# User and Service manual

## SWIMMING POOL HEAT PUMP

## PRO ELYO TOUCH

# INDEX


1. Description
2. Transport information
3. Specifications
4. Accessories and options
5. Location and connection
6. Electrical Wiring
7. Start-up of the Heat Pump
8. Troubleshooting
9. Exploded Diagram
10. Maintenance


Thank you for using PRO ELYO TOUCH swimming pool heat pump for your pool heating, it will heat your pool water and keep the constant temperature when the air ambient temperature is at -20 to 50℃.

**ATTENTION: This manual includes all the necessary information for the use and the installation of your heat pump.**

- The installer must read the manual and follow the instructions of implementation and maintenance.
- Failure to respect the warnings may cause serious damage to the pool equipment or cause serious injury, even death.
- The installer is responsible for the installation of the product and should follow all the instructions of the manufacturer and the regulations in application. Incorrect installation will invalidate the guarantee.
- The manufacturer declines any responsibility for the damage caused by any third party, object ingression and of the errors due to the installation that do not follow the manual guidelines. Any use that is not as intended by the manufacturer will invalidate the guarantee.
- Keep and pass on these documents for later viewing throughout the appliance's service life.

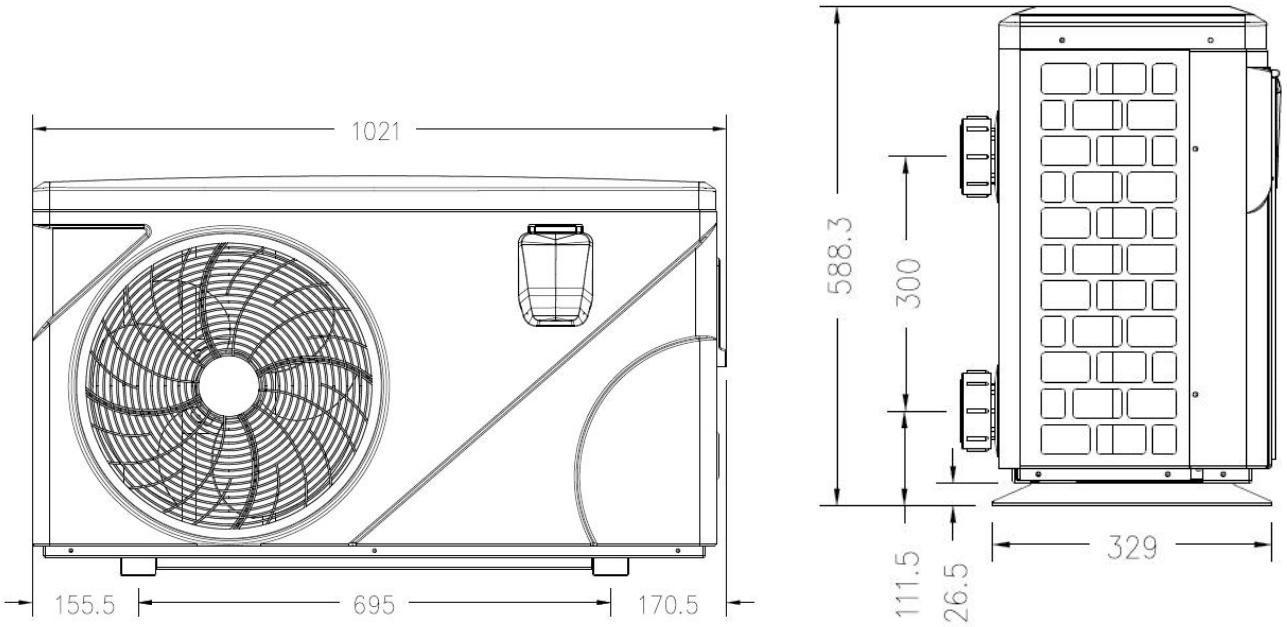
# 1. Description

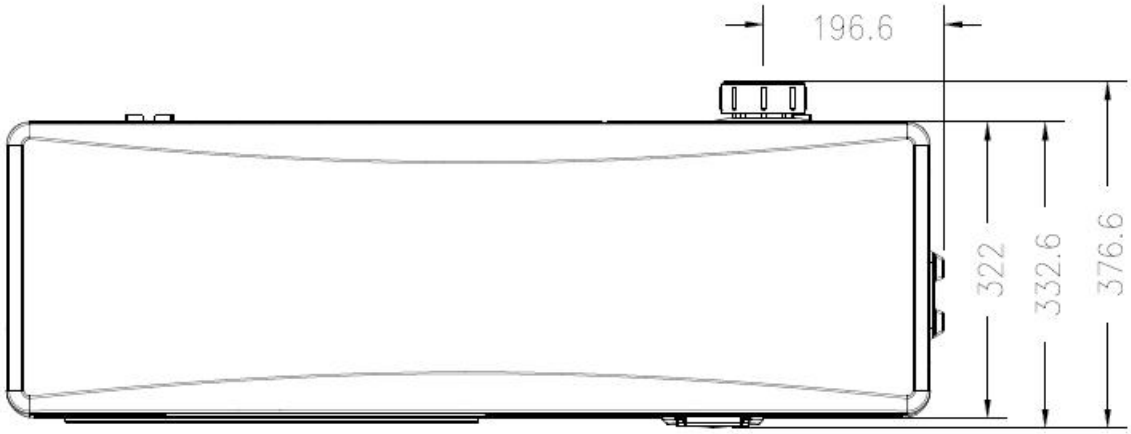
## 1.1 Included with your Heat Pump

- Water connection assembly 50 mm (pcs: 2)
- User and service manual
- Reducer connection
- Winter cover
- Anti-vibration base (pcs: 4)

## 1.2 Dimension

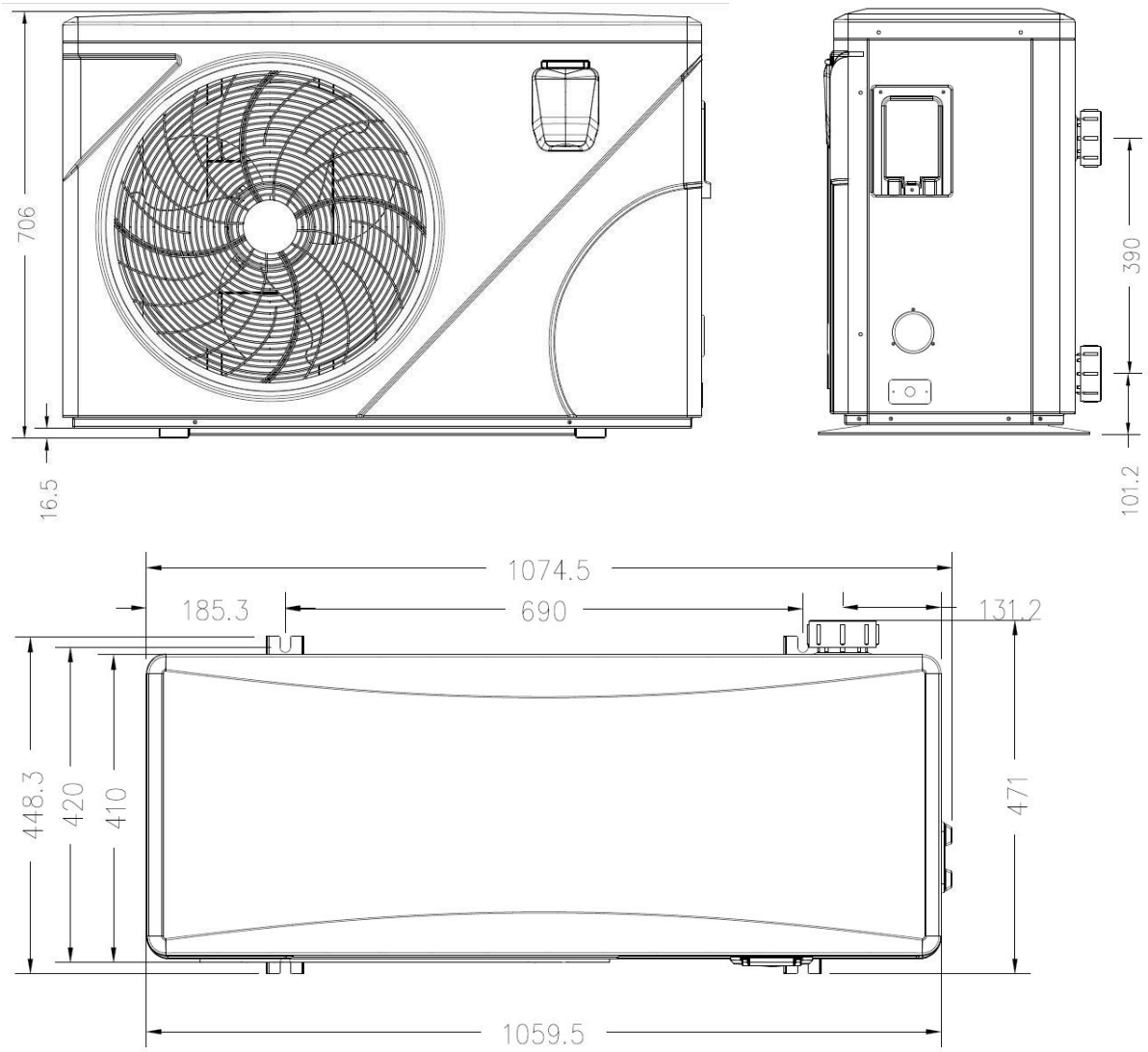
**Model: 74166**



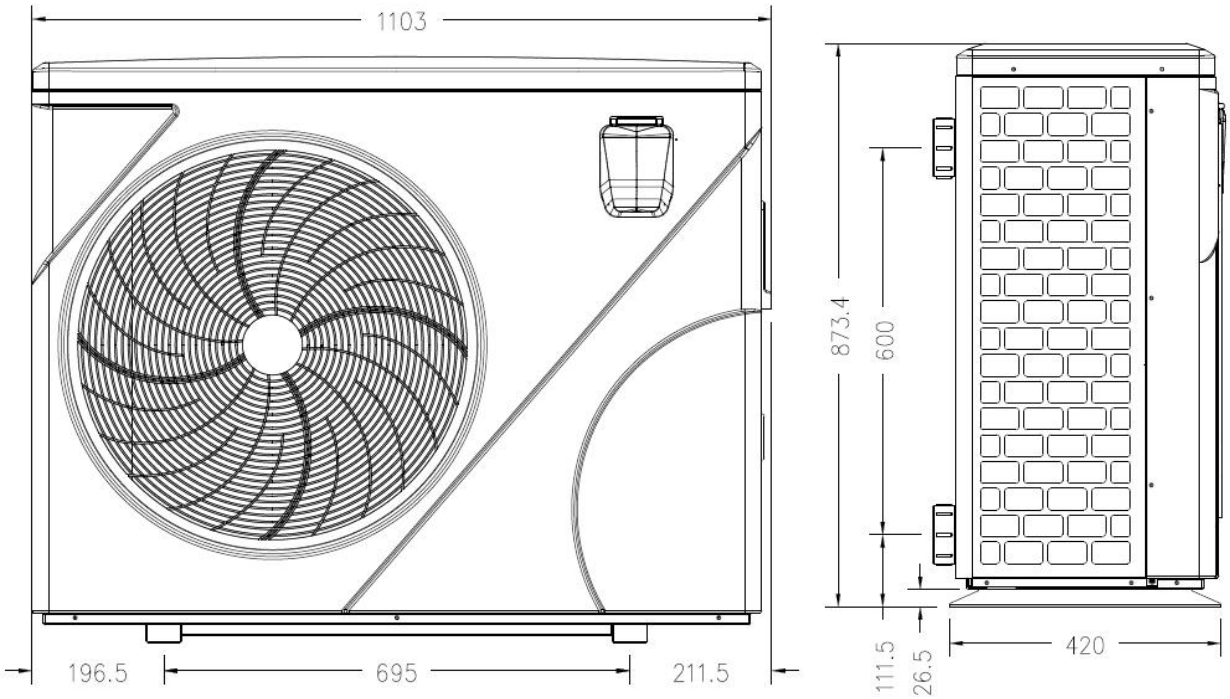
# 1. Description

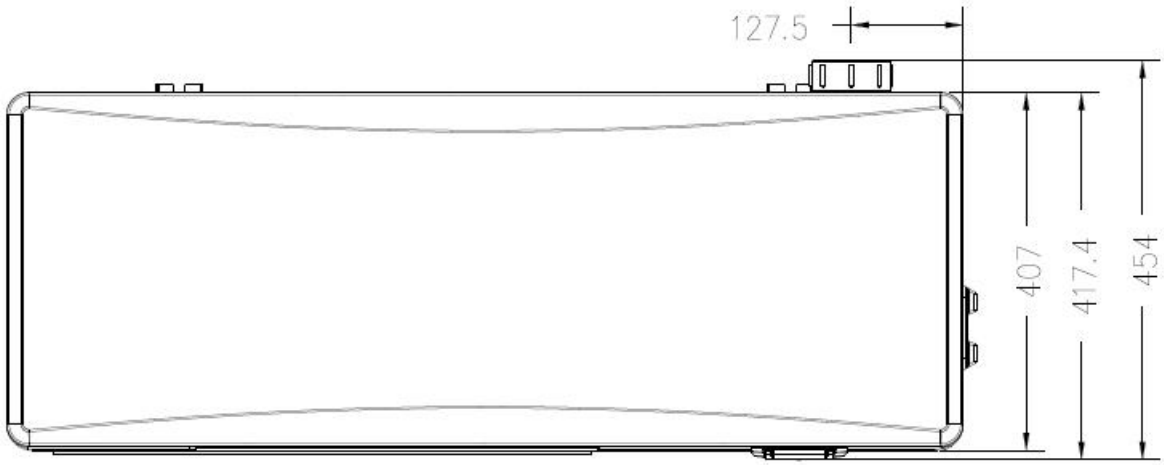
**Models: 74167/74168/74169**



# 1. Description

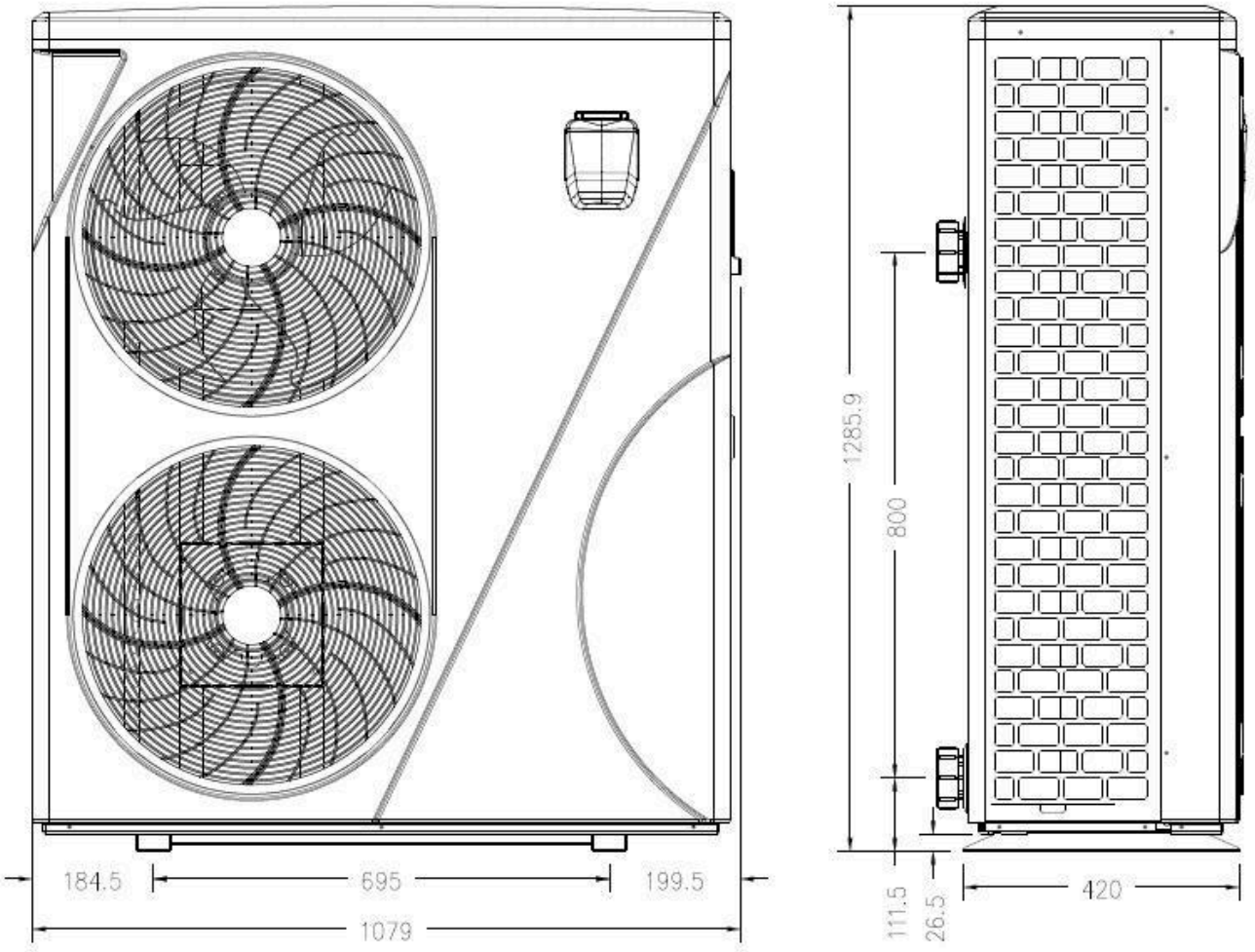
**Models: 74170/74171**

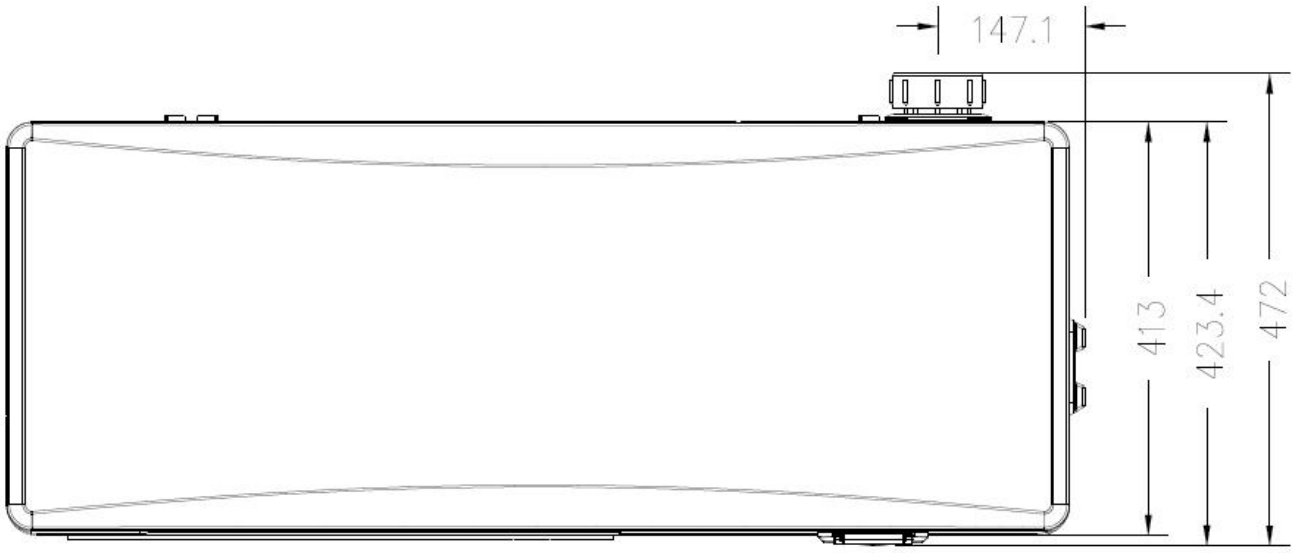


# 1. Description

**Models: 74172/74173/74174/74175**



# 2. Transport information

## 2.1 Delivery of the unit





For the transportation, the heat pumps are fixed on the pallet and covered with a cardboard box.

To protect from any damage, the heat pump must be transferred in its package.
It is the responsibility of the addressee to notify of any damage incurred during delivery within 48 hours.
No responsibility can be taken once the unit has been signed for.

## 2.2 Stock advice



* The warehouse should be bright, spacious, open, well ventilated, have ventilation equipment and no fire source.

* Heat pumps must be stored and transferred in vertical position in its original packaging. If it is not the case, it cannot be operated until a minimum period of 24H has passed before the unit can have the electrical power turned on.

**FORBIDDEN**



### 2.3 Transfer to the final position

* During the unpacking of the product and the transfer from the pallet to the final place of installation, it is necessary to maintain the heat pump in a vertical position.

* Smoking and the use of flames are prohibited near R32 machine.
* Water connection are not to be used as load bearing handles. **The manufacturer would not take the responsibility in case of damage to the water pipes.**

# 3. Specifications

**Technical data PRO ELYO TOUCH pool heat pumps**

| Model | **PET-08** | **PET-10** | **PET-13** | **PET-15** |
|---|---|---|---|---|
| Part number | **74166** | **74167** | **74168** | **74169** |
| **Air 28℃, Water 28℃, Humidity 80% (Max-Min speed)** | | | | |
| Heating Capacity | 8,50 - 3,1 kW | 10,5 - 2,3 kW | 13,5 - 3 kW | 15,9 - 3 kW |
| Power consumption | 1,5 - 0,2 kW | 1,7 - 0,15 kW | 2,2 - 0,2 kW | 2,6 - 0,2 kW |
| COP | 5,8 - 15 | 6,2 - 16 | 6,2 - 16 | 6 - 16 |
| **Air 15℃,Water 26℃, Humidity 70% (Max-Min speed)** | | | | |
| Heating Capacity | 6,0 - 2,5 kW | 7,5 - 2 kW | 9,0 - 2 kW | 11,0 - 2,5 kW |
| Power consumption | 1,4 - 0,3 kW | 1,75 - 0,25 kW | 2,0 - 0,25 kW | 2,5 - 0,3 kW |
| COP | 4,5 - 8 | 4,5 - 8 | 4,5 - 8 | 4,5 - 8 |
| Voltage | 220-240V / 1N~ / 50Hz | 220-240V / 1N~ / 50Hz | 220-240V / 1N~ / 50Hz | 220-240V / 1N~ / 50Hz |
| Rated current | 4,6A | 5,9A | 7,2A | 9,2A |
| Minimum Circuit breaker rating | 7A | 9A | 11A | 14A |
| Advised water flow | 4m3/h | 5m3/h | 6m3/h | 7m3/h |
| Water connection | 50mm | 50mm | 50mm | 50mm |
| Noise level at 1m | 38-51dB(A) | 39-52dB(A) | 40-52dB(A) | 40-54dB(A) |
| Protection Rating | IPX4 | IPX4 | IPX4 | IPX4 |
| Maximum allowable pressure | 4,2MPa | 4,2MPa | 4,2MPa | 4,2MPa |
| Refrigerant | R32 | R32 | R32 | R32 |
| Refrigerant quantity | 0,65Kg | 0,7Kg | 1Kg | 1,1Kg |
| GWP | 675 | 675 | 675 | 675 |
| CO2 equivalent | 0,44t | 0,48t | 0,68t | 0,74t |
| Net/Gross Weight | 60-72Kg | 72-77Kg | 77-82Kg | 82-87Kg |

# 3. Specifications

**Technical data PRO ELYO TOUCH pool heat pumps**

| Model | **PET-19** | **PET-25** | **PET-30** | **PET-35** |
|---|---|---|---|---|
| Part number | **74170** | **74171** | **74172** | **74173** |
| Air 28℃, Water 28℃, Humidity 80% (Max-Min speed) | | | | |
| Heating Capacity | 19,8- 3,8 kW | 25,5 - 4,7 kW | 30,0 - 6 kW | 35 - 8 kW |
| Power consumption | 3,3 - 0,25 kW | 4,2 - 0,3 kW | 5 - 0,35 kW | 5,9 - 0,5 kW |
| COP | 6 - 16 | 6 - 16 | 6 - 16 | 6 - 16 |
| Air 15℃,Water 26℃, Humidity 70% (Max-Min speed) | | | | |
| Heating Capacity | 13 - 3 kW | 17 - 4 kW | 21,0 - 5,5 kW | 25,0 - 5,5 kW |
| Power consumption | 2,9 - 0,4 kW | 3,9 - 0,5 kW | 4,6 - 0,7 kW | 5,4 - 0,7 kW |
| COP | 4,5 - 8 | 4,5 - 8 | 4,5 - 8 | 4,5 - 8 |
| Voltage | 220-240V / 1N~ / 50Hz | 220-240V / 1N~ / 50Hz | 220-240V / 1N~ / 50Hz | 220-240V / 1N~ / 50Hz |
| Rated current | 10,5A | 13,2A | 17A | 22,9A |
| Minimum Circuit breaker rating | 16A | 20A | 26A | 34A |
| Advised water flow | 8m3/h | 10m3/h | 13m3/h | 13m3/h |
| Water connection | 50mm | 50mm | 50mm | 50mm |
| Noise level at 1m | 40-54dB(A) | 41-56dB(A) | 42-60dB(A) | 42-60dB(A) |
| Protection Rating | IPX4 | IPX4 | IPX4 | IPX4 |
| Maximum allowable pressure | 4,2MPa | 4,2MPa | 4,2MPa | 4,2MPa |
| Refrigerant | R32 | R32 | R32 | R32 |
| Refrigerant quantity | 1,5Kg | 1,9Kg | 2.2Kg | 2,6Kg |
| GWP | 675 | 675 | 675 | 675 |
| CO2 equivalent | 1,01t | 1,28t | 1,49t | 1,76t |
| Net/Gross Weight | 106-121Kg | 125-143Kg | 138-156Kg | 140-158Kg |

# 3. Specifications

**Technical data PRO ELYO TOUCH pool heat pumps**

| Model | **PET-30T** | **PET-35T** |
|---|---|---|
| Part number | **74174** | **74175** |
| **Air 28℃, Water 28℃, Humidity 80% (Max-Min speed)** | | |
| Heating Capacity | 30,0 - 6 kW | 35 - 8 kW |
| Power consumption | 5 - 0,35 kW | 5,9 - 0,5 kW |
| COP | 6 - 16 | 6 - 16 |
| **Air 15℃,Water 26℃, Humidity 70% (Max-Min speed)** | | |
| Heating Capacity | 21,0 - 5,5 kW | 25,0 - 5,5 kW |
| Power consumption | 4,6 - 0,7 kW | 5,4 - 0,7 kW |
| COP | 4,5 - 8 | 4,5 - 8 |
| Voltage | 380-400V / 3N~ / 50Hz | 380-400V / 3N~ / 50Hz |
| Rated current | 7A | 8,4A |
| Minimum Circuit breaker rating | 10,5A | 13A |
| Advised water flow | 13m3/h | 13m3/h |
| Water connection | 50mm | 50mm |
| Noise level at 1m | 42-60dB(A) | 42-60dB(A) |
| Protection Rating | IPX4 | IPX4 |
| Maximum allowable pressure | 4,2MPa | 4,2MPa |
| Refrigerant | R410A | R410A |
| Refrigerant quantity | 3,8Kg | 4Kg |
| GWP | 2088 | 2088 |
| CO2 equivalent | 7,94t | 8,36t |
| Net/Gross Weight | 138-156Kg | 140-158Kg |

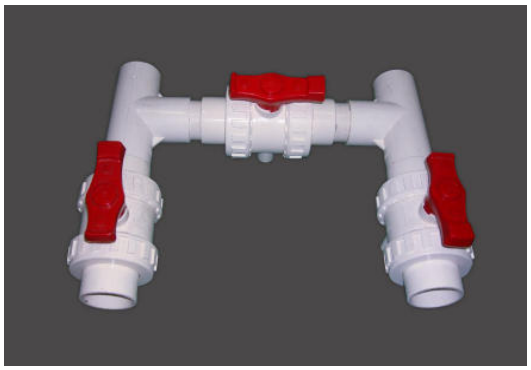
# 4. Accessories and options

## 4.1 Accessories list

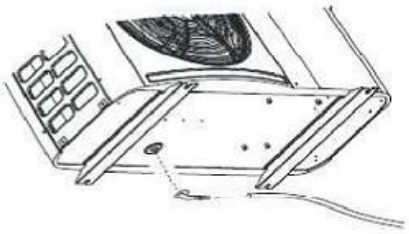
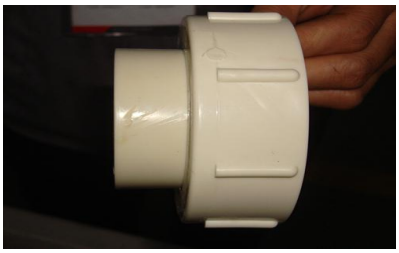
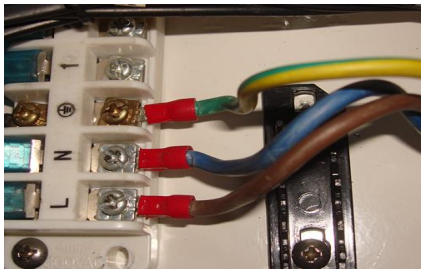
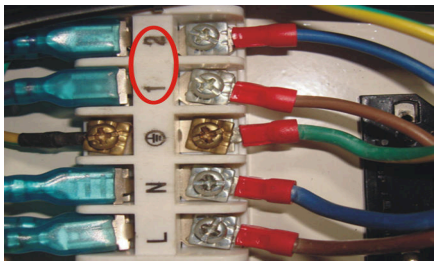
| | | |
|---|---|---|
|  Anti-vibration base, 4 pcs |  Draining plug, 2 pcs |  Winter Cover, 1 pc |
|  Modbus signal wire, 1 pc |  Water connection assembly, 2 sets | |

## 4.2 The By-Pass Kit (Not provided)

The By-Pass Kit is the essential accessory for the installation of your heat pump, it is also a tool for the optimization of the heating of the water. The valves allows the optimum flow of water using a manometer to make sure the optimized running of the compressor, see paragraph 5.6 controls of the pressure.



## 4.3 Accessories Installation

| | |
|---|---|
|  | **Anti-vibration bases**<br>1. Take out 4 Anti-vibration bases<br>2. Install them on the bottom of machine. |
|   | **Draining plug**<br>1. Install the draining plug under the bottom panel<br>2. Connect with a water pipe to drain out the water.<br><br>Note: Lift the heat pump to install the draining plug. Never overturn the heat pump, it could damage the compressor. |
|   | **Water Inlet & outlet connection**<br>1. Install the two joints like the picture shows<br>2. Screw them onto the water Inlet & outlet connection |
|    | **Mains Cable wiring**<br>1. Open the cover of the terminal box (marked red) on the side of machine<br>2. Tight the cables in the correct connections, L N E, inside the terminal block. |
|    | **Filtration pump wiring (Dry contact)**<br>1. Open the cover of the terminal box (marked red) on the side of machine<br>2. Tight the cables in the correct connections, 1 2, inside the terminal block. |

# 5. Location and connection

**ATTENTION:**

Please observe the following rules when installing the heat pump:

1. Any addition of chemicals must take place in the piping located **downstream** from the heat pump.
2. Always keep the heat pump upright. If the unit has been held at an angle, wait at least 24 hours before applying mains power to the heat pump.

## 5.1 Heat pump location

The unit will work properly in any desired location as long as the following three items are present:

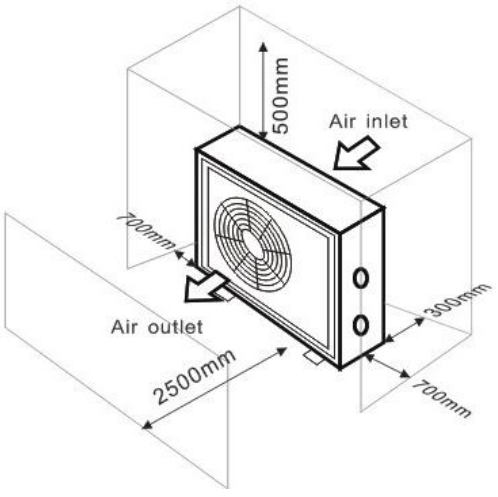
**1. Fresh air**
**2. Electricity**
**3. Swimming pool filters**

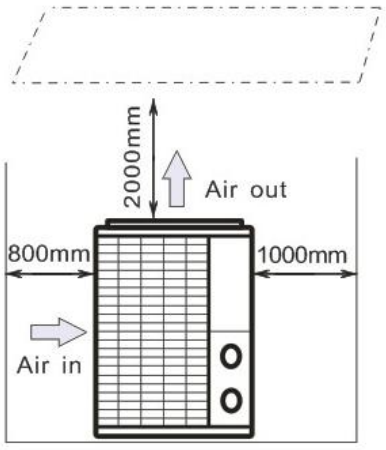
The unit may be installed in virtually any **outdoor** location as long as the specified minimum distances to other objects are maintained (see drawing below). Please consult your installer for installation with an indoor pool. Installation in a windy location does not present any problem at all.

**ATTENTION:**

1. Never install the unit in a closed room with a limited air volume in which the air expelled from the unit will be reused, or close to shrubbery that could block the air inlet. Such locations impair the continuous supply of fresh air, resulting in reduced efficiency and possibly preventing sufficient heat output.

2. When the appliance is installed and protected by a residual current device (RCD) with a maximum amperage of 30mA, it should be installed at a distance of at least 2 meters from the edge of the pool. If no RCD is installed with the appliance, it should be installed at a distance of at least 3.5 meters from the edge of the pool.

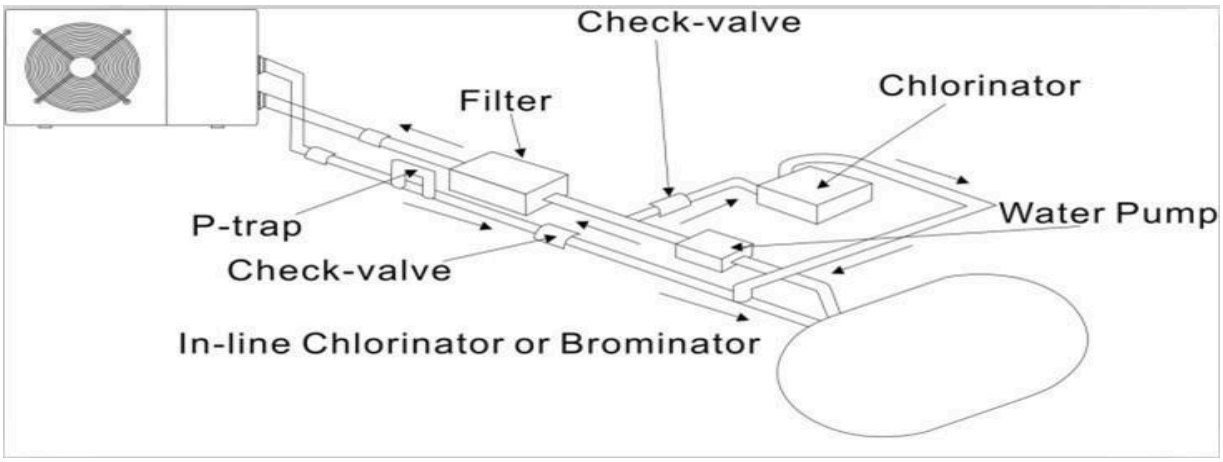


## 5.2 Check-valve installation

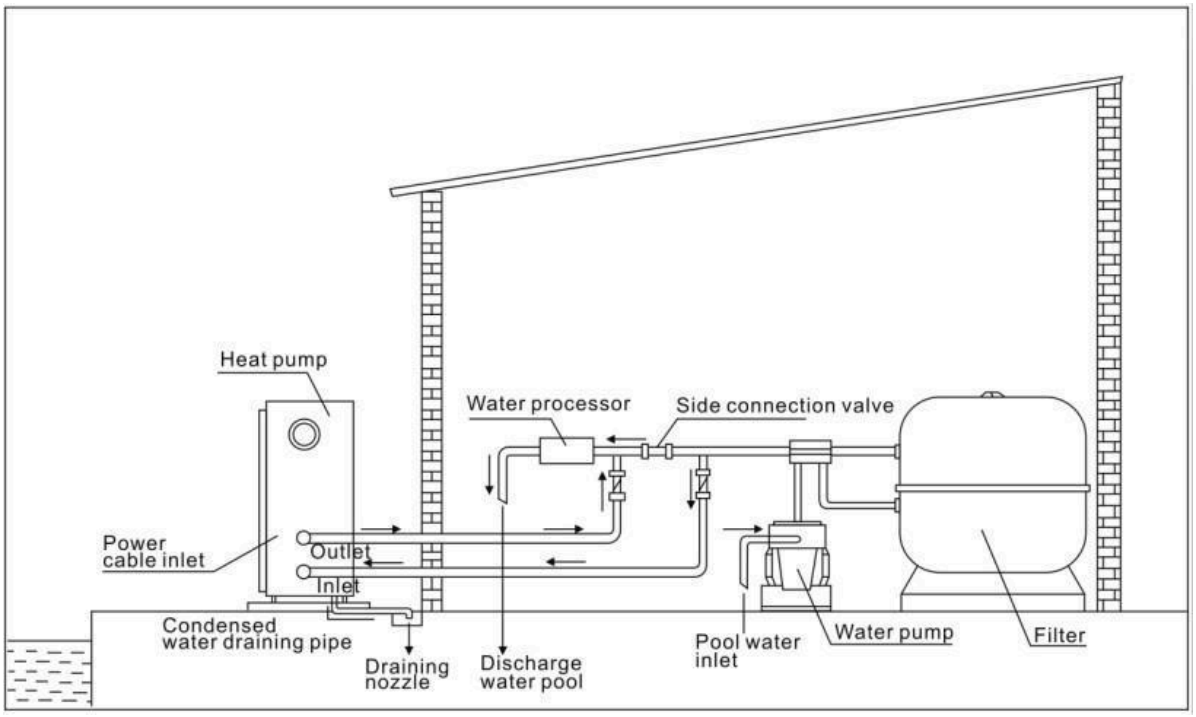
**NOTE**

Note: If automatic dosing equipment for chlorine and acidity (pH) is used, it is essential to protect the heat pump against excessively high chemical concentrations which may corrode the heat exchanger. For this reason, equipment of this sort must always be fitted in the piping on the **downstream** side of the heat pump, and it is recommended to install a check-valve to prevent reverse flow in the absence of water circulation.
Damage to the heat pump caused by failure to observe this instruction is not covered by the warranty.



# 5. Location and connection

## 5.3 Typical arrangement




**This arrangement is only an illustrative example.**

**NOTE**

The factory supplies only the heat pump. All other components, including a bypass if necessary, must be provided by the user or the installer.

**ATTENTION:**

**In order to heat the water in the pool (or hot tub), the filtration pump must be running so the water is circulating through the heat pump. The heat pump will not start up if the water is not circulating.**

## 5.4 Initial operation

After all connections have been made and checked, carry out the following procedure:

1. Switch on the filtration pump. Check for leaks and verify that water is flowing to and from the swimming pool.

2. Connect power to the heat pump and press the On/Off button  on the electronic control panel. The unit will start up after the time delay expires (see below).

3. After a few minutes, check whether the air blowing out of the unit is cooler.

4. When the filtration pump is turned off, the unit should also turn off automatically.

5. Allow the heat pump and the filtration pump to run 24 hours a day until the desired water temperature is reached. The heat pump will stop running at this point +1°C. After this, it will restart automatically (as long as the filtration pump is running) whenever the swimming pool water temperature drops 1 degree below the set temperature (for example, if you set the temperature 28°C, the heat pump will stop when the temperature at 29°C. While it will restart when the temperature of the water down to 27°C)

Depending on the initial temperature of the water in the swimming pool and the air temperature, it may take several days to heat the water to the desired temperature. A good swimming pool cover can dramatically reduce the required length of time.

**NOTE**

**Water Flow Switch:**
It is equipped with a flow switch for protecting the HP unit running with adequate water flow rate. It will turn on when the filtration pump runs and shut it off when the pump shuts off.

**Time delay -** The heat pump has a built-in 3-minute start-up delay to protect the circuitry and avoid excessive electrical contactor wear. The unit will restart automatically after this time delay expires. Even a brief power interruption will trigger this time delay and prevent the unit from restarting immediately. Additional power interruptions during this delay period do not affect the 3-minute duration of the delay.

### 5.5 Condensation

The air drawn into the heat pump is cooled by the operation of the heat pump for heating the pool water, which may cause condensation on the fins of the evaporator.

**NOTE**

The amount of condensation may be as much as several liters per hour at high humidity. The condensate will drain from the bottom of the heat pump. This is sometimes mistakenly regarded as a water leak.

### 5.6 Pressure gauge display (R410A & R32)

Examine the pressure gauge which indicates the refrigerant gas pressure of the unit, the below table shows the normal value of the gas pressure (R410A & R32) when the machine is in power off or running conditions.

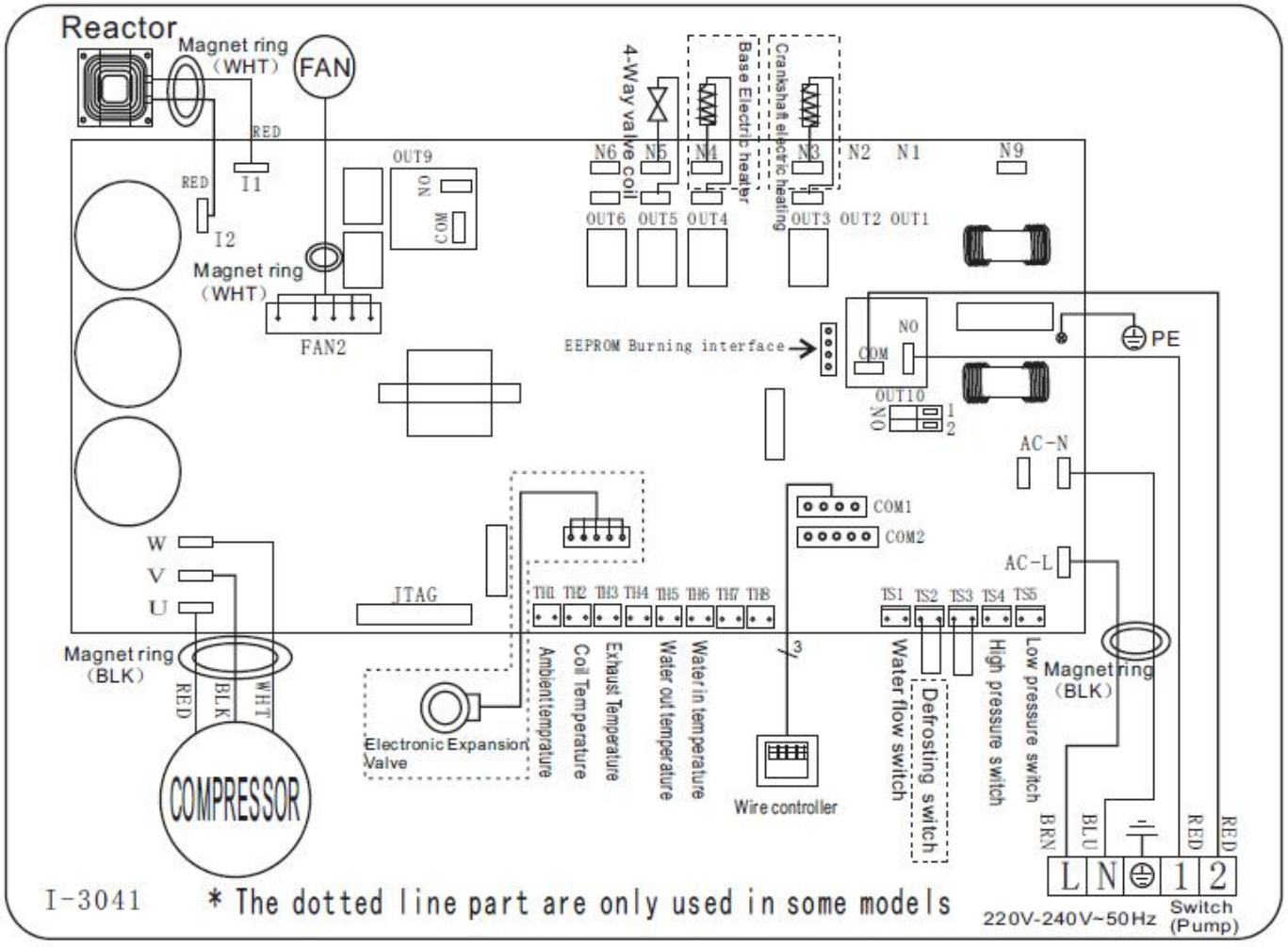
| **Unit Condition** | **Power Off** | | | |
|---|---|---|---|---|
| Ambient (℃) | -5~5 | 5~15 | 15~25 | 25~35 |
| Water temp (℃) | / | / | / | / |
| Pressure gauge (Mpa) | 0.59~0.85 | 0.85~1.18 | 1.18~1.59 | 1.59~2.1 |

| **Unit Condition** | **Running** | | | | |
|---|---|---|---|---|---|
| Ambient (℃) | / | / | / | / | / |
| Water temp (℃) | 10~15 | 15~20 | 20~25 | 25~30 | 30~35 |
| Pressure gauge (Mpa) | 1.1~1.6 | 1.3~1.8 | 1.5~2.1 | 1.7~2.4 | 1.9~2.7 |

# 6. Electrical Wiring

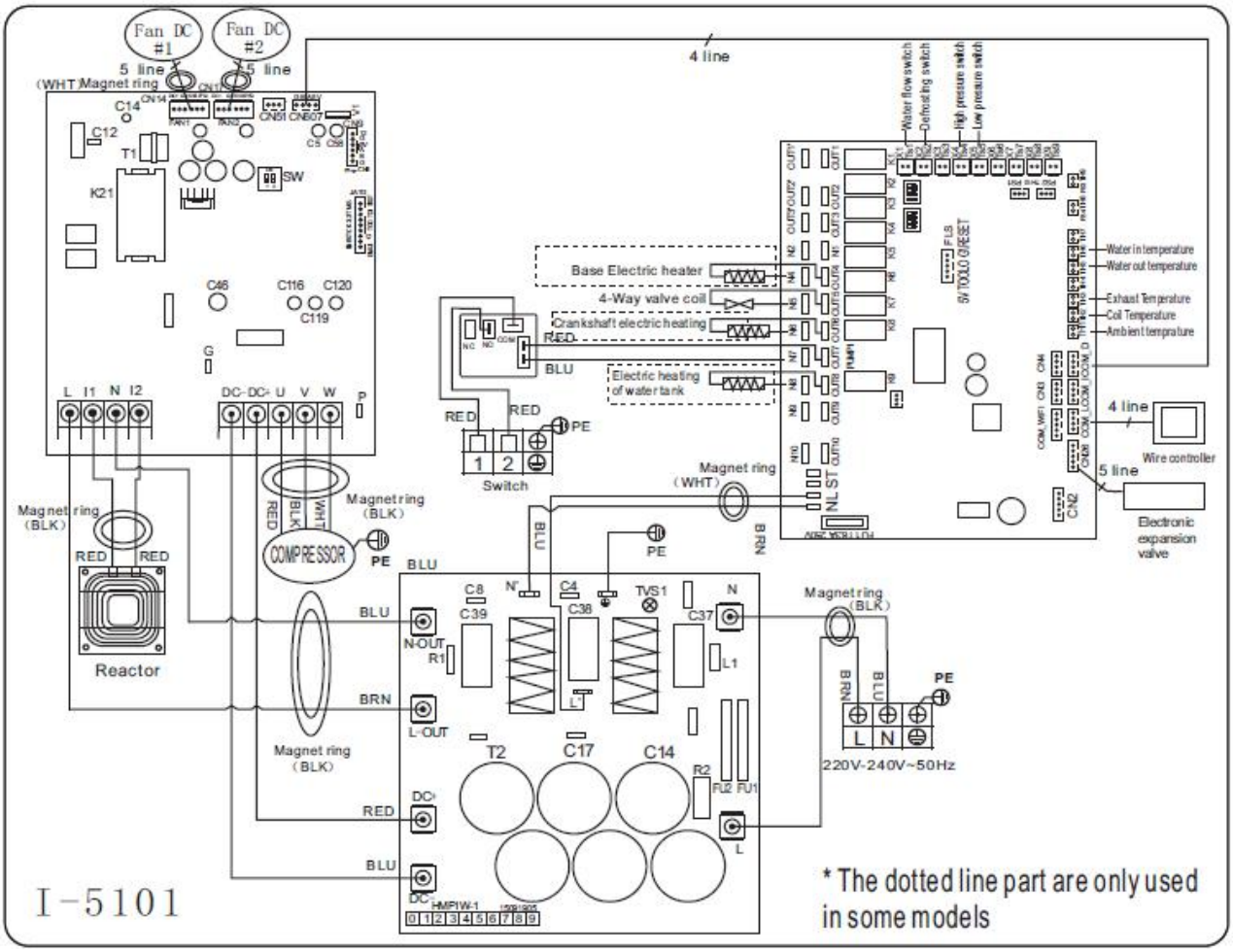
**6.1 Inverter swimming pool heat pump wiring diagram**

Ref. 74166/ 74167/74168/74169/74170/74171



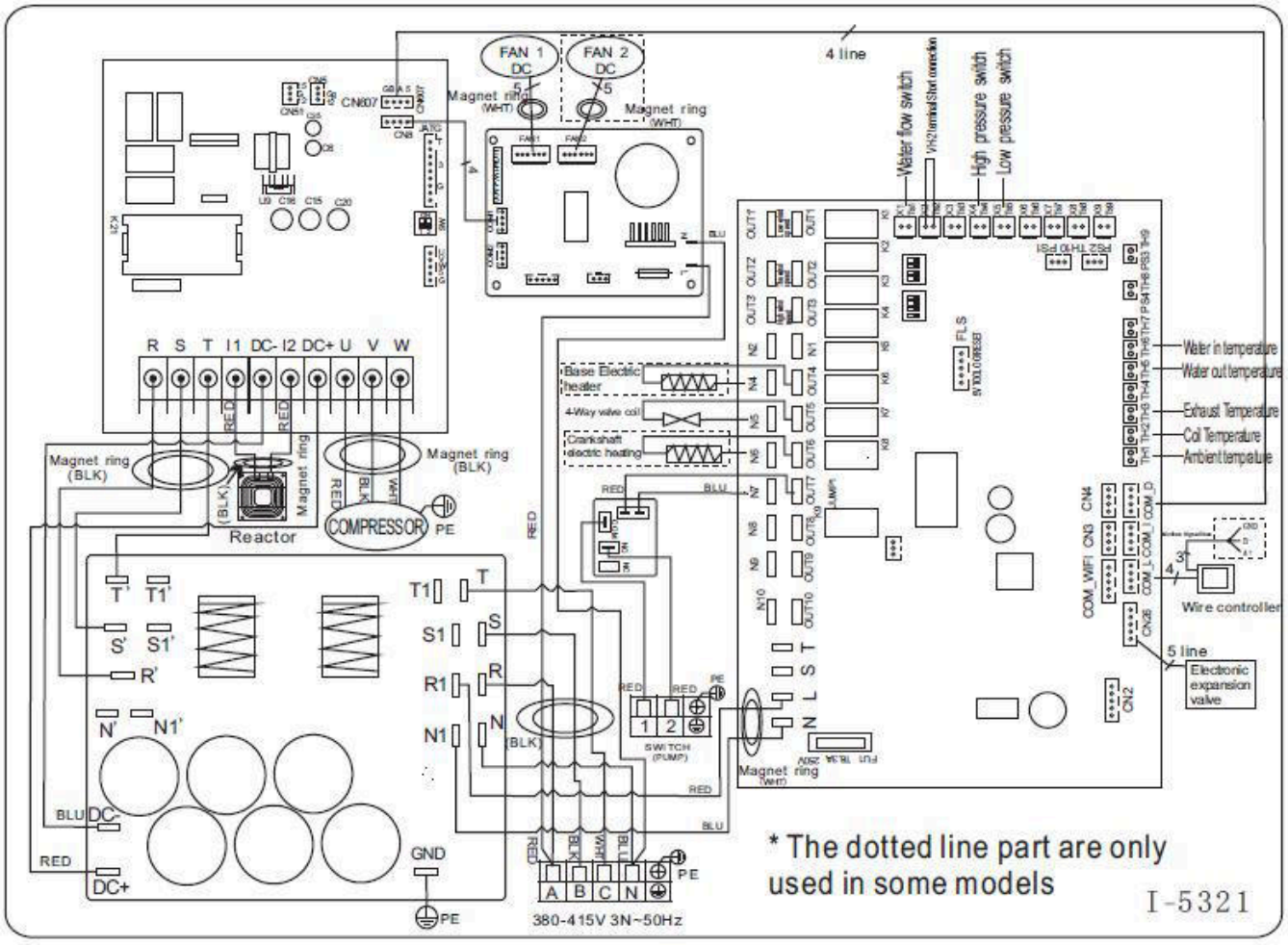
### 6.2 Inverter swimming pool heat pump wiring diagram

Ref: 74172/74173

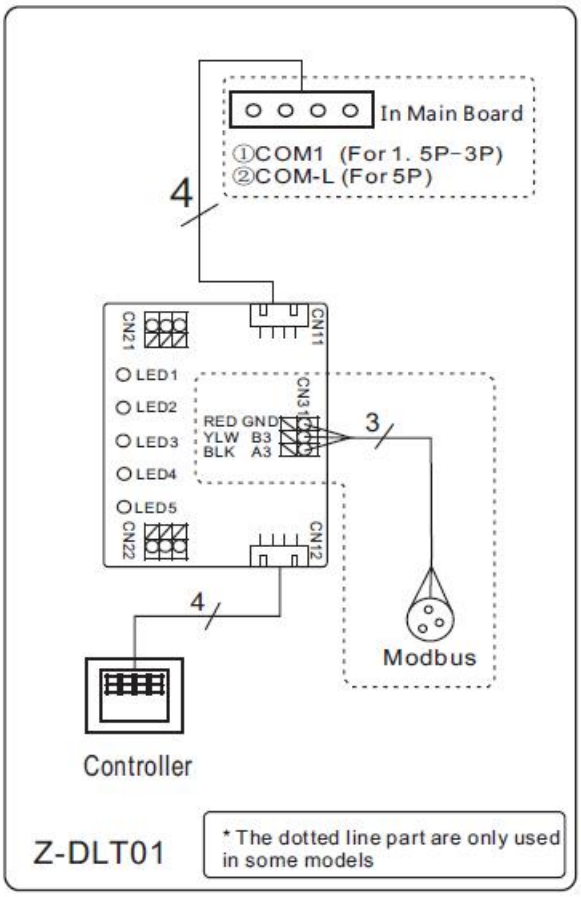


### 6.3 Inverter swimming pool heat pump wiring diagram

Ref. 74174/74175 (R410A)



### 6.4 Connection to Modbus PCB




* Above electrical wiring diagram only for your reference, please subject machine posted the wiring diagram.

### 6.5 Electrical connection

The power supply for the heat pump must come, preferably, from an exclusive circuit with regulatory protection components (30mA differential protection) and a magneto-thermal switch.

- The electrical installation must be carried out by a specialized professional (electrician) in accordance with the standards and regulations in force in the country of installation.
- The heat pump circuit must be connected to a safety earth circuit at the terminal block.
- The cables must be properly installed to prevent interference.
- The pump is intended for connection to a general power supply with earth connection.
- Section of the cable; This section is indicative and should be checked and adapted according to the needs and conditions of use.
- The tolerance of acceptable voltage variation is +/- 10% during operation.

# 6. Electrical Wiring

The connections must be dimensioned according to the power of the device and the state of installation.

| Models | Circuit breaker | Maximum length of the wire | | | |
|---|---|---|---|---|---|
| | | 2,5 mm² | 4 mm² | 6 mm² | 10 mm² |
| **PET-08** | 7 A | 84 m | 135 m | 200 m | 335 m |
| **PET-10** | 9 A | 57 m | 90 m | 130 m | 225 m |
| **PET-13** | 11A | | | | |
| **PET-15** | 14 A | 43 m | 68 m | 100 m | 170 m |
| **PET-19** | 16 A | 34 m | 54 m | 80 m | 135 m |
| **PET-25** | 20 A | 29 m | 45 m | 66 m | 110 m |
| **PET-30** | 26 A | / | 25 m | 38 m | 62 m |
| **PET-30T** | 10.5 A | 15 m | 35 m | 49 m | 81 m |
| **PET-35** | 34 A | / | / | 22 m | 36 m |
| **PET-35T** | 13 A | 12 m | 27 m | 39 m | 68 m |

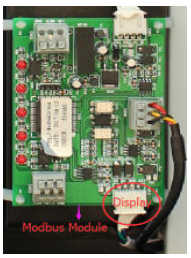
⚠ **These values are given as a guideline, only an authorized electrician can determine the values corresponding to your installation.**
**The electric cable must be equipped with a ground connection and with a circuit breaker with differential 30mA.**

## 6.6 Installation of the display deportee (option)

Photo(1) Photo(2) Photo(3) Photo(4) Photo(5)






- The end with plug connects with the control panel (photo1)
- The other end of the signal wire. (photo2)
- Open the cover of the terminal box and pass through it the cable of the remote screen.(photo3,4)
- Insert the wiring into the designated position on the Modbus Module. (photo5)

# 6. Electrical Wiring

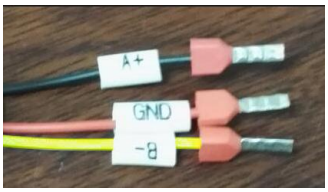
## 6.7 Installation of the Modbus/Fluidra Connect Signal Wire

Photo(6) Photo(7) Photo(8) Photo(9)







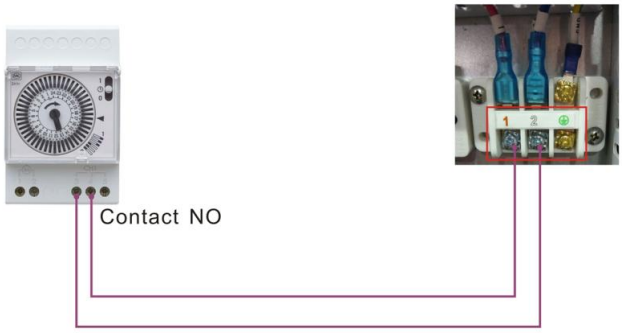



- Open the cover of the terminal box (photo6)
- Take the Modbus/Fluidra Connect signal wire from the accessories (photo7) and put the round end of the signal wire into the signal wire from Modbus/Fluidra Connect Module. (photo 8)
- Three wire terminal :“A+” ,“B- ”, “GND” (Photo 9)

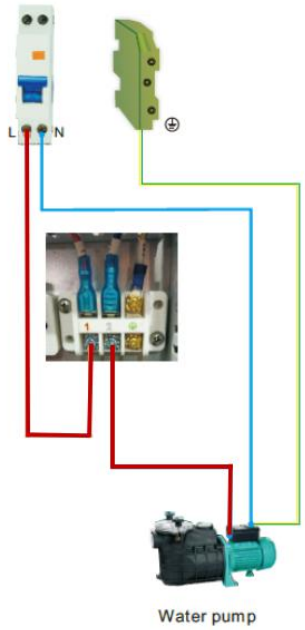
## 6.8 Connection heating priority (option of running)

**Dry contact timer connection**

**Timer**




**Dry contact pump connection**



## 7. Display Controller Operation

### 7.1. Guide for operation




When the heat pump connects to the power, the display shows a code for 3 seconds which indicates the heat pump model.

### 7.2 The keys and their operations

#### 7.2.1  button

Press  to start the heat pump unit, the display shows the desired water temperature for 5 seconds, then shows the inlet water temperature and the operation mode.

Press  to stop the heat pump unit and show “OFF”

Notice : During the parameter checking and setting, press the  to quick-exit and save the current setting .

Press  again to turn on/off the machine.

#### 7.2.2  and  button

***Lock/unlock the display:***

Hold  and  for 5 seconds to lock/Unlock the display.

The display will lock automatically after 30s of standby. (when the display is locked, the "locker " icon is lighted ON)

***Water temperature setting:***

Press  or  to set the water temperature directly.

Heating mode and Auto mode setting range: 6-41℃

Cooling mode setting range: 6-35℃

### 7.2.3  button working mode

Press  to change the working mode, Turbo, Smart and silent .The default mode is smart mode.

While you choose the ***Turbo***, the word "**Turbo"** will be lit, the heat pump will operate in 'Full output' only.

Choose the ***Smart***, the word **"Smart"** will be lit, the heat pump will operate in 'Medium and Full output'.

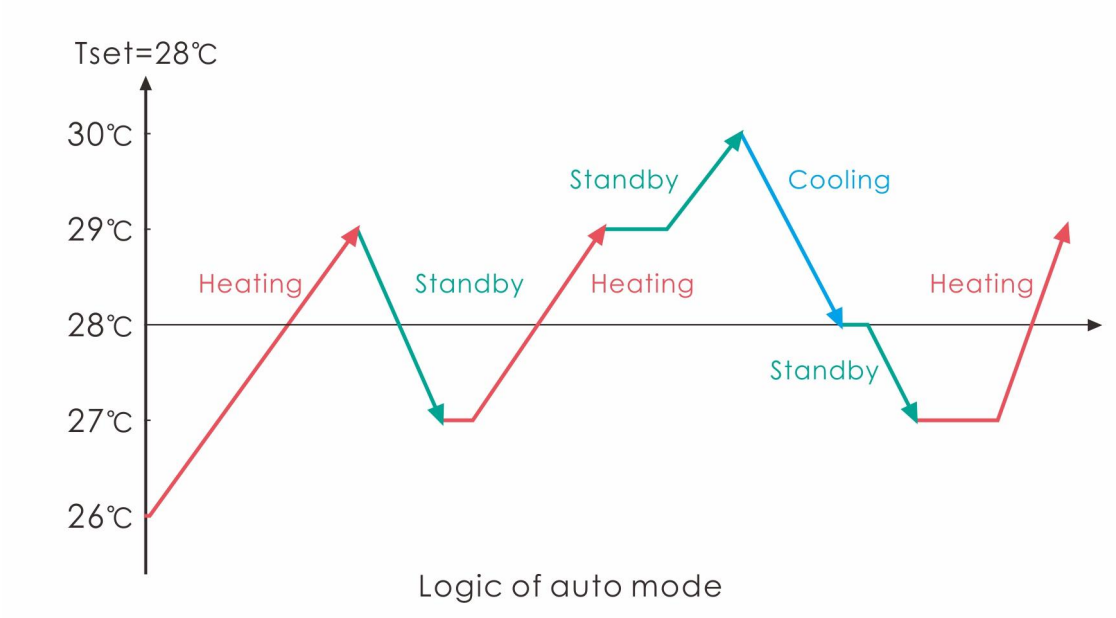
*C*hoose the ***Silent,*** the word **"Silent"** will be lit, heat pump will operate in 'Medium and Small output'.

### 7.2.4  button mode

Press  for 5S to switch the heating mode  ,cooling mode  and auto mode .

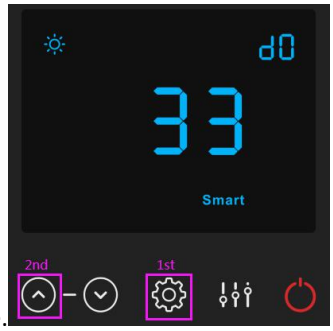
Remark: When defrosting, the heating symbol will flash.

***Operation logic of Auto Mode:***



### 7.2.5 Parameter checking

Press , then press  to check d0-d14 value.




| Code | Condition | Scope | Remark |
|---|---|---|---|
| d0 | IPM mould temperature | 0-120℃ | Real testing value |
| d1 | Inlet water temp. | -9℃～99℃ | Real testing value |
| d2 | Outlet water temp. | -9℃～99℃ | Real testing value |
| d3 | Ambient temp. | -30℃～70℃ | flash if Real value<-9 |
| d4 | Frequency limitation code | 0,1,2,4,8,16 | Real testing value |
| d5 | Piping temp. | -30℃～70℃ | flash if Real value<-9 |
| d6 | Gas exhaust temprature | 0℃～C5℃ (125℃) | Real testing value |
| d7 | Step of EEV | 0～99 | N*5 |
| d8 | Compressor running frequency | 0～99Hz | Real testing value |
| d9 | Compressor current | 0～30A | Real testing value |
| d10 | Current fan speed | 0-1200 (rpm) | Real testing value |
| d11 | Error code for last time | All error code | |
| d12 | MOBUS COM | 0 - 5 | Setting, Modbus Only |
| d13 | MODBUS ID Address | 1 - 88 | Setting, Modbus Only |
| d14 | Product Code | 0000- FFFF | Setting, Modbus Only |

**Remark:**

**d4: Frequency limitation code,**

**0: No frequency limit;** **1:Coil pipe temperature limit;**

**2: Overheating or overcooling frequency limit;** **4:Drive Current frequency limit;**

**8:Drive voltage frequency limit;** **16:Drive high temperature frequency limit**

### 7.2.6 Parameter setting

Press  ,then press  to choose P0-P18 value, and press  again to enter the setting interface,in which parameter will flash.




| Code | Name | Scope | Default | Remark |
|---|---|---|---|---|
| P0 | Mandatory defrosting | 0-1 | 0 | 0: Default normal operation<br>1: mandatory defrosting. |
| P1 | Working mode | 0-1 | 1 | 1:Heating mode, 0:cooling mode, |
| P2 | Timer on/off | 0-1 | 0 | 1 Timer on/off is under function，0 Timer on/off is out of function (The setting of P5 and P6 won't work) |
| P3 | Water pump | 0-1 | 0 | 1:Always running;<br>0:Depends on the running of compressor |
| P4 | Current time | HH:MM | 00：00 | 0-23:0-59 |
| P5 | Timer on | HH:MM | 00：00 | 0-23:0-59 |
| P6 | Timer off | HH:MM | 00：00 | 0-23:0-59 |
| P7 | Water temp. calibration | -9～9 | 0 | Default setting: 0 |
| P12 | MOBUS COM | 0 - 5 | 0 | Modbus Only（default value after reset） |
| P13 | MODBUS ID Address | 1 - 88 | 9 | Modbus Only（default value after reset） |
| P14 | Restore to factory settings | 0-1 | 0 | 1-Restore to factory settings，<br>0- default（restore P0, P1, P2, P3, P5, P6, P7, P8, P9, 10, P11 to factory setting) |
| P15 | Parameter P value for Modbus | / | / | Depends on the machine(Modbus Only) |
| P16 | Product code | / | / | Depends on the machine |
| P18 | Mode | 0-1 | 0 | 1—Heating only，<br>0—Heating/Cooling/Auto mode |

Note:

1). Long press  for 20s to set P14, P16, P18.

2). P8,P9,P10,P11,P19,P20 parameter is only for factory setting.

| Code with connect | Parameter P value for Modbus | Description |
|---|---|---|
| 74166 | 21b6 | PAC PROELYO TOUCH PET-08 |
| 74167 | 21b7 | PAC PROELYO TOUCH PET-10 |
| 74168 | 21b8 | PAC PROELYO TOUCH PET-13 |
| 74169 | 21b9 | PAC PROELYO TOUCH PET-15 |
| 74170 | 21ba | PAC PROELYO TOUCH PET-19 |
| 74171 | 21bb | PAC PROELYO TOUCH PET-25 |
| 74172 | 21bc | PAC PROELYO TOUCH PET-30 |
| 74173 | 21bd | PAC PROELYO TOUCH PET-35 |
| 74174 | 21be | PAC PROELYO TOUCH PET-30T |
| 74175 | 21bf | PAC PROELYO TOUCH PET-35T |

Steps to set Parameter P value for Modbus (Modbus Only):

The symbol  on the display is on when the modbus module is connected to the display.

Press  , then press  to choose **P15**, and long press  for 20s to enter the setting interface, in which parameter will flash. Press  or  to set the correct value, finally press  to save settings.

### 7.2.7 System reset function

Press  , then press  to choose P14, and enter into the value setting interface by long press  for 20s, in which parameter will flash. Press  or  to set the value **1**, finally press  to save settings.

### 7.2.8 

Symbol of TIMER ON, the light will be on when the value of P2 is 1, which means TIME ON & OFF function is working. Then set the current time(Parameter P4), TIMER ON (Parameter P5) and TIMER OFF (Parameter P6). All the symbols (except symbol  ) on the display will be off when TIMER is OFF.

Note: The symbol  keeps on when restart the heat pump after TIME OFF, unless the value of P2 is set to 0.

### 7.2.9 System filtration pilot function

**Option 1; P3=0 Filtration pump is related to heat pump operation to start and stop.**

Filtration pump starts 60s before compressor, filtration pump start 30s and then the water flow switch detect flow. Before the heat pump enters into Standby mode, the compressor stops first and after 5 minutes filtration pump stops.

| | Condition | Example | Water pump working logic | |
|---|---|---|---|---|
| Heating mode | P3=0, T1≥Tset-0.5℃, last for 30 minutes | P3=0, T1≥27.5℃, last for 30 minutes | 1. Then it enters into standby mode for 1 hour (It will not restart except turn it on manually.) | 2. After 1 hour, the filtration pump will restart for 5 minutes. If the T1≤27℃, the heat pump will start to work until T1≥27.5℃ and last for 30 minutes to go into standby |
| Cooling mode | P3=0, T1≤Tset+0.5℃, last for 30 minutes | P3=0, T1≤28.5℃, last for 30 minutes | 1. Then it enters into standby mode for 1 hour (It will not restart except turn it on manually.) | 2. After 1 hour, the filtration pump will restart for 5 minutes. If it tests T1≥29℃, the heat pump will start to work until T1≤28.5℃ and last for 30 minutes to go into standby |

**Option 2; P3=1 Filtration pump is always on, P2=0 the timer function is no active**

Under condition P3=1, whenT1≥Tset+1℃(T1≥29℃) last for 3 minutes, heat pump will be in standby, while filtration pump is always on.

**Under option 2, with activation of the timer; P2=1 to start and stop the filtration pump according the programming of the P4 (time), P5 (timer ON) and P6 (timer OFF)**

**Condition for the heat pump start, timer ON actives;**

When the timer reaches **the set time of TIMER ON**, the filtration pump will start and after 5 minutes the heat pump start. The heat pump stays in stop if the water in temperature is ≥ Tset+1℃, before the TIMER OFF, the filtration is still activated.

**Condition to stop the heat pump, timer OFF actives;**

When the timer reaches the set time of the TIMER OFF, the heat pump will stop and after 5 minutes the filtration pump stops.

**If heat pump is turned ON/OFF manually, the filtration pump will start and stop accordingly.**

**NOTE :**

Tset = Tseting water temperature

For example : Tset = 28℃ Tseting water temperature in your pool heat pump

Tset-0.5 = less 0.5℃ than Tseting temperature, Tset- 0.5 = 28-0.5=27.5℃

Tset+0.5= more 1℃ than Tseting temperature, Tset+ 0.5 = 28+0.5=28.5℃

### 7.3 Heating operation logic

| Working status | | Working mode | Water in temperature-T1 | For example, water in temperature-T1 | Heat pump working level |
|---|---|---|---|---|---|
| 1 | Start-up of heat pump | When you select the "Smart working mode " | T1< Tset-1 | T1< 27℃ | Powerful mode-frequency F9 |
| 2 | | | Tset-1≦T1 < Tset | 27℃≦T1 <28℃ | Frequency： F9 -F8-F7,...,-F2 |
| 3 | | | Tset≦ T1 <Tset+ 1 | 28℃≦ T1 <29℃ | Silent mode-frequency F2 |
| 4 | | | T1≧Tset+1 | T1≧29℃ | HP will be in Standby, stop working until the water temperature drops to less 28℃. |
| 5 | | When you select the "Silent working mode". | T1< Tset | T1< 28℃ | Smart mode -frequency F5. |
| 6 | | | Tset≦T1 < Tset+1 | 28℃≦T1 < 29℃ | Silent mode-frequency F2/F1. |
| 7 | | | T1≧Tset+1 | T1≧29℃ | HP will be in Standby, stop working until the water temperature drops to less 28℃. |
| 8 | | When you select the "Powerful working mode." | T1<Tset+1 | T1<29℃ | Powerful mode-frequency F10/F9 |
| 9 | | | T1≧ Tset+1 | T1≧29℃ | HP will be in Standby, stop working until the water temperature drops to less 28℃. |
| 10 | Re-start to heat water in standby status | When HP is working at " Smart mode" | T1≧Tset | T1≧28℃ | Standby |
| 11 | | | Tset＞T1≧Tset-1 | 28℃＞T1≧27℃ | Silent-frequency F2 |
| 12 | | | Tset-1＞T1≧Tset-2 | 27℃＞T1≧26℃ | Frequency： F2 -F3-F4,...,-F9 |
| 13 | | | <Tset-2 | <26℃ | Powerful-frequency F9 |
| 14 | | When HP is working at " Silent mode" | ≧Tset | ≧28℃ | Standby |
| 15 | | | Tset＞T1≧Tset-1 | 28℃＞T1≧27℃ | Silent mode-frequency F2/F1 |
| 16 | | | T1<Tset-1 | T1<27℃ | Smart -frequency F5 |
| 17 | | When HP is working at " Powerful mode" | T1<Tset-1 | T1<27℃ | Powerful -frequency F10/F9 |





### 7.4 Cooling operation logic

| Working status | | Working mode | Water in temperature | For example, water in temperature | Heat pump working level |
|---|---|---|---|---|---|
| 1 | Start-up of heat pump | When you select the "Smart working mode " | T1≦Tset-1 | T1≦27℃ | Standby. |
| 2 | | | Tset-1<T1 ≦Tset | 27℃< T1 ≦ 28℃ | Silent mode-frequency F2 |
| 3 | | | Tset<T1≦Tset+1 | 28< T1 ≦29℃ | frequency： F9 -F8-F7,...,- F2 |
| 4 | | | T1≧Tset+1 | T1≧29℃ | Powerful mode-F9 |
| 5 | | When you select the "Silent working mode". | T1≦Tset-1 | ≦27℃ | Standby |
| 6 | | | Tset-1<T1 ≦Tset | 27℃< T1≦28℃ | Silent mode - frequency F2/F1 |
| 7 | | | T1>Tset | T1>28℃ | Smart mode -frequency F5 |
| 8 | | When you select the "Powerful working mode." | T1>Tset-1 | T1>27℃ | Powerful mode-frequency F10/F9 |
| 9 | | | T1≦Tset-1 | T1≦27℃ | Standby |
| 10 | Re-start to cool water in standby status | Smart | T1≦Tset-1 | T1≦27℃ | Standby |
| 11 | | | Tset ≦T1 <Tset+1 | 28 ≦T1 <29℃ | Silent- frequency F2 |
| 12 | | | Tset+1 ≦T1 <Tset+2 | 29 ≦T1 <30℃ | Frequency: F2 -F3-F4,...,- F9 |
| 13 | | | T1≧Tset+2 | T1≧30℃ | Powerful mode -frequency F9 |
| 14 | | Silent | Tset<T1≦Tset+1 | 28< T1≦29℃ | Silent mode-frequency F2/F1 |
| 15 | | | T1＞Tset+1 | T1＞29℃ | Smart mode-frequency F5 |
| 16 | | Powerful | T1＞Tset+1 | T1＞29℃ | Powerful mode-frequency F10/F9 |
| 17 | | | T1≦Tset-1 | T1≦27℃ | Standby |

# 8.Troubleshooting

## 8.1 Error code display on LED wire controller

| Malfunction | Error code | Reason | Solution |
|---|---|---|---|
| Inlet water temperature sensor failure d1-TH6 | PP01 | 1. The sensor in open or short circuit<br>2. The wiring of sensor is loose | 1. Check or change the sensor<br>2.Re-fix the wiring of the sensors |
| Outlet water temperature sensor failure d2-TH5 | PP02 | 1. The sensor in open or short circuit<br>2. The wiring of sensor is loose | 1. Check or change the sensor<br>2.Re-fix the wiring of the sensors |
| Heating piping sensor failure d5-TH2 | PP03 | 1. The sensor in open or short circuit<br>2. The wiring of sensor is loose | 1. Check or change the sensor<br>2.Re-fix the wiring of the sensors |
| Ambient temperature sensor failure d3-TH1 | PP05 | 1. The sensor in open or short circuit<br>2. The wiring of sensor is loose | 1. Check or change the sensor<br>2.Re-fix the wiring of the sensors |
| Exhaust piping sensor failure d6-TH3 | PP06 | 1. The sensor in open or short circuit<br>2. The wiring of sensor is loose | 1. Check or change the sensor<br>2.Re-fix the wiring of the sensors |
| Antifreeze protection in Winter | PP07 | Ambient temperature or water inlet temperature is too low | 1. Check the d1((inlet water temp.) and d3(outlet water temp.)<br>2. Normal protection |
| Low ambient temperature protection | PP08 | 1. Out of the normal operating ambient temperature for this machine by checking d3<br>2. Sensor abnormality d3-TH1 | 1. Stop using, beyond the scope of using<br>2.Change the sensor |
| Piping temperature too high protection under cooling mode d5-TH2 | PP10 | 1. Ambient or the water temperature is too high in cooling mode<br>2. Refrigeration system is abnormal<br>3. Pipe temperature sensor(d5-TH2) failure | 1. Check the ambient temperature<br>2. Check refrigeration system<br>3. Change the pipe temperature sensor (d5-TH2) |
| Over low protection for outlet water temperature in cooling mode d2-TH5 | PP11 | 1. Low water flow<br>2. Outlet water temperature sensor d2-TH5 abnormal<br>3. The difference of outlet water temperature and set temperature is 7℃ or above in cooling mode | 1. Check filtration pump and waterway system<br>2. Change outlet water temperature sensor d2-TH5<br>3. Change the set temperature. |
| High pressure failure TS4 | EE01 | 1. Ambient temperature is too high<br>2. Water temperature is too high<br>3. Water flow is too low<br>4. Fan motor speed is abnormal or fan motor is damaged under cooling mode<br>5. Gas system jammed<br>6. High pressure wire is loose or damaged<br>7. Too much refrigerant | 1. Choose the silent mode.<br>2. Check the water flow or filtration pump<br>3. Check the fan motor under cooling mode, replace a new one if it is abnormal.<br>4. Check and repair the refrigerating system<br>5. Reconnect the high pressure wire or replace a new high pressure switch<br>6. Check and repair the refrigerating system |

# 8. Troubleshooting

| Malfunction | Error code | Reason | Solution |
|---|---|---|---|
| Low pressure failure TS5 | EE02 | 1. EEV has blocked or pipe system is jammed<br>2. Fan motor speed is abnormal or fan motor is damaged under heating mode<br>3. Gas leakage<br>4. Low pressure wire is loose or damaged | 1.Check the EEV and piping system<br>2. Check the fan motor under heating mode, replace a new one if it is abnormal<br>3. Check refrigeration system or check the pressure value through the high-pressure gauge.<br>4. Reconnect the low pressure wire or replace a new low pressure switch |
| Water flow failure TS1 | EE03 Or "ON" | 1. The wiring of water flow switch is loose or water flow switch damaged<br>2. No/Insufficient water flow. | 1. Check the wiring of water flow switch or change a new one.<br>2. Check the filtration pump or the waterway system if there is air or jammed inside |
| Over heating protection for water temperature (d2- TH5) in heating mode | EE04 | 1. Low water flow<br>2. Water flow switch is stuck and the water supply stops<br>3. d2- TH5 outlet water temperature sensor is abnormal<br>4. The difference of outlet water temperature and set temperature is 7℃ or above in heating mode | 1. Check the water flow switch if it works well<br>2. Check the filtration pump or the waterway system if there is air or jammed inside<br>3. Check d2- TH5 outlet water temperature sensor or replace a new one.<br>4. Change the set temperature. |
| d6-TH3 Exhaust too high protection | EE05 | 1. Lack of gas<br>2. Low water flow<br>3. Piping system has been blocked<br>4. Exhaust temp. sensor failure d6-TH3<br>5. Ambient temperature is too high | 1. Check the pressure gauge, and fill with some gas if it is lack of gas<br>2. Check the filtration pump or the waterway system if there is air or jammed inside<br>3. Check the piping system if there was any block<br>4. Change a new exhaust temp. sensor d6-TH3<br>5. Check whether the current ambient temp. and water temp. are beyond the running temp. of the machine |
| Controller failure | EE06 | 1. Signal is not well connected or damaged<br>2. Controller failure | 1. Stop the power supply and restart.<br>2. Re-connect the signal wire or replace a new one<br>3. Replace a new controller |





# 8. Troubleshooting

| Malfunction | Error code | Reason | Solution |
|---|---|---|---|
| Compressor current protection | EE07 | 1. The compressor current is too large instantaneously<br>2. Wrong connection for compressor phase sequence<br>3. Compressor accumulations of liquid and oil lead to the current becomes larger<br>4. Compressor or driver board damaged<br>5. The water flow is abnormal<br>6. Power fluctuations within a short time | 1.Check if the power in the normal range<br>2. Check the compressor<br>3. Check the compressor phase<br>4. Check the phase sequence connection<br>5. Check the waterway system and filtration pump<br>6. Check mains power input |
| Communication failure between controller and main board | EE08 | 1. Signal wire is not well connected or damaged<br>2. Controller failure<br>3. Driving failure | 1. Stop the power supply and restart. Re-connect the signal wire or replace a new one<br>2. Check the controller or replace a new one<br>3. Check the driving system or update it. |
| Communication failure between Main control board and Driving board | EE09 | 1. Poor connection of communication wire<br>2. PCB failure<br>3. The wire is damaged | 1. Stop the power supply and restart.<br>2. Reconnect the communication wire or replace a new one<br>3. Check the wirings according to the electric diagram<br>4. Replace a new PCB |
| VDC voltage too high protection | EE10 | 1. Line voltage is too high<br>2. Driver board is damaged. | 1. Check whether the power supply is normal<br>2. Change driver board or main board |
| IPM module protection | EE11 | 1. Data mistake<br>2. Wrong compressor phase connection<br>3. Compressor liquid and oil accumulation lead to the current becomes larger<br>4.Poor heat dissipation of drive module or high ambient temperature<br>5. Compressor or driver board damaged | 1. Program error, turn off electricity supply and restart after 3 minutes<br>2. Check compressor sequence connection<br>3. Check the pressure of system by pressure gauge<br>4. Check if the ambient and water temperature is over high<br>5. If it is the refrigration system failure, send it to the service center<br>6. Change driver board |
| VDC voltage too low protection | EE12 | 1. Mother line voltage is too low<br>2. Driver board is damaged. | 1. Check if the power supply is in the normal range<br>2. Change driver board |





# 8. Troubleshooting

| Malfunction | Error code | Reason | Solution |
|---|---|---|---|
| Input current over high protection. | EE13 | 1. The compressor current is too large momentary<br>2. The water flow is abnormal<br>3. Power fluctuations within a short time<br>4. Wrong reactor | 1. Check the compressor if it works normally<br>2. Check the waterway system<br>3. Check if the power is in the normal range<br>4. Check if the reactor is used correctly. |
| IPM module thermal circuit is abnormal | EE14 | 1. Output abnormity of IPM module thermal circuit<br>2. Fan motor is abnormal or damaged<br>3. Fan blade is broken | 1. Check if the motor speed is too low or fan motor is damaged, replace it by a new one.<br>2. Replace a new driver board<br>3. Change the fan blade if it is broken |
| IPM module temperature too high protection | EE15 | 1. Output exception of IPM module thermal circuit<br>2. Fan motor is abnormal or damaged<br>3. Fan blade is broken<br>4.The screw on driver board is loose | 1. Check the main board or replace the driver board<br>2. Check if the motor speed is too low or fan motor is damaged, replace it by a new one if any failure.<br>3. Change the fan blade if it is broken<br>4. Check the screw on driver board |
| PFC module protection | EE16 | 1. Output exception of PFC module<br>2. Fan motor is abnormal or damaged<br>3. Fan blade is broken<br>4. Input voltage leap, input power is abnormal | 1.Check the main board or replace the driver board<br>2. Check if the motor speed is too low or fan motor is damaged, replace it by a new one.<br>3. Change the fan blade<br>4. Check the input voltage |
| DC fan motor failure | EE17 | 1. DC motor is damaged<br>2. For the tri-phase check if the neutral is connected<br>3. Main board is damaged<br>4. The fan blade is stuck | 1. Detect DC motor for mono phase machine, replace a new one if any failure<br>2. Check the wiring connection for tri-phase machine<br>3. Check the board, replace a new driver board or main board if any failure<br>4. Check if there is any barrier in front of fan blade and remove it |
| PFC module thermal circuit is abnormal | EE18 | The driver board is damaged | 1. Check if the motor speed is too low or fan motor is damaged, replace it by a new one.<br>2. Change a new driver board |





# 8. Troubleshooting

| Malfunction | Error code | Reason | Solution |
|---|---|---|---|
| PFC module high temperature protection | EE19 | 1. PFC module thermal circuit output abnormal<br>2. Fan motor is abnormal or damaged<br>3. Fan blade is broken<br>4. The screw in the driver board is not tight | 1. Check the main board or replace the driver board<br>2. Check if the motor speed is too low or fan motor is damaged, replace it by a new one if any failure.<br>3. Change the fan blade if it is broken<br>4. Check the screw on driver board |
| Input power failure | EE20 | The supply voltage fluctuates too much | Check whether the voltage is stable |
| Software control exception | EE21 | 1. Compressor runs out of step<br>2. Wrong program<br>3. Impurity inside compressor causes the unstable rotate speed | 1. Check the main board or change a new one<br>2. Update the correct program<br>3. Check the refrigeration system |
| Current detection circuit failure | EE22 | 1. Voltage signal abnormal<br>2. Driver board is damaged<br>3. Main board failure | 1. Change a new main board<br>2. Change a new driver board |
| Compressor start failure | EE23 | 1. Main board is damaged<br>2. Compressor wiring error or poor contact or unconnected<br>3. Liquid accumulation inside<br>4. Wrong phase connection for compressor | 1. Check the main board or change a new one<br>2. Check the compressor wiring according to the circuit diagram<br>3. Check the compressor or change a new one |
| Ambient Temperature device failure on Driver board | EE24 | Ambient Temperature device failure | Change driver board or main board |
| Compressor phase failure | EE25 | Compressors U, V, W are just connected to one phase or two phases. | Check the actual wiring according to the circuit diagram |
| Four-way valve reversal failure | EE26 | 1. Four-way valve reversal failure<br>2. Lack of refrigerant (no detect when d5-TH2 or d3-TH1 malfunction) | 1. Switch to Cooling mode to check the 4-way valve if it has been reversed correctly<br>2. Change a new 4-way valve<br>3. Fill with gas |
| EEPROM data read malfunction | EE27 | 1. Wrong EEPROM data in the program or failed input of EEPROM data<br>2. Main board failure | 1. Re-enter correct EEPROM data<br>2. Change a new main board |
| The inter-chip communication failure on the main control board | EE28 | Main board failure | 1. Stop electricity supply and restart it<br>2. Change a new main board |



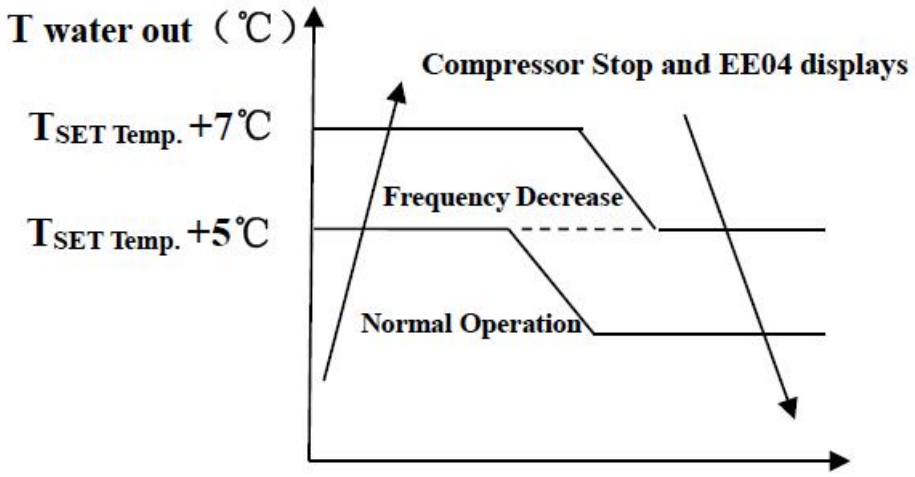


# 8. Troubleshooting

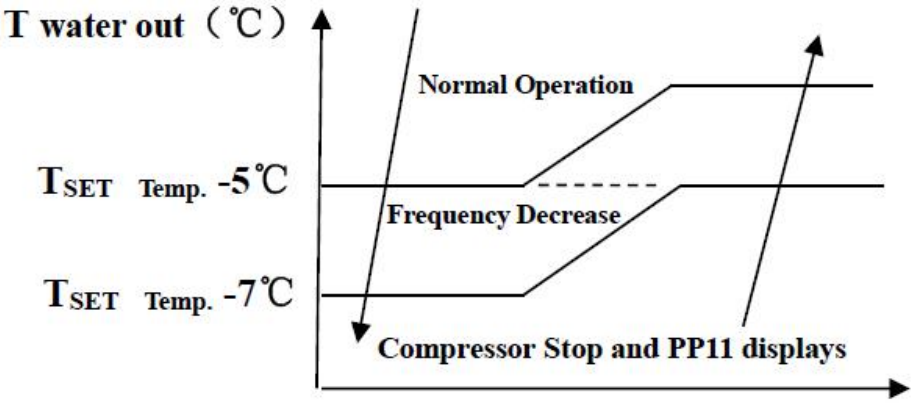
**Remarks:**

1. In heating mode, if the water out temperature is higher than the set temperature over 7℃, LED controller displays EE04 for water over-heating protection.

1. In cooling mode, if the water out temperature is lower than the set temperature over 7℃, LED controller displays PP11 for water over-cooling protection.




**EE04 Water Overheating Protection**




**PP11 Water Overcooling Protection**

**For example as below:**

| Mode | Output water temperature | Set point temperature | Condition | Malfunction |
|---|---|---|---|---|
| Heating mode | **36**℃ | **29**℃ | Tout -Tset ≧**7**℃ | EE04 Overheating protection for water temperature (d2- TH5) |
| Cooling mode | **23**℃ | **30**℃ | Tset -Tout ≧**7**℃ | PP11 Too low protection for water temperature (d2- TH5) |

# 8. Troubleshooting

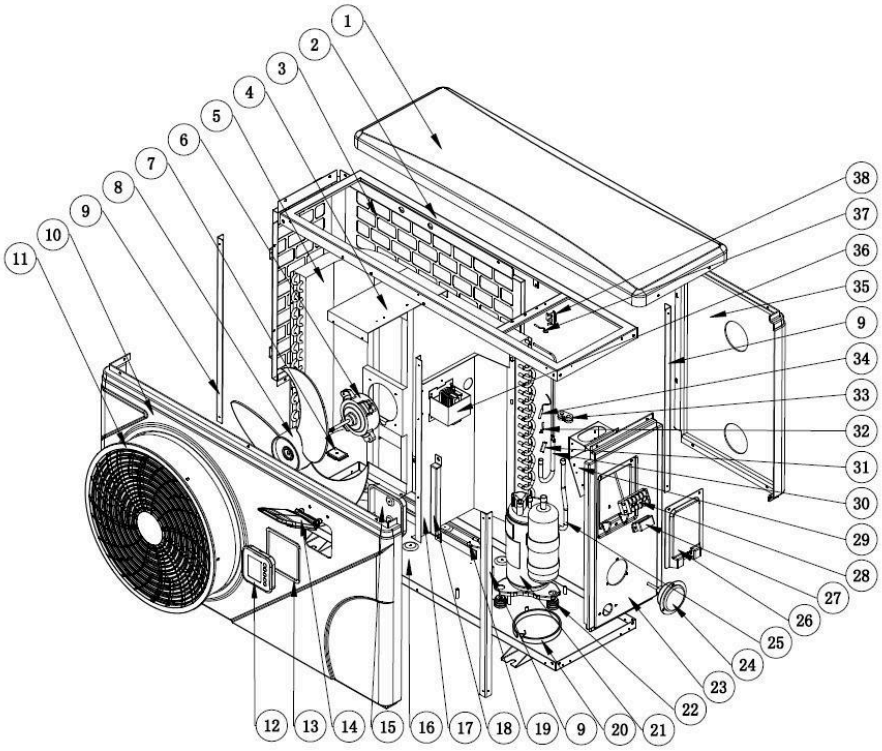
## 8.2 Other Malfunctions and Solutions (No display on LED wire controller)

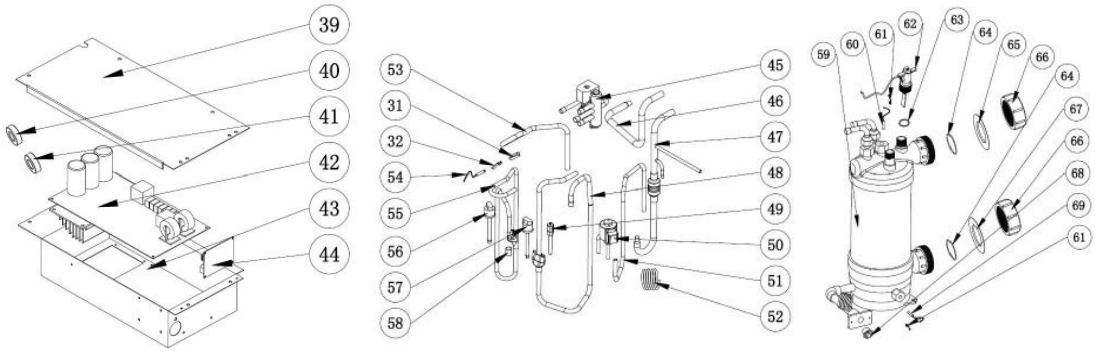
| Malfunctions | Observing | Reasons | Solution |
|---|---|---|---|
| Heat pump is not running | LED wire controller no display. | No power supply | Check cable and circuit breaker if it is connected |
| | LED wire controller. Displays the actual time. | Heat pump under standby status | Startup heat pump to run. |
| | LED wire controller displays the actual water temperature. | 1. Water temperature is reaching to setting value, HP under constant temperature status.<br>2. Heat pump just starts to run.<br>3. Under defrosting. | 1. Verify water temperature setting.<br>2. Startup heat pump after a few minutes.<br>3. LED wire controller should display "Defrosting". |
| Water temperature is cooling when HP runs under heating mode | LED wire controller displays actual water temperature and no error code displays. | 1. Choose the wrong mode.<br>2. Figures show defects.<br>3. Controller defect. | 1. Adjust the mode to proper running<br>2. Replace the defect LED wire controller, and then check the status after changing the running mode, verifying the water inlet and outlet temperature.<br>3. Replace or repair the heat pump unit |
| Short running | LED displays actual water temperature, no error code displays. | 1. Fan NO running.<br>2. Air ventilation is not enough.<br>3. Refrigerant is not enough. | 1. Check the cable connections between the motor and fan, if necessary, it should be replaced.<br>2. Check the location of heat pump unit, and eliminate all obstacles to make good air ventilation.<br>3 Replace or repair the heat pump unit. |
| Water stains | Water stains on heat pump unit. | 1. Concreting.<br>2. Water leakage. | 1. No action.<br>2. Check the titanium heat exchanger carefully if it is any defect. |
| Too much ice on evaporator | Too much ice on evaporator. | | 1. Check the location of heat pump unit, and eliminate all obstacles to make good air ventilation.<br>2. Replace or repair the heat pump unit. |

# 9. Exploded Diagram

## 9. 1 Exploded Diagram

**Mode: 74166**



# 9. Exploded Diagram

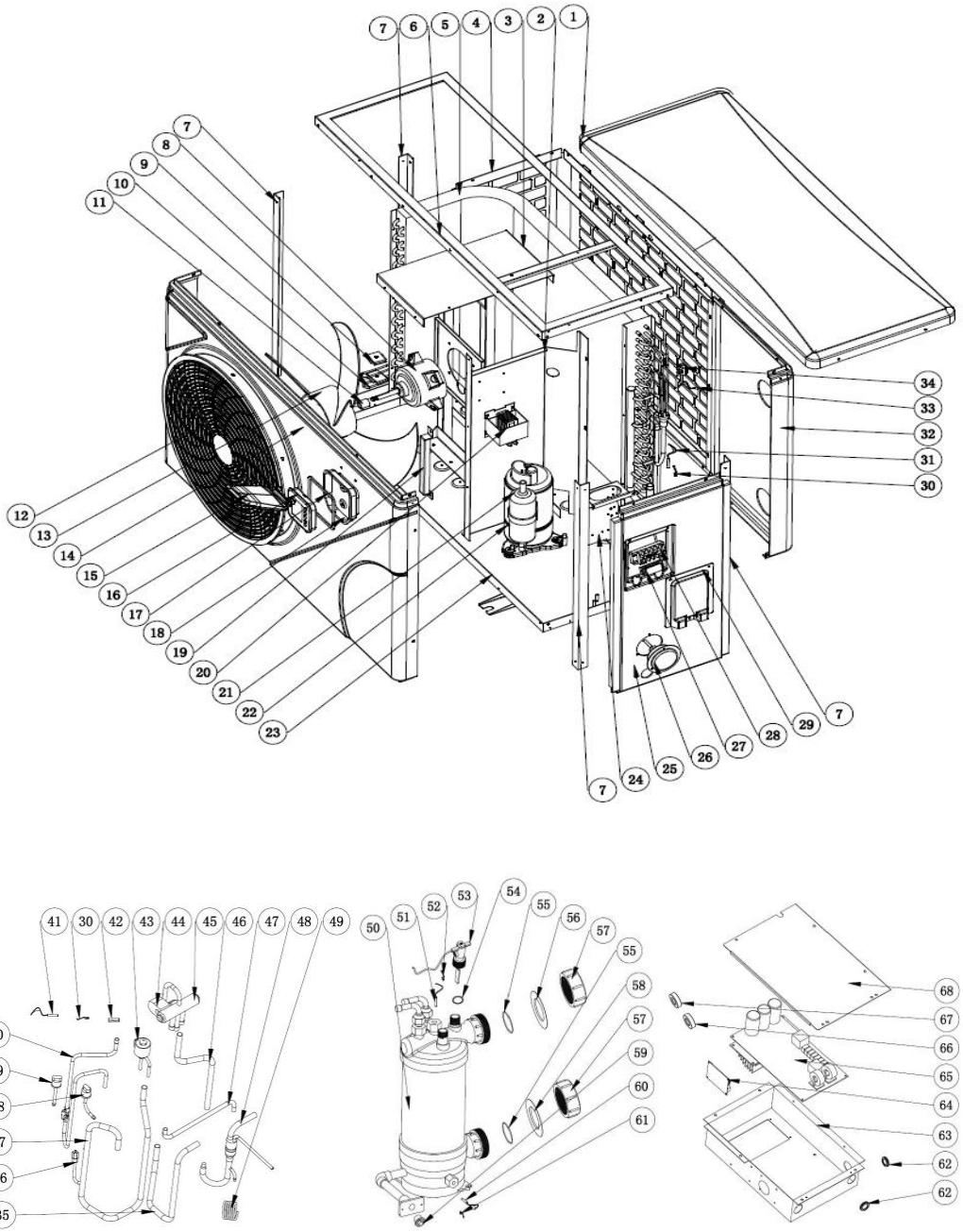
## 9.2 Spare Parts list

### Model : 74166

| NO | ERP | Spare parts | NO | ERP | Spare parts |
|---|---|---|---|---|---|
| 1 | 133050118 | Top cover | 36 | 117230003 | Reactor |
| 2 | 180140092 | Top frame | 37 | 117110020 | Ambient temp. sensor d3-TH1 |
| 3 | 180140113 | Left side panel | 38 | 133020010 | Ambient temp. sensor clip |
| 4 | 180140100 | Fan motor bracket | 39 | 108030059 | Electric box cover |
| 5 | 103000227 | Evaporator | 40 | 117240002 | Magnet ring |
| 6 | 112000031 | Fan motor | 41 | 117240003 | Magnet ring |
| 7 | 108480015 | Evaporator heating resistor support | 42 | 117100046 | PCB |
| 8 | 132000015 | Fan blade | 43 | 108030095 | Electric box |
| 9 | 180140093 | Pillar | 44 | 117020239 | Modbus module |
| 10 | 133050115 | Front panel | 45 | 121000035 | 4 way valve |
| 11 | 133020077 | Fan grill | 46 | 113030192 | 4-way valve to exchanger |
| 12 | 117020293 | Controller | 47 | 113070042 | Exchanger to EEV |
| 13 | 136010072 | Sealing ring | 48 | 113020320 | Gas return piping |
| 14 | 133020096 | Controller cover | 49 | 120000098 | Gas valve |
| 15 | 133020097 | Controller box | 50 | 119000058 | EEV |
| 16 | 180140091 | Base tray | 51 | 113080074 | EEV to distribution piping |
| 17 | 180140099 | Isolation panel | 52 | 109000044 | Capillary |
| 18 | 180140101 | Panel support | 53 | 113060123 | Tube |
| 19 | 142000143 | Evaporator heating resistor | 54 | 117110021 | Discharge temp. sensor d6-TH3 |
| 20 | 142000072 | Compressor heating resistor | 55 | 113010229 | Discharge pipe |
| 21 | 101000187 | Compressor | 56 | 112100030 | High pressure switch |
| 22 | 101000187 | Compressor damping feet | 57 | 112100046 | Low pressure switch |
| 23 | 133050116 | Right panel | 58 | 113100024 | Coupling tube |
| 24 | 106000011 | Pressure gauge | 59 | 102041058 | Titanium heat exchanger |
| 25 | 103000227 | Evaporator pipe | 60 | 117110011 | Water outlet temp. sensor d2-TH5 |
| 26 | 133250005 | Terminal blocks plastic cover | 61 | 108010025 | Exchanger temperature sensor clip |
| 27 | 136010004 | Clip | 62 | 112100021-1 | Water flow switch |
| 28 | 115000004 | 5-ways terminal block | 63 | 116000001 | Sealing ring |
| 29 | 108010065 | Terminal board | 64 | 133020026 | Rubber ring on water connection |
| 30 | 103000227 | Distribution piping | 65 | 133020012 | Red rubber ring |
| 31 | 113190001 | Sensor holder | 66 | 113900082 | Water connection sets |
| 32 | 113190007 | Clip | 67 | 133020011 | Blue rubber ring |
| 33 | 136020018 | Rubber block | 68 | 150000110 | Drainage plug |
| 34 | 117110004 | Evaporator temperature sensor d5-TH2 | 69 | 117110012 | Water inlet temp. sensor d1-TH6 |
| 35 | 133050117 | Back panel | | | |

# 9. Exploded Diagram

## 9.3 Model: 74167/74168/74169



# 9. Exploded Diagram

## 9.4 Spare parts list: 74167

| NO | ERP | Spare parts | NO | ERP | Spare parts |
|---|---|---|---|---|---|
| 1 | 133090073 | Top cover | 35 | 113030086 | 4-way valve to exchanger |
| 2 | 108110094 | Isolation panel | 36 | 120000097 | Gas valve |
| 3 | 108110095 | Fan motor bracket | 37 | 113020527 | Gas return piping |
| 4 | 108110113 | Left side panel | 38 | 112100046 | Low pressure switch |
| 5 | 103000221 | Evaporator | 39 | 112100030 | High pressure switch |
| 6 | 108110091 | Top frame | 40 | 113010210 | Discharge pipe |
| 7 | 108110092 | Pillar | 41 | 117110021 | Discharge temp. sensor d6-TH3 |
| 8 | 112000031 | Fan motor | 42 | 113190001 | Sensor holder |
| 9 | 108480015 | Evaporator heating resistor support | 43 | 119000058 | EEV |
| 10 | 142000142 | Evaporator heating resistor | 44 | 121000037 | Coil for 4 way valve |
| 11 | 108010024 | Fan shaft cover | 45 | 121000034 | 4 way valve |
| 12 | 133020078 | Fan grill | 46 | 113060084 | Tube |
| 13 | 132000015 | Fan blade | 47 | 113080054 | EEV to distribution piping |
| 14 | 133090070 | Front panel | 48 | 113070044 | Exchanger to EEV |
| 15 | 133020096 | Controller cover | 49 | 109000044 | Capillary |
| 16 | 117020293 | Controller | 50 | 102041060 | Titanium heat exchanger |
| 17 | 136010072 | Sealing ring | 51 | 117110011 | Water outlet temp. sensor d2-TH5 |
| 18 | 133020097 | Controller box | 52 | 113190008 | Exchanger temperature sensor clip |
| 19 | 108110096 | Panel support | 53 | 112100021-1 | Water flow switch |
| 20 | 117230003 | Reactor | 54 | 136020083 | Sealing ring |
| 21 | 101000188 | Compressor | 55 | 133020026 | Rubber ring on water connection |
| 22 | 142000072 | Compressor heating resistor | 56 | 133020012 | Red rubber ring |
| 23 | 108110103 | Base tray | 57 | 113900082 | Water connection sets |
| 24 | 108010065 | Terminal board | 58 | 133020011 | Blue rubber ring |
| 25 | 133090071 | Right panel | 59 | 150000110 | Drainage plug |
| 26 | 106000011 | Pressure gauge | 60 | 117110012 | Water inlet temp. sensor d1-TH6 |
| 27 | 136010004 | Clip | 61 | 108010025 | Exchanger temperature sensor clip |
| 28 | 115000004 | 5-ways terminal block | 62 | 110000013 | Rubber ring |
| 29 | 133250005 | Terminal blocks plastic cover | 63 | 108110045 | Electric box |
| 30 | 113190007 | Sensor holder | 64 | 117020239 | Modbus module |
| 31 | 117110004 | Evaporator temperature sensor d5-TH2 | 65 | 117100046 | PCB |
| 32 | 133090072 | Back panel | 66 | 117240002 | Magnet ring |
| 33 | 117110020 | Ambient temp. sensor d3-TH1 | 67 | 117240003 | Magnet ring |
| 34 | 133020010 | Ambient temp. sensor clip | 68 | 108050017 | Electric box cover |

# 9. Exploded Diagram

## 9.5 Spare parts list: 74168

| NO | ERP | Spare parts | NO | ERP | Spare parts |
|---|---|---|---|---|---|
| 1 | 133090073 | Top cover | 35 | 113030081 | 4-way valve to exchanger |
| 2 | 108110094 | Isolation panel | 36 | 120000097 | Gas valve |
| 3 | 108110095 | Fan motor bracket | 37 | 113020527 | Gas return piping |
| 4 | 108110113 | Left side panel | 38 | 112100046 | Low pressure switch |
| 5 | 103000182 | Evaporator | 39 | 112100030 | High pressure switch |
| 6 | 108110091 | Top frame | 40 | 113010210 | Discharge pipe |
| 7 | 108110092 | Pillar | 41 | 117110021 | Discharge temp. sensor d6-TH3 |
| 8 | 112000031 | Fan motor | 42 | 113190001 | Sensor holder |
| 9 | 108480015 | Evaporator heating resistor support | 43 | 119000058 | EEV |
| 10 | 142000142 | Evaporator heating resistor | 44 | 121000037 | Coil for 4 way valve |
| 11 | 108010024 | Fan shaft cover | 45 | 121000034 | 4 way valve |
| 12 | 133020078 | Fan grill | 46 | 113060084 | Tube |
| 13 | 132000015 | Fan blade | 47 | 113080054 | EEV to distribution piping |
| 14 | 133090070 | Front panel | 48 | 113070041 | Exchanger to EEV |
| 15 | 133020096 | Controller cover | 49 | 109000044 | Capillary |
| 16 | 117020293 | Controller | 50 | 102041059 | Titanium heat exchanger |
| 17 | 136010072 | Sealing ring | 51 | 117110011 | Water outlet temp. sensor d2-TH5 |
| 18 | 133020097 | Controller box | 52 | 113190008 | Exchanger temperature sensor clip |
| 19 | 108110096 | Panel support | 53 | 112100021-1 | Water flow switch |
| 20 | 117230003 | Reactor | 54 | 136020083 | Sealing ring |
| 21 | 101000188 | Compressor | 55 | 133020026 | Rubber ring on water connection |
| 22 | 142000072 | Compressor heating resistor | 56 | 133020012 | Red rubber ring |
| 23 | 108110103 | Base tray | 57 | 113900082 | Water connection sets |
| 24 | 108010065 | Terminal board | 58 | 133020011 | Blue rubber ring |
| 25 | 133090071 | Right panel | 59 | 150000110 | Drainage plug |
| 26 | 106000011 | Pressure gauge | 60 | 117110012 | Water inlet temp. sensor d1-TH6 |
| 27 | 136010004 | Clip | 61 | 108010025 | Exchanger temperature sensor clip |
| 28 | 115000004 | 5-ways terminal block | 62 | 110000013 | Rubber ring |
| 29 | 133250005 | Terminal blocks plastic cover | 63 | 108110045 | Electric box |
| 30 | 113190007 | Sensor holder | 64 | 117020239 | Modbus module |
| 31 | 117110004 | Evaporator temperature sensor d5-TH2 | 65 | 117100047 | PCB |
| 32 | 133090072 | Back panel | 66 | 117240002 | Magnet ring |
| 33 | 117110020 | Ambient temp. sensor d3-TH1 | 67 | 117240003 | Magnet ring |
| 34 | 133020010 | Ambient temp. sensor clip | 68 | 108050017 | Electric box cover |





# 9. Exploded Diagram

## 9.6 Spare parts list: 74169

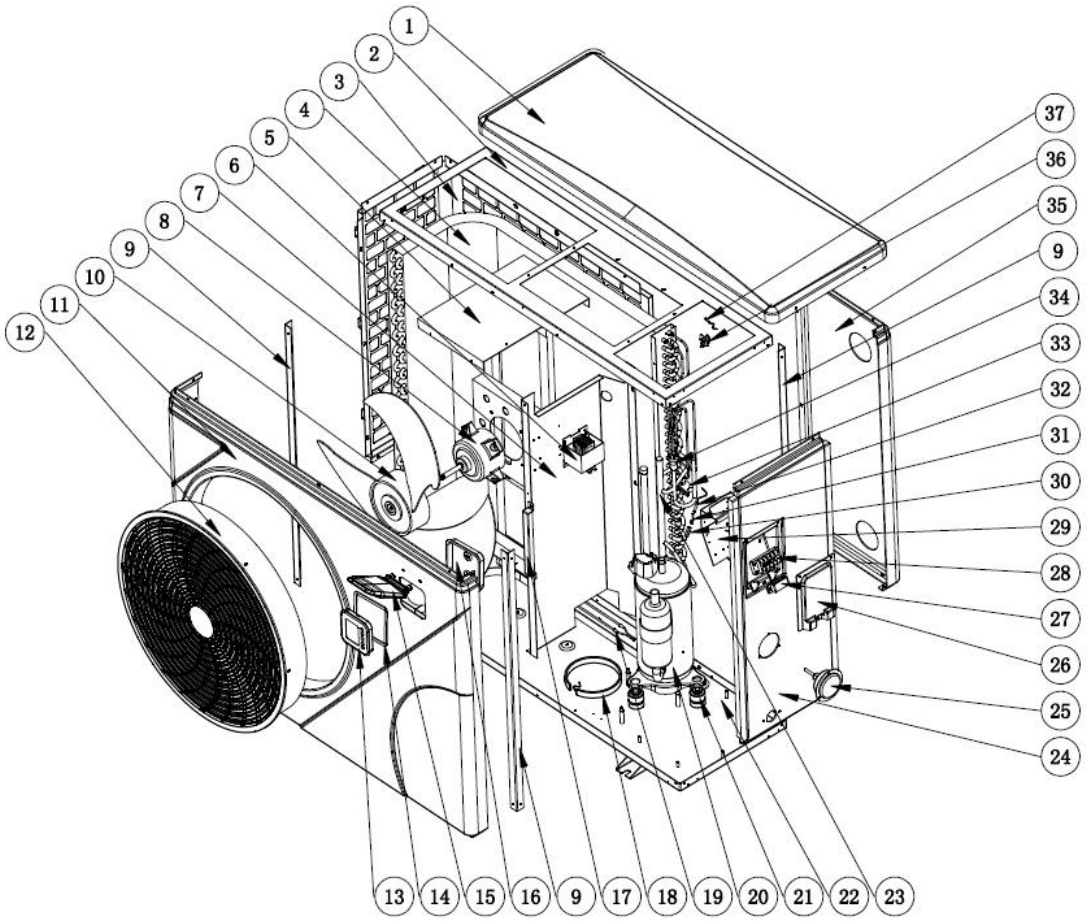
| NO | ERP | Spare parts | NO | ERP | Spare parts |
|---|---|---|---|---|---|
| 1 | 133090073 | Top cover | 35 | 113030081 | 4-way valve to exchanger |
| 2 | 108110094 | Isolation panel | 36 | 120000097 | Gas valve |
| 3 | 108110095 | Fan motor bracket | 37 | 113020321 | Gas return piping |
| 4 | 108110113 | Left side panel | 38 | 112100046 | Low pressure switch |
| 5 | 103000220 | Evaporator | 39 | 112100030 | High pressure switch |
| 6 | 108110091 | Top frame | 40 | 113010159 | Discharge pipe |
| 7 | 108110092 | Pillar | 41 | 117110021 | Discharge temp. sensor d6-TH3 |
| 8 | 112000031 | Fan motor | 42 | 113190001 | Sensor holder |
| 9 | 108480015 | Evaporator heating resistor support | 43 | 119000058 | EEV |
| 10 | 142000142 | Evaporator heating resistor | 44 | 121000037 | Coil for 4 way valve |
| 11 | 108010024 | Fan shaft cover | 45 | 121000034 | 4 way valve |
| 12 | 133020078 | Fan grill | 46 | 113060084 | Tube |
| 13 | 132000015 | Fan blade | 47 | 113080054 | EEV to distribution piping |
| 14 | 133090070 | Front panel | 48 | 113070063 | Exchanger to EEV |
| 15 | 133020096 | Controller cover | 49 | 109000044 | Capillary |
| 16 | 117020293 | Controller | 50 | 102041061 | Titanium heat exchanger |
| 17 | 136010072 | Sealing ring | 51 | 117110011 | Water outlet temp. sensor d2-TH5 |
| 18 | 133020097 | Controller box | 52 | 113190008 | Exchanger temperature sensor clip |
| 19 | 108110096 | Panel support | 53 | 112100021-1 | Water flow switch |
| 20 | 117230003 | Reactor | 54 | 136020083 | Sealing ring |
| 21 | 101000181 | Compressor | 55 | 133020026 | Rubber ring on water connection |
| 22 | 142000074 | Compressor heating resistor | 56 | 133020012 | Red rubber ring |
| 23 | 108110101 | Base tray | 57 | 113900082 | Water connection sets |
| 24 | 108010065 | Terminal board | 58 | 133020011 | Blue rubber ring |
| 25 | 133090071 | Right panel | 59 | 150000110 | Drainage plug |
| 26 | 106000011 | Pressure gauge | 60 | 117110012 | Water inlet temp. sensor d1-TH6 |
| 27 | 136010004 | Clip | 61 | 108010025 | Exchanger temperature sensor clip |
| 28 | 115000004 | 5-ways terminal block | 62 | 110000013 | Rubber ring |
| 29 | 133250005 | Terminal blocks plastic cover | 63 | 108110045 | Electric box |
| 30 | 113190007 | Sensor holder | 64 | 117020239 | Modbus module |
| 31 | 117110004 | Evaporator temperature sensor d5-TH2 | 65 | 117100047 | PCB |
| 32 | 133090072 | Back panel | 66 | 117240002 | Magnet ring |
| 33 | 117110020 | Ambient temp. sensor d3-TH1 | 67 | 117240003 | Magnet ring |
| 34 | 133020010 | Ambient temp. sensor clip | 68 | 108050017 | Electric box cover |

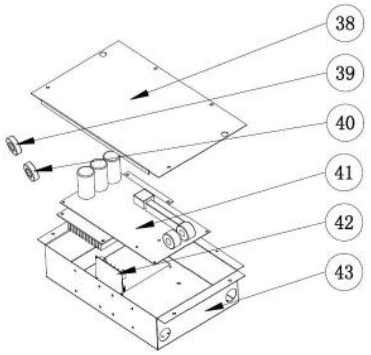


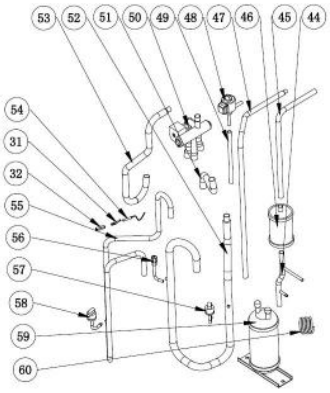


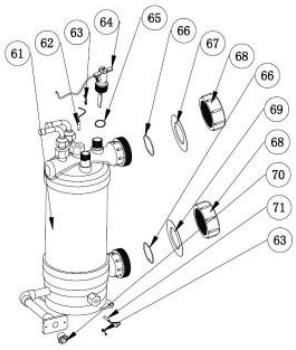
# 9. Exploded Diagram

## 9.7 Model: 74170/74171



# 9. Exploded Diagram

## 9.8 Spare parts list: 74170

| NO | ERP | Spare parts | NO | ERP | Spare parts |
|---|---|---|---|---|---|
| 1 | 133260053 | Top cover | 37 | 117110020 | Ambient temp. sensor d3-TH1 |
| 2 | 108560058 | Top frame | 38 | 108540006 | Electric box cover |
| 3 | 108560078 | Left side panel | 39 | 117240002 | Magnet ring |
| 4 | 103000231 | Evaporator | 40 | 117240003 | Magnet ring |
| 5 | 108560062 | Fan motor bracket | 41 | 117100048 | PCB |
| 6 | 117230002 | Reactor | 42 | 117020239 | Modbus module |
| 7 | 108560061 | Isolation panel | 43 | 108560012 | Electric box |
| 8 | 112000031 | Fan motor | 44 | 113130021 | Pipe to dehydrator filter |
| 9 | 108560059 | Pillar | 45 | 113170032 | Dehydrator filter pipe |
| 10 | 132000023 | Fan blade | 46 | 120000066 | Filter |
| 11 | 133260050 | Front panel | 47 | 113120019 | Pipe from storage tank to EEV |
| 12 | 133020079 | Fan grill | 48 | 119000059 | EEV |
| 13 | 117020293 | Controller | 49 | 113080056 | EEV to distribution piping |
| 14 | 136010072 | Sealing ring | 50 | 121000034 | 4 way valve |
| 15 | 133020096 | Controller cover | 51 | 113060122 | Tube |
| 16 | 133020097 | Controller box | 52 | 113020518 | Gas return piping |
| 17 | 108110096 | Panel support | 53 | 113030108 | 4-way valve to exchanger |
| 18 | 142000077 | Compressor heating resistor | 54 | 117110021 | Discharge temp. sensor d6-TH3 |
| 19 | 142000144 | Evaporator heating resistor | 55 | 113010244 | Discharge pipe |
| 20 | 101000185 | Compressor | 56 | 120000097 | Gas valve |
| 21 | 101000185 | Compressor + damping feet | 57 | 112100046 | Low pressure switch |
| 22 | 108560066 | Base | 58 | 112100030 | High pressure switch |
| 23 | 103000231 | Evaporator pipe | 59 | 105000004 | Liquid storage tank |
| 24 | 133260051 | Right panel | 60 | 109000048 | Capillary |
| 25 | 106000011 | Pressure gauge | 61 | 102041062 | Titanium heat exchanger |
| 26 | 133250005 | Terminal blocks plastic cover | 62 | 117110011 | Water outlet temp. sensor d2-TH5 |
| 27 | 136010004 | Clip | 63 | 108010025 | Exchanger temperature sensor clip |
| 28 | 115000004 | 5-ways terminal block | 64 | 112100021-1 | Water flow switch |
| 29 | 108010065 | Terminal board | 65 | 136020083 | Sealing ring |
| 30 | 113190001 | Clip | 66 | 133020026 | Rubber ring on water connection |
| 31 | 113190007 | Sensor holder | 67 | 133020012 | Red rubber ring |
| 32 | 117110004 | Evaporator temperature sensor d5-TH2 | 68 | 113900082 | Water connection sets |
| 33 | 136020005 | Rubber block | 69 | 133020011 | Blue rubber ring |
| 34 | 103000231 | Distribution piping | 70 | 150000110 | Drainage plug |
| 35 | 133260052 | Back panel | 71 | 117110012 | Water inlet temp. sensor d1-TH6 |
| 36 | 133020010 | Ambient temp. sensor clip | | | |





# 9. Exploded Diagram

## 9.9 Spare parts list: 74171

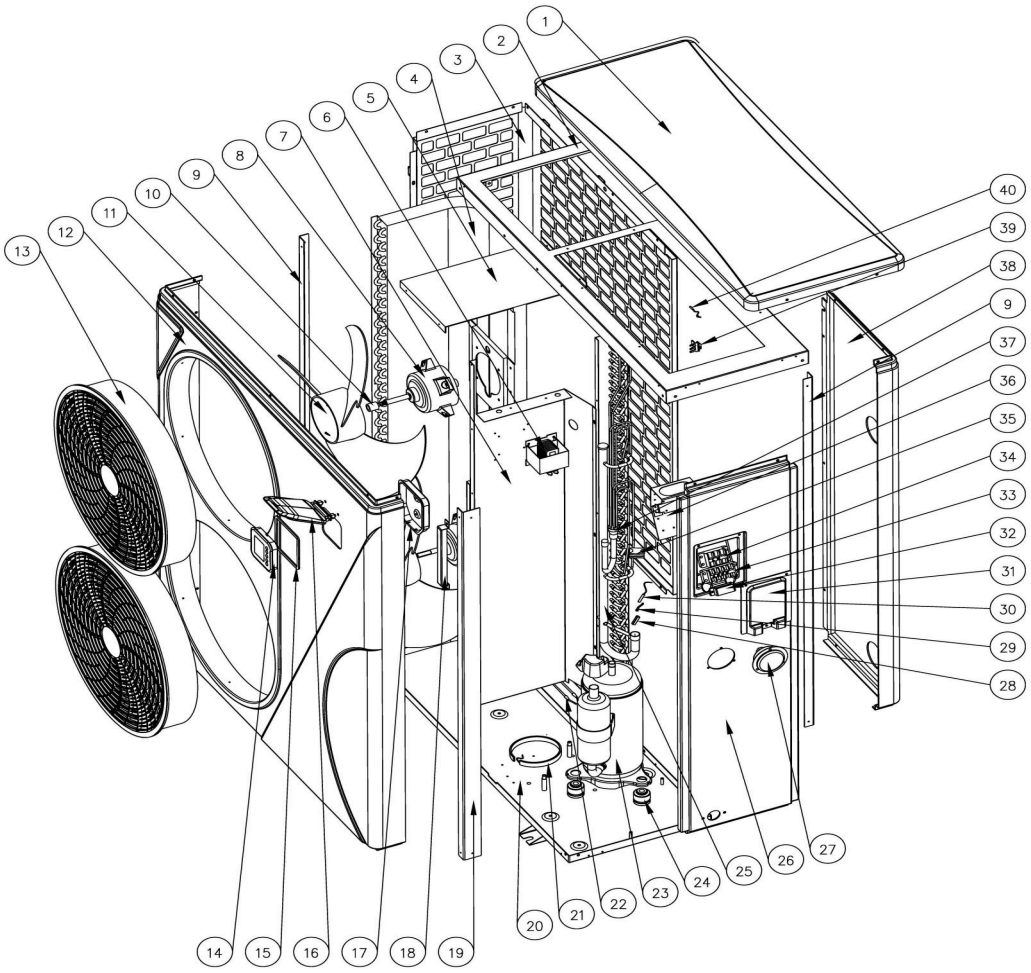
| NO | ERP | Spare parts | NO | ERP | Spare parts |
|---|---|---|---|---|---|
| 1 | 133260053 | Top cover | 37 | 117110020 | Ambient temp. sensor d3-TH1 |
| 2 | 108560058 | Top frame | 38 | 108540006 | Electric box cover |
| 3 | 108560078 | Left side panel | 39 | 117240002 | Magnet ring |
| 4 | 103000204 | Evaporator | 40 | 117240003 | Magnet ring |
| 5 | 108560062 | Fan motor bracket | 41 | 117100048 | PCB |
| 6 | 117230002 | Reactor | 42 | 117020239 | Modbus module |
| 7 | 108560061 | Isolation panel | 43 | 108560012 | Electric box |
| 8 | 112000031 | Fan motor | 44 | 113130021 | Pipe to dehydrator filter |
| 9 | 108560059 | Pillar | 45 | 113170032 | Dehydrator filter pipe |
| 10 | 132000023 | Fan blade | 46 | 120000066 | Filter |
| 11 | 133260050 | Front panel | 47 | 113120019 | Pipe from storage tank to EEV |
| 12 | 133020079 | Fan grill | 48 | 119000059 | EEV |
| 13 | 117020293 | Controller | 49 | 113080056 | EEV to distribution piping |
| 14 | 136010072 | Sealing ring | 50 | 121000028 | 4 way valve |
| 15 | 133020096 | Controller cover | 51 | 113060096 | Tube |
| 16 | 133020097 | Controller box | 52 | 113020387 | Gas return piping |
| 17 | 108110096 | Panel support | 53 | 113030093 | 4-way valve to exchanger |
| 18 | 142000077 | Compressor heating resistor | 54 | 117110021 | Discharge temp. sensor d6-TH3 |
| 19 | 142000144 | Evaporator heating resistor | 55 | 113010245 | Discharge pipe |
| 20 | 101000185 | Compressor | 56 | 120000097 | Gas valve |
| 21 | 101000185 | Compressor + damping feet | 57 | 112100046 | Low pressure switch |
| 22 | 108560066 | Base | 58 | 112100030 | High pressure switch |
| 23 | 103000204 | Evaporator pipe | 59 | 105000004 | Liquid storage tank |
| 24 | 133260051 | Right panel | 60 | 109000048 | Capillary |
| 25 | 106000011 | Pressure gauge | 61 | 102041064 | Titanium heat exchanger |
| 26 | 133250005 | Terminal blocks plastic cover | 62 | 117110011 | Water outlet temp. sensor d2-TH5 |
| 27 | 136010004 | Clip | 63 | 108010025 | Exchanger temperature sensor clip |
| 28 | 115000004 | 5-ways terminal block | 64 | 112100021-1 | Water flow switch |
| 29 | 108010065 | Terminal board | 65 | 136020083 | Sealing ring |
| 30 | 113190001 | Clip | 66 | 133020026 | Rubber ring on water connection |
| 31 | 113190007 | Sensor holder | 67 | 133020012 | Red rubber ring |
| 32 | 117110004 | Evaporator temperature sensor d5-TH2 | 68 | 113900082 | Water connection sets |
| 33 | 136020005 | Rubber block | 69 | 133020011 | Blue rubber ring |
| 34 | 103000204 | Distribution piping | 70 | 150000110 | Drainage plug |
| 35 | 133260052 | Back panel | 71 | 117110012 | Water inlet temp. sensor d1-TH6 |
| 36 | 133020010 | Ambient temp. sensor clip | | | |

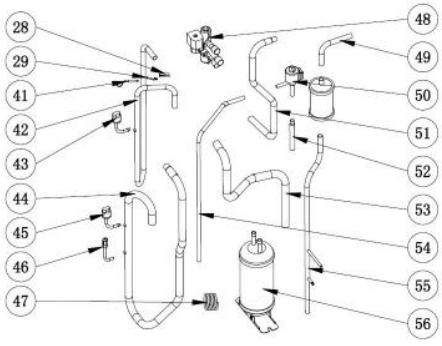


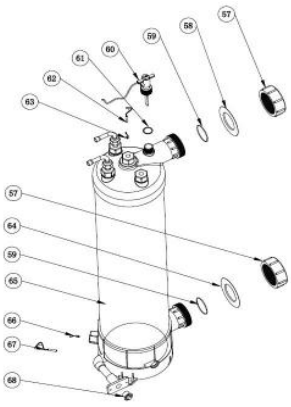


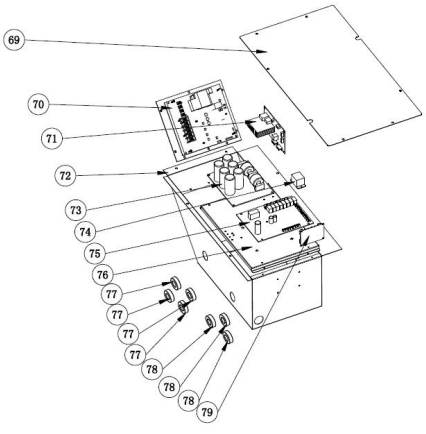
# 9. Exploded Diagram

## 9.10 Model: 74172, 74173, 74174, 74175



# 9. Exploded Diagram

## 9.11 Spare parts list: 74172

| NO | ERP | Spare parts | NO | ERP | Spare parts |
|---|---|---|---|---|---|
| 1 | 133250040 | Top cover | 41 | 117110021 | Discharge temp. sensor d6-TH3 |
| 2 | 108550027 | Top frame | 42 | 113010227 | Discharge pipe |
| 3 | 108550044 | Left side panel | 43 | 112100030 | High pressure switch |
| 4 | 103000208 | Evaporator | 44 | 113020326 | Gas return piping |
| 5 | 108550033 | Fan motor bracket | 45 | 112100046 | Low pressure switch |
| 6 | 117230001 | Reactor | 46 | 120000097 | Gas valve |
| 7 | 108120036 | Isolation panel | 47 | 109000043 | Capillary |
| 8 | 112000031 | Fan motor | 48 | 121000028 | 4 way valve |
| 9 | 108550028 | Pillar | 49 | 113170063 | Dehydrator filter pipe |
| 10 | 108010024 | Fan shaft cover | 50 | 119000061 | EEV |
| 11 | 132000015 | Fan blade | 51 | 113030191 | 4-way valve to exchanger |
| 12 | 133250037 | Front panel | 52 | 113080055 | EEV to distribution piping |
| 13 | 133020078 | Fan grill | 53 | 113060083 | Tube |
| 14 | 117020293 | Controller | 54 | 113120056 | Pipe from storage tank to EEV |
| 15 | 136010072 | Sealing ring | 55 | 113130043 | Pipe to dehydrator filter |
| 16 | 133020096 | Controller cover | 56 | 105000015 | Liquid storage tank |
| 17 | 133020097 | Controller box | 57 | 113900082 | Water connection sets |
| 18 | 108550009 | Panel support | 58 | 133020012 | Red rubber ring |
| 19 | 108550031 | Pillar | 59 | 133020026 | Rubber ring on water connection |
| 20 | 108550034 | Base tray | 60 | 112100021-1 | Water flow switch |
| 21 | 142000077 | Compressor heating resistor | 61 | 136020083 | Sealing ring |
| 22 | 142000079 | Evaporator heating resistor | 62 | 117110011 | Water outlet temp. sensor d2-TH5 |
| 23 | 101000185 | Compressor | 63 | 113190008 | Exchanger temperature sensor clip |
| 24 | 101000185 | Compressor damping feet | 64 | 133020011 | Blue rubber ring |
| 25 | 103000208 | Evaporator pipe | 65 | 102041063 | Titanium heat exchanger |
| 26 | 133250038 | Right panel | 66 | 108010025 | Exchanger temperature sensor clip |
| 27 | 106000011 | Pressure gauge | 67 | 117110012 | Water inlet temp. sensor d1-TH6 |
| 28 | 113190001 | Clip | 68 | 150000110 | Drainage plug |
| 29 | 113190007 | Sensor holder | 69 | 108120040 | Electric box cover |
| 30 | 117110004 | Evaporator temperature sensor d5-TH2 | 70 | 117140016 | Driver board |
| 31 | 133250005 | Terminal blocks plastic cover | 71 | / | / |
| 32 | 136010004 | Clip | 72 | 108120038 | Electric box |
| 33 | 115000004 | 5-ways terminal block | 73 | 117260001 | Filter board |
| 34 | / | / | 74 | 142000038 | Relay |
| 35 | 136020005 | Rubber block | 75 | 117250007 | PCB |
| 36 | 108010065 | Terminal board | 76 | 108120039 | Scale board |
| 37 | 103000208 | Distribution piping | 77 | 117240002 | Magnet ring |
| 38 | 133250039 | Back panel | 78 | 117240003 | Magnet ring |
| 39 | 133020010 | Ambient temp. sensor clip | 79 | 117020239 | Modbus module |
| 40 | 117110020 | Ambient temp. sensor d3-TH1 | | | |

# 9. Exploded Diagram

## 9.12 Spare parts list: 74173

| NO | ERP | Spare parts | NO | ERP | Spare parts |
|---|---|---|---|---|---|
| 1 | 133250040 | Top cover | 41 | 117110021 | Discharge temp. sensor d6-TH3 |
| 2 | 108550027 | Top frame | 42 | 113010228 | Discharge pipe |
| 3 | 108550044 | Left side panel | 43 | 112100030 | High pressure switch |
| 4 | 103000209 | Evaporator | 44 | 113020326 | Gas return piping |
| 5 | 108550030 | Fan motor bracket | 45 | 112100046 | Low pressure switch |
| 6 | 117230001 | Reactor | 46 | 120000097 | Gas valve |
| 7 | 108120036 | Isolation panel | 47 | 109000043 | Capillary |
| 8 | 112000031 | Fan motor | 48 | 121000028 | 4 way valve |
| 9 | 108550028 | Pillar | 49 | 113170064 | Dehydrator filter pipe |
| 10 | 108010024 | Fan shaft cover | 50 | 119000062 | EEV |
| 11 | 132000015 | Fan blade | 51 | 113030191 | 4-way valve to exchanger |
| 12 | 133250037 | Front panel | 52 | 113080055 | EEV to distribution piping |
| 13 | 133020078 | Fan grill | 53 | 113060083 | Tube |
| 14 | 117020293 | Controller | 54 | 113120056 | Pipe from storage tank to EEV |
| 15 | 136010072 | Sealing ring | 55 | 113130043 | Pipe to dehydrator filter |
| 16 | 133020096 | Controller cover | 56 | 105000015 | Liquid storage tank |
| 17 | 133020097 | Controller box | 57 | 113900082 | Water connection sets |
| 18 | 108550009 | Panel support | 58 | 133020012 | Red rubber ring |
| 19 | 108550031 | Pillar | 59 | 133020026 | Rubber ring on water connection |
| 20 | 108550034 | Base tray | 60 | 112100021-1 | Water flow switch |
| 21 | 142000077 | Compressor heating resistor | 61 | 136020083 | Sealing ring |
| 22 | 142000079 | Evaporator heating resistor | 62 | 117110011 | Water outlet temp. sensor d2-TH5 |
| 23 | 101000186 | Compressor | 63 | 113190008 | Exchanger temperature sensor clip |
| 24 | 101000186 | Compressor damping feet | 64 | 133020011 | Blue rubber ring |
| 25 | 103000209 | Evaporator pipe | 65 | 102041067 | Titanium heat exchanger |
| 26 | 133250038 | Right panel | 66 | 108010025 | Exchanger temperature sensor clip |
| 27 | 106000011 | Pressure gauge | 67 | 117110012 | Water inlet temp. sensor d1-TH6 |
| 28 | 113190001 | Clip | 68 | 150000110 | Drainage plug |
| 29 | 113190007 | Sensor holder | 69 | 108120040 | Electric box cover |
| 30 | 117110004 | Evaporator temperature sensor d5-TH2 | 70 | 117140016 | Driver board |
| 31 | 133250005 | Terminal blocks plastic cover | 71 | / | / |
| 32 | 136010004 | Clip | 72 | 108120038 | Electric box |
| 33 | 115000004 | 5-ways terminal block | 73 | 117260001 | Filter board |
| 34 | / | / | 74 | 142000038 | Relay |
| 35 | 136020005 | Rubber block | 75 | 117250007 | PCB |
| 36 | 108010065 | Terminal board | 76 | 108120039 | Scale board |
| 37 | 103000209 | Distribution piping | 77 | 117240002 | Magnet ring |
| 38 | 133250039 | Back panel | 78 | 117240003 | Magnet ring |
| 39 | 133020010 | Ambient temp. sensor clip | 79 | 117020239 | Modbus module |
| 40 | 117110020 | Ambient temp. sensor d3-TH1 | | | |

# 9. Exploded Diagram

## 9.13 Spare parts list: 74174

| NO | ERP | Spare parts | NO | ERP | Spare parts |
|---|---|---|---|---|---|
| 1 | 133250040 | Top cover | 41 | 117110021 | Discharge temp. sensor d6-TH3 |
| 2 | 108550027 | Top frame | 42 | 113010158 | Discharge pipe |
| 3 | 108550044 | Left side panel | 43 | 112100030 | High pressure switch |
| 4 | 103000208 | Evaporator | 44 | 113020427 | Gas return piping |
| 5 | 108550033 | Fan motor bracket | 45 | 112100046 | Low pressure switch |
| 6 | 117230001 | Reactor | 46 | 120000023 | Gas valve |
| 7 | 108120036 | Isolation panel | 47 | 109000043 | Capillary |
| 8 | 112000031 | Fan motor | 48 | 121000028 | 4 way valve |
| 9 | 108550028 | Pillar | 49 | 113170063 | Dehydrator filter pipe |
| 10 | 108010024 | Fan shaft cover | 50 | 119000061 | EEV |
| 11 | 132000015 | Fan blade | 51 | 113030191 | 4-way valve to exchanger |
| 12 | 133250037 | Front panel | 52 | 113080055 | EEV to distribution piping |
| 13 | 133020078 | Fan grill | 53 | 113060083 | Tube |
| 14 | 117020293 | Controller | 54 | 113120056 | Pipe from storage tank to EEV |
| 15 | 136010072 | Sealing ring | 55 | 113130043 | Pipe to dehydrator filter |
| 16 | 133020096 | Controller cover | 56 | 105000015 | Liquid storage tank |
| 17 | 133020097 | Controller box | 57 | 113900082 | Water connection sets |
| 18 | 108550009 | Panel support | 58 | 133020012 | Red rubber ring |
| 19 | 108550031 | Pillar | 59 | 133020026 | Rubber ring on water connection |
| 20 | 108550034 | Base tray | 60 | 112100021-1 | Water flow switch |
| 21 | 142000077 | Compressor heating resistor | 61 | 136020083 | Sealing ring |
| 22 | 142000079 | Evaporator heating resistor | 62 | 117110011 | Water outlet temp. sensor d2-TH5 |
| 23 | 101000149 | Compressor | 63 | 113190008 | Exchanger temperature sensor clip |
| 24 | 101000149 | Compressor damping feet | 64 | 133020011 | Blue rubber ring |
| 25 | 103000208 | Evaporator pipe | 65 | 102041019 | Titanium heat exchanger |
| 26 | 133250038 | Right panel | 66 | 108010025 | Exchanger temperature sensor clip |
| 27 | 106000011 | Pressure gauge | 67 | 117110012 | Water inlet temp. sensor d1-TH6 |
| 28 | 113190001 | Clip | 68 | 150000110 | Drainage plug |
| 29 | 113190007 | Sensor holder | 69 | 108120040 | Electric box cover |
| 30 | 117110004 | Evaporator temperature sensor d5-TH2 | 70 | 117140019 | Driver board |
| 31 | 133250005 | Terminal blocks plastic cover | 71 | 117140006 | Fan motor driver board |
| 32 | 136010004 | Clip | 72 | 108120038 | Electric box |
| 33 | 115000006 | 5-ways terminal for electricity | 73 | 117260002 | Filter board |
| 34 | 115000027 | 3-ways terminal for filtration pump | 74 | 142000038 | Relay |
| 35 | 136020005 | Rubber block | 75 | 117250008 | PCB |
| 36 | 108010065 | Terminal board | 76 | 108120039 | Scale board |
| 37 | 103000208 | Distribution piping | 77 | 117240002 | Magnet ring |
| 38 | 133250039 | Back panel | 78 | 117240003 | Magnet ring |
| 39 | 133020010 | Ambient temp. sensor clip | 79 | 117020239 | Modbus module |
| 40 | 117110020 | Ambient temp. sensor d3-TH1 | | | |

# 9. Exploded Diagram

## 9.14 Spare parts list: 74175

| NO | ERP | Spare parts | NO | ERP | Spare parts |
|---|---|---|---|---|---|
| 1 | 133250040 | Top cover | 41 | 117110021 | Discharge temp. sensor d6-TH3 |
| 2 | 108550027 | Top frame | 42 | 113010158 | Discharge pipe |
| 3 | 108550044 | Left side panel | 43 | 112100030 | High pressure switch |
| 4 | 103000209 | Evaporator | 44 | 113020427 | Gas return piping |
| 5 | 108550030 | Fan motor bracket | 45 | 112100046 | Low pressure switch |
| 6 | 117230001 | Reactor | 46 | 120000023 | Gas valve |
| 7 | 108120036 | Isolation panel | 47 | 109000043 | Capillary |
| 8 | 112000031 | Fan motor | 48 | 121000028 | 4 way valve |
| 9 | 108550028 | Pillar | 49 | 113170064 | Dehydrator filter pipe |
| 10 | 108010024 | Fan shaft cover | 50 | 119000061 | EEV |
| 11 | 132000015 | Fan blade | 51 | 113030191 | 4-way valve to exchanger |
| 12 | 133250037 | Front panel | 52 | 113080055 | EEV to distribution piping |
| 13 | 133020078 | Fan grill | 53 | 113060083 | Tube |
| 14 | 117020293 | Controller | 54 | 113120056 | Pipe from storage tank to EEV |
| 15 | 136010072 | Sealing ring | 55 | 113130043 | Pipe to dehydrator filter |
| 16 | 133020096 | Controller cover | 56 | 105000015 | Liquid storage tank |
| 17 | 133020097 | Controller box | 57 | 113900082 | Water connection sets |
| 18 | 108550009 | Panel support | 58 | 133020012 | Red rubber ring |
| 19 | 108550031 | Pillar | 59 | 133020026 | Rubber ring on water connection |
| 20 | 108550036 | Base tray | 60 | 112100021-1 | Water flow switch |
| 21 | 142000077 | Compressor heating resistor | 61 | 136020083 | Sealing ring |
| 22 | 142000079 | Evaporator heating resistor | 62 | 117110011 | Water outlet temp. sensor d2-TH5 |
| 23 | 101000149 | Compressor | 63 | 113190008 | Exchanger temperature sensor clip |
| 24 | 101000149 | Compressor damping feet | 64 | 133020011 | Blue rubber ring |
| 25 | 103000209 | Evaporator pipe | 65 | 102041066 | Titanium heat exchanger |
| 26 | 133250038 | Right panel | 66 | 108010025 | Exchanger temperature sensor clip |
| 27 | 106000011 | Pressure gauge | 67 | 117110012 | Water inlet temp. sensor d1-TH6 |
| 28 | 113190001 | Clip | 68 | 150000110 | Drainage plug |
| 29 | 113190007 | Sensor holder | 69 | 108120040 | Electric box cover |
| 30 | 117110004 | Evaporator temperature sensor d5-TH2 | 70 | 117140019 | Driver board |
| 31 | 133250005 | Terminal blocks plastic cover | 71 | 117140006 | Fan motor driver board |
| 32 | 136010004 | Clip | 72 | 108120038 | Electric box |
| 33 | 115000006 | 5-ways terminal for electricity | 73 | 117260002 | Filter board |
| 34 | 115000027 | 3-ways terminal for filtration pump | 74 | 142000038 | Relay |
| 35 | 136020005 | Rubber block | 75 | 117250008 | PCB |
| 36 | 108010065 | Terminal board | 76 | 108120039 | Scale board |
| 37 | 103000209 | Distribution piping | 77 | 117240002 | Magnet ring |
| 38 | 133250039 | Back panel | 78 | 117240003 | Magnet ring |
| 39 | 133020010 | Ambient temp. sensor clip | 79 | 117020239 | Modbus module |
| 40 | 117110020 | Ambient temp. sensor d3-TH1 | | | |

## 10. Maintenance

**Warning!**
-Before any maintenance work on the appliance, you must cut the electricity supply as there is a risk of electric shock which may cause material damage, serious injury or even death.
- It is recommended that the appliance undergo general servicing at least on a yearly basis to ensure its proper operation, maintain performance levels and prevent any possible failures.These operations are carried out at the user's expense, by a qualified technician.
for maintenance to be carried out by a qualified technician.
-For maintenance to be carried out by a qualified technician, please read the safety instructions in the first pages provided in the chapters of maintenance before performing any of the maintenance operations described below.

(1) You should check the water supply system regularly to avoid air entering the system and creation of low water flow, because it would reduce the performance and reliability of HP unit.

(2) Clean your pools and filtration system regularly to avoid the damage of the unit.

(3) Only a qualified technician is authorized to operate the cooling system pressure. You should drain the water from the heat pump if it will stop running for a long time (especially during the winter season or when the ambient temperature drops below 0ºC).

(4) Check the water levels before the unit start after a long break in usage.

(5) When the unit is running, there will be condensate water discharging from the bottom of the unit. This is normal.

(6) Action of filling gas must be conducted by professional with R32 operating license.