Operation and Installation Manual

Platypus Mini 30 & Mini 50



Toyesi
Energy Efficient Commercial Heat Pumps and Chillers

PLATYPUS

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Dear Customer

Thank you for your purchase and for your confidence in our products.

These are the result of many years of research in the field of design and production of heat pumps. Our aim is to provide you with an exceptional high performance quality product.

We have produced this manual with the utmost care so that you get maximum benefit from your Platypus Mini heat pump.

The Platypus Mini heat pumps are designed for small swimming pools, spas, aquaculture, aquariums, horticulture and other small aquatic uses up to 5,000L in mind.

Under the right conditions the Platypus Mini 50 is suitable for heating aquatic bodies up to 15,000 L with its 5kW heating.



Before Working the Refrigerant Circuit

Any intervention on the refrigerant circuit is prohibited without a valid authorisation.

Before working on the refrigerant circuit, the following precautions are necessary for safe work.

Work procedure

The work must be carried out according to a controlled procedure, in order to minimise the risk of presence of flammable gases or vapors during the execution of the works.

General work area

All persons in the area must be informed of the nature of the work in progress. Avoid working in a confined area. The area around the work area should be divided, secured and special attention should be paid to nearby sources of flame or heat.

Verification of the presence of refrigerant

The area should be checked with a suitable refrigerant detector before and during work to ensure that there is no potentially flammable gas. Make sure that the leak detection equipment used is suitable for flammable refrigerants, ie it does not produce sparks, is properly sealed or has internal safety.

Presence of fire extinguisher

If hot work is to be performed on the refrigeration equipment or any associated part, appropriate fire extinguishing equipment must be available. Install a dry powder or CO2 fire extinguisher near the work area.

No source of flame, heat or spark

It is totally forbidden to use a source of heat, flame or spark in the direct vicinity of one or more parts or pipes containing or having contained a flammable refrigerant. All sources of ignition, including smoking, must be sufficiently far from the place of installation, repair, removal and disposal, during which time a flammable refrigerant may be released into the surrounding area. Before starting work, the environment of the equipment should be checked to ensure that there is no risk of flammability. «No smoking» signs must be posted.

Ventilated area

Make sure the area is in the open air or is properly ventilated before working on the system or performing hot work. Some ventilation must be maintained during the duration of the work.

Controls of refrigeration equipment

When electrical components are replaced, they must be suitable for the intended purpose and the appropriate specifications. Only the parts of the manufacturer can be used. If in doubt, consult the technical service of the manufacturer.

The following controls should be applied to installations using flammable refrigerants:

- The size of the load is in accordance with the size of the room in which the rooms containing the refrigerant are installed;
- Ventilation and air vents work properly and are not obstructed;
- If an indirect refrigeration circuit is used, the secondary circuit must also be checked.
- The marking on the equipment remains visible and legible. Illegible marks and signs must be corrected;
- Refrigeration pipes or components are installed in a position where they are unlikely to be exposed to a substance that could corrode components containing refrigerant

Verification of electrical appliances

Repair and maintenance of electrical components must include initial safety checks and component inspection procedures. If there is a defect that could compromise safety, no power supply should be connected to the circuit until the problem is resolved.

Initial security checks must include:

- That the capacitors are discharged: this must be done in a safe way to avoid the possibility of sparks;
- No electrical components or wiring are exposed during loading, recovery or purging of the refrigerant gas system;
- There is continuity of grounding.

PLEASE READ CAREFULLY

These installation instructions are an integral part of the product. They must be given to the installer and retained by the user.

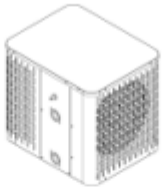
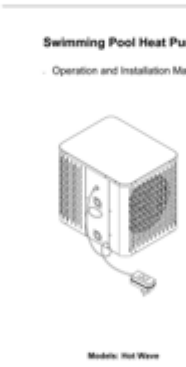
1. Always keep the unit upright. If the unit has been tilted or put on its side, wait 24hrs before starting the unit.
2. Put the unit on a flat, solid base.
3. Do not drop the heat pump.
4. The heat pump must always be installed outdoor.
5. Check if the voltage indicated on the RCD of the heat pump corresponds to the local mains voltage before you connect the unit.
6. Do not pull the mains plug with unnecessary force. Do not wrap the mains plug around the heat pump.
7. Do not use the heat pump in combination with a transformer, as this could cause hazardous situations.
8. If the heat pump is damaged during transportation, it must be replaced, please contact your service centre or similarly qualified persons in order to avoid a hazard.
9. Always make sure the water connections of the heat pump are properly locked before you start using the machine.
10. Never insert objects directly into the fan when the heat pump is operating, as this will cause it to become blocked and damaged.
11. The evaporator fins must not be damaged.
12. This heat pump is not intended for use by persons with reduced physical, sensory or mental capabilities, or lack of experience and knowledge. Unless they have been given supervision or instruction concerning use of the heat pump by a person responsible for their safety.
13. Children should always be supervised to ensure that they do not play with the heat pump.
14. The heat pump doesn’t work at temperature below 7°C.
15. Disconnect the mains plug from the socket when the heat pump is not in use and before cleaning.

Table of Contents

1. Description

1.1 Package Contents

Before starting the installation, please make sure that all parts are found inside the box.

The Unit Box		
Item	**Image**	**Quantity**
Swimming pool heat pump		1
Operation and Installation Manual		1
Accessories	- connections pipes and stainless-steel clips - (2 sets) -condensation draining kit - 4 anti-vibration pads - RCD protection plug	1

1.2 General Characteristics

Heat pumps are one of the most economical systems to heat any water efficiently. Using the free renewable energy from the air and the earth it delivers up to five times more energy in heating than a traditional heating system such as gas boiler or electric heater. So, you will save 4/5 cost of the traditional heating.

Ecological and economical heating

By making use of the renewable energy in the outside air, it consumes much less energy with low carbon emission. Use environment friendly advanced refrigerant R32 which has no effect on Ozone.

Titanium heat exchanger

Advanced titanium heat exchanger guarantees long life span of heat pump free from corrosion and rust. By using of titanium heat exchanger, the heat pump could be applied with all types of water treatment such as chlorinate, iodine, bromine and salt water.

Multiple functions

- Heating only; Cooling Only and Auto heat & chill
- Auto operation, Auto-restart, Auto defrost
- Wide ambient working condition: -15°C to 43°C

Reliable operation

To guarantee the stable running and increase the stability of the unit multiple protection devices have been set into pool heat pump which include insufficient water flow protection, low pressure protection, compressor protection.

Safe use

This Heat pump works without oil, gas or other hazardous substance which avoid potential risk that goes together. Moreover, no gas connection or a fuel tank is needed. No risk of intoxication, smell or pollution from leakage.

Self-diagnosis

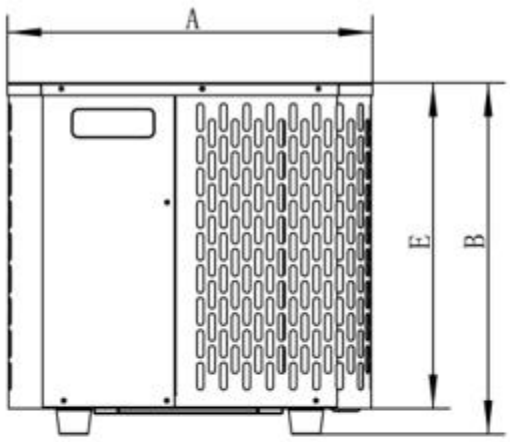
When there is malfunction, the heat pump will make self-diagnosis by displaying error code from the control panel. The problem could be found out at a glance.

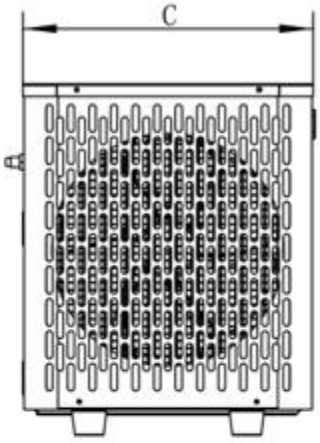
1.3 Technical Specifications

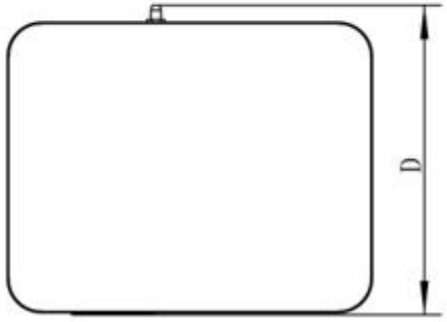
Specification	Model	Mini 30	Mini 50	Magic Mini 50
		Heater/Chiller	Heater/Chiller	Inverter H/C EVI
Heating Range	°C	10 to 40	10 to 40	10 to 40
Cooling Range	°C	8 to 28	8 to 28	8 to 28
Operating Range	°C	-7 to 43	-7 to 43	-25 to 43
Max Heating Output	kW	3.00	5.00	2.38 to 5.28
Max Cooling Output	kW	1.56	2.67	2.05 to 3.18
Air 15°C & Water 26°C				
Capacity	kW	2.10	3.6	2.05 to 4.15
Input	kW	0.52	0.80	0.27 to 0.91
Amps	A	2.26	3.48	1.19 to 3.98
COP		4.05	4.50	4.58 to 7.69
Air 35°C & Water 27°C				
Capacity	kW	1.56	2.67	2.05 to 3.18
Input	kW	0.56	0.87	0.40 to 0.94
Amps	A	2.44	3.79	1.74 to 4.09
EER		2.79	3.07	3.38 to 5.15
Power Supply		240 V 50Hrtz	240 V 50Hrtz	240 V 50Hrtz
Max Power Input	kW	0.7	1.4	1.2
Max Amps	A	3.10	6.21	5.30
Water Connections	mm	32/38	32/38	32/38
Water Flow	m3/Hr	1.3	2.15	2.30
Pressure Drop	kPa	20	20	20
Refrigerant		R32	R32	R32
Pressure min/max	MPa	1.5/4.3	1.5/4.3	1.5/4.3
Air Flow Rate	M3/hr / L/s	500 / 140	500 / 140	800 / 225
Sound Rating 1m	dB(A)	52	55	55
Waterproof Rating	IPX4	IPX4	IPX4	IPX4
Unit Dimensions	L x W x D	440 x 380 x 425	440 x 380 x 425	600 x 335 x 425
Weight	kg	26	32	32

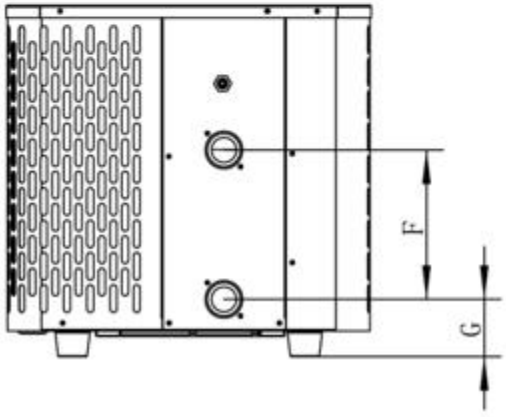
The technical specifications of our heat pumps are provided for information purposes only. We reserve the right to make changes without prior notice.

1.4 Unit Dimensions





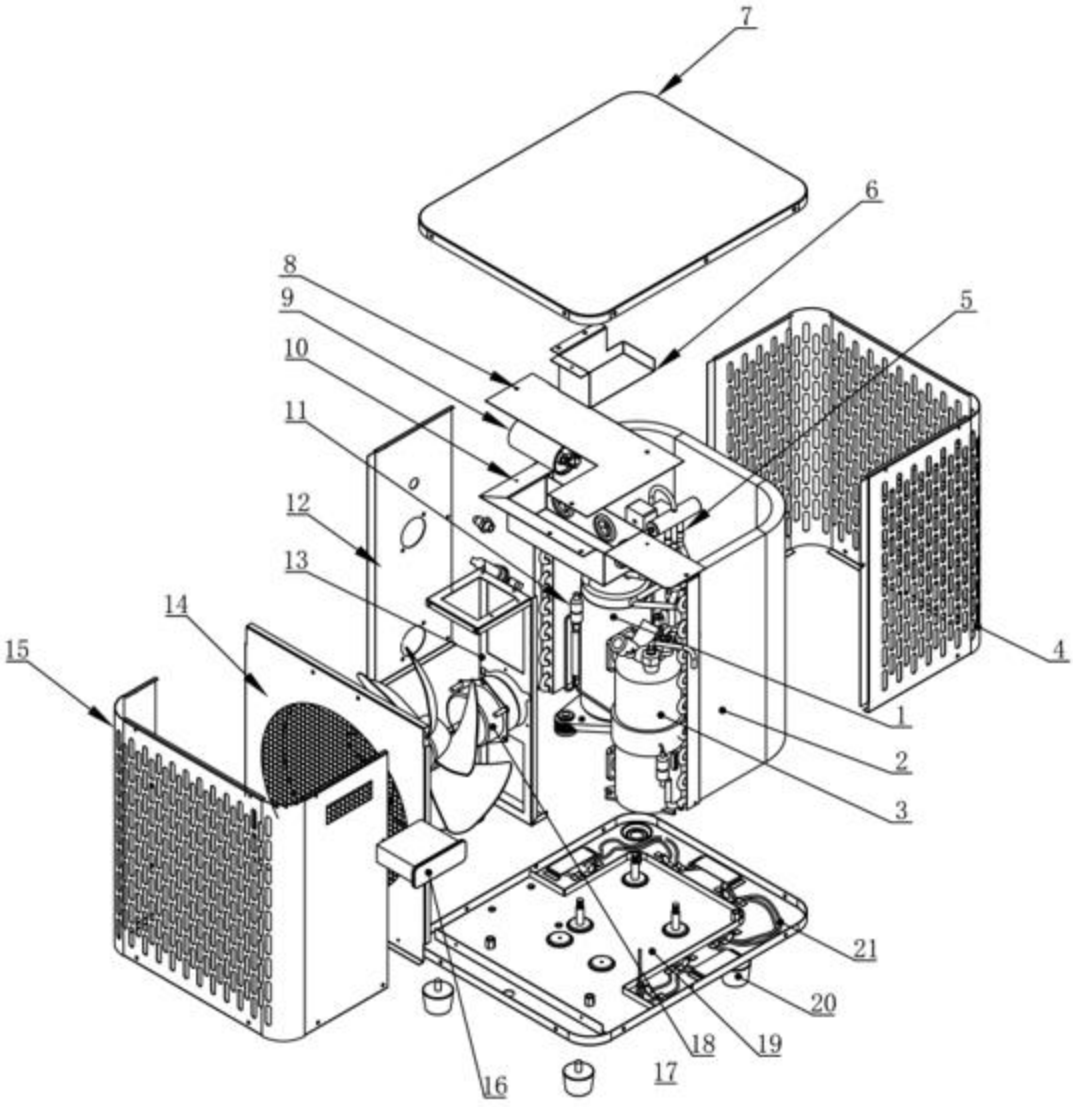




Dimensions in mm

Model	Mino 30	Mino 50
A	440	440
B	423	423
C	350	350
D	375	375
E	392	392
F	180	180
G	69	69

1.5 Exploded View



1	Compressor	11	Filter
2	Evaporator	12	Side panel
3	Titanium heat exchanger	13	Fan support
4	Back side panel	14	Inside front panel
5	4-way valve	15	Front panel
6	Control panel box	16	Control panel + PCB
7	Top cover	17	Fan blade
8	Electrical box cover	18	Fan motor
9	Compressor capacitor	19	Base plate
10	Electrical box	20	Rubber feet

2.0 Installation

The heat pump is very easy to install, only water and power need to be connected during installation.

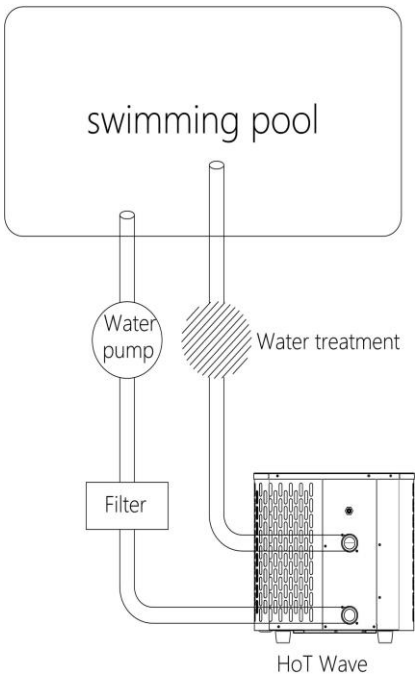
2.1 Distance from the pool, tank or body of water.

The heat pump should be located at least 2m away from the swimming pool, tank or body of water being heated or cooled. A free area of minimum 0.3 meter around the heat pump must be kept clear from any object.

Example:

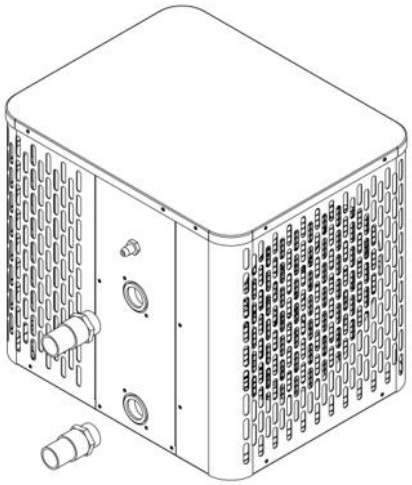
- Put the heat pump on a flat, solid base.
- Do not obstruct the fan, leave at least 1.5m free unobstructed space in front of the fan.
- All feeding of water treatment to the pool water has to be done downstream of the heat pump.

2.2 Sample of Typical Configuration

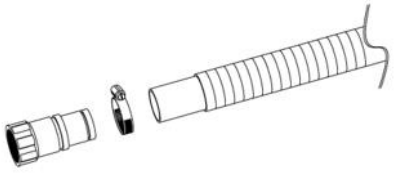


2.3 Hose Connection

Step 1: Screw the connectors

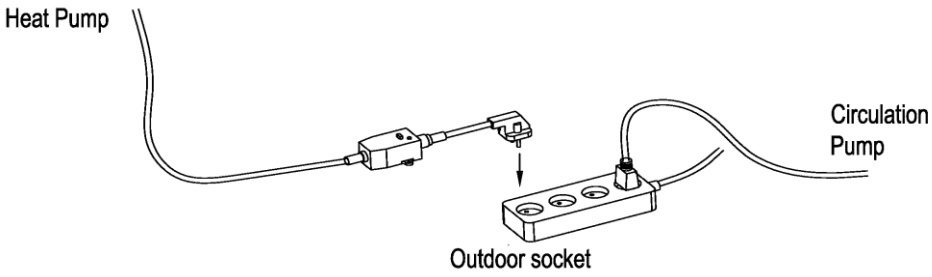


Step 2: Connect the water pipe



It is normal for condensation water to come out of the heat pump when it is operating. This is not a fault or leak!

2.4 Electrical Connection



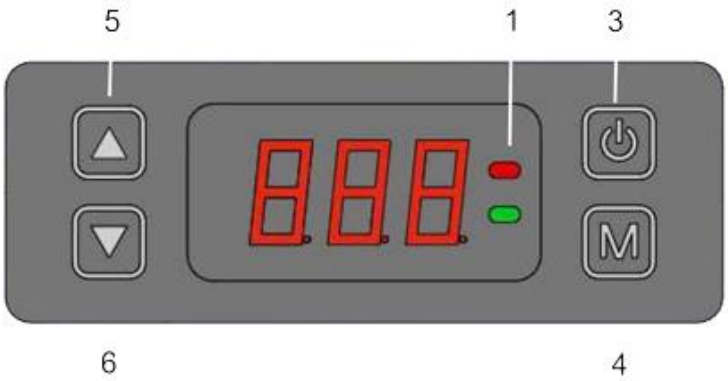
Make sure your outlet is earthed.

The circulation pump must operate with the heat pump. Therefore, it is suggested to connect them to the same circuit used for outdoor.

3.0 Use

3.1 Wired Remote Control

1. Hot LED
2. Cool LED
3. ON/OFF button
4. Function keys
5. Up(+) button
6. Down(-) button



SWAPPING MODES

Press M until you get the correct mode. Red LED heating Mode, Green LED Cooling Mode & Large A on screen for Auto Mode. Whilst in Auto mode LED will swap between green and red depending heating or cooling operation.

3.2 Heating Mode

WARNING:Before starting, ensure that the filtration pump is operating correctly.

Step 1: Press ⏻ to switch on your pump

Step 2: Using buttons ▲ and ▼ select the required temperature.

EXAMPLE:
If the current temperature is 15°C, default setting temperature is 27°C, required temperature is 30°C.

3.3 Cooling Mode

WARNING:Before starting, ensure that the filtration pump is operating correctly.

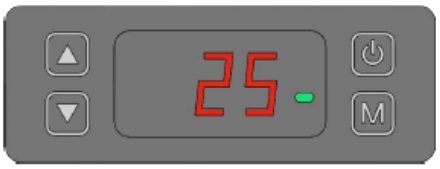
Step 1: Press  to switch on your pump

Step 2: Using buttons  and  select the required temperature.

EXAMPLE:

If the current temperature is 25°C, default temperature is 27 °C, required temperature is 20 °C.

Current water temperature



Required temperature

3.4 Auto Mode

WARNING:Before starting, ensure that the filtration pump is operating correctly.

Step 1: Press  to switch on your pump

Step 2: Using buttons  and  select the required temperature.

EXAMPLE:

If the current temperature is 28°C, default temperature is 27 °C, Running Cooling

Current water temperature

Required temperature

EXAMPLE:

If the current temperature is 26°C, default temperature is 27 °C, Running heating

Current water temperature

Required temperature

Useful Information about how the heating mode works

When the incoming water temperature is less than or equal to the required temperature (set point temperature) -X°C, the heat pump will switch to heating mode. The compressor will stop when the temperature of the incoming water is greater than or equal to the required temperature (set point temperature) .

Indicators for adjustment range X

X : adjustable parameter from 1 to 10°C, default setting is 2°C(Parameter H).

3.5 Status Values and Advanced Setting

WARNING: This operation is used to assist servicing and future repairs. The default setting should only be modified by an experienced professional person.

The system's settings can be checked and adjusted via the thermostat control following these steps.

Step1: Keep pressing M until you enter the setting verification mode.

Step2: Press ▲ and ▼ for see the parameters.

Step3: Press M to select the setting to be modified.

Note, only d, H, J settings can be modified. Consult the settings table for further information.

Step4: Press ▲ and ▼ to adjust the setting value.

Step5: Press M to set the new value.

Step6: Press ⏻ to return to the main screen.

3.6 Parameters Table

No	Description	Adjustment Range	Factory setting	Remark
A	Inlet water temperature	-19~99°C		Actual data
b	Coil temperature	-19~99°C		Actual data
c	Ambient temperature	-19~99°C		Actual data
d	Heating setting temperature	15~40°C	27°C	Adjustable
E	Defrost auto-activation time	10~80 min	40 min	Adjustable
F	Maximum defrost duration	5~30 min	8 min	Adjustable
G	Cooling setting temperature	8~28°C	27°C	Adjustable
H	Adjustment of temperature difference for restart	1~10°C	2°C	Adjustable
J	Automatic restart	0 = OFF/ 1 = ON	1	Adjustable
O	Ambient temperature antifreeze value	-15~15°C	-10°C	Ajustable
P	Enter the defrosting coil temperature value	-19~0°C	-3°C	Ajustable
U	Exit defrosting coil temperature value	1~30°C	20°C	Ajustable
T	Water inlet temperature anti-freezing protection value	1~15°C	4°C	Ajustable

Note，All parameters modified method

Step1: Keep pressing until  and  you enter the setting mode.

Step2: Press  or  for input the password 123.

Step3: Press  to select the setting to be modified.

Step4: Press  and  to adjust the setting value.

Step5: Press  to set the new value.

Step6: Press  to return to the main screen.

4.0 Operation

4.1 Operation

Conditions of use

For the heat pump to operate normally, the ambient air temperature must be between -10°C and 43°C.

Recommendations prior to start-up

Before activating the heat pump, please:

- Check that the unit is stable.
- Control the proper functioning of your electrical installation.
- Check that the hydraulic connections are tight and that there is no leakage of water.
- Remove any unnecessary object or tool from around the unit.

Operation

1. Connect the unit power plug.
2. Activate the circulating pump.
3. Activate the unit's power supply protection  (differential switch and circuit-breaker).
4. Activate the heat pump by pressing once on .
5. Select the required temperature.
6. The heat pump's compressor will start up after a few moments.

All you must do now is wait until the required temperature is reached.

WARNING: Under normal conditions, a suitable heat pump can heat the water in a swimming pool by 1°C to 2°C per day. It is therefore quite normal to not feel any temperature difference in the system when the heat pump is working. This can be true for any body of water. Smaller aquatic projects will heat or chill quicker than larger ones.

A heated water body should be covered to avoid any loss of heat.

5.0 Maintenance and Servicing

5.1 Maintenance and Servicing

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

Cleaning

The heat pump's casing must be cleaned with a damp cloth. The use of detergents or other household products could damage the surface of the casing and affect its properties.

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

Annual maintenance

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

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

Storage

Your heat pump is designed to operate in rainy weather conditions and withstand frost using a specially created anti-frost technology. However, it is not recommended to leave it outside for long periods of time (eg when not in use).

After maintenance and cleaning your unit, store the heat pump in a dry place.

6.0 Repairs

6.1 Breakdowns and Faults

In the event of a problem, the heat pump's screen displays a fault  symbol instead of temperature indications. Please consult the table opposite to find the possible caused of fault and the actions to be taken.

Code	Fault	Possible causes	Action
P1	Water intake temperature sensor malfunction	Sensor badly connected	Reconnect sensor
		Sensor defective	Replace sensor
		Defective control panel	Replace control panel
P3	coil temperature sensor malfunction	Same causes as P1	Same actions as P1
P5	Ambient temperature sensor malfunction		
P7	Limit ambient protection	Protection activated when the ambient temperature is too low or too high.	No intervention is necessary
E3	Water follow malfunction	Insufficient water flow	Check water pump operation and openings of By-Pass inlet/outlet valves
		Defective control panel	Replace control panel

7.0 Environmental Information

This equipment contains fluorinated greenhouse gases covered by the Kyoto Protocol. It should only be serviced or dismantled by professional trained personnel.

This equipment contains R32 refrigerant in the amount as stated in the specification. Do not vent R32 into the atmosphere: R32, is a fluorinated greenhouse gas with a Global Warming Potential (GWP) = 670.

8.0 Service

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!

9.0 Wiring Diagram

Please refer to the wiring diagram on the electric box.