Please note that the time for refrigerant recovery should not exceed 1 minute.

  If refrigerant recovery takes too much time, air may be sucked in and cause pressure rise or compressor rupture, resulting in injury.
- During refrigerant recovery, make sure that liquid valve and gas valve are fully closed and power is disconnected before detaching the connection pipe.

  If compressor starts running when stop valve is open and connection pipe is not yet connected, air will be sucked in and cause pressure rise or compressor rupture, resulting in injury.
- When installing the unit, make sure that connection pipe is securely connected before the compressor starts running.

If compressor starts running when stop valve is open and connection pipe is not yet connected, air will be sucked in and cause pressure rise or compressor rupture, resulting in injury.

- Prohibit installing the unit at the place where there may be leaked corrosive gas or flammable gas.

  If there leaked gas around the unit, it may cause explosion and other accidents.

- Do not use extension cords for electrical connections. If the electric wire is not long enough, please contact a local service center authorized and ask for a proper electric wire.

  Poor connections may lead to electric shock or fire.

- Use the specified types of wires for electrical connections between the indoor and outdoor units. Firmly clamp the wires so that their terminals receive no external stresses.

  Electric wires with insufficient capacity, wrong wire connections and insecure wire terminals may cause electric shock or fire.



CAUTION

- Ground the unit.
- Grounding resistance should be according to local laws and regulations.
- Do not connect the ground wire to gas or liquid pipes, lightning conductors or telephone ground wires.
- Incomplete grounding may cause electric shocks.
  - ⊕ Gas pipes: Fire or an explosion might occur if the gas leaks.
  - ⊕ Lightning conductors or telephone ground wires: Electrical threshold may rise abnormally if struck by a lightning bolt.
- Install the power wire at least 3 feet (1 meter) away from televisions or radios to prevent interference or noise. (Depending on the radio waves, a distance of 3 feet (1 meter) may not be sufficient to eliminate the noise.)
- Do not wash the live parts of the unit. This may cause electric shocks or fire. The appliance must be installed in accordance with national wiring regulations. If the supply cord is damaged, it must be replaced by the manufacturer, its service agent or similarly qualified persons in order to avoid a hazard.
- Do not install the unit in the following places:
  - ⊕ Where there is mist of mineral oil, oil spray or vapors. Plastic parts may deteriorate, and cause them to come loose to leak.
  - ⊕ Where corrosive gases (such as sulphureous acid gas) are produced. Where corrosion of copper pipes or soldered parts may cause refrigerant to leak.
  - ⊕ Where there is machinery which emits electromagnetic waves. Electromagnetic waves can disturb the control system and cause equipment malfunction.
  - ⊕ Where flammable gases may leak, where carbon fiber or ignitable dust is suspended in the

air or where volatile flammable such as paint thinner or gasoline are handled. These types of gases might cause a fire.

⊕ Where the air contains high levels of salt such as near the ocean.

⊕ Where voltage fluctuates a lot, such as in factories.

⊕ In vehicles or vessels.

⊕ Where acidic or alkaline vapors are present.

- If the supply cord is damaged, it must be replaced by the manufacturer or its service agent or a similarly qualified person.
- DISPOSAL: Do not dispose this product as unsorted municipal waste. Collection of such waste separately for special treatment is necessary. Do not dispose of electrical appliances as municipal waste, use separate collection facilities. Contact your local government for information regarding the collection systems available. If electrical appliances are disposed of in landfills or dumps, hazardous substance can leak into the ground water and get into the food chain, damaging your health and well-being.
- The wiring must be performed by professional technicians in accordance with national wiring regulation and this circuit diagram. An all-pole disconnection device which has at least 3mm separation distance in all pole and a residual current device (RCD) with the rating not exceeding 30mA shall be incorporated in the fixed wiring according to the national rule.
- Before wiring/pipes, confirm the safety of the installation area (walls, floors, etc.) without hidden dangers such as water, electricity, and gas.
- Before installation, check whether the user's power supply meets the electrical installation requirements of unit (including reliable grounding, leakage, and wire diameter electrical load, etc.). If the electrical installation requirements of the product are not met, the installation of the product is prohibited until the product is rectified.
- When installing multiple units in a centralized manner, please confirm the load balance of the three-phase power supply, and multiple units are prevented from being assembled into the same phase of the three-phase power supply.
- Product installation should be fixed firmly. Take reinforcement measures, when necessary.

WARNING

To repair or dispose of the equipment, contact the after-sales service team.

The equipment use refrigerant R32, and it must be repaired by professionals.

1) Transport of equipment containing flammable refrigerants

See transport regulations.

2) Marking of equipment using signs

See local regulations.

3) Disposal of equipment using flammable refrigerants

See 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

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.
- To realize the function of the product, a special refrigerant circulates in the system. The used refrigerant is R32, which is highly flammable.
- The refrigerant is flammable and inodorous. Furthermore, it can lead to explosion under certain conditions. But the flammability of the refrigerant is very low. It can be ignited only by fire.
- Compared to common refrigerants, R32 is a nonpolluting refrigerant with no harm to the ozonosphere. The influence upon the Green house effect is also lower. R32 has got very good thermodynamic features which lead to a really high energy efficiency. The units therefore need less filling.

6) Qualification of Service Personnel

Any person who is involved with working on or repairing refrigerating circuits should possess a valid certificate issued by industry recognized assessment organizations certifying that they have the necessary qualifications required for handling refrigerants safely.

Only maintain and repair the product following the methods recommended by the manufacturer. If other technicians are required for assistance, the maintenance or repair should be supervised by persons qualified for handling R32 refrigerants.

7) Checks to the Area

Prior to beginning work on the product that uses refrigerant R32, safety checks are necessary to ensure that the risk of ignition is minimized. For repair to the refrigerating system, the following precautions shall be complied with before conducting work on the system.

8) Work procedure

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

9) General work area

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

10) Check for the presence of refrigerant:

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

11) Presence of fire extinguisher

If any hot work is to be conducted on the refrigerating equipment or any associated parts, appropriate fire extinguishing equipment shall be available to hand. Have a dry powder or CO_2 fire extinguisher adjacent to the charging area.

12) No ignition sources:

Safety Precautions

No person carrying out work in relation to a refrigerating system that involves exposing any pipe work that contains or has previously contained flammable refrigerants shall use any sources of ignition in such a manner that it can 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, removal, and disposal, during which refrigerant can be released into the surrounding space. Prior to work taking place, the area around the equipment is to be surveyed to make sure that there are no flammable hazards or ignition risks. "No Smoking" signs shall be displayed.

13) 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.

14) Checks to the Refrigerating Equipment

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

The following checks shall be applied to installations of products using R32 refrigerants:

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

15) Checks to Electrical Devices

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 it is satisfactorily dealt with. If the fault cannot be corrected completely in the end, but it is necessary to continue operation, an adequate temporary solution shall be used. This shall be reported to the owner of the equipment so all parties are advised.

Initial safety checks shall include:

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

16) Repairs to Sealed Components

Sealed electrical components shall be replaced.

17) Repairs to Intrinsically Safe Components

Intrinsically safe components must be replaced.

18) 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.

19) Detection of Refrigerant R32

After entering the cooling or heating command for the air conditioner, if the air blown out by the unit is neither cold nor hot, please first open the windows for ventilation or turn on the exhaust fan. Then check whether the machine has any alarms. If there is a refrigerant leakage alarm or a refrigerant shortage alarm, please contact service personnel for on-site repair. Before the repair is completed, please keep the area ventilated.

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

20) Leak Detection Methods

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

The following leak detection methods are deemed acceptable for systems containing refrigerant R32:

- Electronic leak detectors may be used to detect refrigerant R32, but the sensitivity may be inadequate 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 lower flammability limit (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 shall be suitable for use with most refrigerants but the use of solvents containing chlorine shall be avoided as the chlorine can react with the refrigerant and corrode the copper pipe-work.
- If a leak is suspected, all naked flames shall be removed or 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. Before and during brazing, purge the entire system with oxygen-free nitrogen (OFN).

21) 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;
- evacuate;
- 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.

22) Refrigerant Charging Procedures

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

- Ensure that contamination of different refrigerants does not occur when using charging equipment. Hoses or lines shall be as short as possible to minimize the amount of refrigerant contained in them.
- Cylinders shall be kept upright.
- Ensure that the refrigerating system is earthed before charging the system with refrigerant.
- Label the system after or before the completion of charging.
- Extreme care shall be taken not to overfill the refrigerating system.
- Prior to recharging the system, it shall be pressure-tested with oxygen-free nitrogen. 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.

23) Decommissioning

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

- Become familiar with the equipment and its operation.
- Isolate system electrically.
- 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.

- Pump down the refrigerant system, if possible.
- If a vacuum is not possible, make a manifold so that refrigerant can be removed from various parts of the system.
- Make sure that the cylinder has sufficient capacity before recovery takes place.
- Start the recovery machine and operate in accordance with instructions.
- Do not overfill cylinders (no more than 80% volume liquid charge).
- Do not exceed the maximum working pressure of the cylinder, even temporarily.

- When the cylinders have been filled correctly and the process completed, make sure that the cylinders and the equipment are removed from the site promptly and all isolation valves on the equipment are closed off.
- Recovered refrigerant shall not be charged into another refrigerating system unless it has been cleaned and checked.

24) Labeling

Equipment shall be labeled stating that it has been de-commissioned and emptied of refrigerant. The label shall be dated and signed. Ensure that there are labels on the equipment stating the equipment contains refrigerant R32.

25) Recovery

When removing refrigerant from a system, either for servicing or decommissioning, it is required to follow good practice so 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 labeled for that refrigerant (i.e. special cylinders for the recovery of refrigerant). Cylinders shall be complete with pressure-relief valves 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.

Safety Precautions

Description of Pictograms

Throughout this manual and on the work site you will encounter various pictograms depicting hazards or other noteworthy items. Please consult the table below for their meanings:

Pictogram	Meaning
	Dangerous high voltage is present. Do not access a compartment with this symbol unless power is turned off
	A pressurized liquid or gas is present. Do not puncture or heat up with a flame.
	A flammable chemical or gas is present. Do not use open flames to cut or solder unless the gas has been evacuated.
	Indicates the User Manual should be read before performing an operation
	Indicates the Install & Service Manual should be read before performing an operation
	A grounding point, either between earth and the ODU or between the IDU and the ODU.

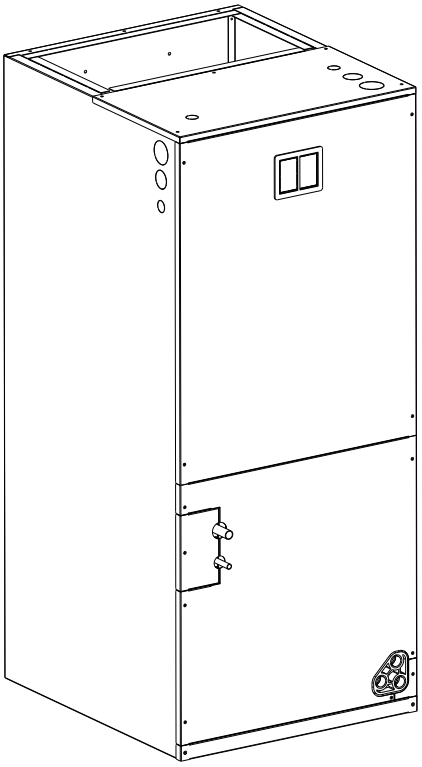
1. Unit Introduction

The DC inverter central heat pump can meet the needs of hotels, hospitals, sports venues, restaurants, cinemas, commercial buildings etc.

This product absorbs the essence of similar products at home and abroad, focuses on the future of air conditioning development, and serves customer needs.

1.1. Unit Pictures

1.1.1. Indoor unit(Air Handler)

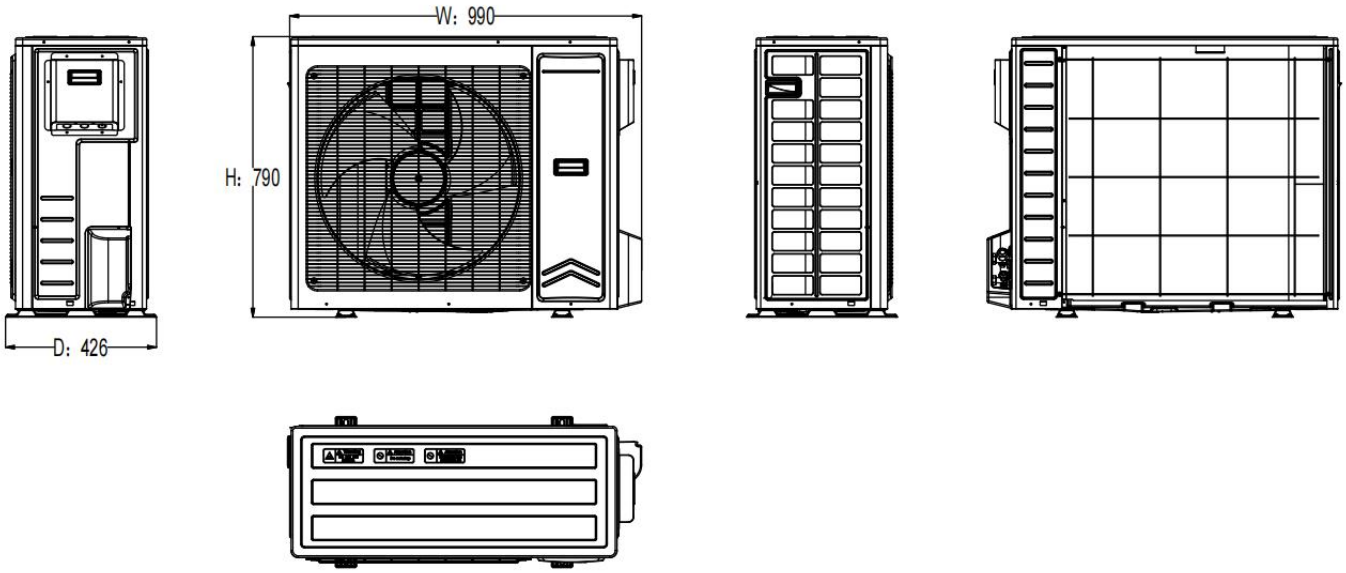


Picture 1. Indoor Unit Overview

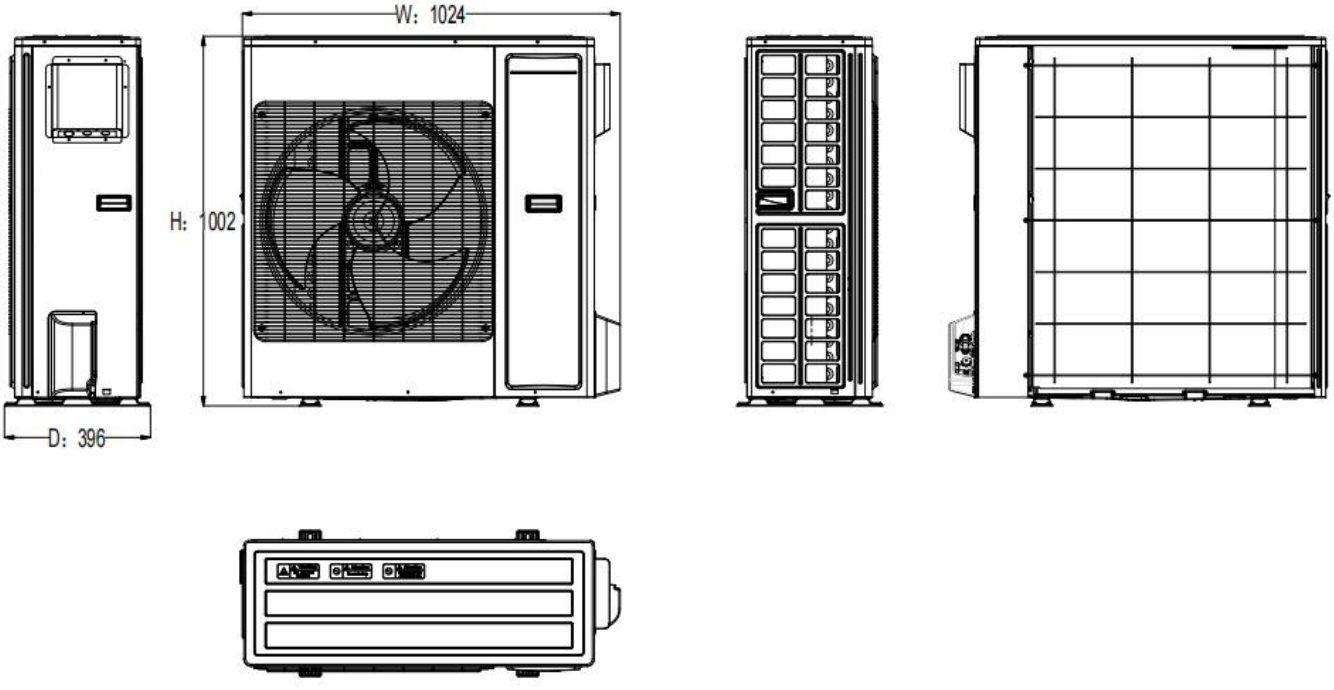
Note: Actual product may be different from above graphics, please refer to actual products.

Unit Introduction

1.1.2. Outdoor unit



Picture 2. Outdoor unit (Model:VUH24-VA6BA(O)/VUH36-VA6BA(O))



Picture 3. Outdoor unit (Model:VUH48-VA6BA(O)/VUH60-VA6BA(O))

Note: Actual product may be different from above graphics, please refer to actual products.

Unit Introduction

1.2. Unit Technical Data

1.2.1. Performance of Cooling

PERFORMANCE OF COOLING					
Model Size		**24K**	**36K**	**48K**	**60K**
Outdoor Unit Model No:	/	VUH24-VA6BA(O)	VUH36-VA6BA(O)	VUH48-VA6BA(O)	VUH60-VA6BA(O)
Indoor Unit Model No:	/	VUH24-VA6BA(I)	VUH36-VA6BA(I)	VUH48-VA6BA(I)	VUH60-VA6BA(I)
Rated Cooling Capacity	Btu/h	24,000	34,200	48,000	52,500
Min/Max Cooling Capacity	Btu/h	7,500~25,400	10,500~36,400	13,600~49,000	16,200~56,000
Standard Operating Range	°F	50~129°F			
Note: 1. Rated Cooling Conditions: Indoor: 80°F DB/67°F WB and Outdoor: 95°F DB/75°F WB; 2. The air handler unit and outdoor unit are powered by 230Vac/1ph/60Hz.					

1.2.2. Performance of Heating

PERFORMANCE OF HEATING					
Model Size		**24K**	**36K**	**48K**	**60K**
Outdoor Unit Model No:	/	VUH24-VA6BA(O)	VUH36-VA6BA(O)	VUH48-VA6BA(O)	VUH60-VA6BA(O)
Indoor Unit Model No:	/	VUH24-VA6BA(I)	VUH36-VA6BA(I)	VUH48-VA6BA(I)	VUH60-VA6BA(I)
@47°F Rated Heating Capacity	Btu/h	24,000	34,200	48,000	54,000
@47°F Min/Max Heating Capacity	Btu/h	7,600~26,000	11,000~36,000	14,000~50,000	15,000-56,000
@17°F Rated Heating Capacity	Btu/h	22,200	26,800	42,200	43,000
Capacity Ratio (17/47°F)	--	92.5%	76.6%	87.9%	78.2%
@5°F Max. Heating Capacity	Btu/h	21,000	25,600	41,000	42,000
Capacity Ratio (5/47°F)	%	87.5%	73.1%	85.4%	76.4%
COP@5°F	W/W	2.3	2.1	2.3	2.3
Standard Operating Range	°F	-13~86°F			
Note: 1. Rated Heating Conditions: 1.1 Indoor: 70°F DB/60°F WB, Outdoor: 47°FDB/43°F WB; 1.2 Rated Heating Conditions: Indoor: 70°F DB/60°F WB, Outdoor: 17°F DB/15°F WB; 1.3 Heating Conditions, Compressor Indoor operating at Max. Frequency: 70°F DB/60°F WB, Outdoor: 5°F DB/5°F WB. 1.4 The air handler unit and outdoor unit are powered by 230Vac/1ph/60Hz.					

Canadian technical edition, 2026-11-05: rated cooling at 95°F and heating at 47°F updated from AHRI. See final addendum.
Other performance points and supplier capacity ratios remain as supplied; ratios are not recalculated using AHRI 47°F ratings.

Unit Introduction

1.2.3. Enrgy Efficiency

EFFICIENCY					
Operating Mode	**/**	**VUH24-VA6BA**	**VUH36-VA6BA**	**VUH48-VA6BA**	**VUH60-VA6BA**
Cooling	SEER2	21.0	20.2	20.0	19.6
	EER2	13.0	11.5	12.0	11.5
Heating	HSPF2 IV	11.0	10.2	11.0	10.8
	COP	3.65	3.60	4.0	4.12

Note:

1. The air handler unit and outdoor unit are powered by 230Vac/1ph/60Hz.

1.2.4. Indoor Unit (Air Handler) Specification

INDOOR UNIT (AIR HANDLER) SPECIFICATION					
Indoor Unit Model		**VUH24-VA6BA(I)**	**VUH36-VA6BA(I)**	**VUH48-VA6BA(I)**	**VUH60-VA6BA(I)**
Indoor Air Flow	CFM	820	1,150	1,580	2,000
Indoor Noise Level	dB(A)	34-42	38-48	41-53	46-57
Dimension (W x D x H)	mm	503 x 562 x 1162		563 x 622 x 1352	
	Inch	19.8 x 22.13 x 45.75		22.17 x 24.49 x 53.23	
Package (W x D x H)	mm	620 x 682 x 1308		676 x 742 x 1512	
	Inch	24.4 x 26.85 x 51.5		26.62 x 29.22 x 59.53	
Net Weight	kg/lbs	64/141		80/176	
Gross Weight	kg/lbs	74/163		90/198	

1.2.5. Outdoor Unit Specification

OUTDOOR UNIT SPECIFICATION					
Model		**VUH24-VA6BA(O)**	**VUH36-VA6BA(O)**	**VUH48-VA6BA(O)**	**VUH60-VA6BA(O)**
Compressor Type	/	Inverter Rotary			
Refrigerant	/	R32			
Factory Charge	oz.(kg)	91.7(2.6)		123.5(3.5)	
Refrigerant Oil	/	RB68GX or equivalent			
Outdoor Air Flow (Max)	CFM	2,650		2,790	
Outdoor Noise Level	dB(A)	57		59	
Dimension (W x D x H)	mm	990 × 426 × 790		1024 × 396 × 1002	
	Inch	38.98 x 16.77 x 31.1		40.31 × 15.59 × 39.45	
Package (W x D x H)	mm	1057 × 482 × 855		1101 × 448 × 1148	
	Inch	41.61 × 18.98 × 33.66		43.35 × 17.64 × 45.2	
Net Weight	kg/lbs	60/132		95/209	
Gross Weight	kg/lbs	65/143		105/231	

Canadian technical edition, 2026-11-05: SEER2, EER2 and HSPF2 region IV updated from AHRI.
See the final editorial addendum for exact combinations, AHRI references, dates and source attribution.

1.2.6. Electrical Data

a) Outdoor Unit Electrical Data

ELECTRICAL(ODU)					
Model		**VUH24-VA6BA**	**VUH36-VA6BA**	**VUH48-VA6BA**	**VUH60-VA6BA**
Power Supply	Vac/Ph/Hz	208/230V, 1Ph, 60Hz			
Unit MCA(ODU)	A	12	19	26	28
Weak Current Connection Wiring	AWG	AWG18	AWG18	AWG18	AWG18
Unit MOCP(ODU)	A	20	35	44	50
Suggest Breaker Size	A	20	25	40	50
Compressor RLA	A	8.74	15.44	18.76	20.46
Fan Motor FLA	A	1.8	1.8	1.8	1.8
Fan Motor Output	W	120	120	120	120
Rated Power Input@ Cooling	W	1,950	3,100	4,300	4,800
Power Input Range@ Cooling	W	350~2,200	440~3,350	580~4,680	720~5,150
Rated Power Input@ Heating	W	1,900	2,700	3,460	3,800
Power Input Range@ Heating	W	320~2,140	430~3,000	550~3,750	800~4,100
MCA: Min. circuit amps, A; MOCP: Max. Over-current protection amps, A; RLA: Rated load amps, A; FLA: Full load amps.					

b) Indoor Unit(Air Handler Unit) Electrical Data

ELECTRICAL(IDU)					
Model		**VUH24-VA6BA**	**VUH36-VA6BA**	**VUH48-VA6BA**	**VUH60-VA6BA**
Power Supply	Vac/Ph/Hz	115/208/230, 1Ph, 60Hz			
Unit MCA(IDU)	A	6.1/3.9/3.6	8.6/5.4/5.1	11.6/7.4/6.9	11.6/7.4/6.9
Weak Current Connection Wiring	AWG	AWG18	AWG18	AWG18	AWG18
MOCP@115V	A	6	10	25	25
MOCP@230V	A	6	6	15	15
Breaker Size@115V	A	6	10	20	20
Breaker Size@230V	A	6	6	10	10
Fan Motor FLA	A	4.4/2.6/2.4	6.4/3.8/3.6	11.6/7.4/6.9	11.6/7.4/6.9
Fan Motor Output	W	224	373	560	560
MCA: Min. circuit amps, A; MOCP: Max. Over-current protection amps, A; RLA: Rated load amps, A; FLA: Full load amps.					

2. Installation Prepare

2.1. Installation Tools

S.N	Tools	S.N	Tools
1	Level meter	8	Pipe cutter
2	Screw drivers	9	Leakage detector
3	Impact drill	10	Vacuum pump
4	Drill head	11	Pressure meter
5	Pipe expander	12	Universal meter
6	Torque wrench	13	Inner hexagon spanner
7	Open-end wrench	14	Measuring tape

2.2. Selection of Locations

2.2.1. Installation Location and Matters Attentions

- The installation of the unit must comply with the national and local safety regulations. The installation quality directly affects the normal use, so the installation and debugging shall be done by manufacture authorized technician or professional installers according to this manual.
- Installation shall be performed in accordance with the requirement of NEC and CEC by authorized personnel only.
- Be sure to cut off the power supply before proceeding any electric work.
- Do not connect the power before finishing installation.

2.2.2. How to Select the Indoor Unit (Air Handler) Installation Location

- Where there is no direct sunlight.
- Where the top hanger, ceiling and the building structure are strong enough to withstand the weight of the unit.
- Where the drain pipe can be easily connected to outside.
- Where the flow of the air inlet/outlet is not blocked.
- Where the refrigerant pipe of the indoor unit can be easily led to outside.
- Where there is no in flammable, explosive substances or their leakage.
- Where there is no corrosive, heavy dust, salt mist, smog or moisture, etc.

2.2.3. How to Select the Outdoor Unit Installation Location

- The outdoor unit shall be installed where the bearing surface is stable and secure enough.
- The outdoor unit and indoor unit should be placed as close as possible to minimize the length and bends of the refrigerant pipe.
- Do not install the outdoor unit under the window or between the buildings to prevent the normal

running noise entering the room.

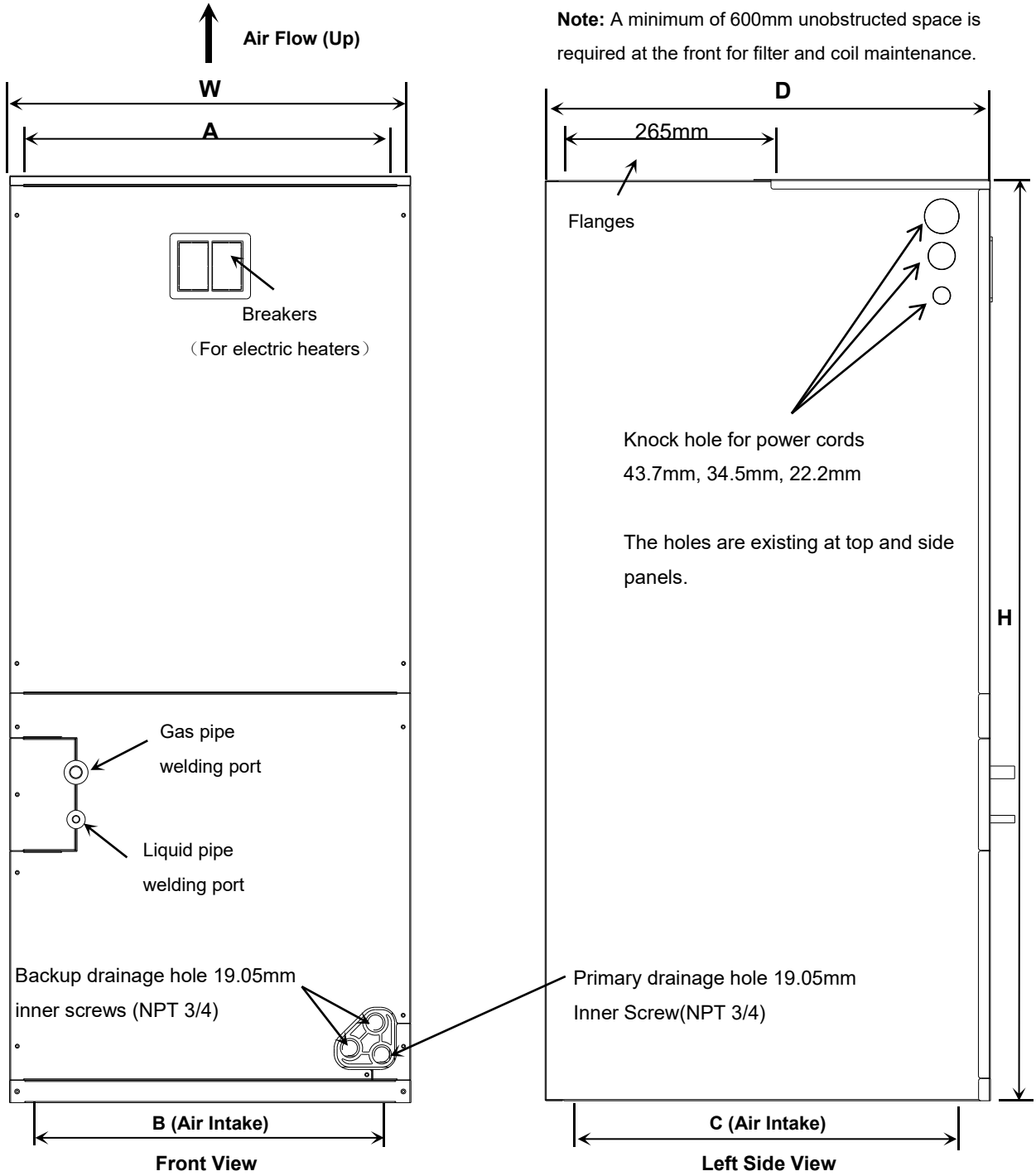
- Where the flow of the air inlet/outlet is not blocked.
- The outside unit should be installed where ventilation is in good condition so that the unit can take in and discharge enough air.
- Do not install the unit where there are in flammable and explosive substances and where here is heavy dust、salt fog and other severely polluted air.
- No air guiding pipe is allowed to be installed at the air inlet/outlet of the outdoor unit. Under the heating mode, the condensate water would drip down from the base frame and would be frozen when the outdoor ambient temperature is lower than 0°C (32°F).
- Besides, the installation of the outdoor unit should not affect the heat radiation of the unit.

The unit installed in the following places is likely to run abnormally. If unavoidable, please contact the professional personnel at the appointed service center.

- Where is full of oil.
- Alkaline soil off the sea.
- Where there is sulfur gas (like sulfur hot spring).
- Where there are devices with high frequency (like wireless devices, electric welding devices, or medical equipment).
- Special circumstances.

3. Installation

3.1. The Overview Installation of Indoor Unit (Air Handler)



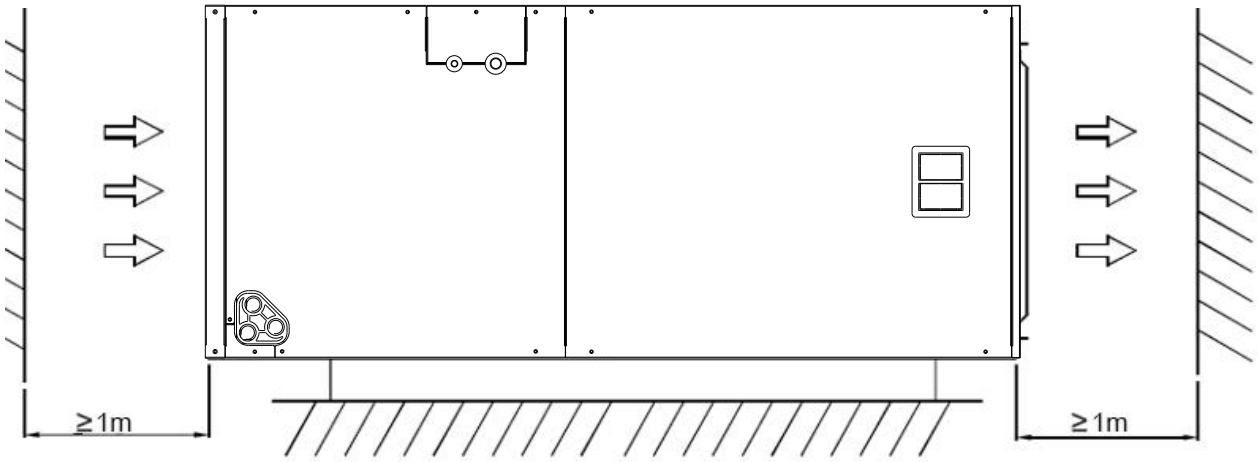
Models	Dimensions, mm					
	H	W	D	A	B	C
24/36K	1162	503	562	456	408	529
48/60K	1352	563	622	496	468	589

Installation

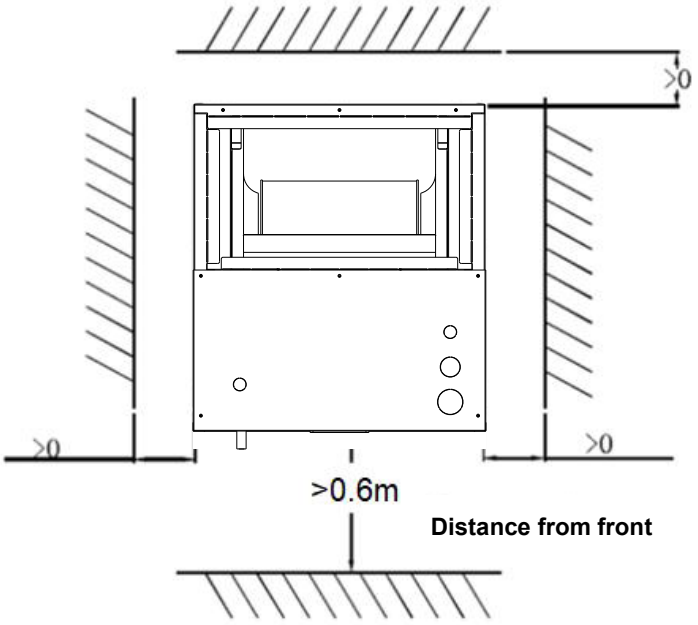
3.2. The Installation of Indoor Unit

3.2.1. Choosing installation location

Recommend the installation location to the client and then confirm it with the client.



a）Horizontal Installation



b）Vertical Installation

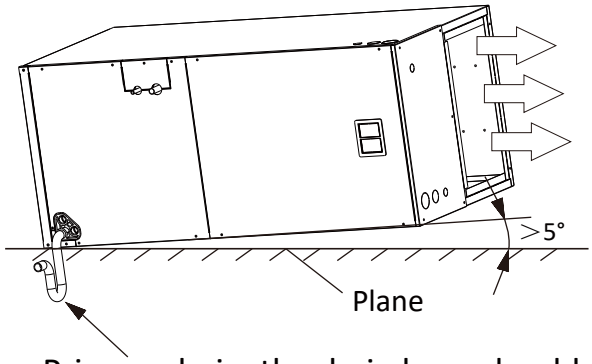
CAUTION

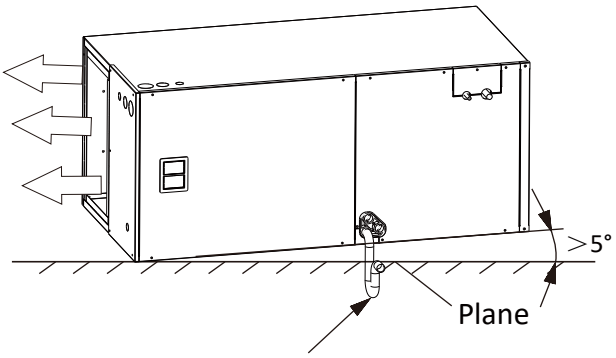
At the air outlet of the unit, a minimum 1.5-meter or 5-ft air duct must be connected to prevent injury to personnel during machine operation.

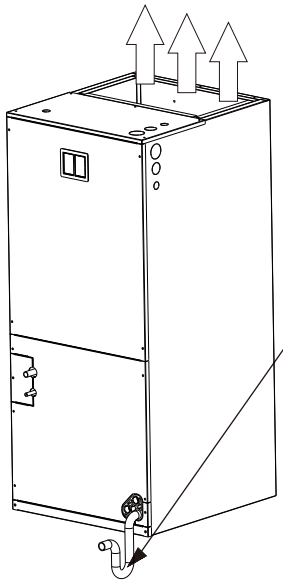
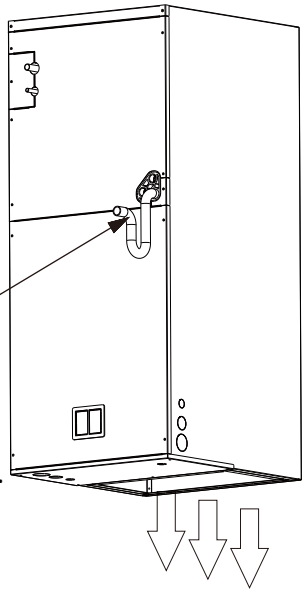
Installation

3.2.2. Applications

The air handler unit supports both horizontal installation (laying down to the left or right) and vertical installation.

<table>
<tr><th>RIGHT SIDE DISCHARGE</th><th>LEFT SIDE DISCHARGE</th></tr>
<tr><td>

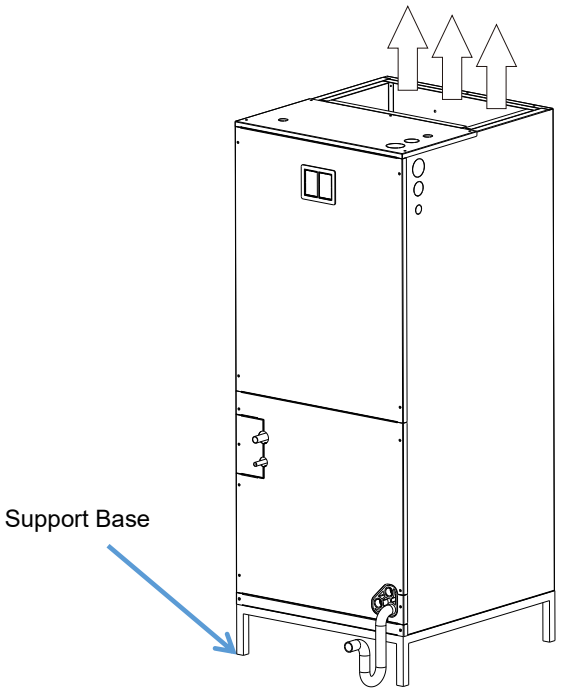
Primary drain, the drain hose should from a bend as shown in the picture.</td><td>

Primary drain, the drain hose should from a bend as shown in the picture.</td></tr>
<tr><th>UPFLOW DISCHARGE</th><th>DOWN DISCHARGE</th></tr>
<tr><td>
Primary drain, the drain hose should from a bend as shown in the picture.</td><td>
Primary drain, the drain hose should from a bend as shown in the picture.</td></tr>
<tr><td colspan="2">NOTES:
1. For installation requiring right-side discharge and upward discharge, refer to the left diagram to seal or trap all drain outlets.
2. For installation requiring left-side discharge and downward discharge, refer to the right diagram to seal or trap all drain outlets.
3. Ensure the unit is installed with a horizontal angle of at least 5°.</td></tr>
</table>

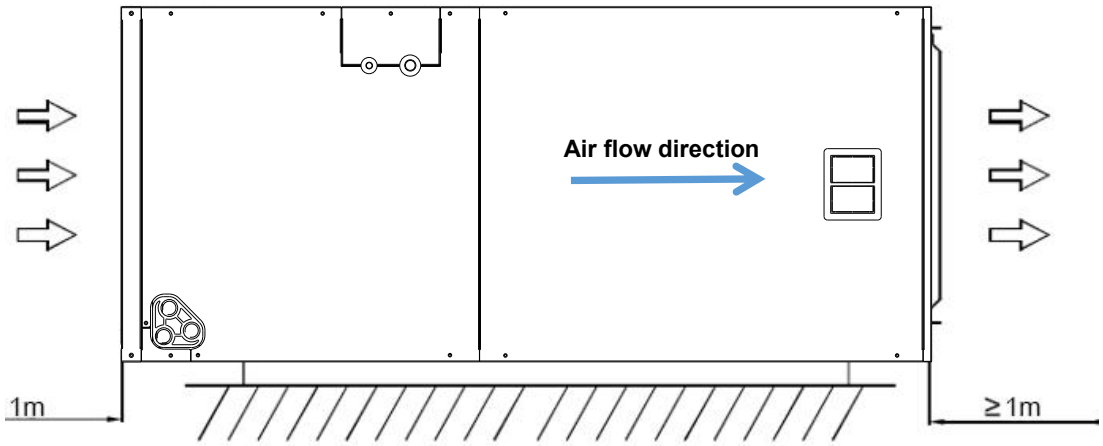
Installation

a) Up flow supply (Standard installation)

Note: The base is needed for Up-flow supply application, to make sure the air flow can be go through the air handler. (The minimum distance is ≥ 150mm)



b) Right side supply

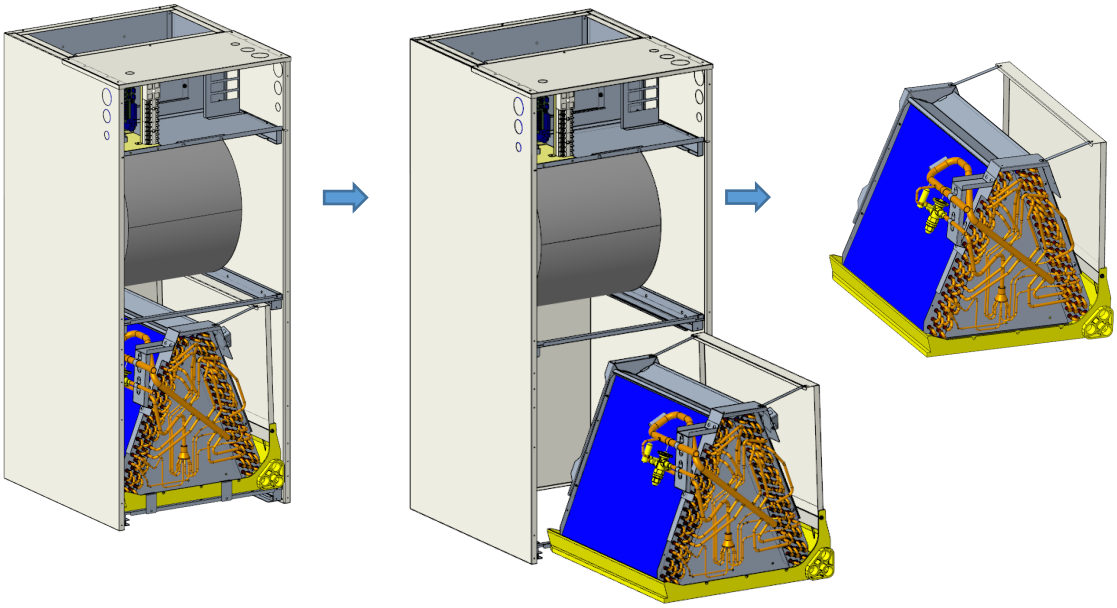


Installation

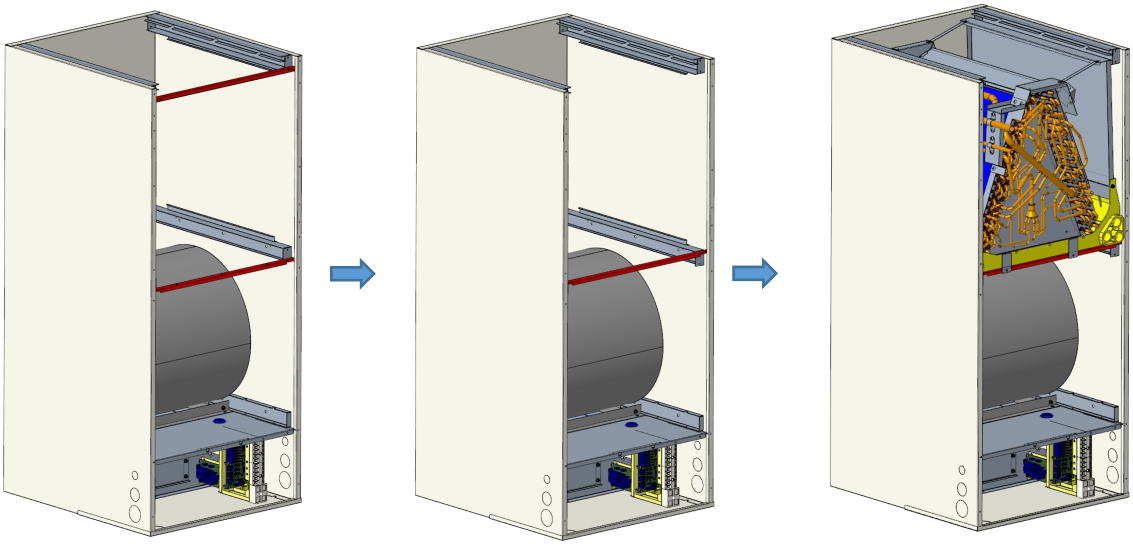
c) Down flow supply

Note: If the site only supports down flow installation of air handler, the unit direction, and the sensor need to change the position.

- Step 1, Take off all front panels via screw driver;
- Step 2, take out the A-Coil and water pan kit along the rail. (**Note:** Before take the A-Coil out, The cable connection to leakage sensor shall be disconnected first.)



- Step 3, Adjust the supply outlet of the unit to face downward. Then, remove the bar as shown in the picture below. (Remove the upper bar and move the installation position of the middle bar up).

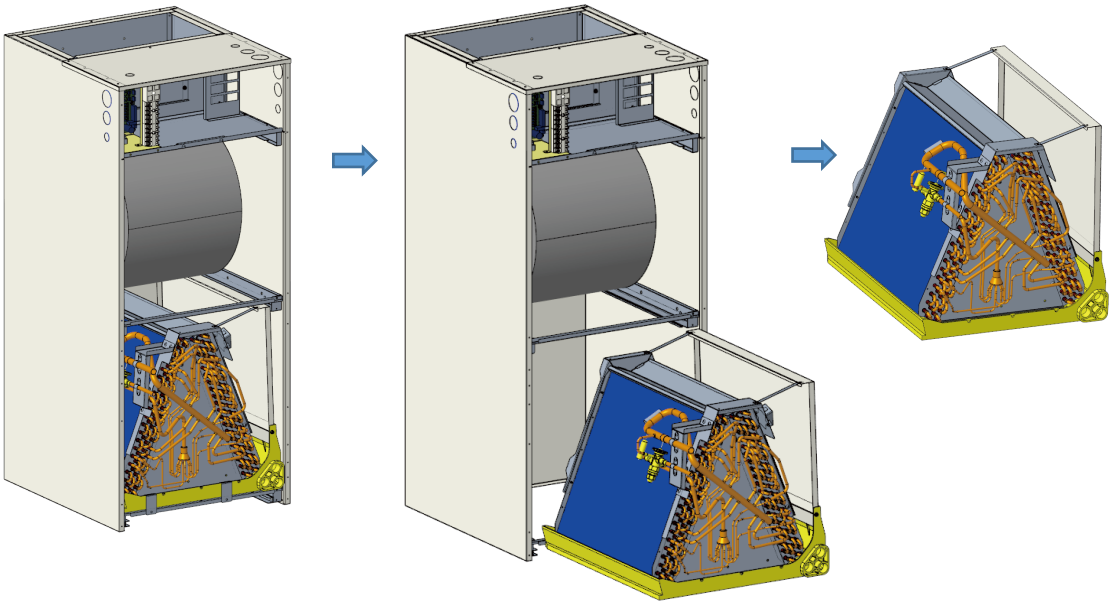


Installation

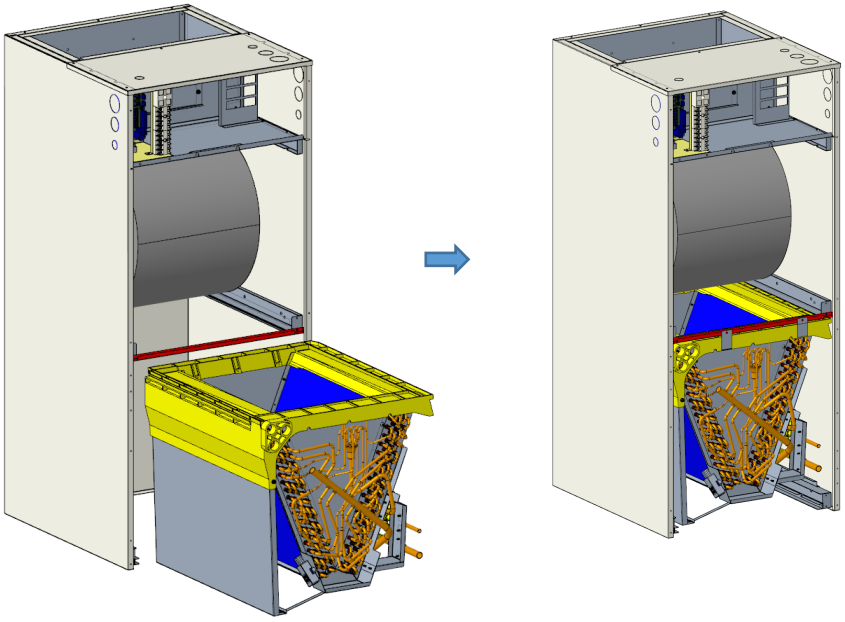
d) Left side supply

Note: If the site only supports horizontal installation of air handler with the unit laying down to the left, the down-panel and A-Coil must be adjusted during the installation onsite.

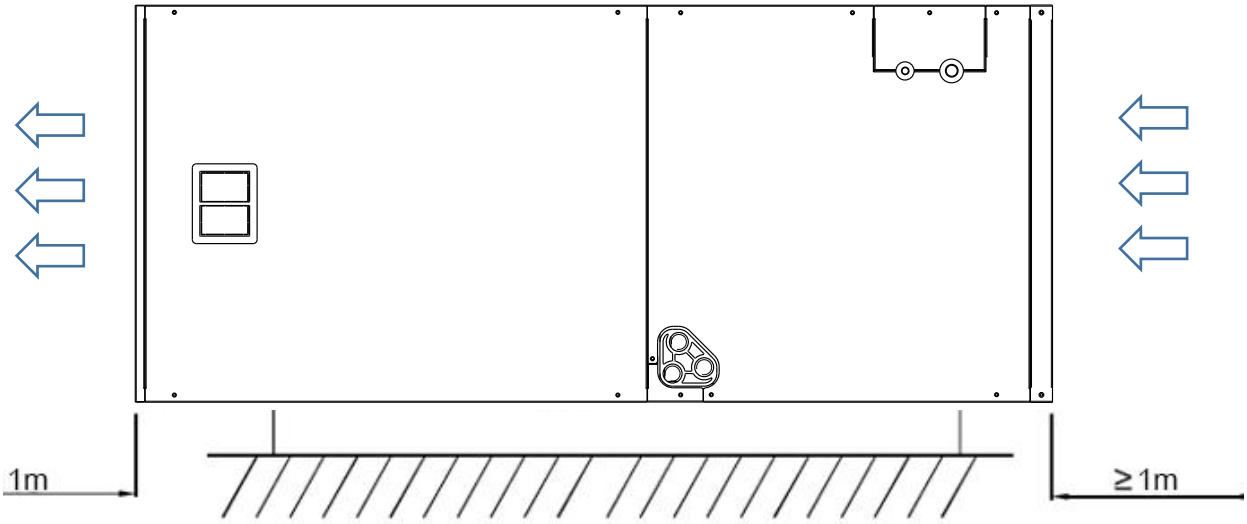
- Step 1, Take off all front panels;
- Step 2, take out the A-Coil and water pan kit along the rail;(**Note:** Before take the A-Coil out, The cable connection to leakage sensor shall be disconnected first.)



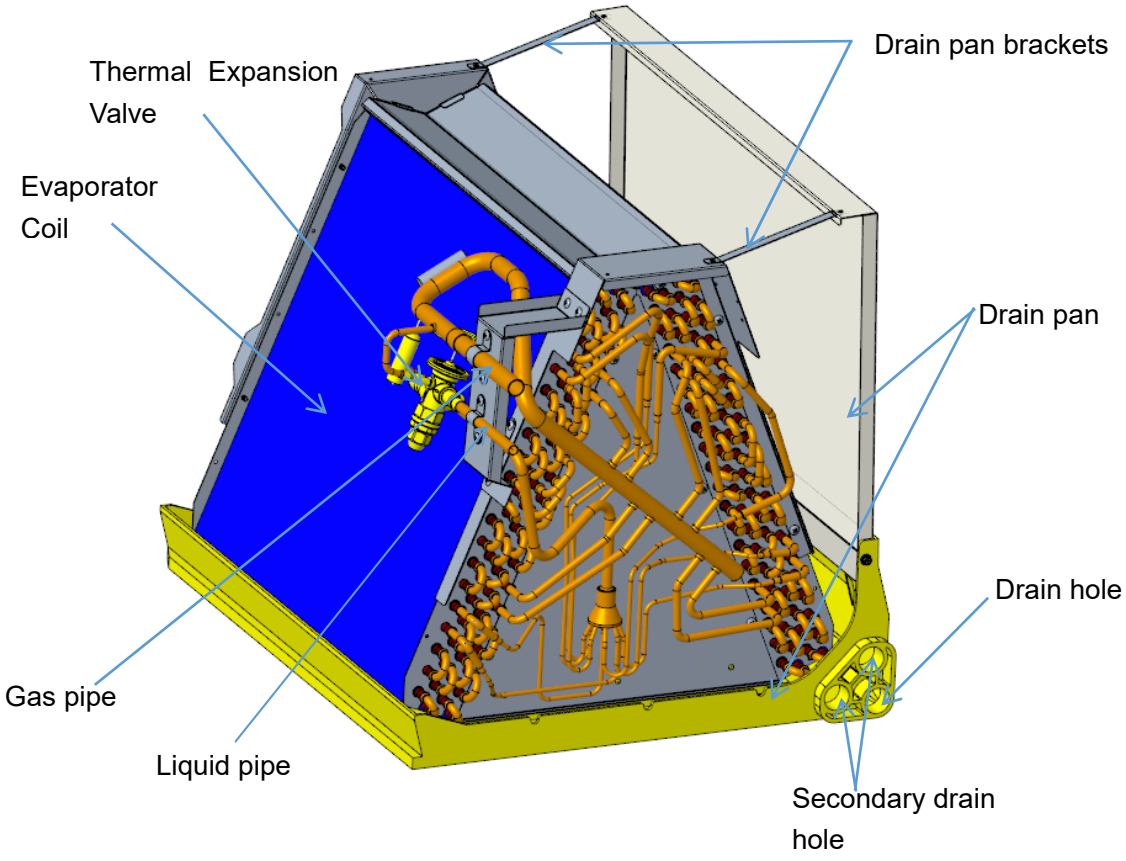
- Step 3, Remove the bar as "**Installation application c) down flow supply > step 3**", then change the A-coil installation way from "A" to "V" as below picture shown.



- Step 4, Laying the unit down to the left.



3.2.3. A-Coil introduction



Installation

3.3. Pipe Connections to Indoor Unit (Air Handler)

NOTE:

The indoor unit piping may be connected with welded joints upon delivery. Please refer to the actual equipment and use the appropriate connection method.

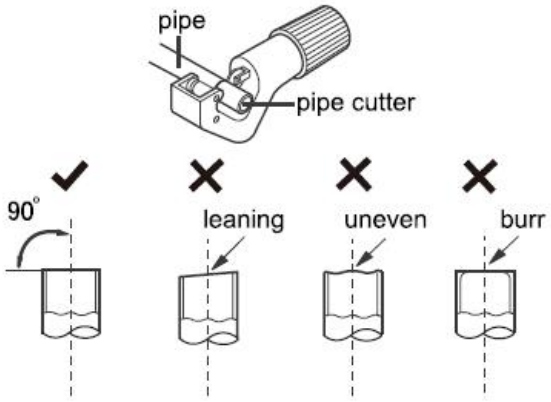
3.4.1. Pipe expanding method

Improper pipe expanding is the main cause of refrigerant leakage. Please expand the pipe according to the following steps:

a. cut the pipe

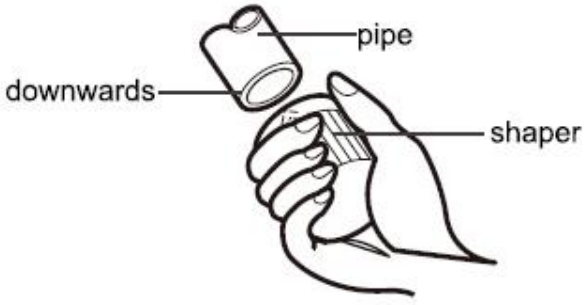
Confirm the pipe length according to the distance of indoor unit and outdoor unit.

Cut the required pipe with pipe cutter.



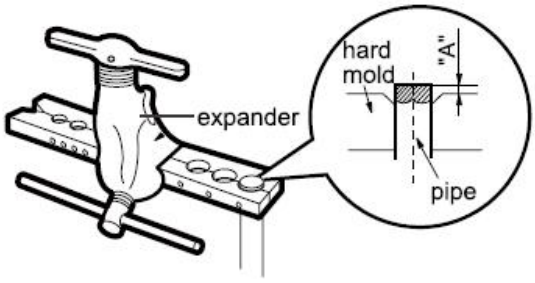
b. Remove the burrs

Remove the burrs with shaper and prevent the burrs from getting into the pipe.



c. Expand the port

Expand the port with expander.



Installation

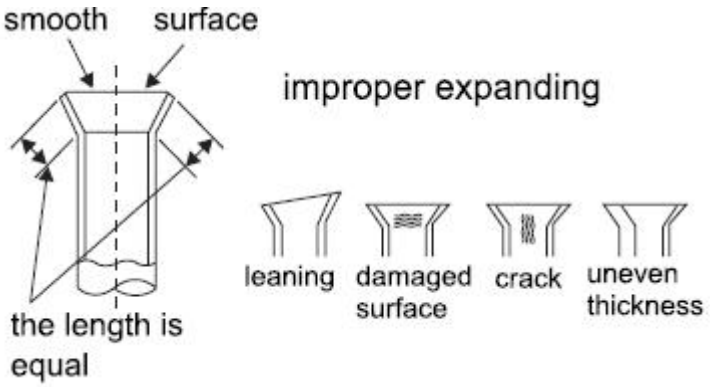
Note:

● “A” is different according to the diameter, please refer to the sheet below:

Outdoor diameter,mm	A,mm	
	Max	Min
Φ6.35(1/4”)	1.3	0.7
Φ9.52(3/8”)	1.6	1.0
Φ12-12.7(5/8”)	1.8	1.0
Φ15.8-16(5/8”)	2.4	2.2
Φ19(3/4”)	2.7	2.2

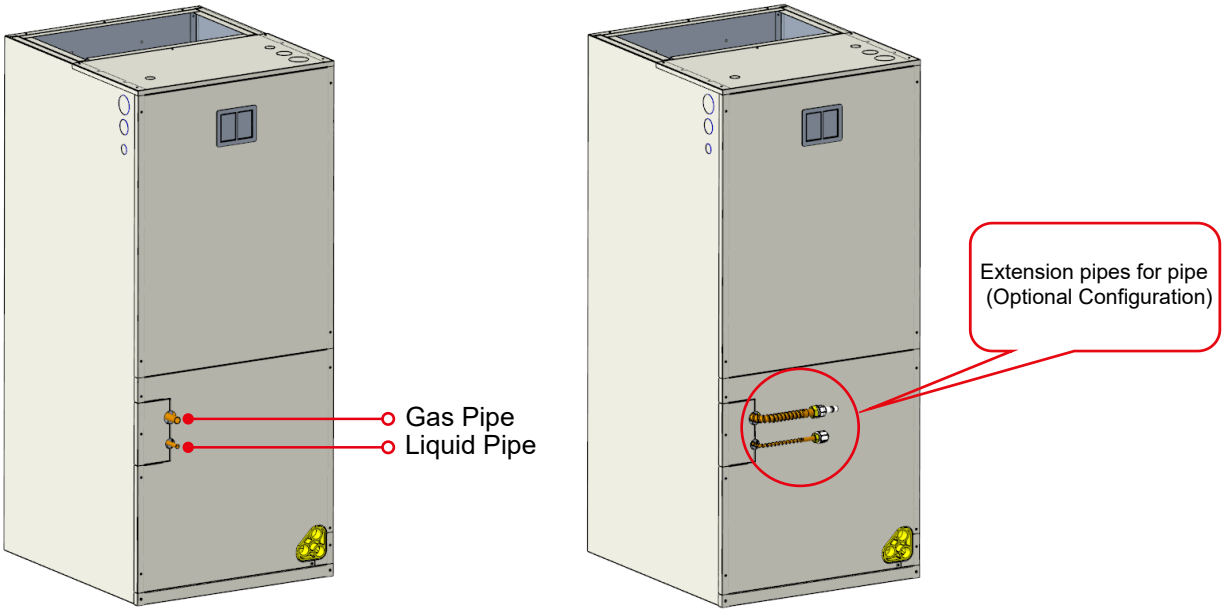
d. Inspection

Check the quality of expanding port. If there is any blemish, expand the port again according to the step above.



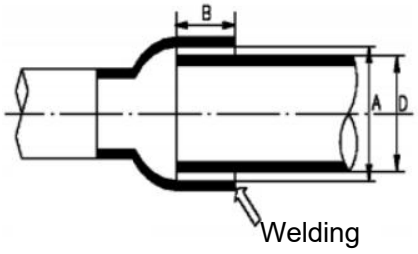
3.4.2. Make the Pipe Connections through Welding

Weld the reserved gas and liquid pipes of the indoor unit to the connecting copper pipes for connection.



Installation

During welding, the inside of the pipe must be filled with nitrogen, maintaining a nitrogen flow rate of 8-16 L/min. The embedding depth for the welded pipe is shown in the table below.

Type	External diameter	Embedding Depth B (mm)	Clearance A-D(mm)
	5<D<8	6	0.05-0.21
	8<D<12	7	
	11<D<16	8	0.05-0.27
	16<D<25	10	
	25<D<35	12	0.05-0.35
	35<D<45	14	

After completing the pipe connections for both the indoor and outdoor units, follow the **vacuum pumping** and **leak detection** instructions in the outdoor manual to finalize the pipe connection work.

NOTES:

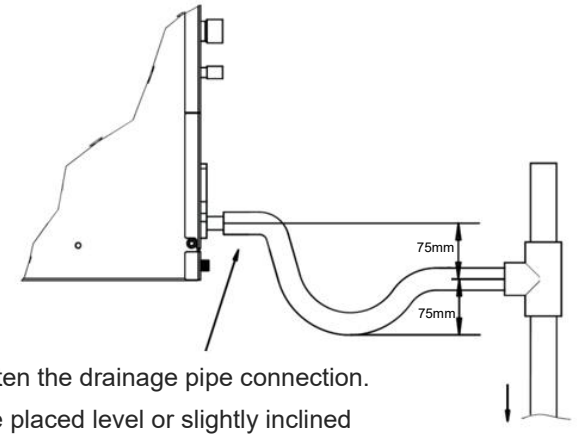
1) that after completion of field piping for split systems, the field pipework shall be pressure tested with an inert gas and then vacuum tested prior to refrigerant charging, according to the following requirements;
2) Field-made refrigerant joints indoors shall be tightness tested. The test method 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;

3.4. Drain pipe connection

Use a Teflon-coated hose to connect to the fixed drainage port, and seal the connection with anaerobic adhesive.

Do not over-tighten the drainage pipe connection to avoid damaging the drainage port, which could result in water leakage.

Note: Do not allow to operate the unit without installing the drainage pipe.



Do not over-tighten the drainage pipe connection.
The unit must be placed level or slightly inclined toward the drainage port.

Main drain pipe

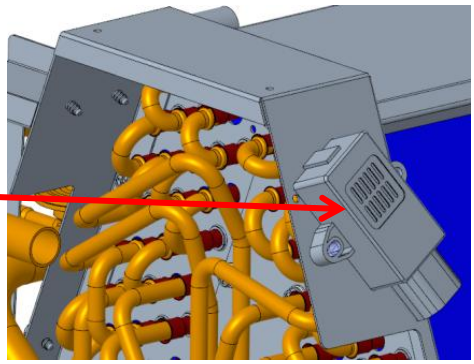
Installation

3.5. The USE of Refrigerant Leak Detector Sensor

3.5.1. Sensor outlook and installation

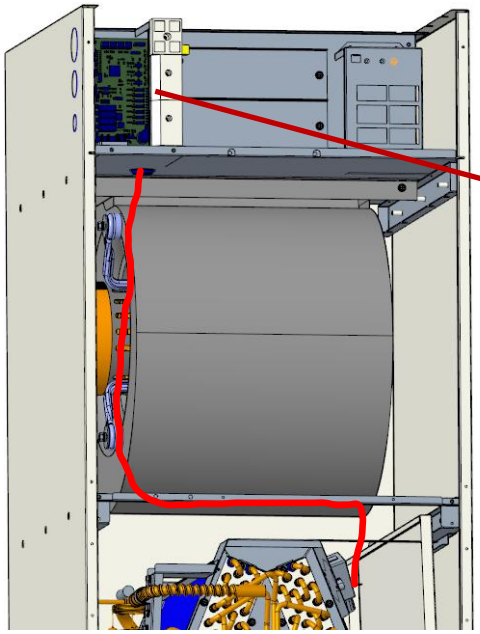
The sensor is factory installed on the bracket by self-taping screws (ST4.2*13)

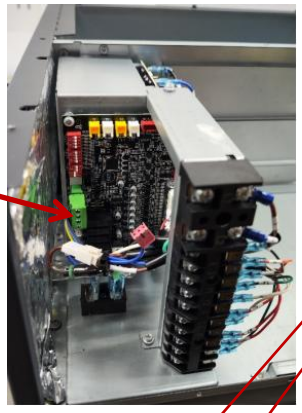


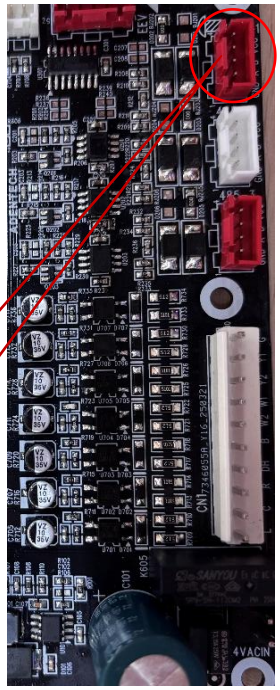


3.5.2. Sensor wiring

The sensor is factory wired, to terminal , refer to below picture shown.







Connect to
Indoor unit AP1
com1

3.5.3. Sensor maintenance

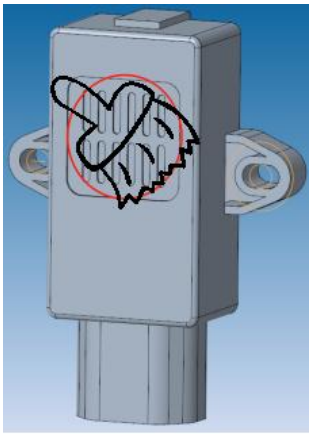
When the indoor unit is turned on, the sensor will start working. If there are any leaks around the A-coil, the sensor will send signals to the indoor unit's controller board. The outdoor unit will stop functioning, and the LED light on the indoor unit's controller board will start flashing. Meanwhile, the indoor unit's fan will continue running until the alarm is cleared.

Note: Before check the unit, the unit must be powered off.

When entering the cooling or heating command for the air conditioner, if the air blown out by the unit is neither cold nor hot, please first open the windows for ventilation or turn on the exhaust fan. Then check whether the machine has any alarms. If there is a refrigerant leakage alarm or a refrigerant shortage alarm, please contact service personnel for on-site repair. Before the repair is completed, please keep the area ventilated.

The service life of the refrigerant detection module is >15 years. **Manufacturer**: Winsensor

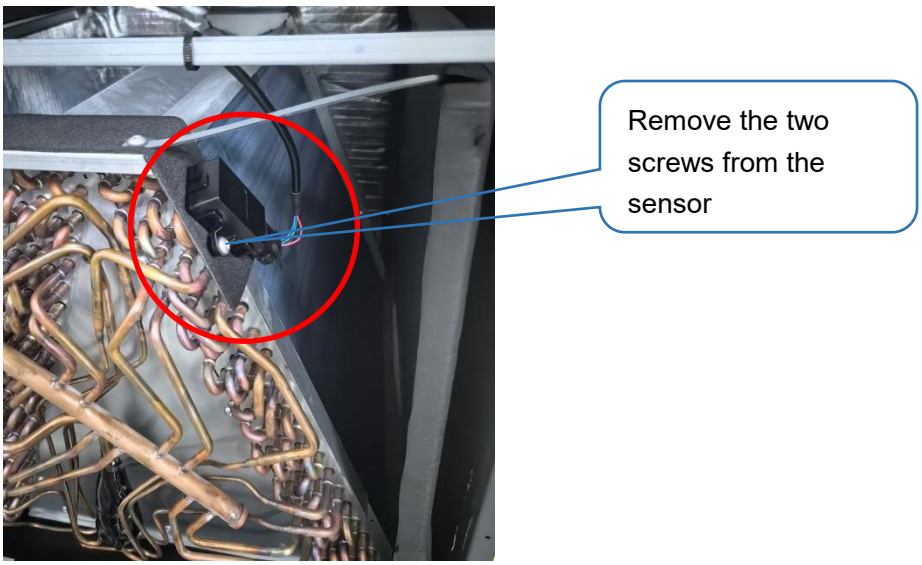
The sensor inlet shall be clean once a year.



3.5.4. Sensor replacement

If the refrigerant leak detector sensor is broken, it needs to be replaced according below steps:

1) Remove the screws from the sensor.



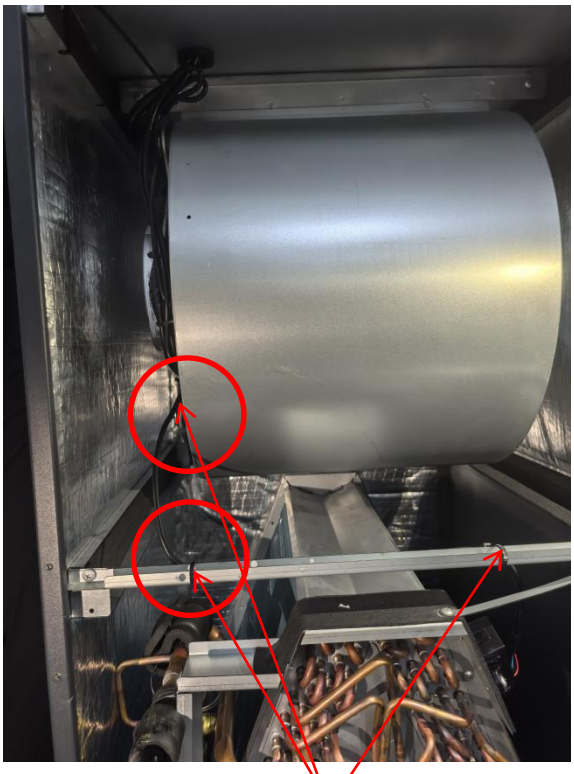
Installation

2) Take off the connector

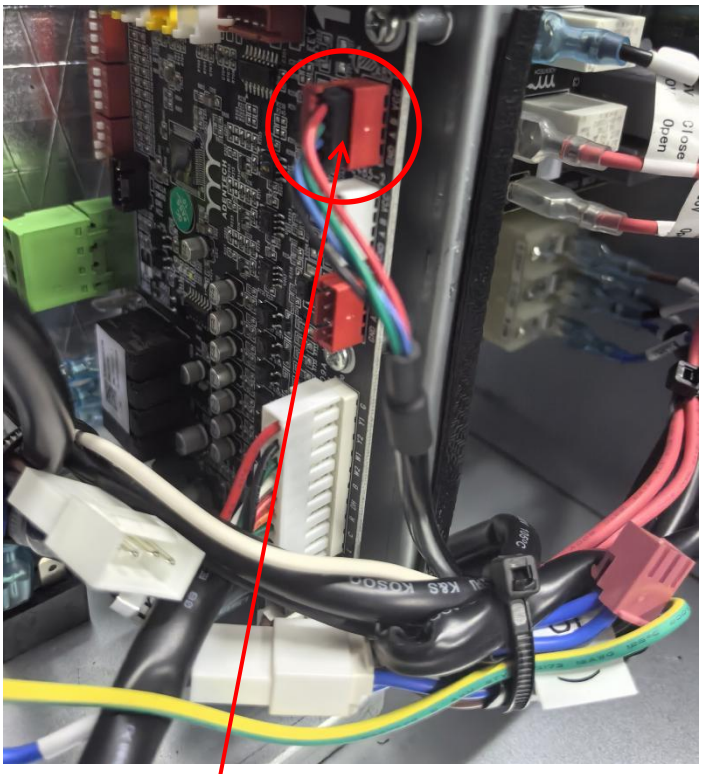


3) Replace a new sensor and fixed the sensor on the A-Coil.

4) If the cable is broken, replace a new cable.



Cut the
zip-tape



Disconnect the connector and
replace a new cable

Installation

3.6. Wring Connections

3.6.1. Overview

There are knock-able holes at the both sides of indoor unit, finding the right side to make the wiring connections:

1) Make the prime power supply connection from indoor unit to power panel;

2) Make the signal connection from indoor unit to the thermostat;

Note: All wiring connections must be routed through conduits(, and strong current and weak current must be separated.

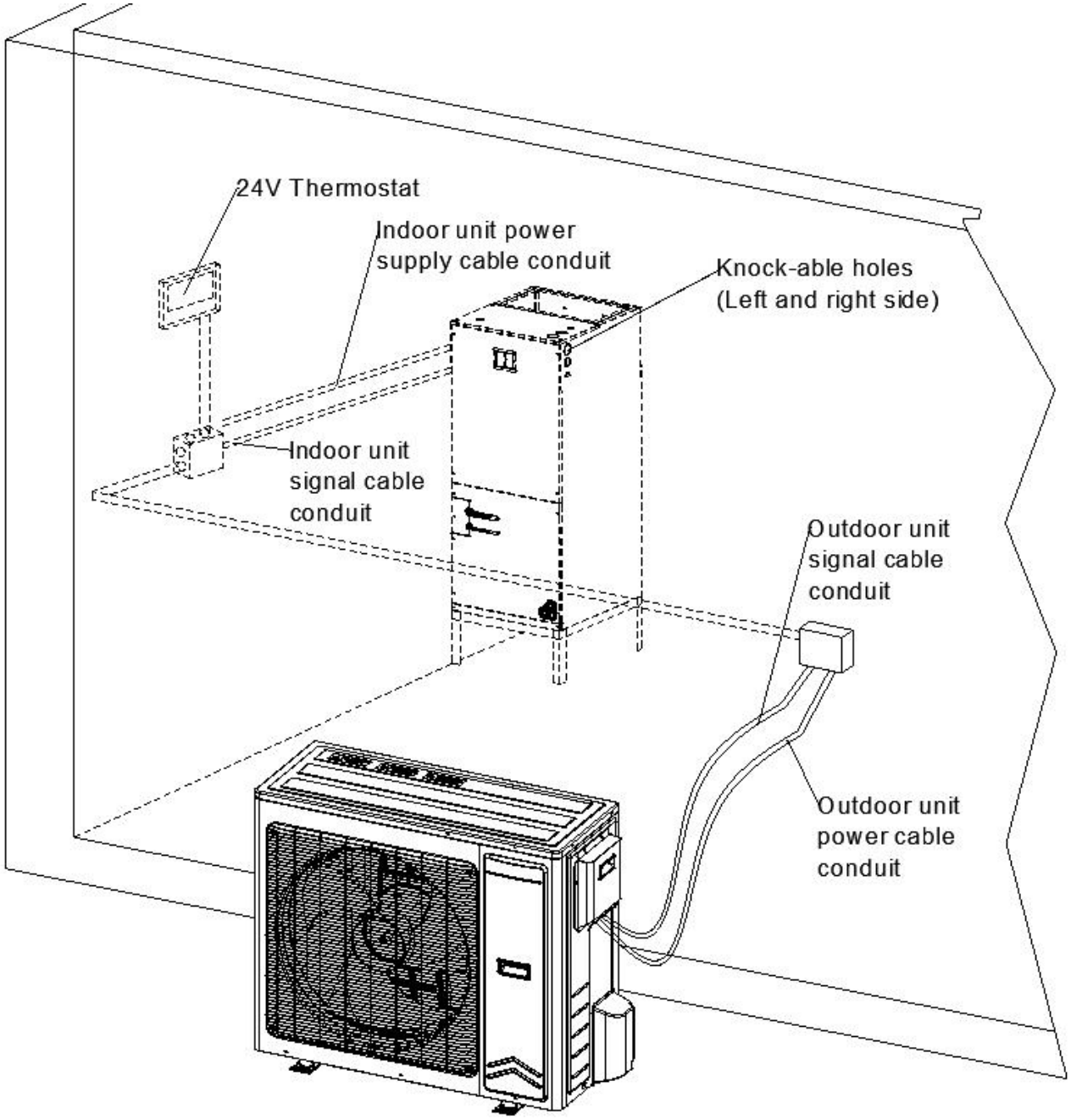


Fig.1 Wiring connections overview

Installation

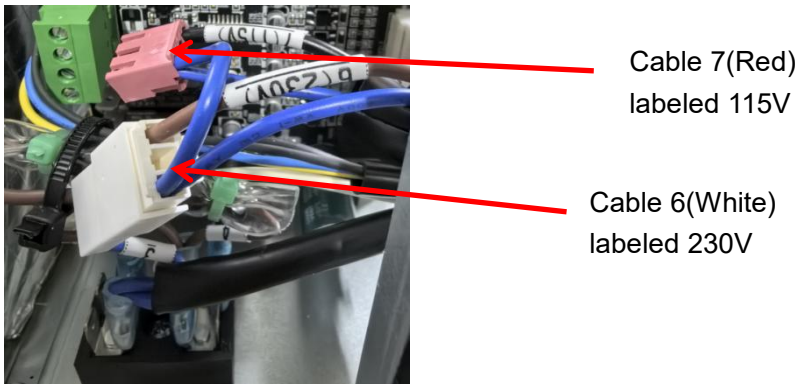
3.6.2. Make prime power cable connection

On-site, the power supply cable for unit wiring must meet the requirements specified in below table.

Air Handler	Recommended Min. AWG (Copper)				Grounding Min.AWG (Copper)	
	208/230V		115V		208/230V	115V
	L1	L2	L	N	PE	PE
24K	18AWG	18AWG	18AWG	18AWG	18AWG	18AWG
36K	18AWG	18AWG	16AWG	16AWG	18AWG	16AWG
48K	16AWG	16AWG	14AWG	14AWG	16AWG	14AWG
60K	16AWG	16AWG	14AWG	14AWG	16AWG	14AWG

If necessary, install branch circuits with sufficient capacity in visible and accessible locations around the unit.

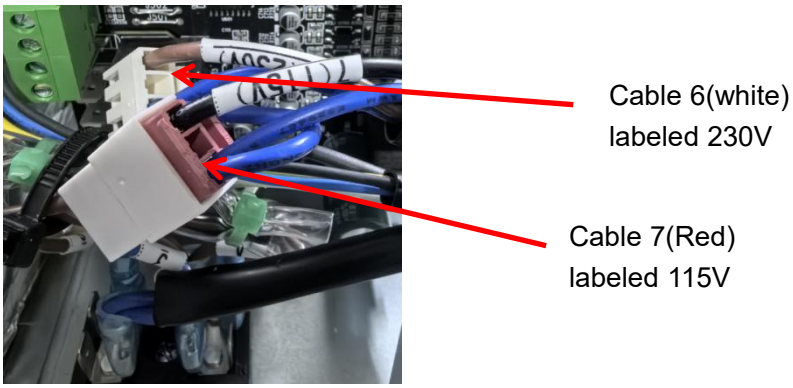
The air handler unit can be powered by 115Vac/1Ph/60Hz or 208/230Vac/1Ph/60Hz. The default power supply is 208/230Vac/1Ph/60Hz, the installer can make the wiring directly without any additional works as below picture shown.



If no 230Vac/1Ph/60Hz power supply is available on the site, the installer can use 115Vac/1Ph/60Hz to power air handler unit, refer to below instructions to make the wiring of 115Vac/1Ph/60Hz power supply.

Step 1. Remove the white terminal of cable 6 (labeled 230V) from the white socket of cables 3 and 4. fix it to prevent contact with metal parts. (**Note:** Connect either the 230V plug or the 115V plug, but not both.)

Step 2. Connect the red terminal of cable 7 (labeled 115V) to the white socket of cables 3 and 4.



Installation

If an electric heater is installed (only be powered by 208/230Vac/1Ph/60Hz), the unit requires one or two 30-60A circuit breakers. In the event of a short circuit, the circuit breaker can protect the internal components of the unit and also serve as a switch.

Refer to the current, wire gauge, and protector requirements in this section. Wires must use copper conductors rated for temperatures of 75°C or higher. The protector can be either a fuse or a circuit breaker.

3.6.3. Make signal wires connection from Indoor Unit (Air handler) to thermostat

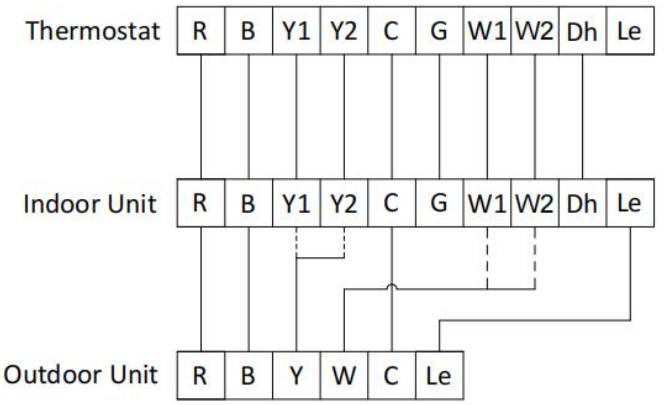
Signal wires and power wires must be routed separately. Otherwise, communication failure may occur, and the unit may not operate properly.

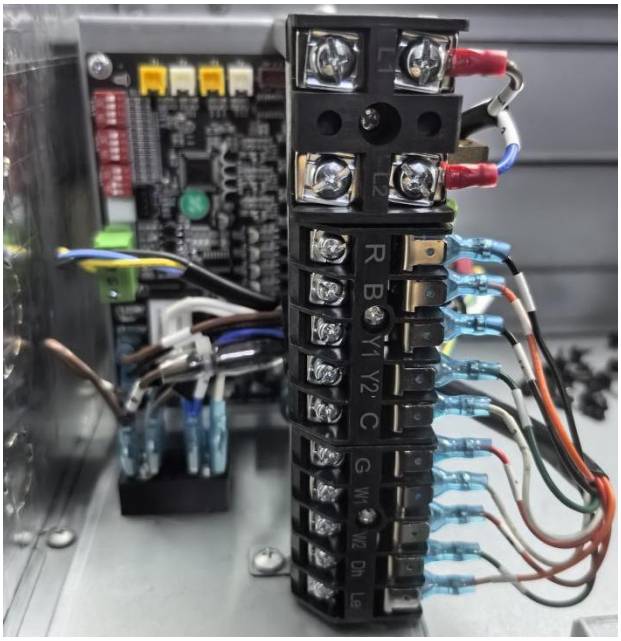
When make the power

Signal wires should be 0.75 mm² in size. If the wiring length exceeds 30 meters, 1 mm² wires should be used.

Connect the signal wires between the indoor and outdoor units according to the wiring diagram.

Ensure that signal wires and power wires are laid out separately.



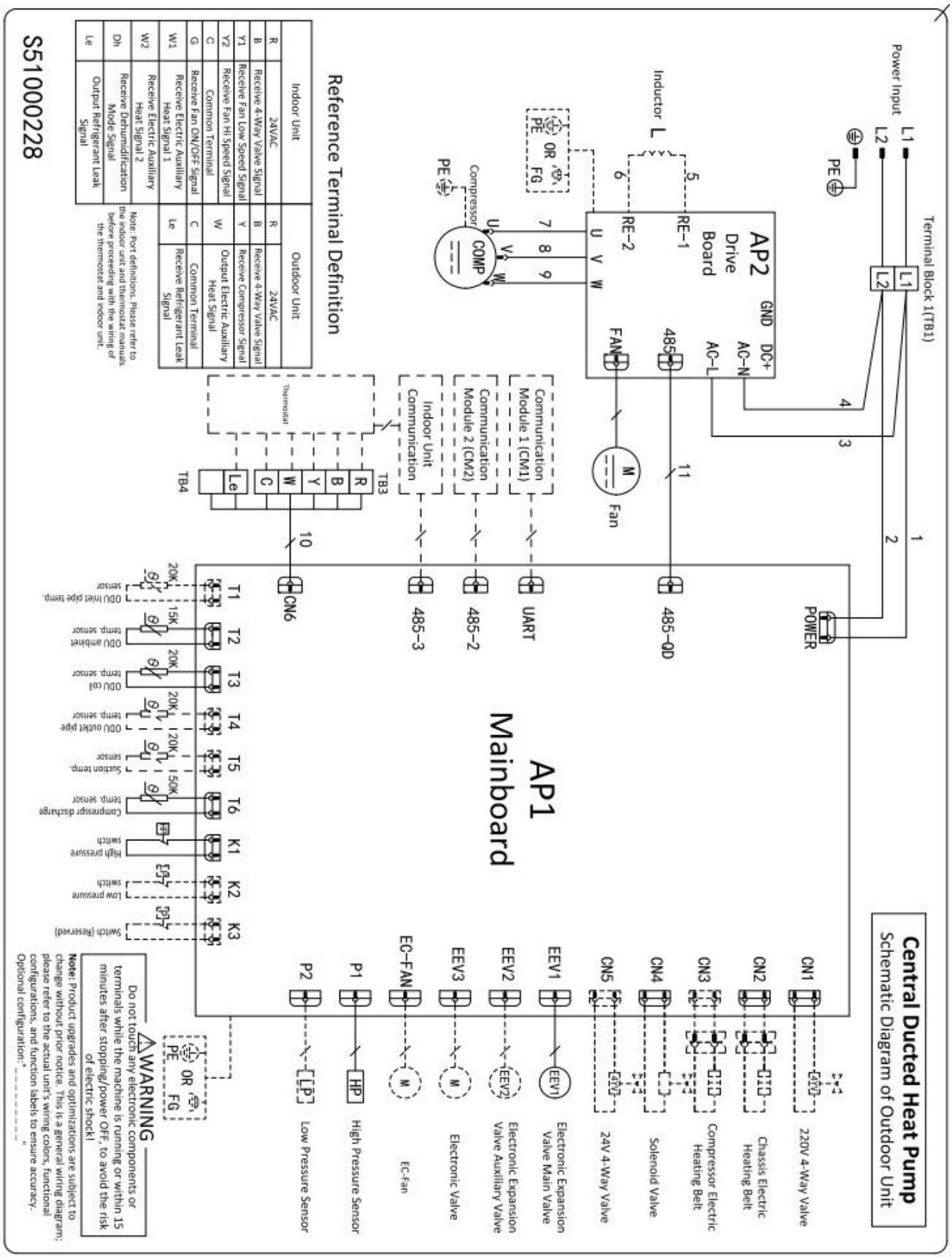


Reference Terminal Definition

Indoor Unit		Outdoor Unit	
R	24VAC	R	24VAC
B	Receive 4-Way Valve Signal	B	Receive 4-Way Valve Signal
Y1	Receive Fan Low Speed Signal	Y	Receive Compressor Signal
Y2	Receive Fan Hi Speed Signal	W	Output Electric Auxiliary Heat Signal
C	Common Terminal		
G	Receive Fan ON/OFF Signal	C	Common Terminal
W1	Receive Electric Auxiliary Heat Signal 1	Le	Receive Refrigerant Leak Signal
W2	Receive Electric Auxiliary Heat Signal 2		
Dh	Receive Dehumidification Mode Signal		
Le	Output Refrigerant Leak Signal		

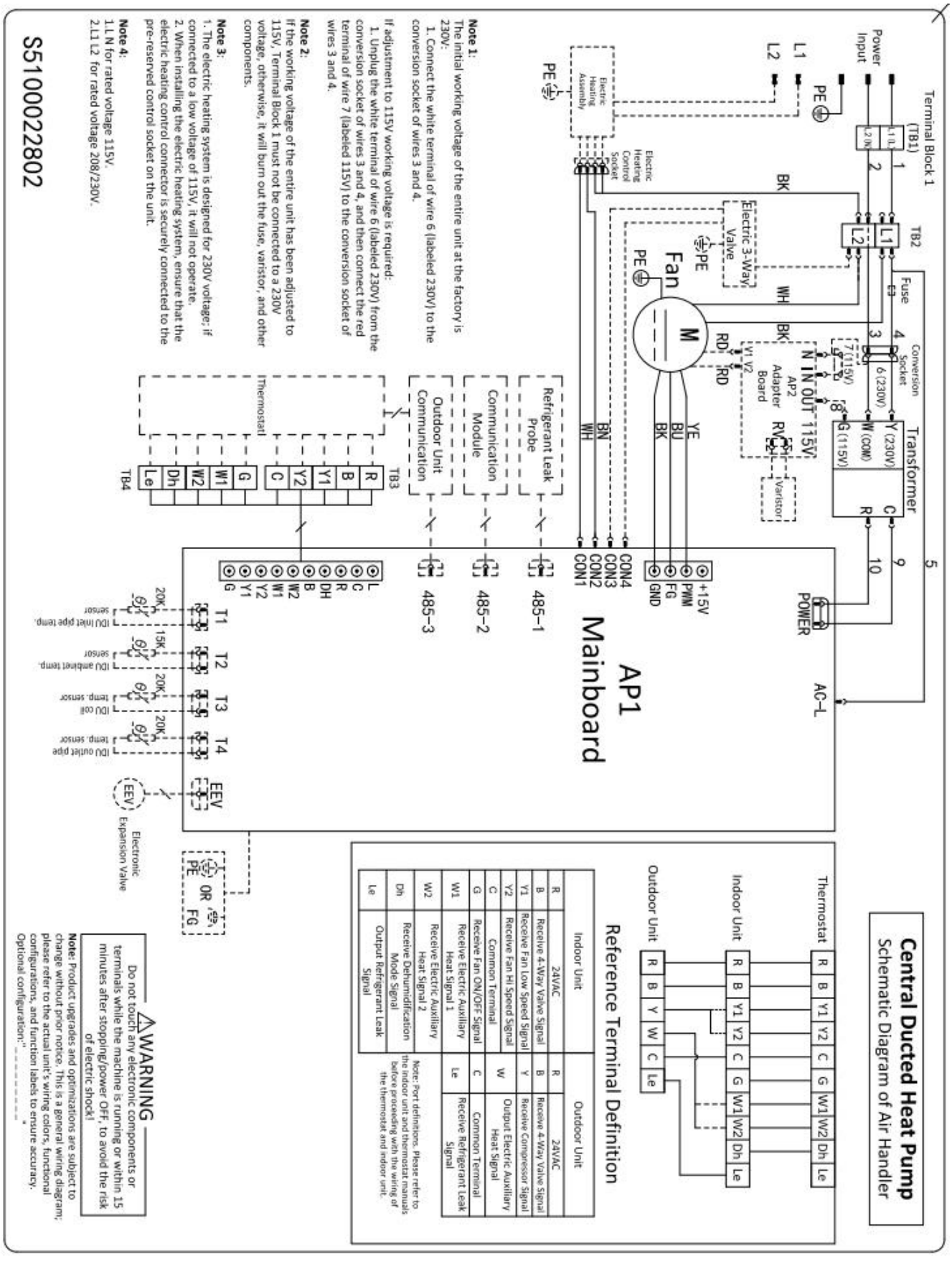
Note: Port definitions. Please refer to the indoor unit and thermostat manuals before proceeding with the wiring of the thermostat and indoor unit.

Installation



Indoor Unit		Outdoor Unit	
R	24VAC	R	24VAC
B	Receive 4-Way Valve Signal	B	Receive 4-Way Valve Signal
Y1	Receive Fan Low Speed Signal	Y	Receive Compressor Signal
Y2	Receive Fan Hi Speed Signal	W	Output Electric Auxiliary Heat Signal
C	Common Terminal	C	Common Terminal
G	Receive Fan ON/OFF Signal	Le	Receive Refrigerant Leak Signal
W1	Receive Electric Auxiliary Heat Signal 1		
W2	Receive Electric Auxiliary Heat Signal 2		
Dh	Receive Dehumidification Mode Signal		
Le	Output Refrigerant Leak Signal		

Installation



3.6.4. Grounding

Warning

- The unit must be permanently grounded.
- Failure to ground the unit may result in electric shock, causing injury or death.

Grounding can be achieved by connecting the machine's casing to a grounded metal conduit as required by electrical codes, or by connecting the ground wire to the grounding terminal inside the machine's electrical control box.

For systems with multiple power circuits, the ground wire of each circuit must be connected to the machine's grounding terminal.

3.6.5. Electric heater table

AIR HANDLER ELECTRICAL WITH ELECTRIC HEATER(OPTION)

Unit Model	Electric Heater Kit	Heating capacity ,kW	MCA		MOP		Fan Speed				
			208Vac	230Vac	208Vac	230Vac	1(low)	2	3(medium)	4	5(high)
24K	21-4520-01 A2L1	5.0	23.0	25	25	30	●	●	●	●	●
	21-4520-02 A2L1	7.5	33.9	37.4	35	40	●	●	●	●	●
	21-4520-03 A2L1	10.0	45.5	50	50	60	●	●	●	●	●
36K	21-4520-01 A2L1	5.0	23.0	25	25	30	●	●	●	●	●
	21-4520-02 A2L1	7.5	33.9	37.4	35	40	●	●	●	●	●
	21-4520-03 A2L1	10.0	45.5	50	50	60	●	●	●	●	●
	21-4520-04 A2L1	15.0	33.9/33.9	37.4/37.4	35/35	40/40	●	●	●	●	●
48K	21-4520-01 A2L1	5.0	23.0	25	25	30	x	●	●	●	●
	21-4520-02 A2L1	7.5	33.9	37.4	35	40	x	●	●	●	●
	21-4520-03 A2L1	10.0	45.5	50	50	60	x	●	●	●	●
	21-4520-04 A2L1	15.0	33.9/33.9	37.4/37.4	35/35	40/40	x	●	●	●	●
60K	21-4520-01 A2L1	5.0	23.0	25	25	30	x	●	●	●	●
	21-4520-02 A2L1	7.5	33.9	37.4	35	40	x	●	●	●	●
	21-4520-03 A2L1	10.0	45.5	50	50	60	x	●	●	●	●
	21-4520-04 A2L1	15.0	33.9/33.9	37.4/37.4	35/35	40/40	x	●	●	●	●

MCA: Min. circuit amps, A; MOP: Max. Over-current Protection (Max. Fuse or Breaker Size, A);
Ampacities for MCA and Fuse/Breaker including the blower motor.

Installation

3.6.6. Electric heater kit installation

The Air handler unit can be applied with supplementary heaters **when powered by 208/230Vac~1Ph**.

The electric heater kits are option parts, please refer to the electric heater table to choose right size electric heater. The electric heater can be upgraded onsite.

⚠ Caution

- All electrical work must be performed by qualified professionals.

The electric heater kit is specifically designed for use with the VHU series air handlers.

Determine the room's heating load based on the minimum room temperature, and check the EHK label to confirm whether the specifications meet the load requirements.

Inspect the ceramic components in the insulator for cracks and ensure the electric heater wiring is intact. If any damage is found, contact your local dealer immediately.

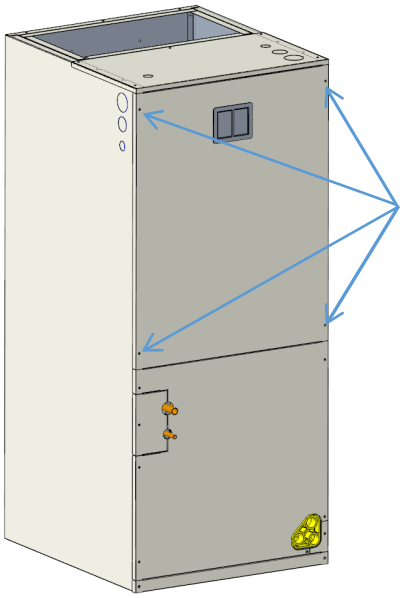
⚠ Warning

- Before installation and maintenance, all external power sources must be disconnected, and the electric heater switch must be turned off. Operating without disconnecting the power may result in serious injury.
- The electric heat kit must be properly grounded, and copper wires must be used for the power supply.
- Ensure that the wiring complies with national electrical wiring standards.
- When the unit is installed in an enclosed space, such as a garage, the electric heater must be positioned at least 460 mm above the ground to ensure adequate ventilation.

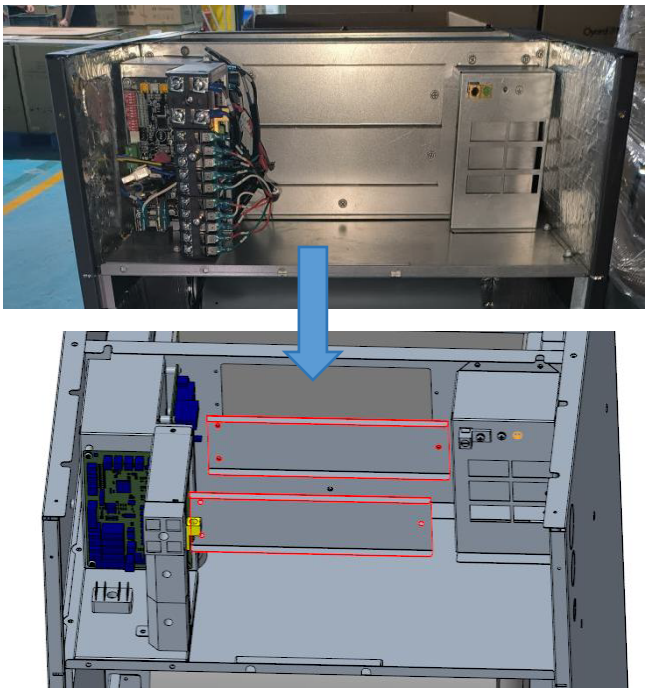
Installation

Electric heater kit installation steps as below table instructions.

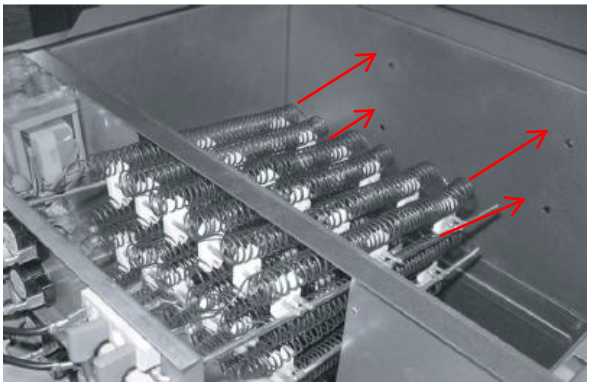
STEP 1,
Remove up-panel 4 screws.



STEP 2,
Remove the screws and take the covers



STEP 3,
Insert the electric heater kit into the supply air outlet and fixed it.



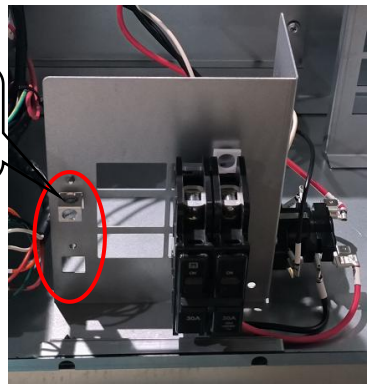


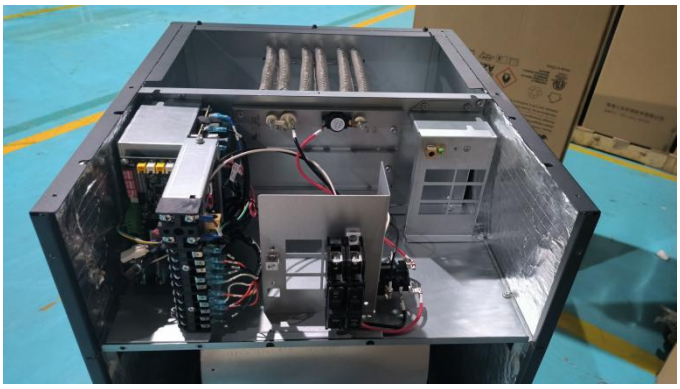
STEP 4,

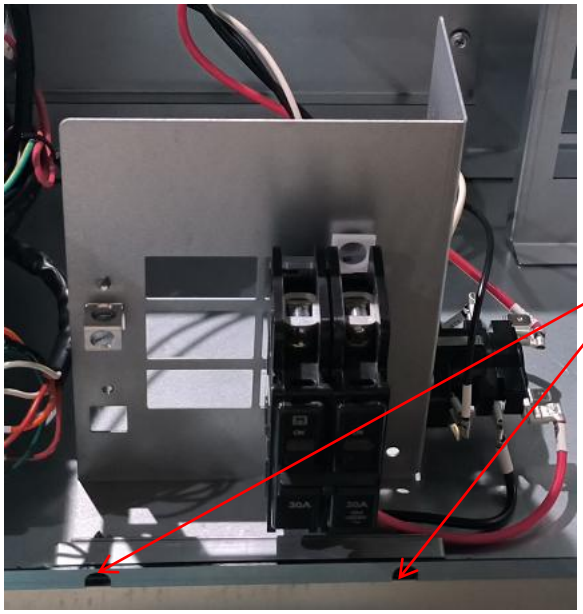
Install the circuit breaker kit.

Grounding terminals: One for 5/7.5/10KW; Two for 15kW.

Installation





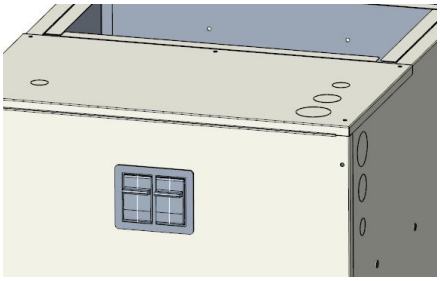


STEP 5. Make the power supply connections for electric heaters. The power supply cable shall go through the knock-able hole and cable conduit. Make the signal connection to W1 or W2 or Both.

Recommended AWG	Minimum Wire Gauge for Power Line (Copper Wire)				Minimum Wire Gauge for Ground Line (Copper Wire)	
	L1	L2	L3	L4	GND1	GND2
21-4520-01 A2L1 / 5.0kW	10 AWG	10 AWG	/	/	10 AWG	/
21-4520-02 A2L1 / 7.5kW	8 AWG	8 AWG	/	/	8 AWG	/
21-4520-03 A2L1 / 10.0kW	6 AWG	6 AWG	/	/	6 AWG	/
21-4520-04 A2L1 / 15.0kW	8 AWG	8 AWG	8 AWG	8 AWG	8 AWG	8 AWG

STEP 6. Remove the corresponding knockout panels based on the number of miniature circuit breakers, allowing the miniature circuit breakers to be operated externally.

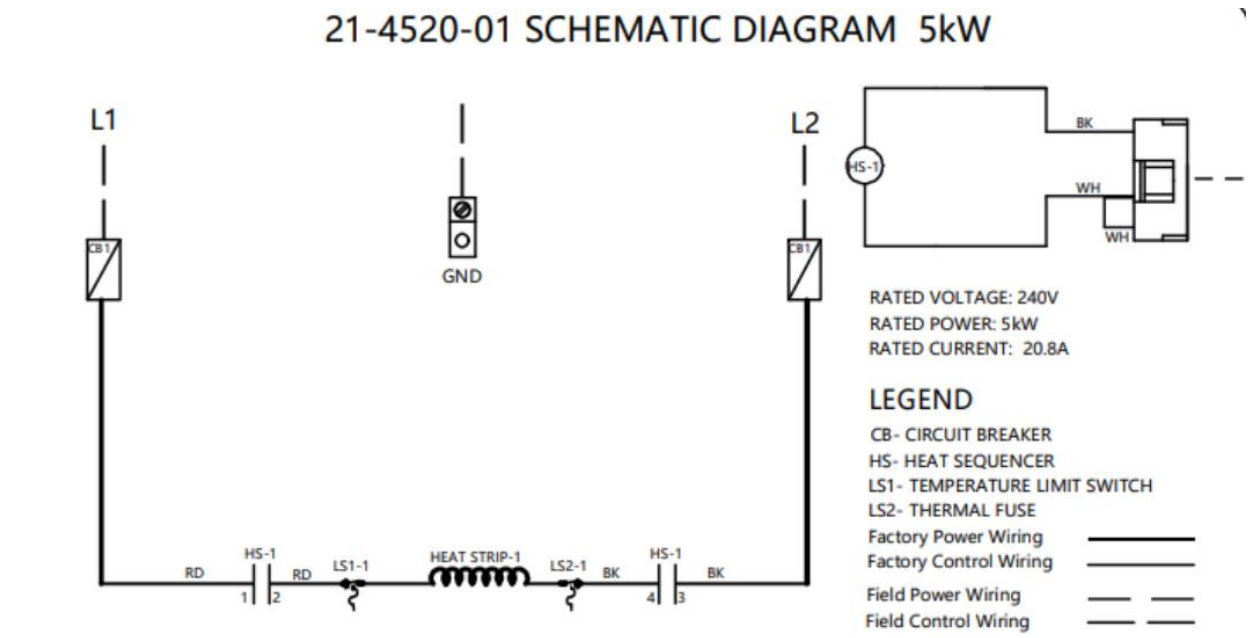




Installation

3.6.7. Electric heater kit wiring diagram

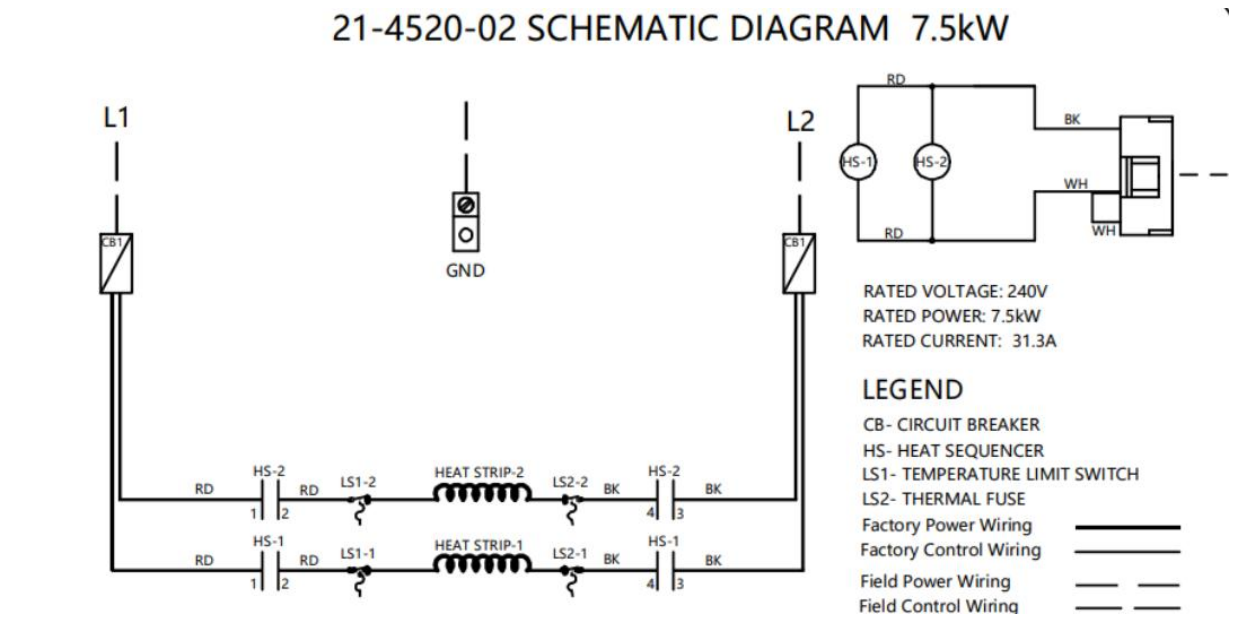
- 5kW electric heater kit wiring diagram



Notes:

1. For Air Handler with Electric Heater, connect the supply power to circuit Breaker.
2. Use Copper Wire (75℃ Min) Only Between Disconnect Switch And Unit.
3. To Be Wired in Accordance with Nec And Local Codes.
4. If any of the Original Wire, as supplied, must be replaced, Use the same or equivalent type wire.

- 7.5kW electric heater kit wiring diagram

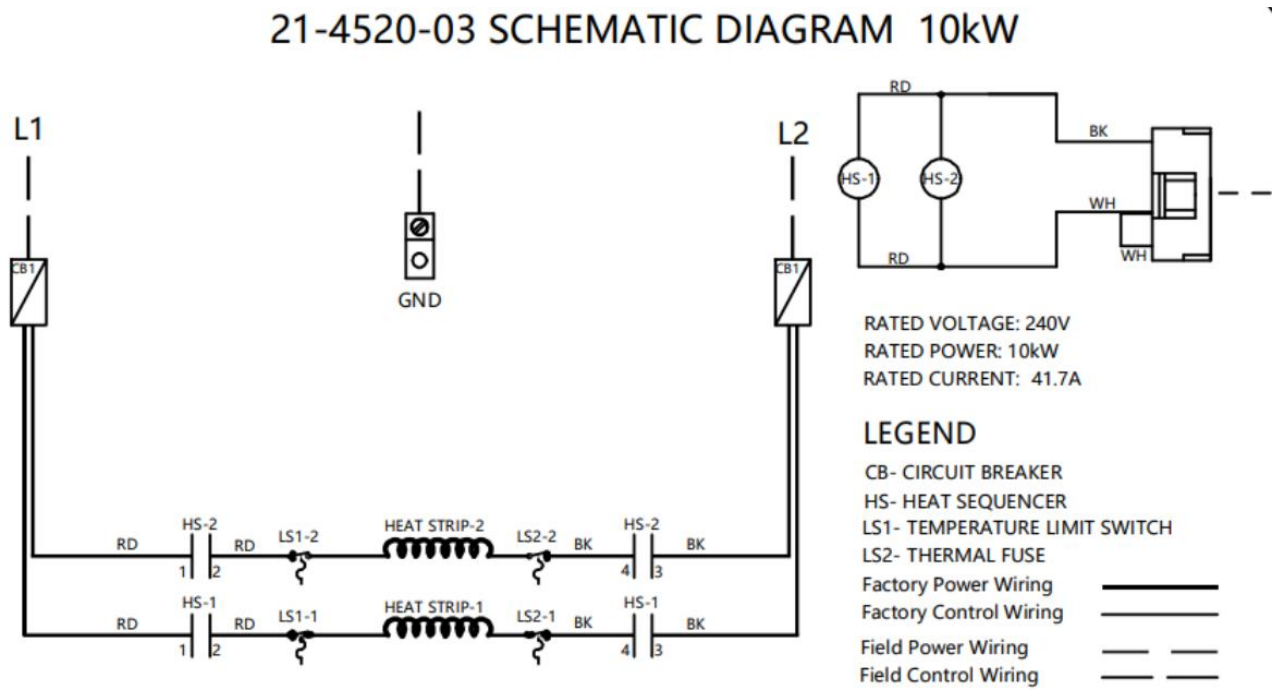


Notes:

1. For Air Handler with Electric Heater, connect the supply power to circuit Breaker.
2. Use Copper Wire (75℃ Min) Only Between Disconnect Switch And Unit.
3. To Be Wired in Accordance with Nec And Local Codes.
4. If any of the Original Wire, as supplied, must be replaced, Use the same or equivalent type wire.

Installation

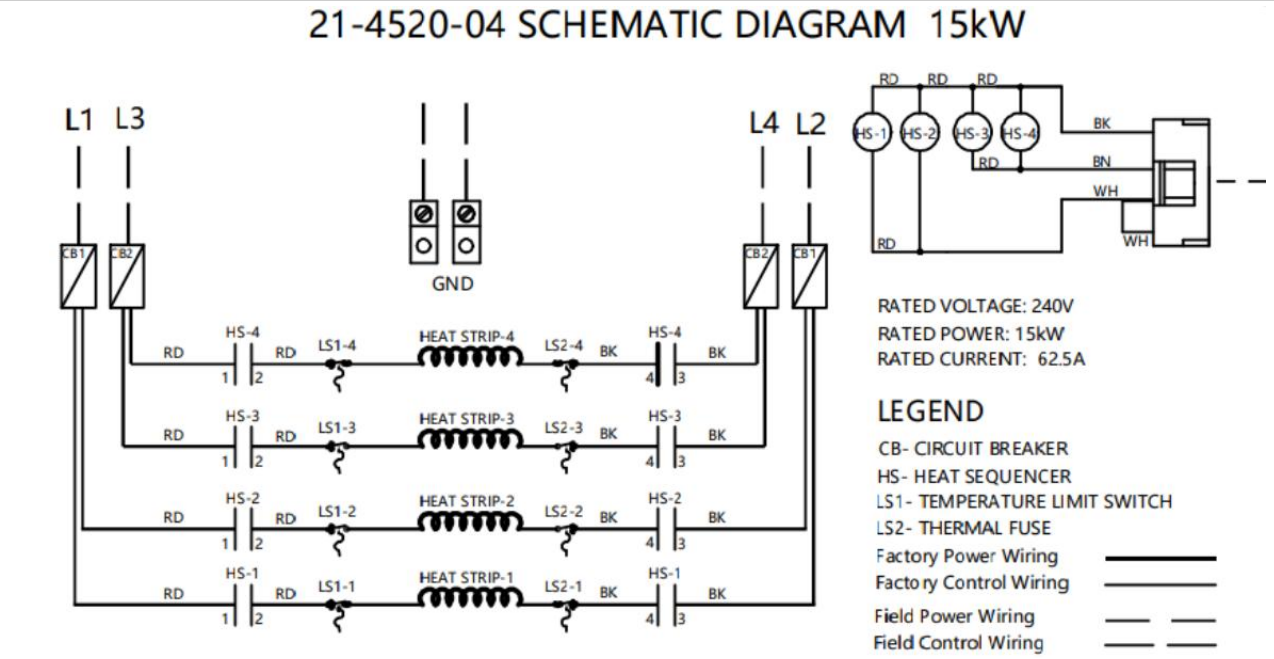
- 10kW electric heater kit wiring diagram



Notes:

1. For Air Handler with Electric Heater, connect the supply power to circuit Breaker.
2. Use Copper Wire (75℃ Min) Only Between Disconnect Switch And Unit.
3. To Be Wired in Accordance with Nec And Local Codes.
4. If any of the Original Wire, as supplied, must be replaced, Use the same or equivalent type wire.

- 15kW electric heater kit wiring diagram



Notes:

1. For Air Handler with Electric Heater, connect the supply power to circuit Breaker.
2. Use Copper Wire (75℃ Min) Only Between Disconnect Switch And Unit.
3. To Be Wired in Accordance with Nec And Local Codes.
4. If any of the Original Wire, as supplied, must be replaced, Use the same or equivalent type wire.

Installation

3.7. Air Volume Table

The following airflow parameters are tested under the conditions of 230V voltage, cooling mode, without electric heater, and without filters. Due to the constant torque characteristics of the ECM motor, the airflow remains consistent within the voltage range of 208-230V.

The appropriate unit model can be selected based on the airflow table. The external static pressure on-site should be maintained between the minimum and maximum values in the table to ensure proper airflow.

Model	Fan speed		Fan speed and power consumption								
			External Static Pressure								
			[0]	[25]	[50]	[75]	[100]	[125]	[150]	[175]	[200]
24/36K	Tap 5	m3/h	3150	3000	2800	2600	2300	2200	1900	1700	1450
		Watts	460	450	430	410	380	350	310	270	230
	Tap 4 (default)	m3/h	3100	2950	2750	2500	2250	2000	1800	1600	1380
		Watts	440	430	410	390	360	330	290	250	205
	Tap 3	m3/h	3000	2850	2600	2350	2100	1900	1700	1500	1320
		Watts	430	420	400	370	340	310	280	240	200
	Tap 2	m3/h	2900	2700	2500	2250	2000	1800	1600	1400	1250
		Watts	420	410	390	360	330	290	250	220	195
	Tap 1	m3/h	2800	2550	2300	2100	1900	1700	1500	1300	1000
		Watts	410	400	380	350	310	270	240	200	180
48/60K	Tap 5	m3/h	4400	4200	3950	3700	3450	3200	2950	2700	2500
		Watts	670	630	590	540	500	450	400	360	320
	Tap 4 (default)	m3/h	4200	4000	3750	3500	3250	3000	2750	2500	2300
		Watts	660	620	570	520	470	420	370	320	290
	Tap 3	m3/h	4000	3800	3550	3300	3000	2800	2550	2300	2150
		Watts	640	610	550	500	440	400	350	300	270
	Tap 2	m3/h	3850	3700	3500	3200	2900	2600	2300	2000	1800
		Watts	580	540	500	460	420	370	320	280	240
	Tap 1	m3/h	3800	3600	3300	3000	2700	2400	2100	1800	1600
		Watts	570	530	490	450	400	350	300	250	200

3.8. Duct Connection

The duct installation must comply with local laws and regulations.

⚠ Warning

- Under no circumstances should the return air duct be connected to heat-generating equipment such as fireplaces or chimneys. Doing so may result in fire, carbon monoxide poisoning, explosions, or other accidents, causing injury, death, or property damage.

When using metal ducts, proper insulation and moisture-proof layers must be applied. Composite ducts can also be used if they comply with relevant regulations. The duct installation must adhere to local laws and regulations.

The duct system must be designed according to the external static pressure of the unit, with a moderate airflow design. Ensure that the combined air resistance of the supply air duct, return air duct, grilles, special filters, and accessories does not exceed the external static pressure of the unit. If it does, a booster fan must be added as needed to maintain airflow balance in the system. Refer to the airflow performance section in this manual to obtain the airflow-static pressure relationship.

Design the duct system in accordance with relevant regulations to ensure that the system pressure drop matches the external static pressure of the unit.

The main supply air duct should be directly connected to the air outlet flange of the unit.

Seal the gaps between the supply and return air ducts and the unit flanges. Use appropriate fasteners to secure the connection between the ducts and the unit, and apply tape to prevent airflow leakage.

⚠ **Notice:**

- If the main duct elbow is close to the unit, its dimensions must be larger than the size of the unit's supply air outlet flange.
- When connecting the front flange of the return air duct to the unit casing, it is strictly prohibited to place screws in areas where high-voltage wires are routed. Drill bits or screws may damage the insulation layer of the internal wires, leading to a risk of electric shock

Installation

3.9. Air Filter Maintenance

The use and replacement of filters have a significant impact on airflow, thereby affecting cooling and heating performance. Reduced airflow can shorten the lifespan of key system components, such as motors, relays, evaporator coils, or compressors. The face velocity of the filter should not exceed 1.5 m/s.

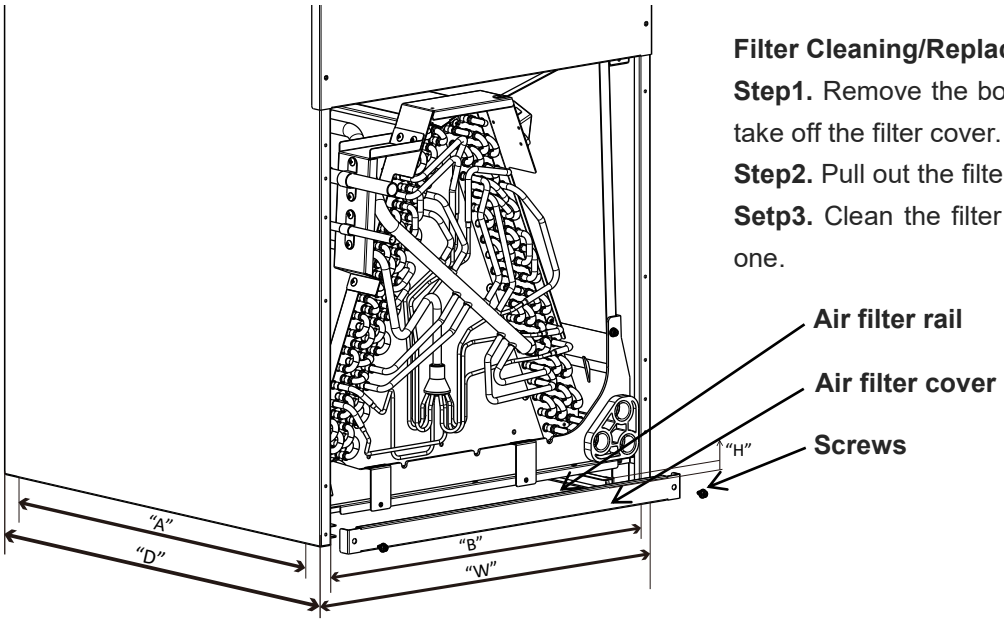
When installing high-efficiency filters or electronic air cleaning devices, ensure that the airflow corresponds to 143–214 m³/h per kW of cooling capacity. Note that due to the pressure drop caused by the filter, the unit's performance and efficiency will decrease accordingly.

⚠ Notice

- Do not install multiple filters in the return air duct.
- Do not install filters in the supply air duct, as this will reduce airflow and decrease the system's cooling/heating capacity.

⚠ Warning

- Do not operate the unit without installing a filter. During installation, some dust may remain in the ducts, such as debris from ceilings, walls, curtains, or carpets. Without a filter, these residues may adhere to the components of the air handling unit, potentially causing damage to the parts.



Filter Cleaning/Replacement

Step1. Remove the bolts of the filter cover and take off the filter cover.

Step2. Pull out the filter.

Setp3. Clean the filter or replace it with a new one.

Note:

There is a air filter installed in factory. The air filter shall meet UL 900 or CAN/ULC-S111.

Model	Filter Dimensions, mm		
	A	B	H
24/36K	535	421	10
48/60K	595	481	10

Installation

3.10. Adjust Thermal Expansion Valve

To ensure optimal performance and reliability of the ESI system, make sure the sub-cooling of the liquid pipe and the super-heat of the compressor suction meet the system requirements.

Target sub-cooling and super-heat during cooling mode.

- Sub-cooling:3~10℃(5.4-18℉)
- Super-heat:4~11℃(7.2~19.8℉)

If the LED display shows “--” for more than 20 minutes in auto-charging mode, stop charging and use a wrench to adjust the thermal expansion valve clockwise to ensure the super-heat is no less than 4°C(7.2℉).

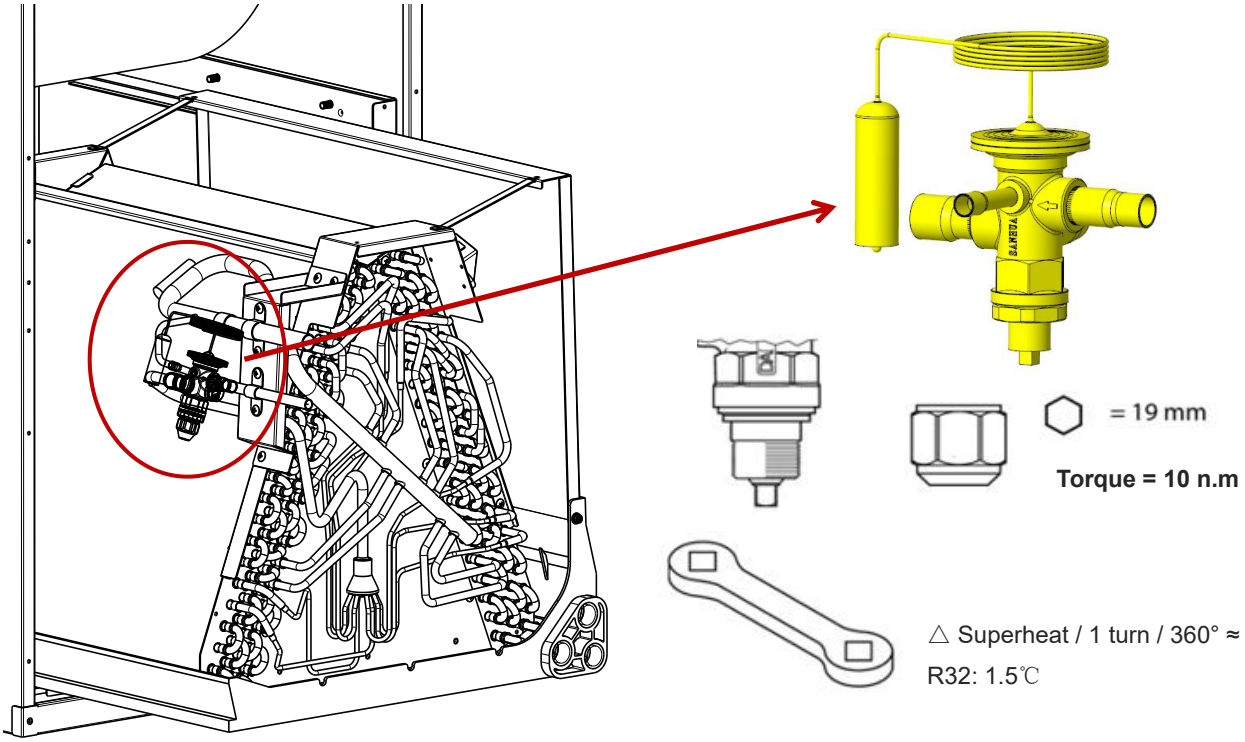
If abnormal cooling performance occurs due to improper super-heat (e.g., exceeding 11°C/19.8℉), use the following method for on-site adjustment:

Press and hold the BS4 button on the outdoor unit's main control board for 5 seconds to activate the auto-charging mode and lock the compressor frequency. After running the system for 15-20 minutes, check the refrigerant coefficient on the LED display. Add refrigerant until the refrigerant coefficient reaches 0.6.

Open the front cover of the air handler and use a wrench to adjust the thermal expansion valve counterclockwise until the super-heat is less than 11°C(19.8℉). With sufficient refrigerant in the indoor unit, better cooling performance can be achieved.

Note:

After each refrigerant charge or adjustment of the thermal expansion valve, allow the unit to run for 5 minutes before checking the sub-cooling and super-heat values on the display.



DECLARATION:

With the technology updates of the product, the content of the user manual for products of the same model as this product may be changed, and the updated parts are subject to no further notice.
All illustrations shown in this manual are for illustrative purposes only. Please refer to the purchased product for actual appearance.
Due to continuous product upgrades, some parameters may be changed.
The modified parameters are not subject to further notice.
Please refer to the nameplate parameters of this product for accuracy.
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VINO CANADA

AHRI ratings update

Canadian technical edition · 5 November 2026

AERA IDU installation manual | editorial addendum
This edition updates only the rated cooling capacity at 95°F, rated heating capacity at 47°F, SEER2, EER2 and HSPF2 region IV to the verified AHRI records below. It is a VINO Canada editorial edition, not a manufacturer reissue or an AHRI certificate.

AHRI field	AERA 24	AERA 36	AERA 48	AERA 60
Outdoor model	VUH24-VA6BA(O)	VUH36-VA6BA(O)	VUH48-VA6BA(O)	VUH60-VA6BA(O)
Indoor model	VUH24-VA6BA(I)	VUH36-VA6BA(I)	VUH48-VA6BA(I)	VUH60-VA6BA(I)
AHRI reference	218597508	217447526	218597507	218361279
AHRI date	2026-07-28	2026-07-28	2026-06-16	2026-06-16
AHRI brand	VINO	SAMYOU	VINO	VINO
Status	Active	Active	Active	Active
Cooling at 95°F (BTU/h)	24,000	34,200	48,000	52,500
Heating at 47°F (BTU/h)	24,000	34,200	48,000	54,000
SEER2	21.0	20.2	20.0	19.6
EER2	13.0	11.5	12.0	11.5
HSPF2 region IV	11.0	10.2	11.0	10.8

AERA 36: AHRI-certified data for the exact combination under the SAMYOU manufacturer brand. The SAMYOU certificate is retained unchanged.

The remaining manufacturer information is preserved, including installation, safety, dimensions, electrical data, performance points at other temperatures and operating ranges. The supplier capacity ratios at 17/47°F and 5/47°F are retained as supplied; they are not recalculated from the AHRI 47°F ratings in this edition.

Source authority: AHRI governs the exact combination and certified ratings above. Official ENERGY STAR records govern its identifier and cold-climate designation. Hydro-Québec / LogisVert alone governs eligibility and financial assistance. No AERA 36 grant amount is stated or inferred.

Original manufacturer source (unchanged):
VNO_MANUAL-CENTRAL-IDU_S50400300_EN_091026_V01.pdf

https://drive.google.com/file/d/1bP3J9PcN7WuzfhZj0gR6CWlzaIOnyQI5/view

Editorial source: VNO_SITE_UPDATE-DATA_051126_V01.json · 2026-11-05