WATERCO POOL HEAT PUMP



Installation and Operation Manual





This equipment must be installed and serviced by a qualified technician. Improper installation can create electrical hazards which could result in property damage, serious injury or death. Improper installation will void the warranty.



Notice to Installer

This manual contains important information about the installation, operation and safe use of this product. Once the product has been installed this manual must be given to the owner/operator of this equipment.

OFFICES - AUSTRALIA

NSW - SYDNEY HEAD OFFICE

Tel: +61 2 9898 8686

VIC/TAS - MELBOURNE Tel: +61 3 9764 1211

WA - PERTH

Tel: +61 8 9273 1900

QLD - BRISBANE

Tel: +61 7 3299 9900

SA/NT - ADELAIDE Tel : +61 8 8244 6000

ACT DISTRIBUTOR Tel: +61 2 6280 6476

OFFICES - OVERSEAS

WATERCO (EUROPE) LIMITED SITTINGBOURNE, KENT, UK TEL: +44 (0) 1795 521 733

WATERCO USA AUGUSTA, USA

TEL: +1 706 793 7291

WATERCO CANADA

BOUCHERVILLE, QUEBEC, CANADA

TEL: +1 450 748 1421

WATERCO (NZ) LIMITED AUCKLAND, NEW ZEALAND

TEL: +64 9 525 7570

WATERCO (C) LIMITED GUANGZHOU. CHINA

TEL: +8620 3222 2180

WATERCO (FAR EAST) SDN BHD

SELANGOR, MALAYSIA

TEL: +60 3 6145 6000

PT WATERCO INDONESIA JAKARTA, INDONESIA

TEL: +62 21 4585 1481

WATERCO SINGAPORE INTL PTE LTD

MIDVIEW CITY, SINGAPORE

TEL: +65 6344 2378

WATERCO VIETNAM COMPANY LIMITED

HO CHI MINH CITY, VIETNAM

TEL: +84 28 3622 7780







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IMPORTANT SAFETY INSTRUCTIONS

When using this electrical equipment, basic safety precautions should always be followed, including the following:

READ AND FOLLOW ALL INSTRUCTIONS

- ! WARNING: Disconnect all AC power during installation and servicing.
- ! WARNING: In order to avoid the possibility of hyperthermia (heat stress) occurring it is recommended the average temperature of the spa pool water does not exceed 40°C / 104°F.
- ! WARNING: The pool heat pump is not intended for use by persons (including children) with reduced physical sensory or mental capabilities, or lack of experience and knowledge, unless they have been provided supervision or instruction concerning use of the appliance by a person responsible for their safety. Children should be supervised to ensure they do not play with the appliance.
- In certain situations unexpected start up may occur when the appliance is in automatic
 mode.
- The installer should assess the risk associated with unexpected start-up of this device which, in any circumstance should have no hazardous effect.
- The pool heat pump is not meant to provide safety protection for other devices.
- The pool heat pump should be deactivated if the pool or spa has been drained.
- Waterco pool heat pumps must be installed by a suitably qualified person in accordance with current Regulatory Standards, the applicable Wiring Rules (AS3000) and local statutory authority regulations.
- Parts containing live parts, except parts supplied with safety extra-low voltage not exceeding 12V, must be inaccessible to a person in the spa pool.
- Parts incorporating electrical components, except remote control devices, must be located or fixed so that they cannot fall into the spa - pool.
- The appliance should be supplied through a residual current device (RCD) having a rated residual operating current not exceeding 30mA.
- An Earth terminal is located inside the wiring enclosure. To reduce the risk of electric shock, this terminal must be connected to the grounding means provided in the electric supply service panel with a continuous copper wire as sized to comply with current Standards and local statutory authorities in relation to the circuit conductors supplying the equipment.
- A cable connector is provided on this unit to connect a suitably sized copper conductor between this unit and any metal equipment, metal enclosures of electrical equipment, metal water pipe, or conduit within 1.5m of the unit via equipotential bonding.

SAVE THESE INSTRUCTIONS.

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A NOTE TO YOU

Congratulations!

Thank you for choosing a Waterco Electroheat ECO-VS inverter heat pump to heat your pool.

Using the latest technology in heat capture, the Waterco pool heat pump converts the energy released by the sun and transfers it efficiently to your swimming pool.

During certain periods it may be necessary to operate your pool heat pump continuously during the day in cooler periods however, this should not be of concern as your Waterco pool heat pump can heat up your pool approximately 80% more economically than the fossil fuel heating or heaters with electric elements. Waterco pool heat pumps are designed specifically to heat or cool your swimming pool economically.

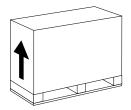
To appreciate the benefits this product will bring you, make sure to operate the unit when the atmospheric conditions specified in this document are present in addition of using a solar blanket to minimize heat loss which will influence operating costs and size of the unit required. Pools not covered with a solar blanket lose 2 to 3 times more heat, regardless of types of heating!

This manual applied to the following models:

Code	Description	Model
27817076	ELECTROHEAT ECO - V 17KW	AXCR17VWAT
27821076	ELECTROHEAT ECO - V 21KW	AXCR21VWAT
27826076	ELECTROHEAT ECO - V 26KW	AXCR26VWAT

Transportation and Storage

1. The heat pump MUST be transported and stored VERTICALLY!



The heat pump is supplied mounted to a pallet. Once transported to site, remove the screws securing the pallet to the unit to install on the prepared slab / brackets.

Record your model's information.

Keep this manual and your original proof of purchase receipt for warranty and future reference.

On the base of your pool heat pump is a name plate which contains information such as model number, serial number and electrical information.

Please write these down below and have them handy incase of a service call request.

Model Number	
Serial Number	
Purchase Date	
Dealer Name	
Dealer Address	
Dealer Phone	

To find detailed product information, the location of the nearest dealer or to register your pool heat pump please visit our website www.waterco.com and select your location.

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INSTALLATION INSTRUCTIONS

Location

To gain maximum efficiency for your pool heat pump please follow all instructions when "positioning the unit". It is also important to allow clearances for future service and maintenance procedures.

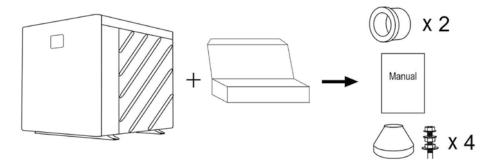
The unit is designed for <u>outdoor installation</u> and should not be installed in a totally enclosed area such as a shed, garage, etc., unless ducted and fan assisted ventilation of the cold exhaust air is provided to ensure adequate air exchange for correct operation.

The unit should be located as close as practically possible to the existing pool pump and filter to minimize water piping. The use of 90 degree bends and short radius elbows in the water piping should be kept to a minimum.

Mount the unit on a sturdy base, preferably a concrete slab. The base should be completely isolated from the building foundation or wall to prevent the possibility of sound or vibration transmission into the building. The size of the base should not be less than the base mounting feet dimensions of the pool heat pump.

LOCATING THE INSTALLATION ACCESSORIES

After unpacking, please check if you have all the following components.



Notice:

Please install the water unions step by step.







Recommended Clearances

Air is pulled through the evaporator coil at the rear of the unit and discharged from the top fan grill vertically. Clearances must be allowed in above and around the unit for unrestricted air discharge and service access. See Figure 1. Failure to comply to the set clearances may cause diminished unit performance and reduce unit longevity.

The unit shall be sited in a well ventilated area in order to avoid trapped cold discharge air. Re-circulation of cold discharged air back into the evaporator coil should be avoided and will greatly reduce unit's heating capacity and efficiency.

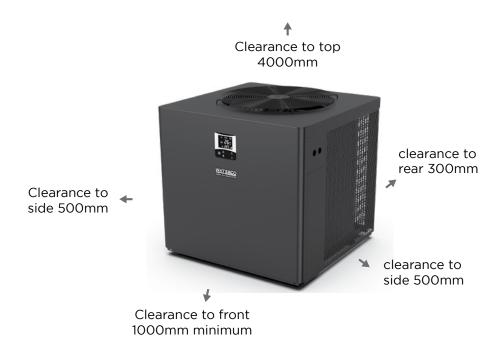
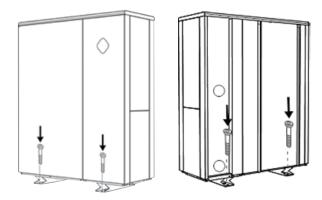


Figure 1. Manufacturers installation clearance guidelines

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Installation

1. The frame must be fixed by bolts (M10) to concrete foundation or brackets (as shown in picture). The concrete foundation must be solid and fastened; the bracket must be strong enough and antirust treated;



- 2. Please don't stack substances that will block air flow near inlet or outlet area, and there is no barrier behind the machine, or it will affect the efficiency of the heat pump and even stop the machine;
- 3. When the machine is running, there will be condensation water discharged from the drain pipe on the underside of the unit. Please connect a pipe to drainage hole to drain the condensation water away from the unit.

Water Piping

The supplied plumbing layout must be followed without exception:

- 1. pool pump
- 2. filter
- 3. pool heat pump
- 4. chlorinator (when installed).

Rigid PVC piping is recommended with all joints primed and glued with a suitable PVC adhesive cement. If rigid PVC pipe is not available, a suitable flexible hose of adequate diameter may be utilised with stainless steel clamps. When the piping installation is complete, operate the pool pump and check the system for leaks. Then check the filter pressure gauge to see that excessive pump head pressure is not indicated.

Water Flow Rate

The recommended water flow rate range varies depending on the size of the heat pump to ensure maximum heat transfer efficiency. The optimal flow rate is the mid point of this range. Use the bypass valve to adjust the flow rate to within the recommended range. See Performance Specifications table page 17. The water temperature rise through the unit ideally should be between 2 - 3 degrees °C which will vary dependent on the ambient air temperature.

Water By-pass Kit

A bypass kit consisting of 3 X two way valves must be installed for adjustment of water flow and ease of service. Waterco offer prefabricated water bypass kits to fit their heat pump domestic range. Ask your local Waterco sales office for details.



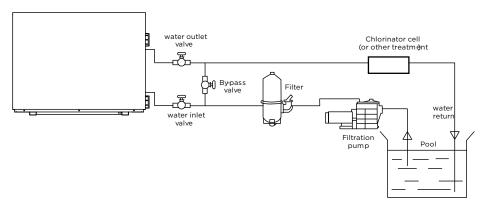
Code	Description	Bypass Code	Outlet Centres	Size
27817076	ELECTROHEAT ECO V TV 17KW	69051368	350mm	40mm
27821076	ELECTROHEAT ECO V TV 21KW	69051371	390mm	40mm
27826076	ELECTROHEAT ECO - V TV 26KW	69051374	440mm	40mm

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Plumbing Diagram

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HEAT PUMP



- 1. A check valve or a loop MUST be installed between the pool heat pump and any automatic chlorinator to prevent highly chlorine concentrated water from flowing back to the pool heat pump when the pool pump is not running.
- 2. These units are fitted with a flow switch which are not effected by water pressure. Therefore, the fitment of a flow check valve due to the installed height either above or below water level is not required.
- 3. For units installed above the pool water level the return water to the pool valve on the bypass valve set should be closed approximately 15-20% to ensure the heat exchanger is completely full of water to allow heat transfer to occur.

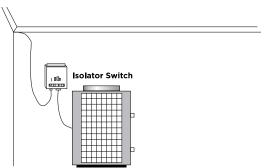


Electrical

All electrical work should be performed by a fully qualified and licensed electrician in accordance with local electrical codes.

An adequate circuit breaker and copper wiring must be used. Electrical requirements are available on the name plate of the pool heat pump. It may be necessary to install an earth leakage circuit breaker.

Waterco recommend connecting the unit to an isolating switch to allow ease of service and maintenance.



! WARNING THE POOL HEAT PUMP MUST BE DISCONNECTED BEFORE **OPENING THE ACCESS PANEL.**

Electrical Connection

Standard 60 Hz power supply : 230 / 240V - single phase Standard 50 Hz power supply : 230 / 240V - single phase

Breaker Size

Please consult name plate on the base or the side of your pool heat pump for starting amperage and required breaker size.

Electrical Wire Size

Please consult a qualified and licensed electrician.

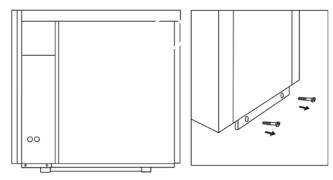
! WARNING The power cable ground must be connected to the electrical panel and to the ground lug of the pool heat pump. An improper installation may be a potential cause of fire, electrical shock or injury.

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Pool Heat Pump

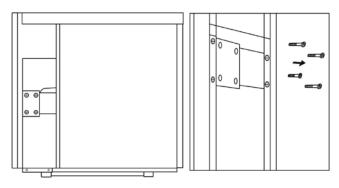
How to connect to the terminal board

1. Connecting your power wire a.

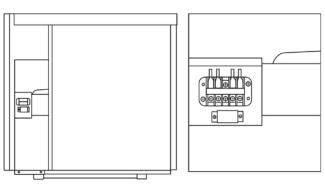
Remove the two screws in the bottom of right-side panel and take away side panel.



b. Remove the 4 screws and take off the cover of terminal box.



c. Find the terminal plate and connect the wire of power supply according to electric wiring diagram.

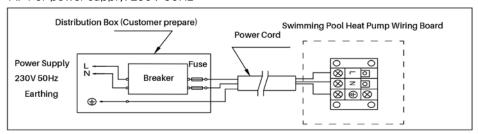


Electrical Wiring Diagram

	Nominal Output		MODEL	
		AXCR17VWAT	AXCR21VWAT	AXCR26VWAT
	Rated Current (A)	19.0	22.5	25.5
Breaker	Rated Residual Action Current Device (mA)	30	30	30
Min. Fuse (A)		16	16	16
Power Cord (mm²)		19	22.5	25.5
Signal Cable (mm²)		3 x 4	3 x 4	3 x 4
Maximum Current (A)		3 x 0.5	3 x 0.5	3 x 0.5

Note: The above data is adapted to power cord ≤10m, wire daimeter must be increased. The signal cable can be extended to 50m at most.

A. For power supply: 230V 50Hz



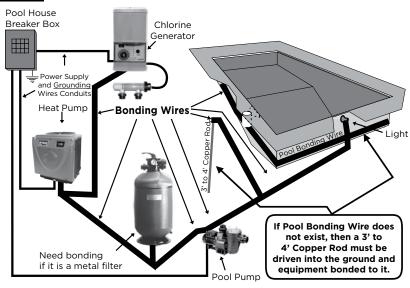
Note:

- The wiring circuit: please make sure that the leakage protection switch has been installed.
- If the machine itself does not come with a plug power cord, you must use the hard-wired way to connect the power supply, not allowed to connect plugs.
- If the machine itself comes with a plug, please make sure that the plug and socket with good waterproof measures.
- For your safe use in winter, it's strongly recommended to equip heating priority function.
- For the detailed wiring diagram, please refer to Appendix 1.

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Pool Heat Pump

Bonding Diagram

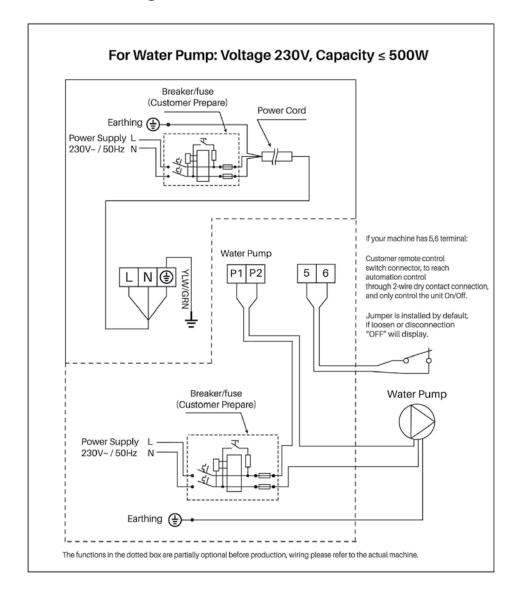
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Remote Control Connections

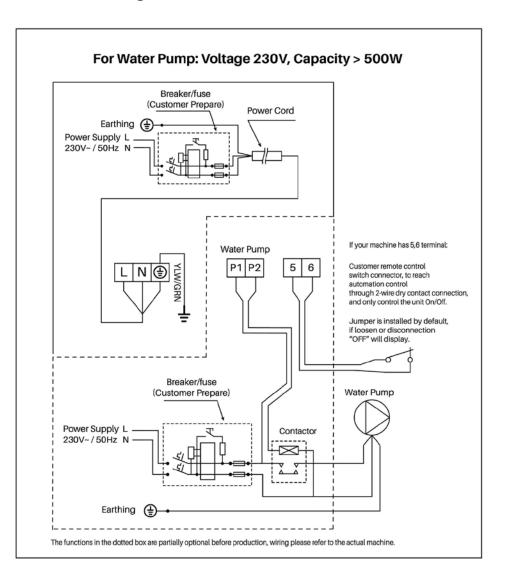
- 1. Switch off power to heat pump at main circuit breaker panel/isolator.
- 2. Remove the top cover of the unit to reveal the electrical terminal compartment cover.
- 3. Locate terminals marked 5 & 6. Take the two wires from the external automation system heater contact and connect. One wire into terminal 5 and one wire into terminal 6.
- 4. Via the terminals P1 & P2, the heat pump may control a contactor which can switch a pump to provide water flow to the unit. The the water pump should be supplied with it's own power circuit and be wired as per the wiring diagram opposite.

Electrical wiring schematic



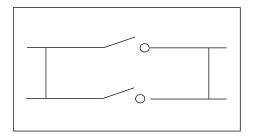
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Electrical wiring schematic



Water pump control and timer connection

1: Water pump timer



2: Water pump wiring of Heat Pump

Note: The installer should connect 1 parallel with 2 (as above picture). To start the water pump, condition 1 or 2 is connected. To stop the water pump, both 1 and 2 should be disconnected.

Usage Of Chemical Products

When adding chemicals to your pool or spa, follow the manufacturers guidelines for application and dosing levels.

Allowing high concentrations of chemicals through the heater should be avoided. Resultant damage may be inflicted on the heater.

Water quality standards that must be strictly adhered to*:

DESCRIPTION	NORMAL RANGE*	VERIFY	
PH Level	7.2 - 7.6	1 per week	
Chlorine Concentration	2 - 5 PPM	1 per 2-3 days	
Total Alkalinity	80 - 150 PPM	1 per 2-3 weeks	
Total Dissolved Solids	Below 1500 PPM Reg Pool Below 7500PPM Salt Pool	1 per month 1 per month	
Calcium Hardness	200 - 300 PPM	1 per month	
Salt Level	4000 - 6000 PPM		

^{*} Warranty can be voided if not maintained within these ranges.

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Performance Specifications

Model	17kW	21kW	26kW
Performance Condition: Air 26°C / 80°F, Water 26°C / 80°F, Humidity 80%			
Heating capacity (kW) in Turbo mode	17.2	21.0	26.0
Heating capacity (kW) in Smart mode	14.0	17.5	22.0
C.O.P in Smart mode	7.8	7.3	7.8
C.O.P	16.6~6.5	15.5~6.3	14.9~6.8
C.O.P at 50% capacity	11.7	11.6	11.3
Performance Condition: Air 15°C / 59°F, Water 26°C / 80°F, Humidity 70%			
Heating capacity (kW) in Turbo mode	11.6	14.3	17.5
Heating capacity (kW) in Smart mode	9.8	11.6	14.5
C.O.P in Smart mode	4.9	4.9	5.0
C.O.P	7.8~4.5	7.4~4.4	7.3~4.8
C.O.P at 50% capacity	6.7	6.8	6.3
Performance Condition: Air 35°C / 95°F, Water 28°C / 82°F, Humidity 80%			
Cooling capacity (kW)	7.1	8.2	12.0
Working air temp (°C / °F)	-15	5 ~ 43 / 5 ~ 10	09
Sound pressure at 1m dB(A)	42.2~48.6	43.1 ~52.1	41.0~52.9
Sound pressure of 50% capacity at 1m dB(A)	44.3	45.2	45.3
Sound pressure at 10m dB(A)	22.2~28.6	23.1 ~32.1	21.0~32.9
Power supply	230 - 24	40V /1 Ph / 5	OHz AC
Rated input power (kW) at air 15°C / 59°F	0.26~2.51	0.33~3.08	0.42~3.67
Rated input current (A) at air 15°C / 59°F	1.14~10.9	1.43~13.4	1.82~15.9
Advised water flow (LPM)	70~100	110~140	135~170
Water pipe in-out Spec (mm)	40mm SLIP		
Net Dimension W x L x H (mm)	775×710 ×668	775×710 ×668	775×710 ×743
Refrigerant charge R32 (g)	71	78	102
Advised water flux LPM	1000	1200	2000

Operating conditions and range

Modes		Strength
Operating range	Air temp	-15°C~43°C / 5°F~109°F
Town setting	Heating	18°C~40°C / 64°F~104°F
Temp. setting	Cooling	6°C~30°C / 43°F~86°F

The heat pump will have ideal performance in the operation range Air $15^{\circ}\text{C}-25^{\circ}\text{C}$ / $59^{\circ}\text{F}-77^{\circ}\text{F}$.

Introduction of different modes

The heat pump has three modes: Turbo, Smart and Silence. They have different advantages under different conditions.

Mode	Modes	Strength
11	Turbo mode	Heating capacity: 120%-20% Fast heating
11	Smart mode	Heating capacity:100%-20% Intelligent optimisation according to ambient temperature and water temperature Energy efficiently saving
1	Silence mode	Heating capacity: 60%-20% Use at night

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OPERATION OF YOUR POOL HEAT PUMP

Initial Heating

To achieve initial heating, your pool heat pump and the pool pump may require extended operation until desired temperature is achieved. The initial heating time may vary depending upon the five factors listed below. After initial heating, operating time may be reduced to match daily heat loss.

- 1. Size of the pool.
- 2. How many degrees the water is to be heated.
- 3. Ambient air temperature the warmer the air, the less time required to heat.
- 4. Use of a solar blanket.
- 5. The size of the pool heat pump.

If a combination of the atmospheric and water temperatures are below the minimum listed concurrently the pool heat pump should not be operated and be switched off.

Generally, atmospheric conditions (air temperature) will be warmer during day time hours. To accelerate the initial heating period owners may opt to increase the ambient air temperature artificially around the evaporator area of the pool heat pump until the pool water temperature has reached the minimum required as stated below.

Model	Atmospheric conditions must be above	Pool water temperature must be above
Electroheat ECO-V	0°C / 32°F	10°C / 50°F

Adjustment Of The Bypass Valves

Waterco ECO-V pool heat pumps do not require the water by pass valves adjusted to cope with cooler water temperatures. In the event of low water temperatures, the ECO-V inverter pool heat pumps increase the operating frequency of the compressor which in turn increases the output capacity of the unit.

It is essential water flow through the unit is within the range specified in the Performance Specifications table on page 17. The bypass valve may be used to tune the water flow within range.

The adjustment may vary according to pool pump size.

Pool Heat Pump Running Time

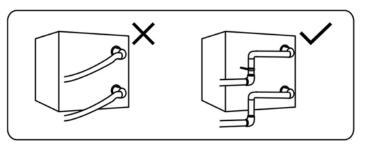
Most units should be sized to operate during the pool filtering cycle time of 8-10 daytime hours daily during warmer months and up to 8 hours daily during the daytime in winter months. On warmer days the pool heat pump will run less because the heat loss will be less.

IMPORTANT

Condensation

Your pool heat pump will accumulate condensed water (approx. 4 to 6 litres or 1 to 1.5 gallons per hour), therefore causing water to drain out of the unit base. In order to avoid water accumulation, you may use decorative rocks around the concrete slab or a basin under the unit. (Please note this is a normal characteristic of a pool heat pump and not a service or warranty issue.)

The inlet and outlet water unions can't stand the weight of soft pipes. The heat pump must be connected by rigid PVC pipes!



Pool Solar Blanket

A pool solar blanket should be used whenever possible. Blankets minimize heat loss through evaporation and conserve heat in your pool. Un-blanketed pool can lose 2-3 times more heat than a blanketed pool.

Defrost Cycle

When any of the following conditions occur the electronic control of your unit will activate a defrost mode until most of the frost from the evaporator has melted. Condensation of water on the evaporator coil tends to frost up quicker when the following occur.

- 1. When atmospheric conditions are as stated above;
- 2. When the evaporator is dirty;
- 3. When installation clearances are not respected.

Defrost is activated for between 3 to 20 minutes.

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Operation Guide

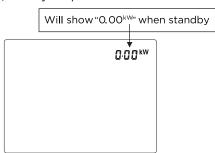


Symbol	Heating & Cooling Modes	Function
ப	ON/OFF	Power On/Off Wi-Fi setting
	Unlock	 Press it for 3 seconds to unlock lock screen After screen is unlocked, press it to select mode. Auto 6-40°C / 43°F-104°F Heating 18-40°C / 64°F-104°F Cooling 6-30°C / 43°F-86°F
4	Speed	Select Turbo/Smart/Silence mode
+_	Up / Down	Temperature Setting

Note: Button will be light all the time when power is on.

1 Standby screen display:

When the screen is locked, the key lamp will be off.



2 Screen lock:

- a. If there is no operation in 30 seconds, screen will be locked.
- b. When HP is off, screen will be dark and "0%" or "0.00kW" will be displayed.
- c. Press for 3 seconds to lock screen.

3 Screen unlock:

- a. Press far for 3 seconds to unlock screen and it will be light up.
- b. Once the screen is unlocked, the buttons will be activated for use.



₩-	Heating mode	
***	Cooling mode	
\triangle	Auto mode	
Ø8 0%	Heating capacity percentage	
0.58 kW	Real-time power consumption display	
?	Wi-Fi connection	
→	Water inlet	
G	Water outlet	

- 1. Power On: Press for 3 seconds to light up screen, then press (1) to power on heat pump.
- 2. Adjust Set Temperature: When screen is unlocked, press $lue{+}$ or $lue{-}$ to display or adjust the set temperature.
- 3. Switching of real-time power consumption and heating capacity percentage display: Press on and 5 seconds to switch between real-time power consumption display and heating capacity percentage display. (Real-time power consumption function available for single-phase only.)

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4. Mode Selection: Press (a) to select mode.

Auto \bigcirc : adjustable temperature range 6-40°C / 43°F-104°F Heating $- \bigcirc$: adjustable temperature range 18-40°C / 64°F-104°F Cooling #: adjustable temperature range 6-30°C / 43°F-86°F

5. Turbo/Smart/Silence mode selection:

- a) Smart mode as default will be activated when heat pump is on, and screen shows
- b) Press + to enter Turbo mode, and screen + shows, then + press to enter Silence mode, the screen shows +. Press + again, the screen shows + and return to Smart mode.

Attention!

- Turbo Mode can only be used when heating. When using the Turbo mode, you should select it every time, the machine will not automatically enter Turbo mode.
- b) When in Turbo mode, the machine reaches the set temperature, it will automatically return to smart mode.

6. Defrosting:

- a) Auto Defrosting: When heat pump is defrosting, 🔆 will flash. After defrosting-🌣 , will stop flashing.
- b) Compulsory Defrosting: When heat pump is heating, press * and together for 5 seconds to start compulsory defrosting, and will be flashing. After defrosting, will stop flashing.

(Note: Compulsory defrosting intervals should be more than 30 minutes and the compressor should run for more than 10 minutes at heating mode.)

7. Temperature display conversion between °C and °F:

Press " + " and " - " together for 5 seconds to switch between °C and °F.

8. Wifi connection

Please kindly scan below QR code for Wi-Fi connection. setup instructions.



Go to the Google Play store for android and App Store for Apple devices to download the app "INVERTER LIFE" AND follow the set up instructions.

Advanced application

Parameter Checking

- a) Press and together for 5 seconds to enter "Parameter Checking" status, the parameter code "PO" and the parameter value "O" will display on the screen, such as "POO", which means water pump running way is continuous.
- b) In "Parameter Checking" status, press + or to check the parameters.

Parameter Checking

In "Parameter Checking" status, press \P to enter the "Parameter Modification" mode, press \P or — to change the values, then press \P to confirm and quit "Parameter Modification" mode, press (I) to quit "Parameter Checking" status.

Parameter list

No.		Adjust range	Step length
PO	Water Pump Running Mode	0: Continuous 1: Water temp control 2: Time/water temp control	1
P1	Time Setting (Only available when the water pump mode defrost is set to "2"	10 ~ 120 min	5 min
P2	Compressor Continuously Running Time between Defrost Mode	30 ~ 90 min	1 min
Р3	Defrosting Entry Temp	-17~0°C / 1~32°F	1°C /1°F
P4	Maximum Defrosting Running Time	1 ~ 12 min	1 min
P5	Defrosting Exit Temp	8~30°C /46~86°F	1°C /1°F

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Running status checking

Press \P for 5 seconds, enter into "Running status checking", and the screen alternately shows status point "CO" and its corresponding value. Check all status points and their corresponding value through \P or \P , Press \P to quit "running status checking" mode.

Parameter list

Symbol	Content			
CO	Inlet water temp	°C		
C1	Outlet water temp	°C		
C2	Ambient temp	°C		
С3	Exhaust gas temp	°C		
C4	4 Outer coil pipe temp. (Evaporator)			
C5	Gas return temp.			
C6	Inner coil pipe temp. (Titanium heat exchanger)	°C		
C9	Cooling plate temp.	°C		
C10	Electronic expansion valve opening	Р		
C11	DC fan speed	r/min		

MAINTENANCE OF YOUR POOL HEAT PUMP

Waterco pool heat pumps have been specifically engineered to give you years of satisfaction and enjoyment in the pool.

Cabinet Cleaning

To clean the plastic and painted surfaces use mild soapy water and a soft clean cloth. Never use solvents or abrasives.

Cleaning Evaporator

The evaporator at the rear of the unit must be kept clean and un-obstructed in order for your pool heat pump to have better efficiency and avoid problems which may void your warranty. The dirt collected in the evaporator can be removed with a gentle water spray and the use of a soft brush. Be careful not to damage the aluminum fins.

Cleaning drainage holes

The condensate drainage holes in the base of the unit must be kept free of debris. Blocked drainage holes may cause water to collect in the unit and become stagnant or, interfere with electrical components and wiring.

Issues caused by blocked drainage holes in the base of the unit are not covered under warranty.

Units Located In Coastal Locations

Care and maintenance procedures for Waterco Pool Heat Pumps installed in coastal locations.

Exposure to salt may result in evaporator coil damage shortening the life of the equipment.

Electroheat ECO-V pool heat pumps are fitted with evaporators treated with hydrophilic blue fin technology. The advantages are:

The epoxy coating on the coils prevents accumulation of salt, acid, dust and water deposits which minimises the effects of corrosion.

Hydrophilic blue fin condensers do not allow water droplets to accumulate which can increase the efficiency of the pool heat pump.

Pool heat pumps located within 1 kilometre from the coast should be given a monthly rinse with potable water straight from the garden hose connected to the municipal water system to remove the salt build up on the evaporator coil and exposed metal surfaces.

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Winterising Procedure

▲ VITAL

If the pool heat pump is stored in a place where the temperature drops below the freezing point of 0°C / 32°F; it is mandatory that the water accumulated in the pool heat pump be drained completely before freezing weather prevails. Improper winterising may damage the pool heat pump and will void the warranty.

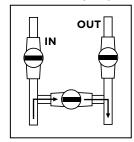
- Turn the pool heat pump "OFF".
- Turn the pool heat pump breaker "OFF".
- The water piping <u>MUST</u> be disconnected to drain the pool heat pump's heat exchanger in preparation for winter.
- Once the piping is disconnected, the pool heat pump's heat exchanger <u>MUST</u> be emptied; the use of a water vacuum cleaner is strongly recommended or if you do not have this tool you may tilt the unit (75°) until all the water is out.
- It is recommended that pool heat pump's heat exchanger is rinsed out with a
 gentle water spray at the inlet and outlet water connections of the pool heat pump
 and then drain the heat exchanger again.
- With the help of 2 pool return winter plugs, block the water Inlet and Outlet connections to prevent access by vermin.
- Clean the drainage holes located at the bottom of the base of the unit.
- · Unit may be covered for the winter.
- It is also possible to fill the heat exchanger with pool anti-freeze, but ensure that
 the antifreeze contains an elevated pH to prevent corrosion. This is optional and
 requires appropriate hardware.

GENERAL SAFETY INSTRUCTIONS

DO NOT DEPRIVE YOUR POOL HEAT PUMP OF WATER FLOW FOR MORE THAN 24 HOURS WITHOUT DRAINING IT. Make sure you leave the bypass valves as shown in Figure 1.

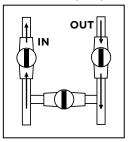
At the end of each season, when the pool heat pump is no longer in use, and proper pool water chemistry is not maintained, it should be disconnected from the water line and drained to prevent any possible corrosion or damage to the pool heat pump. Refer to Figure 1 below or winterising procedure (page 32).

Pool heat pump



When your valves position are as shown on Figure 1, the water is bypassing the pool heat pump.

Pool heat pump



When your valves position are as shown on Figure 2, the water is going through the pool heat pump.

Figure 1 Figure 2

The valves shown above may be different to the ones installed on your system.

Please ensure you understand how your bypass valve operates.

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TROUBLESHOOTING

Please ensure the unit and any related equipment is installed in accordance with the installation manual. If not, the Waterco warranty will not apply and the customer may be liable for service call charges.

Nothing Is Working And The Electronic Control Does Not Operate

- 1. Ensure the circuit-breaker has not tripped and/or the fuses have not blown;
 - **Take note that only an electrician can verify if the circuit breaker is defective; if this is the case, repairs will not be covered under the warranty.
- 2. For three phase models, this situation could occur when phases are not in the appropriate order.

Please have a qualified electrician swap over two of the incoming phase wires.

Nothing Is Working But The Electronic Control Temperature Displays Digits Or A Code

- Identify the analyser code that the electronic control displays and refer to the Service Analyser codes section;
- If the electronic control displays digits, make sure that the electronic control is programmed correctly, refer to the Operation of your pool heat pump and reprogram if necessary.

**Note that this situation could occur when the electrical voltage is not respected as stated on the pool heat pump name plate. This situation is not covered by the manufacturer warranty.

Fan Doesn't Work (the fan blades are not moving)

- 1. IMPORTANT: For safety, switch OFF the circuit-breaker.
- Try to rotate the fan blades of the fan with a rod to see if the motor is jammed or seized
- 3. If the fan blades do not turn freely leave the unit switched OFF and call for service;
- 4. If the fan blades turn freely switch ON the circuit breaker and the pool heat pump again.
 - ** Note that your fan motor may have an electrical fault if the blades turn freely when the unit is switched OFF and does not start when the unit is switched ON.

Fan Blades Turn, But Compressor Is Not Functioning

The pool heat pump has a built in delay timer which prevents the compressor from starting immediately. The delay can be 3 to 5 minutes in duration after the fan blades have turned. Furthermore if the unit is in defrost mode the compressor will not start for 3 to 20 minutes.

- Check that air being discharged from the fan blades is colder than the ambient air.
 If the air being discharged by the fan blades is colder, it means that the compressor is functioning correctly.
- 2. Turn off the pool heat pump then immediately turn it back on;
- 3. As soon as the fan blades start turning, wait a minimum of 3-5 minutes. The compressor should start up after this time and you will be able to identify a different sound made by the compressor when it starts;
- 4. If the compressor is functioning, but shuts off immediately, consult the following section "Compressor Starts and Stops".
- 5. If the problem persists, call your local Waterco office for assistance.

Compressor Starts And Stops

- 1. Check that the unit has been installed correctly (refer to installation procedures).
- 2. Check that the water inlet and outlet of the unit have not been connected incorrectly.

There Is Water Around The Pool Heat Pump

It is a normal occurrence for water condensation, to be seen running from the unit base. There will be on average 4 to 6 litres of condensed water per hour being discharged from the unit base. In order to avoid water accumulation, you may use decorative rocks around the concrete slab or a basin under the unit. Be sure that clearances around the unit are respected.

To test the unit and confirm you have no pool water leaking from the unit perform the following test which is best performed early in the morning and continuing for the whole day:

- 1. Turn off the pool heat pump from the circuit breaker and the pool pump.
- 2. Open the bypass valve. (refer to drawing on page 5)
- 3. Close the IN and OUT water valves on the unit.
- 4. Restart the pool pump. The pool heat pump must remain **OFF.**
- 5. When all of the water around the base of the pool heat pump has dried, open the water **IN** and water **OUT** valves on the pool heat pump.
- 6. Close the bypass valve to allow full water flow through the pool heat pump.

If water is now seen running from the outside of the pool heat pump or inside the pool heat pump after a short period of time you should call for service. If no water is seen after a short period of time it would be assumed the water was condensation which is normal.

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Pool Heat Pump Has Ice Formed On The Evaporator Coil

- 1. **IMPORTANT:** For safety, switch OFF the circuit-breaker.
- 2. Allow the ice to melt and then inspect the evaporator to ensure it is free of debris and leaves.
- 3. If the evaporator is dusty or dirty, clean it with a light spray of water and allow it to dry (do not use high pressure it may damage the evaporator fins).
- 4. When the unit is dry, you may switch it back ON from the circuit breaker.
- 5. Ensure that the clearances around the unit are respected.
- 6. When the unit has been switched ON ensure the fan motor is working (fan blades will be turning) while the compressor is operating.
- 7. If the fan blade does not turn and the compressor is functioning; notify customer service.

**If the pool heat pump requires service, the owner of the pool heat pump will need to ensure the unit has been switched OFF to allow any ice to melt prior to any technician attending.

Pool Heat Pump Is Functioning, But Does Not Reach The Desired Temperature Setting

IMPORTANT

Improper installation may cause this situation and will need to be corrected by the owner.

- 1. Ensure the by-pass valves are in the correct positions to ensure sufficient water flow, insufficient water flow will cause the compressor to shut off early.
- 2. If you have installed a timer or the pool heat pump is equipped with an integrated timer, be sure it is programmed to allow the pool pump to work for sufficient time in order to reach the programmed temperature.
- 3. Ensure the evaporator is cleaned regularly with a light spray of water and allowed to dry before re-starting the pool heat pump to avoid premature ice build up on the evaporator.
- 4. Waterco recommend the use of a solar cover to retain heat in pool water. Pools without covers lose 2 to 3 times more heat than pools with solar covers.
- 5. Make sure the electronic control of your pool heat pump has been programmed correctly; during this test the pool heat pump and water pump must be working continuously (eg; the desired water temperature must be set correctly).
- 6. If the unit continually fails to reach the desired water temperature, the unit may be undersized due to geographic location, volume of pool, set temperature is higher than what the heat pump was sized at, the pool may be in a windy location which was not allowed for or the heat pump is being used in winter when it was sized for summer operation.

Circuit Breaker Trips

IMPORTANT

If you have purchased a remote control (or other equipment), ensure the equipment is correctly installed. If an operational issue originates from incorrect operation or installation of this equipment, Waterco's warranty will not apply and you will have to pay the cost of the service call.

- The amperage of the circuit breaker AND the electrical wiring must be as the instructions on the pool heat pump name plate, otherwise notify your installer or electrician to correct this problem, as this is not covered under the warranty.
- 2. If the circuit breaker and electrical wiring are as stated, make sure the drains, located under the base of the pool heat pump are not obstructed.

The Pool Heat Pump Is Noisy

- Check the pool heat pump is level and on a solid base to prevent any vibrations issues.
- 2. Ensure the noise is coming from the pool heat pump, not from other equipment which will not be covered by the warranty (for example: noise coming from the bypass valve, pool pump, etc);
- 3. An improper installation may cause this situation it will need to be corrected by the owner.

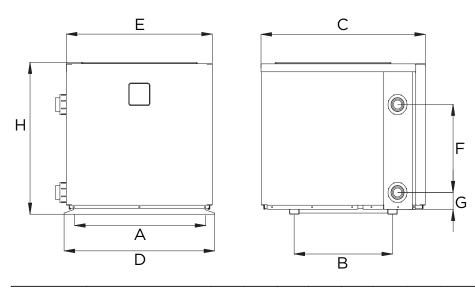
The Temperature Shown On Pool Heat Pump Is Not The Same That Is Shown By The Pool Thermometer

It is possible to have a temperature variation between the temperature shown on the electronic control temperature display of the pool heat pump and a pool thermometer which may be read from different locations.

- Check that there are no leaks on the pool plumbing (there should be no air leaks in the pipework);

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Dimension (mm)



Model	Description	А	В	С	D	Е	F	G	Н
AXCR17VWAT	Electroheat ECO V 17kW	685	463	775	710	688	350	75.5	668
AXCR21VWAT	Electroheat ECO V 21kW	685	463	775	710	688	390	75.5	668
AXCR26VWAT	Electroheat ECO V 26kW	685	463	775	710	688	440	75.5	743

^{*}Above data is subject to modification without notice

Note: Above swimming pool heat pump specification drawing is for installation reference only to technical staff. is subject to modification without notice

Failure solution and code

Failure	Reason	Solution		
	No power	Wait until the power recovers		
	Power switch is off	Switch on the power		
Heat pump doesn't run	Fuse burned	Check and change the fuse		
	The breaker is off	Check and turn on the breaker		
	evaporator blocked	Remove the obstacles		
Fan running but with insufficient heating	Air outlet blocked	Remove the obstacles		
	3 minutes start delay	Wait patiently		
Display normal, but no	Set temperature too low	Set to proper temperature		
heating	3 minutes start delay	Wait patiently		

If above solutions don't work, please contact your installer with detailed information and your model number. Don't try to repair it yourself.

ATTENTION! Please don't try to repair the heat pump by yourself to avoid any risk.

35 I Pool Heat Pump

Parameter table

Tap the mode key **to** enter.

No	Display	Protection code description
1	E3	No water protection
2	E5	Power supply excesses operation range
3	E6	Excessive temp difference between inlet and outlet water (Insufficient water flow protection)
4	Eb	Ambient temperature too high or too low protection
5	Ed	Anti-freezing reminder
6	OFF	Customer Control Switch DIN2 Disconnect
No	Display	Failure code description
1	E1	High pressure protection
2	E2	Low pressure protection
3	E4	Phases lack protection (three phase model only)
4	E7	Water outlet temp too high or too low protection
5	E8	High exhaust temp protection
6	EA	Evaporator overheat protection (only at cooling mode)
7	PO	Controller communication failure
8	P1	Water inlet temp sensor failure
9	P2	Water outlet temp sensor failure
10	P3	Gas exhaust temp sensor failure
11	P4	Heating (Evaporator) coil pipe temp sensor
12	P5	Gas return temp sensor failure
13	P6	Cooling (Titanium heat exchanger) coil pipe temp sensor
14	P7	Ambient temp sensor failure
15	P8	Cooling plate sensor failure
16	P9	Current sensor failure
17	PA	Restart memory failure
18	F1	Compressor drive module failure
19	F2	PFC module failure
20	F3	Compressor start failure
21	F4	Compressor running failure
22	F5	Inverter board over current protection
23	F6	Inverter board overheat protection
24	F7	Current protection
25	F8	Cooling plate overheat protection
26	F9	Fan motor failure
27	Fb	Capacitor no charging protection
28	FA	PFC module over current protection
29	8888	Communication failure

WARRANTY

- 1. Waterco's obligation to repair or replace at Waterco's option, shall be the original purchaser's sole and exclusive remedy under this warranty. Waterco shall not be liable for incidental, consequential or special damages arising out of or in connection with product use or performance.
- 2. Waterco is not responsible for direct or indirect damages resulting from defective components. This warranty gives you specific legal rights and you may also have other rights, which vary from state, province or country to another.
- 3. Prior to contacting Waterco for assistance or service, please check the "Troubleshooting" and the information stated in this section.
- 4. Warranty will only cover manufacturing defects. All service call requests which are not of this nature must be paid by the purchaser to the service company authorized by Waterco.
- 5. All services will be handled by the authorized service company. Warranty may be voided if service is not carried out by a Waterco authorised service agent.
- 6. **DO NOT** return the pool heat pump to your dealer as they do not provide the service work.
- 7. Prior to contacting Waterco for assistance or service, in order to qualify for a warranty claim, the original purchaser must have the model name and serial number along with a proof of the original purchase date. Proof of purchase must be forwarded to Waterco and they will inform you of the applicable warranty.
- 8. Once connected with a Waterco customer service agent, proceed to describe in detail the issue associated with your pool heat pump. If a permanent code appears on the electronic control panel, please advise the Waterco service agent.
- 9. There are no other warranties, express or implied, including, but not limited to, implied warranties of merchantability or fitness for a particular purpose. During warranty period, Waterco will, at its option, repair or replace, without charge, any product or part, which is found to be defective under normal use and service.

IMPORTANT: The warranty is not transferable and no action can be exercised by a consumer subsequent purchaser of the pool heat pump.

Waterco does not guarantee and will not pay for:

- A. Service calls to:
- 1. Inspect and/or correct the installation of your pool heat pump.
- 2. Instruct you on how to use your pool heat pump.
- 3. Replace house fuses or correct power supply problem.
- 4. Adjust or reestablish water flow to the pool heat pump.
- B. When a service call with no manufacturing problem has been detected, on site, by the service company mandated by Waterco.

This Warranty does not cover:

- A. Damage, issues or unsatisfactory performance caused to the equipment by faulty or incorrect external electrical wiring, incorrect power supply, voltage fluctuations, over voltage transients or electromagnetic interference not originating within the equipment.
- B. Damage, issues resulting from incorrect or poor installation.
- C. Failure to provide adequate ventilation for the unit.
- D. Damage or deterioration to the external surfaces or refrigeration coils caused by normal weathering or corrosive atmospheric conditions.
- E. Damage, issues caused by the use of an accessory, component or equipment not supplied by Waterco.
- F. Any costs or additional labour associated with gaining acceptable service access to equipment installed in restricted or unsafe (e.g. high) locations.
- G. Freight charges (including insurance) or travelling cost for repairs performed outside the area normally serviced by Waterco or authorised repair agent.
- H. Any consumable item (e.g. batteries, filters) supplied with the equipment unless the item is shown to be defective at the time of purchase.
- I. Damage, issues or unsatisfactory performance resulting from operation in an environment where the climatic comfort of humans is not the primary function of the equipment. Damage, issues or unsatisfactory performance resulting from operations at conditions outside the operating conditions specified in the Waterco technical or sales literature applicable to the equipment.
- J. Damage, problems or unsatisfactory performance resulting from misapplication of the equipment.
- K. Equipment installed in a transportable or

Visit www.waterco.com.au/customer-service/warranty-terms for our full Warranty Terms and Conditions.

Note: