



# HOT WATER HEAT PUMPS LTD

Advancing Water Heat Pump Technology

SINCE 1980



## **THERMOPLUS**

### Swimming Pool Heat Pump Installation and User Manual

# CAUTION



This heat pump contains and operates with R32 Refrigerant.

This product must only be installed or serviced by qualified personnel.

Refer to National and International legislation, regulations, codes, and installation and operation manuals for the transportation, storage, installation and/or service of this product.

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## Items Supplied

Inside the lid of your heat pump will be the following items:

Information Pack including the following:

- Wiring Diagram
- Quick Reference Instructions
- Installation and Instruction Guide
- Advanced Controller Setup Guide (Service Only)



4 x Round rubber mounts and 4 x stainless steel through bolts for heat pump placement.



Threaded PVC unions to connect to back of heat pump.



Drain adapters, there are 1 or 2 drain locations depending on the model being installed.

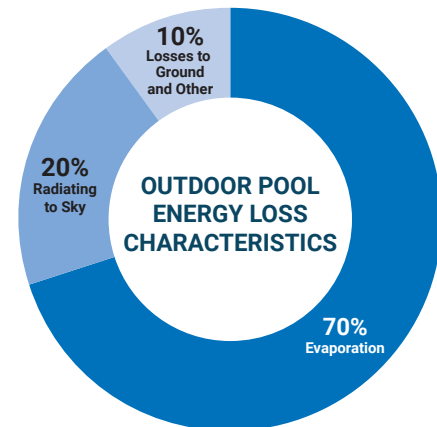


# Outdoor Swimming Pools

## Heat Loss

Heat loss from outdoor swimming pools occurs mainly from the surface in the form of evaporation, radiation and convection. The colder the outdoor air temperature, the higher the heat loss is. Evaporation from the surface of the pool lowers both water temperature and water level in the pool by transferring that heat into the surrounding air.

Convection of heat energy is the result of cool air blowing over the pool's surface and lowering water temperature. Heat loss is also attributed to conduction, which is a transfer of heat from the water through the pool walls to the surrounding air or soil.



## Pool Temperature

The energy consumption of an outdoor pool depends on the water and air temperature. For typical pool activity, set the temperature at 20°C – 28°C.

## Wind Exposure

The evaporative heat loss in swimming pool is greater as wind velocity over the pool surface increases. It is suggested to use solid fencing around the pool to create a sheltered area such as glass. This would help to reduce pool energy consumption by 20%. Pools with an open exposure would consume about 50% more energy than a moderately sheltered one.

## Swimming Pool Covers

Use of a floating thermal pool cover to bring the initial investment and running costs down, save energy and maintain the pool temperature when not in use is also recommended. A cover can save up to 50% on energy consumption compared with an uncovered pool and is the most significant energy saving measure you can take. This type of cover has special flotation properties and can, not only save a substantial amount of energy, but also significantly reduce water loss due to evaporation. A good quality thermal cover is recommended for all winter heating.

## Comparison

A Heat Pump uses electricity to operate. The heat is extracted from the ambient air, upgraded with a compressor, and then transferred to the pool. Therefore, it is very cost effective to heat the pool continuously all year round, as the electricity is not to generate heat but just to move the free heat to the Pool, Spa, Domestic Hot Water or Underfloor heating application no matter what the weather condition is. Due to their high efficiency, heat pumps have a low cost of operation compared to gas or diesel burners.

# Outdoor Installation Guidelines (Horizontal Discharge)

Key points that should be taken into consideration heat pump placement:

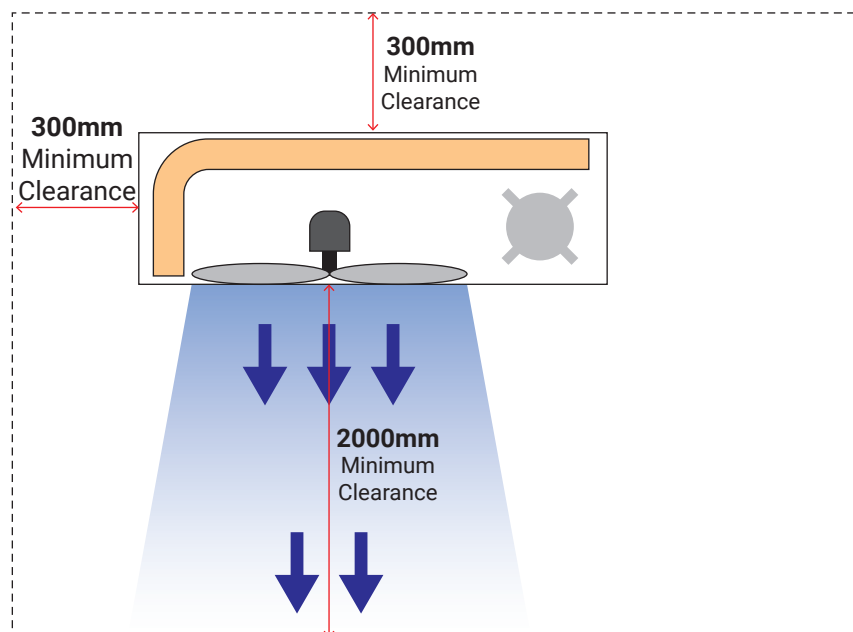
- Distance from the application(s) the heat pump services as any length of pipe installation will cause heat loss.
- Air circulation should be taken into consideration as a poorly placed heat pump that re-circulates the cold air expelled from the fan can cause unnecessarily high running costs and in some situations failure to attain the desired temperature.

## Physical placement

- Prepare a level area with concrete pad or pavers for your specified unit.
- Rubber pads (supplied with the unit) should be placed under the heat pump feet.
- **The heat pump will produce water** as moisture condensate forms on the evaporator coil. A drip tray or full size drain tray may be required to catch and pipe this away.

## Electrical

- Heat pumps must be permanently hard wired by a certified electrician.
- Requires an isolation switch installed within reach of the heat pump location (not to be mounted on the unit).
- Power supply cable must be suitably sized for the specific heat pump and its distance from switchboard.
- The specified **Motor Rated** circuit breaker must be installed for the heat pump.



**Figure 1: Outdoor Installation Clearances**

## Indoor Installation Guidelines (Horizontal Discharge)

Key points that should be taken into consideration heat pump placement:

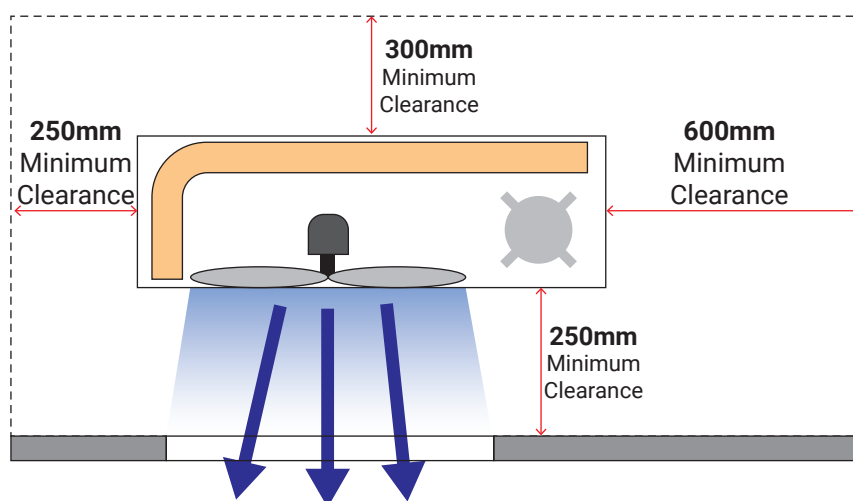
- Ample fresh air must be supplied to the heat pump by means of a correctly sized make-up air grill.
- Do not rely on manual openings such as doors or windows, as they will get closed causing poor performance and higher running costs.
- Cold air discharge must be ducted out of the enclosure to eliminate any chance of air recirculation.
- All clearances of the specific heat pump model must be maintained.
- Service accessibility should be taken into consideration as poor access can make service difficult and expensive.
- Adequate drainage measures should be in place to remove the condensate (water) build up.

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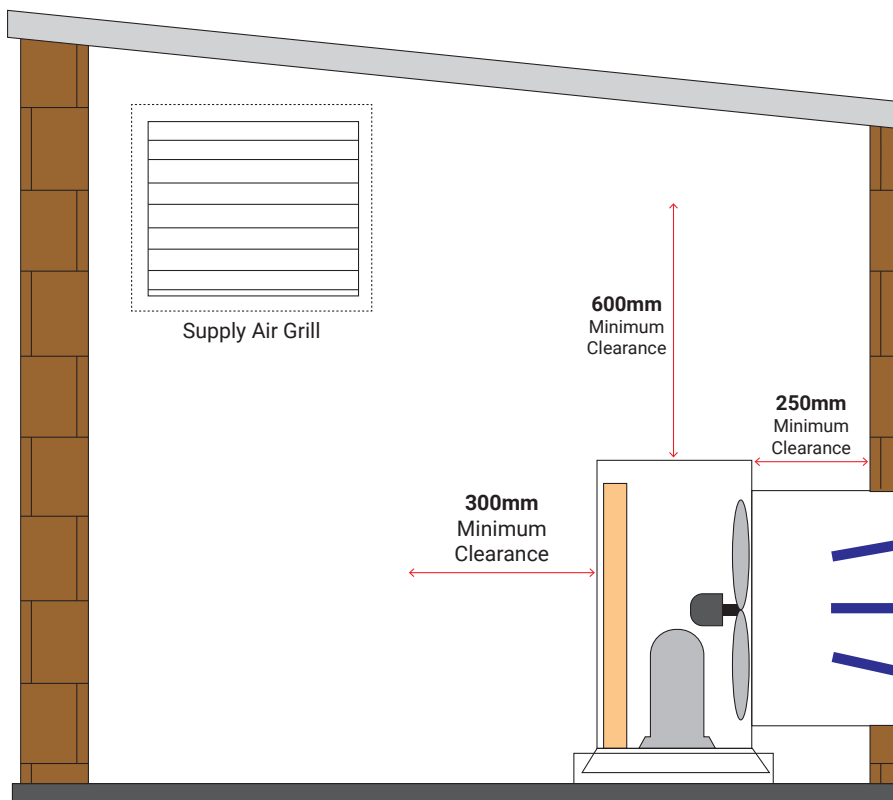
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**Figure 2: Indoor Installation Clearances**

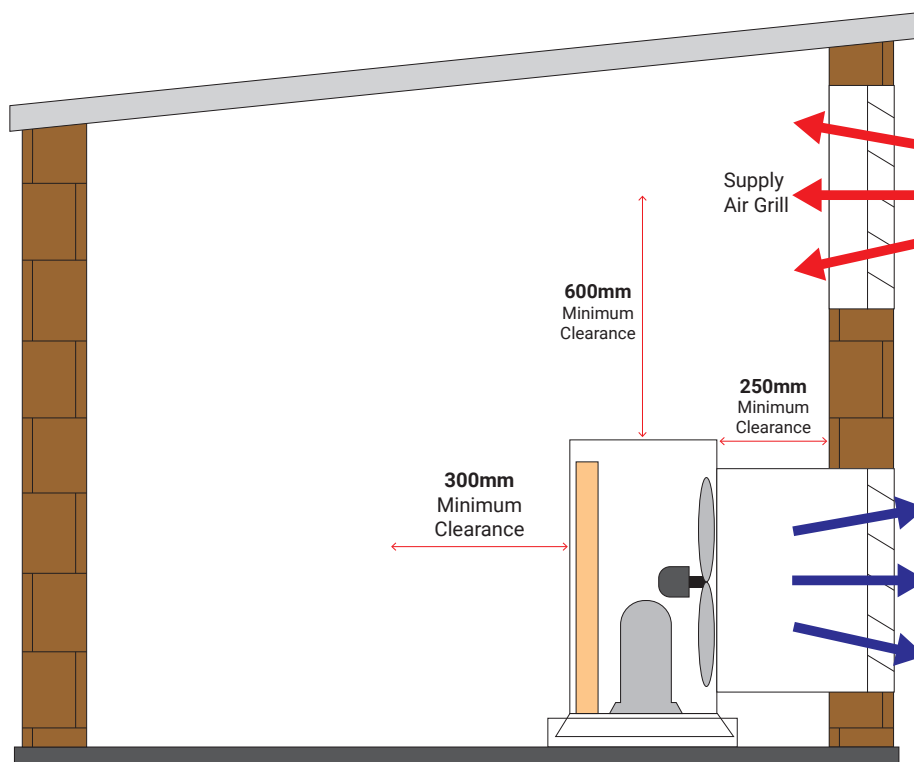




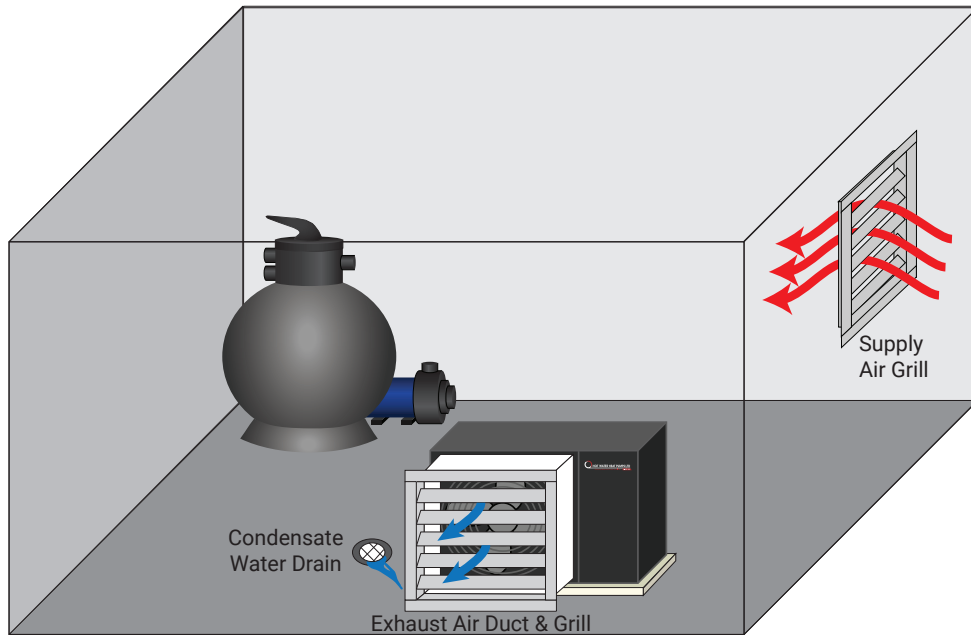
**Figure 3: Indoor Installation Clearances**



**Warning:** An air supply grill is REQUIRED. This can be located on any wall, preferably at a high level.



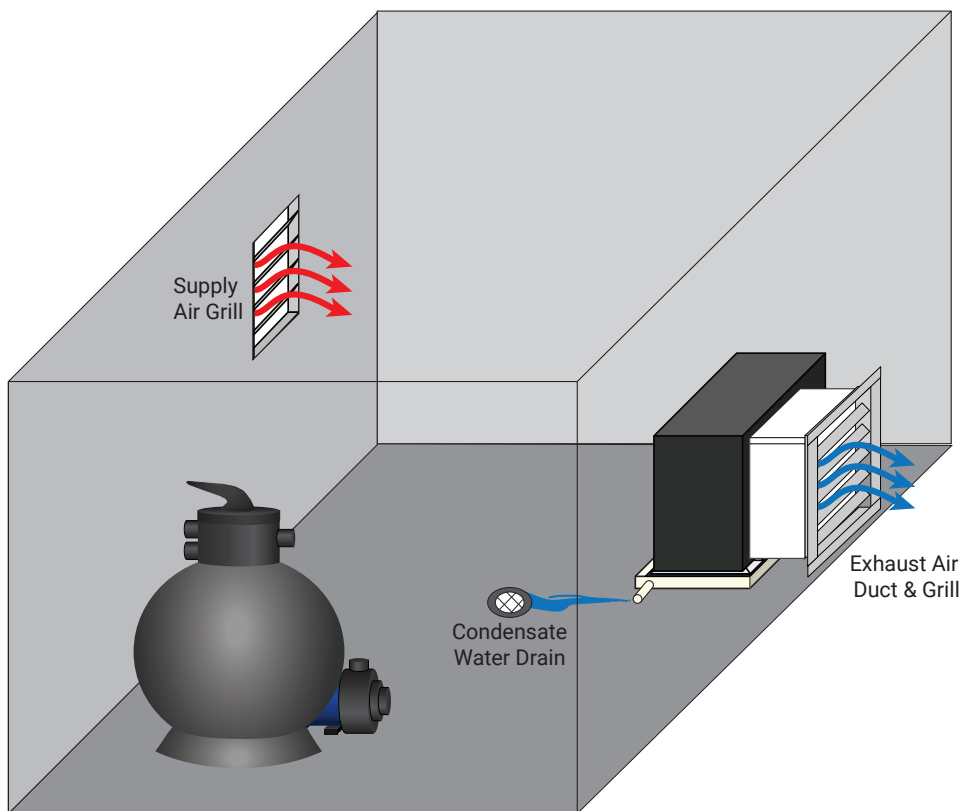
**Figure 4: Indoor Installation Clearances**



**Figure 5: Air Supply Grill and Drainage**



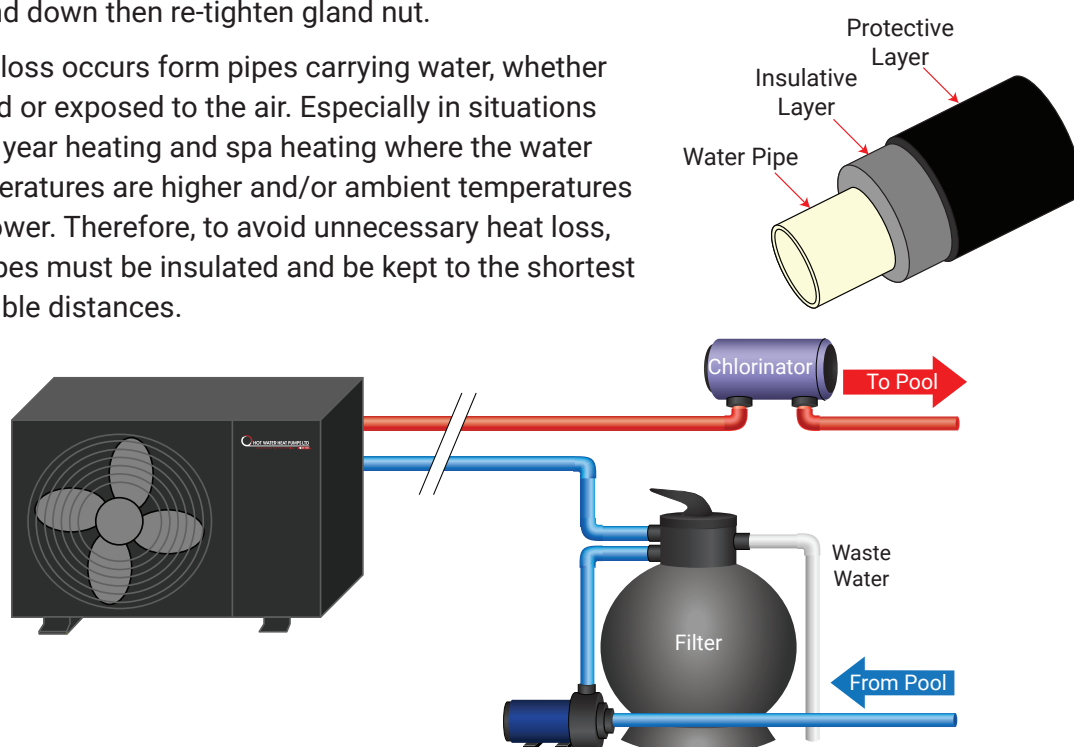
**Warning:** An air supply grill is REQUIRED. This can be located on any wall, preferably at a high level.



**Figure 6: Air Supply Grill and Drainage**

## Plumbing

- Make sure filter pump is switched off before changing the position of any valves.
- If the filter is located below the water level of the pool, close shut off valves if available. If shut off valves have not been fitted, close pool skimmers and use “plumbers putty” to block any drain locations inside the pool.
- Cut a small 100mm to 200mm of the pipe section between the filter pool return and any chlorination device and plumb to and from the heat pump location making sure that the flow from the filter is connected to the “water inlet” on the heat pump and that the “water outlet” is connected to the pool return. this is to reduce the risk of any deterioration of plastic or rubber fittings and seals from chlorine or other chemicals.
- All PVC pipe work should be clean and dry with all ends cut square and burrs removed.
- Ensure correct PVC pipe cement is used.
- Roughen all mating surfaces with emery tape and apply glue to both mating surfaces.
- While surfaces are still wet bring the two together using a twisting motion to ensure good fit and hold for approximately 30 seconds.
- Let glue dry for 24-hours before starting filtration pump.
- Before commissioning remove lid from top of heat pump and then turn on filtration system.
- Check that there are no water leaks from around heat exchanger or any of the PVC fittings and glue joints as this can cause major corrosion if left unattended.
- Check flow switch and adjust if necessary. This is done by loosening the gland nut on the top of the flow switch and pushing the probe down just enough to top the flap bouncing up and down then re-tighten gland nut.
- Heat loss occurs from pipes carrying water, whether buried or exposed to the air. Especially in situations of all year heating and spa heating where the water temperatures are higher and/or ambient temperatures are lower. Therefore, to avoid unnecessary heat loss, all pipes must be insulated and be kept to the shortest possible distances.



# Controller

## How your **ThermoPlus** Heat Pump Works

Once installed the **ThermoPlus** Swimming Pool Heater will not function unless the isolation switch is turned on, water is flowing through the heat exchanger and the water is not already up to the desired temperature. This is controlled by a Flow Switch and an Electronic Temperature Sensor which is built into the unit or plumbed remotely by the installer.

## Season Start Up: Pool Management/Timeclock Bypass

1. Simply turn your **ThermoPlus** swimming pool heat pump on at the isolation switch.
2. Set your time clock for the desired filtration cycle.
3. Turn on the **Auto Heat** switch.

Your **Pool Management System/Timeclock Bypass System** will now allow you to maintain your pool heating without further alterations to the system. For more detailed instructions or technical information please see your Pool Management/Timeclock Bypass booklet.

## Season Start Up: **NON** Pool Management/Timeclock Bypass

1. Turn off your chlorination system completely.
2. Set your filter to run 24 hours/day.
3. Turn on the chlorination system manually for the required duration per day only.
4. Once the pool has reached its desired temperature you can now reduce the filtration cycle. 12-hours at the beginning of the season is not an unreasonable length while ambient temperatures are still low, this can be reduced further as the swimming season progresses but will increase again towards the end of the season (this will take a few days of alteration to achieve the desired result).



**CAUTION:** Where a water treatment system that does not actively monitor chemical levels is used without the addition of a **Timeclock Bypass or Pool Management System**, turn the water treatment system off during the initial heat up period as overriding the time clock may cause over treatment of the pool water.

## Temperature Control for **ThermoPlus** Heat Pumps

Read/Modify function of the set point:

1. Press SET and hold for 3 seconds.
2. Press arrow UP or DOWN to set the desired value.
3. Press SET to confirm the value.



## End of Season Shutdown

Simply turn the heat pump off at the isolation switch.

For **Dual Purpose Heat Pumps** turn off the appropriately labelled switch.



**CAUTION:** For regions where standing water can freeze, if you do not filter your swimming pool through the winter months, drain the water from the **ThermoPlus** Swimming Pool Heater at the end of the season to avoid the risk of damage.

## Troubleshooting Guide

| Fault   | Cause   | Potential Solution   |
|---|---|--|
| No red power light                                      | No power supply.  | Check the fuse/circuit breaker or isolating switch.  |
| The red light is on, but the display is not functioning | No water flow through the heat pump.  | Check if the filter pump is running and if the flow is directed through the heat pump.   |
| The pool never reaches the desired temperature          | The controller is set too low.  | Adjust the control set point.  |
|   | The desired temperature is higher than what the heat pump was sized to achieve. | Keep the pool cover on for longer periods.   |
| The pool is hot, but the heat pump fails to turn off    | The temperature probe is not properly placed or seated.                         | Contact Hot Water Heat Pumps Ltd or your nearest service agent.  |
|   | The controller set point is above the required temperature.                     | Adjust the controller set point down to the required temperature.  |
| The water is cold                                       | No power supply.  | Check the fuse/circuit breaker or isolating switch.  |
|   | The controller is set too low.  | Adjust the controller set point.   |
|   | The heat pump has stopped on safety.  | Check water flow through the heat pump flow switch.  |
| There is ice on the fins at the back of the heat pump   | The ambient temperature is very low.  | This is a natural function in cold weather. The active defrost function should melt the ice within minutes of the de-ice control automatic activation. |
|   | If the weather is warm, the heat pump may be low on refrigerant.                | Contact Hot Water Heat Pumps Ltd or your nearest service agent.  |

| Fault                               | Cause  | Potential Solution  |
|-------------------------------------|--|---|
| There is water around the heat pump | Condensation. Small puddles around the heat pump.                                  | This is a natural function of the heat pump in humid conditions. Condensation forms on the coil and drains into the inbuilt drain tray. A tray could be placed below the unit to catch this water to be piped away. |
|                                     | Possible water leak from connections to the heat exchanger at the top of the unit. | Check under the lid of the unit for any sign of water in the top part of the heat pump. Prolonged exposure to pool water will cause damage to the heat pump if neglected. Contact your nearest service agent.       |

If you are in any doubt as to an issue or the performance of your heat pump, please contact Hot Water Heat Pumps Ltd on **0800 33 66 33** or your nearest service agent.

## Warranty

Thank you for choosing to purchase a ThermoPlus Heat Pump. The ThermoPlus Heat Pump is covered by our ThermoPlus warranty as specified in this document.

### Warranty Claims

Please contact Hot Water Heat Pumps Ltd at 0800 33 66 33 or [info@waterheating.co.nz](mailto:info@waterheating.co.nz) for all warranty issues. Please prepare your invoice number or unit serial number for a quick and easy call.

### Warranty Period

The ThermoPlus Heat Pump is covered by a parts and labour warranty for the duration listed in the table below.

| Component                           | Warranty Period          |
|-------------------------------------|--------------------------|
| Residential                         | 2 years parts and labour |
| Commercial                          | 2 years parts and labour |
| Residential Titanium Heat Exchanger | 10 years                 |

Hot Water Heat Pumps Ltd will cover the parts and labour cost according to the terms and conditions specified in this document for all applicable claims.

### Warranty Inclusions

**Standard System Componentry:** Compressor, evaporator coil, heat exchanger and refrigeration system are covered for parts and for labour for a period of 24 months after purchase from Hot Water Heat Pumps Ltd.

**Titanium Tube within Heat Exchanger:** The titanium tube within the Heat Exchanger (HX) is covered against corrosion for an additional period of 8 years in residential applications. The HX warranty is Back-to-Base where delivery to and collection of your HX from our premises is your responsibility. Hot Water Heat Pumps Ltd is not liable for any non-factory labour involved in the removal of defective HX or installation of the replacement, unless it is pre-approved.

*This warranty is applicable to New Zealand. For overseas warranty, please refer to International Equipment Warranty.*



## Warranty Registration

To be able to claim this warranty, the owner must send a COMPLETED “Warranty Registration Installation Declaration” supplied with the product within 4 weeks of installation to:

- Address: Hot Water Heat Pumps Ltd, PO Box 21586 Henderson, Auckland 0650.
- OR email: [info@waterheating.co.nz](mailto:info@waterheating.co.nz)

## Warranty Terms

1. The ThermoPlus Heat Pump must be installed and certified by licensed and qualified installers according to instructions in the manual and all relevant local requirements.
2. The warranty only applies to ThermoPlus Heat Pump components supplied by Hot Water Heat Pumps Ltd. Other parts supplied by the installers are not covered by this warranty.
3. The ThermoPlus Heat Pump must only be used for the intended water heating purpose.
4. The decision to repair or replace any components in the ThermoPlus Heat Pump will be entirely at the discretion of technicians authorised by Hot Water Heat Pumps Ltd.
5. After any parts or heat pump replacement, the balance of the original warranty period will remain effective. The replaced parts or heat pump does not have a new warranty.
6. Travelling costs for repairs over one hour's/50km drive from the service agent's designated place of business shall be the owner's responsibility.
7. Equipment must be adequately protected from the elements or damage from other outside sources.
8. Equipment must have adequate access. If the unit is installed in a position that is unsafe and difficult to access, the cost to relocate the ThermoPlus Heat Pump shall be the owner's responsibility.
9. The warranty does not cover aesthetic defects such as minor dents, scratches, and minor rust after the installation.
10. The warranty does not cover consequential losses arising from the failure of the ThermoPlus Heat Pump.
11. Attention is drawn to providing adequate ventilation to this unit. Failure to observe this requirement could cause air flow restriction which would make this warranty void.
12. Consumables such as sensors, flow switches and capacitors are covered for 24 months.
13. An annual service is required for warranty.
14. Flow switch should be replaced every two years.
15. This warranty service is only applicable to the original owner of the ThermoPlus Heat Pump.

## Warranty Exclusions

This warranty does not apply to defects, failures and damages caused by:

- misuse, neglect, vandalism, accidents, flood, fire or acts of God;
- faulty installation that deviates from the standards and local requirements;
- harsh environmental conditions such as salty, sulphurous and corrosive air;
- hard or corrosive water;
- blockages due to foreign materials such as dust or debris;
- parts that are not supplied by Hot Water Heat Pumps Ltd;
- attempts to repair the ThermoPlus Heat Pump by a person not authorised by Hot Water Heat Pumps Ltd;
- faulty plumbing that caused problems such as high-water pressures and blockages
- faulty electrical supply with bad wiring that caused problems such as voltage fluctuations and power surges;
- external plumbing issues;
- poor maintenance such as blocked pressure relief valves;
- and other issues not directly attributed to defects in the ThermoPlus Heat Pump.

The owner will be liable for any repair and replacement costs required by the Performance Plus Heat Pump if the damages are caused by the events listed in this section.

# Warranty Registration Installation Declaration

Installer to complete for customer warranty record

Owner's Name

Product Serial Number

Installation Date

Installation Address

**Declaration:** I have installed and commissioned this Performance Plus Heat Pump at the above address in compliance with the manufacturer's instruction manual.

COC Number

Installer Company Name/Trading Name

Installer Name

Installer Email Address

Signed

Date

Secondary Installer Company Name/Trading Name

Secondary Installer Name (Electrician or Plumber)

Secondary Installer Email Address

Signed

Date

0800 33 66 33 • [www.waterheating.co.nz](http://www.waterheating.co.nz) • [info@waterheating.co.nz](mailto:info@waterheating.co.nz)

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