



## Split EVI DC Inverter Series

### Installation Manual



CGK030V2LS



CGK050V2LS、CGK060V2LS

Air to Water Heat Pump  
Heating+Cooling+DHW

Refrigerant: R410A

PC board code:

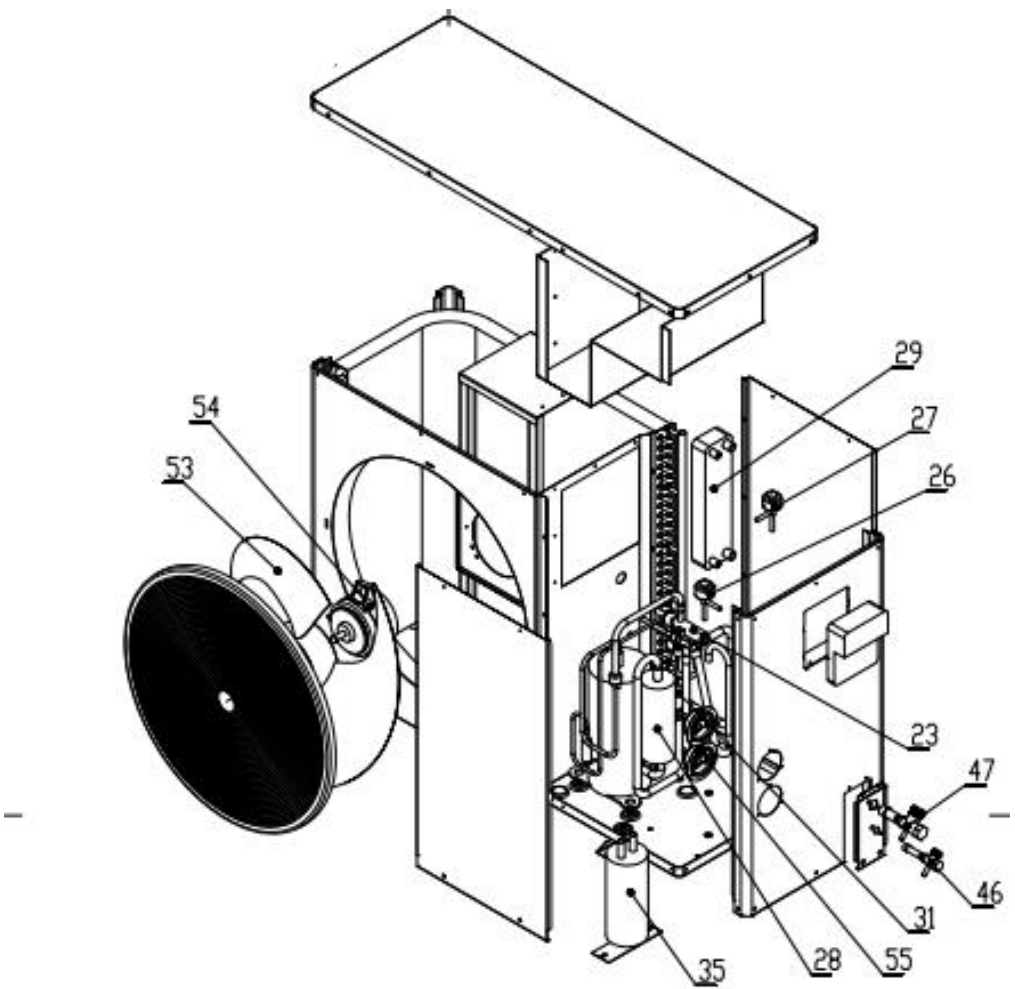
LCD code:

## Safety precaution



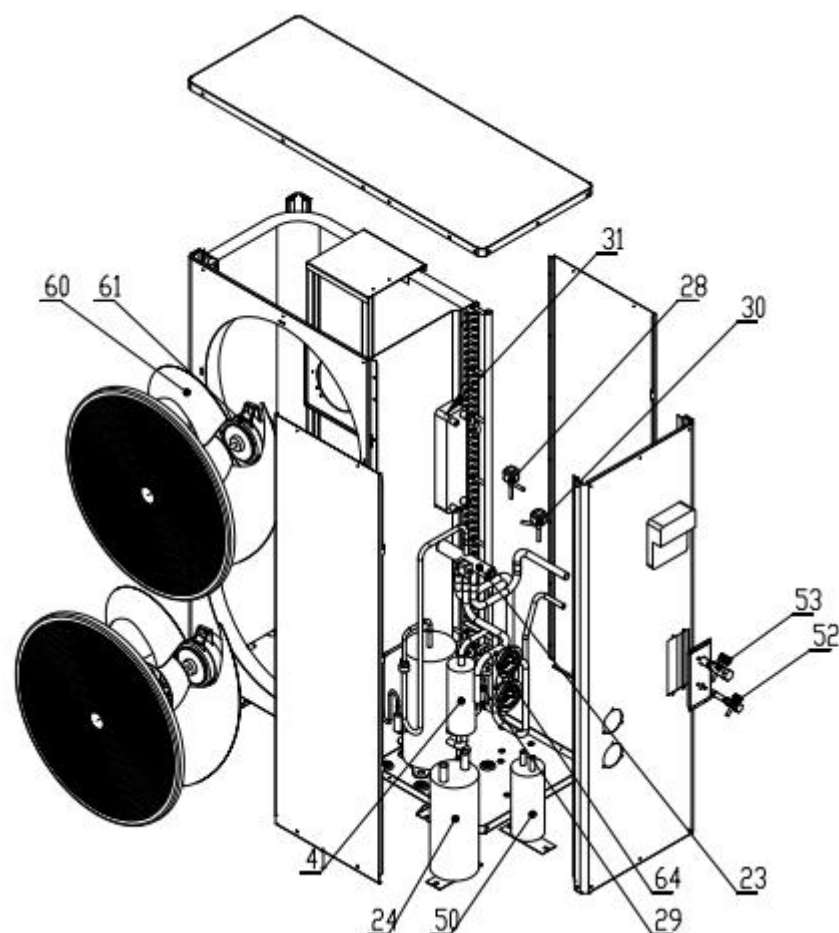
- a. To avoid electrical shock, make sure to disconnect power supply 1 minute or more before operating the electrical part. Even after 1 minute, always measure the voltage at the terminals of main circuit capacitors or electrical parts and, before touching, make sure that those voltages are lower than the safety voltage.
- b. Power supply wire line size must be selected according to this manual. And must be grounded.
- c. Don't put in hands or stick to air outlet grill when fan motor are working.
- d. Don't use wet hand touch wire lines, and don't pull any wire lines of the unit.
- e. Water or any other kind liquid is forbidden to poured into the unit.
- f. Select correct air breaker and leakage protection switch.
- g. Don't touch the fin of source side heat exchanger, it may hurt your finger.
- h. If any wire line is loose or damaged, suggest let qualified person to fix it.

# Important parts in heat pump



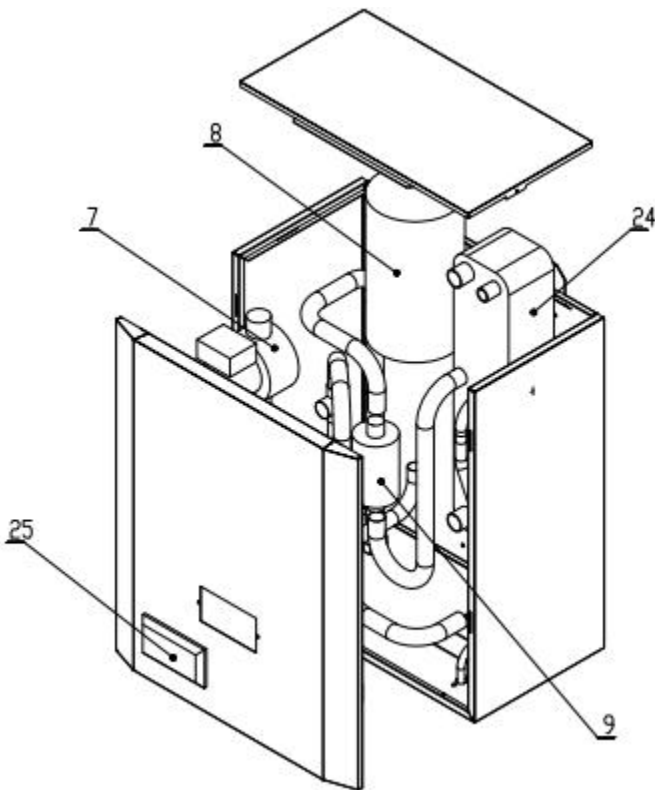
| No. | Component                            |
|-----|--------------------------------------|
| 53  | Fan                                  |
| 54  | DC motor                             |
| 35  | Reservoir                            |
| 28  | Inverter compressor                  |
| 55  | Pressure gauge                       |
| 31  | Filter                               |
| 46  | Small shut-off valve                 |
| 47  | Large shut-off valve                 |
| 23  | Four-way valve                       |
| 26  | Main electronic expansion valve      |
| 27  | Auxiliary electronic expansion valve |
| 29  | Plate heat exchanger economizer      |
| 16  | Back repair board                    |

# Important parts in heat pump



| No. | Component                            |
|-----|--------------------------------------|
| 60  | Fan                                  |
| 61  | DC motor                             |
| 31  | Plate heat exchanger economizer      |
| 28  | Auxiliary electronic expansion valve |
| 30  | Main electronic expansion valve      |
| 53  | Large shut-off valve                 |
| 52  | Small shut-off valve                 |
| 23  | Four-way valve                       |
| 64  | Pressure gauge                       |
| 29  | Filter                               |
| 50  | Reservoir                            |
| 24  | Gas-liquid separator                 |
| 41  | Inverter compressor                  |

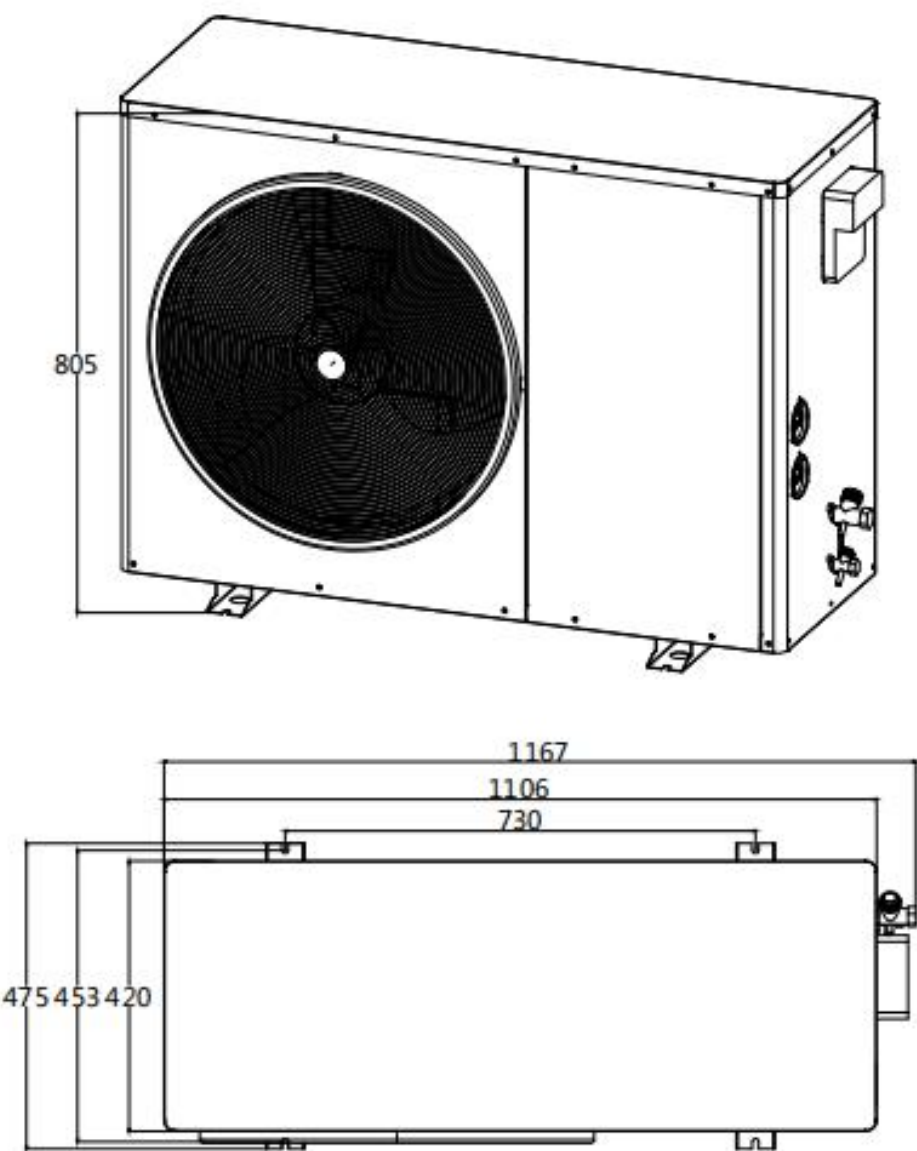
# Important parts in heat pump



| No. | Component            |
|-----|----------------------|
| 25  | Controller           |
| 7   | Inverter pump        |
| 8   | Expension tank       |
| 24  | Plate heat exchanger |
| 9   | Electric heater      |

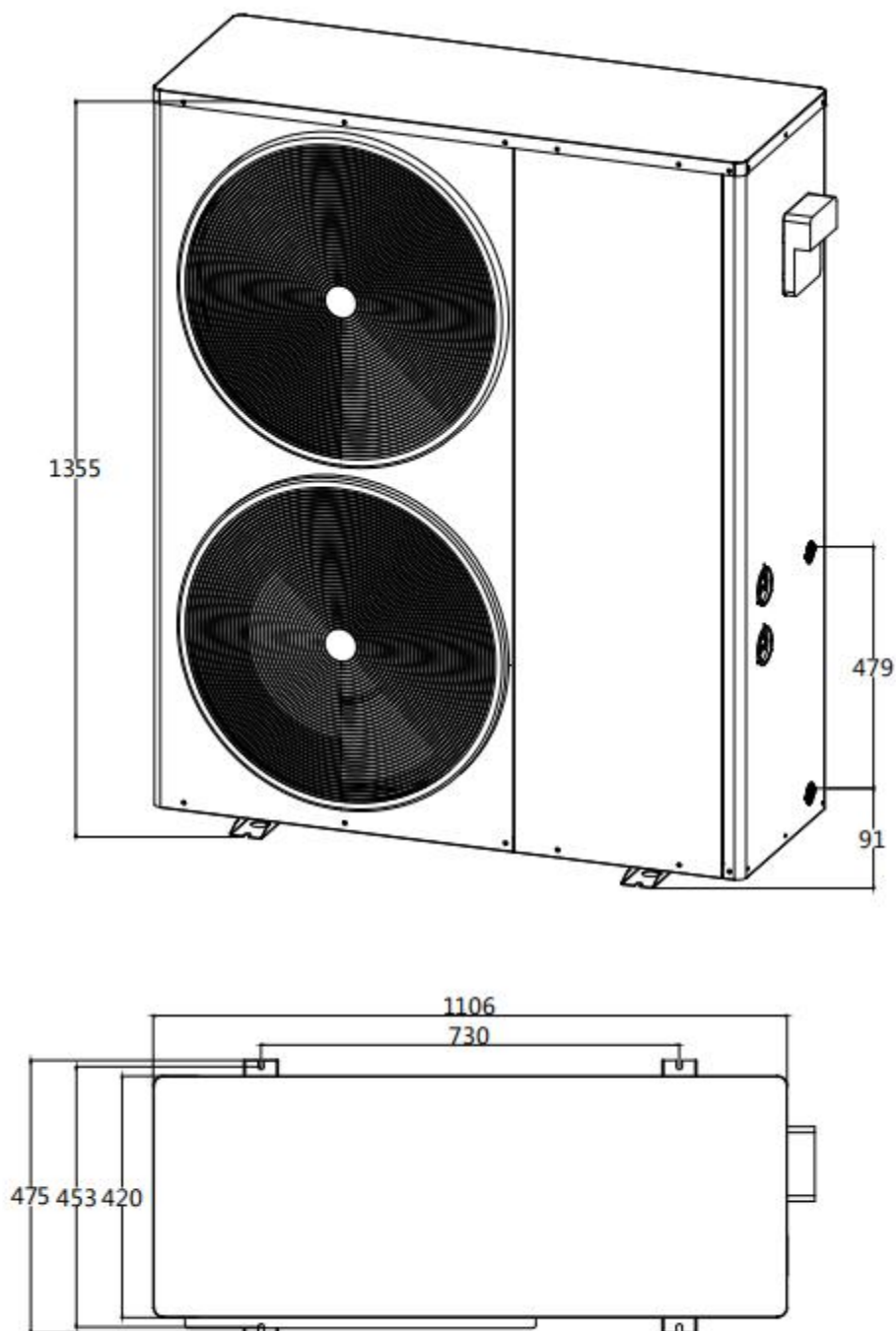
# Heat pump size

CGK030V2LS/O



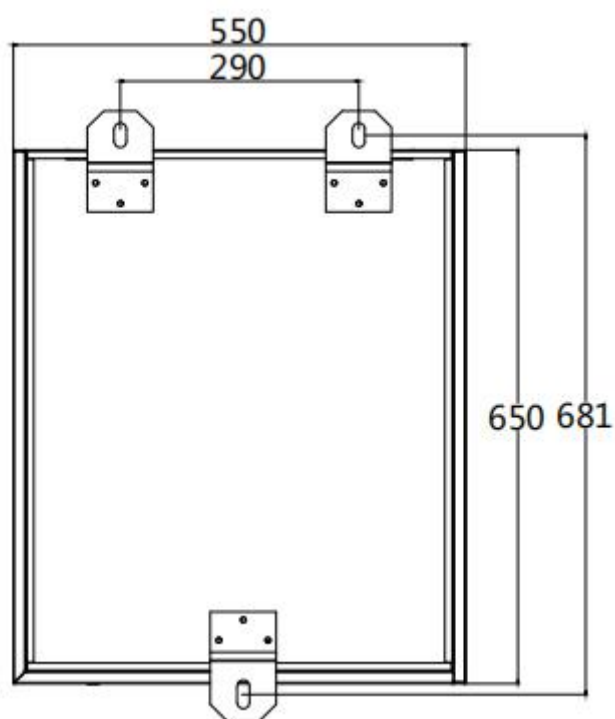
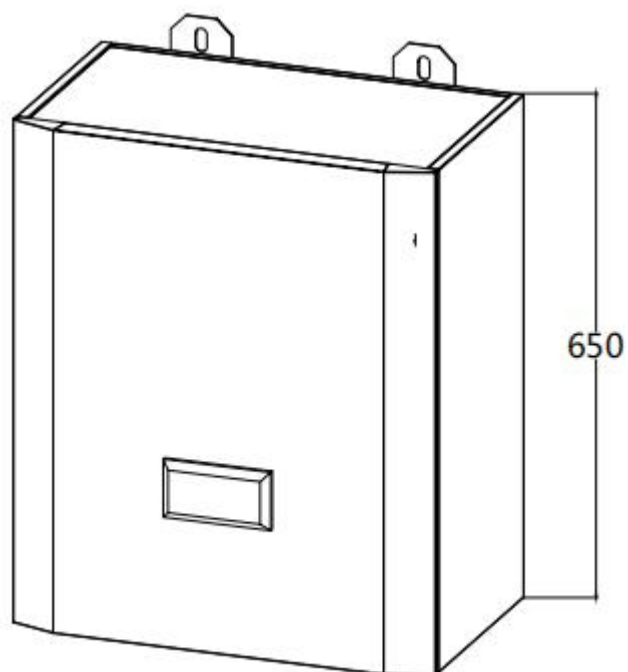
# Heat pump size

CGK050V2LS/O、CGK060V2LS/O



# Heat pump size

Indoor unit



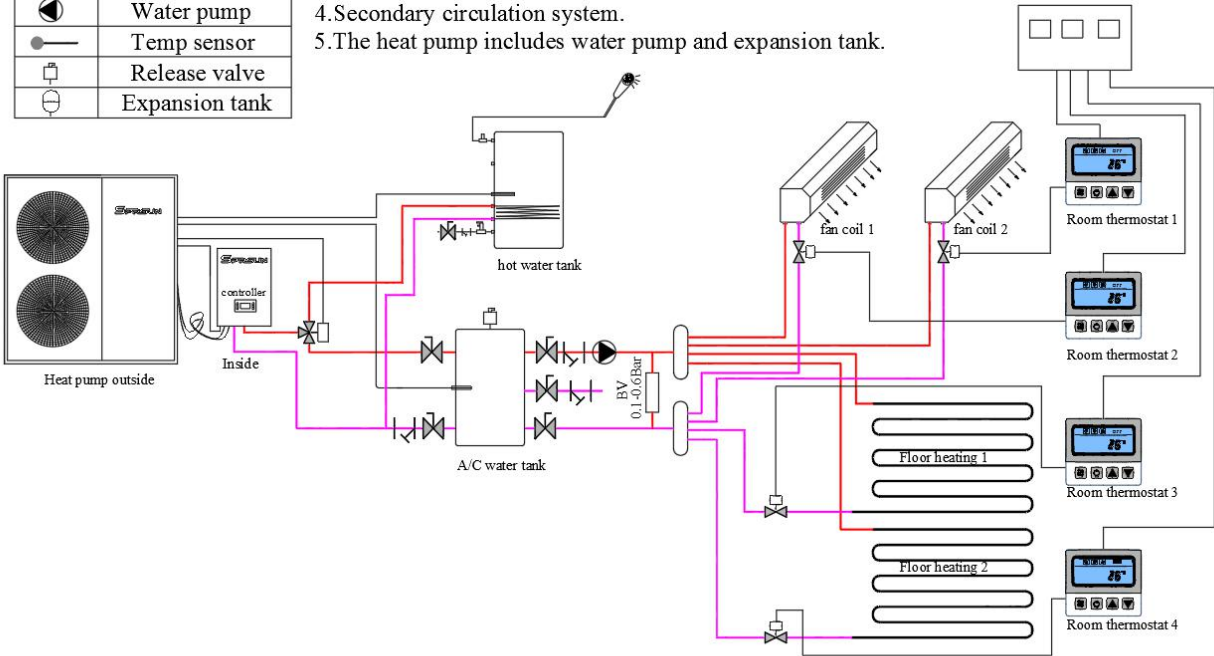


# Installation diagram

## Secondary circulation system

| Symbol                                                                            | Name             |
|-----------------------------------------------------------------------------------|------------------|
|  | 3-way valve      |
|  | 2-way valve      |
|  | Ball valve       |
|  | Non-return valve |
|  | Filter           |
|  | Water pump       |
|  | Temp sensor      |
|  | Release valve    |
|  | Expansion tank   |

- Notice:
1. Pls select the right modes according to your demand then install it according to the installation diagram. If only hot water function required, pls select heating+hot water mode , and then put the hot water sensor into the hot water tank.
  2. Two-way valve and BV valve are optional for installation. Only If you need to control the temperature by different zone, then pls install both.
  3. Fan coil can be controlled by linkage with the secondary circulation pump . Meanwhile, a passive linkage thermostat shall be installed.
  - 4.Secondary circulation system.
  - 5.The heat pump includes water pump and expansion tank.



SPRSUN EVI DC Inverter Split air source heat pump

## Basic of installation

- 1) The heat pump must be installed in open space. Normally is installed on the roof of house.
- 2) The unit should be placed in dry and well-ventilated environment. If the environment is humid, electronic components may get corroded or short circuit.
- 3) Heat pump mustn't be installed in the environment where corrosive, volatile, or flammable liquid or gas exists.
- 4) Because of the noise is a little loud, please don't install the heat pump near bedroom or living room or meeting room.
- 5) Please install a shed for the heat pump, otherwise, rain water can reduce the lifetime of the shell, and snow may cover the air outlet.
- 6) Water drainage ditch should be set around the heat pump, when heat pump is working, there is condensing water flow down, or when defrosting, there are plenty of water flow down too.
- 7) Heat pump should far away from kitchen exhaust, because the finned tube is not easy to clean if there is oil on it.
- 8) Heat pump must be installed on flat concrete blocks or a raised concrete platform, or steel bracket. The bottom of the heat pump should be at least 50cm higher than ground, because rain water, snow may enter inside if the installation is on ground.
- 9) Between heat pump and basic or bracket, at least 4 pcs anti-shock pads should be placed.
- 10) Before make basic or bracket, please check heat pump dimension.
- 11) Before fix heat pump on basic, please confirm heat pump direction according to project design.
- 12) Normally use expansion bolt to fix heat pump on concrete basic.
- 13) Make sure circulating water pipe must be  $\geq \text{DN}25$  (or PPR32), and pipes must be insulated.
- 14) When install water temp sensor on pipe or in water tank, make sure temp sensor will not touch water directly, best through a sensor tube. Like below picture.

# Installation details

## 1. Installation site

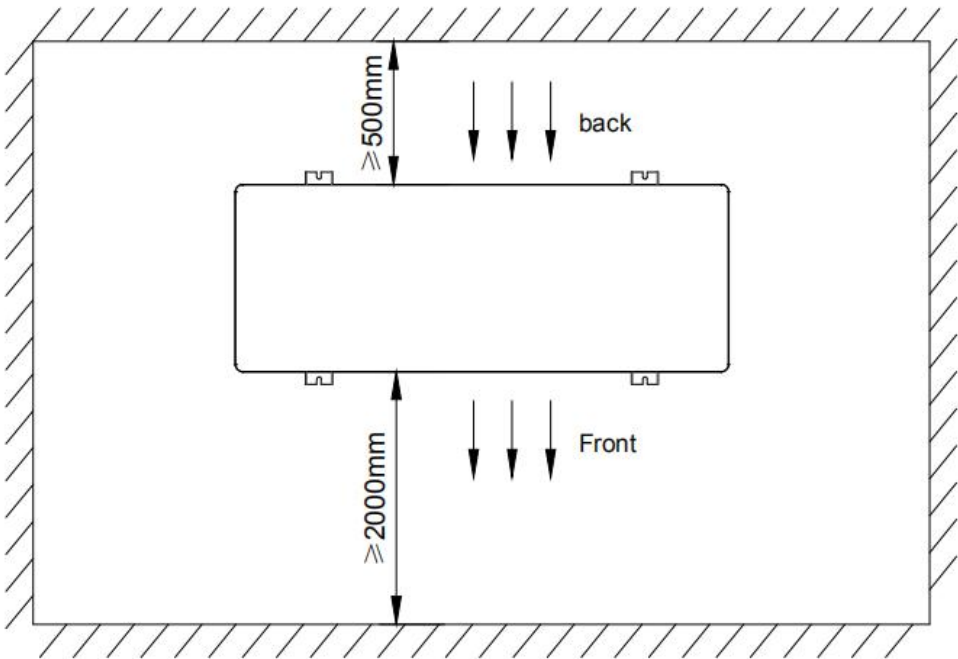
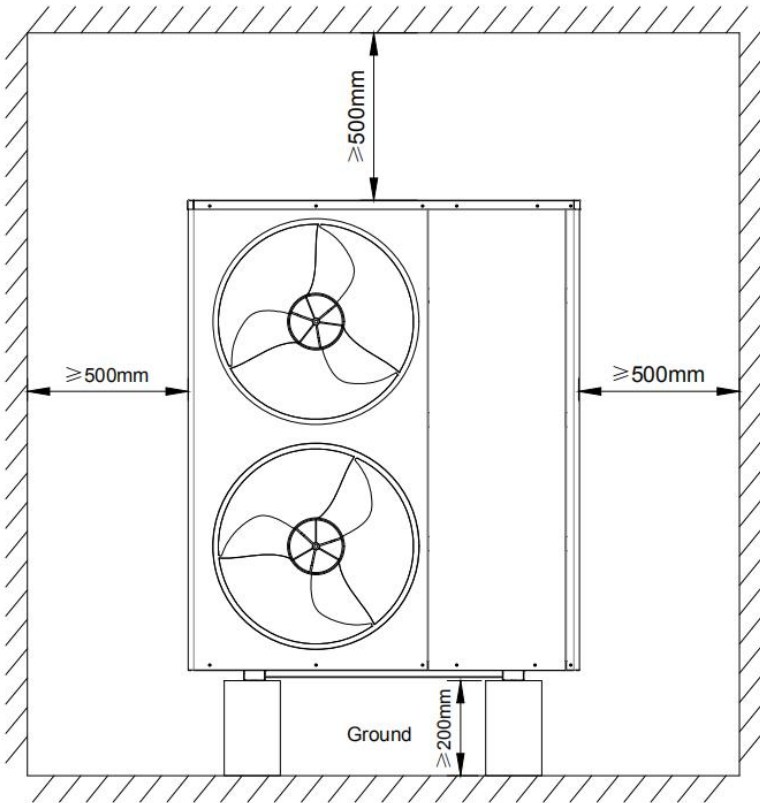
- 1.1 The outdoor unit should be installed in a sunny and ventilated place to prevent the formation of a cold field due to poor ventilation or in a dark place, which affects the use of the unit;
- 1.2 The outdoor unit should not be installed in a place with too much dust to prevent the dust from adhering to the fin heat exchanger and affecting the heat exchange effect;
- 1.3 The outdoor unit should not be installed in places with corrosive gas to prevent the unit heat exchanger from being corroded and affecting the service life;
- 1.4 The outdoor unit should be equipped with anti-vibration pads and fixed firmly with expansion screws to prevent vibration, noise and displacement;
- 1.5 The outdoor unit should be installed in a place where it can be drained to prevent condensation and ice formation;
- 1.6 The outdoor unit should be placed according to the installation distance diagram, and there should be a bracket to prevent the short drainage distance from causing ice formation;
- 1.7 The indoor unit must be well-supported, installed on a wall, and the wall must be able to bear the weight;
- 1.8 The indoor unit should not be installed outdoors in direct sunlight or rain.

## 2. Installation considerations

- 2.1 The copper pipe connecting the internal and external machines is 5 meters, and it cannot be lengthened without permission. If you need to lengthen, you need to contact the manufacturer;
- 2.2 When the connecting copper pipe is bent, do not crush the copper pipe, otherwise it will affect the normal operation of the unit;
- 2.3 After installation, use soapy water to detect leaks.

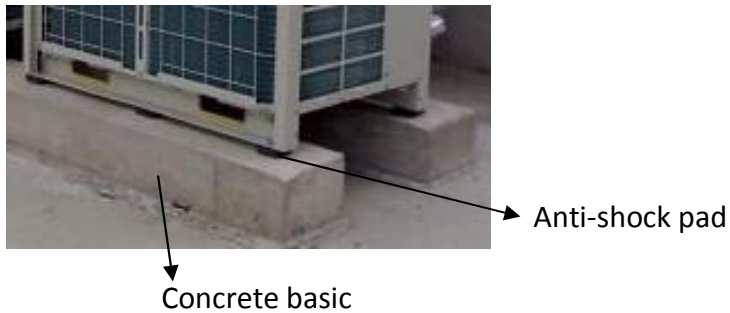
3. Outdoor unit installation

3.1 Outdoor unit installation distance requirements



## Installation details

3.2 The outdoor unit installation needs to be fixed on the bottom frame with expansion screws, and the bottom corner of the main unit needs to be installed with a cushion



### 4. Indoor unit installation:



4.1 Indoor unit installation requires three expansion screws to fix the internal unit to the wall.

# Pipes connection

## 5. Fix the connecting pipe

5.1 After the outdoor door unit and indoor unit are fixed, look for the nearest connection route, punch a hole of 50-100mm at the location of the wall, pay attention to waterproof when drilling

5.2 Pass the two connecting pipes through the wall, and place the two ends at the connection between the indoor and outdoor units

## 6. Fluorine copper tube connection

6.1 Indoor unit and connection location

Outdoor unit gas connector



# Pipes connection

## Indoor unit gas connector



### 6.2 Fluorine connection pipe specification:

CGK030V2LS connection pipe specification  $\phi 15.88$  /  $\phi 12.7$

CGK050V2LS connecting pipe specification  $\phi 19$  /  $\phi 12.7$

CGK060V2LS connecting pipe specification  $\phi 19$  /  $\phi 12.7$

## 7. Fluorine system pipeline connection steps

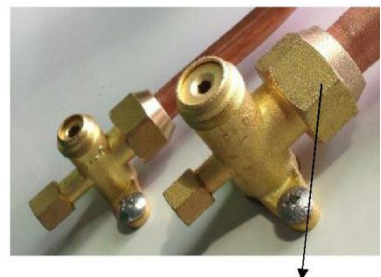
7.1 Remove the plastic cover of the globe valve, directly align the bell mouth of the connecting pipe with the connection port on the heat pump, and then tighten the nut, paying attention to alignment, otherwise it will cause air leakage



Remove cover



Bell mouth



# Pipes connection

7.2 After connecting the connecting pipes of the indoor and outdoor units, use a vacuum pump to evacuate the air in the pipeline and the indoor unit to ensure the evacuation time and ensure that the air in the pipeline is cleaned.

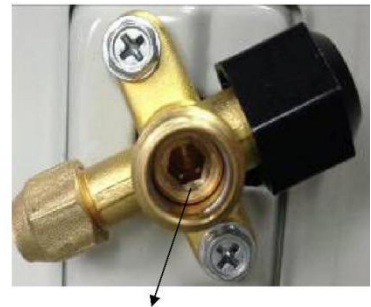
7.3 After evacuation, close the refrigerant meter valve, use a  $\phi 5$  hex nut to open the shut-off valve switch, close the shut-off valve switch after a little refrigerant enters the connection pipe, then unscrew the connection pipe for evacuation, and then reopen all the shut-off valve switches, Complete the connection.



Remove cover



Tool



Switch

## 8. Leak detection

Fill an empty bottle with the right amount of detergent solution and water, shake it, and pour it into all the connection ports to check whether there are bubbles emerging. If there are bubbles, it can be judged that the refrigerant is leaking. It needs to be tightened immediately until no bubbles come out.

## 9. Water system pipeline connection

9.1 Use pipe connections with specifications greater than or equal to DN25, and the connection should be tightened to prevent water leakage;

9.2 If used for three functions of floor heating, cooling and hot water, a three-way valve needs to be installed;

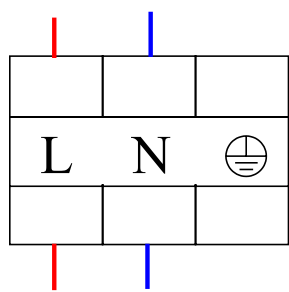
9.3 Automatic exhaust valve shall be installed at the highest part of the water system and the top of the water tank.



10. Line connection

- 10.1 When connecting the main power supply, please note that the wire diameter of the power cord must be greater than or equal to the recommended wire diameter, and must be reliably grounded.
- 10.2 The connection terminal of the water pump can be used as the power supply of the water pump. The water pump with the PWM signal needs to be connected to the signal line. Pay attention to distinguish the power line and the signal line of the pump, which can be distinguished according to the number of the connection line
- 10.3 Models with inside electric heater can be directly wired according to the mark.
- 10.4 Models with external electric heater need to select a suitable wire diameter according to the electric heating power. The electric heating terminal cannot be used directly as an electric heating power supply, but only as a control line. The main power supply needs to be equipped with an AC contactor according to the power size
- 10.5 The connection of the three-way valve is 2 live wire and 1 neutral wire, and the switching direction of the three-way valve must be accurately judged when wiring, otherwise it will damage the unit and render it unusable
- 10.6 The user hot water probe using the three functions of floor heating, cooling and hot water needs to be installed in the hot water tank.
- 10.7 Corresponding numbers of the inlet and outlet probe lines and the water flow switch connection line can be directly connected

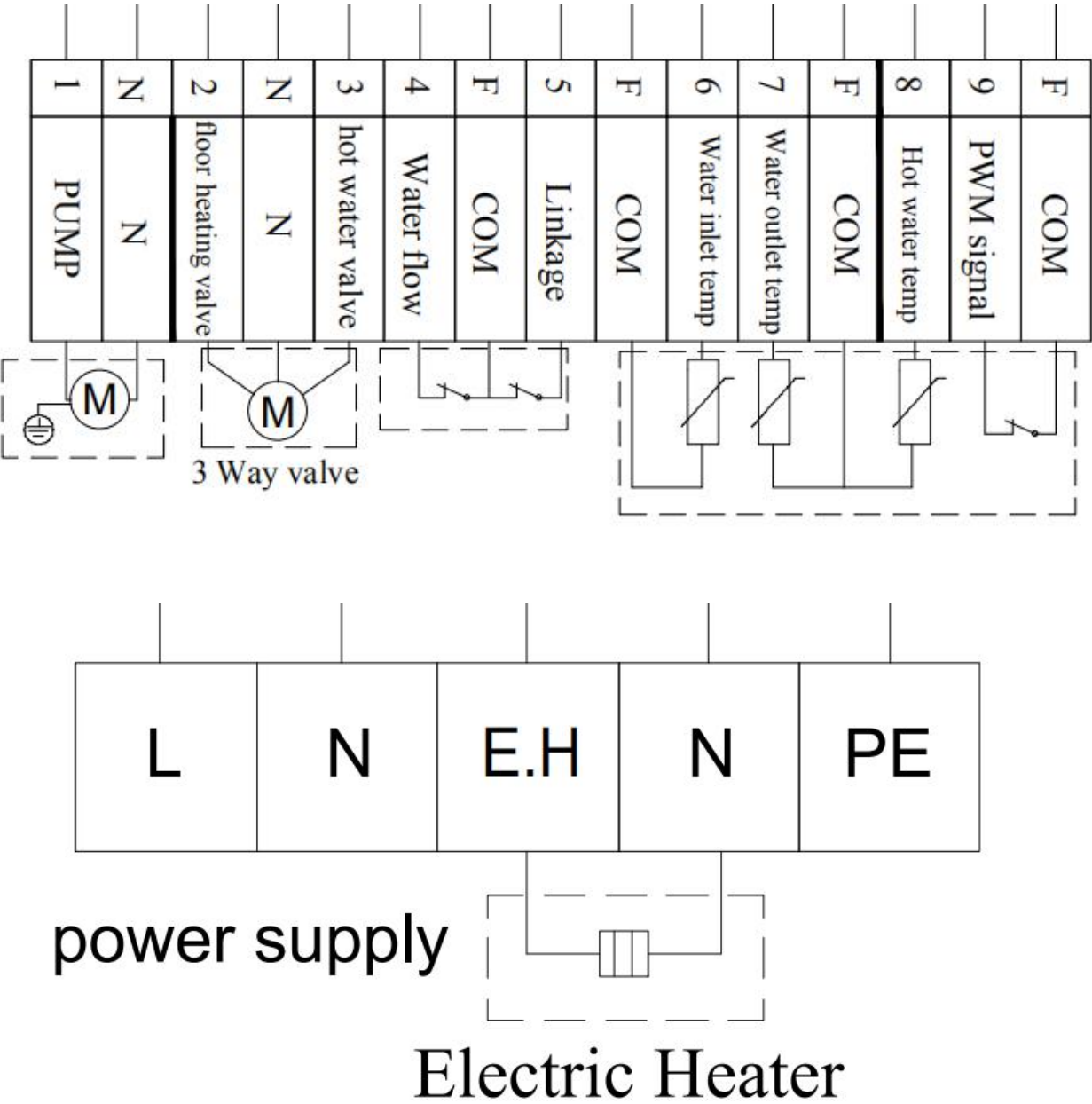
11. Power wire diameter selection



Voltage: 220V~240V/50Hz or 60 Hz/1Ph Electric heater: 3KW

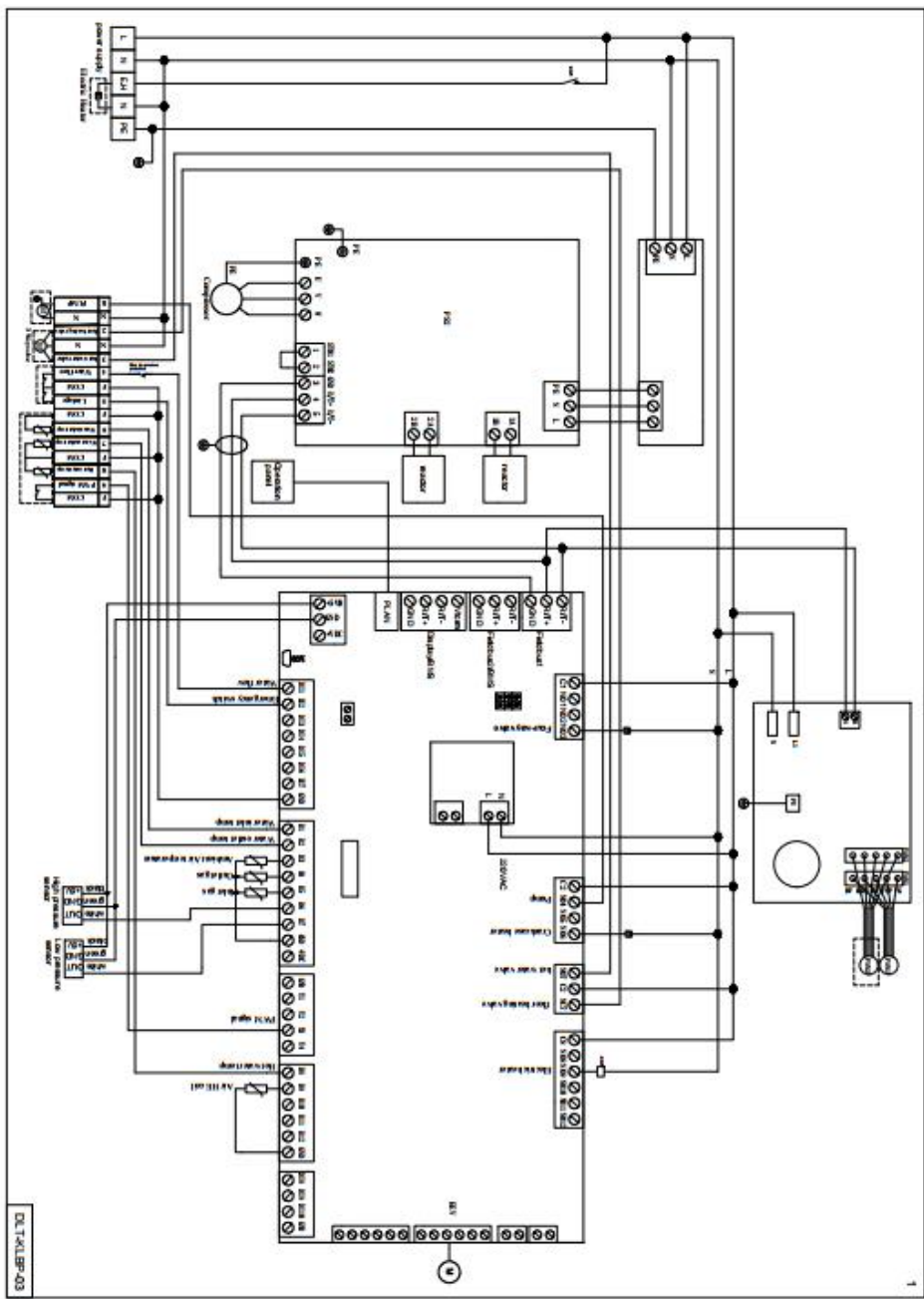
12. Wiring terminal diagram

|                    | CGK030V2LS | CGK050V2LS | CGK060V2LS |
|--------------------|------------|------------|------------|
| Line(mm)           | 6          | 10         | 10         |
| Max.<br>Current(A) | 15         | 26         | 30         |



# Wiring diagram

## 14.Wiring diagram



## 16. Commissioning

- 16.1 The water system is filled with water, and the air in the pipes and water tanks is discharged;
- 16.2 Check whether the water system pipeline is leaking
- 16.3 Check whether the power cord and other connecting wires are tight
- 16.4 Adjust the mode of the host to the required mode, set the required temperature, and start the operation
- 16.5 After the host is turned on, the set temperature is reached and there is no fault. After the temperature drops, it can be restarted normally, and the debugging is completed..

**17. After the commissioning is completed, keep the pipeline well insulated and fix the pipeline without loosening.**

