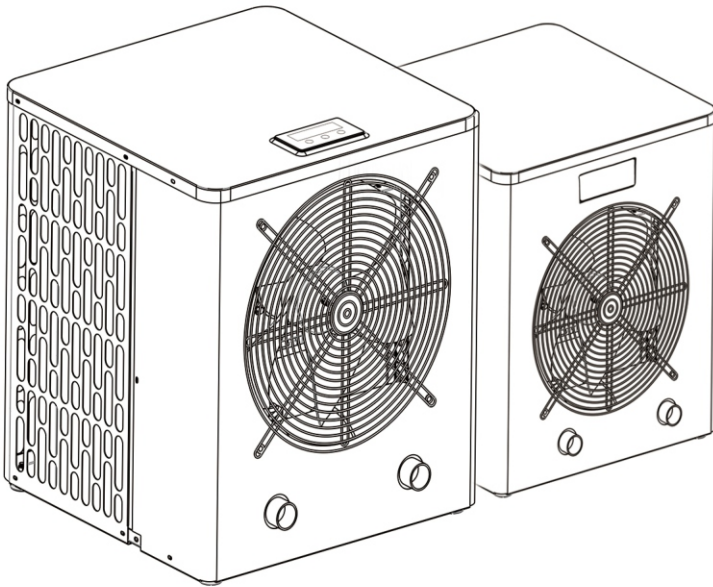


# EcoMini



English version

EM10  
EM15  
EM18  
EM22



– Swimming pool –

**Heat pump**

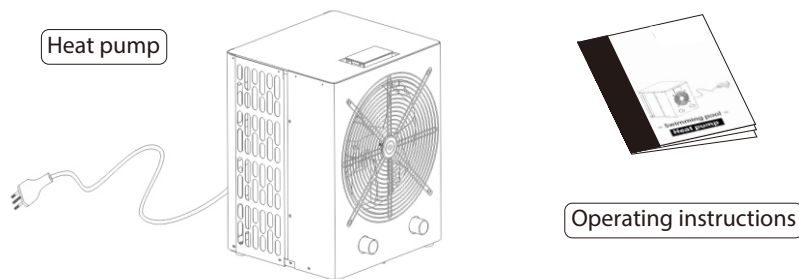
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## 1. Package contents

After unpacking, please check that you have the following components.

- ◆Heat pump x 1
- ◆Operating instructions x 1



## 2. Safety Instructions

This manual provides you with the information necessary for optimal use and maintenance. Please read this manual carefully before installation and use and keep it for future reference.

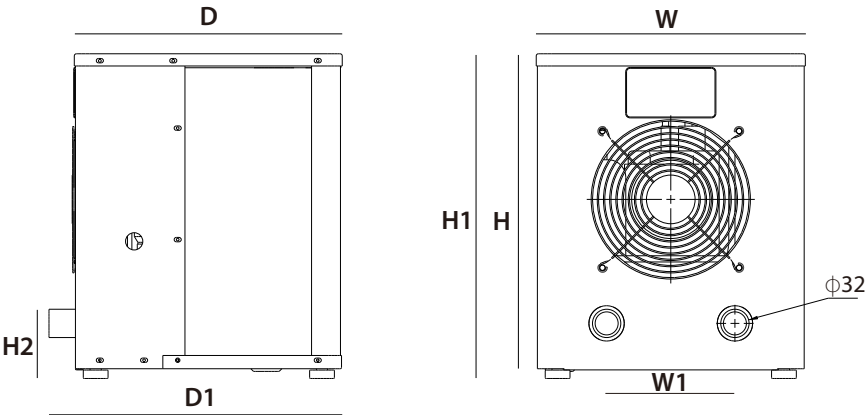
### Please noted the following:

1. Do not turn the machine upside down or tilt it. If the machine is tilted or sideways, stand the machine upright for 24 hours before starting the heat pump.
2. The machine must be installed on a flat and strong bottom surface, otherwise it may fall or shift during operation, resulting in accidents.
3. Do not drop or hit the machine, otherwise it may cause damage to the machine, prevent normal use, and may even cause personal injury or property damage.
4. The machine must be installed outdoors, or the noise and condensation generated by the machine may cause some inconvenience. However, some parts of the machine must be protected from rain and water. For example, the power plug should be installed indoors.
5. Do not supply power to the machine through a transformer, please make sure that the local power supply voltage matches the power supply voltage required by the machine, otherwise a dangerous situation may occur.
6. Do not pull the power plug forcibly. Do not run the power cord around the machine during operation.
7. If the heat pump is damaged during transportation, it must be replaced, please contact your service center or similar qualified personnel to avoid danger.
8. Before starting to use the machine, make sure that the water connection of the machine is properly connected and fixed to ensure the normal operation of the machine and avoid leakage.
9. When the machine is running, do not insert objects directly into the air outlet, otherwise it will cause blockage and damage of the fan, and may even cause human injury.
10. The evaporator fins of the machine are quite sharp, please do not touch them, otherwise it may cause human injury.
11. Do not damage the fins of the evaporator, so as not to affect the efficiency of the machine.
12. This machine is not suitable for persons with reduced physical, sensory or mental abilities

- or lack of experience and knowledge, including installation, use, etc., unless its use is supervised or instructed by personnel responsible for its safety.
13. This machine is forbidden for children to use alone. The guardian should supervise the child away from the machine to ensure safety.
14. The efficiency of the machine will decrease when the ambient temperature is low, and it cannot be used normally when the temperature is below 5 °C.
15. Before not using the machine and cleaning, please unplug the power plug from the socket, otherwise it may cause accidents.
16. The heat exchanger of PVC material is used inside the machine. Excessive water entering the machine may cause damage to the heat exchanger and leak water. Therefore, the maximum water temperature should not exceed 35 °C. When the water temperature is higher than 35 °C, please do not let water enter the machine.

### 3. Machine Parameters

#### 3.1 Machines Scheme



model	W	D	H	W1	D1	H1	H2
EM10	305	303	356	145	332	367	62
EM15	369	327	400	169	351	451	68
EM18	440	440	490	210	450	510	71
EM22	440	440	490	210	450	510	71

Unit: mm

\*There may be deviation in the dimension, please refer to the real object



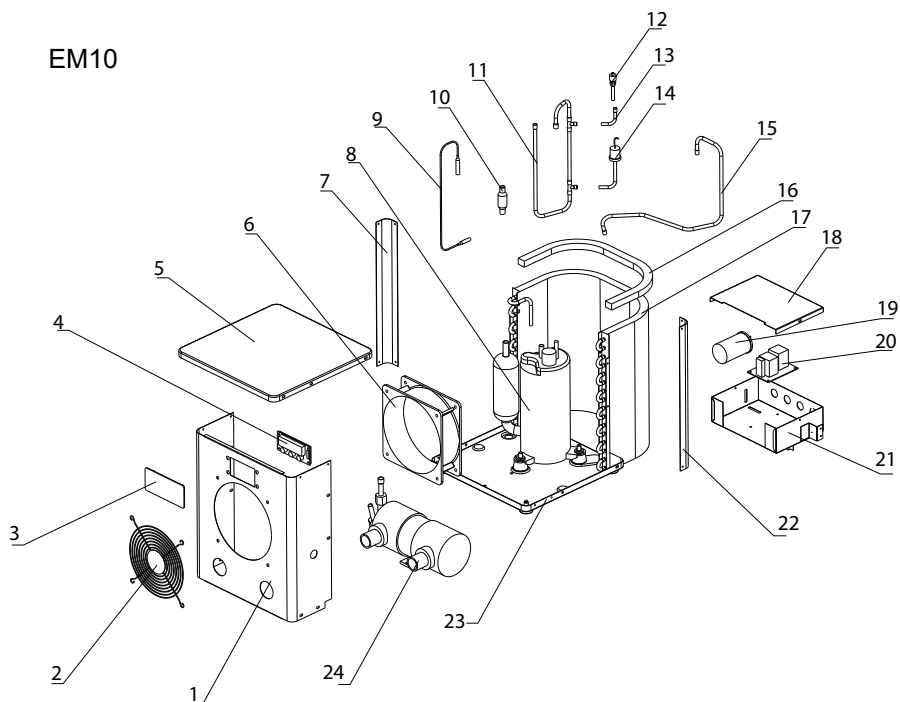
### 3.2 Performance parameters table

Model		EM10	EM15	EM18	EM22
Advised pool volume (m <sup>3</sup> )		5~15	10~20	11~20	12~25
Power supply		220~/ 1 Ph/ 50Hz			
Operating ambient temp (°C)		7~43			
Casing type		Galvanized metal case			
Refrigerant		R410A			
Heating: (Air 26°C Water 26°C/Humidity 80%)	capacity (kW)	2.91	4.30	5.20	6.45
	Power input (kW)	0.58	0.85	1.07	1.32
	Rated current (A)	2.53	3.61	4.76	6.02
	COP	4.98	5.06	4.89	4.88
Heating: (Air 15°C Water 26°C/Humidity 70%)	capacity (kW)	1.80	2.86	4.08	5.06
	Power input (kW)	0.55	0.72	1.04	1.29
	Rated current (A)	2.39	3.31	4.73	5.87
	COP	3.68	3.97	3.92	3.91
Power cable		Rubber cable with RCD main plug (Plug & play)			
Sound pressure @2m (dB(A))		41	42	44	45
Compressor type		Rotary			
Condenser		Horizontal type spiral titanium tube in PVC			
Evaporator		Hydrophilic aluminium fins & copper tubes			
Fan type		Horizontal			
Fan qty		1			
Fan speed RPM		2500	1200	1200	1200
Fan power input (w)		45	13	20	20
Advised water flow (m <sup>3</sup> /h)		1~2	1~2	1.5~2.5	2~3
Water connection (mm)		32	32	38	38
Unit dimensions (W*D*H) (mm)		305*303*356	369*327*440	440*440*490	440*440*490
Packing dimensions (W*D*H) (mm)		360*375*420	425*415*485	530*420*550	530*420*550
Net weight (kg)		19.5	27.0	36.0	40.0
Gross weight (kg)		20.5	30.8	42.0	46.0

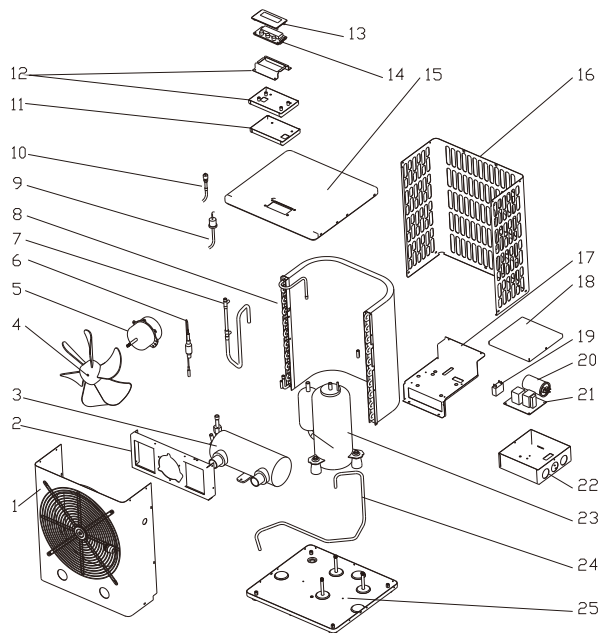
\*The technical data above is for reference only and the accurate data should be subject to the testing report or nameplate.

### 3.3 Exploded View

EM10



Number	Name	Number	Name
1	Front panel (sheet metal)	14	Low-pressure switch
2	Wind leaf net	15	Exhaust tube
3	Display decorative plate(	16	Main cover windproof cotton
4	Display board	17	Evaporator
5	Top cover	18	Electric control box cover
6	Fan	19	Capacity (for compressor)
7	Upright	20	Power PCB board
8	Compressor	21	Electrical box
9	Capillary	22	Upright
10	Filter	23	Chassis components
11	Suction tube	24	Titanium tube heat exchanger
12	Pressure Tap (Refrigerant recharge port)		
13	Connecting tube		



Number	Name	Number	Name
1	Front panel (Wind leaf net)	14	Display panel
2	Motor Bracket	15	Top cover
3	Titanium tube heat exchanger	16	Back cover
4	Fan Blade	17	Electric control box bracket
5	Fan Motor	18	Electric control box cover
6	Capillary	19	Capacity (for fan motor)
7	Suction tube	20	Capacity (for compressor)
8	Evaporator	21	Power PCB board
9	Low-pressure switch	22	Electrical box
10	Pressure Tap (Refrigerant recharge port)	23	Compressor
11	Display panel box cover	24	Exhaust tube
12	Display panel Bracket	25	Chassis
13	Display decorative plate		

## 4. Instructions Guide

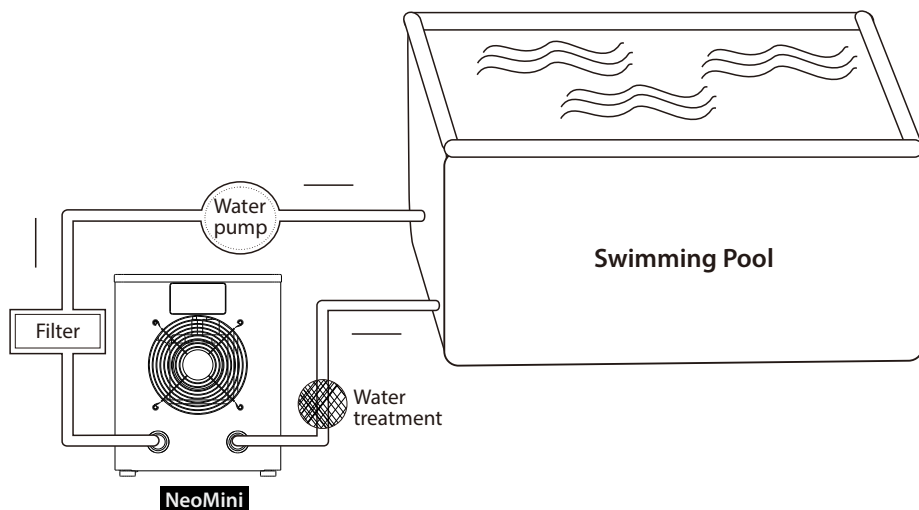
### 4.1 Componets

**Before the machine is installed, the following components need to be configured to complete the installation:**

1. Circulating water pump: 1 set, providing water circulation power between the machine and the swimming pool.
2. Swimming pool: 1
3. Power supply equipment: 1 set, providing power for the machine and water pump
4. Water treatment equipment
5. Connect water pipes and fixtures

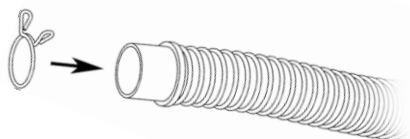
### 4.2 Installation requirements

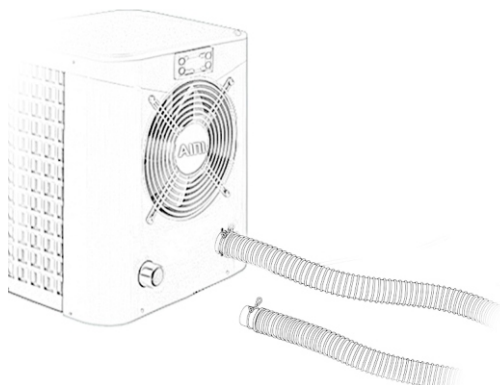
1. The distance between the machine and the swimming pool should not be less than 2 meters.
2. The water treatment system should be installed on the pipeline at the water outlet of the machine to avoid direct damage to the internal components of the machine from chemicals.
3. During operation, especially when used in a high humidity environment, the machine will generate condensed water. Ensure that the drainage around the machine is smooth.



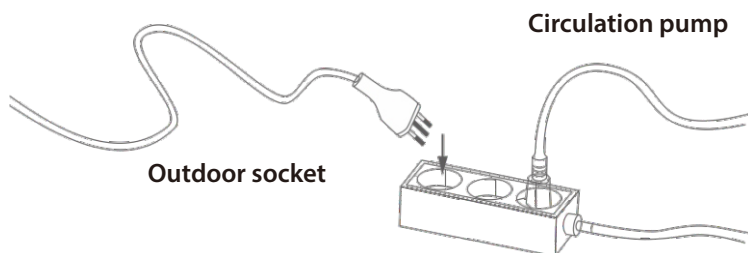
### 4.3 Connection diagram of the machine inlet and outlet

step1





#### 4.4 Electrical connection



1. Make sure the power supply has a reliable ground.
2. The machine and the circulating water pump run at the same time, so it is recommended to connect the two on the same circuit.

## 5. Instructions

### 5.1 Water quality requirements

Special attention should be paid to the chemical balance of the pool water within the following ranges.

	Min.	Max.
pH	7.0	7.8
Free chlorine (mg/l)	0.5	1.5
TAC (mg/l)	80	150
TAC (°F)	10	30
Salt (g/l)	/	/

If the water quality exceeds the data range of the above table, it may cause irreversible damage to the machine. If the machine is damaged as a result, the corresponding warranty terms are invalid.

## 5.2 Use in harsh climates

1. This machine can be used for running in rainy conditions, but should not be immersed in water. Failure to do so may cause damage, even leakage of electricity, resulting in personal injury and property damage.
2. When the machine is in a low environment, the work efficiency is low. It is generally recommended not to use the machine below 5 °C. Drain the machine and the pool water at the same time, place the machine in a dry place and take protective measures.

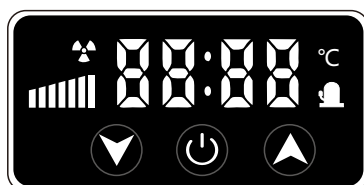
## 5.3 Reuse

If your machine has been stored for a long time, please check the following steps when reusing it:

1. Inspect the system for debris or housing damage.
2. Clean the evaporator fins if necessary. Make sure that the evaporator heat sink is clean, so that blocking the intake air will cause insufficient operation and reduce machine efficiency.
3. Check if the fan is blocked.
4. Check whether there are foreign objects in the water inlet and outlet.
5. Connect the water inlet and outlet, turn on the pool water circulation pump, and start supplying water to the machine.
6. After ensuring that the water flow is normal, turn on the machine's power, turn on the machine, and check for any abnormalities.

# 6. Operation Manual

## 6.1 Display and buttons

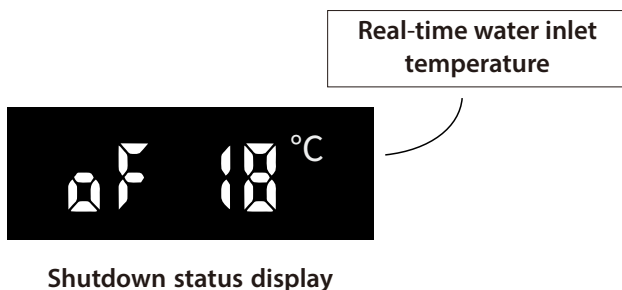


## 6.2 Description of button and operating display

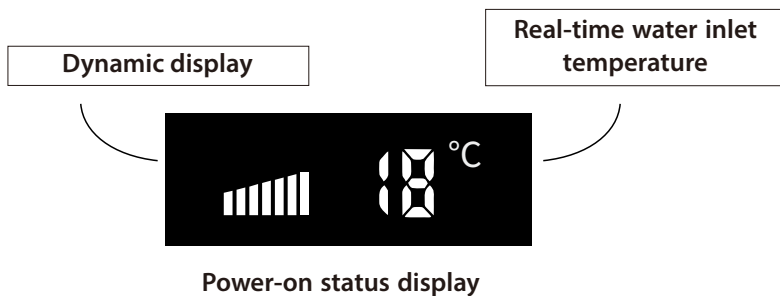
ON / OFF: In the main interface, press this button for two seconds to switch on or off.



- Display status after shutdown



- Display status at startup



- Unlock button

1. After 1 minute of inactivity, the keys are automatically locked and the display brightness is reduced by half.
2. After the keys are locked, if the operation keys are invalid, the screen symbol flashes three times, and the normal display is restored.
3. After the keys are locked, press and hold the "ON / OFF" key for 5 seconds to unlock.

- Adjust temperature

1. In the main interface, press the "▲" or "▼" key to adjust the set temperature. After the setting is completed, short press the "ON / OFF" key or exit after 10 seconds without operation, return to the main interface of operation, and save the set value

Flashing display



•Status query

1. Press and hold the "▲" key for 3 seconds to enter the status query.
2. After entering the query interface, press the "▲" or "▼" key to query the parameters and cycle through them.
3. Short press the "ON / OFF" key or exit after 10 seconds without operation, return to the main interface of operation.

Parameter item

Numerical display



Query status value display

Parameter	Meaning	Range	Note
P1	Ambient temperature	-F~99°C(-15~99)	Measured value
P2	Inlet water temperature	-F~99°C(-15~99)	Measured value
P3	Coil temperature	-F~99°C(-15~99)	Measured value
P4	Exhaust gas temperature	20~C0°C(20~120)	Measured value

## 7. Maintenance and repair

### 7.1 Daily maintenance

1. When using, check the water supply to and from the machine frequently. Low water flow or air should be prevented from entering the pipeline, which will reduce the performance and reliability of the machine and may even cause the machine to malfunction.
2. The swimming pool water should be washed regularly to avoid damage to the heat pump due to the dirty water in the swimming pool. The resulting damage is not covered by the warranty.



3. The area around the machine should be clean and well ventilated. The evaporator and the evaporator shield should be cleaned regularly to maintain good air flow and ensure that the machine has high operating efficiency.
4. Check the power and cable connections frequently. If there is abnormal operation or a burning odor near the electrical room, please turn off the machine and contact a professional technician for maintenance.
5. If the water heater does not work for a long time, the water inside the machine should be drained.

## 7.2 Repair processing

1. When the machine displays the following code, the machine may be in a protected or faulty state. You can troubleshoot according to the following suggestions.

CODE	MACHINE STATE	STATE DESCRIPTION	SUGGESTION
EE 01	Winter freeze protection	When the environment is cold, the machine enters anti-freeze protection	<ol style="list-style-type: none"> <li>1. No processing required</li> <li>2. If you do not plan to continue using the machine, you can turn off the power, drain the water, and store the machine.</li> </ol>
EE 02	System low voltage protection	Machine lacks refrigerant	Replenish refrigerant (this operation requires professional technicians to operate)
EE 03	Low temperature prohibition start protection	The ambient temperature is too low for the machine to operate	If you do not plan to continue using the machine, you can turn off the power, drain the water, and store the machine.

CODE	MACHINE STATE	STATE DESCRIPTION	SUGGESTION
EE 04	Exhaust temperature sensor malfunction	1. The exhaust temperature sensor is damaged 2. Circuit board is damaged	1. Replace the sensor 2. Replace the circuit board
EE 05	Ambient temperature sensor failure	1. Ambient temperature sensor is damaged 2. Circuit board is damaged	1. Replace the sensor 2. Replace the circuit board
EE 06	Inlet water temperature sensor malfunction	1. Inlet water temperature sensor is damaged 2. Circuit board is damaged	1. Replace the sensor 2. Replace the circuit board
EE 07	Exhaust temperature protection	1. Less refrigerant in the machine 2. Water temperature is set too high 3. Insufficient water flow	1. Replenish the refrigerant (this operation requires professional technicians to operate) 2. Lower the setting water temperature 3. Check if the water flow is low or the pump and water pipe are blocked
EE 08	Coil temperature sensor failure	1. Inlet water temperature sensor is damaged 2. Circuit board is damaged	1. Replace the sensor 2. Replace the circuit board
EF	Defrosting	The machine is defrosting	No processing required

## 2. The compressor does not start

When the compressor does not start, it may be due to the following reasons:

- (1) The machine is not turned on, please press the key to start the machine.
- (2) If the water temperature has reached the set temperature or above, the machine stops heating. After the water temperature drops, heating can be resumed automatically.
- (3) The machine stopped for less than 3 minutes. Due to the characteristics of the

compressor, it is necessary to wait at least 3 minutes before restarting the compressor. This is a normal protective measure.

- (4) The machine is in defrosting operation. At this time, the compressor will stop, and it will automatically resume operation after the defrost is over.
- (5) The machine is in fault or other protection status, please refer to the above table for details.

### 3. The fan is not running

When the fan does not start, it may be due to the following reasons:

- (1) The machine is not turned on, please press the key to start the machine.
- (2) If the water temperature has reached the set temperature or above, the machine stops heating. After the water temperature drops, heating can be resumed automatically.
- (3) The machine is in fault or other protection status, please refer to the above table for details.

## 8. Recycling Instructions

This machine belongs to household appliances and electronic products. At the end of its service life, it should not be placed in domestic waste, but must be disposed of at a central point to recycle household appliances and electronic equipment. This helps protect the environment.

## 9. Service guarantee

If you need service or information or if you have a problem, please contact your local dealer. If needed they will contact the manufacturer to solve your problem.

They are gladly willing to assist you!

You can find more information at : [www.ainihp.com](http://www.ainihp.com)

We warrant all parts to be free from manufacturing defects in materials and workmanship for a period of two years from the date of retail purchase. This warranty is limited to the first retail purchaser and is not transferable. The liability of the manufacturer shall not exceed the repair or replacement of defective parts and does not include any costs for labour to remove and reinstall the defective part, transportation to or from the factory, and any other materials required to make the repair. This warranty does not cover failures or malfunctions resulting from the following:

- 1. Failure to properly install, operate or maintain the heat pump in accordance with the installation guidelines provided in this manual.
- 2. The workmanship of any installer of the product.
- 3. Not maintaining a proper chemical balance in your pool accordance with our water chemistry guidelines provided in this manual.
- 4. Abuse, alteration, accident, fire, flood, lighting, rodents, insects, negligence or acts of god.
- 5. scaling, freezing or other conditions causing inadequate water flow rate.
- 6. Operating the heat pump at water flow rates outside the published minimum and maximum specifications.
- 7. Use of non-factory authorized parts or accessories in conjunction with the product.
- 8. Chemical contamination of combustion air or improper use of sanitizing chemicals, such as introducing sanitizing chemicals upstream of the heater and cleaner hose or through the skimmer.
- 9. Overheating, incorrect wire runs, improper electrical supply, collateral damage caused by failure of O-rings, DE grids or cartridge elements, or damage caused by running the pump with insufficient quantities of water.

## WARRANTY CLAIMS

For prompt warranty consideration, contact your dealer and provide the following information: proof of purchase, model number, serial number and date of installation. The dealer will contact the manufacturer for instructions regarding the claim and determine the location of the nearest service point.

