

# **VEVOR<sup>®</sup>**

**TOUGH TOOLS, HALF PRICE**

Technical Support and E-Warranty Certificate

[www.vevor.com/support](http://www.vevor.com/support)

## **Pool Heat Pump**

**Model:VDPYCA-65/VDPYCA-110/VDPYCA-150/VDPYCA-210**

We continue to be committed to provide you tools with competitive price. "Save Half", "Half Price" or any other similar expressions used by us only represents an estimate of savings you might benefit from buying certain tools with us compared to the major top brands and does not necessarily mean to cover all categories of tools offered by us. You are kindly reminded to verify carefully when you are placing an order with us if you are actually Saving Half in comparison with the top major brands.



**Model: VDPYCA-65/VDPYCA-110/VDPYCA-150/VDPYCA-210**



### **NEED HELP? CONTACT US!**

Have product questions? Need technical support? Please feel free to contact us:

**Technical Support and E-Warranty Certificate**

**[www.vevor.com/support](http://www.vevor.com/support)**

This is the original instruction, please read all manual instructions carefully before operating. VEVOR reserves a clear interpretation of our user manual. The appearance of the product shall be subject to the product you received. Please forgive us that we won't inform you again if there are any technology or software updates on our product.

# Content

|   |        |
|---|--------|
| 1. FOREWORD .....                               | 3      |
| 1.1. Read the Manual Before Operation .....     | 3      |
| 1.2. The Symbol Description of the Device ..... | 6      |
| 1.3. Statement .....                            | 7      |
| 1.4. Safety Factors .....                       | 7      |
| 2. OVER VIEW OF THE UNIT .....                  | - 9 -  |
| 2.1. Accessories Supplied With the Unit .....   | 9      |
| 2.2. Dimensions of the Unit .....               | - 10 - |
| 2.3. Main Parts of the Unit .....               | - 12 - |
| 2.4. Parameter of the Unit .....                | - 16 - |
| 3. INSTALLATION .....                           | - 18 - |
| 3.1. Transportation .....                       | 18     |
| 3.2. Notice Before Installation .....           | - 18 - |
| 3.3. Installation Instruction .....             | 19     |
| 3.4. Trial After Installation .....             | - 25 - |
| 4. CONTROLLER OPERATION GUIDANCE .....          | - 26 - |
| 4.1. Screen Display .....                       | - 26 - |
| 4.2. Key Operation .....                        | - 27 - |
| 4.3. Fault Code.....                            | 29     |
| 5. MAINTENANCE AND WINTERZING .....             | 30     |
| 5.1. Maintenance .....                          | 30     |
| 5.2. Disassembly Guidelines .....               | 30     |
| 5.3. Winterizing .....                          | - 38 - |

# **1.FOREWORD**

## **1.1.Read the Manual Before Operation**

### **WARNING**

Do not use means to accelerate the defrosting process or to clean, other than those recommended by the manufacturer. The appliance shall be stored in a room without continuously operating ignition sources (for example: open flames, an operating gas appliance or an operating electric heater).

Do not pierce or burn.

Be aware that refrigerants may not contain an odour.

### **Initial safety checks shall include:**

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

### **Checks to the area**

For repair to the refrigerating system, the following precautions shall be completed prior to conducting work on the system.

### **Work procedure**

Work shall be undertaken under a controlled procedure so as to minimize the risk of a 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 work being carried out. Work in confined spaces shall be avoided.

### **Presence of fire extinguisher**

If any hot work is to be conducted on the refrigerating equipment or any associated parts, appropriate fire extinguishing equipment shall be available to hand. Have a dry powder or CO<sub>2</sub> fire extinguisher adjacent to the charging area.

### **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 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 to the equipment continues to be visible and legible. Markings and signs that are illegible shall be corrected;
- ⑤ Refrigeration pipe 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 which are inherently resistant to being corroded or are suitably protected against being so corroded.

## **Repairs to sealed components**

- 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.

- 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.

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.

## **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 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 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 but 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 cylinder is situated on the scales before recovery takes place.
- ⑦ Start the recovery machine and operate in accordance with 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 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.

## **Recovery**

When removing refrigerant from a system, either for servicing or decommissioning, it is recommended good practice that all refrigerants are removed safely. When transferring refrigerant into cylinders, ensure that only appropriate refrigerant recovery cylinders are employed. Ensure that the correct number of cylinders for holding the total system charge are available. All cylinders to be used are designated for the recovered refrigerant and labeled for that refrigerant (i.e. special cylinders for the recovery of refrigerant). Cylinders shall be complete with pressure relief 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.

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.







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 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.



## 1.2.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. Meanings of DANGER, WARNING, CAUTION and NOTE symbols.

| Symbols   | Meaning | Description  |
|---|---------|--|
|    | WARNING | All information marked with this symbol is important and should be viewed carefully.   |
|    | WARNING | This symbol shows that there might be an electric shock if the appliance still connects the power cleaning, examination and repair.  |
|    | CAUTION | This symbol shows Anti-freezing protection. It is necessary to prevent the freezing of heat exchanger or water pipes, the power of unit can not be shut off in the ambient temperature lower than 2°C. All the water in the unit and plumbing system must be drained out if the unit will be turned off for a long time. |
|    | CAUTION | This symbol shows that the operation manual should be read carefully.  |
|   | CAUTION | This symbol shows that a service personnel should be handling this equipment with reference to the installation manual.  |
|  | CAUTION | This symbol shows that information is available such as the operating manual or installation manual.   |

## 1.3.Statement

To keep users under safe working condition 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.

## 1.4.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/mm<sup>2</sup>

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

- ① Use a specific wire and fasten it to terminal block so that the connection will prevent pressure from being applied to parts.
- ② Wrong wiring will cause fire. Please connect power wire accurately according to wiring diagram on the manual to avoid burnout of the unit or fire.
- ③ Be sure to use correct material during installing. Wrong parts or wrong materials may result in fire, electric shock, or falling of the unit.
- 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 circuit is not completed, it may cause fire or electric shock.
- ⑥ The unit must have grounding device. If power supply does not have grounding device, be sure not to connect the unit.
- ⑦ The unit should be only removed and repaired by professional technician. Improper movement or maintenance of the unit may cause water leakage, electric shock, or fire. Please find a professional technician to do.
- 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 to permeate into the electrical components.



## WARNING

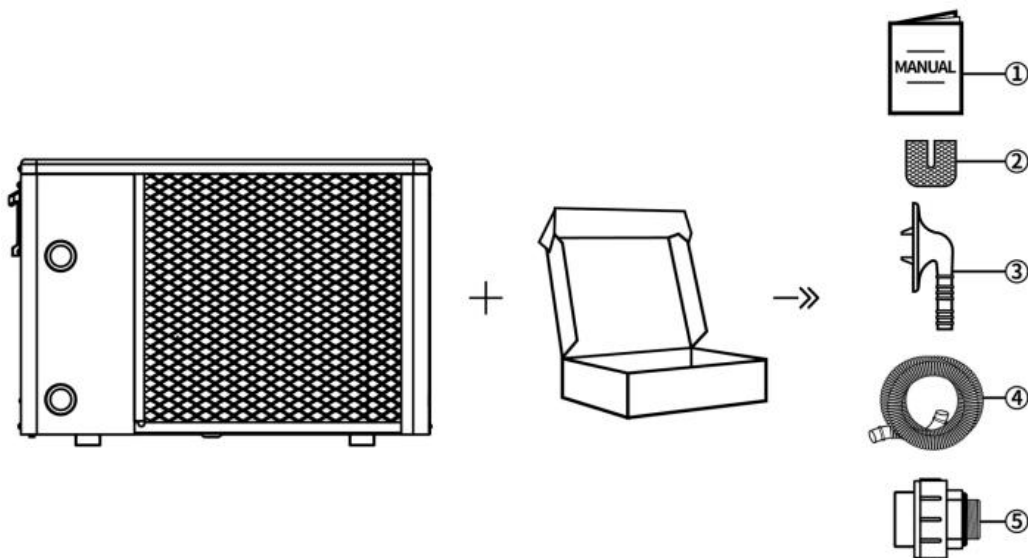
- ① Do not install the unit in a location where there may be flammable gas.
- ② If there is flammable gas around the unit, it will cause explosion. According to the instruction to carry out drainage system and pipeline work. If drainage system or pipeline is defective, water leakage will occur. And it should be disposed immediately to prevent other household products from getting wet and damage.
- ③ Do not clean the unit while 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 an fault code. Please turn off 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 sharp edges and fins of heat exchanger.
- ⑥ After installation or repair, please confirm refrigerant is not leaking. If refrigerant is not enough, the unit will not work properly.
- ⑦ The installation of external unit must be flat and firm. Avoid abnormal vibration and noise.
- ⑧ Don't put your fingers into fan and evaporator. High speed running fan will result in serious injury.
- ⑨ This device is not designed for people who is physically or mentally weak (including children) and

who does not have experience and knowledge of heating and cooling system. Unless it is used under direction and supervision of professional technician, or has received training on the using of this unit. Children must use it under supervision of an adult to ensure that they use the unit safely. If power wire is damaged, it must be replaced by a professional technician to avoid danger.

## 2.OVER VIEW OF THE UNIT

### 2.1.Accessories Supplied With the Unit

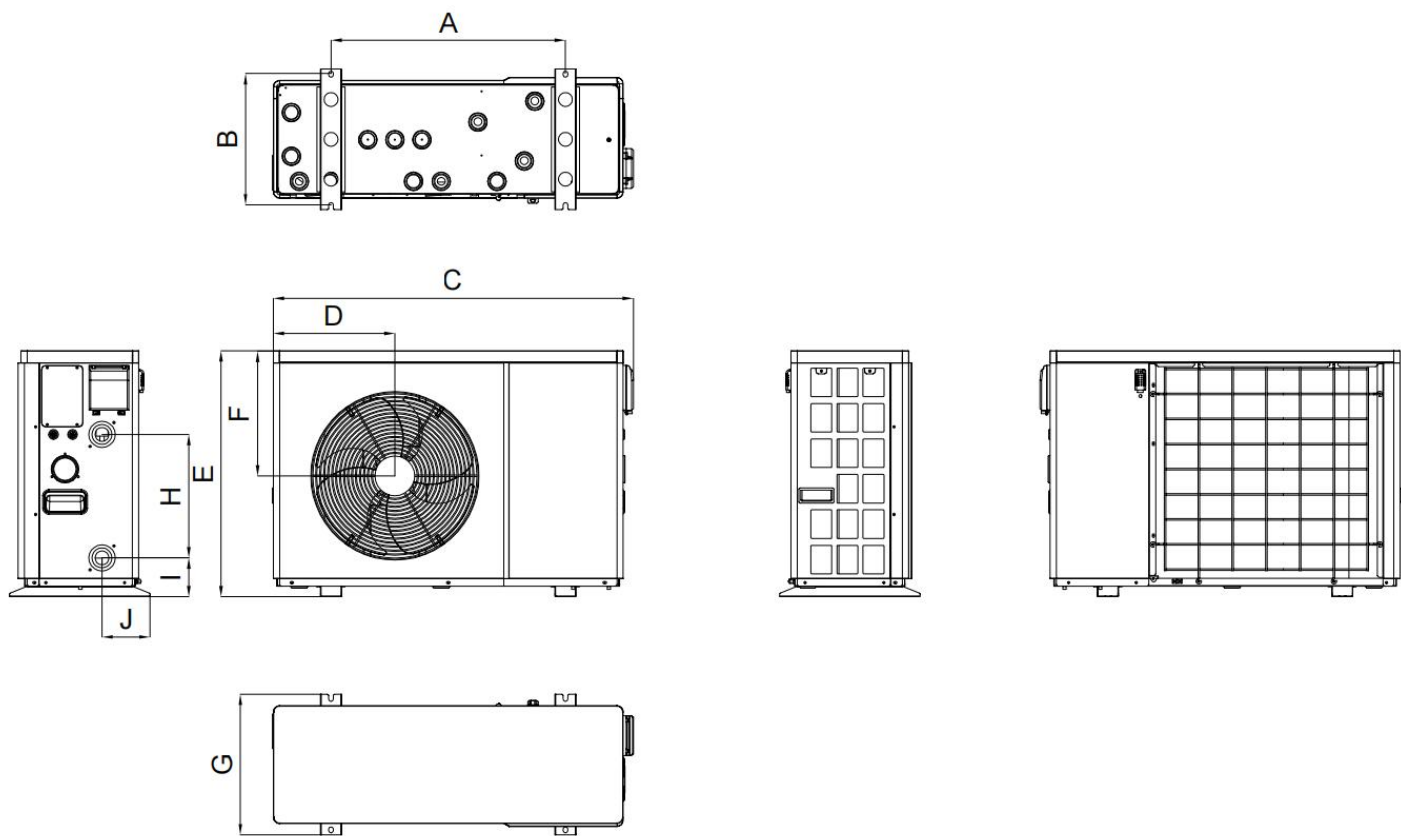
After unpacking, please check if you have all the following components.



| NO. | Components      | Quantity | NO. | Components       | Quantity |
|-----|-----------------|----------|-----|------------------|----------|
| ①   | User Manual     | 1        | ④   | Drain Pipe       | 1        |
| ②   | Rubber Blanket  | 4        | ⑤   | Water Pipe Joint | 2        |
| ③   | Drain Connector | 2        |     |                  |          |

## 2.2.Dimensions of the Unit

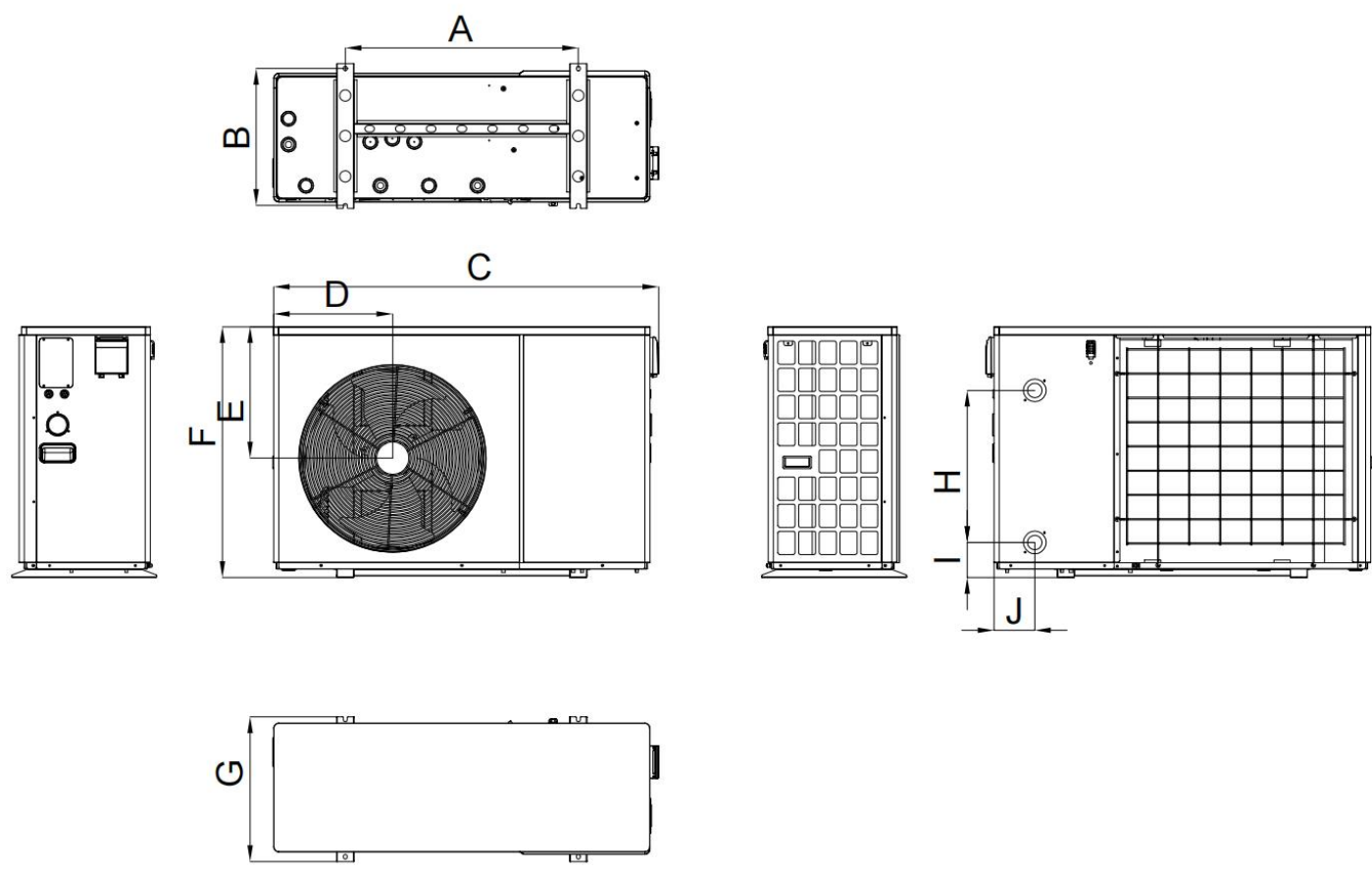
### 2.2.1.VDPYCA-65 / VDPYCA-110 / VDPYCA-150



**Dimension Unit:(inch)**

| Model      | A    | B    | C    | D    | E    | F    | G    | H    | I   | J   |
|------------|------|------|------|------|------|------|------|------|-----|-----|
| VDPYCA-65  | 23.2 | 13.0 | 36.0 | 12.0 | 25.0 | 12.3 | 14.0 | 12.2 | 3.8 | 4.8 |
| VDPYCA-110 | 25.3 | 13.7 | 39.4 | 12.4 | 26.0 | 12.9 | 15.7 | 15.0 | 3.9 | 4.2 |
| VDPYCA-150 |      |      |      |      |      |      |      |      |     |     |

2.2.2.VDPYCA-210



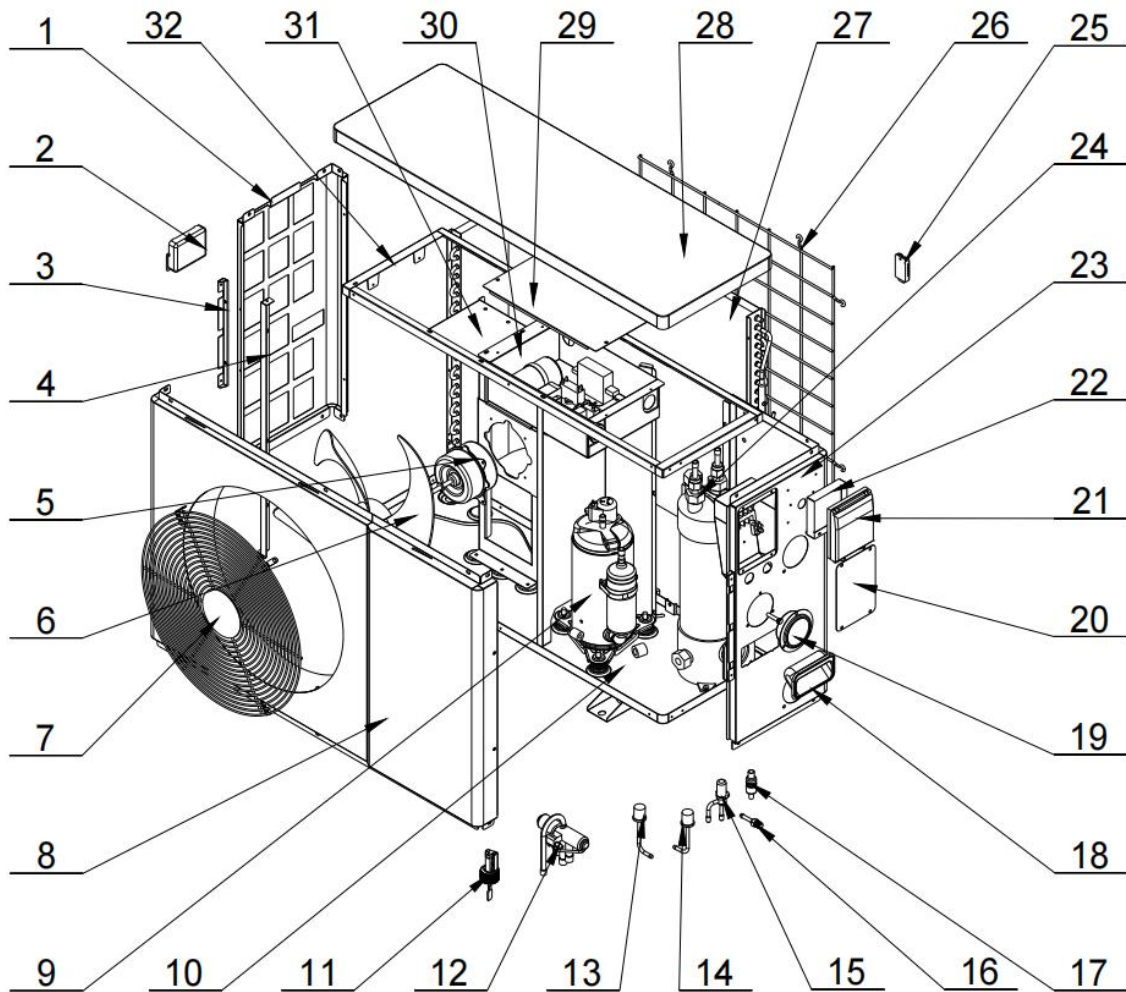
Dimension Unit:(inch)

| Model      | A    | B    | C    | D    | E    | F    | G    | H    | I   | J   |
|------------|------|------|------|------|------|------|------|------|-----|-----|
| VDPYCA-210 | 28.3 | 16.7 | 44.5 | 14.1 | 30.5 | 30.0 | 18.0 | 18.5 | 4.3 | 5.0 |

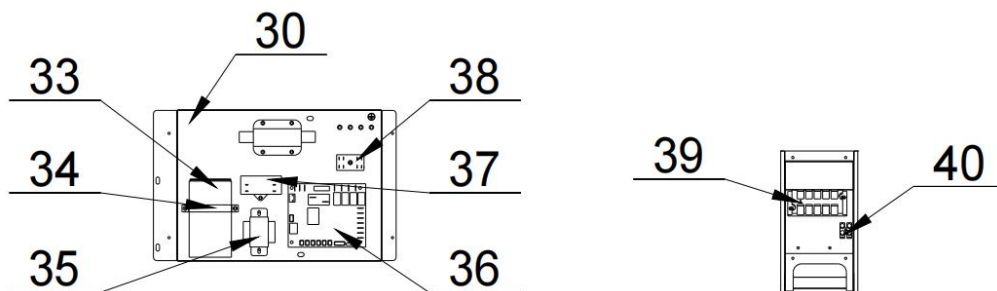
## 2.3.Main Parts of the Unit

### 2.3.1.VDPYCA-65

#### ① Sheet metal and other structures



#### ② Electronic control system



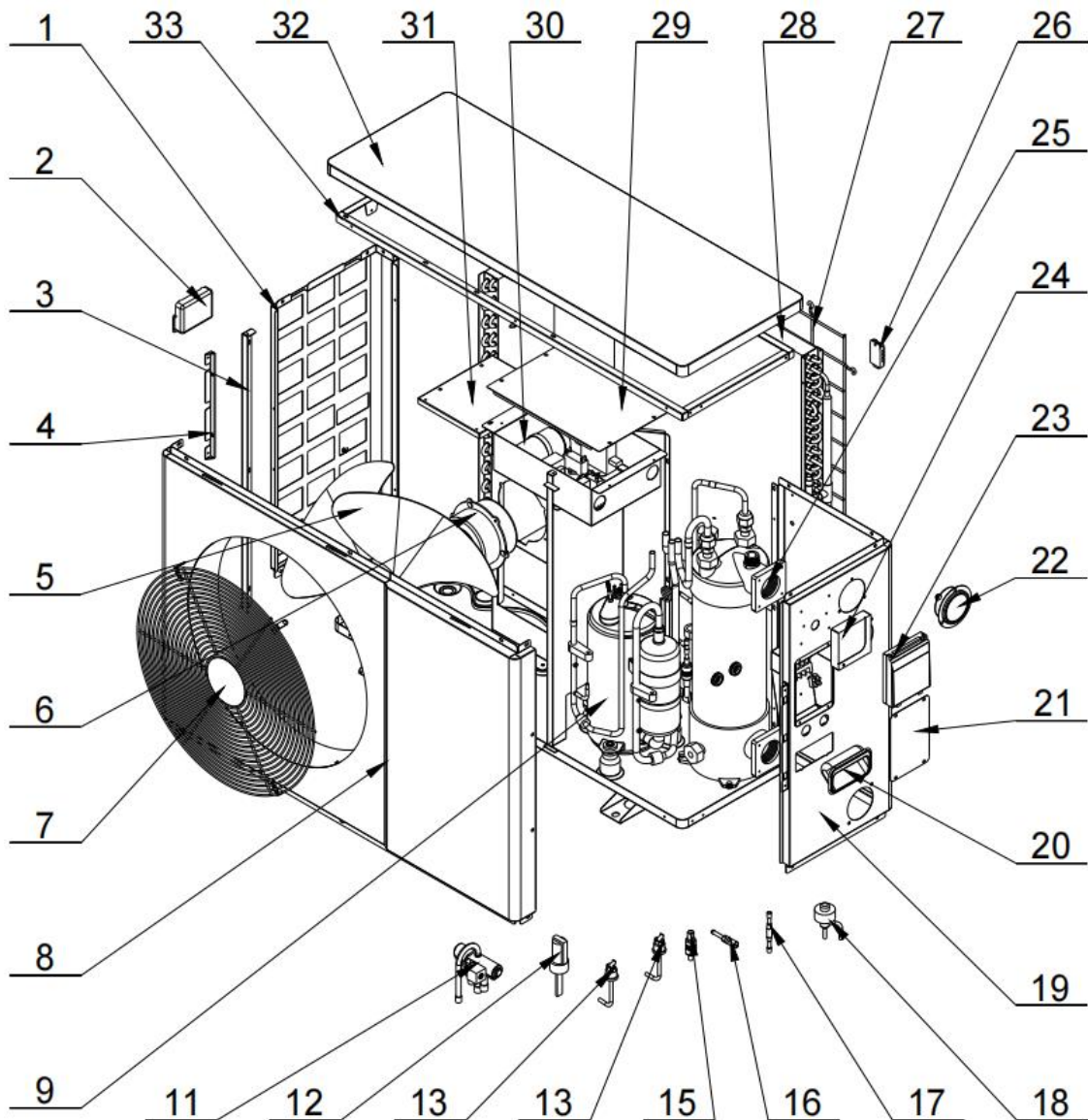
|   |                  |    |                    |    |                      |
|---|------------------|----|--------------------|----|----------------------|
| 1 | Left Net         | 15 | EEV                | 29 | Electrical Box Cover |
| 2 | Left Handle      | 16 | Needle Valve       | 30 | Electrical Box       |
| 3 | Fin Fixed Frame  | 17 | Filter             | 31 | Motor Support        |
| 4 | Side Fixed Panel | 18 | Right Handle       | 32 | Internal Fixed Frame |
| 5 | Motor            | 19 | Pressure Gauge     | 33 | Capacitor            |
| 6 | Fan Blade        | 20 | Junction Box Cover | 34 | Capacitor Clamp      |



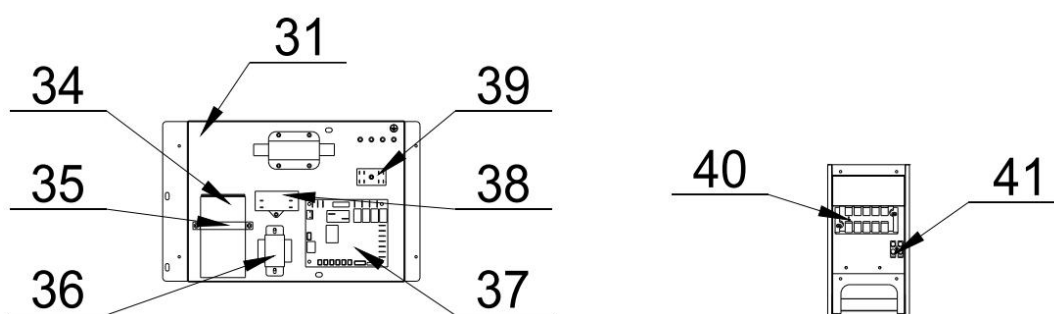
|    |                      |    |                             |    |                           |
|----|----------------------|----|-----------------------------|----|---------------------------|
| 7  | Fan Guard Net        | 21 | Wired Controller Box        | 35 | Transformer               |
| 8  | Front Panel          | 22 | Wired Controller            | 36 | Main board                |
| 9  | Compressor           | 23 | Right Panel                 | 37 | Fan Motor Capacitor       |
| 10 | Chassis              | 24 | Titanium Heat Exchanger     | 38 | 2U Terminal               |
| 11 | Water Flow Switch    | 25 | Ambient Temp. Sensor Holder | 39 | 5-position Terminal Board |
| 12 | 4-way Valve          | 26 | Fin Guard Net               | 40 | 2-position Terminal Board |
| 13 | High Pressure Switch | 27 | Fin Heat Exchanger          |    |                           |
| 14 | Low Pressure Switch  | 28 | Top Cover                   |    |                           |

### 2.3.2.VDPYCA-110 / VDPYCA-150

#### ① Sheet metal and other structures



## ② Electronic control system

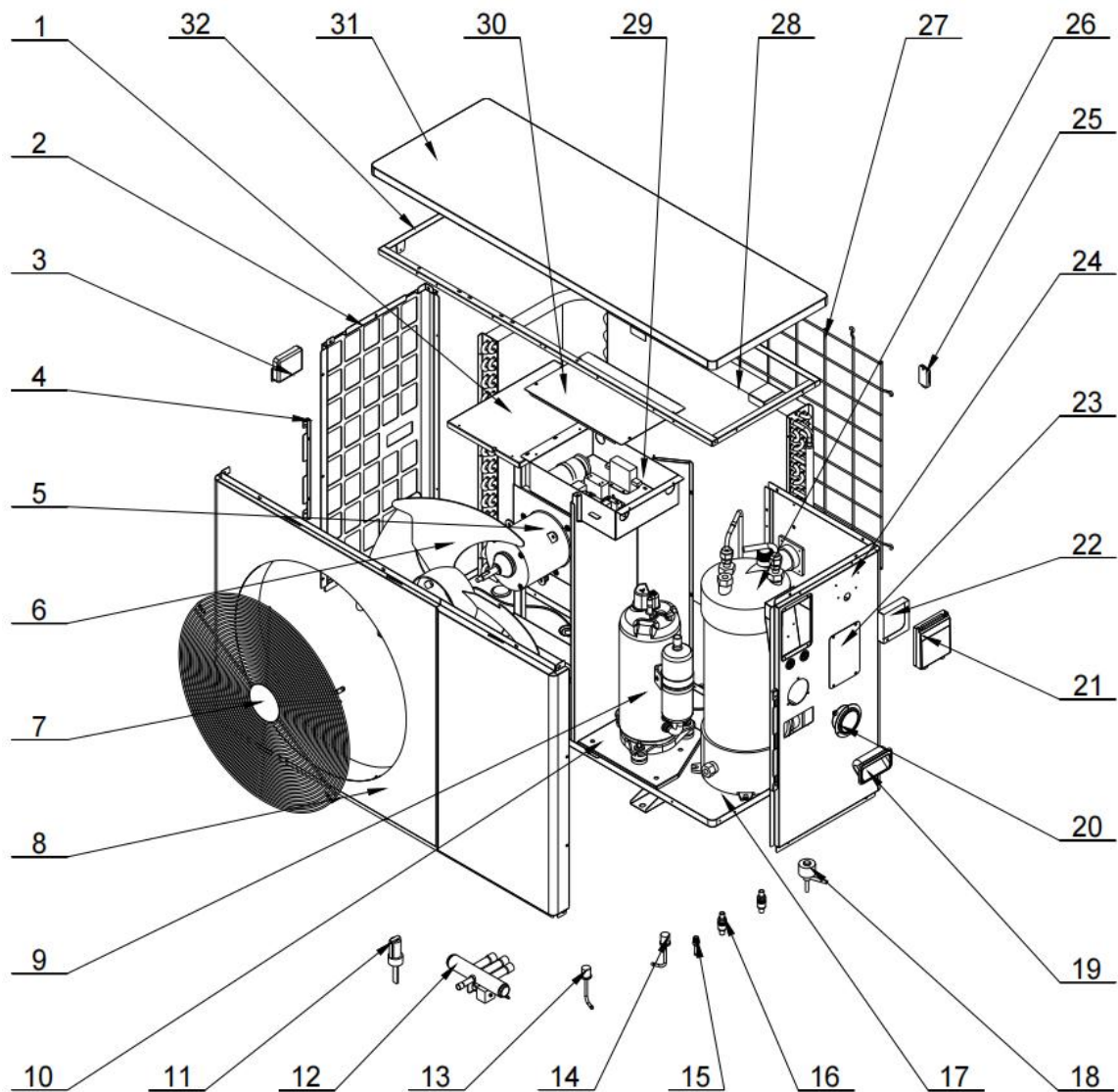


|    |                      |    |                             |    |                           |
|----|----------------------|----|-----------------------------|----|---------------------------|
| 1  | Left Net             | 15 | Filter                      | 29 | Electrical Box Cover      |
| 2  | Left Handle          | 16 | Needle Valve                | 30 | Electrical Box            |
| 3  | Fin Fixed Frame      | 17 | One-way Valve               | 31 | Motor Support             |
| 4  | Side Fixed Panel     | 18 | EEV                         | 32 | Top Cover                 |
| 5  | Fan Blade            | 19 | Right Panel                 | 33 | Internal Fixed Frame      |
| 6  | Motor                | 20 | Right Handle                | 34 | Capacitor                 |
| 7  | Fan Guard Net        | 21 | Junction Box Cover          | 35 | Capacitor Clamp           |
| 8  | Front Panel          | 22 | Pressure Gauge              | 36 | Transformer               |
| 9  | Compressor           | 23 | Wire Controller Box         | 37 | Main Board                |
| 10 | Chassis              | 24 | Wire Controller             | 38 | Fan Motor Capacitor       |
| 11 | 4-way Valve          | 25 | Titanium Heat Exchanger     | 39 | 2U Terminal               |
| 12 | Water Flow Switch    | 26 | Ambient Temp. Sensor Holder | 40 | 5-position Terminal Board |
| 13 | High Pressure Switch | 27 | Back Net                    | 41 | 2-position Terminal Board |
| 14 | Low Pressure Switch  | 28 | Fin Heat Exchanger          |    |                           |

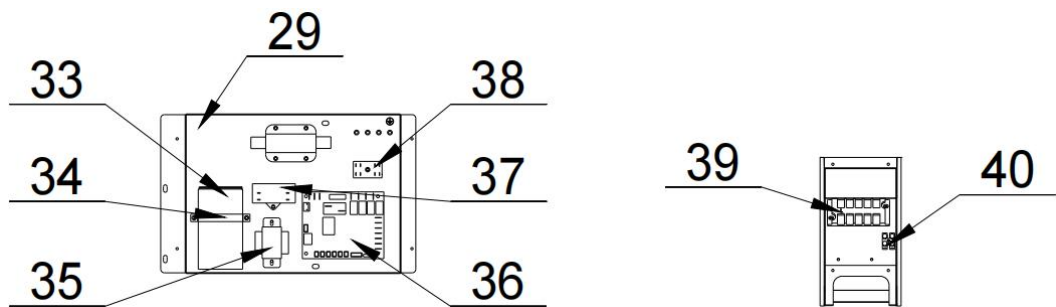


2.3.3.VDPYCA-210

① Sheet metal and other structures



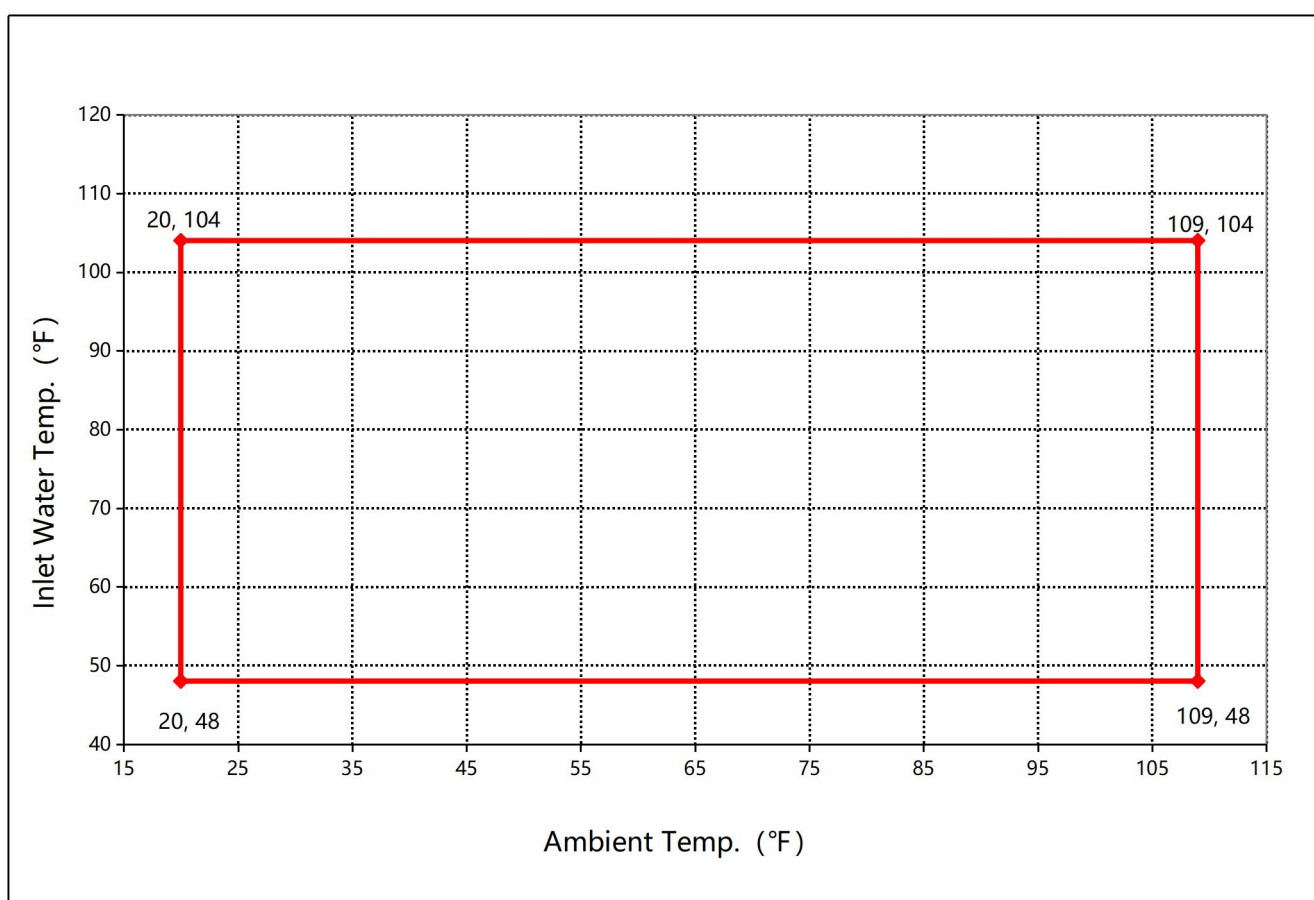
② Electronic control system



|   |                  |    |                |    |                      |
|---|------------------|----|----------------|----|----------------------|
| 1 | Motor Support    | 15 | Needle Valve   | 29 | Electrical Box       |
| 2 | Left Net         | 16 | Filter         | 30 | Electrical Box Cover |
| 3 | Left Handle      | 17 | Chassis        | 31 | Top Cover            |
| 4 | Side Fixed Panel | 18 | EEV            | 32 | Internal Fixed Frame |
| 5 | Motor            | 19 | Right Handle   | 33 | Capacitor            |
| 6 | Fan Blade        | 20 | Pressure Gauge | 34 | Capacitor Clamp      |

|    |                      |    |                             |    |                           |
|----|----------------------|----|-----------------------------|----|---------------------------|
| 7  | Fan Guard Net        | 21 | Wire Controller Box         | 35 | Transformer               |
| 8  | Front Panel          | 22 | Wire Controller             | 36 | Main Board                |
| 9  | Compressor           | 23 | Junction Box Cover          | 37 | Fan Motor Capacitor       |
| 10 | Suspension Chassis   | 24 | Right Panel                 | 38 | 2U Terminal               |
| 11 | Water Flow Switch    | 25 | Ambient Temp. Sensor Holder | 39 | 5-position Terminal Board |
| 12 | 4-way Valve          | 26 | Titanium Heat Exchanger     | 40 | 2-position Terminal Board |
| 13 | High Pressure Switch | 27 | Back Net                    |    |                           |
| 14 | Low Pressure Switch  | 28 | Fin Heat Exchanger          |    |                           |

## 2.4. Running Range



**Note:** Please make sure that the swimming pool heat pump operates within the ambient temperature and water inlet temperature range, as the figure shows. If the unit operates outside the temperature range, damage may occur.

## 2.5.Parameter of the Unit

| Model:   | VDPYCA-65               | VDPYCA-110     | VDPYCA-150 | VDPYCA-210     |
|--|-------------------------|----------------|------------|----------------|
| [Heating] Ambient Temperature: (DB/WB) 80.6°F/75.8°F; Water Inlet Temperature: 80°F. |                         |                |            |                |
| Heating Capacity (kBtu/h)  | 23.13                   | 38.22          | 52.10      | 81.48          |
| Consumed Power (kBtu/h)  | 3.86                    | 6.31           | 8.43       | 13.10          |
| COP  | 5.99                    | 6.61           | 6.19       | 6.22           |
| [Heating] Ambient Temperature: (DB/WB) 80.6°F/71°F; Water Inlet Temperature: 80°F.   |                         |                |            |                |
| Heating Capacity (kBtu/h)  | 21.46                   | 38.59          | 48.15      | 76.33          |
| Consumed Power (kBtu/h)  | 3.86                    | 6.31           | 8.33       | 13.03          |
| COP  | 5.59                    | 6.16           | 5.78       | 5.86           |
| [Heating] Ambient Temperature: (DB/WB) 50°F/44°F; Water Inlet Temperature: 80°F.     |                         |                |            |                |
| Heating Capacity (kBtu/h)  | 14.91                   | 26.10          | 31.84      | 50.47          |
| Consumed Power (kBtu/h)  | 3.82                    | 6.31           | 7.88       | 12.56          |
| COP  | 3.91                    | 4.13           | 4.04       | 4.02           |
| Max. Power Input (kBtu/h)  | 6.43                    | 11.25          | 14.98      | 19.70          |
| Max. Current (A)   | 16.38                   | 14.33          | 19.09      | 25.10          |
| Advised Pool Size (m³)   | 12~25                   | 25~50          | 30~60      | 45~80          |
| Heating Temperature Range (°F)   | 60~104                  | 60~104         | 60~104     | 60~104         |
| Cooling Temperature Range (°F)   | 46~82                   | 46~82          | 46~82      | 46~82          |
| Operating Range (°F)   | 20~109                  | 20~109         | 20~109     | 20~109         |
| Power Supply   | 115V~/60Hz              | 208-230V~/60Hz |            |                |
| Refrigerant  | R410A                   |                |            |                |
| Manometer  | Yes                     |                |            |                |
| Gas Control  | EEV                     |                |            |                |
| Water Heat Exchanger   | Titanium Heat Exchanger |                |            |                |
| Water Pipe Connection (inch)   | 1-1/2“                  |                |            |                |
| Water Pressure Drop (psi)  | 2.17                    | 2.15           | 2.45       | 4.20           |
| Water Proof Level  | IPX4                    |                |            |                |
| Water Flow (gpm)   | 8.75                    | 13.57          | 20.70      | 26.73          |
| Noise (dB) at 1m   | <50                     | <52            | <54        | <56            |
| Noise (dB) at 10m  | <33                     | <34            | <35        | <37            |
| Net Weight (lbs)   | 93                      | 143            | 146        | 224            |
| Net Dimensions (L×W×H)<br>(inches)   | 36.0×14.0×25.0          | 39.4×15.7×26.0 |            | 44.5×18.0×30.0 |

## 3.INSTALLATION



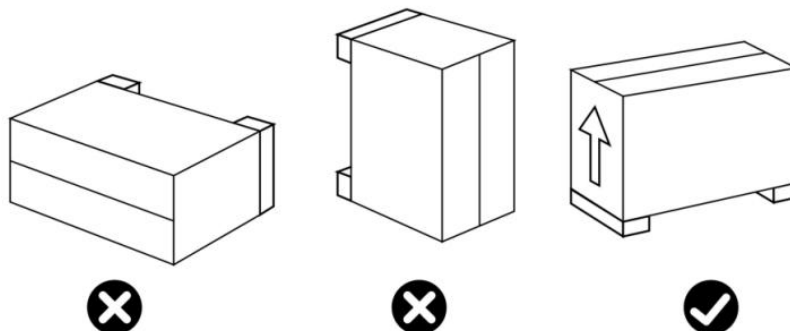
### WARNING

The heat pump must be installed by a professional team. The users are not qualified to install by themselves, otherwise the heat pump might be damaged and risky for users' safety.

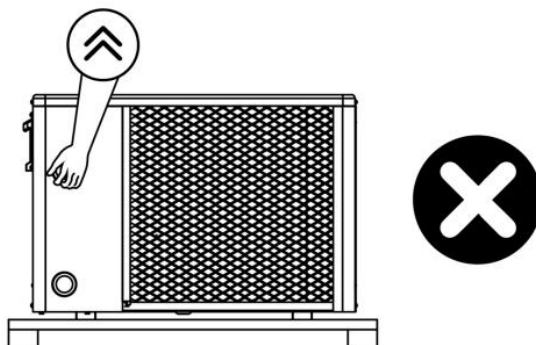
This section is provided for information purposes only and must be checked and adapted if necessary according to the actual installation conditions.

### 3.1.Transportation

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

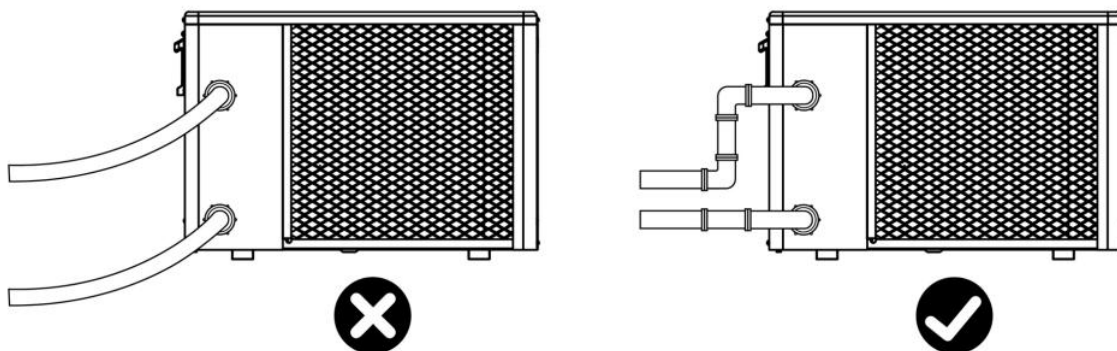


- ② When moving the heat pump, do not lift the water union since the titanium heat exchanger inside the heat pump will be damaged.



### 3.2.Notice Before Installation

- ①The inlet and outlet water unions can't bear the weight of soft pipes. The heat pump must be connected with hard pipes.



- ②In order to guarantee the heating efficiency, the water pipe length should be  $\leq 10\text{m}$  between the pool and the heat pump.

## 3.3.Installation Instruction

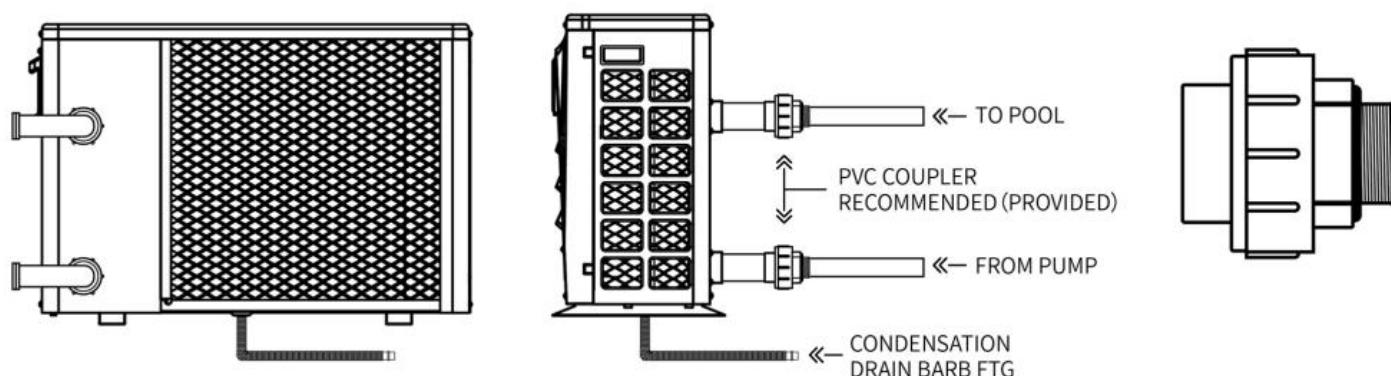
### 3.3.1.Pre-requirements

#### Equipment necessary for the installation of your heat pump:

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

### 3.3.2.Heat Pump Installation

- ①The frame must be fixed by bolts (M10) to concrete foundation or brackets. The concrete foundation must be solid; the bracket must be strong enough and anti-rust treated;
- ②The heat pump needs a water pump (Supplied by the user). The recommended pump specification-flux: refer to Technical Parameter, Max. lift  $\geq 10\text{m}$ ;
- ③When the heat pump is running, there will be condensation water discharged from the bottom, please pay attention to it. Please insert the drainage tube(accessory) into the hole and clip it well, then connect a pipe to drain off the condensation water.Install the heat pump, raising it at least 10 cm with solid water-resistant pads, then connect the drainage pipe to the opening located under the pump.



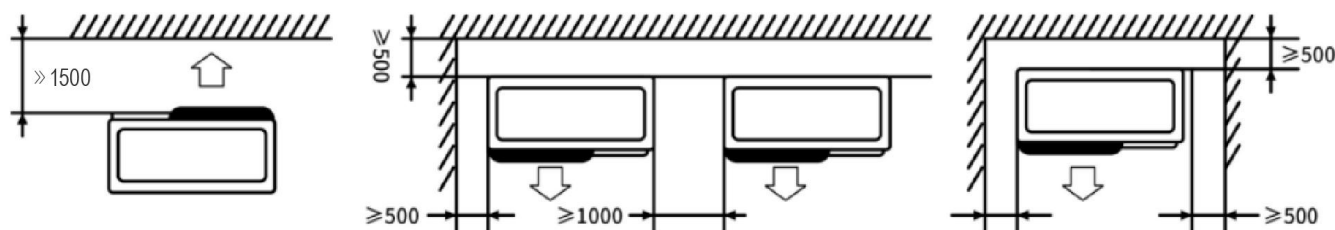
### 3.3.3.Location and Space

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

- ①The unit's future location must be easily accessible for convenient operation and maintenance.
- ②It must be installed on the ground, fixed ideally on a level concrete floor. Ensure that the floor is sufficiently stable and can support the weight of the unit.
- ③A water drainage device must be provided close to the unit in order to protect the area where it is installed.
- ④If necessary, the unit may be raised by using suitable mounting pads designed to support its weight.
- ⑤Check that the unit is properly ventilated, that the air outlet is not facing the windows of neighbouring buildings and that the exhaust air cannot return. In addition, provide sufficient space around the unit for servicing and maintenance operations.

- ⑥ The unit must not be installed in an area exposed to oil, flammable gases, corrosive products, sulphur compounds or close to high frequency equipment.
- ⑦ To prevent mud splashes, do not install the unit near a road or track.
- ⑧ To avoid causing nuisance to neighbors, make sure the unit is installed so that it is positioned towards the area that is least sensitive to noise.
- ⑨ Keep the unit as much as possible out of the reach of children.
- ⑩ Installation space:

Unit: mm

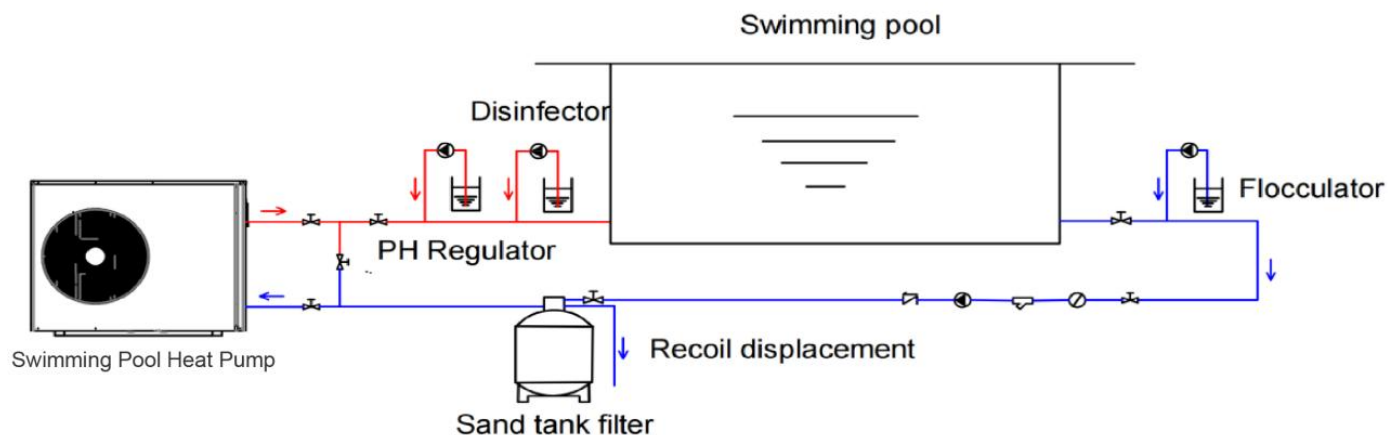


- Do not put anything less than one meter in front of the heat pump.
- Leave 500 mm of empty space on the sides and back of the heat pump and free ventilation above.
- Do not leave any obstacles above or in front of the device.

### 3.3.4. Installation Layout

**Notice:** The filter must be cleaned regularly to ensure that water in the system is clean and avoid blocking of filter. It is necessary that drainage valve is fixed on the lower water pipe. If the unit is not running during winter months, please disconnect power supply and let out drain water from unit through drainage valve. If ambient temperature of running unit is below 0°C, please keep water pump running.

The installation diagram is shown in the following figure:



- |                |               |                                      |
|----------------|---------------|--------------------------------------|
| Y-type filter  | One-way valve | Circulating water pump/Metering pump |
| Hair collector | Stop valve    |                                      |

| No. | Item                    | Quantity | No. | Item             | Quantity |
|-----|-------------------------|----------|-----|------------------|----------|
| ①   | Swimming Pool Heat Pump | 1        | ⑦   | PH Regulator     | 1        |
| ②   | Y-Type Filter           | 1        | ⑧   | Sand Tank Filter | 1        |
| ③   | One-Way Valve           | 1        | ⑨   | Flocculator      | 1        |
| ④   | Circulating Water Pump  | 1        | ⑩   | Disinfectant     | 1        |
| ⑤   | Hair Collector          | 1        | ⑪   | Metering Pump    | 3        |
| ⑥   | Stop Valve              | 7        |     |                  |          |

### 3.3.5. Electrical Installation

To function safely and maintain the integrity of your electrical system, the unit must be connected to a general electricity supply in accordance with the following regulations:

- ① Upstream, the general electricity supply must be protected by a 30mA differential switch.
- ② The heat pump must be connected to a suitable D-curve circuit breaker in accordance with current standards and regulations in the country where the system is installed.
- ③ The electricity supply cable must be adapted to match the unit's rated power and the length of wiring required by the installation. The cable must be suitable for outdoor use.
- ④ For a three-phase system, it is essential to connect the phases in the correct sequence. If the phases are inverted, the heat pump's compressor will not work.
- ⑤ In places open to the public, it is mandatory to install an emergency stop button close to the heat pump.

| Model      | Power Supply Wires |                |               |
|------------|--------------------|----------------|---------------|
|            | Electricity Supply | Cable Diameter | Specification |
| VDPYCA-65  | 110-120V~/60Hz     | 3G 2.5mm²      | AWG 14        |
| VDPYCA-110 | 208-230V~/60Hz     |                |               |
| VDPYCA-150 |                    |                |               |
| VDPYCA-210 |                    |                |               |

### 3.3.6. Electrical Connection



**WARNING:** Power supply of heat pump must be disconnected before any operation.

Please comply with the following instruction to connect heat pump.

Step 1: Detach electrical side panel by a screwdriver to access electrical terminal block.

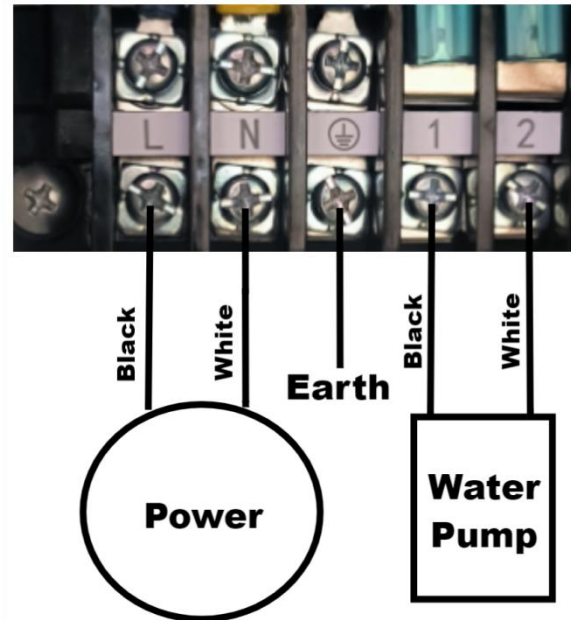
Step 2: Insert cable into heat pump unit port.

Step 3: Connect power supply cable to terminal block according to the diagram below.

**Notice:** Please confirm the machine model you purchased!

### VDPYCA-65 Cable Connection Method

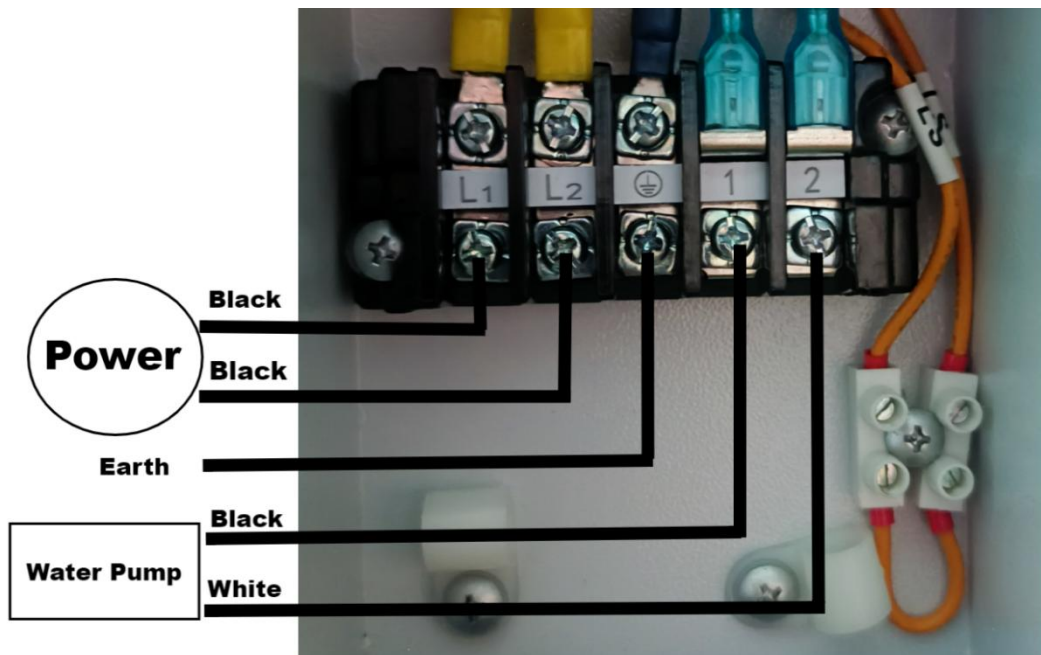




The output of the **VDPYCA-65** pump terminal is **110-120V~/60Hz**.

**Notice:**When the power of water pump is more than 500W, must set the AC contactor outside.

## VDPYCA-110、VDPYCA-150、VDPYCA-210 Cable Connection Method



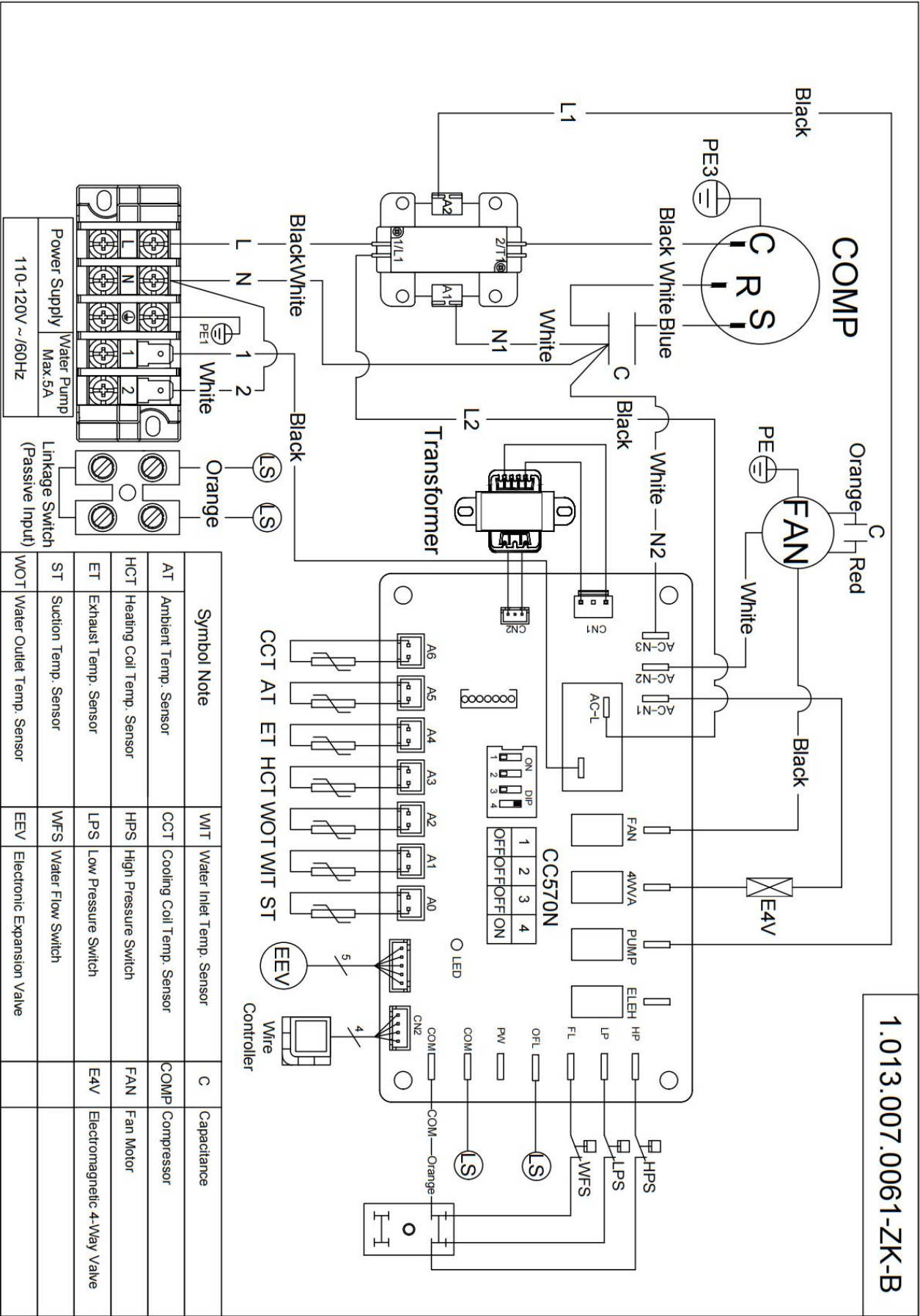
The output of the **VDPYCA-110、VDPYCA-150、VDPYCA-210** pump terminal is **208-230V~/60Hz**.

**Notice:**When the power of water pump is more than 1000W, must set the AC contactor outside.

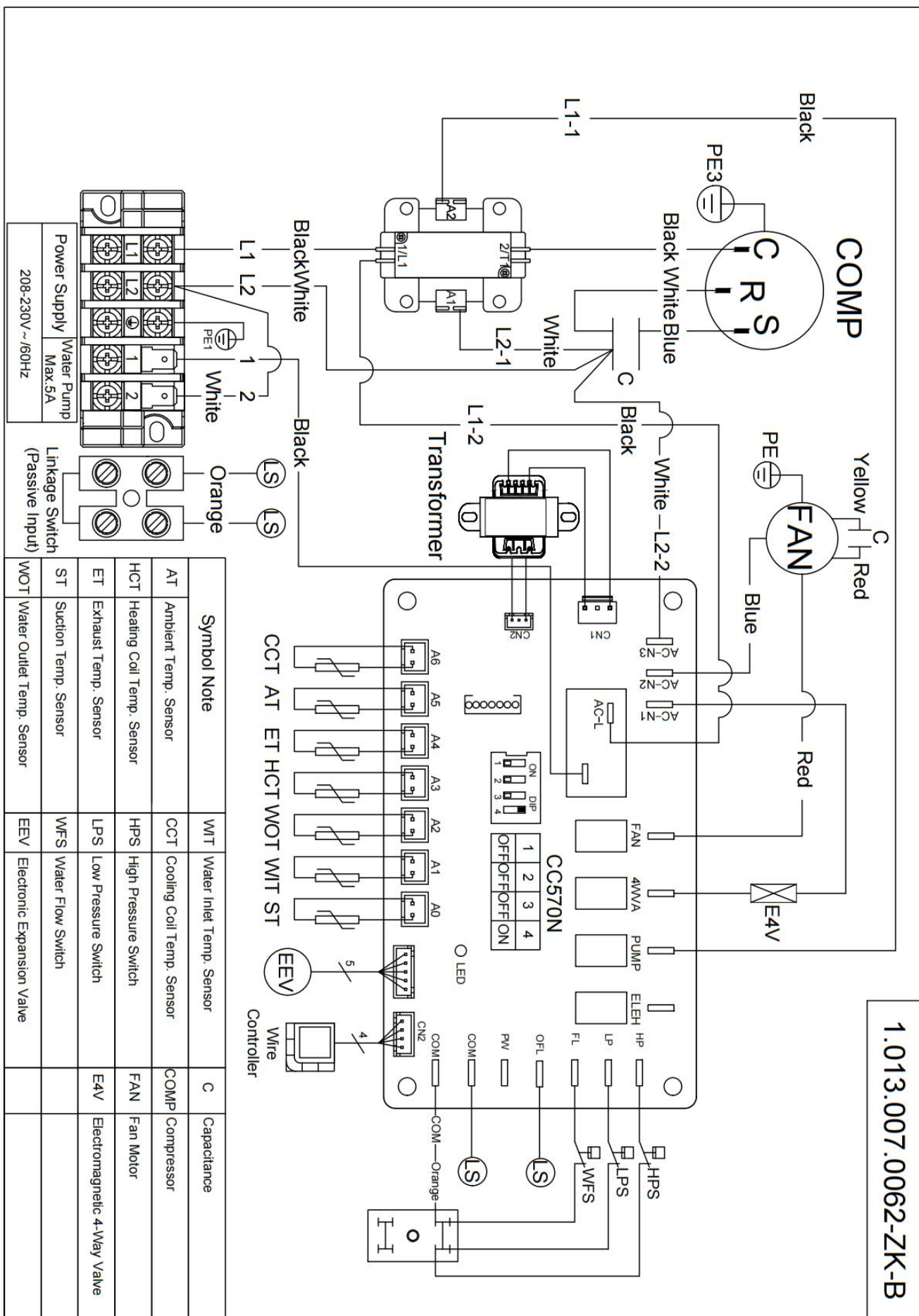


3.3.7. Circuit Diagram

3.3.7.1. VDPYCA-65



### 3.3.7.2. VDPYCA-110/VDPYCA-150/VDPYCA-210



### 3.4.Trial After Installation



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

#### 3.4.1.Inspection Before Trial Running

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

|                          |  |
|--------------------------|--|
| <input type="checkbox"/> | Correct unit installation                              |
| <input type="checkbox"/> | Power supply voltage is the same as unit rated voltage |
| <input type="checkbox"/> | Correct piping and wiring                              |
| <input type="checkbox"/> | Air inlet & outlet port of unit is unblocked           |
| <input type="checkbox"/> | Drainage and venting is unblocked and no water leaking |
| <input type="checkbox"/> | Leakage protector is working                           |
| <input type="checkbox"/> | Piping insulation is working                           |
| <input type="checkbox"/> | Ground wire is connected correctly                     |

#### 3.4.2.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 water tank with water before power is switched on;

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

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








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

# 4.CONTROLLER OPERATION GUIDANCE






## 4.1.Display













### Basic Icons

| Icon  | Meaning        | Icon  | Meaning            |
|---|----------------|---|--------------------|
|   | Automatic Mode |   | Fan Icon           |
|  | Heating Mode   |  | Fault Icon         |
|  | Cooling Mode   |  | Lock Key Indicator |
|  | Defrost Icon   |   |                    |









### 4.1.1.Key Instruction



























|   |       |   |
|---|-------|---|
|  | Power | Short press: Switch on/off status, exit the current interface, return to the main interface         |
|   |       | Press and hold for 3 seconds: lock/unlock   |
|  | UP    | Short press: Enter the temperature setting state when the unit is on and increase the current value |
|  | Down  | Short press: When the screen is on, enter the temp change state, decrease current value             |
|   |       | Hold down for 3s: Enter the query of the unit parameter status                                      |
|  | Mode  | Short press: Press the mode key when the unit is on to switch automatic/cooling/heating modes       |
|  | Time  | Short press: Enter time settings  |
|   |       | Press and hold for 3 seconds: Enter the timer on/off setting interface                              |











### 4.1.2. Combination Key Instruction

| Button Operation   | Operation Duration | Function Description   |
|--|--------------------|--|
|  +   | 3s                 | Enter forced defrosting under the main interface               |
|  +   | 3s                 | Switch between Fahrenheit and Celsius under the main interface |
|  +   | 5s                 | Enter password input state                                     |
|  +  +  +  | 3s                 | Restore factory settings                                       |

### 4.2. Operation Function Instruction

| NO. | Item                       | Operation Way  |
|-----|----------------------------|--|
| 1   | Key Lock                   | Long press the "  " key on the main interface for 3 seconds to lock/unlock the display.   |
| 2   | On/Off                     | In unlock state, tap on the main interface "  " to switch between on/off status; in shutdown state, display water temperature, unit, and clock; in startup state, display water temperature, unit, clock, operating mode, and frequency mode  |
| 3   | Target Temperature Setting | Press the "  " or "  " button while the device is powered on to enter the temperature setting interface. The displayed set temperature will blink.<br>Modify the current set temperature by pressing the "  " or "  " button. If the "  " button is briefly pressed, the current set temperature will be saved and exited. <b>If no operation within 1 minute , the temperature will be saved and exited, and the display will be locked.</b> |
| 4   | Mode Switch                | While powered on, press the "  " key to switch the operating mode, automatic → cooling → heating.   |

| NO. | Item                 | Operation Way  |
|-----|----------------------|--|
| 5   | Clock Setting        | <p>Press the "" button to enter the clock setting state, <b>the hour position and the minute position will blink first</b>. Press the "" button again, the hour position blinks, indicating that the current hour value can be adjusted by using the "" and "" keys. Pressing the "" key once increases the hour by 1, and pressing the "" key once decreases the hour. If you hold down the "" key or the "" key for a long time, the hour will automatically increase or decrease. After setting the hour value, press the "" key again; at this point, the minute position blinks, indicating that the current minute value can be adjusted using the "" and "" keys. After setting the minute value, press the "" key again to end.</p>  |
| 6   | Timer On/Off Setting | <ul style="list-style-type: none"> <li>Press and hold the "" key for 3 seconds to enter the timer setting: Enter the timer selection, at this time, the "timer on 1" clock "hour" blinks, and you can set the hour by using the "" and "" keys; press the "" key again to switch to the clock "minute", and you can set the minute by using the "" and "" keys; press the "" key again to switch to the "timer off 1" setting: the clock "hour" blinks, and you can set the hour by using the "" and "" keys; press the "" key again to switch to the clock "minute", and you can set the minute by using the "" and "" keys; set other time periods in the same way, a total of 3 time periods for timer settings;</li> </ul> <p>Press "" to exit or confirm.</p> <ul style="list-style-type: none"> <li>Return to the main interface, the current set timing period will be displayed;</li> <li>Cancel the timing setting: Under the scheduled startup setting, pressing the "" key can cancel/enable the scheduled startup function.</li> </ul> |

| NO. | Item                       | Operation Way   |
|-----|----------------------------|---|
| 7   | Switch Temperature Units   | When the device is turned off, long press the "  and "  on the main interface for 3 seconds to switch between Celsius and Fahrenheit.   |
| 8   | Restore Factory Parameters | While in off state, press and hold the "  + "  + "  + "  keys for 3 seconds to restore the factory settings via the wire controller. At this time, the buzzer will sound twice continuously, and all parameter values will restore to the default settings.   |
| 9   | Status Query               | Under the main interface, press and hold the "  key for 3 seconds to enter the crew status parameter query. Use the "  and "  keys to browse parameters, and press the "  key to exit parameter query. In the status query interface, if there is no key operation for consecutive <b>1 minute</b> , the status query interface will automatically exit and return to the main interface, <b>and the display will be locked</b> . |

The status parameters are as the following table

| Code | Meaning                            | Range   |
|------|------------------------------------|---------|
| A01  | Water Inlet Temperature            | -30~99℃ |
| A02  | Water Outlet Temperature           | -30~99℃ |
| A03  | Ambient Temperature                | -30~99℃ |
| A04  | Exhaust Temperature                | 0~125℃  |
| A05  | Suction Temperature                | -30~99℃ |
| A06  | Heating Coil Temperature           | -30~99℃ |
| A07  | Cooling Coil Temperature           | -30~99℃ |
| A08  | Electronic Expansion Valve Opening | 0-480N  |

### 4.3. Fault Code

When a fault occurs, the main interface blinks the corresponding fault code. When multiple fault codes occur at the same time, the code blinks alternately.

| Code | Description           |
|------|-----------------------|
| E03  | Water flow protection |



|     |  |
|-----|--|
| E04 | Winterizing  |
| E05 | High pressure protection   |
| E06 | Low pressure protection  |
| E09 | Main board-wired controller communication fault  |
| E12 | High exhaust temperature protection  |
| E15 | Inlet water temperature sensor fault   |
| E16 | Heating coil temperature sensor fault  |
| E18 | Exhaust temperature sensor fault   |
| E21 | Ambient temperature sensor fault   |
| E23 | Low outlet temperature protection when cooling   |
| E27 | Outlet water temperature sensor fault  |
| E29 | Suction temperature sensor fault   |
| E32 | High outlet temperature protection when heating/high water temperature difference protection of Inlet and outlet |
| E42 | Cooling coil temperature sensor fault  |

## 5.MAINTENANCE AND WINTERIZING

### 5.1.Maintenance



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

#### 5.1.1.Cleaning

- 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.
- The evaporator at the rear of the heat pump must be carefully cleaned with a vacuum cleaner and soft brush attachment.

#### 5.1.2.Annual maintenance

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

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

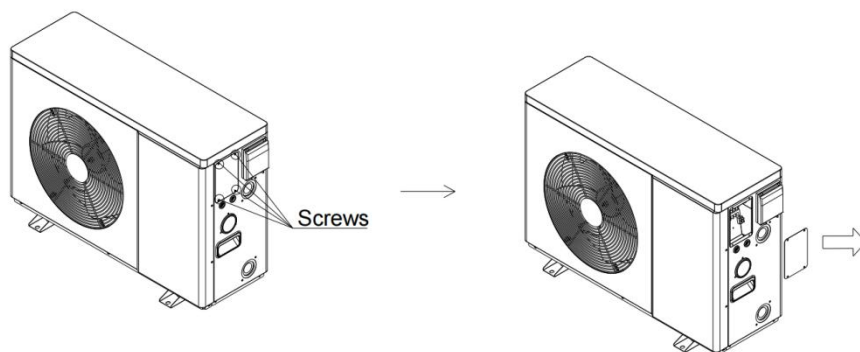
## 5.2.Disassembly Guidelines

### 5.2.1.VDPYCA-65

#### Step 1: Remove the junction box cover

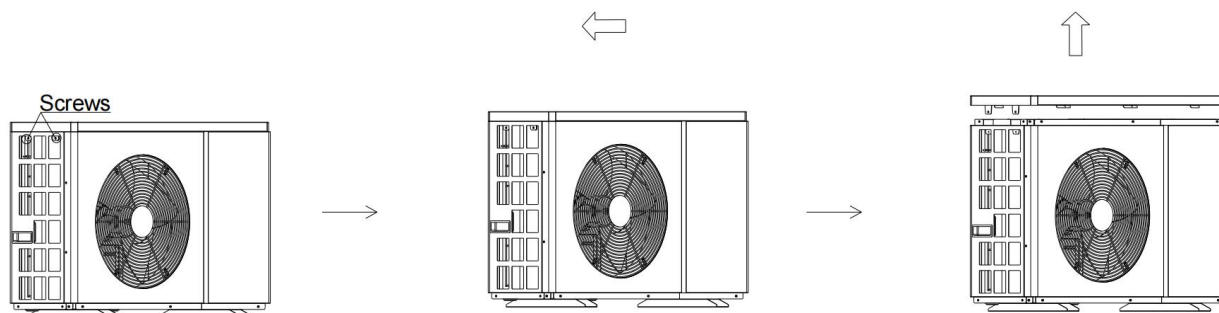
- ① Remove the junction box cover screws;
- ② Take out the junction box cover in the direction of the arrow.





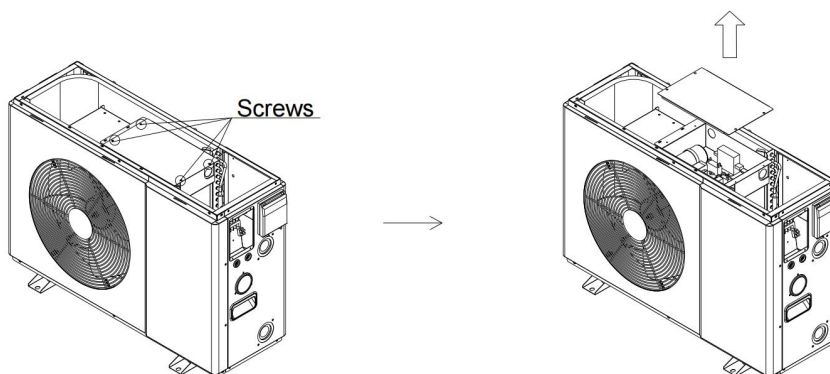
## Step 2: Remove the top cover

- ① Remove the top cover screws;
- ② Push the top cover in the direction of the arrow;
- ③ Take out the top cover in the direction of the arrow.



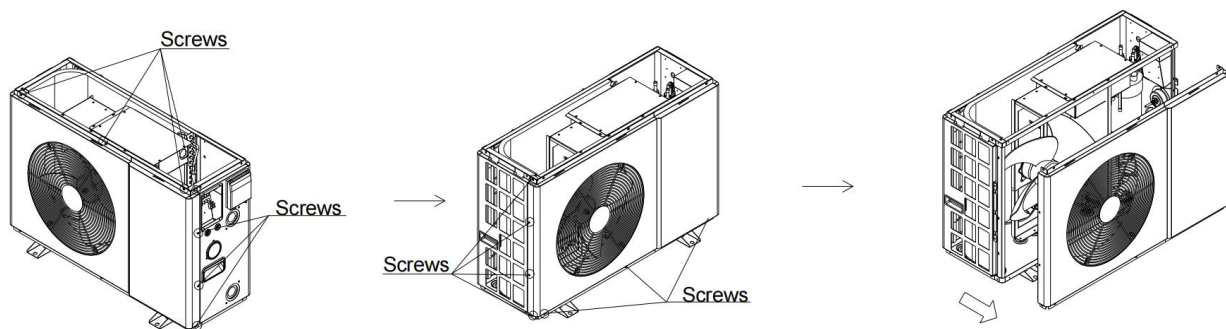
## Step 3: Remove the electrical box cover

- ① Remove the electrical box cover screws;
- ② Take out the electrical box cover in the direction of the arrow.



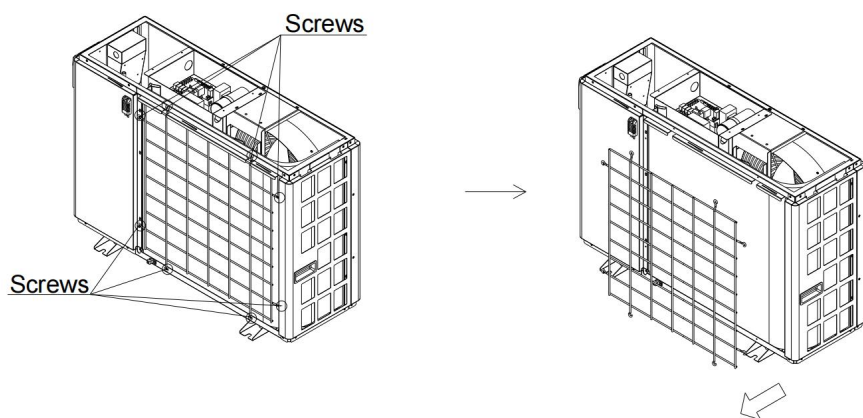
## Step 4: Remove the front panel

- ① Remove the front panel screws;
- ② Take out the front panel in the direction of the arrow.



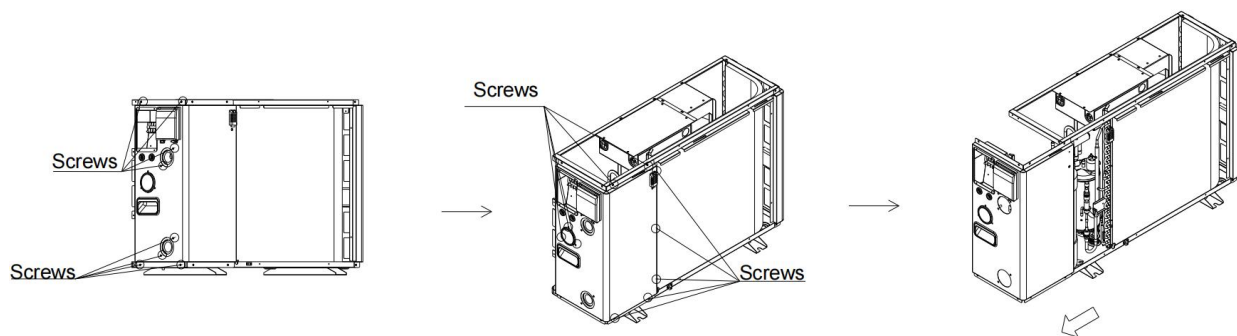
### Step 5: Remove the back net

- ① Remove the back net screws;
- ② Take out the back net in the direction of the arrow.



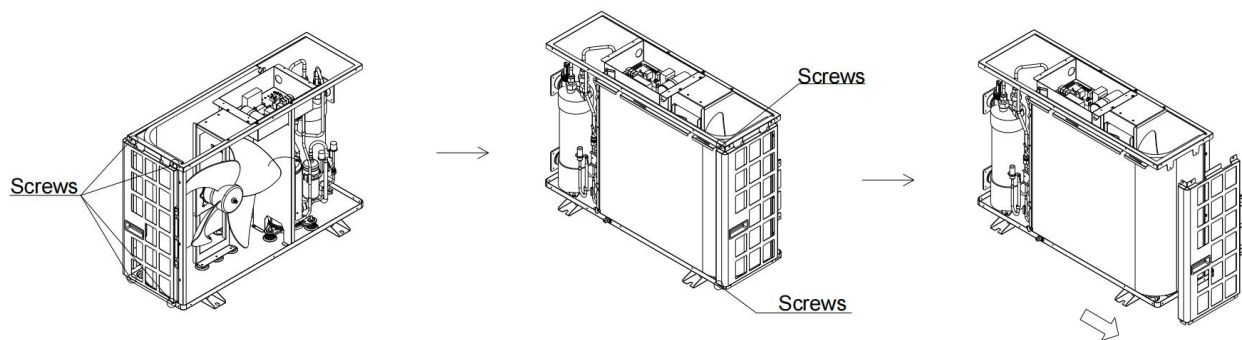
### Step 6: Remove the right panel

- ① Remove the screws from the nozzle joint;
- ② Remove the screws from the pressure gauge and right panel;
- ③ Take out the right panel in the direction of the arrow.



### Step 7: Remove the left panel

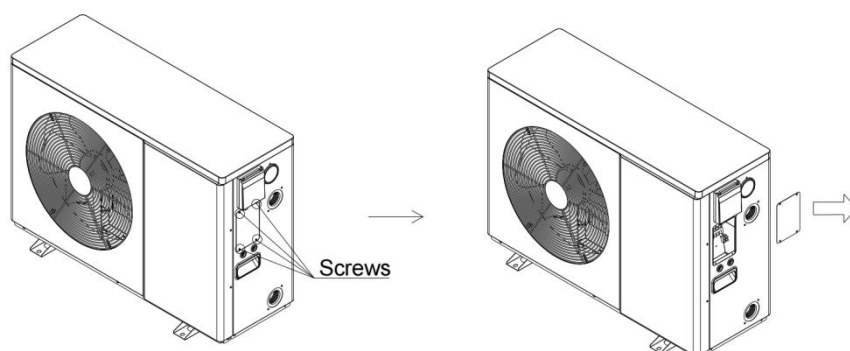
- ① Remove the left panel screws;
- ② Take out the left panel in the direction of the arrow.



## 5.2.2.VDPYCA-110,VDPYCA-150

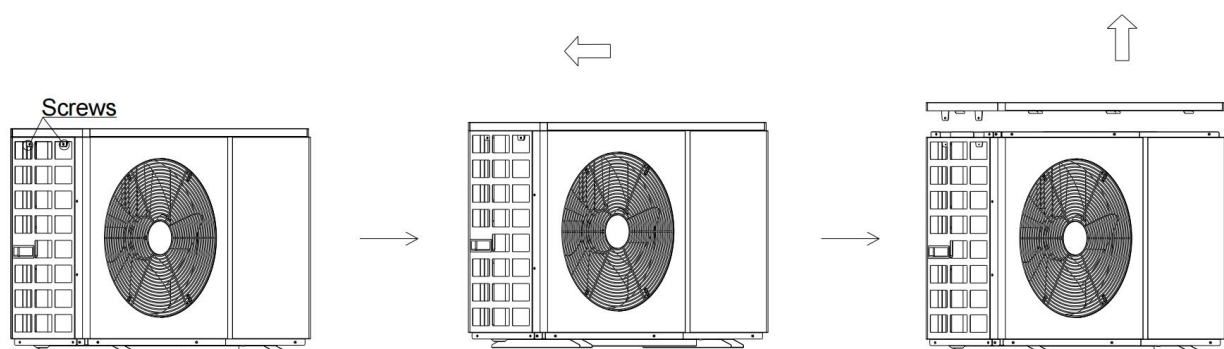
### Step 1: Remove the junction box cover

- ① Remove the junction box cover screws;
- ② Take out the junction box cover in the direction of the arrow.



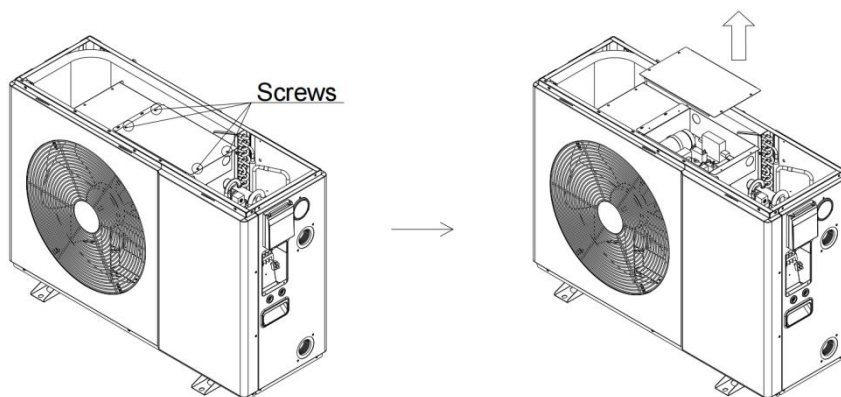
### Step 2: Remove the top cover

- ① Remove the top cover screws;
- ② Push the top cover in the direction of the arrow;
- ③ Take out the top cover in the direction of the arrow.



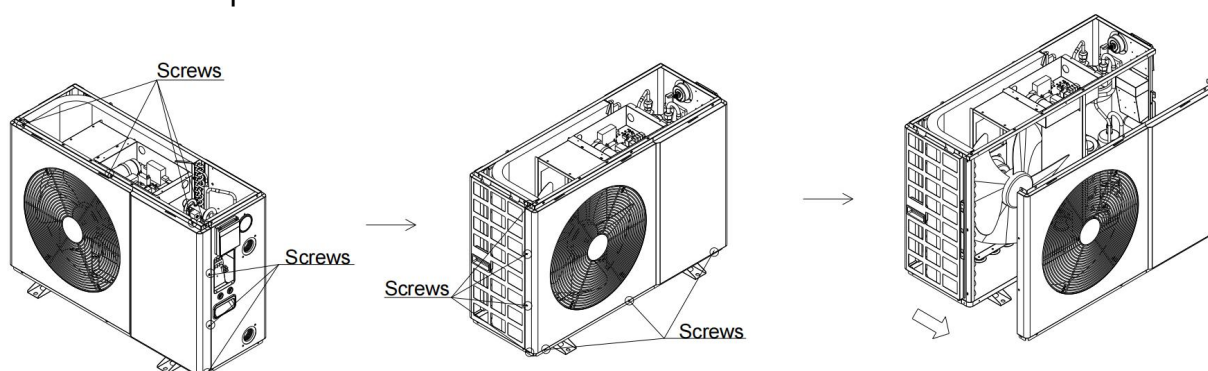
### Step 3: Remove the electrical box cover

- ① Remove the electrical box cover screws;
- ② Take out the electrical box cover in the direction of the arrow.



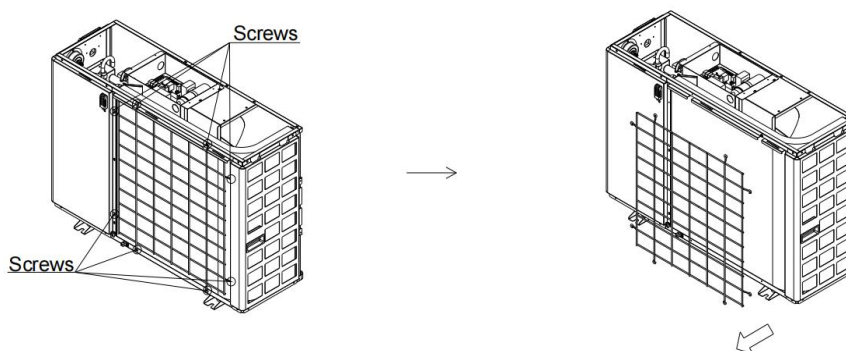
#### Step 4: Remove the front panel

- ① Remove the front panel screws;
- ② Take out the front panel in the direction of the arrow.



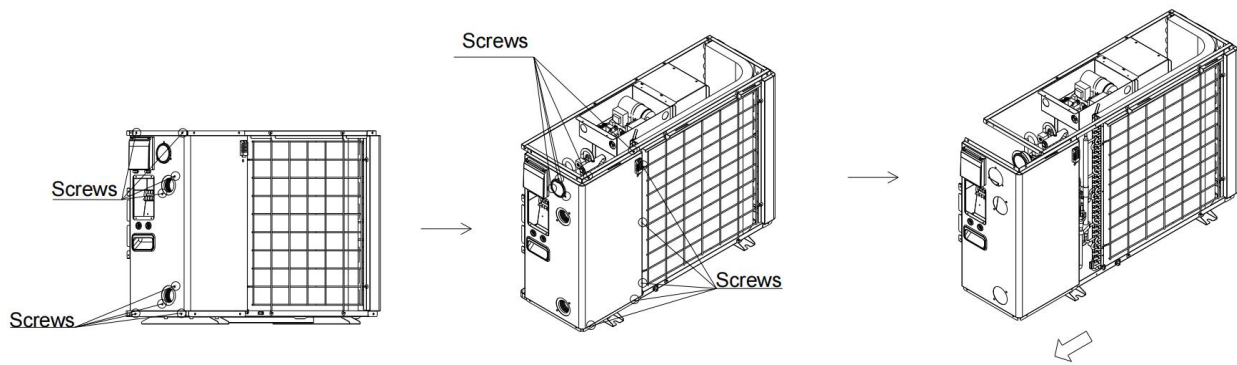
#### Step 5: Remove the back net

- ① Remove the back net screws;
- ② Take out the back net in the direction of the arrow.



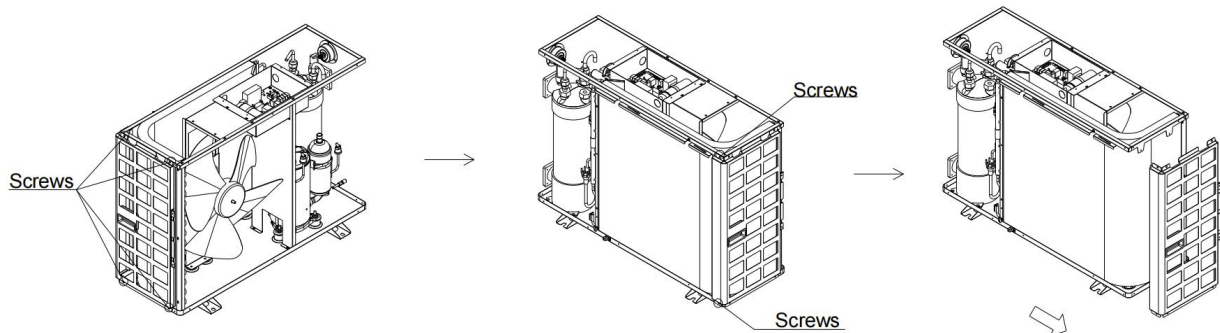
#### Step 6: Remove the right panel

- ① Remove the screws from the nozzle joint;
- ② Remove the screws from the pressure gauge and right panel;
- ③ Take out the right panel in the direction of the arrow.



### Step 7: Remove the left panel

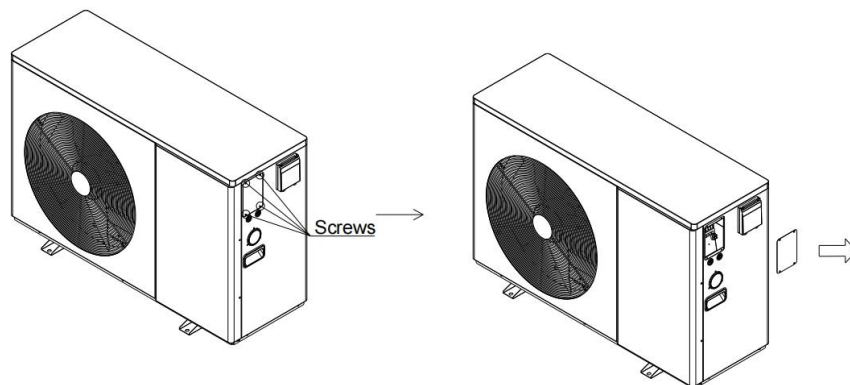
- ① Remove the left panel screws;
- ② Take out the left panel in the direction of the arrow.



### 5.2.3.VDPYCA-210

#### Step 1: Remove the junction box cover

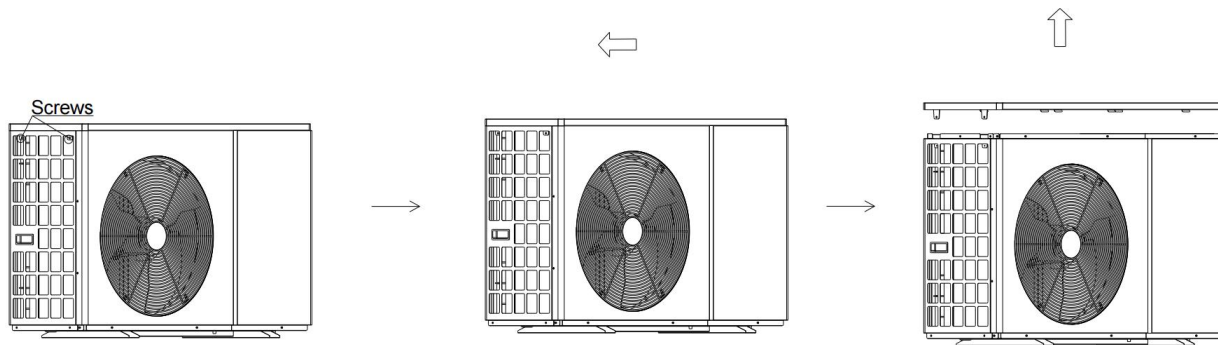
- ① Remove the junction box cover screws;
- ② Take out the junction box cover in the direction of the arrow.



#### Step 2: Remove the top cover

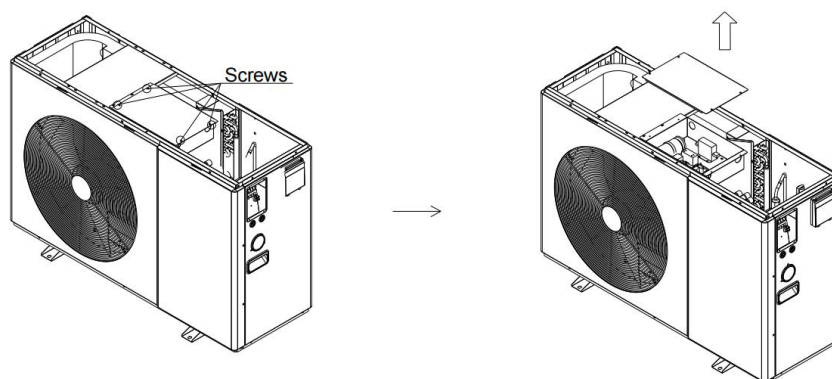
- ① Remove the top cover screws;
- ② Push the top cover in the direction of the arrow;
- ③ Take out the top cover in the direction of the arrow.





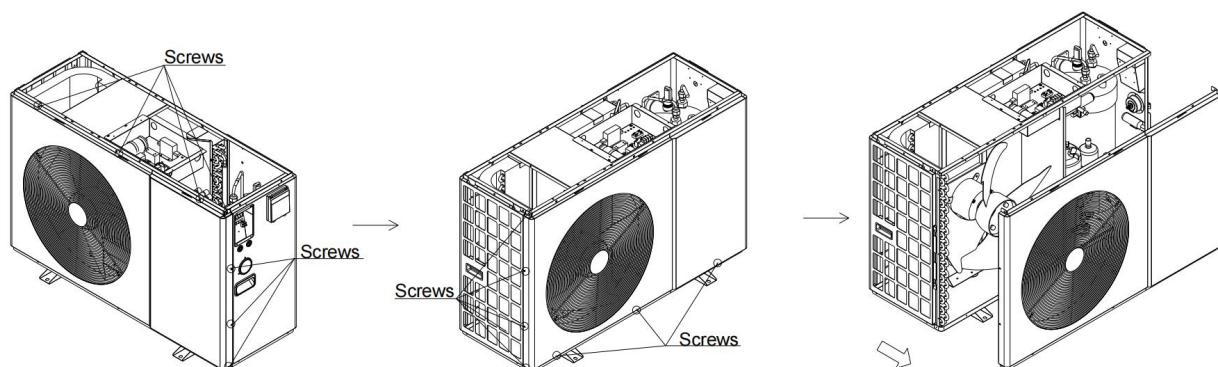
### Step 3: Remove the electrical box cover

- ① Remove the electrical box cover screws;
- ② Take out the electrical box cover in the direction of the arrow.



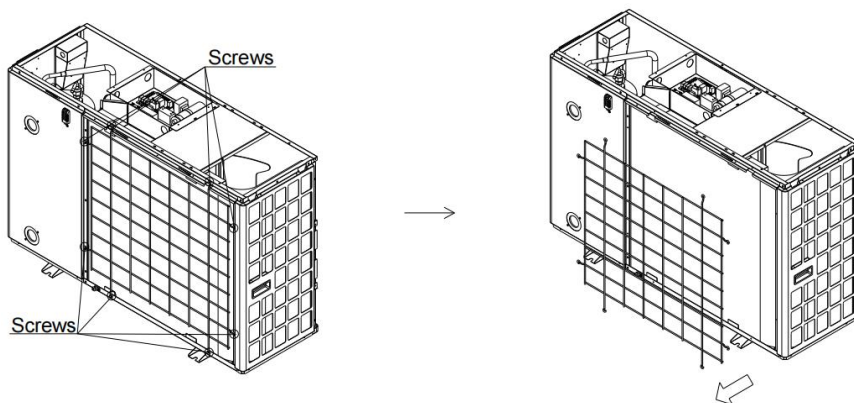
### Step 4: Remove the front panel

- ① Remove the front panel screws;
- ② Take out the front panel in the direction of the arrow.



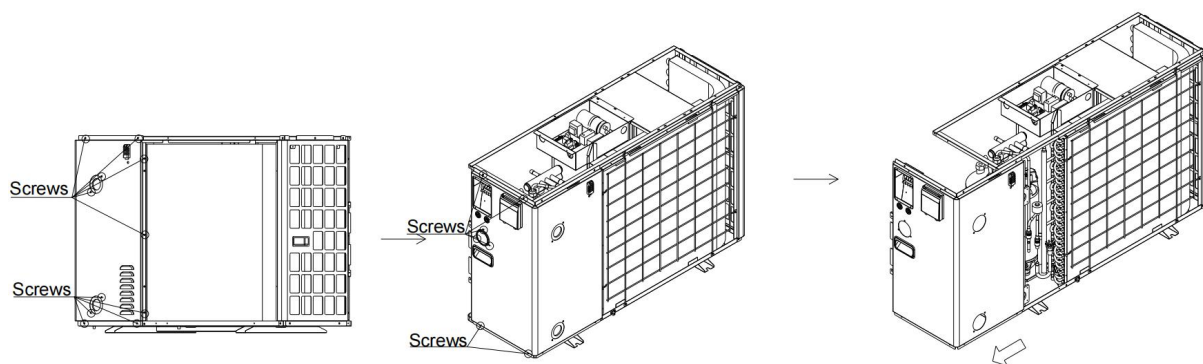
### Step 5: Remove the back net

- ① Remove the back net screws;
- ② Take out the back net in the direction of the arrow.



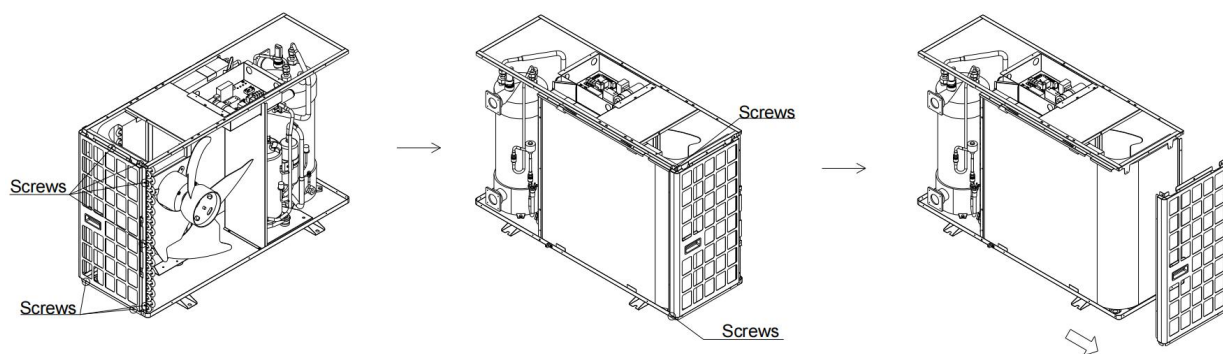
### Step 6: Remove the right panel

- ① Remove the screws from the nozzle joint;
- ② Remove the screws from the pressure gauge and right panel;
- ③ Take out the right panel in the direction of the arrow.



### Step 7: Remove the left panel

- ① Remove the left panel screws;
- ② Take out the left panel in the direction of the arrow.



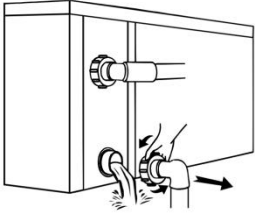
### 5.3.Winterizing



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

**In winter season when you don't swim:**

- ① Cut off power supply to prevent any machine damage.
- ② Drain water clear of the machine.



**!! Important:**

Unscrew the water nozzle of inlet pipe to let the water flow out. When the water in machine freezes in winter season, the titanium heat exchanger may be damaged.

- ③ Cover the machine body when not in use.









**VEVOR<sup>®</sup>**

**TOUGH TOOLS, HALF PRICE**

**Technical Support and E-Warranty Certificate**

**[www.vevor.com/support](http://www.vevor.com/support)**