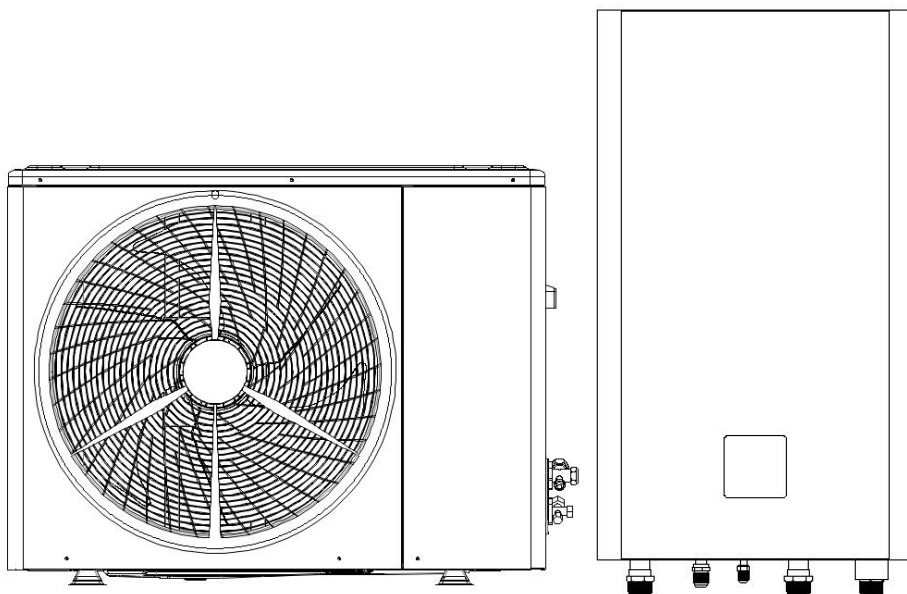


Installation & User's Manual

Suntide Series

Split Outdoor & Indoor Unit



IMPORTANT NOTE:

Thank you very much for purchasing our product. Before using your unit, please read this manual carefully and keep it for future reference.

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1. SPLIT OUTDOOR UNIT

1.1. FOREWORD

1.1.1. Read the Manual Before Operation

WARNING

Do not use means other than those recommended by the manufacturer to accelerate the defrosting process or to clean. The appliance shall be stored in a room with no ignition sources (for example: open flames, gas appliance, or electric heater).

Do not pierce or burn.

Be aware that refrigerants may not contain an odour.

Initial safety checks shall include:

- ① Capacitors are discharged: this shall be done in a safe manner to avoid the possibility of sparking;
- ② No live electrical components and wiring are exposed while charging, recovering, or purging the system;
- ③ There is continuity of earth bonding.

Checks to the area

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

Work procedure

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

General work area

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

Checking 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.

Presence of a 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 CO₂ fire extinguisher adjacent to the charging area.

No ignition sources

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

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.

Checks to the refrigeration equipment

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

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

- ① The charge size is in accordance with the room size within which the refrigerant containing parts are installed;
- ② The ventilation machinery and outlets are operating adequately and are not obstructed;
- ③ If an indirect refrigerating circuit is being used, the secondary circuit shall be checked for the presence of refrigerant;
- ④ Marking of the equipment continues to be visible and legible. Markings and signs that are illegible shall be corrected;
- ⑤ Refrigeration pipes or components are installed in a position where they are unlikely to be exposed to any substance which may corrode refrigerant containing components unless the components are constructed of materials that are inherently resistant to being corroded or are suitably protected against being so corroded.

Repairs to sealed components

DD.5.1 During repairs to sealed components, all electrical supplies shall be disconnected from the equipment being worked upon prior to any removal of sealed covers, etc. If it is absolutely necessary to have an electrical supply to equipment during servicing, then a permanently operating form of leak detection shall be located at the most critical point to warn of a potentially hazardous situation.

DD.5.2 Particular attention shall be paid to the following to ensure that by working on electrical components, the casing is not altered in such a way that the level of protection is affected. This shall include damage to cables, excessive number of connections, terminals not made to original

specification, damage to seals, incorrect fitting of glands, etc.

Ensure that the apparatus is mounted securely.

Ensure that seals or sealing materials have not degraded to the point that they no longer serve the purpose of preventing the ingress of flammable atmospheres. Replacement parts shall be in accordance with the manufacturer's specifications.

Repair to intrinsically safe components

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

Replace components only with parts specified by the manufacturer. Other parts may result in the ignition of refrigerant in the atmosphere from a leak.

NOTE The use of silicon sealant can inhibit the effectiveness of some types of leak detection equipment.

Intrinsically safe components do not have to be isolated prior to working on them.

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.

Leak detection methods

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

Electronic leak detectors shall be used to detect flammable refrigerants, but the sensitivity may not be adequate or may need re-calibration. (Detection equipment shall be calibrated in a refrigerant-free area.) Ensure that the detector is not a potential source of ignition and is suitable for the refrigerant used. Leak detection equipment shall be set at a percentage of the LFL of the refrigerant and shall be calibrated to the refrigerant employed and the appropriate percentage of gas (25 % maximum) is confirmed.

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

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

If leakage of refrigerant is found which requires brazing, all of the refrigerants shall be recovered from the system, or isolated (by means of shut-off valves) in a part of the system remote from the leak. Oxygen free nitrogen (OFN) shall then be purged through the system both before and during the brazing process.

Removal and evacuation

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

- ① Remove refrigerant;
- ② Purge the circuit with inert gas;
- ③ Evacuate;
- ④ Purge again with inert gas;
- ⑤ Open the circuit by cutting or brazing.

The refrigerant charge shall be recovered into the correct recovery cylinders. The system shall be “flushed” with OFN to render the unit safe. This process may need to be repeated several times. Compressed air or oxygen shall not be used for this task.

Flushing shall be achieved by breaking the vacuum in the system with OFN and continuing to fill until the working pressure is achieved, then venting to the atmosphere, and finally pulling down to a vacuum. This process shall be repeated until no refrigerant is within the system. When the final OFN charge is used, the system shall be vented down to the atmospheric pressure to enable work to take place. This operation is absolutely vital if brazing operations on the pipework are to take place.

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

Charging procedures

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

- ① 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.
- ② Ensure that the refrigeration system is earthed prior to charging the system with refrigerant.
- ③ Label the system when charging is complete (if not already).
- ④ Extreme care shall be taken not to overfill the refrigeration system. Prior to recharging the system, it shall be pressure tested with OFN. The system shall be leak tested on completion of charging prior to commissioning. A follow-up leak test shall be carried out prior to leaving the site.

Decommissioning

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

- ① Become familiar with the equipment and its operation.
- ② Isolate system electrically.
- ③ Before attempting the procedure ensure that:
 - Mechanical handling equipment is available, if required, for handling refrigerant cylinders;

- All personal protective equipment is available and being used correctly;
 - The recovery process is supervised at all times by a competent person;
 - Recovery equipment and cylinders conform to the appropriate standards.
- ④ Pump down refrigerant system, if possible.
 - ⑤ If a vacuum is not possible, make a manifold so that refrigerant can be removed from various parts of the system.
 - ⑥ Make sure that the cylinder is situated on the scales before recovery takes place.
 - ⑦ Start the recovery machine and operate following the manufacturer's instructions.
 - ⑧ Do not overfill cylinders. (No more than 80 % volume liquid charge).
 - ⑨ Do not exceed the maximum working pressure of the cylinder, even temporarily.
 - ⑩ When the cylinders have been filled correctly and the process completed, make sure that the cylinders and the equipment are removed from the site promptly and all isolation valves on the equipment are closed off.
 - ⑪ Recovered refrigerant shall not be charged into another refrigeration system unless it has been cleaned and checked.

Labeling

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

Recovery

When removing refrigerants 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 labeled for that refrigerant (i.e. special cylinders for the recovery of refrigerant). Cylinders shall be complete with a pressure relief valve and associated shut-off valves in good working order. Empty recovery cylinders are evacuated and, if possible, cooled before recovery occurs.

The recovery equipment shall be in good working order with a set of instructions concerning the equipment that is at hand and shall be suitable for the recovery of flammable refrigerants.

In addition, a set of calibrated weighing scales shall be available and in good working order.

Hoses shall be complete with leak-free disconnect couplings and in good condition. Before using the recovery machine, check that it is in satisfactory working order, has been properly maintained, and that any associated electrical components are sealed to prevent ignition in the event of a refrigerant release. Consult the manufacturer if in doubt.

The recovered refrigerant shall be returned to the refrigerant supplier in the correct recovery cylinder, and the relevant Waste Transfer Note arranged. Do not mix refrigerants in recovery units and especially not in cylinders.






If compressors or compressor oils are to be removed, ensure that they have been evacuated to an acceptable level to make certain that flammable refrigerant does not remain within the lubricant. The evacuation process shall be carried out prior to returning the compressor to the suppliers. Only electric heating to the compressor body shall be employed to accelerate this

process. When oil is drained from a system, it shall be carried out safely.

1.1.2. The Symbol Description of the Device

The precautions listed here are divided into the following types. They are quite important, so be sure to follow them carefully.

Explanation of symbols displayed on the indoor unit or outdoor unit

Symbols	Meaning	Description
	WARNING	The symbol shows that this appliance uses a flammable refrigerant. If the refrigerant is leaked and exposed to an external ignition source, there is a risk of fire.
	WARNING	The symbol shows that this appliance uses a low burning velocity material. Please keep away from the fire source.
	CAUTION	This symbol shows that the operation manual should be read carefully.
	CAUTION	This symbol shows that service personnel should be handling this equipment with reference to the installation manual.
	CAUTION	This symbol shows that information is available such as the operating manual or installation manual.

1.1.3. Statement

To keep users under safe working conditions and property safety, please follow the instructions below:

- ① Wrong operation may result in injury or damage;
- ② Please install the unit in compliance with local laws, regulations, and standards;
- ③ Confirm power voltage and frequency;
- ④ The unit is only used with grounding sockets;
- ⑤ Independent switch must be offered with the unit.

1.1.4. Safety Factors

The following safety factors need to be considered:

- ① Please read the following warnings before installation;
- ② Be sure to check the details that need attention, including safety factors;
- ③ After reading the installation instructions, be sure to save them for future reference.

WARNING

Make sure that the unit is installed safely and reliably.

- If the unit is not secure or not installed, it may cause damage. The minimum support weight required for installation is 21g/mm².

- If the unit was installed in a closed area or limited space, please consider the size of the room and ventilation to prevent suffocation caused by refrigerant leakage.

① Use a specific wire and fasten it to the terminal block so that the connection will prevent pressure from being applied to parts.

② Wrong wiring will cause a fire.

Please connect the power wire accurately according to the wiring diagram on the manual to avoid burnout of the unit or fire.

③ Be sure to use the correct material during installation.

Wrong parts or wrong materials may result in fire, electric shock, or unit falling.

④ Install on the ground safely, please read installation instructions.

Improper installation may result in fire, electric shock, falling of the unit, or water leaking.

⑤ Use professional tools for doing electrical work.

If power supply capacity is insufficient or the circuit is not completed, it may cause fire or electric shock.

⑥ The unit must have a grounding device.

If the power supply does not have a grounding device, be sure not to connect the unit.

⑦ The unit should be only removed and repaired by a professional technician.

Improper movement or maintenance of the unit may cause water leakage, electric shock, or fire.

Please find a professional technician to do it.

⑧ Don't unplug or plug power during operation. It may cause fire or electric shock.

⑨ Don't touch or operate the unit when your hands are wet. It may cause fire or electric shock.

⑩ Don't place heaters or other electrical appliances near the power wire. It may cause fire or electric shock.

⑪ The water must not be poured directly from the unit. Do not let water permeate into the electrical components.

WARNING

① Do not install the unit in a location where there may be flammable gas.

② If there is flammable gas around the unit, it will cause an explosion.

According to the instruction to carry out drainage system and pipeline work. If the drainage system or pipeline is defective, water leakage will occur. And it should be disposed of immediately to prevent other household products from getting wet and damaged.

③ Do not clean the unit while the power is on. Turn off power before cleaning the unit. If not it may result in injury from a high-speed fan or electric shock.

④ Stop operating the unit once there is a problem or a fault code.

Please turn off the power and stop running the unit. Otherwise, it may cause electric shock or fire.

⑤ Be careful when the unit is not packed or not installed.

Pay attention to the sharp edges and fins of the heat exchanger.

⑥ After installation or repair, please confirm refrigerant is not leaking.

If the refrigerant is not enough, the unit will not work properly.

⑦ The installation of the external unit must be flat and firm.

Avoid abnormal vibration and noise.

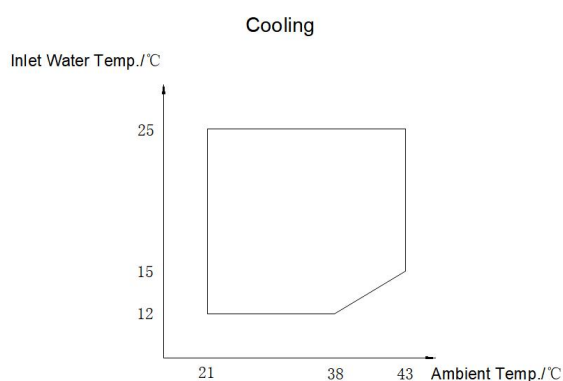
⑧ Don't put your fingers into the fan and evaporator.

High speed running fan will result in serious injury.

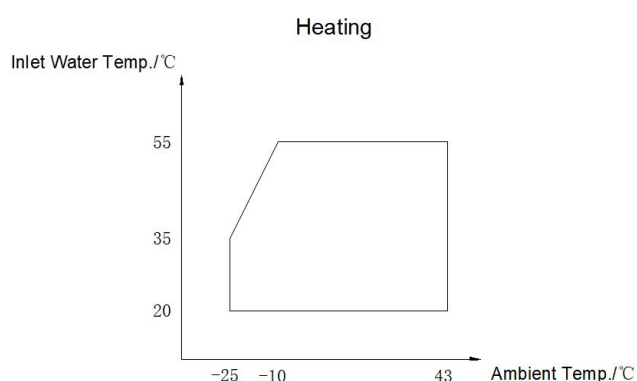
⑨ This device is not designed for people who are physically or mentally weak (including children) and who does not have experience and knowledge of heating and cooling system. Unless it is used under the direction and supervision of a professional technician or has received training on the use of this unit. Children must use it under the supervision of an adult to ensure that they use the unit safely. If the power wire is damaged, it must be replaced by a professional technician to avoid danger.

1.1.5. Unit Operating Range

1. Operating range of cooling

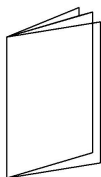
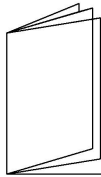


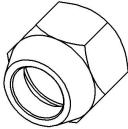

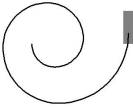

2. Operating range of heating



1.2. ACCESSORIES

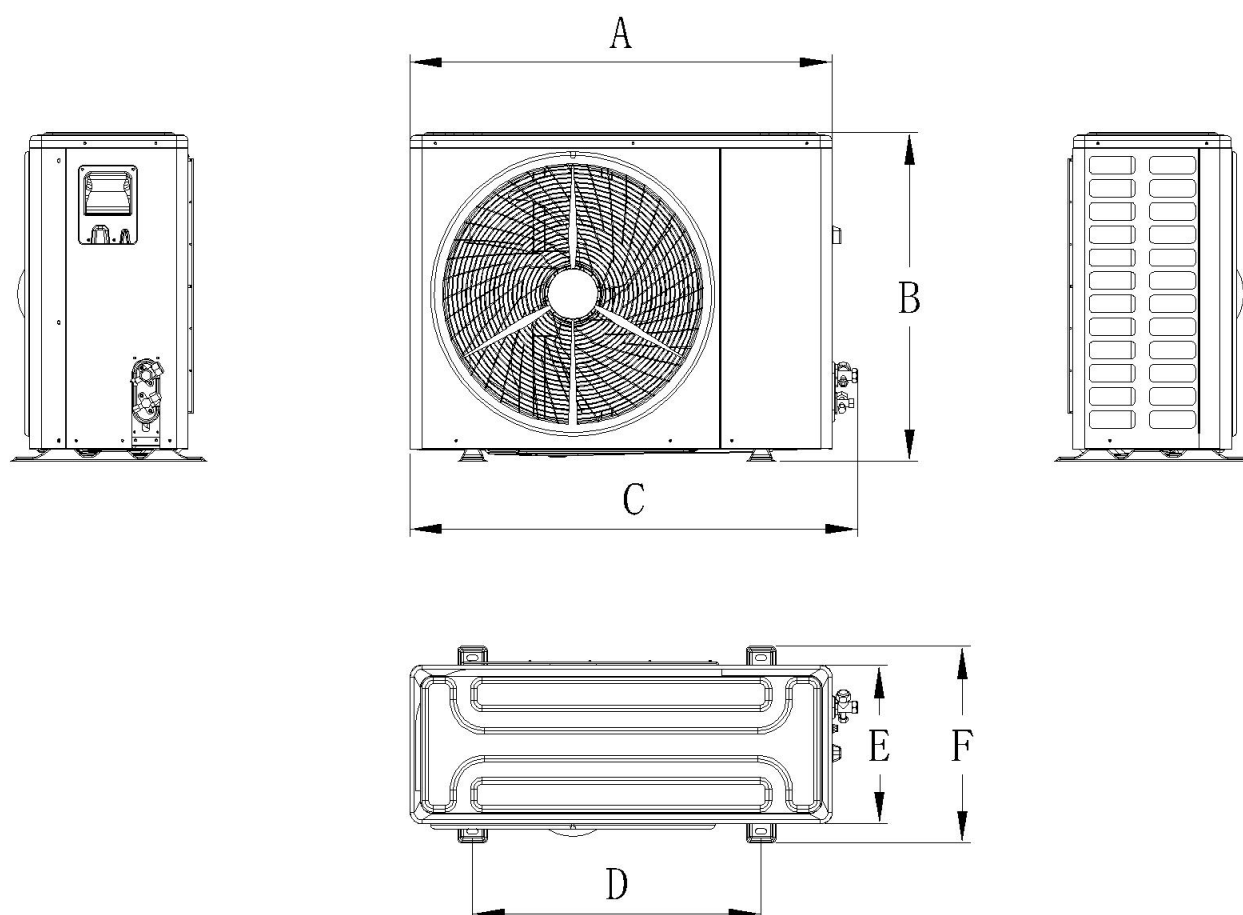
1.2.1. Accessories Kit

Name		Quantity
Installation & Instruction Manual		1
Operation Manual		1

Copper Nacelles		4
M8 Expansion Bolt		4
Temperature Sensor		4
Wall Mounting Plate		1

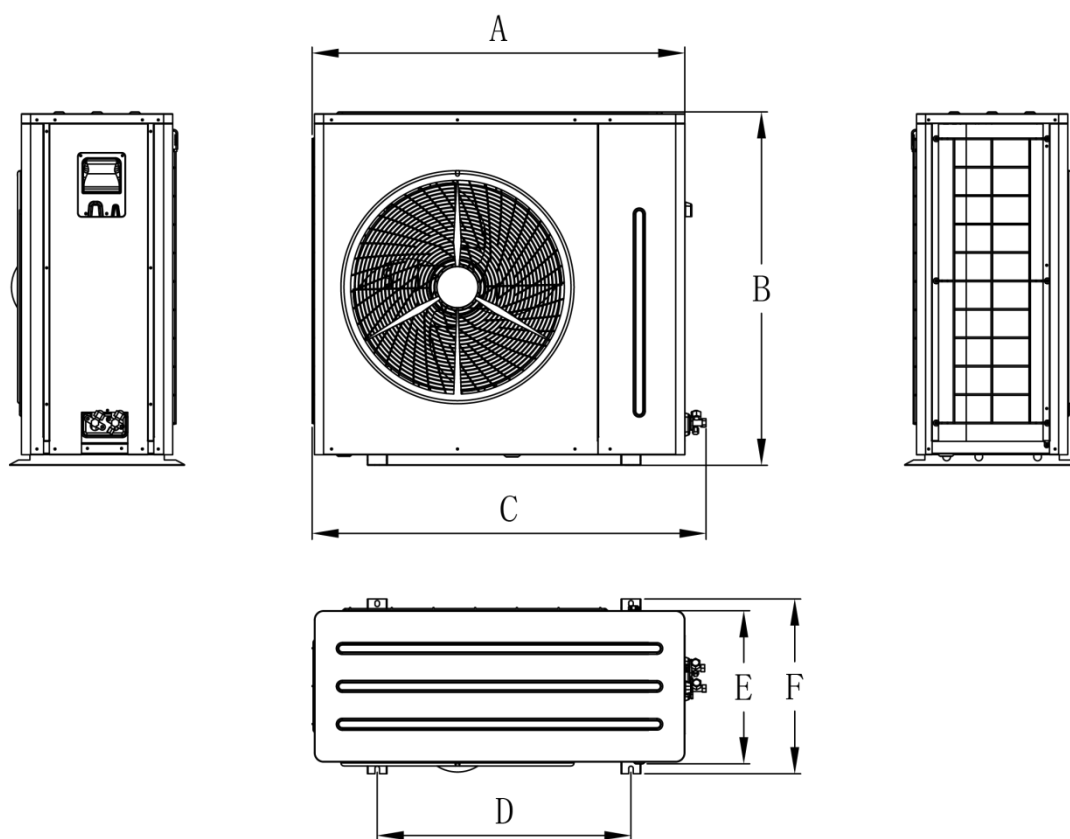
1.3. OVERVIEW OF THE UNIT

1.3.1. Dimensions of the Unit



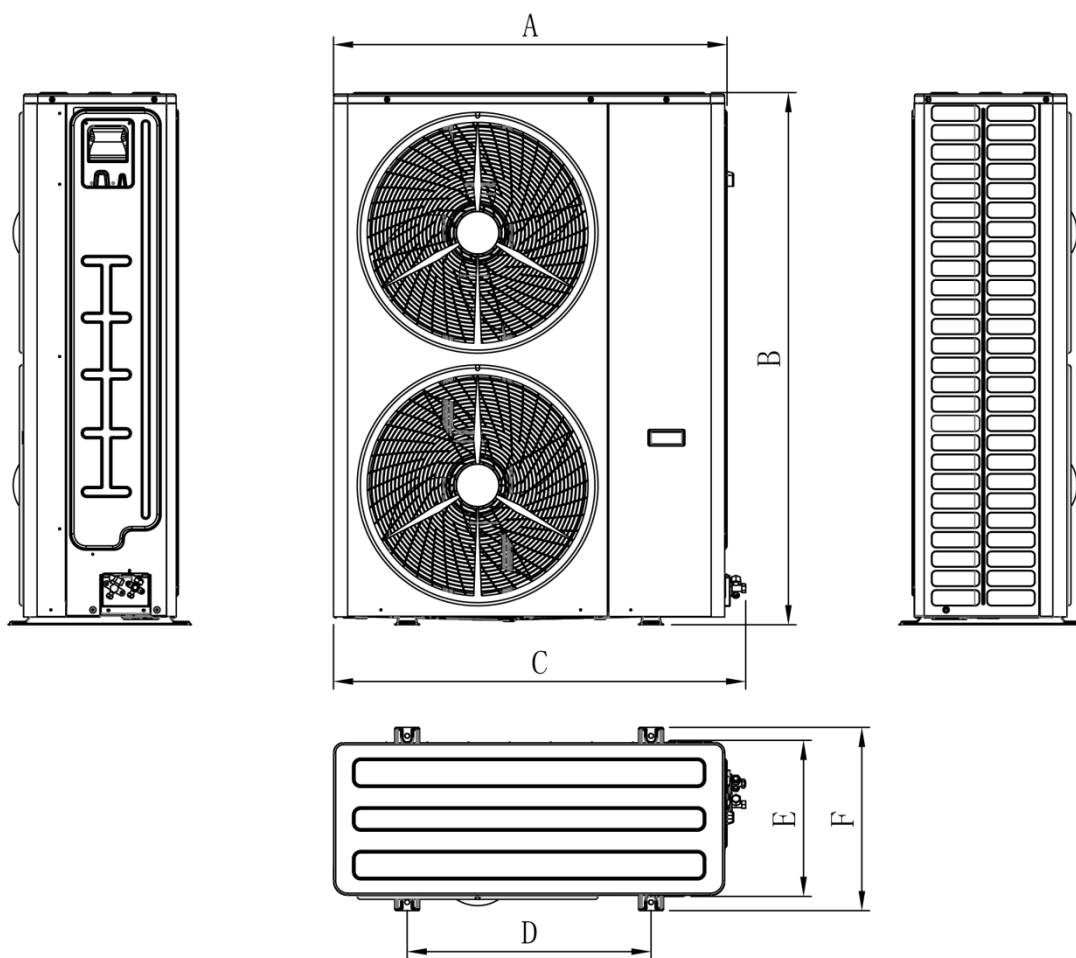
Unit: (mm)

Model	A	B	C	D	E	F
NE-F60HCR4INEMO-SA	913	710	960	624	425	449



Unit: (mm)

Model	A	B	C	D	E	F
NE-F90HCR4INEMO-SA	980	935	1030	670	399	460
NE-F130HCR4INEMO-SA						
NE-F90HCR4TINEMO-SA						
NE-F130HCR4TINEMO-SA						

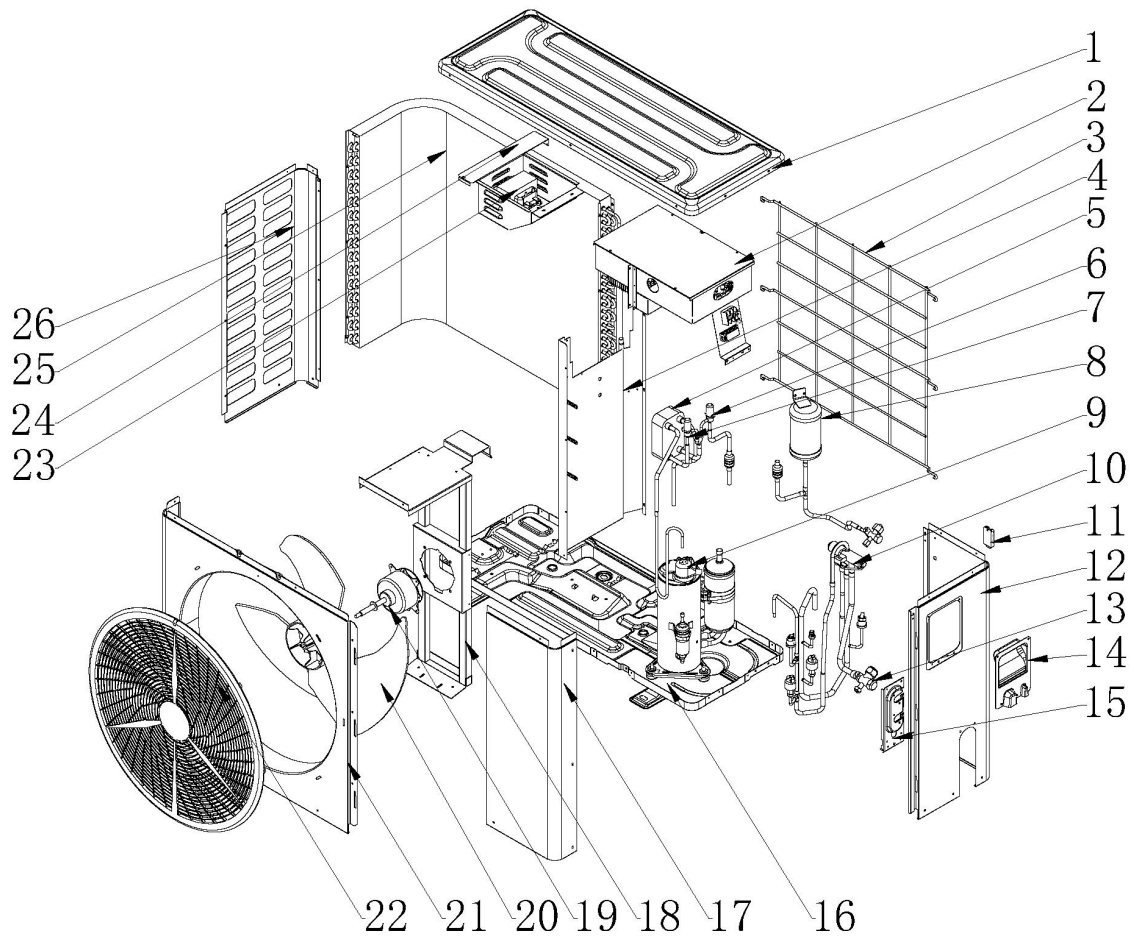


Unit: (mm)

Model	A	B	C	D	E	F
NE-F160HCR4INEMO-SA	998	1360	1053	623	390	468
NE-F160HCR4TINEMO-SA						
NE-F185HCR4TINEMO-SA						
NE-F200HCR4TINEMO-SA						

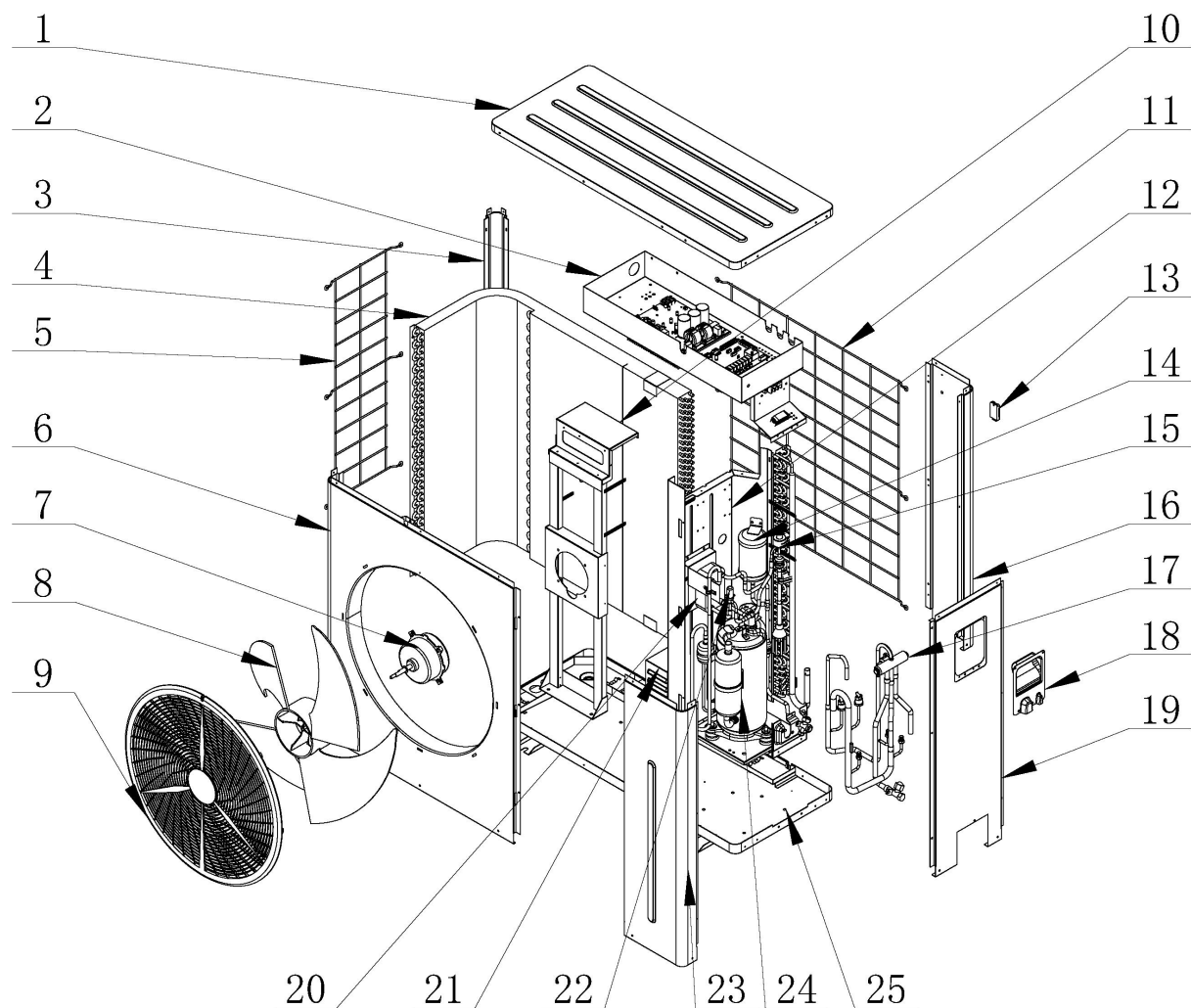
1.3.2. Main Parts of the Unit

NE-F60HCR4INEMO-SA



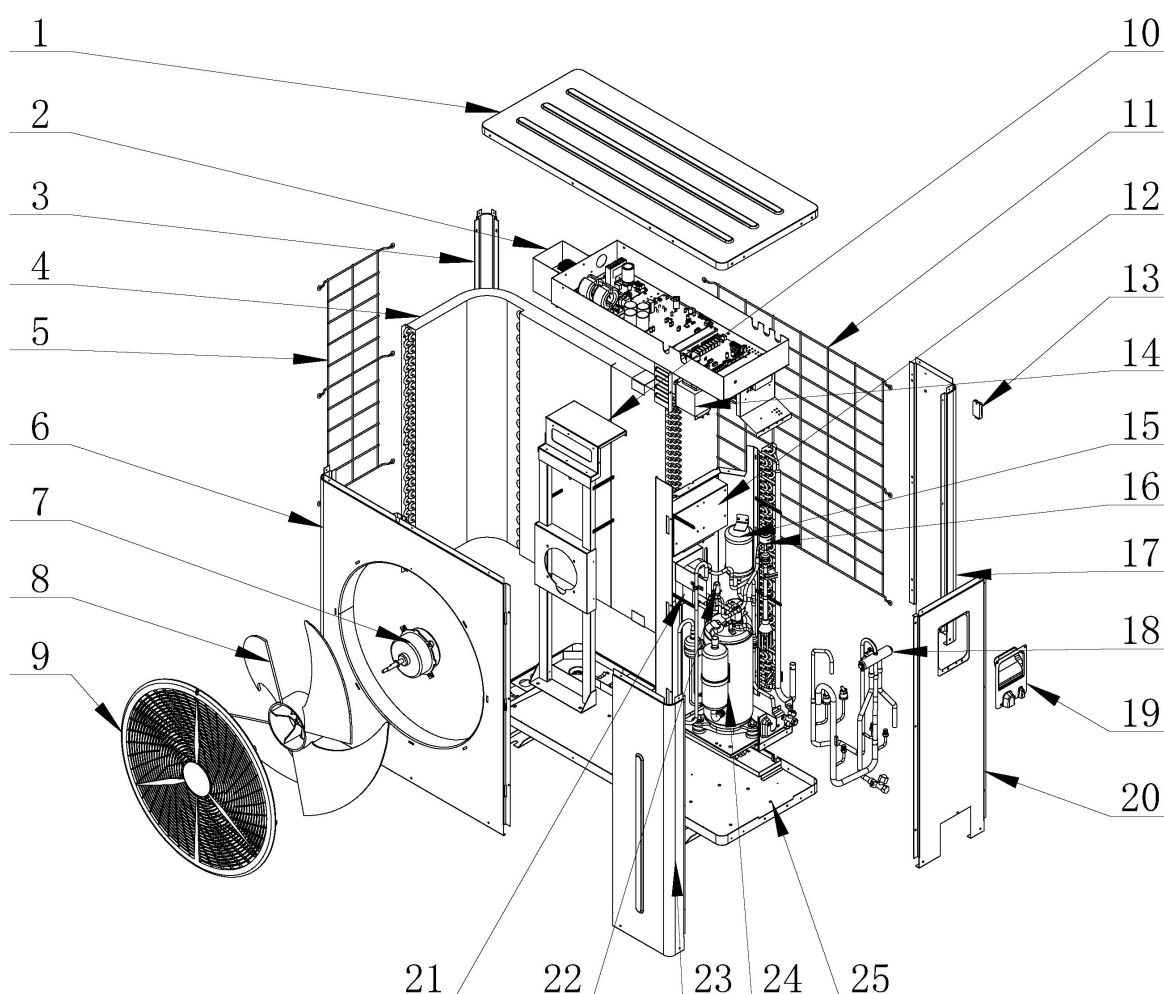
①	Top Cover	⑩	Four-way Valve Assembly	⑲	Fan Motor
②	Electrical Box	⑪	Ambient Temp. Sensor Holder	⑳	Fan Blade
③	Back Net	⑫	Right Plate	㉑	Air Guide Plate
④	Middle Plate	⑬	Stop Valve	㉒	Mesh Cover
⑤	Plate Heat Exchanger of EVI	⑭	Handle	㉓	Reactor
⑥	EEV	⑮	Stop Valve Seats	㉔	Reactor Box
⑦	EEV of EVI	⑯	Chassis	㉕	Finned Heat Exchanger
⑧	Liquid Reservoir	⑰	Front Service Plate	㉖	Left Plate
⑨	Compressor	⑱	Motor Support	㉗	Junction Box

NE-F90HCR4INEMO-SA, NE-F130HCR4INEMO-SA,



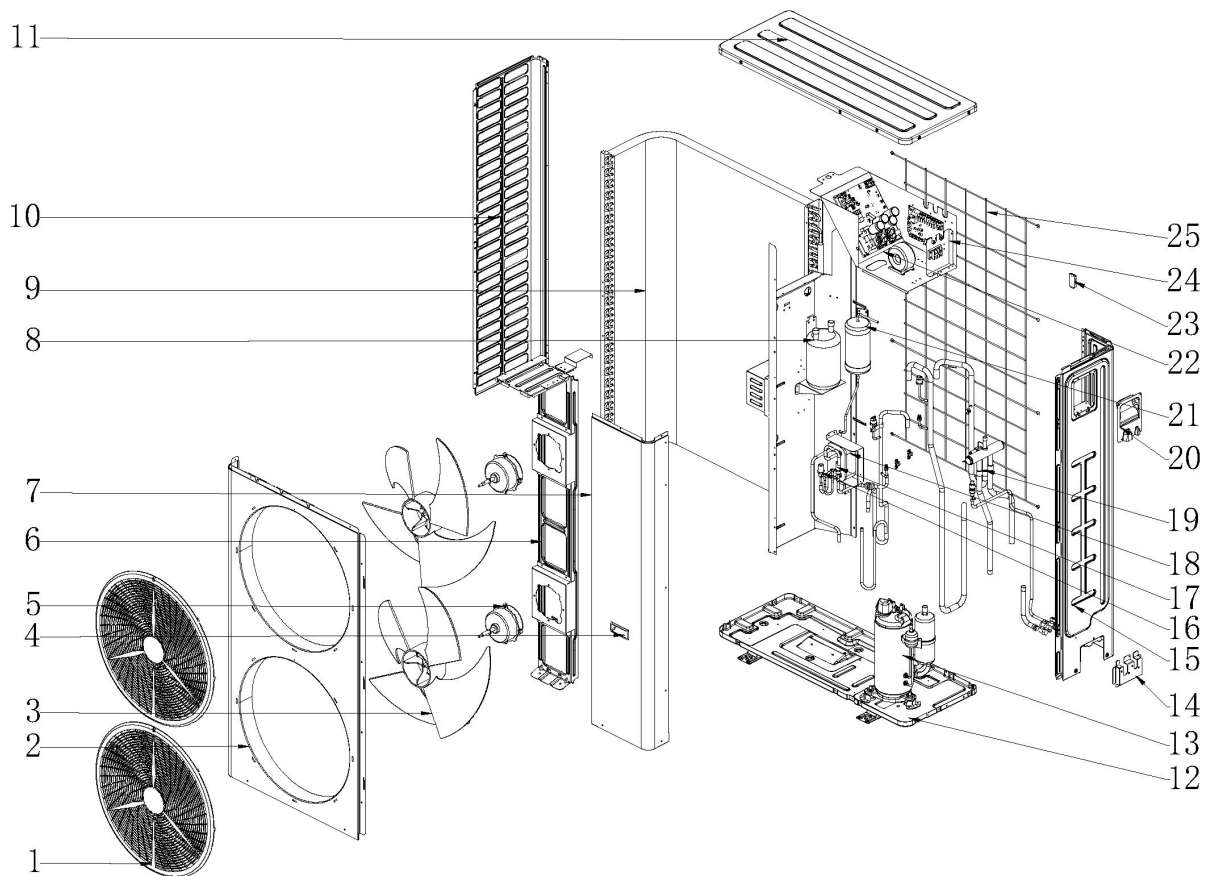
①	Top Cover	⑩	Motor Support	⑲	Right Plate
②	Electrical Box	⑪	Back Net	⑳	Plate Heat Exchanger of EVI
③	Column	⑫	Middle Plate	㉑	Reactor
④	Finned Heat Exchanger	⑬	Ambient Temp. Sensor Holder	㉒	EEV of EVI
⑤	Left Net	⑭	Liquid Reservoir	㉓	Front Service Plate
⑥	Air Guide Plate	⑮	EEV	㉔	Compressor
⑦	Fan Motor	⑯	Back Service Plate	㉕	Chassis
⑧	Fan Blade	⑰	Four-way Valve Assembly		
⑨	Mesh Cover	⑱	Handle		

NE-F90HCR4TINEMO-SA,NE-F130HCR4TINEMO-SA



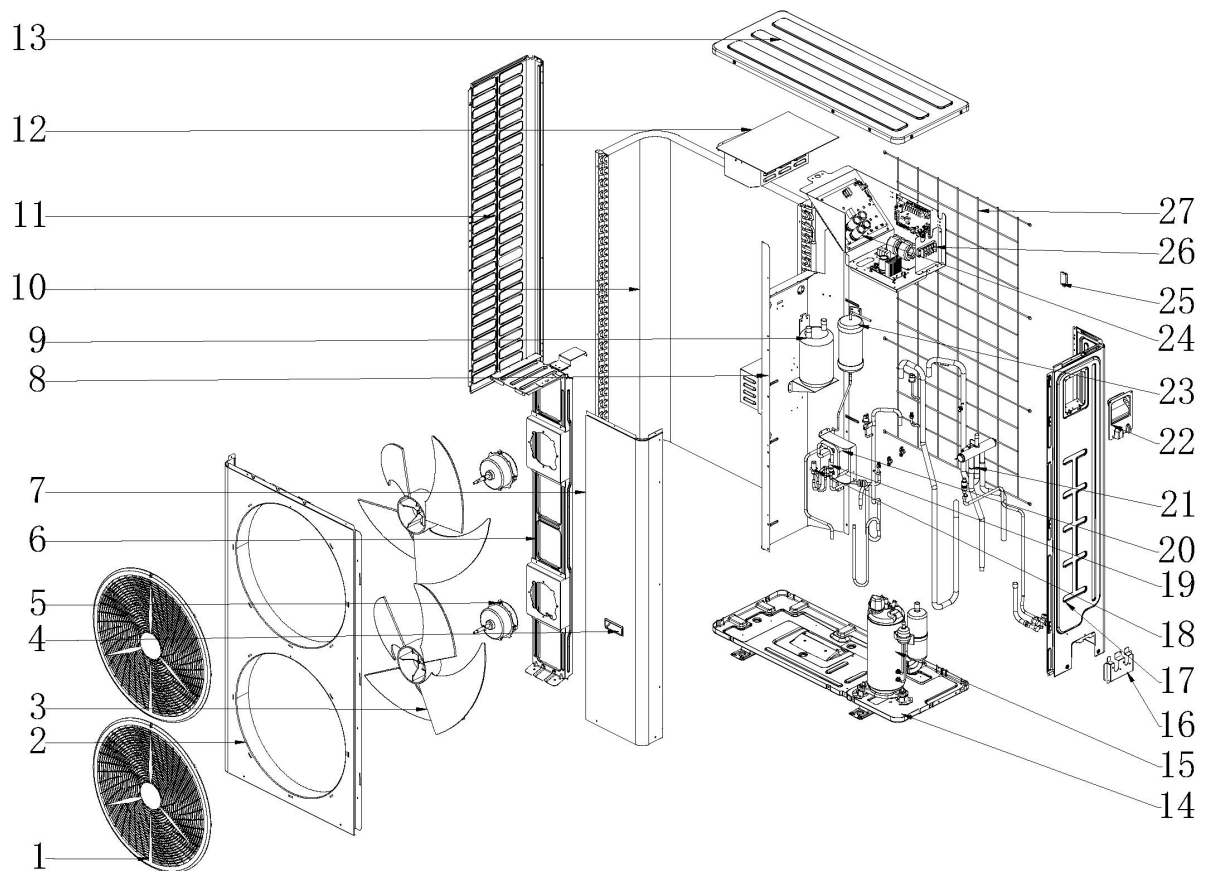
①	Top Cover	⑩	Motor Support	⑲	Handle
②	Electrical Box	⑪	Back Net	⑳	Right Plate
③	Column	⑫	Middle Plate	㉑	Plate Heat Exchanger of EVI
④	Finned Heat Exchanger	⑬	Ambient Temp. Sensor Holder	㉒	EEV of EVI
⑤	Left Net	⑭	Reactor	㉓	Front Service Plate
⑥	Air Guide Plate	⑮	Liquid Reservoir	㉔	Compressor
⑦	Fan Motor	⑯	EEV	㉕	Chassis
⑧	Fan Blade	⑰	Back Service Plate		
⑨	Mesh Cover	⑱	Four-way Valve Assembly		

NE-F160HCR4INEMO-SA,



①	Mesh Cover	⑩	Left Plate	⑲	Four-way Valve Assembly
②	Air Guide Plate	⑪	Top Cover	⑳	Handle
③	Fan Blade	⑫	Chassis	㉑	Liquid Reservoir
④	Handle	⑬	Compressor	㉒	Electrical Box
⑤	Fan Motor	⑭	Stop Valve Seats	㉓	Ambient Temp. Sensor Holder
⑥	Motor Support	⑮	Right Plate	㉔	Junction Box
⑦	Front Service Plate	⑯	EEV of EVI	㉕	Back Net
⑧	Gas-liquid Separator	⑰	EEV		
⑨	Finned Heat Exchanger	⑱	Plate Heat Exchanger of EVI		

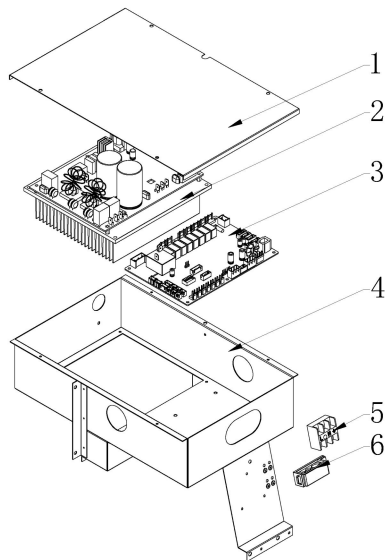
NE-F160HCR4TINEMO-SA,NE-F185HCR4TINEMO-SA, NE-F200HCR4TINEMO-SA



①	Mesh Cover	⑩	Finned Heat Exchanger	⑲	EEV
②	Air Guide Plate	⑪	Left Plate	⑳	Plate Heat Exchanger of EVI
③	Fan Blade	⑫	Reactor Box	㉑	Four-way Valve Assembly
④	Handle	⑬	Top Cover	㉒	Handle
⑤	Fan Motor	⑭	Chassis	㉓	Liquid Reservoir
⑥	Motor Support	⑮	Compressor	㉔	Electrical Box
⑦	Front Service Plate	⑯	Stop Valve Seats	㉕	Ambient Temp. Sensor Holder
⑧	Middle Plate	⑰	Right Plate	㉖	Junction Box
⑨	Gas-liquid Separator	⑱	EEV of EVI	㉗	Back Net

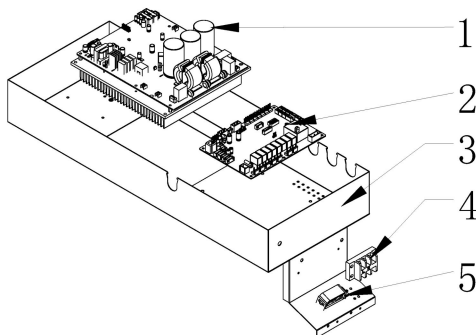
Main Parts of the Unit Electrical Box

NE-F60HCR4INEMO-SA



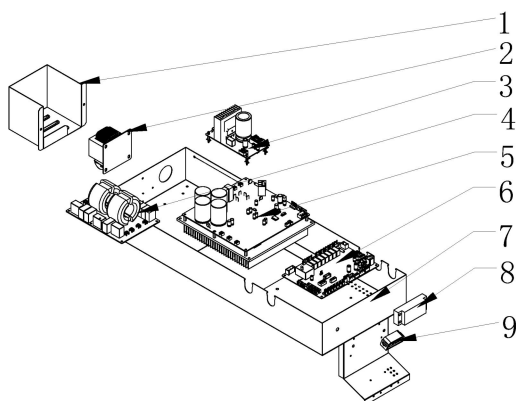
①	Electrical Box Cover
②	Driver Board
③	External Main Board
④	Electrical Box
⑤	Terminal Block
⑥	Cable Clamp

NE-F90HCR4INEMO-SA, NE-F130HCR4INEMO-SA,



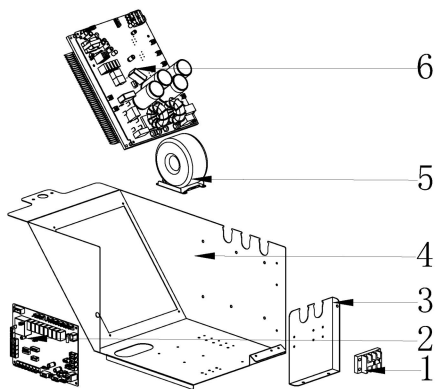
①	Driver Board
②	External Main Board
③	Electrical Box
④	Terminal Block
⑤	Cable Clamp

NE-F90HCR4TINEMO-SA, NE-F130HCR4TINEMO-SA



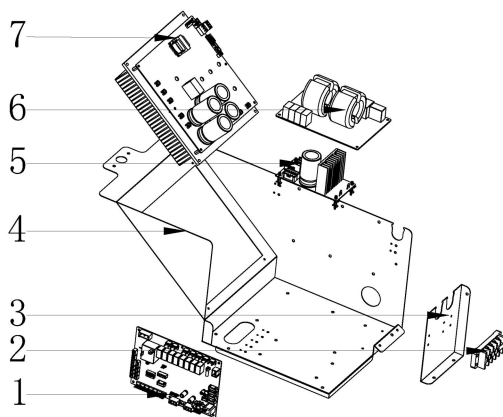
①	Reactor Box
②	Reactor
③	Fan Driver Board
④	Filter Board
⑤	Driver Board
⑥	External Main Board
⑦	Electrical Box
⑧	Terminal Block
⑨	Cable Clamp

NE-F160HCR4INEMO-SA,



①	Terminal Block
②	External Main Board
③	Terminal Fixing Plate
④	Electrical Box
⑤	High Frequency Inductor
⑥	Driver Board

NE-F160HCR4TINEMO-SA,NE-F185HCR4TINEMO-SA, NE-F200HCR4TINEMO-SA

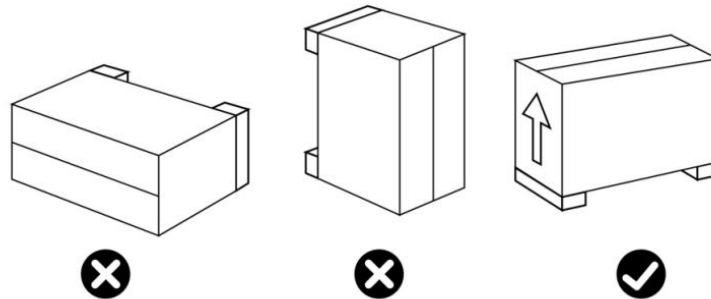


①	External Main Board
②	Terminal Block
③	Terminal Fixing Plate
④	Electrical Box
⑤	Fan Driver Board
⑥	Filter Board
⑦	Driver Board

1.4. INSTALLATION AND CONNECTION

1.4.1. Transportation

1. When storing or moving the heat pump, the heat pump should be in the upright position.



2. When moving the heat pump, do not lift the water union since the titanium heat exchanger inside the heat pump will be damaged.

1.4.2. Pre-requirements of Installation

Check before installation

- ① Please check whether the nameplate of the unit is identical to the order.
- ② Please check that the random documentation for the unit is complete.
- ③ Please check that the unit is complete with its supplied accessories.
- ④ Check the unit for transport damage, if the unit is visibly damaged it should be noted on the shipping company's freight bill and the shipping agent should be asked to come and inspect it immediately.

Equipment necessary for the installation of your heat pump:

- ① Power supply cable suitable for the unit's power requirements.
- ② A By-Pass kit and an assembly of PVC tubing suitable for your installation as well as stripper, PVC adhesive, and sandpaper.
- ③ A set of wall plugs and expansion screws suitable to attach the unit to your support.
- ④ We recommend that you connect the unit to your installation by means of flexible PVC pipes in order to reduce the transmission of vibrations.
- ⑤ Suitable fastening studs may be used to raise the unit.

1.4.3. Installation Location and Space

Please comply with the following rules concerning the choice of heat pump location.

- ① The outdoor unit may be installed on a balcony, roof, ground or any other location where it can be easily installed and can reliably support a load.
- ② The outdoor unit should not be installed near other heat sources that may interfere with the normal operation of the outdoor unit
- ③ The outdoor unit should not be installed in close proximity to corrosive or flammable gases
- ④ That the noise and exhaust of the outdoor unit should have as little impact as possible on the

surrounding premises where people are active

- ⑤ If the unit is located in a location that is accessible to other people, isolation safety measures, such as the installation of protective fences, should be taken. This will prevent vandalism and accidental damage and prevent the control box from being opened and exposing the operating electrical components.
- ⑥ The outdoor units should not be installed in locations where there are large fluctuations in supply voltage or where strong electromagnetic waves are present
- ⑦ The outdoor unit should not be installed in a location where flammable or explosive materials are present
- ⑧ The outdoor unit should not be installed in a place where there are evaporating gases such as alkaline or acid.

1.4.3.1. Installation base

- ① The unit should be installed on a level foundation, ground floor or roof that is capable of supporting the weight of the unit and the service personnel; please refer to the "Unit nameplate" for the unit weight.
- ② If the unit is installed in a location that is too high for maintenance personnel to access, suitable scaffolding can be erected around the unit. The scaffolding must be able to support the weight of the service personnel and service equipment.
- ③ For ground mounting, the steel base of the unit should be placed on a level concrete foundation. Take care not to connect the base of the unit to the building foundation as this may transmit noise and vibration.
- ④ When the unit is installed on the roof, the roof must be strong enough to support the weight of the unit and the service personnel. The unit may be supported on a concrete foundation or channel steel frame similar to that used for ground mounting.
- ⑤ The base of the unit is provided with mounting holes which can be used to fasten the unit to the foundation.
- ⑥ It is recommended that damped spring vibration isolators be placed between the foundation and the base of the outdoor unit (especially when the unit is installed on steel brackets and on the top floor). The vibration isolators should be correctly selected and installed in accordance with the design requirements in order to meet the vibration isolation requirements and to avoid solid sound transmission and resonance.
- ⑦ To ensure that the outdoor unit is placed flat on the foundation, it is necessary to confirm that the plane on which the outdoor unit is positioned is flat before placing the outdoor unit. The level of the outdoor unit should be checked after installation and the angle of inclination should be less than 5°; if the unit is equipped with a damper, the level should be checked after the damper is installed.
- ⑧ There should be a drainage channel around the unit to ensure that the water generated by rainwater, heating defrost and heating condensation can be discharged smoothly; if there is no drainage channel, please add a water tray at the bottom of the unit and lead it to a suitable place with a pipe.

1.4.3.2. Installation space

- ① In order to prevent backflow of air from the finned heat exchanger and to avoid operational failure of the unit, the distance between the unit and its surroundings should be greater than the minimum recommended spacing. If this distance is not ensured, the air flow through the coil will be restricted or backflow of exhaust air will occur and the performance of the unit may be affected or operational failure may occur.
- ② To ensure sufficient airflow to the condensing coil, the installation should also take into account the effect on the unit's exhaust air caused by the sinking airflow from the tall buildings surrounding the unit.
- ③ If the unit is to be installed in an area of high air movement, such as an exposed roof, measures such as dwarf walls or louvres can be used to prevent turbulence from interfering with the air intake to the unit. If the unit is to be installed with a low wall, its height must not exceed that of the unit, and the spacing between the unit and the low wall or louver must likewise meet the minimum spacing requirements for the installation of the unit.

The unit shall be installed in a place with air circulation, no heat radiation or other heat sources, and the allowable minimum distance between the unit and the surrounding walls or other shelters is: the distance between the air inlet surface and the air inlet surface is more than 300 mm, the distance between every 2 units is more than 600 mm, as shown in the figure:

Unit: mm

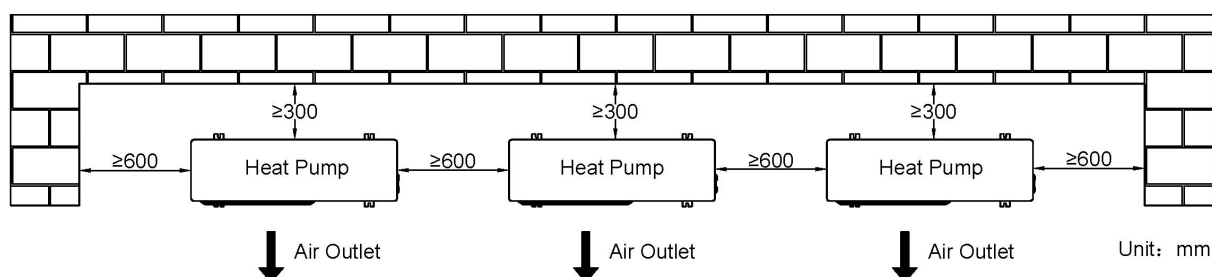
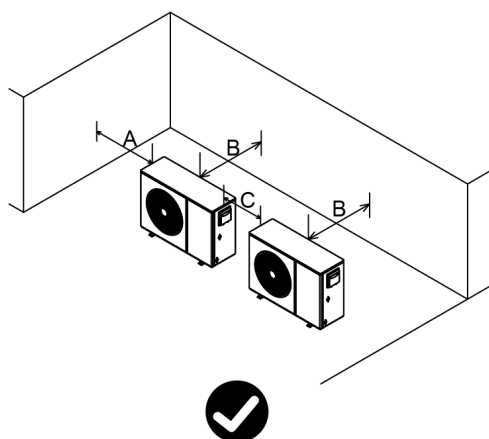
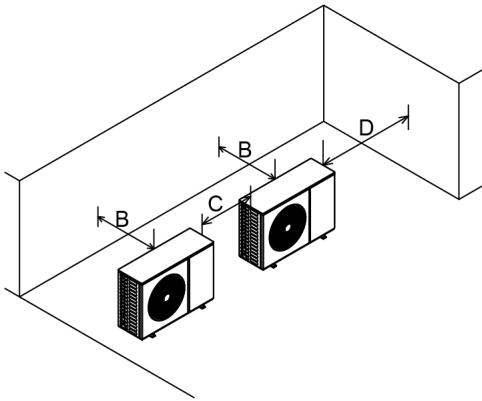


Diagram of the unit installation:

1. It is recommended that the unit be installed in an open position with no obstacle blocking the air outlet of the unit, as shown in the diagram.



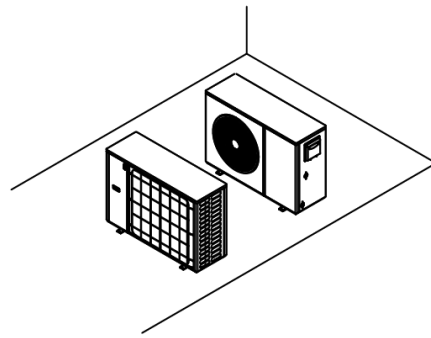
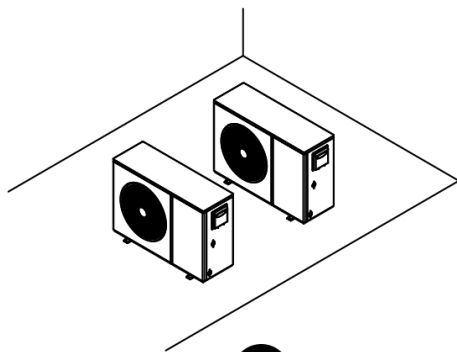
	Unit	Min. Distance
A	mm	600
B	mm	300
C	mm	600



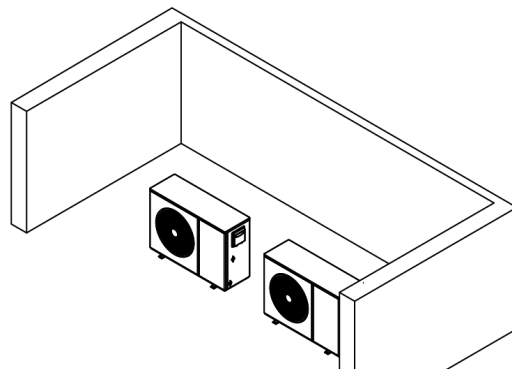
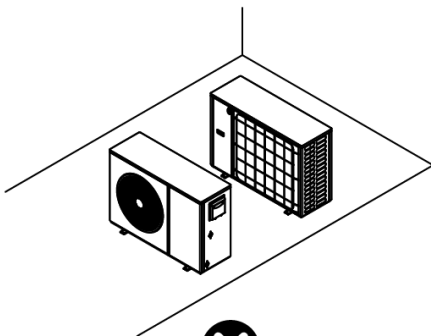
	Unit	Min. Distance
B	mm	300
C	mm	600
D	mm	600

2. It is not recommended to install the unit according to the following installation method.

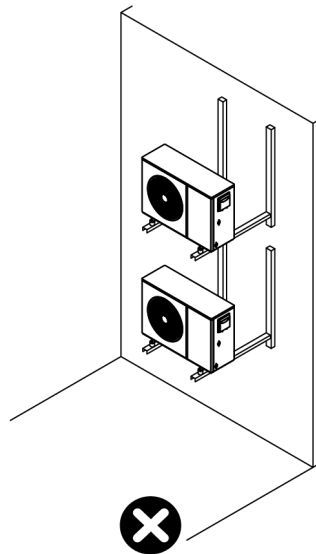
① Do not make the air outlet of the unit blow against the air inlet of another unit and do not make the air outlet of the unit blow against the air outlet of another unit.



② Don't make the air inlet of the unit opposite to each other and don't make the air inlet of the unit blocked by the wall.



③ Do not install the unit vertically up and down. The condensate of the unit is discharged from the chassis. If the condensate of the unit drips onto the unit below, it will easily cause the unit below to freeze.

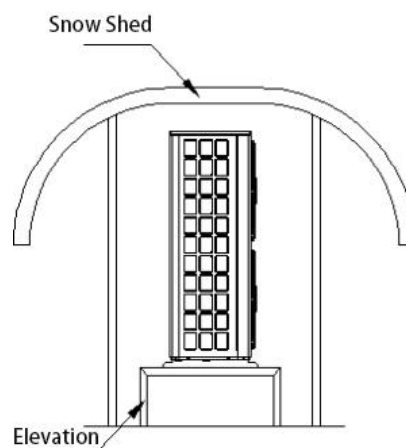


1.4.3.3. Installation in cold climates

If the unit is to be operated in winter and there is a possibility of snow accumulation on the installation site, the unit must be at least 100 mm above the snow surface to ensure air circulation.

In snowy areas, anti-snow facilities shall be installed. In order not to be affected by snow, an elevated platform is adopted, and an anti-snow shed is installed at the air inlet and air outlet.

Snow Protection Shed Diagram



1.4.3.4. Installation in hot climates

As the outdoor temperature is measured via the outdoor unit air thermistor, make sure to install the outdoor unit in the shade, or a canopy should be constructed to avoid direct sunlight, so that it is not influenced by the sun's heat.

1.5. INSTALLATION OF THE CONNECTING PIPE

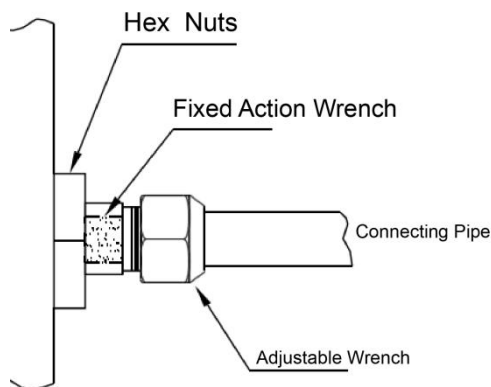
1.5.1. Precautions Before Connection

Requirements for the connection

① Connect the main unit to the indoor unit using the connection tube. Check whether the nut of the connection joint of the indoor unit is still there before connecting the pipes. Make sure that there is no foreign matter or water in the connection pipe of the indoor unit system before connecting the I.M. pipe, the I.M. outlet of the main unit to the I.M. inlet of the indoor unit and the I.M. inlet of the main unit to the I.M. outlet of the indoor unit.

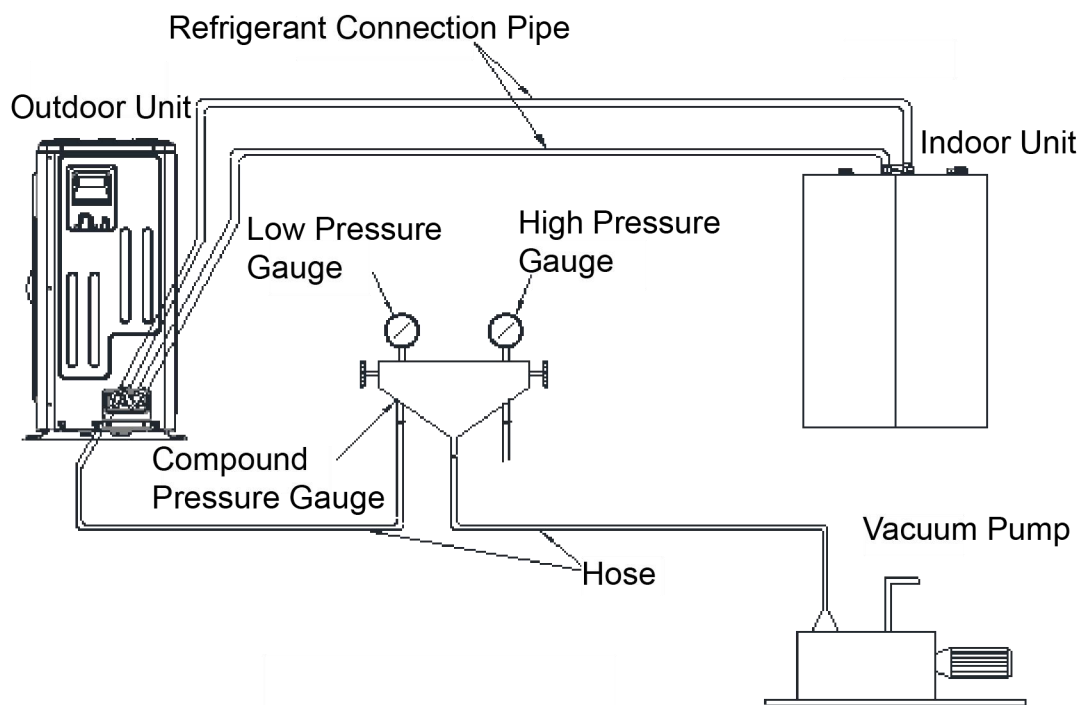
The connection joints must be made by using a suitable plate hand to hold the I.M. joint of the water storage tank to prevent it from turning and damaging the inner coil or the joint, and then twisting it with a spanner.

See the diagram below.



② When evacuating, the pressure in the refrigerant system needs to be lower than 30 Pa, and the pressure will not rise for half an hour.

The evacuation diagram is as follows.



1.5.2. Refrigerant Piping

- Leakage Detection

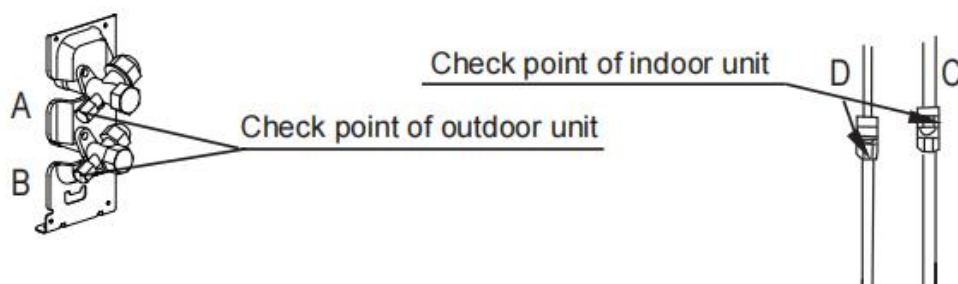
Use soap water or leakage detector to check every joint whether leak or not

Note:

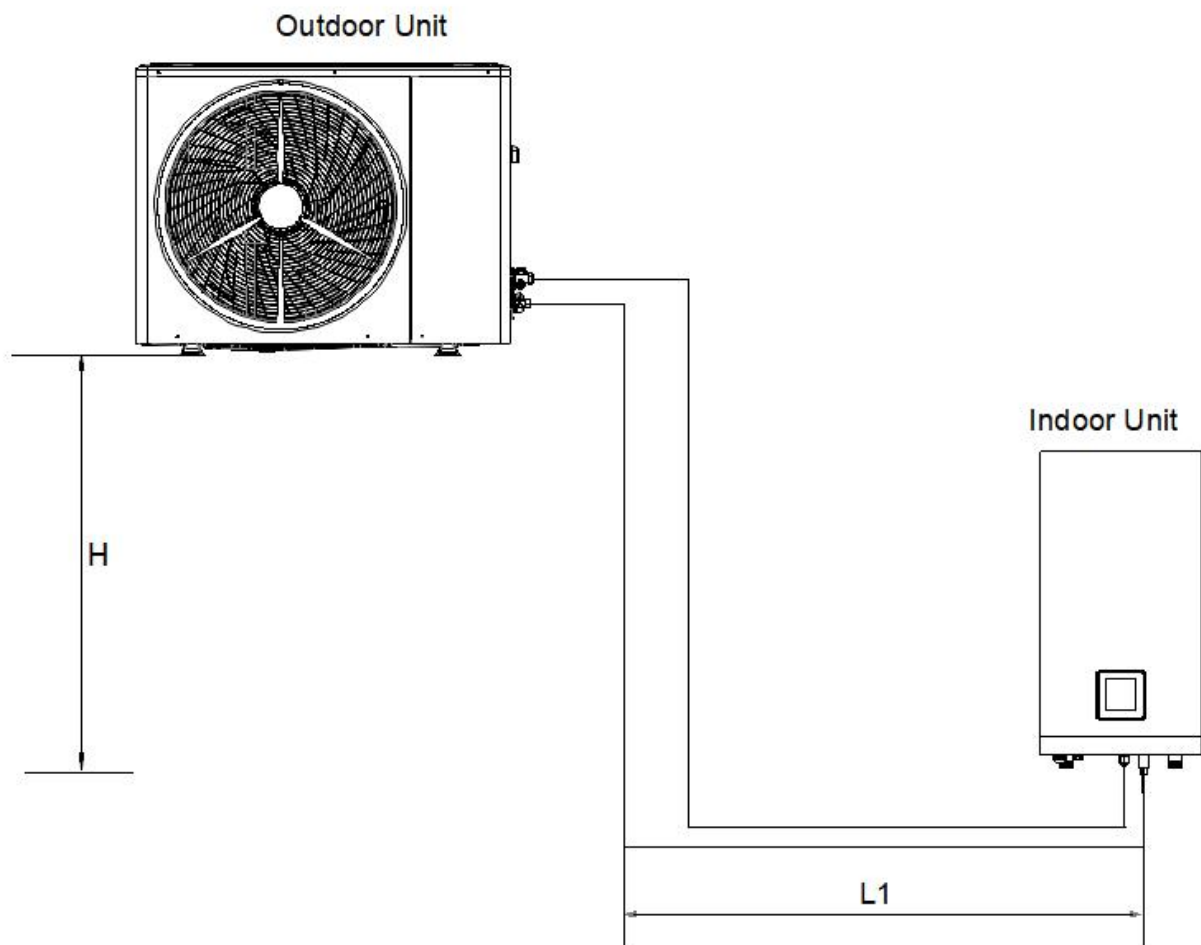
A is high pressure side stop valve

B is low pressure side stop valve

C and D is connecting pipes interface of indoor and outdoor units



1.5.3. Connection Method



Models	4~20 kW
Max. piping length (H+L1)	10m
Max difference in height (H)	6m

- Refrigerant amount to be added**

When the length of the connecting pipe between the indoor unit and the outdoor unit is longer than 3 meters, it is necessary to charge additional refrigerant. The amount of additional refrigerant to be added should be calculated according to the length of the connecting pipe between the indoor unit and the outdoor unit.

The calculation method can refer to the table below:

	Model	Max. Piping Length L(m)	
		≤3m	>3m
Total additional refrigerant	4/6 kW	0g	(L-3)×20g
	9/13/16/18.5/20kW	0g	(L-3)×38g

1.6. FIELD WIRING

1.6.1. Before Wiring

WARNING

- The main switch or other disconnecting switch components with separate connection points on all branch lines must be incorporated into the prescribed electrical wiring in accordance with the relevant local laws and regulations.
- Switch off the power supply before making any connections.
- Only copper wire may be used.
- Do not squeeze the bundled wires and ensure that they do not come into contact with pipes and sharp edges.
- Ensure that no external pressure is applied to the terminal connections.
- All field wiring and components must be installed by a licensed electrician and must comply with relevant local laws and regulations.
- Field wiring must be carried out in accordance with the wiring diagram supplied with the appliance and the instructions given below.

Always use a dedicated power supply. Do not use a power source shared by other devices.

- Always build a foundation. Do not ground the equipment to a utility pipe, surge protector or telephone ground. Incomplete grounding may result in electric shock.

Always install an earth fault circuit breaker (30 mA). Failure to do so may result in electric shock.

- Be sure to install the required fuses or circuit breakers.

Precautions before installation

- Secure the wires so that they do not come into contact with the pipes (especially the high pressure side)
- Secure the wires with cable ties as shown in the diagram so that they do not touch the pipe, especially the high pressure side.
- Ensure that no external pressure is applied to the terminal connector.
- When installing the earth fault circuit breaker, ensure that it is compatible with the inverter (resistant to high frequency air noise) to avoid unnecessary opening of the earth fault circuit breaker.

1.6.2. Electrical Connection

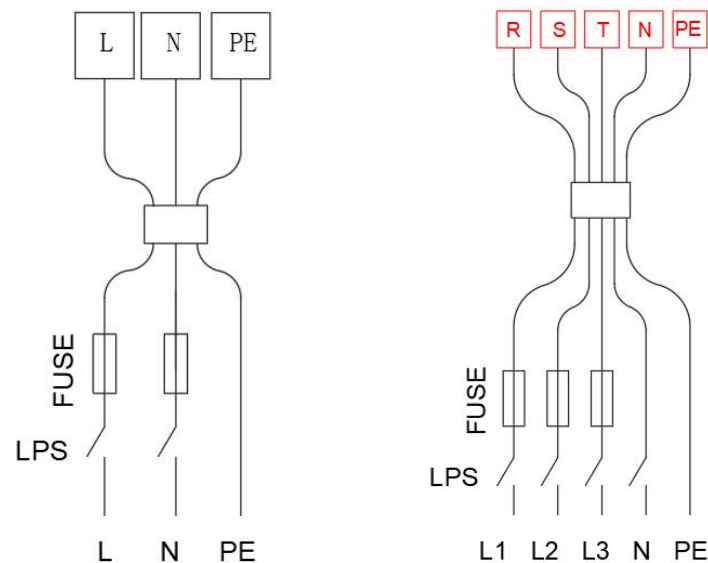
The ground fault circuit breaker must be a 30 mA (<0.1 s), high-speed type.

Please use a cable of the correct number of cores and size.

Current ratings are based on the maximum permissible operating temperature of the conductor (105°C/70°C) and in the rated ambient temperature (40°C/25°C) and assuming free separation in air for a single wire, with wire diameter cross-references, as shown in the table below.

Maximum operating current of the unit (A)	Cross-sectional area of conductors (AWG)	Maximum operating current of the unit (A)	Cross-sectional area of conductors (AWG)
≤3.0	≥24	≤15	≥14
≤4.6	≥22	≤21	≥12
≤6.5	≥20	≤28	≥10
≤8.5	≥18	≤40	≥8
≤11	≥16	≤55	≥6

- Use the H07RN-F power cord with all wires connected to the high voltage side except for the thermistor cable and the user connector cable.
The equipment must be earthed.
 - All high-voltage external loads must be earthed if they are metallic or earthed outlets.
 - All external load currents must be less than 0.2 A. If individual load currents are greater than 0.2 A, the load must be controlled via an AC contactor.
Terminals "AHS1, AHS2", "DFR1, DFR2" and "ERR1, ERR2" provide only switching signals.
 - The terminal block of "DI2, G" and "SG, EVU, G" terminal receives the switch signal.
- Please refer to the diagram below for the location of the ports in the device.

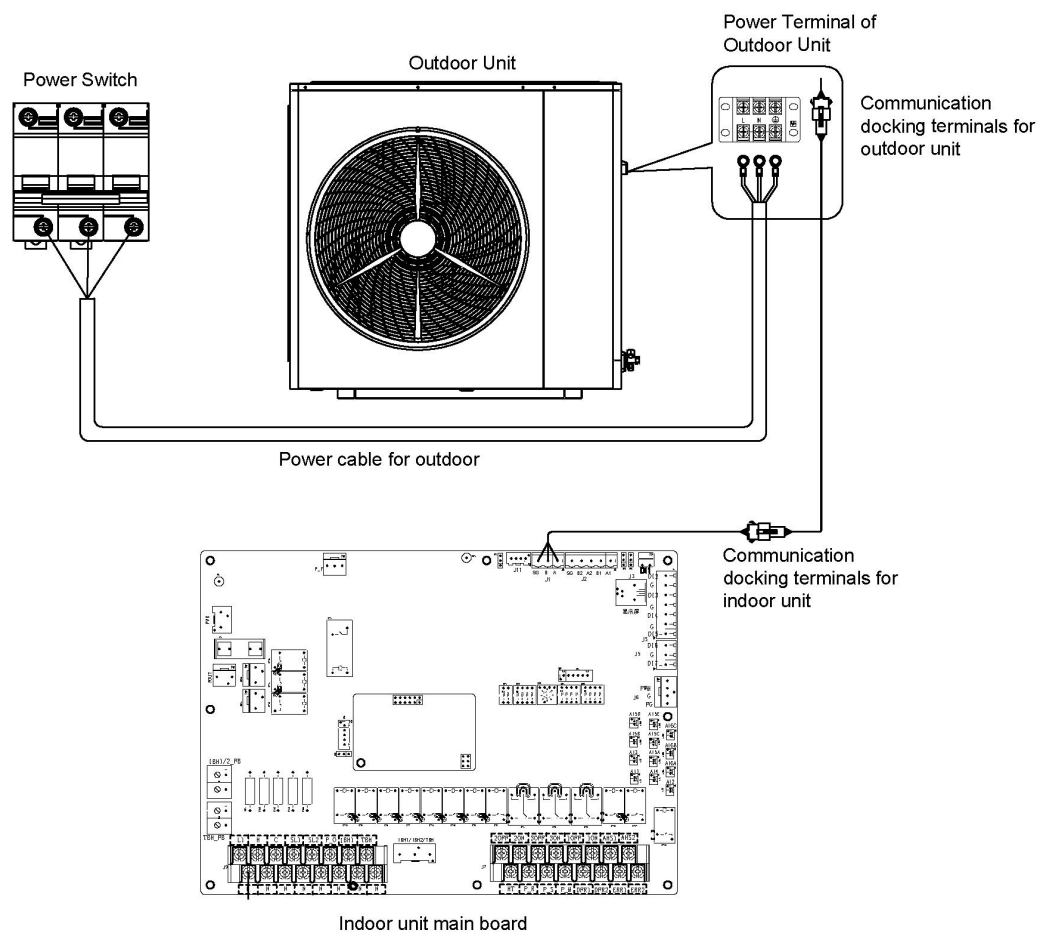
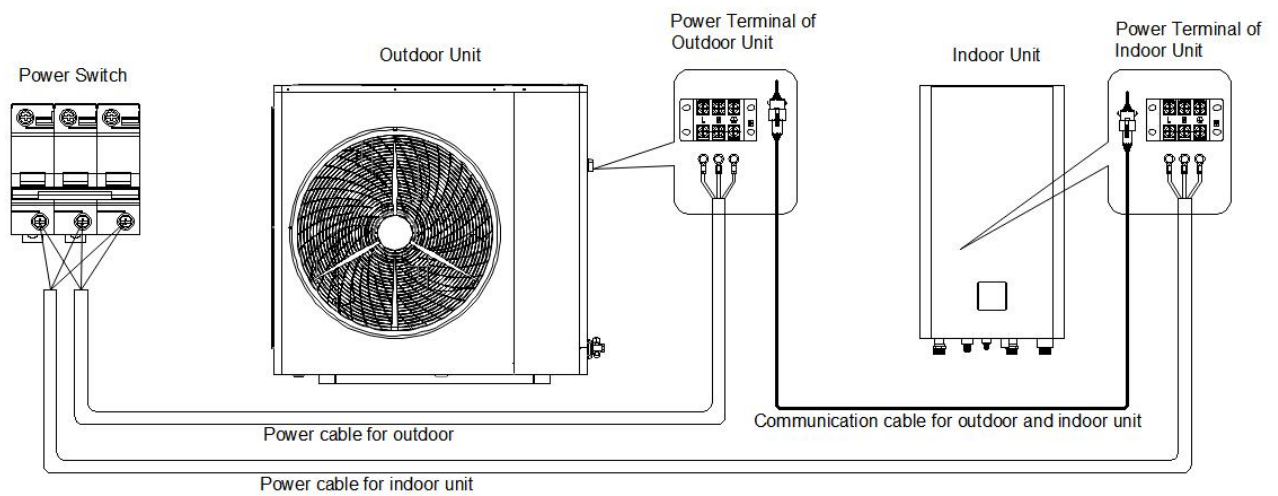


1. Customer Installation Wiring Section


- ① Open the handle on the right side of the unit

② Wiring Section

You can use the communication cable to connect the outdoor unit to the indoor unit as shown below.



1.7. TRIAL RUN

 **WARNING:** Please check all the wiring carefully before turning on the heat pump.

1.7.1. Inspection Before Trial Running

Before the running test, confirm the below items and write √ in the block;

<input type="checkbox"/>	Correct unit installation
<input type="checkbox"/>	The power supply voltage is the same as unit rated voltage
<input type="checkbox"/>	Correct piping and wiring
<input type="checkbox"/>	The air inlet & outlet port of the unit is unblocked
<input type="checkbox"/>	Drainage and venting are unblocked and no water leaking
<input type="checkbox"/>	The leakage protector is working
<input type="checkbox"/>	Piping insulation is working
<input type="checkbox"/>	The ground wire is connected correctly

1.7.2. Trial Running

Step 1:Running test can begin after completing all installation;

Step 2:All wiring and piping should be connected well and carefully checked, then fill the water tank with water before power is switched on;

Step 3:Emptying all air within pipes and water tank, press the “ON/OFF” button on the control panel to run the unit at setting temperature;

Step 4:Items need to be checked during the running test:

- ① During the first running, the unit current is normal or not;
- ② Each function button on the control panel is normal or not;
- ③ Display screen is normal or not;
- ④ Is there any leakage in the whole heating circulation system;
- ⑤ Condensate drain is normal or not;
- ⑥ Are there any abnormal sounds or vibrations during running?

1.8. MAINTENANCE AND WINTERIZATION

1.8.1. Maintenance

 **WARNING**

Before undertaking maintenance work on the unit, ensure that you have disconnected the electrical power supply.

- **Cleaning**

- a. The heat pump's casing must be cleaned with a damp cloth. The use of detergents or other household products could damage the surface of the casing and affect its properties.
- b. The evaporator at the rear of the heat pump must be carefully cleaned with a vacuum cleaner and soft brush attachment.

- **Annual maintenance**

The following operations must be undertaken by a qualified person at least once a year.

- a. Carry out safety checks.
- b. Check the integrity of the electrical wiring.
- c. Check the earthing connections.
- d. Monitor the state of the pressure gauge and the presence of refrigerant.

1.8.2. Winterizing



**“CUT OFF” power supply of the heater
before cleaning, examination and repairing**

When you don't use:

- a. Cut off the power supply to prevent any mechanical damage.
- b. Drain water clear of the machine.



!! Important:

Unscrew the water nozzle of the inlet pipe to let the water flow out.

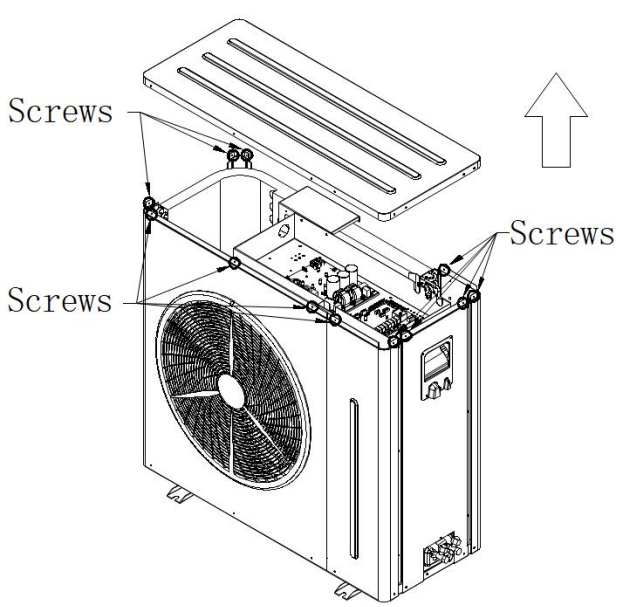
- c. Cover the machine body when not in use.

1.9. REMOVAL PROCEDURES FOR OUTDOOR UNITS

1.9.1. Removal Instructions for Outdoor Panels

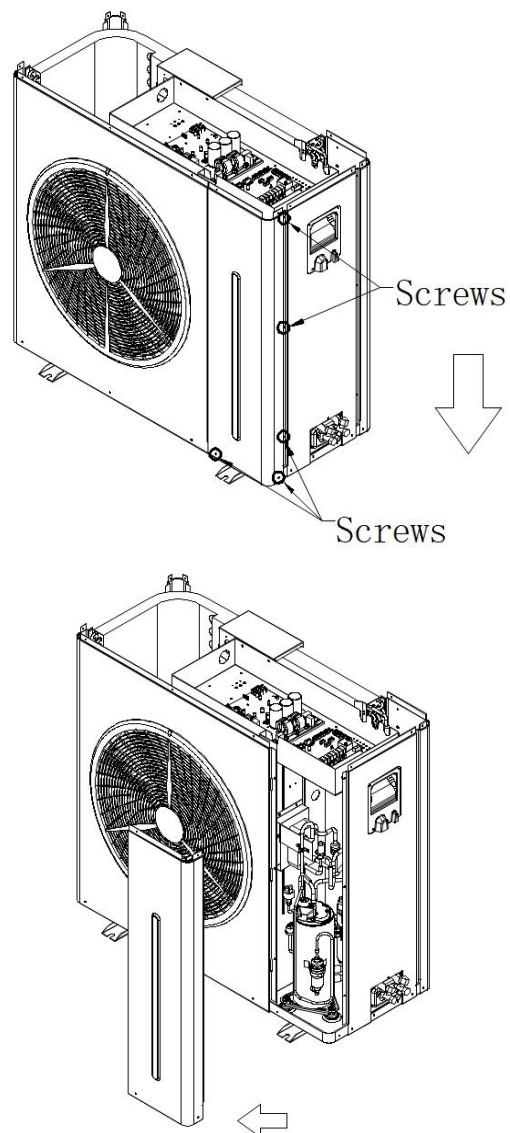
For the 4kW and 6kW units, the removal procedure is the same as for the 9kW and 13kW units, but the number of screws to be removed will be different.

- **NE-F90HCR4INEMO-SA, NE-F130HCR4INEMO-SA, NE-F90HCR4TINEMO-SA, NE-F130HCR4TINEMO-SA**

Work Procedure	
1. Removal of unit top cover ① Remove the screws in the corresponding positions in the drawing. ② Lift the top cover upwards to dismantle it.	 <p>The diagram illustrates the process of removing the top cover of an outdoor unit. It shows the unit with its top cover being lifted upwards, as indicated by a large upward-pointing arrow. Several screws are shown being removed from the top cover and the unit body. The screws are labeled 'Screws' with lines pointing to their locations on the unit.</p>
2. Removal of front service plate ① Remove the screws in the corresponding positions in the drawing.	

② Then, push the front panel down.

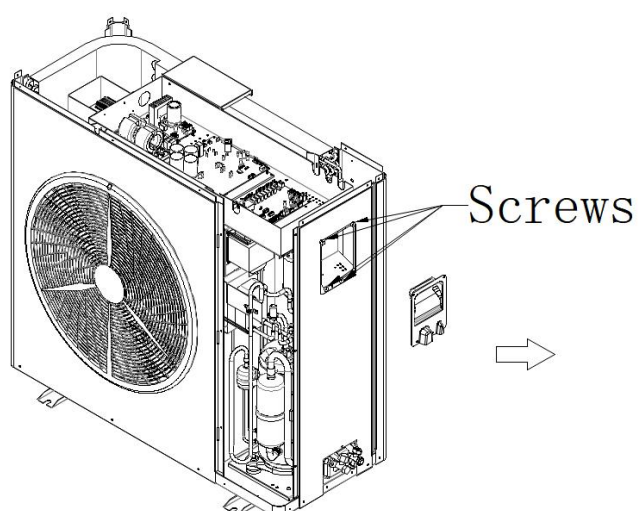
③ Removal of the front service plate.



3. Removal of right service plate handle

① Remove the four screws shown in the diagram.

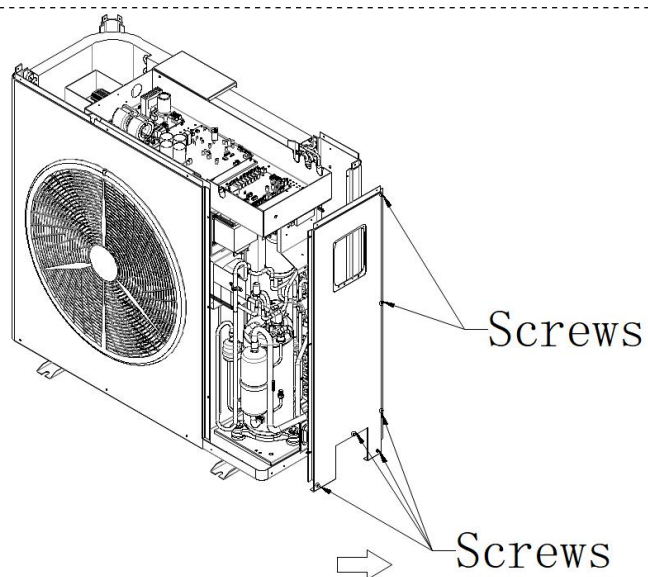
② Remove the handle after removing the screws, at this point the electrical wiring can be carried out



4. Removal of right service plate

① Remove the screws shown in the drawing.

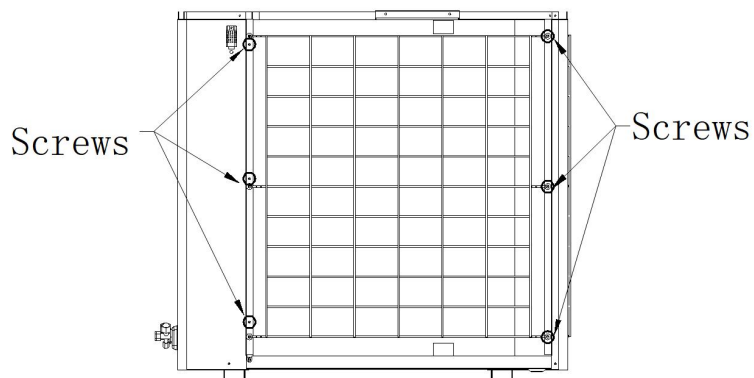
② Remove the screws and carefully remove the right service plate.



5. Removal of back net

① Remove the six screws shown in the drawing.

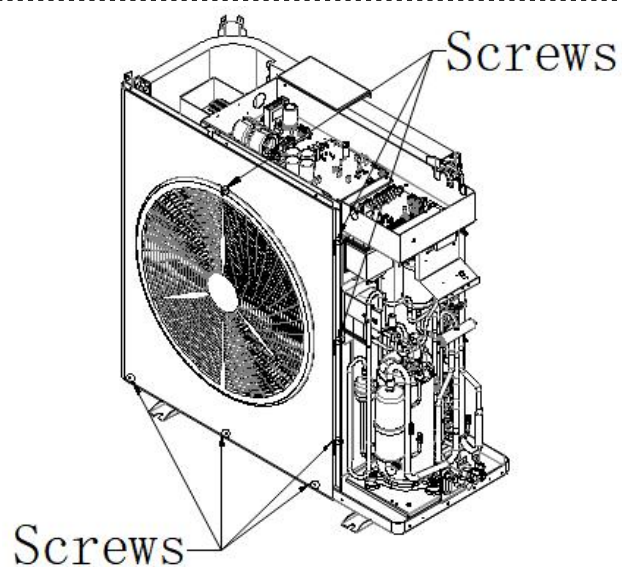
② Remove the back net after removing the screws.

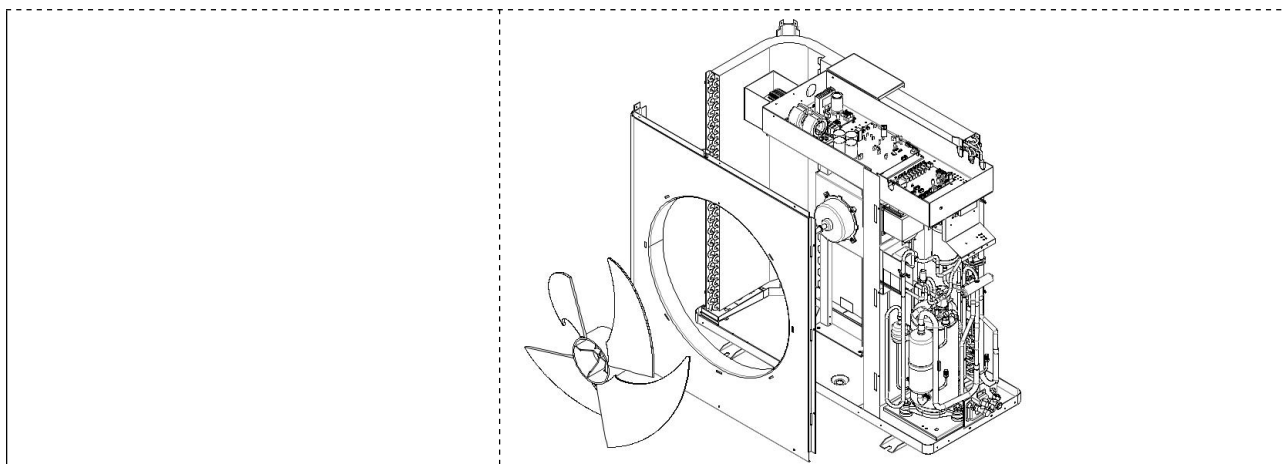


6. Removal of the air guide plate

① Remove the screws shown in the drawing.

② Remove the air guide plate after removing the screws.



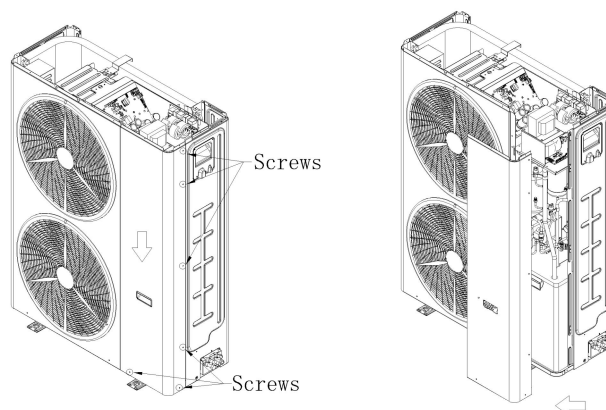


- NE-F160HCR4INEMO-SA, NE-F160HCR4TINEMO-SA, NE-F185HCR4TINEMO-SA, NE-F200HCR4TINEMO-SA, NE-F230HCR4TINEMO-SA, NE-F260HCR4TINEMO-SA

Work Procedure	
<p>1. Removal of unit top cover</p> <p>① Remove the screws in the corresponding positions in the drawing.</p> <p>② Lift the top cover upwards to dismantle it.</p>	<p>The diagram illustrates the process of removing the top cover. On the left, the outdoor unit is shown with a line pointing to the top cover, labeled "Screws". On the right, the top cover is shown being lifted upwards, indicated by an upward-pointing arrow, revealing the internal components of the unit.</p>

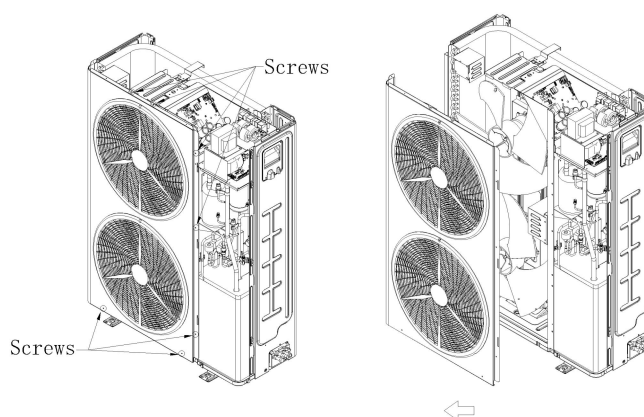
2. Removal of front service plate

- ① Remove the screws in the corresponding positions in the drawing.
- ② Push down on the front service plate to disengage the catch.
- ③ Removal of the front service plate.



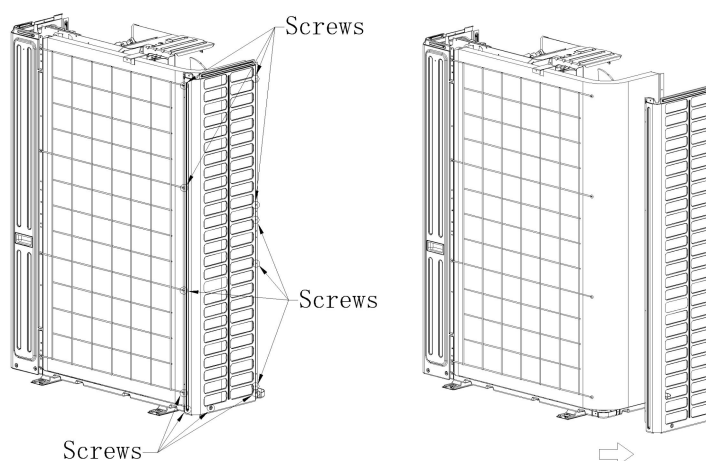
3. Removal of the air guide plate

- ① Remove the screws shown in the diagram.
- ② The air guide plate can be removed by removing the screws.



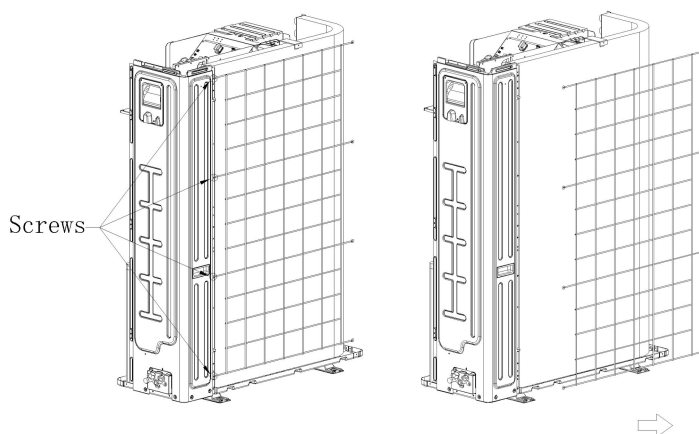
4. Removal of left plate

- ① Remove the screws shown in the drawing.
- ② Remove the left plate after removing the screws.



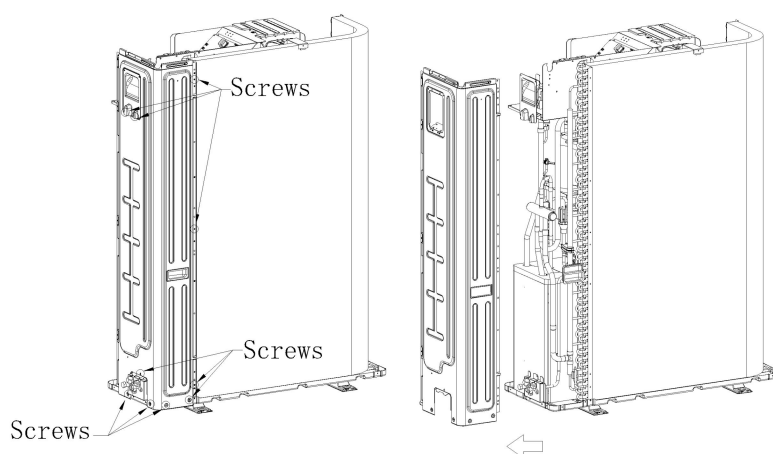
5. Removal of the back net

- ① Remove the screws shown in the drawing.
- ② Remove the back net after removing the screws.



6. Removal of the right service plate.

- ① Remove the screws shown in the drawing.
- ② Remove the screws and carefully remove the right service plate.



2. SPLIT INDOOR UNIT

2.1. FOREWORD

WARNING

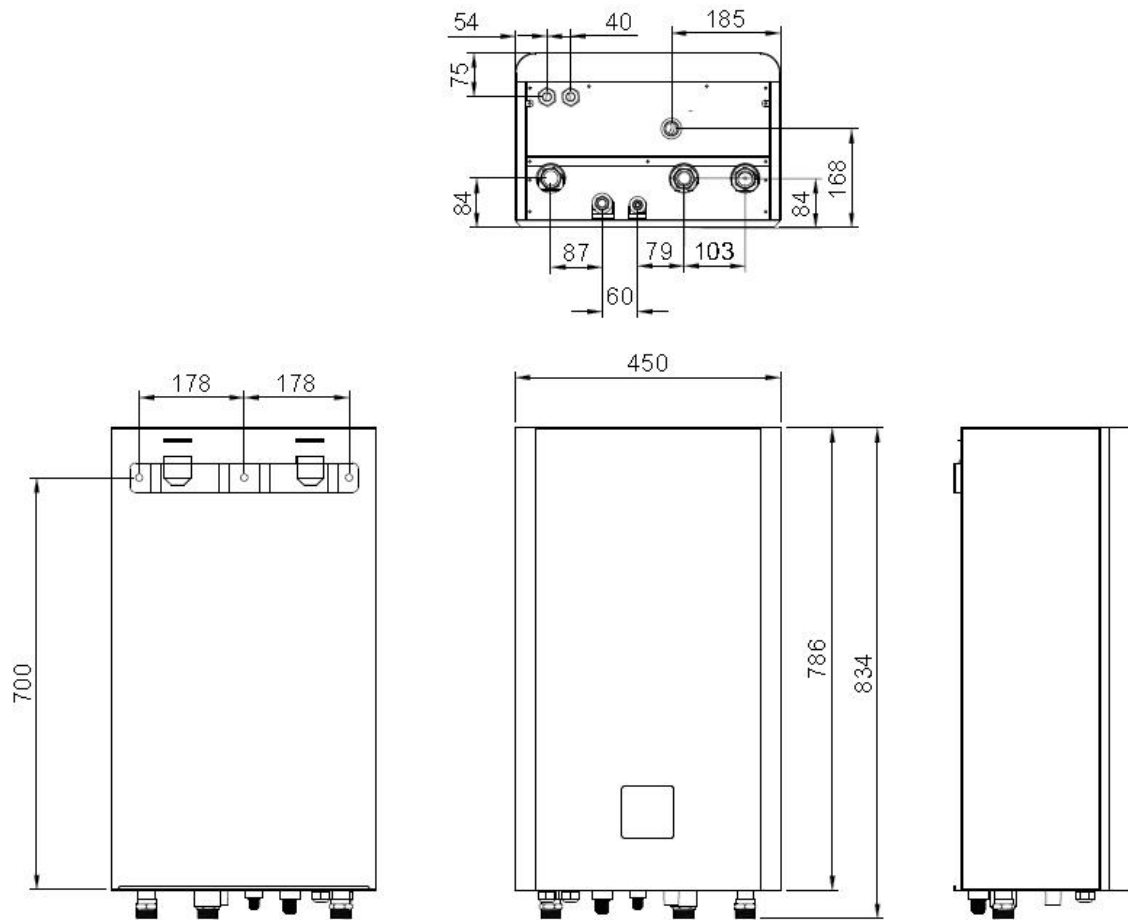
- Before touching electric terminal parts, turn off power switch.
- When service panels are removed, live parts can be easily touched by accident.
- Never leave the unit unattended during installation or servicing when the service panel is removed.
- Do not touch water pipes during and immediately after 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.
- Before touching electrical parts, turn off all applicable power to the unit.

CAUTION

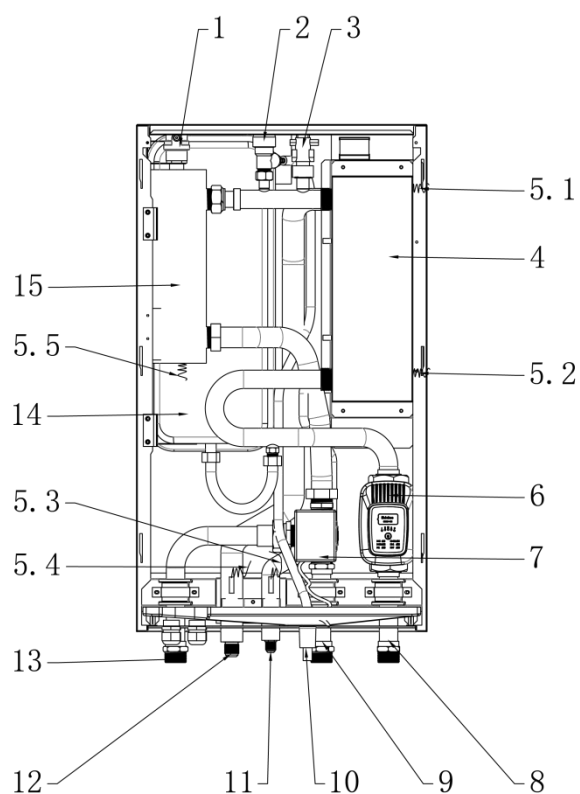
- Tear apart and throw away plastic packaging bags so that children will not play with them. Children playing with plastic bags face danger of death by suffocation.
- Safely dispose of packing materials such as nails and other metal or wood parts that could cause injuries.
- Ask your dealer or qualified personnel to perform installation work in accordance with this manual. Do not install the unit by yourself. Improper installation could result in water leakage, electric shocks or fire
- Be sure to use only specified accessories and parts for installation work. Failure to use specified parts may result in water leakage, electric shocks, fire, or the unit falling from its mount.
- Install the unit on a foundation that can withstand its weight. Insufficient physical strength may cause the equipment to fall and possible injury.
- Perform specified installation work with full consideration of strong wind, hurricanes, or earthquakes. Improper installation work may result in accidents due to equipment falling.
- Make certain that all electrical work is carried out by qualified personnel according to the local laws and regulations and this manual using a separate circuit. Insufficient capacity of the power supply circuit or improper electrical construction may lead to electric shocks or fire.
- Be sure to install a ground fault circuit interrupter according to local laws and regulations. Failure to install a ground fault circuit interrupter may cause electric shocks and fire.
- Make sure all wiring is secure. Use the specified wires and ensure that terminal connections or wires are protected from water and other adverse external forces. Incomplete connection or affixing may cause a fire.
- When wiring the power supply, form the wires so that the front panel can be securely fastened. If the front panel is not in place there could be overheating of the terminals, electric shocks or fire.
- After completing the installation work, check to make sure that there is no refrigerant leakage.
- Never directly touch any leaking refrigerant as it could cause severe frostbite. Do not touch the refrigerant pipes during and immediately after operation as the refrigerant pipes may be hot or cold, depending on the condition of the refrigerant flowing through the refrigerant piping, compressor and other refrigerant cycle parts. Burns or frostbite are possible if you touch the refrigerant pipes. To avoid injury, give the pipes time to return to normal temperature or, if you must touch them, be sure to wear protective gloves.
- Do not touch the internal parts (pump, backup heater, etc.) during and immediately after operation. Touching the internal parts can cause burns. To avoid injury, give the internal parts time to return to normal temperature or, if you must touch them, be sure to wear protective gloves.

2.2. OVERVIEW OF THE UNIT

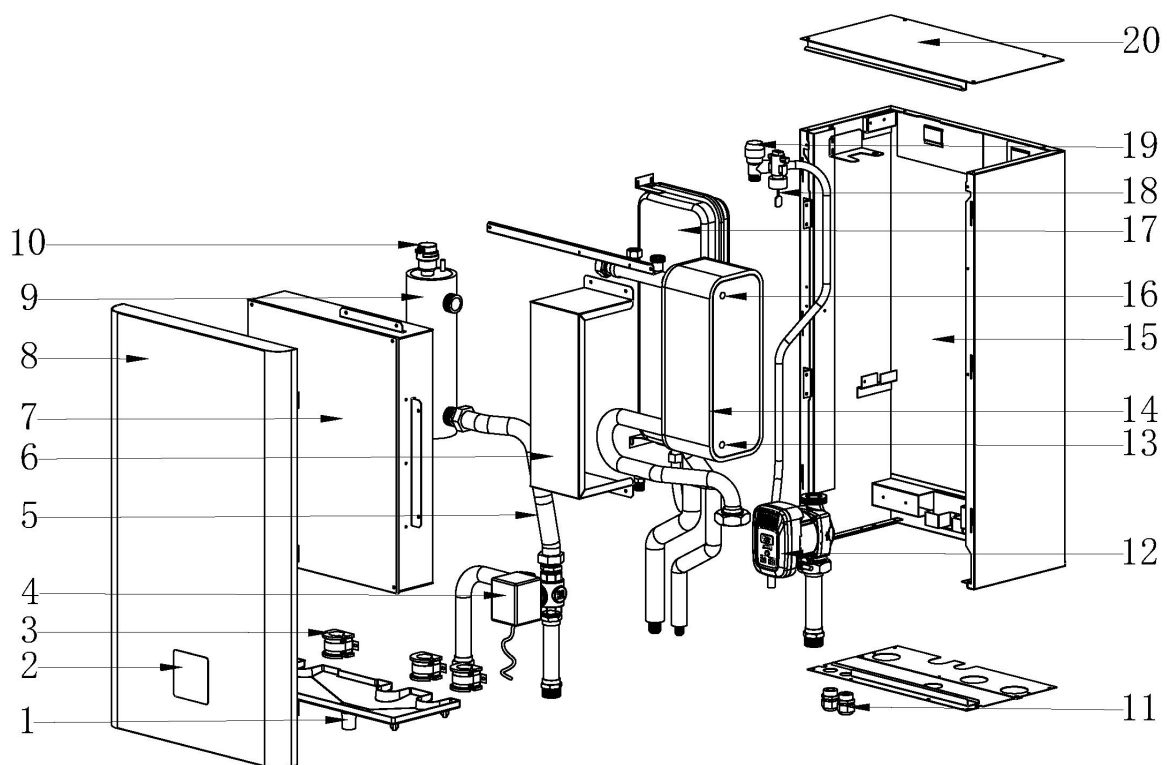
2.2.1. Dimensions



2.2.2. Main Parts of the Unit



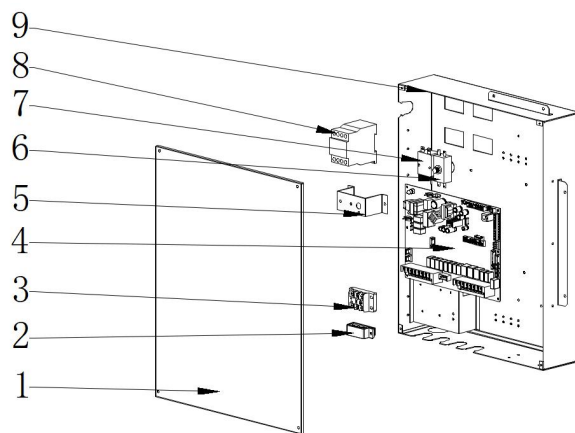
NO.	Assembly Unit
1	Air Exhaust Valve
2	Pressure Relief Valve
3	Water Flow Switch
4	Plate Heat Exchanger
5	Temperature Sensors: 5.1 - outlet water temperature sensor, 5.2 - inlet water temperature sensor, 5.3 - plate heat exchanger outlet temperature sensor, 5.4 - plate heat exchanger inlet temperature sensor, 5.5 - total outlet water temperature sensor
6	Water Pump
7	Three-way Ball Valve
8	Inlet Pipe
9	Heating & Cooling Outlet Pipe
10	Drain Pipe
11	Refrigerant Outlet Pipe
12	Refrigerant Inlet Pipe
13	Hot Water Outlet Pipe
14	8L Expansion Tank
15	Electric Heater



①	Water Receiving Chassis	⑧	Front Service Plate	⑮	Chassis
②	Wire Controller	⑨	Electric Heater	⑯	Outlet Water Temp. Sensor
③	Rubber Fixing Block	⑩	Exhaust Valve	⑰	Expansion Tank
④	Electric Three-way Valve	⑪	PG Connector	⑱	Water Flow Switch
⑤	Bellows	⑫	Water Pump	⑲	Pressure Relief Valve
⑥	Plate Heat Exchanger Fixed Frame	⑬	Inlet Water Temp. Sensor	⑳	Top Cover
⑦	Electrical Box	⑭	Plate Heat Exchanger		

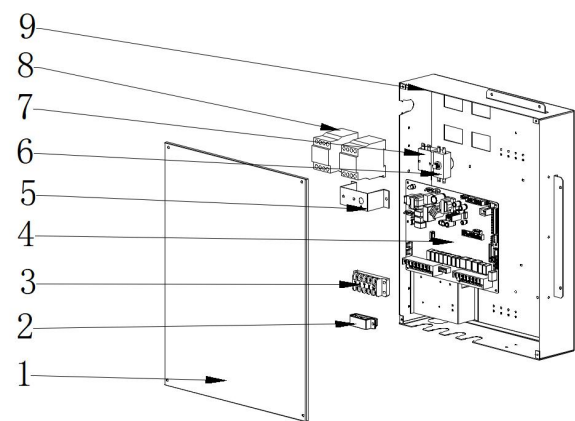
Main Parts of the Unit Electrical Box

For single phase



①	Electrical Box Cover
②	Cable Clamp
③	Terminal Block
④	Internal Main Board
⑤	Circuit Breaker Bracket
⑥	Manual Reset Temp. Circuit Breaker
⑦	Auto. Reset Temp. Circuit Breaker
⑧	AC Contactor
⑨	Electrical Box

For three phase



①	Electrical Box Cover
②	Cable Clamp
③	Terminal Block
④	Internal Main Board
⑤	Circuit Breaker Bracket
⑥	Manual Reset Temp. Circuit Breaker
⑦	Auto. Reset Temp. Circuit Breaker
⑧	AC Contactor
⑨	Electrical Box

2.3. INSTALLATION AND CONNECTION

2.3.1. Installation Location and Space

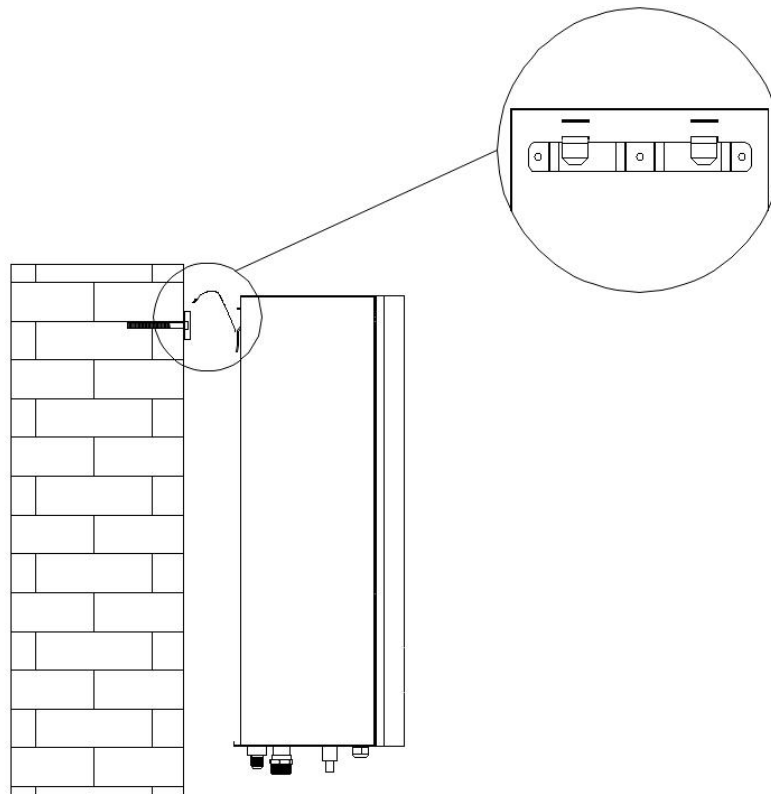
2.3.1.1. Requirements before installation

1. The internal unit needs to be wall mounted.

Installation procedure:

- ① First cut a hole in the wall according to the drilling diagram for the internal unit, which can be assisted by the Wall Mounting Plate supplied with the unit.
- ② Fix the Wall Mounting Plate to the wall using screws. It is important to ensure that the Wall Mounting Plate is level with the floor.
- ③ Hang the wall plate of the unit on the Wall Mounting Plate.

As shown in the diagram.



2. When the unit is mounted on the wall, the top fixing holes need to be installed in place at the same time to fix the unit when it is hung on the wall to prevent the unit from moving upwards for other reasons and thus falling off.
3. The water inlet and outlet of the indoor unit is recommended to be pre-installed with a ball valve, not a gate valve, in order to facilitate removability for later maintenance.
4. The auxiliary electric heating of the indoor unit is equipped with a high temperature protection function, which automatically cuts off the electric heating circuit when high temperatures are

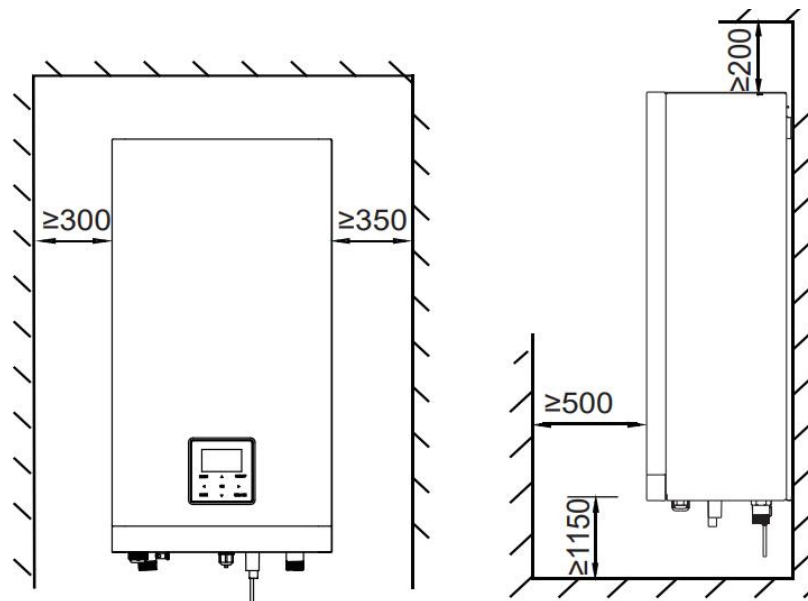
detected. This circuit breaker needs to be removed from the indoor unit panel and then manually reset the circuit breaker after it has been put into protection.

Please ensure that the water pump is working properly during operation to avoid overloading of the electric heating due to poor water circuit.

5. When the unit is wall mounted, please ensure the level of the unit to prevent the unit from tilting and causing other problems

2.3.1.2. Installation space

The distance requirements for indoor installation of indoor units are shown in the diagram.

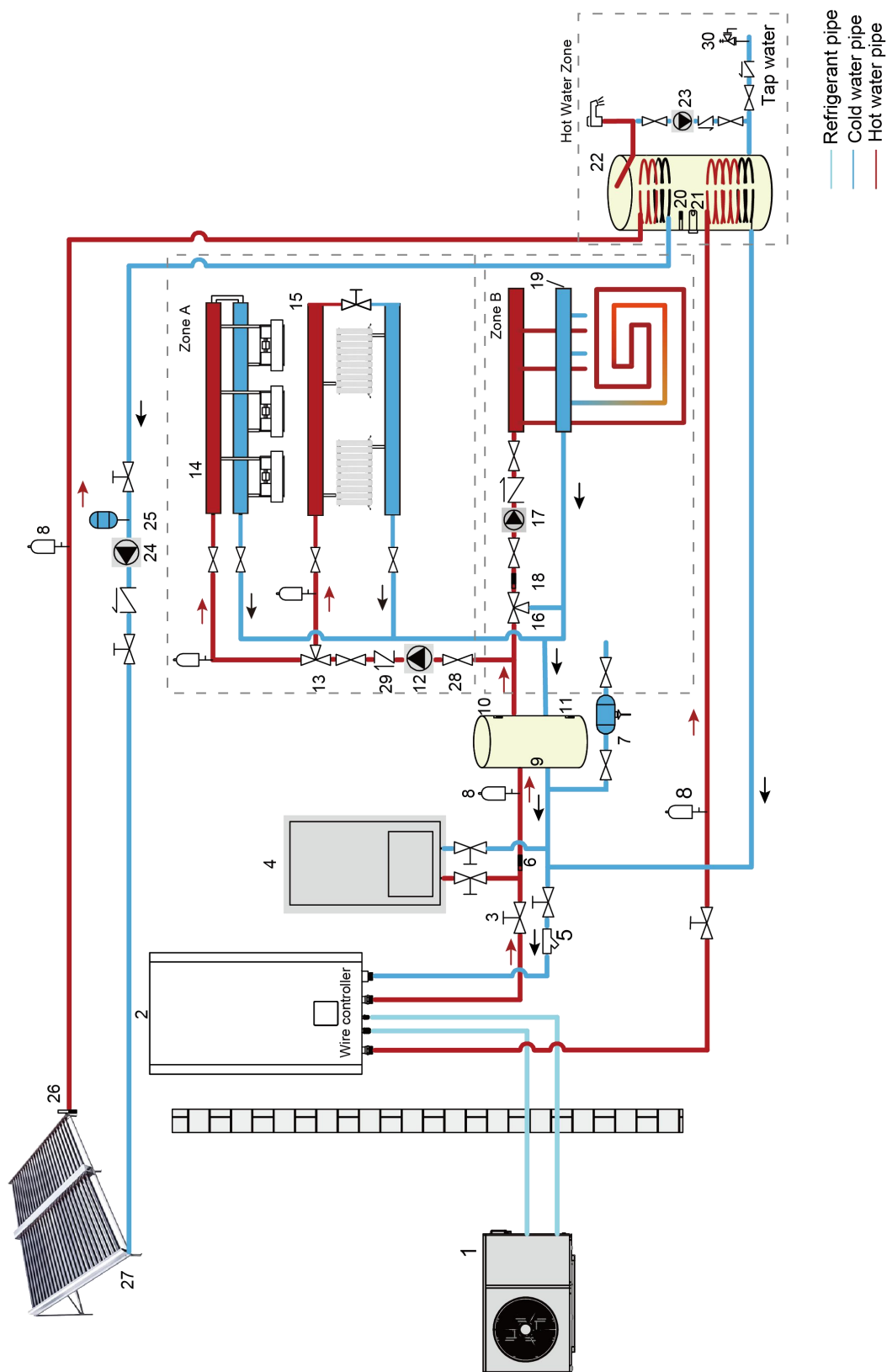


2.3.2. Application

The application examples given below are for illustration only.

Application 1

The auxiliary heat source can be installed either on the hot water side or on the heating side, depending on the actual usage requirements of the user.

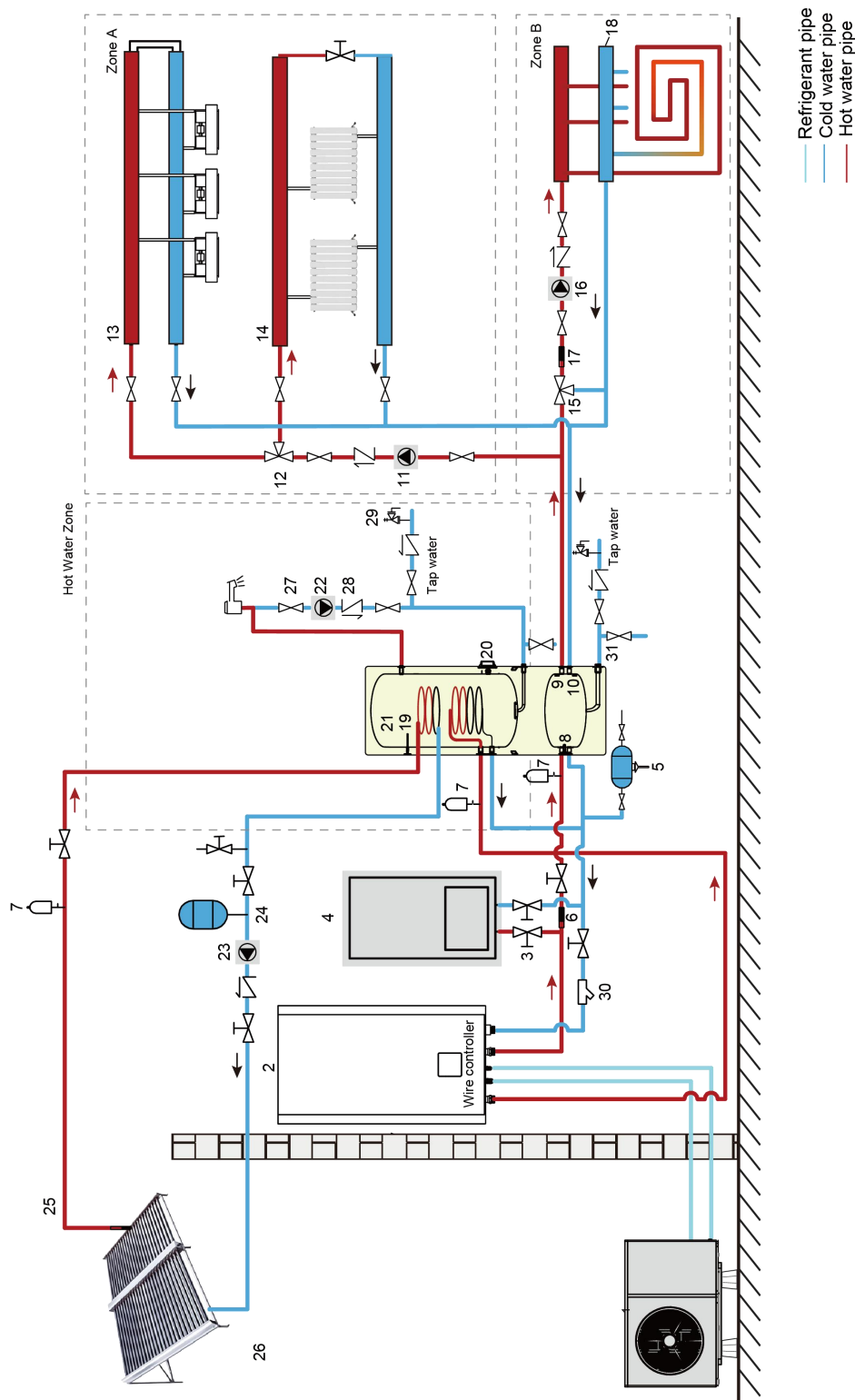


Heating&Cooling+Hot water Installation Instructions Schematic

NO.	Meaning	NO.	Meaning
1	Outdoor Unit	16	3#Solenoid 3-way Valve (Field supply)
2	Indoor Unit	17	Mixing Water Pump (Field supply)
3	Manual Ball Valve (Field supply)	18	Floor Heating Inlet Water Temp. Sensor (Accessories)
4	Auxiliary Heat Source (Field supply)	19	Floor Heating Loop (Field supply)
5	Y-type Filter (Field supply)	20	Hot Water Tank Temp. Sensor (Accessories)
6	Total System Outlet Water Temp. Sensor (Accessories)	21	Hot Water Tank Electric Heater (Optional)
7	Water Refill Valve (Field supply)	22	Hot Water Tank (Field supply)
8	Automatic Exhaust Valve (Field supply)	23	Lower Return Water Pump (Field supply)
9	Buffer Tank (Field supply)	24	Solar Pump (Field supply)
10	Buffer Tank Upper Temp. Sensor (Optional)	25	Expansion Tank (Field supply)
11	Buffer Tank Lower Temp. Sensor (Optional)	26	Solar Water Temp. Sensor(Accessories)
12	External Circulation Pump (Field supply)	27	Solar Heat Exchanger (Field supply)
13	2#Solenoid 3-way Valve (Field supply)	28	Shut-off Valve(Field supply)
14	Fan Coils(Field supply)	29	One-way Valve(Field supply)
15	Radiator (Field supply)	30	Safety Valve(Field supply)

Application 2

The auxiliary heat source can be installed either on the hot water side or on the heating side, depending on the actual usage requirements of the user.



Heating&Cooling+Hot water Installation Instructions Schematic

NO.	Meaning	NO.	Meaning
1	Outdoor Unit	16	Mixing Water Pump (Field supply)
2	Indoor Unit	17	Floor Heating Inlet Water Temp. Sensor (Accessories)
3	Manual Ball Valve (Field supply)	18	Floor Heating Loop (Field supply)
4	Auxiliary Heat Source (Field supply)	19	Hot Water Tank Temp. Sensor (Accessories)
5	Water Refill Valve (Field supply)	20	Hot Water Tank Electric Heater (Optional)
6	Total System Outlet Water Temp. Sensor (Accessories)	21	Hot Water Tank (Field supply)
7	Automatic Exhaust Valve (Field supply)	22	Lower Return Water Pump (Field supply)
8	Buffer Tank (Field supply)	23	Solar Pump (Field supply)
9	Buffer Tank Upper Temp. Sensor (Optional)	24	Expansion Tank (Field supply)
10	Buffer Tank Lower Temp. Sensor (Optional)	25	Solar Water Temp. Sensor (Accessories)
11	External Circulation Pump (Field supply)	26	Solar Heat Exchanger (Field supply)
12	2#Solenoid 3-way Valve (Field supply)	27	Shut-off Valve (Field supply)
13	Fan Coils(Field supply)	28	One-way Valve (Field supply)
14	Radiator (Field supply)	29	Safety Valve (Field supply)
15	3#Solenoid 3-way Valve (Field supply)	30	Y-type Filter (Field supply)
		31	Drain Valve(Field supply)

2.4. FIELD WIRING

2.4.1. Before Wiring

Precautions before installation

- Secure the wires so that they do not come into contact with the pipes (especially the high pressure side)
- Secure the wires with cable ties as shown in the diagram so that they do not touch the pipe, especially the high pressure side.
- Ensure that no external pressure is applied to the terminal connector.
- When installing the earth fault circuit breaker, ensure that it is compatible with the inverter (resistant to high frequency air noise) to avoid unnecessary opening of the earth fault circuit breaker.

2.4.2. Electrical Connection

1. Use the H07RN-F power cord with all wires connected to the high voltage side except for the thermistor cable and the user connector cable.

The equipment must be earthed.

2. All high-voltage external loads must be earthed if they are metallic or earthed outlets.

3. All external load currents must be less than 0.2 A. If individual load currents are greater than 0.2 A, the load must be controlled via an AC contactor.

Terminals "AHS1, AHS2", "DFR1, DFR2" and "ERR1, ERR2" provide only switching signals.

4. The terminal block of "DI2, G" and "SG, EVU, G" terminal receives the switch signal.

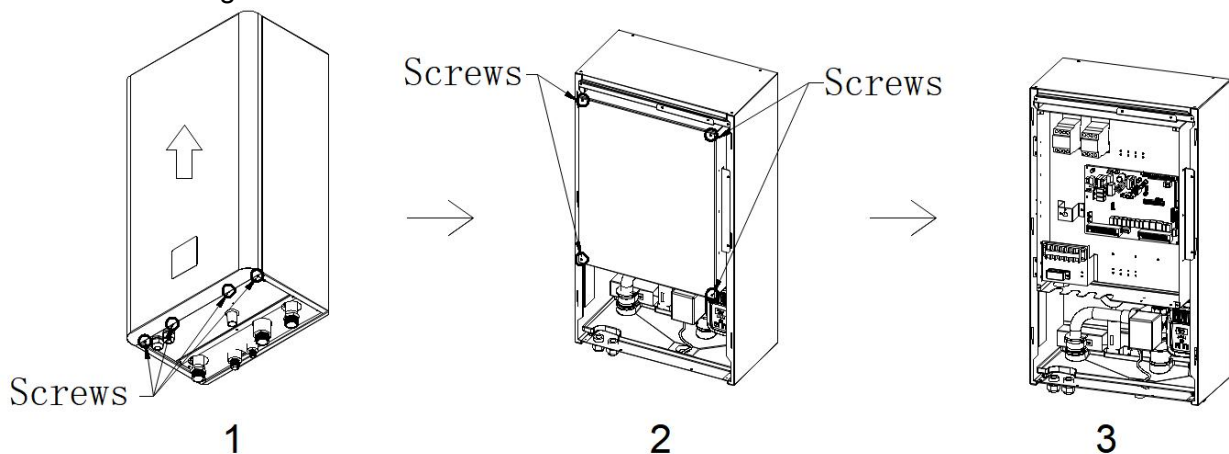
2.4.2.1. Customer installation wiring section

① Open the the customer wiring section

1.Front panel removal: Remove the 4 screws at the bottom of the indoor unit, then push the front panel upwards.

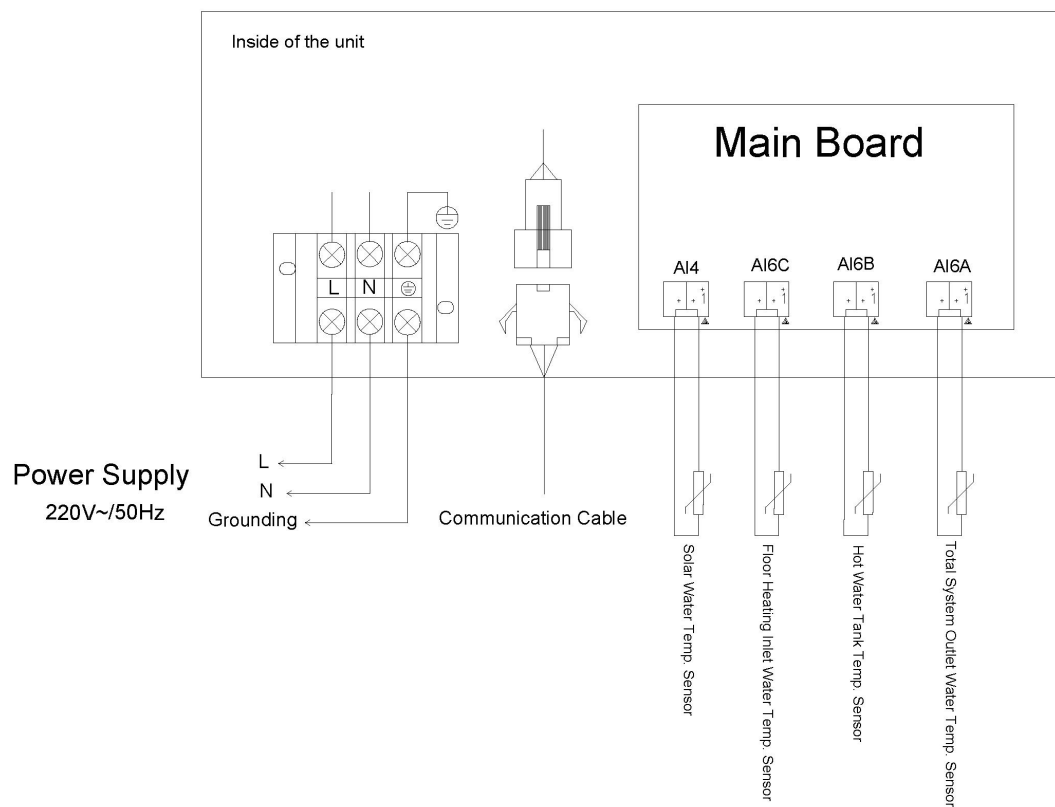
2.Removal of the customer wiring section cover: After removing the front panel, remove the 4 screws on the cover to take it off.

3.Customer wiring section

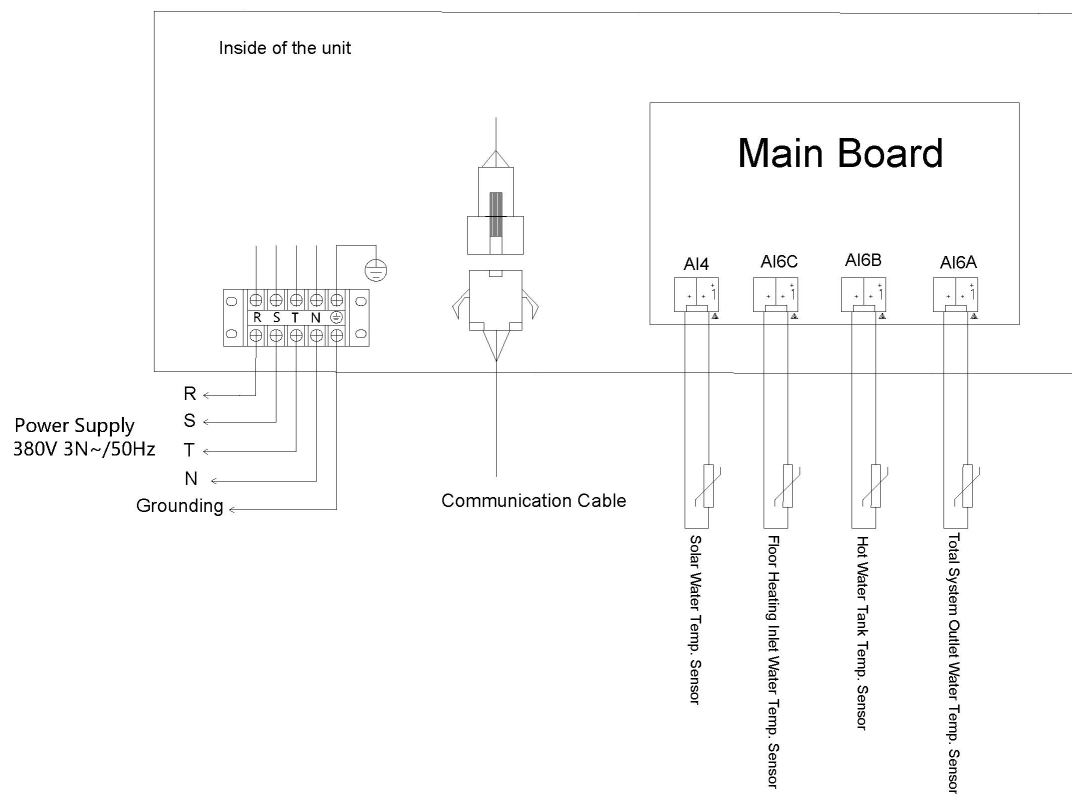


② Wiring Section

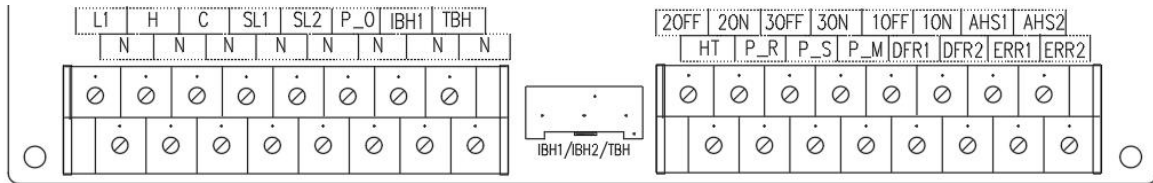
220V~/50Hz:



380V~/3N~/50Hz:



2.4.2.2. Assembly connection



Print	Connect to	Print	Connect to
20FF	2# Three-Way Valve (Heating Direction)	AHS1	External Heat Source
20N	2# Three-Way Valve (Cooling Direction)	AHS2	
30FF	3# Three-Way Valve (Open Circulation)	DFR1	Defrost Indication
30N	3# Three-Way Valve (Close Circulation)	DFR2	
10FF	1# Three-Way Valve (DHW Direction)	ERR1	Fault Indication
10N	1# Three-Way Valve (H&C Direction)	ERR2	
HT	Anti-freeze Electric Heater Belts	SL1	Solar Signal
P_R	Lower Return Water Pump	SL2	
P_S	Solar Pump	DI2	Display Switch
P_M	Mixing Water Pump	G	
H-L1	Thermostat (H Signal)	SG-G	Smart Grid (SG)
C-L1	Thermostat (C Signal)	EVU-G	Smart Grid (EVU)
P_O	Outside Circulator Pump	TBH	Electric Heater for Water Tank

Function instructions:

1. Output.

Control method.

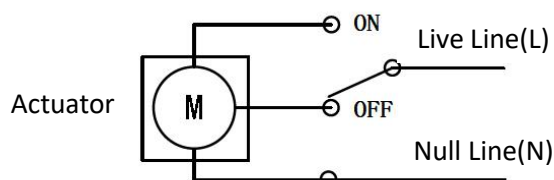
Type 1: Dry-type connector with no voltage.

Type 2: Socket provides signal for 220V. If the load current is $<0.2A$, the load can be connected directly to the socket.

If the load current $\geq 0.2A$, an AC contactor needs to be connected to the load.

1.For three-way valve

When installing the water circuit, please use a three-wire, two-control 3-way valve, the wiring schematic for the 3-way valve is shown in the following diagram.



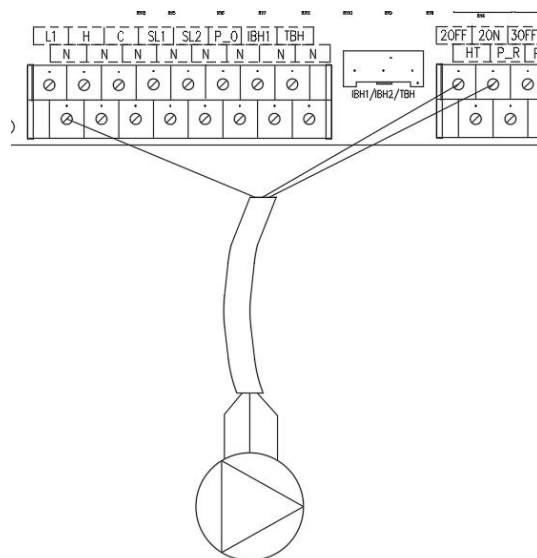
Three-way valve wiring specifications are shown in the following diagram.

Power Supply	220-240VAC
Max. Current	0.2A
Wire Specifications	20AWG/0.75mm ²
Control Method	Type 2

2# Solenoid 3-way valve wiring

2# solenoid three-way valve is used to switch the air-conditioning heating and cooling water circuit, and the control line of the three-way valve needs to be connected to the corresponding point on the terminal block of the unit during construction and installation. When the air conditioner is running, there is 220V output at the 2OFF connection point and no output at the 2ON point; when the unit is running, there is 220V output at the 2ON point and no output at the 2OFF point. When wiring, you need to confirm the various water connections of the solenoid 3-way valve to

ensure that the 3-way valve is switched to the correct water circuit when the unit is in operation.

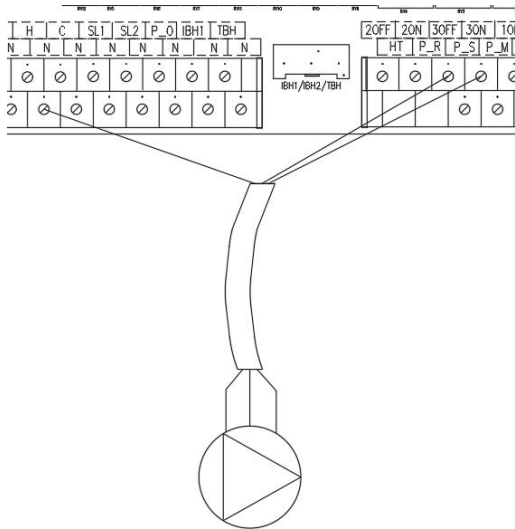


2#Electromagnetic 3-way valve

3# Solenoid 3-way valve wiring

The 3# solenoid 3-way valve is used to control whether the water in the balance tank enters the underfloor heating water circuit in Zone B. When the floor heating water temperature is too high, the three-way valve switches direction, at this time the floor heating water circuit circulates in the floor heating pipe, the hot water in the balance tank does not enter the floor heating, the 3ON point keeps 220V output, the 3OFF point has no output; when the floor heating water temperature is too low, the three-way valve switches direction and the hot water in the balance tank enters the B area floor heating, at this time the 3OFF point keeps 220V output, the 3ON point has no output.

When wiring, you need to confirm the individual water connections of the solenoid 3-way valve to ensure that the 3-way valve switches to the correct water circuit when the unit is in operation.

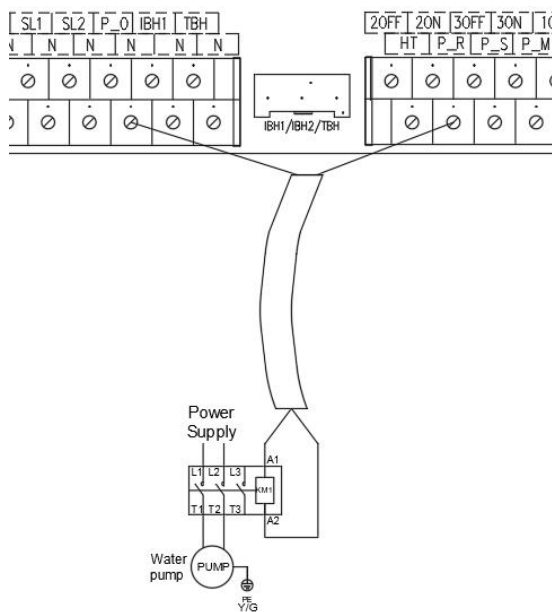


3#Electromagnetic 3-way valve

Power Supply	220-240VAC
Max. Current	0.2A
Wire Specifications	20AWG/0.75mm ²
Control Method	Type 2

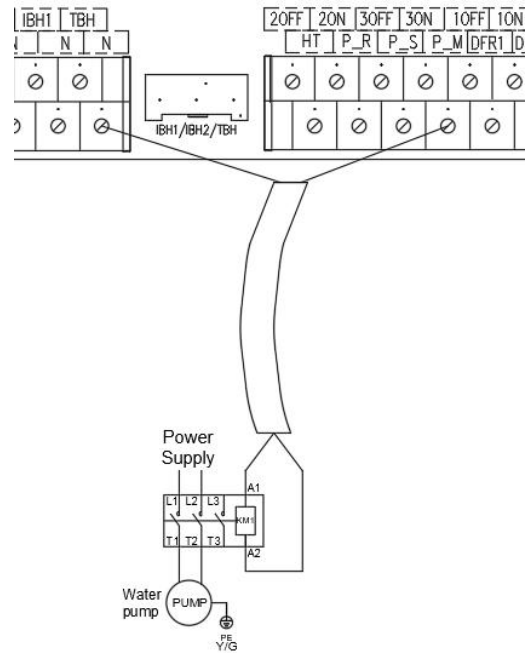
2.For water pump

Lower return water pump



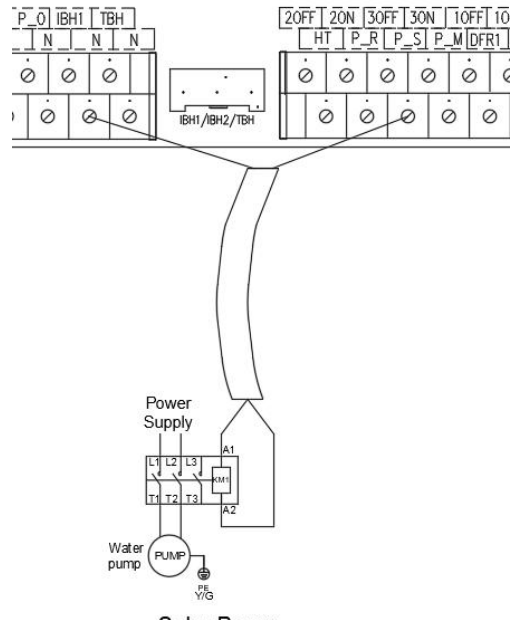
Lower Return Water Pump

Mixing water pump



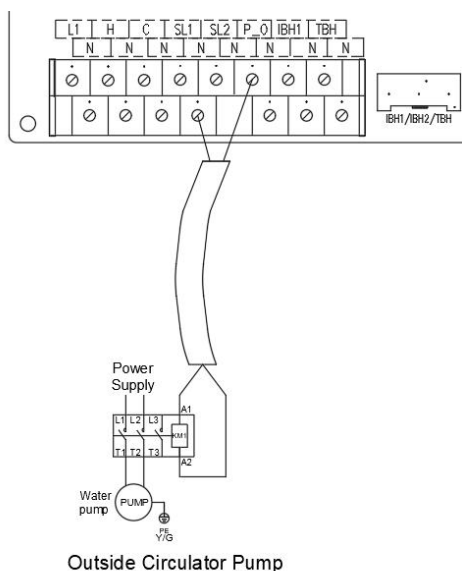
Mixing Water Pump

Solar pump



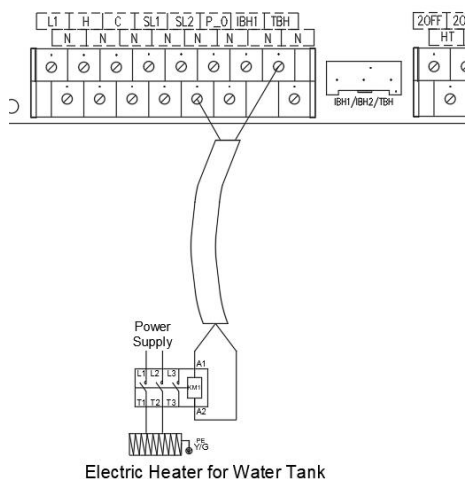
Solar Pump

Outside circulator pump



Power Supply	220-240VAC
Max. Current	0.2A
Wire Specifications	20AWG/0.75mm ²
Control Method	Type 2

3.For electric heater



Power Supply	220-240VAC
Max. Current	0.2A
Wire Specifications	20AWG/0.75mm ²
Control Method	Type 2

4.For thermostat

The "Power Supply In" provides the voltage for the "Thermostat" and does not supply power directly to the motherboard interface. Port "L1" supplies 220V to the RT connector. Outlet "L1" is connected to the single-phase power supply from the unit's mains outlet L.

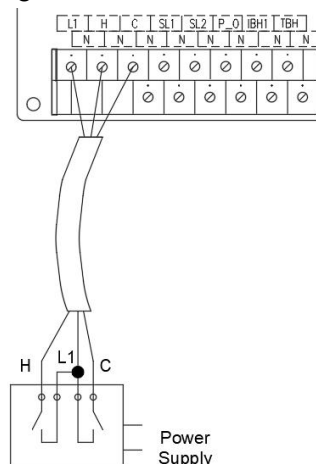
There are three ways of connecting the thermostat cable (as described in the diagram above), depending on the application.

Method 1: When "Thermostat Control" is set to "Single Zone Mode Switching".

(a) When signal C is closed, zone A is switched on for cooling operation.

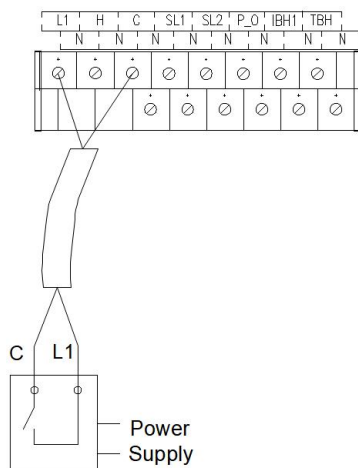
(a) When the C signal is off and the H signal is closed, zone A is switched on for heating operation.

(a) Zone A is closed when both the C signal and the H signal are disconnected.



Method 2, When "Thermostat Control" is set to "Single Zone Switch".

- (a) Zone A is opened when signal C is closed.
- (a) Zone A is closed when the C signal is disconnected.

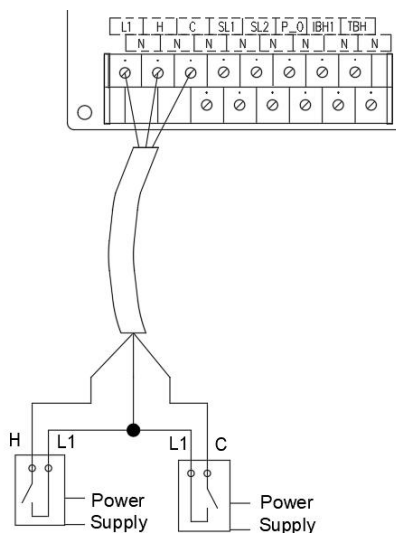


Method 3: When "Thermostat Control" is set to "Dual Zone Switching".

Zone A opens when signal C is closed; zone A closes when signal C is broken.

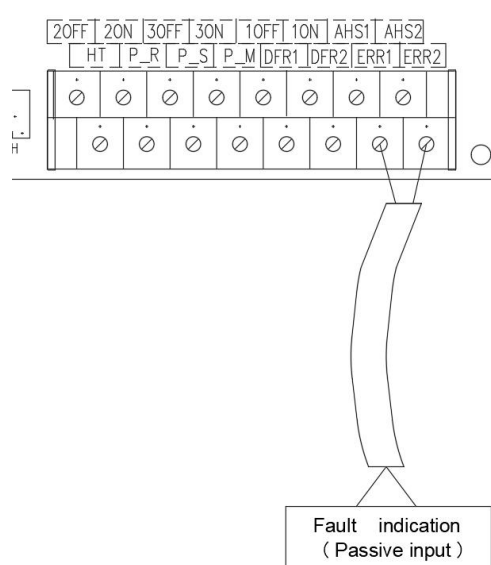
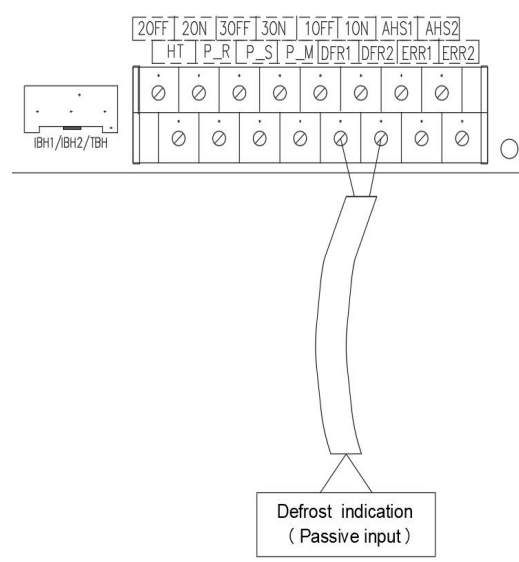
Zone B opens when the H signal is closed; zone B closes when the H signal is broken.

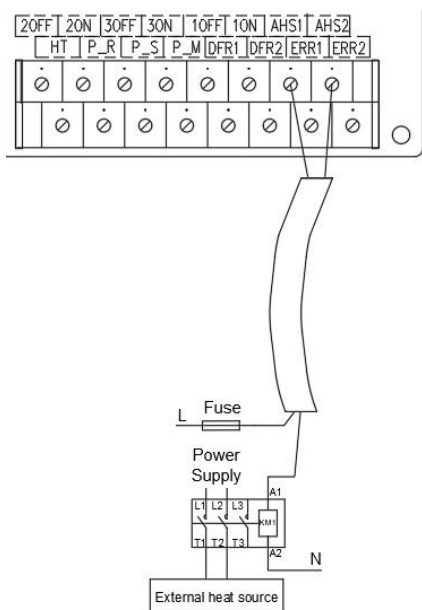
Note: Zone B is for heating operation only



Power Supply	220-240VAC
Max. Current	0.2A
Wire Specifications	20AWG/0.75mm ²

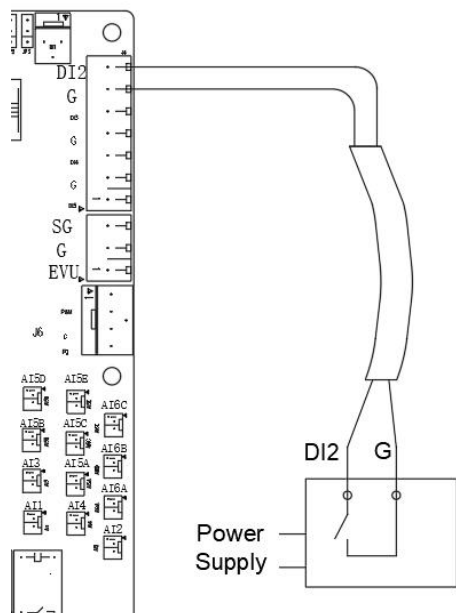
5.For signal output and external heat source





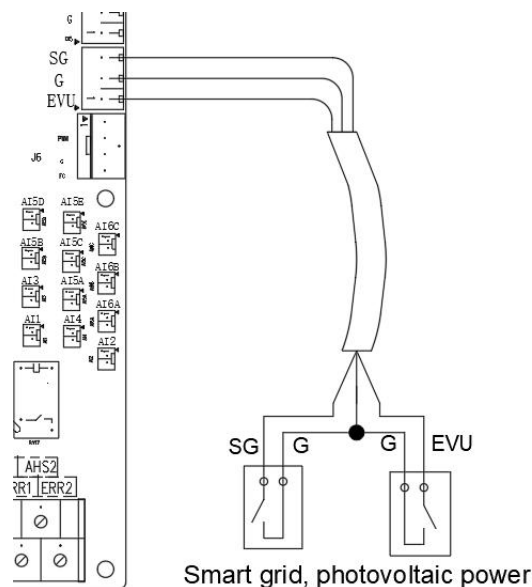
Power Supply	220-240VAC
Max. Current	0.2A
Wire Specifications	20AWG/0.75mm ²
Control Method	Type 1

6. For wire controller switch



7. For smart grid

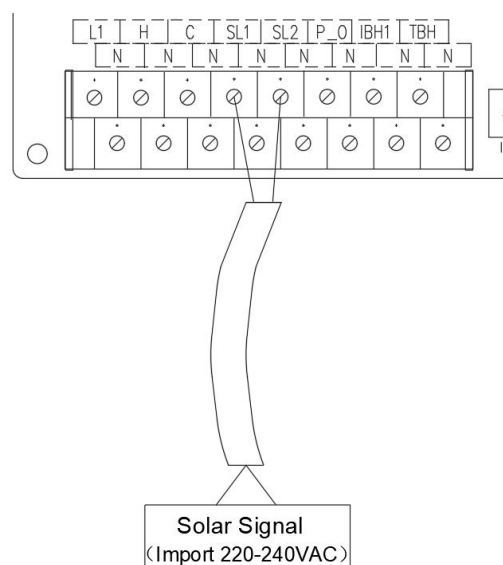
The smart grid wiring is shown in the diagram below, SG is the smart grid signal and EVU is the PV signal



8. For solar signal

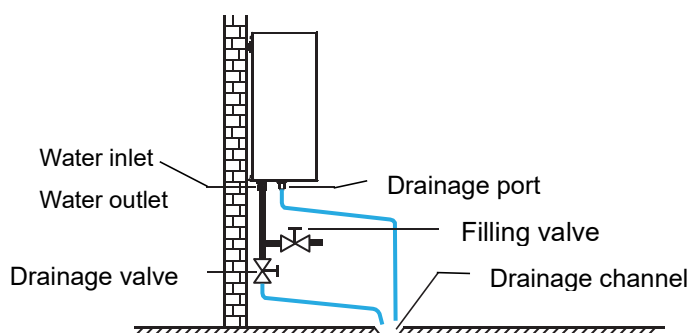
(220V power input, L and N)

When the [Solar Temperature Sensor] is set to "Disable", you need to access the solar signal to control the solar water pump start and stop, the wiring is shown in the diagram below



2.5. WINTERIZATION

If no glycol is in the system, in case of a power supply failure or pump operating failure, drain all the water system if the water temperature is below 0°C in the cold winter(as suggested in the figure below).



When water is at standstill inside the system, freezing is very likely to happen and damage the system in the process.

3. UNIT PARAMETERS

Model	NE-F	60HCR4INEMIO	90HCR4INEMIO	130HCR4INEMIO
[Space Heating] Ambient Temp.(DB/WB): 7°C/6°C, Water Temp. (Inlet/Outlet): 30°C/35°C.				
Max Heating Capacity	kW	1.68~5.88	4.52~9.02	4.52~12.60
Power Input	kW	0.27~1.27	0.93~1.93	0.93~2.79
COP	/	6.22~4.63	4.84~4.67	5.84~4.51
[Space Heating] Ambient Temp. (DB/WB): 7°C/6°C, Water Temp. (Inlet/Outlet): 50°C/55°C.				
Max Heating Capacity	kW	1.09~5.13	3.69~8.93	3.73~12.23
Power Input	kW	0.25~1.97	1.58~3.27	1.67~4.53
COP	/	4.36~2.60	2.34~2.73	2.23~2.70
[Space Cooling] Ambient Temp. (DB/WB): 35°C / -, Water Temp. (Inlet/Outlet): 12°C/7°C.				
Max Cooling Capacity	kW	0.94~4.71	2.80~7.60	3.25~9.76
Power Input	kW	0.20~1.71	1.16~2.33	0.91~3.93
EER	/	4.70~2.75	2.42~3.26	3.56~2.49
[Hot Water] Ambient Temp. (DB/WB): 20°C/15°C, Water Temp. from 15°C to 55°C.				
Max Heating Capacity	kW	7.10	11.04	13.50
Power Input	kW	1.68	2.43	3.06
COP	/	4.23	4.33	4.20
Indoor Unit Info				
Electric Heater	kW	3	3	3
Expansion Tank	L	8	8	8
Display	/	4-inch Colored Touch Screen		
Refrigerant outlet	mm	Φ15.88		
Refrigerant inlet	mm	Φ6.35	Φ9.52	

Water Pipe Connection	inch	G1"		
Rated Water Flow (m³/h)	m³/h	1.03	1.55	2.24
Water Pressure Drop (kPa)	kPa	17	20	22
Sound Pressure Level dB(A) at 1m	dB(A)	31	34	35
Sound Power Level dB(A) at 1m	dB(A)	45	48	49
Net Weight	kg	42	45	45
Net Dimensions	mm	786x450x285		
Shipping Dimensions (L×W×H) (mm)	mm	1024x550x370		
Water Proof Class	/	IPX1		
Outdoor Unit Info				
Compressor Brand	/	Panasonic	Mitsubishi	Mitsubishi
Sound Pressure Level dB(A) at 1m	dB(A)	49	55	55
Sound Power Level dB(A) at 1m	dB(A)	65	70	69
Net Weight	kg	65	90	90
Net Dimensions (L×W×H)	mm	960×425×710	977×400×928	
Shipping Dimensions (L×W×H) (mm)	mm	1030×475×850	1153×490×1090	
Water Proof Class	/	IPX4		
General Info				
Power Supply	V/Ph/ Hz	220-240V~/50Hz		
ErP Level (35°C)	/	A+++		
ErP Level (55°C)	/	A++		
Max. Power Input	kW	5.1(2.1+3)	7(4+3)	8(5+3)
Max. Running Current	A	23.2(9.5+13.7)	31.9(18.2+13.7)	36.4(22.7+13.7)
Refrigerant	/	R32		
Operation Range	°C	-25~43		
Max. Outlet Water Temp	°C	60		
Water Proof Class	/	IPX4		
Electricity Shock Proof	/	I		

Model	NE-F	160HCR4INEMIO	90HCR4TINEMIO	130HCR4TINEMIO
[Space Heating] Ambient Temp.(DB/WB): 7°C/6°C, Water Temp. (Inlet/Outlet): 30°C/35°C.				
Max Heating Capacity	kW	4.67~15.57	4.52~9.02	4.52~12.60
Power Input	kW	0.79~3.56	0.93~1.93	0.93~2.79
COP	/	5.91~4.37	4.84~4.67	5.84~4.51
[Space Heating] Ambient Temp. (DB/WB): 7°C/6°C, Water Temp. (Inlet/Outlet): 50°C/55°C.				
Max Heating Capacity	kW	2.74~13.70	3.69~8.93	3.73~12.23
Power Input	kW	0.62~5.18	1.58~3.27	1.67~4.53
COP	/	4.42~2.64	2.34~2.73	2.23~2.70
[Space Cooling] Ambient Temp. (DB/WB): 35°C / -, Water Temp. (Inlet/Outlet): 12°C/7°C.				
Max Cooling Capacity	kW	2.55~12.77	2.80~7.60	3.25~9.76
Power Input	kW	0.57~4.87	1.16~2.33	0.91~3.93
EER	/	4.47~2.62	2.42~3.26	3.56~2.49
[Hot Water] Ambient Temp. (DB/WB): 20°C/15°C, Water Temp. from 15°C to 55°C.				
Max Heating Capacity	kW	17.12	11.04	13.50
Power Input	kW	3.83	2.43	3.06
COP	/	4.47	4.33	4.20
Indoor Unit Info				
Electric Heater	kW	3	3/6/9(optional)	3/6/9(optional)
Expansion Tank	L	8	8	8
Display	/	4-inch Colored Touch Screen		
Refrigerant outlet	mm	Φ15.88		
Refrigerant inlet	mm	Φ9.52		
Water Pipe Connection	inch	G1"		
Rated Water Flow (m³/h)	m³/h	2.75	1.55	2.24
Water Pressure Drop (kPa)	kPa	24	20	22
Sound Pressure Level dB(A) at 1m	dB(A)	34	34	32
Sound Power level dB(A) at 1m	dB(A)	48	48	46
Net Weight	kg	48	45	45
Net Dimensions	mm	786x450x285		
Shipping Dimensions (L×W×H) (mm)	mm	1024x550x370		
Water Proof Class	/	IPX1		
Outdoor Unit Info				
Compressor Brand	/	Mitsubishi	Mitsubishi	Mitsubishi
Sound Pressure Level dB(A) at 1m	dB(A)	59	52	56
Sound Power level dB(A) at 1m	dB(A)	75	66	70
Net Weight	kg	110	102	102

Net Dimensions (L×W×H)	mm	1005×395×1360	977×400×928	
Shipping Dimensions (L×W×H) (mm)	mm	1153×490×1520	1153×490×1090	
Water Proof Class	/	IPX4		
General Info				
Power Supply	V/Ph/ Hz	220-240V~/50Hz	380-415V/3N~/ 50Hz	
ErP Level (35°C)	/	A+++		
ErP Level (55°C)	/	A++		
Max. Power Input	kW	8.8(5.8+3)	7(4+3) 10(4+6) 13(4+9)	8(5+3) 11(5+6) 14(5+9)
Max. Running Current	A	40.1(26.4+13.7)	19.5(5.8+13.7) 14.9(5.8+9.1) 19.5(5.8+13.7)	21.5(7.8+13.7) 16.9(7.8+9.1) 21.5(7.8+13.7)
Refrigerant	/	R32		
Operation Range	°C	-25~43		
Max. Outlet Water Temp	°C	60		
Water Proof Class	/	IPX4		
Electricity Shock Proof	/	I		

Model	NE-F	160HCR4TINEMIO	185HCR4ITNEMIO	200HCR4TINEMIO
[Space Heating] Ambient Temp.(DB/WB): 7°C/6°C, Water Temp. (Inlet/Outlet): 30°C/35°C.				
Max Heating Capacity	kW	4.67~15.57	5.97~17.78	6.17~19.83
Power Input	kW	0.79~3.56	1.00~4.02	1.05~4.47
COP	/	5.91~4.37	5.97~4.42	5.88~4.44
[Space Heating] Ambient Temp. (DB/WB): 7°C/6°C, Water Temp. (Inlet/Outlet): 50°C/55°C.				
Max Heating Capacity	kW	2.74~13.70	3.34~15.91	3.72~17.16
Power Input	kW	0.62~5.18	0.76~6.14	0.86~6.83
COP	/	4.42~2.64	4.39~2.59	4.33~2.51
[Space Cooling] Ambient Temp. (DB/WB): 35°C / -, Water Temp. (Inlet/Outlet): 12°C/7°C.				
Max Cooling Capacity	kW	2.26~12.45	3.03~14.68	3.28~16.80
Power Input	kW	0.56~4.95	0.69~5.56	0.76~6.44
EER	/	4.04~2.52	4.39~2.64	4.32~2.61
[Hot Water] Ambient Temp. (DB/WB): 20°C/15°C, Water Temp. from 15°C to 55°C.				
Max Heating Capacity	kW	17.12	21.62	23.25
Power Input	kW	3.83	5.00	5.48
COP	/	4.47	4.32	4.24
Indoor Unit Info				
Electric Heater	kW	3/6/9(optional)	3/6/9(optional)	3/6/9(optional)
Expansion Tank	L	8	8	8

Display	/	4-inch Colored Touch Screen		
Refrigerant outlet	mm	Φ15.88		
Refrigerant inlet	mm	Φ9.52		
Water Pipe Connection	inch	G1"		
Rated Water Flow (m³/h)	m³/h	2.75	3.18	3.44
Water Pressure Drop (kPa)	kPa	24	26	28
Sound Pressure Level dB(A) at 1m	dB(A)	34	45	45
Sound Power Level dB(A) at 1m	dB(A)	48	59	59
Net Weight	kg	48	48	48
Net Dimensions	mm	786x450x285		
Shipping Dimensions (L×W×H) (mm)	mm	1024x550x370		
Water Proof Class	/	IPX1		
Outdoor Unit Info				
Compressor Brand	/	Mitsubishi	Mitsubishi	Mitsubishi
Sound Pressure Level dB(A) at 1m	dB(A)	59	59	60
Sound power level dB(A) at 1m	dB(A)	75	74	75
Net Weight	kg	122	122	122
Net Dimensions (L×W×H)	mm	1005×395×1360		
Shipping Dimensions (L×W×H) (mm)	mm	1153×490×1520		
Water Proof Class	/	IPX4		
General Info				
Power Supply	V/Ph/ Hz	380-415V/3N~/ 50Hz		
ErP Level (35°C)	/	A+++		
ErP Level (55°C)	/	A++		
Max. Power Input	kW	8.8(5.8+3) 11.8(5.8+6) 14.8(5.8+9)	9.6(6.6+3) 12.6(6.6+6) 15.6(6.6+9)	10.2(7.2+3) 13.2(7.2+6) 16.2(7.2+9)
Max. Running Current	A	23.8(10.1+13.7) 19.2(10.1+9.1) 23.8(10.1+13.7)	25.2(11.5+13.7) 20.6(11.5+9.1) 25.2(11.5+13.7)	26(12.3+13.7) 21.4(12.3+9.1) 26(12.3+13.7)
Refrigerant	/	R32		
Operation Range	°C	-25~43		
Max. Outlet Water Temp	°C	60		
Water Proof Class	/	IPX4		
Electricity Shock Proof	/	I		

