

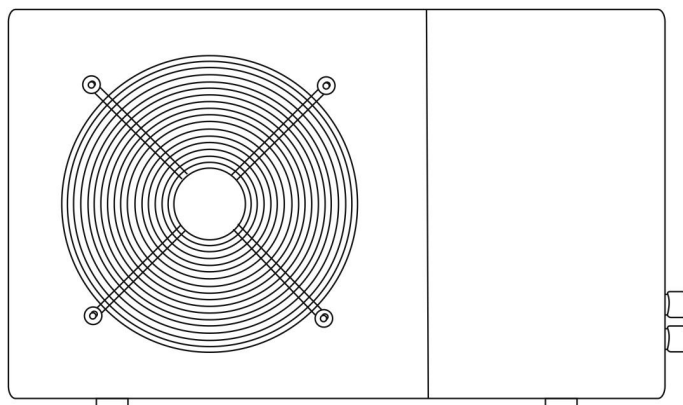
# hydro-pro inverter

7018545	Hydro-Pro Heat pump ABS 230V Inverter type Inverter 07 horizontal
7018546	Hydro-Pro Heat pump ABS 230V Inverter type Inverter 10 horizontal
7018547	Hydro-Pro Heat pump ABS 230V Inverter type Inverter 13 horizontal
7018548	Hydro-Pro Heat pump ABS 230V Inverter type Inverter 17 horizontal
7018549	Hydro-Pro Heat pump ABS 230V Inverter type Inverter 21 horizontal
7018550	Hydro-Pro Heat pump ABS 230V Inverter type Inverter 26 horizontal
7018551	Hydro-Pro Heat pump ABS 400V Inverter type Inverter 26T horizontal
7018552	Hydro-Pro Heat pump ABS 230V Inverter type Inverter 35 horizontal
7018553	Hydro-Pro Heat pump ABS 400V Inverter type Inverter 35T horizontal

## INVERBOOST+ Tech

## Swimming Pool Heat Pump

### User and Service manual



English

# INDEX

<b>CO2 Regulation (EU)</b>	<b>Page 2</b>
<b>Users Manual</b>	<b>Pages 3 - 30</b>

|

## Regulation (EU) n° 517/2014 of 16/04/14 on fluorinated greenhouse gases and repealing Regulation (EC) n° 842/2006

---

### Leak checks

1. Operators of equipment that contains fluorinated greenhouse gases in quantities of 5 tons of CO<sub>2</sub>, equivalent or more and not contained in foams shall ensure that the equipment is checked for leaks.
2. For equipment that contains fluorinated greenhouse gases in quantities of 5 tons of CO<sub>2</sub> equivalent or more, but of less than 50 tons of CO<sub>2</sub> equivalent: at least every 12 months.

### Picture of the equivalence CO<sub>2</sub>

1. Load in kg and Tons amounting CO<sub>2</sub>.

Load and Tons amounting CO <sub>2</sub>	Frequency of test
From 2 at 30 kg load = from 5 at 50 Tons	Each year

**Concerning the Gaz R 410a, 2.39kg amounting at 5 tons of CO<sub>2</sub>, commitment to check each year.**

### Training and certification

1. The operator of the relevant application shall ensure that the relevant personnel have obtained the necessary certification, which implies appropriate knowledge of the applicable regulations and standards as well as the necessary competence in emission prevention and recovery of fluorinated greenhouse gases and handling safety the relevant type and size of equipment.

### Record keeping

1. Operators of equipment which is required to be checked for leaks, shall establish and maintain records for each piece of such equipment specifying the following information:
  - a) The quantity and type of fluorinated greenhouse gases installed;
  - b) The quantities of fluorinated greenhouse gases added during installation, maintenance or servicing or due to leakage;
  - c) Whether the quantities of installed fluorinated greenhouse gases have been recycled or reclaimed, including the name and address of the recycling or reclamation facility and, where applicable, the certificate number;
  - d) The quantity of fluorinated greenhouse gases recovered
  - e) The identity of the undertaking which installed, serviced, maintained and where applicable repaired or decommissioned the equipment, including, where applicable, the number of its certificate;
  - f) The dates and results of the checks carried out;
  - g) If the equipment was decommissioned, the measures taken to recover and dispose of the fluorinated greenhouse gases.
2. **The operator shall keep the records for at least five years, undertakings carrying out the activities for operators shall keep copies of the records for at least five years.**

# hydro-pro inverter

## Swimming Pool Heat Pump

### User and Service manual

#### INDEX

1. Specifications
2. Dimension
3. Installation and connection
4. Accessories
5. Electrical Wiring
6. Display Controller Operation
7. Troubleshooting
8. Exploded Diagram
9. Maintenance
10. Warranty and returns

Thank you for using hydro-pro inverter 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 -10 to 50°C



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

The installer must read the manual and attentively follow the instructions in implementation and maintenance.

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 against the manual implies the exclusion of the entire guarantee.

The manufacturer declines any responsibility for the damage caused with the people, objects and of the errors due to the installation that disobey the manual guideline. Any use that is without conformity at the origin of its manufacturing will be regarded as dangerous.

**WARNING:** Please always empty the water in heat pump during winter time or when the ambient temperature drops below 0°C, or else the Titanium exchanger will be damaged because of being frozen, in such case, your warranty will be lost.

**WARNING:** Please always cut the power supply if you want to open the cabinet to reach inside the heat pump, because there is high voltage electricity inside.

**WARNING:** Please well keep the display controller in a dry area, or well close the insulation cover to protect the display controller from being damaged by humidity.

## 1. Specifications

### 1.1 Technical data hydro-pro inverter pool heat pumps

Model		Inverter 07	Inverter 10	Inverter 13	Inverter 17	Inverter 21
Item No.		7018545	7018546	7018547	7018548	7018549
<b>* Performance at Air 27°C, Water 26°C, Humidity 80%</b>						
Heating capacity	kW	7-3.6	10-2.3	13-2.6	17-3.8	20-4
Power consumption	kW	1.06-0.3	1.52-0.18	1.94-0.2	2.54-0.29	2.98-0.3
C.O.P.		12-6.6	13-6.6	13-6.7	13-6.7	13-6.7
<b>* Performance at Air 15°C, Water 26°C, Humidity 70%</b>						
Heating capacity	kW	5.1-2.5	7.1-1.9	9.6-2	11.5-3	14-3
Power consumption	kW	1-0.38	1.4-0.25	1.84-0.27	2.2-0.37	2.7-0.37
C.O.P.		6.5-5.1	7.5-5.1	7.5-5.2	8.2-5.2	8.2-5.1
<b>* Performance at Air 35°C, Water 27°C, Humidity 40%</b>						
Cooling capacity	kW	3.6-1.68	5.0-1.21	6.6-1.4	8.3-2.0	9.7-2.06
Power consumption	kW	1.25-0.44	1.75-0.28	2.3-0.31	2.88-0.42	3.68-0.4
E.E.R.		3.78-2.88	4.25-2.88	4.49-2.88	4.73-2.88	5.11-2.64
Rated water flux	m <sup>3</sup> /h	2.50	3.00	4.00	5.00	6.00
Fan power input	w	5-20	8-40	8-40	10-50	10-50
Voltage		220~240V/50Hz/1PH				
Maximum Current	A	4.43	6.65	8.57	11.31	12.98
Minimum Fuse Current	A	12	18	24	31	36
Water in-out connection	mm	50				
Fan quantity		1	1	1	1	1
Ventilation type		Horizontal	Horizontal	Horizontal	Horizontal	Horizontal
Compressor brand		GMCC	GMCC	MITSUBISHI	MITSUBISHI	MITSUBISHI
Noise level at 1m	dB(A)	40-50	40-52	40-54	41-56	41-56
Net dimension	mm	1008*380*577	1050*440*709		1050*450*870	
Net weight	Kg	54	68	78	98	108
Packing dimension	mm	1095*430*705	1130*470*850		1140*480*1010	
Gross Weight	Kg	66	73	83	113	123

\* Above data are subjects to modification without notice.

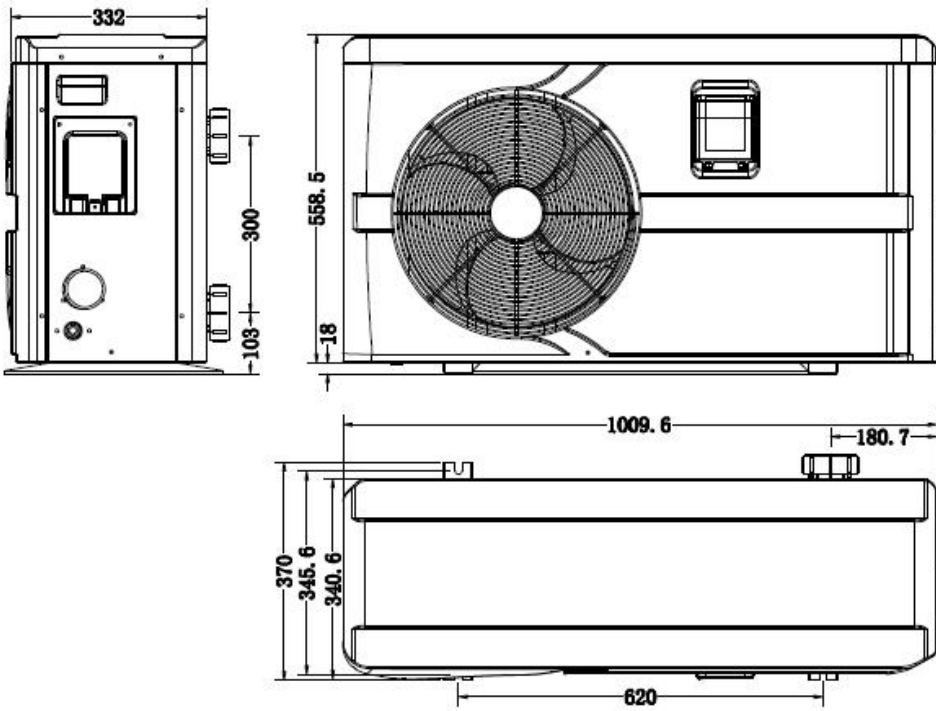
## 1.2 Technical data hydro-pro inverter pool heat pumps

Model		Inverter 26	Inverter 26T	Inverter 35	Inverter 35T
Item No.		7018550	7018551	7018552	7018553
<b>* Performance at Air 27°C, Water 26°C, Humidity 80%</b>					
Heating capacity	kW	26-6.8	26-6.8	35-7	35-7
Power consumption	kW	3.88-0.52	3.88-0.52	5.22-0.54	5.22-0.54
C.O.P.		13-6.7	13-6.7	13-6.7	13-6.7
<b>* Performance at Air 15°C, Water 26°C, Humidity 70%</b>					
Heating capacity	kW	19-5.4	19-5.4	24-5.6	24-5.6
Power consumption	kW	3.6-0.66	3.6-0.66	4.8-0.68	4.8-0.68
C.O.P.		8.2-5.2	8.2-5.2	8.2-5	8.2-5
<b>* Performance at Air 35°C, Water 27°C, Humidity 40%</b>					
Cooling capacity	kW	13.0-3.48	13.0-3.48	17.3-3.8	17.3-3.8
Power consumption	kW	4.5-0.76	4.5-0.76	7.5-0.76	7.5-0.76
E.E.R.		4.55-2.88	4.55-2.88	5.02-2.3	5.02-2.3
Rated water flux	m <sup>3</sup> /h	8.00	8.00	10.00	10.00
Fan power input	w	8-40	8-40	8-40	8-40
Voltage		220~240V/50Hz/1PH	380V/50Hz/3PH	220~240V/50Hz/1PH	380V/50Hz/3PH
Maximum Current	A	17.07	11.43	23.08	15.46
Minimum Fuse Current	A	47	31	63	43
Water in-out connection	mm	50			
Fan quantity		2	2	2	2
Ventilation type		Horizontal	Horizontal	Horizontal	Horizontal
Compressor brand		MITSUBISHI	MITSUBISHI	MITSUBISHI	MITSUBISHI
Noise level at 1m	dB(A)	42-60	42-60	42-60	42-60
Net dimension	mm	1050*452*1295			
Net weight	Kg	120	120	130	130
Packing dimension	mm	1130*515*1430			
Gross Weight	Kg	138	138	148	148

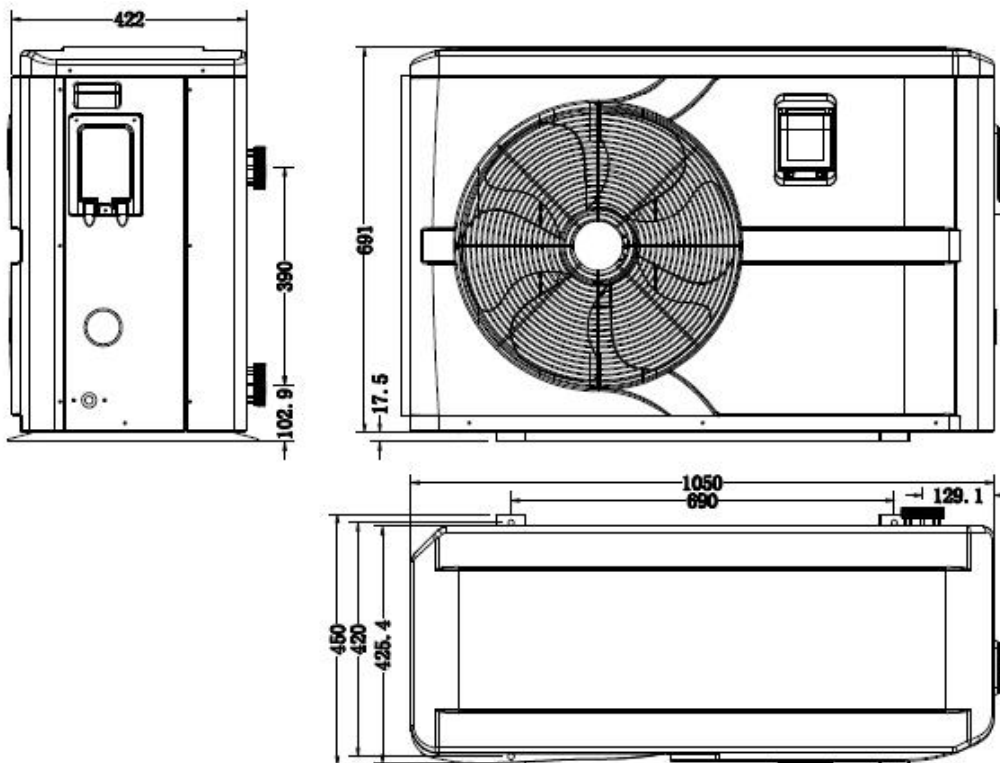
\* Above data are subjects to modification without notice.

## 2. Dimension (mm)

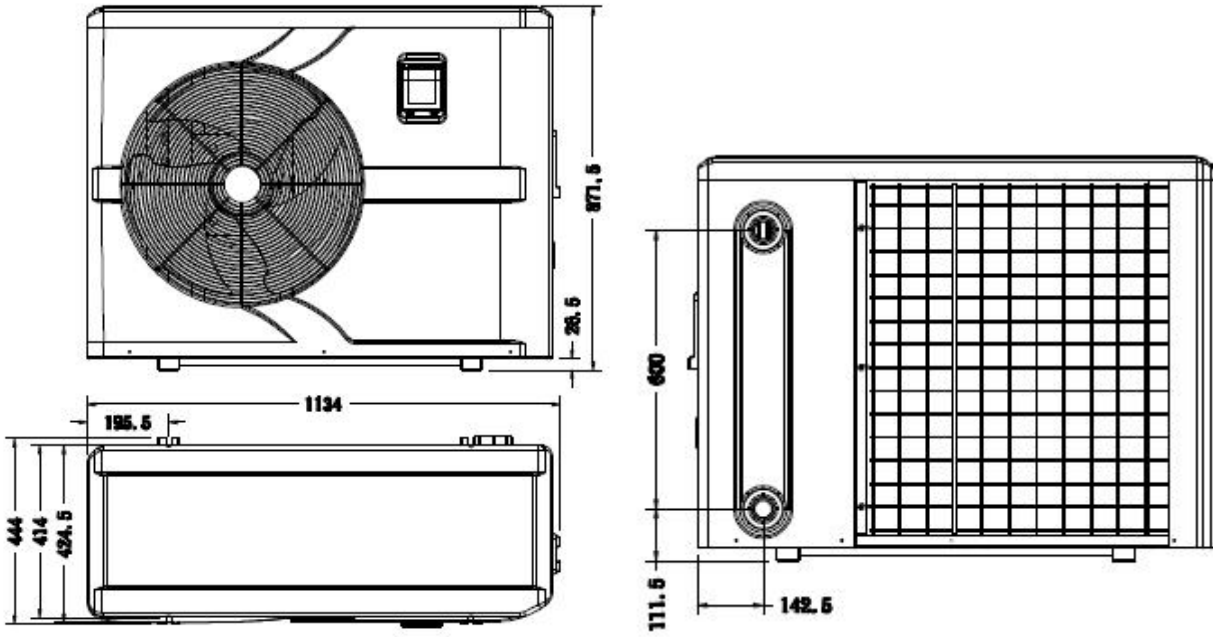
Model Inverter 7



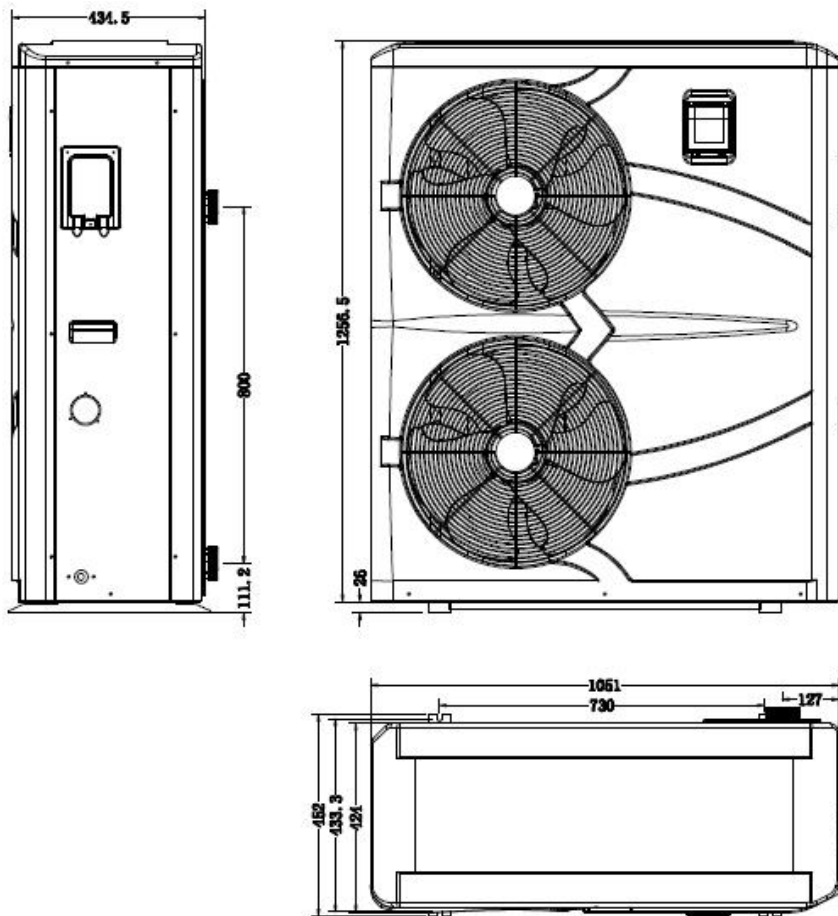
Model Inverter 10/13



Model Inverter 17/21



Model Inverter 26/26T/35/35T





### 3. Installation and connection

#### 3.1 Notes

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:

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. Install a bypass if the water flow from the swimming pool pump is more than 20% greater than the allowable flow through the heat exchanger of the heat pump.
3. Always place the heat pump on a solid foundation and use the included rubber mounts to avoid vibration and noise.
4. Always hold the heat pump upright. If the unit has been held at an angle, wait at least 24 hours before starting the heat pump.

#### 3.2 Heat pump location

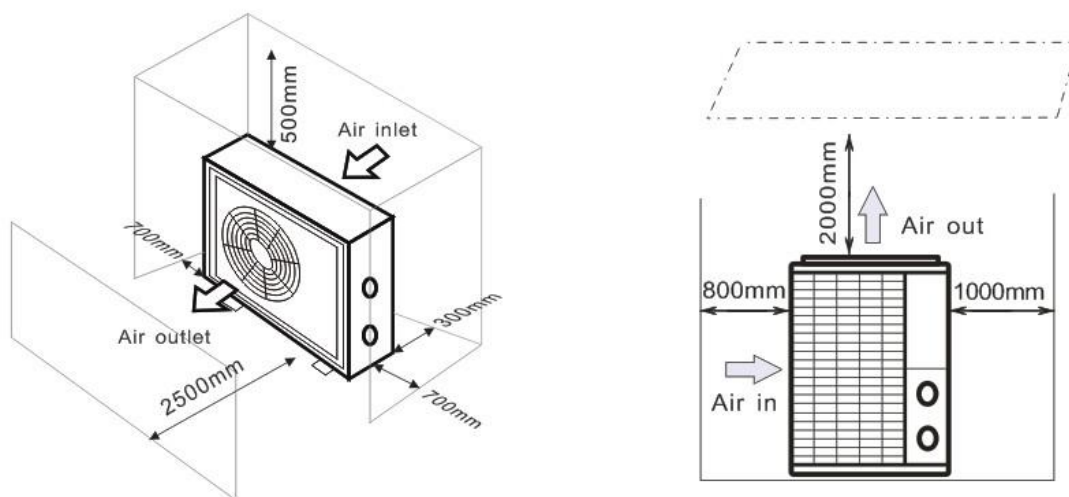
The unit will work properly in any desired location as long as the following three items are present:

- 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, unlike the situation with a gas heater (including pilot flame problems).

**ATTENTION:** 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.

See the drawing below for minimum dimensions.



#### 3.3 Distance from your swimming pool

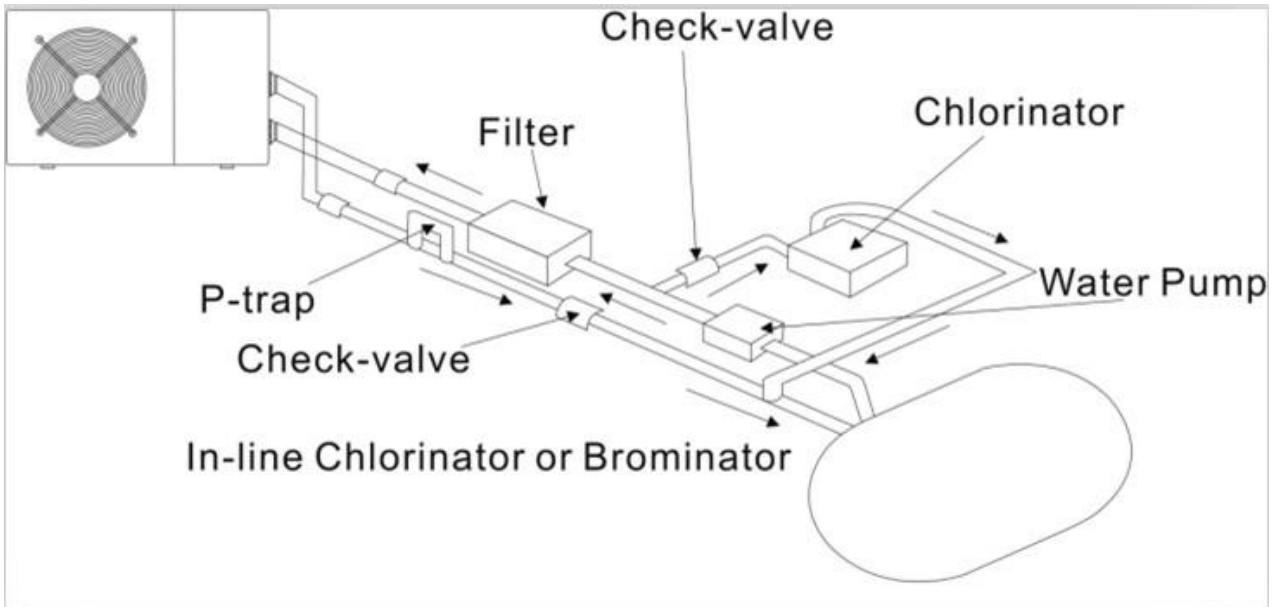
The heat pump is normally installed within a perimeter area extending 7.5 m from the swimming pool. The greater the distance from the pool, the greater the heat loss in the pipes. As the pipes are mostly underground, the heat loss is low for distances up to 30 m (15 m from and to the pump; 30 m in total) unless the ground is wet or the groundwater level is high. A rough estimate of the heat loss per 30 m is 0.6 kWh (2,000 BTU) for every 5 °C

difference between the water temperature in the pool and the temperature of the soil surrounding the pipe. This increases the operating time by 3% to 5%.

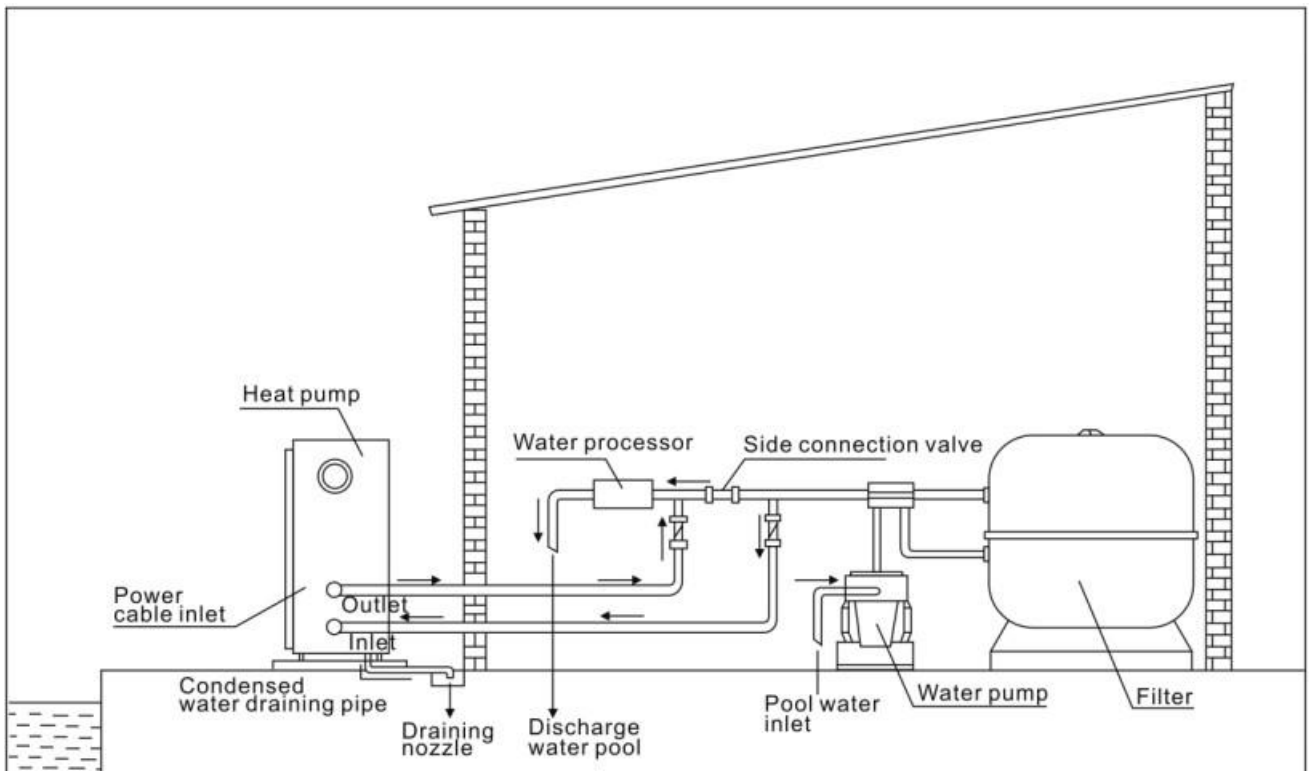
### 3.4 Check-valve installation

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.

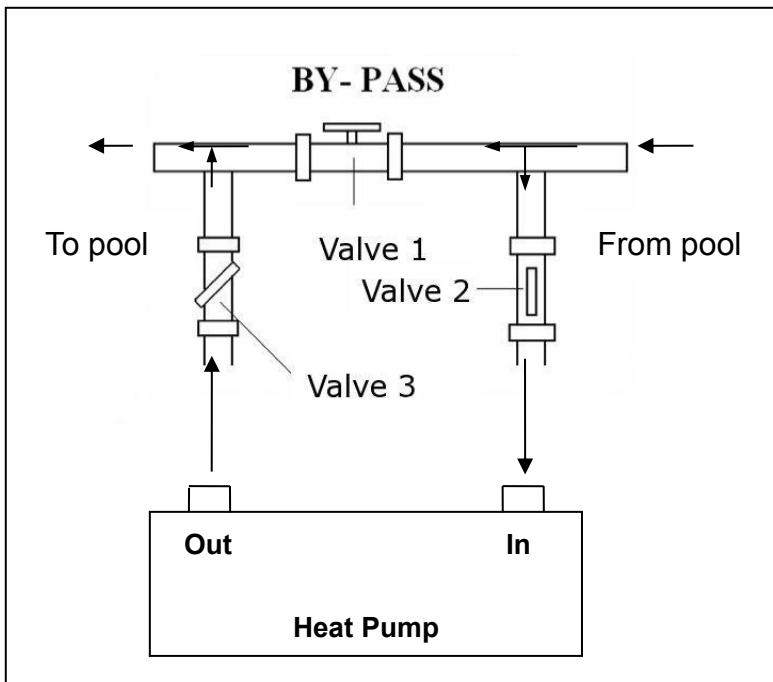


### 3.5 Typical arrangement



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

### 3.6 Adjusting the bypass



Use the following procedure to adjust the bypass:

- fully open all three valves
- slowly close valve 1 until the water pressure is increased by approximately 100 to 200 g
- Close valve 3 approximately half-way to adjust the gas pressure in the cooling system
- If the display shows "ON" or error code EE3, close step by step the valve 2, to increase water flow and stop when the code disappear.

Optimal operation of the heat pump occurs when the cooling gas pressure is  $22 \pm 2$  bar.

This pressure can be read on the pressure gauge next to the control heat pump panel. Under these conditions the water flow through the unit is also optimal.

**Note: Operation without a bypass or with improper bypass adjustment may result in sub-optimal heat pump operation and possibly damage to the heat pump, which renders the warranty null and void.**

### 3.7 Electrical connection

**Note: Although the heat pump is electrically isolated from the rest of the swimming pool system, this only prevents the flow of electrical current to or from the water in the pool. Earthing is still required for protection against short-circuits inside the unit. Always provide a good earth connection.**

Before connecting the unit, verify that the supply voltage matches the operating voltage of the heat pump.

It is recommended to connect the heat pump to a circuit with its own fuse or circuit breaker (slow type; curve D) and to use adequate wiring.

Connect the electrical wires to the terminal block marked 'POWER SUPPLY'.

A second terminal block marked 'WATER PUMP' is located next to the first one. The filter pump (max. 5 A / 240 V) can be connected to the second terminal block here. This allows the filter pump operation to be controlled by the heat pump.


Note: In the case of three-phase models, swapping two phases may cause the electric motors to run in the reverse direction, which can lead to damage. For this reason, the unit has a built-in protective device that breaks the circuit if the connection is not correct. If the red LED above this safety device lights up, **you must swap the connections of two of the phase wires.**

### 3.8 Initial operation

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

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

1. Switch on the filter pump. Check for leaks and verify that water is flowing from and to 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 .
3. After a few minutes, check whether the air blowing out of the unit is cooler.
4. When turn off the filter pump , the unit should also turn off automatically , if not, then adjust the flow switch.

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.

**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 pool pump runs and shut it off when the pump shuts off. If the pool water level higher than 1 m above or below the heat pump's automatic adjustment knob, your dealer may need to adjust its initial startup.

**Time delay** - The heat pump has a built-in 3-minute start-up delay to protect the circuitry and avoid excessive contact 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.

**3.9 Condensation**






The air drawn into the heat pump is strongly cooled by the operation of the heat pump for heating the pool water, which may cause condensation on the fins of the evaporator. The amount of condensation may be as much as several litres per hour at high relative humidity. This is sometimes mistakenly regarded as a water leak.

**3.10 Operating modes for optimal use**

- POWER: Used primarily at the beginning of the season because this mode allows very rapid temperature rise
- SMART: The heat pump has completed its primary task, in this mode; the heat pump is in a position to maintain the pool water in an energy efficient manner. By automatically adjusting speed of compressor and fan the heat pump delivers a better return.
- SILENT: In the summer months when the heat output is minimal required, the heat pump in this mode is even more profitable. Added benefit; when the heat pump heats. It goes with minimal noise load.

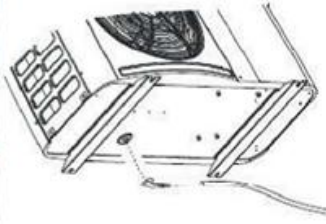
## 4. Accessories

### 4.1 Accessories list

 <p>Anti-vibration base, 4 pcs</p>	 <p>Draining jet, 2 pcs</p>	 <p>Waterproof box, 1 pc</p>
 <p>10M Signal wire, 1 pc</p>	 <p>Water drainage pipes, 2 pcs</p>	

### 4.2 Accessories Installation

	<p><b>Anti-vibration bases</b></p> <ol style="list-style-type: none"> <li>1. Take out 4 Anti-vibration bases</li> <li>2. Put them one by one on the bottom of machine like the picture.</li> </ol>
---	--



#### Draining jet

1. Install the draining jet under the bottom panel
2. Connect with a water pipe to drain out the water.

Note: Lift the heat pump to install the jet. Never overturn the heat pump, it could damage the compressor.



#### Water Inlet & outlet junction

1. Use the pipe tape to connect the water Inlet & outlet junction onto the heat pump
2. Install the two joints like the picture shows
3. Screw them onto the water Inlet & outlet junction



#### Cable wiring

1. Connect the power supply wire through the white hole like the picture shows.
2. Fix the other side on joints inside the electric box.



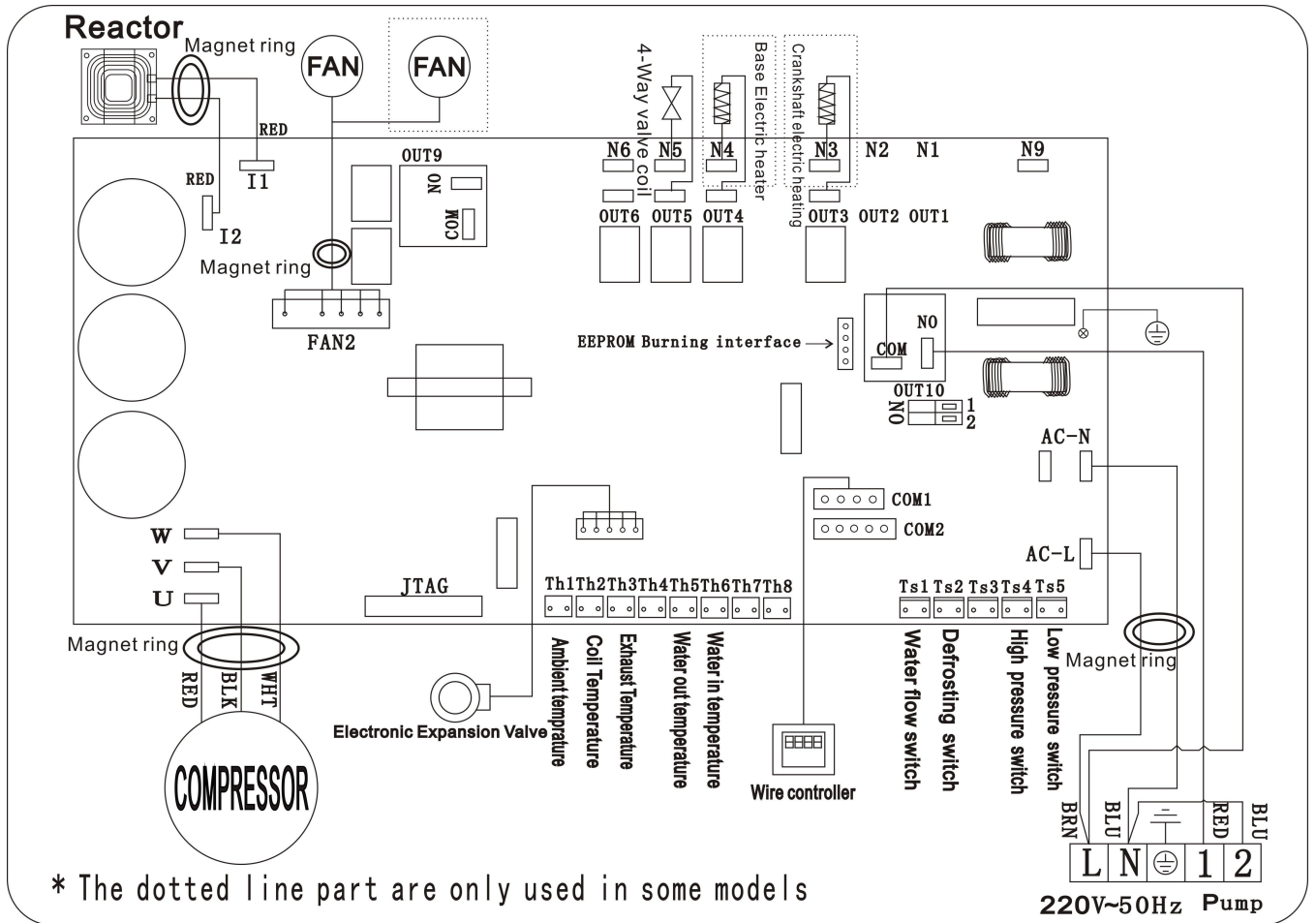
#### Water pump wiring

1. Connect the water pump wire through the white hole marked
2. Fix the other side on joints inside the electric box.

### 5. Electrical Wiring

#### 5.1 SWIMMING POOL HEAT PUMP WIRING DIADRAM

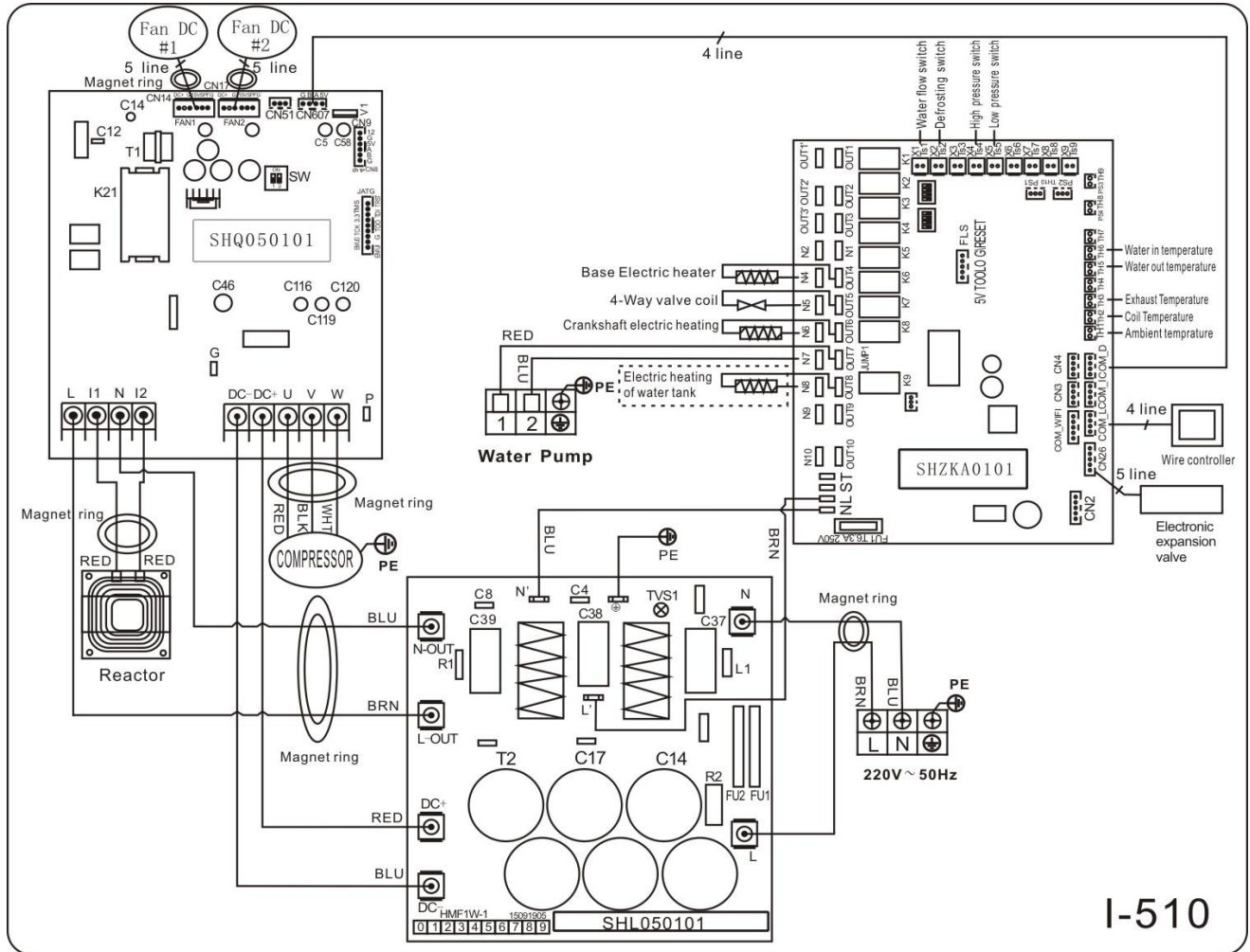
Inverter 7/10/13/17/21





### 5.2 SWIMMING POOL HEAT PUMP WIRING DIADRAM

Inverter 26/35

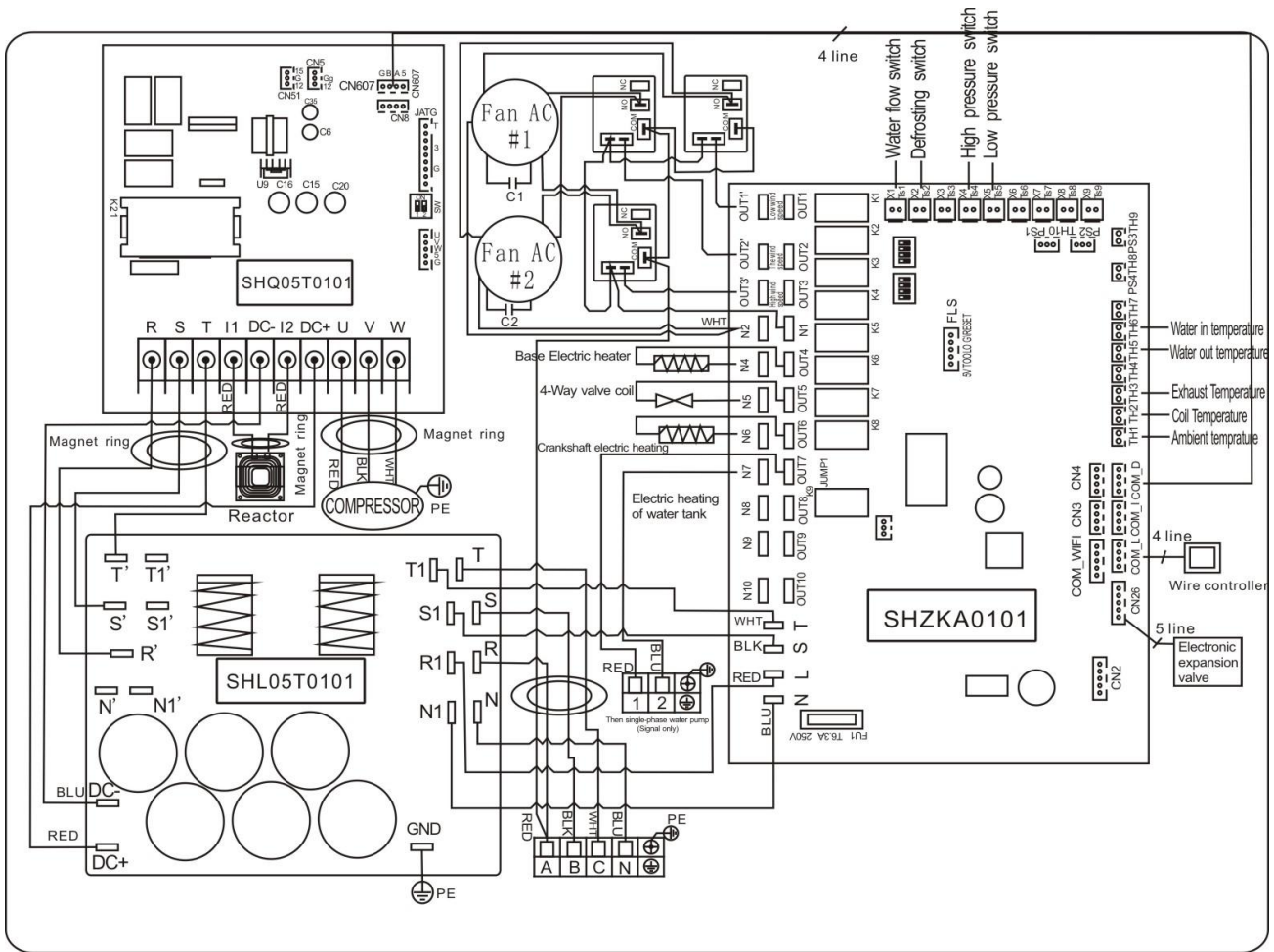


I-510



### 5.3 SWIMMING POOL HEAT PUMP WIRING DIADRAM

Inverter 26T/35T



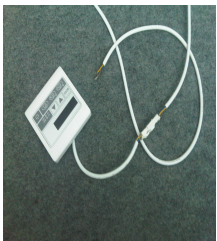
**NOTE:**

- (1) Above electrical wiring diagram only for your reference, please subject machine posted the wiring diagram.
- (2) The swimming pool heat pump must be connected ground wire well, although the unit heat exchanger is electrically isolated from the rest of the unit. Grounding the unit is still required to protect you against short circuits inside the unit. Bonding is also required.

**Disconnect:** A disconnect means (circuit breaker, fused or un-fused switch) should be located within sight of and readily accessible from the unit. This is common practice on commercial and residential heat pumps. It prevents remotely-energizing unattended equipment and permits turning off power at the unit while the unit is being serviced.

### 5.4 Installation of the display deportee

Photo(1)



Photo(2)



Photo(3)



Photo(4)



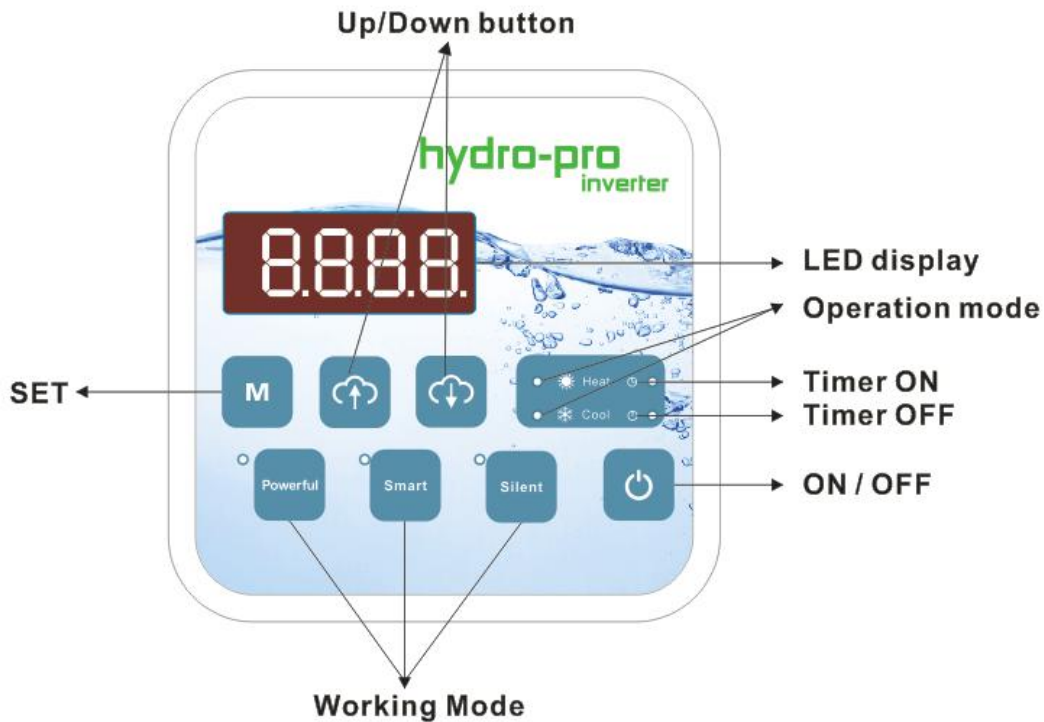
Photo(5)



- The side with plug connects with the control panel (photo1)
- The other side of the signal wire. (photo2)
- Open the wiring panel and put the side without plug through the electrical box. (photo3,4)
- Insert the wiring into the designated position (upper right corner) on the PC board. (photo5)


## 6. Display Controller Operation


### 6.1 The buttons of LED wire controller





### 6.2 The keys and their operations

#### 6.2.1 button

**Press**  to start the heat pump unit, the LED 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.

#### 6.2.2 button

It will be under function only with other button.

#### 6.2.3 and button

**Clock/unlock the display:**

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

#### Water temperature setting :

Press or to set the water temperature directly.

#### Parameter checking :

Press first, then press to check the “ User parameter from d0 to d11

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℃	Real testing value
d4	Return gas temp.	-30℃～70℃	Real testing value
d5	Piping temp.	-30℃～70℃	Real testing value
d6	Gas exhaust temperature	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	

Press first, then press to check/adjust the “ User parameter from P1 to P7

Code	Name	Scope	Default	Remard
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 P4 and P5 won't work)
P3	Water pump	0-1	0	1 Always running, 0 Depends on the running of compressor
P4	Current time	HH:MM	00: 00	<u>0-23:0-59</u>
P5	Timer on	HH:MM	00: 00	<u>0-23:0-59</u>
P6	Timer off	HH:MM	00: 00	<u>0-23:0-59</u>
P7	Inlet water temp. correction	-9～9	0	Default setting: 0

#### 6.2.4 System reset function

Press and in 10s, the system will reset and display “0000” on the controller.


#### 6.2.5 Heat

Symbol of heating, the light will be on when it is in operation.

When defrosting, the light will flash.

6.2.6 

Symbol of cooling, the light will be on when it is in operation.

6.2.7 

Symbol of automatic stop, the light will be on when it is in operation.

6.2.8 

Symbol of automatic start, the light will be on when it is in operation.

6.2.9 

Press this button, the light will be flash, the heat pump will operate in 'Full output' only..

6.2.10 

**While** you choose the **Smart**, the heat pump will just operate in 'Medium output' and 'Full output' When in 'Medium output', the light of Smart will flash.

When in 'Full output', the lamp of Smart is lighting, the lamp of Powerful will be flash.

6.2.11 

**While** you choose the **Silent**, the heat pump will just operate in 'Medium output' and 'Small output'

When in 'Small output', the light of Silent will flash.

When in 'Medium output', the lamp of Silent is lighting, the lamp of Smart will be flash.

## 7. Troubleshooting

### 7.1 Error code display on LED wire controller

Malfunction	Error code	Reason	Solution
Inlet water temperature sensor failure	PP01	The sensor in open or short circuit	Check or change the sensor
Outlet water temperature sensor failure	PP02	The sensor in open or short circuit	Check or change the sensor
Heating condenser sensor failure	PP03	The sensor in open or short circuit	Check or change the sensor
Gas return sensor failure	PP04	The sensor in open or short circuit	Check or change the sensor
Ambient temperature sensor failure	PP05	The sensor in open or short circuit	Check or change the sensor

Condenser gas exit sensor failure	PP06	The sensor in open or short circuit	Check or change the sensor
Antifreeze protection in Winter	PP07	Ambient temperature or water inlet temperature is too low	
Low ambient temperature protection	PP08	Ambient temperature or water inlet temperature is too low	
Cooling condenser temperature too high protection	PP10	Cooling condenser temperature is too high	Stop the heat pump and wait the cooling condenser temperature drop down
T2 water temp. Too low protection under cooling mode	PP11		1. Water pump failure 2. Water piping blocked 3. Water flow switch seized
High pressure failure	EE01	1.Refrigerant is too much 2. Air flow is not enough	1.Discharge redundant refrigerant from HP gas system 2.Clean the air exchanger
Low pressure failure	EE02	1.Refrigerant is not enough 2.Water flow is not enough 3. Filter jammed or capillary jammed	1.Check if there is any gas leakage , re-fill the refrigerant 2.Clean the air exchanger 3.Replace the filter or capillary
Water flow failure	EE03	Low water flow, wrong flow direction, or flow switch failure.	Check if the water flow is enough and flow in right direction, or else the flow switch could be failed.

Malfunction	Error code	Reason	Solution
Overheating in heating mode	EE04	Low or No water flow	Failure of water pump Water pipe jammed Failure of water flow switch
Gas exhaust temperature sensor failure	EE05	Defrosting is not good Lack of gas The throttling device is jammed Low water flow	Defrosting by hand Plus, the gas Change the throttling device Check the water pump
Controller failure	EE06	Wire connection is not good Controller failure	Check or change the signal wire Restart the power supply or change the controller
Converter failure	EE07	Converter board failure	Restart the power supply or change the converter board
Communication failure between controller and converter board	EE08	Wire connection is not good Controller failure	Check or change the wire connection Restart the power supply or change the controller
Communication failure between converter and outdoor board	EE09	Wire connection between communication wire and outdoor board is wrong	Rewiring Restart the power supply or change the outdoor board

		Outdoor board failure	
module board failure between outdoor board and module board	EE10	Communication wire is broken Outdoor board or module board failure	Restart the power supply or change the broken board
Module board failure	EE11	The data is wrong or the module board is broken	Restart the power supply or change the broken board
Direct main current's voltage too high or too low protection	EE12	The pressure is too high or too low The inner communication contactor is broken	Check the power supply Change the contactor
Over current protection	EE13	Electric supply pressure is too low, the heat pump is overload	Check the power supply Check the water temperature whether it is too high
IPM module temperature sensing circuit output failure	EE14	IPM module temperature sensor output is abnormal	Check the PC board or replace the new one
IPM module temperature too high protection	EE15		Check the PC board or replace the new one

Malfunction	Error code	Reason	Solution
PFC module protection	EE16		Check the PC board or replace the new one
DC fan failure	EE17		Check the PC board or replace the new one
PFC module temperature sensing internal circuit failure	EE18		Check the PC board or replace the new one
PFC module high temperature protection	EE19		Check the PC board or replace the new one
Input power failure	EE20	The supply voltage fluctuates too much	Check the PC board or replace the new one
Software control failure	EE21	Compressor runs out of step	Check the PC board or replace the new one
Current detection circuit failure	EE22	The amplifier output voltage signal is abnormal	Check the PC board or replace the new one
Compressor start failure	EE23		Check the PC board or replace the new one
Driving board ambient temperature bulb failure	EE24		
Compressor phase failure	EE25	1. Wiring wrong 2. Connection of 1 phase or 2 phases.	Monitoring the controller

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

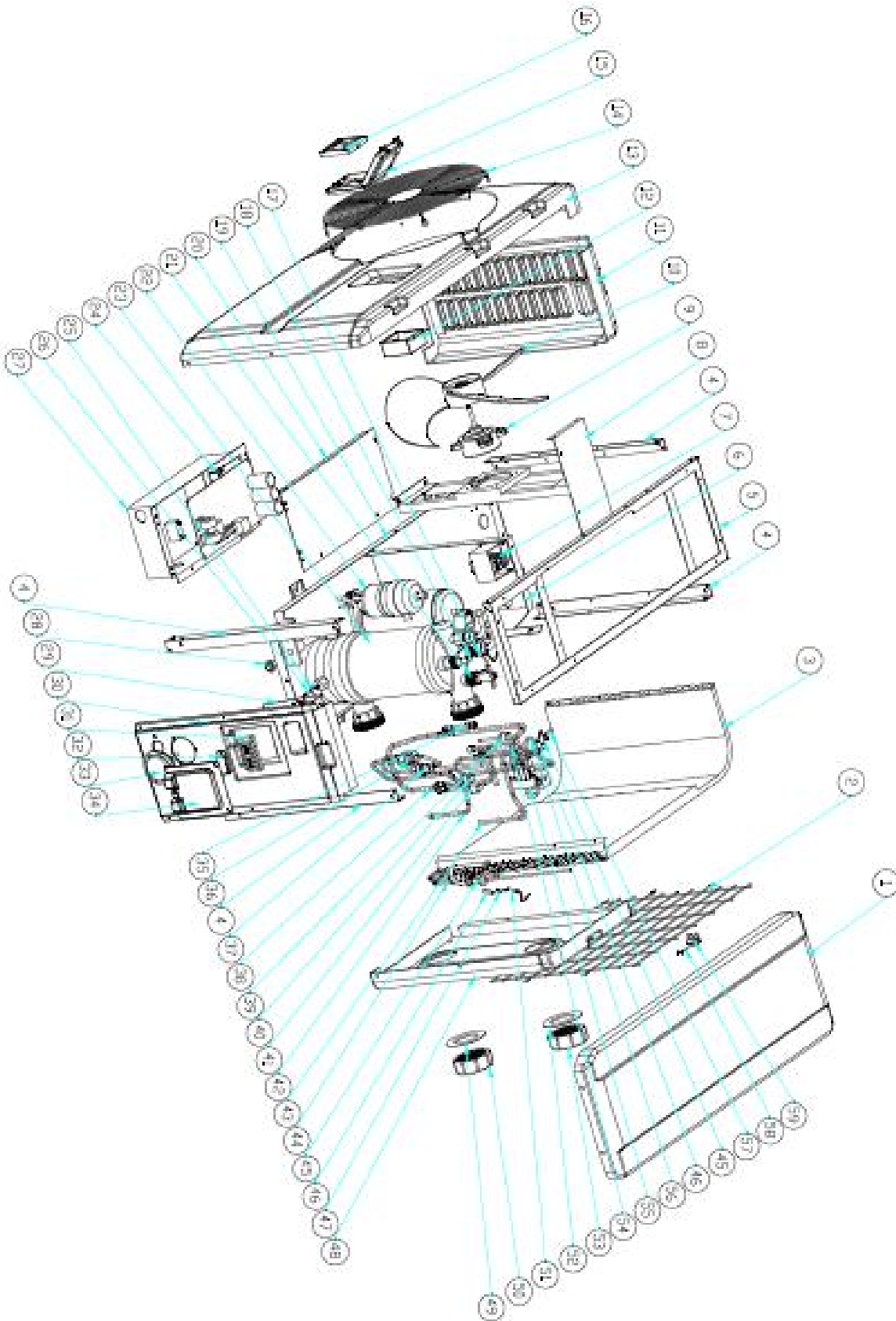
Malfunctions	Observing	Reasons	Solution
Heat pump is not running	LED wire controller no display.	No power supply	Check cable and circuit breaker if it is connected
	LED wire controller displays the actual time.	Heat pump under standby status	Startup heat pump to run.
	LED wire controller displays the actual water temperature.	<ol style="list-style-type: none"> <li>1. Water temperature is reaching to setting value, HP under constant temperature status.</li> <li>2. Heat pump just starts to run.</li> <li>3. Under defrosting.</li> </ol>	<ol style="list-style-type: none"> <li>1. Verify water temperature setting.</li> <li>2. Startup heat pump after a few minutes.</li> <li>3. LED wire controller should display "Defrosting".</li> </ol>
Water temperature is cooling when HP runs under heating mode	LED wire controller displays actual water temperature and no error code displays.	<ol style="list-style-type: none"> <li>1. Choose the wrong mode.</li> <li>2. Figures show defects.</li> <li>3. Controller defect.</li> </ol>	<ol style="list-style-type: none"> <li>1. Adjust the mode to proper running</li> <li>2. Replace the defect LED wire controller, and then check the status after changing the running mode, verifying the water inlet and outlet temperature.</li> <li>3. Replace or repair the heat pump unit</li> </ol>
Short running	LED displays actual water temperature, no error code displays.	<ol style="list-style-type: none"> <li>1. Fan NO running.</li> <li>2. Air ventilation is not enough.</li> <li>3. Refrigerant is not enough.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check the cable connections between the motor and fan, if necessary, it should be replaced.</li> <li>2. Check the location of heat pump unit, and eliminate all obstacles to make good air ventilation.</li> <li>3 Replace or repair the heat pump unit.</li> </ol>
water stains	Water stains on heat pump unit.	<ol style="list-style-type: none"> <li>1. Concreting.</li> <li>2. Water leakage.</li> </ol>	<ol style="list-style-type: none"> <li>1. No action.</li> <li>2. Check the titanium heat exchanger carefully if it is any defect.</li> </ol>
Too much ice on evaporator	Too much ice on evaporator.		<ol style="list-style-type: none"> <li>1. Check the location of heat pump unit, and eliminate all obstacles to make good air ventilation.</li> <li>2. Replace or repair the heat pump unit.</li> </ol>



## 8. Exploded Diagram and Maintenance

### 8.1 Exploded Diagram

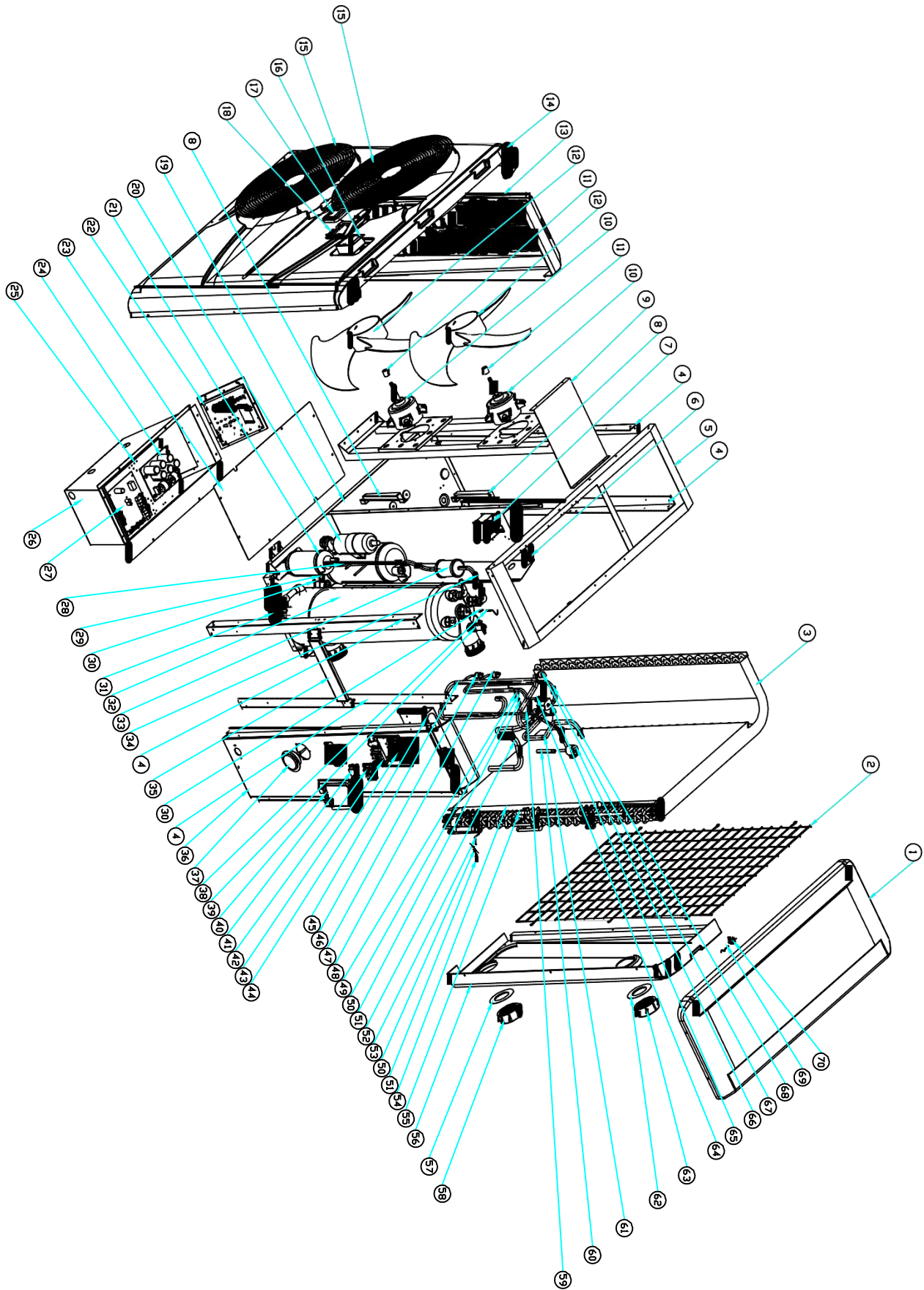
Model 7 kw





NO	Part Name	NO	Part Name
1	Top cover	31	Terminal
2	Back grill	32	Wiring clip
3	Evaporator	33	Pressure gauge
4	Pillar	34	Wiring cover
5	Top frame	35	Needle valve
6	Isolation panel	36	EEV
7	Reactor	37	Piping
8	Motor bracket	38	Return pipe
9	Motor	39	High pressure switch
10	Fan blade	40	Low pressure switch
11	Left side panel	41	Low pressure switch
12	Wiring box	42	Expansion valve to the distributor
13	Front panel	43	4-way valve to collective pipe
14	Front grill	44	Collective assembly
15	Waterproof box	45	Distributor assembly
16	Controller	46	Temperature casing
17	Outlet water temperature sensor TH5	47	temperature sensor casing
18	Exchanger temp. sensor fixed film	48	Back panel
19	Base tray	49	Blue rubber
20	Electric box cover	50	Water supply screw cover
21	Water flow switch	51	Coil temperature sensor TH2
22	compressor	52	Red rubber
23	Titanium exchanger	53	Water supply screw cover
24	Main board	54	4-way valve to exchanger
25	Exchanger temp. sensor fixed film	55	4-way valve
26	Water inlet temperature sensor TH6	56	exhaust pipe
27	Electric box	57	Exhaust air temperature sensor TH3
28	Drainage plug	58	Ambient temperature sensor TH1
29	Wiring box	59	Ambient temperature temperature clip
30	Right side panel		

Model 26 kw



NO	Part Name	NO	Part Name
1	Top cover	36	Right side panel
2	Back grill	37	Pressure gauge
3	Evaporator	38	Outlet water temperature sensor TH5
4	Pillar	39	Water flow switch
5	Top frame	40	Wiring cover
6	Isolation panel	41	Wiring clip
7	Reactor	42	3-terminal for water pump
8	Panel support frame	43	3-terminal power supply
9	Motor bracket	44	Terminal board bracket
10	Motor	45	Terminal board
11	DC motor casing	46	Return pipe
12	Fan blade	47	Low pressure switch
13	Left side panel	48	Low pressure switch
14	Front panel	49	Exhaust air temperature sensor TH3
15	Front grill	50	temperature sensor casing
16	Wiring box	51	Temperature casing
17	Controller	52	4-way valve to collective pipe
18	Waterproof box	53	Coil temperature sensor TH2
19	Base tray	54	Collective assembly
20	compressor	55	Distributor assembly
21	Storage tank	56	Back panel
22	Driver board	57	Blue rubber
23	Electric box cover	58	Water supply screw cover
24	Filter plate	59	Reservoir to expansion valve
25	Lining	60	Expansion valve to the distributor
26	Electric box	61	4-way valve to exchanger
27	Main board	62	Red rubber
28	Filter to reservoir	63	Water supply screw cover
29	Water inlet temperature sensor TH6	64	Needle valve
30	Exchanger temp. sensor fixed film	65	4-way valve

31	Drainage plug	66	EEV
32	Titanium exchanger	67	High pressure switch
33	filter	68	exhaust pipe
34	Exchanger to filter	69	Ambient temperature sensor TH1
35	Hand pumping support board	70	Ambient temperature temperature clip

## 9. Maintenance

- (1) You should check the water supply system regularly to avoid the air entering the system and occurrence 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 as a result of the dirty of clogged filter.
- (3) You should discharge the water from bottom of water pump if HP unit will stop running for a long time (specially during the winter season).
- (4) In another way, you should check the unit is water fully before the unit start to run again.
- (5) After the unit is conditioned for the winter season, he is preconize to cover the heat pump with special winter heat pump.
- (6) When the unit is running, there is all the time a little water discharge under the unit.

## 10. Warranty and returns

### 10.1 Warranty

#### LIMITED WARRANTY

Thank you for purchasing a heat pump from us.

This warranty covers manufacturing and material defects in all components for a period of two years after the date of purchase.

This warranty is limited to the original purchaser in the retail sector. It is not transferable, and it is not applicable to products that have been removed from their original installation location. The liability of the manufacturer is limited to the repair or replacement of defective components and does not include the cost of labour for removing and replacing the defective component(s), the cost of transporting component(s) from or to the factory, or costs associated with other materials necessary for carrying out repairs. This warranty does not cover any defects attributable to the following causes:

1. Installation, operation or maintenance of the product other than in accordance with the guidelines and/or instructions in the Installation and Operation Manual supplied with the product.
2. Faulty or deficient work performed on the product by an installer.
3. Failure to maintain the correct chemical balance in the swimming pool [**pH between 7.0 and 7.8; total alkalinity (TA) between 80 and 150 ppm; free chlorine concentration between 0.5 and 1.2 mg/l; total dissolved solids (TDS) less than 1,200 ppm; maximum salt concentration 8 g/l**].
4. Improper use, modification, accident, fire, flood, lighting strike, rodents, insects, negligence, neglect, or force majeure.
5. Deposits, freezing, or other conditions that impair proper water flow through the product.
6. Operating the product with a flow rate outside the published minimum and maximum specifications.
7. Use of components or accessories not designed or made for this product.
8. Chemical contamination of the air used by the product or improper use of decontaminating chemicals, such as the addition of decontaminating chemicals through the skimmer or in the pipes or lines located upstream of the heat pump and the cleaning hose.
9. Overheating, improper electrical connections, improper power supply, secondary damage attributable to defective O-rings, diatomaceous filters or filter cartridges, or damage caused by putting the pump into operation in the absence of sufficient water.

#### LIMITATIONS ON LIABILITY

This is the sole warranty provided by the manufacturer. Nobody is authorised to grant other warranties in our name.

**THIS WARRANTY REPLACES ALL OTHER EXPLICITLY GRANTED OR IMPLICIT WARRANTIES, INCLUDING BUT NOT LIMITED TO ANY FORM OF IMPLICIT WARRANTY OF SUITABILITY FOR A PARTICULAR PURPOSE OR FITNESS FOR SALE. WE EXPLICITLY DISAVOW ANY LIABILITY FOR INDIRECT, INCIDENTAL OR CONSEQUENTIAL LOSS OR DAMAGE OF A PUNITIVE NATURE RESULTING FROM THE VIOLATION OF AN EXPLICITLY GRANTED OR IMPLICIT WARRANTY.**

This warranty gives you specific legal rights, which may vary depending on the country.

#### WARRANTY CLAIMS

To ensure prompt handling of your warranty claim, please contact your dealer and provide the following information to the dealer: proof of purchase, model number, serial number and date of installation. The installer will contact the factory to obtain instructions regarding the procedure for making warranty claims and to find out the location of the closest service centre.

All returned components must be marked with a **RMA number** so that it can be determined whether they are covered by the warranty.

**10.2 RMA request form**

Company:	<input type="text"/>	Date:	<input type="text"/>
Street address:	<input type="text"/>		
City/town:	<input type="text"/>	Postal code:	<input type="text"/>
		Country:	<input type="text"/>
Contact:	<input type="text"/>	Phone:	<input type="text"/>
	E-mail:	<input type="text"/>	Fax:
		<input type="text"/>	<input type="text"/>

Contact:	<input type="text"/>	Date:	<input type="text"/>
----------	----------------------	-------	----------------------

<b>Reserved for internal use</b>			
<b>RMA no.:</b>			
Assigned by:	<input type="text"/>	Date:	<input type="text"/>

Reason for return:

Copy of customer invoice included?

RMA request accompanied by other documents?	<input type="checkbox"/>
Description of the documents:	<input type="text"/>
	<input type="text"/>

Model no.:	<input type="text"/>	Invoice no.:	<input type="text"/>
Serial number:	<input type="text"/>	Invoice date:	<input type="text"/>
Problem:	<input type="text"/>		
	<input type="text"/>		

**Warranty repair policy**

- Shipping costs for returned products must be paid in advance. All shipping costs associated with a return shipment are borne by you.
- Products may be sent back to us only after prior approval by the company. Return shipments for which approval has not been given by the company will be sent back, with all shipping costs to be borne by you.
- We will replace or repair the products and return them to you free of charge using the shipping service of your choice.
- If you choose express shipment (by a shipping service selected by you), you are responsible for paying the shipping costs.

**Return procedure**

- Before requesting an RMA number from us, please check whether you have properly observed the installation and use instructions in the manual.
- Contact our RMA department by phone and ask for an RMA request form.
- Ensure that **all** fields of the RMA request form are fully completed.
- In the case of returns during the warranty period, please include the customer copy of your original sales invoice.
- Send the RMA request form, the sales invoice and any other relevant documents (photos, etc.) to us or provide them by e-mail. An RMA number will be assigned to you within 24 hours after we receive the necessary documents. We may refuse to assign you an RMA number if the information mentioned in points 3 and 4 above is missing.
- The RMA number must be marked clearly on the shipping label of the package and noted on the shipping documents.**

7. All products received by us that lack labels or that have incorrect, incomplete or unreadable labels will be refused, with return shipping costs to be borne by you.
8. All packages delivered to us with clearly visible damage will be refused immediately.
9. Before returning products, please check that the products you intend to return to us are the same as the products for which an RMA number was issued. If the received products do not match the products registered under the assigned RMA number, we will return all of the products at your expense.
10. No return shipments at all will be accepted without an RMA number. Absolutely no exceptions to this rule are allowed.
11. **An RMA number remains valid for just 21 calendar days after it is assigned. We reserve the right to refuse to accept products returned to us if they are received more than 21 days after the date when the RMA number was assigned.**

**Products not covered or no longer covered by the warranty**

**The customer is responsible for paying shipping and repair costs. The estimated repair costs will be advised after the problem(s) with the returned products have been diagnosed.**

**The minimum charge of a diagnosis is £100.00.**