



SWIMMING POOL HEAT PUMP "C" & "D" SERIES

MODELS: ELITE 55, 65, 85, 100, 115, & 130



INSTALLATION AND OPERATION MANUAL

IMPORTANT

It is important to register your product with us on our web site. This will help us find your warranty when you place a service call. If we cannot find your warranty registration, a proof of purchase will be necessary.

www.PoolHeatPump.ca/warranty.php

FAILURE TO FOLLOW THESE INSTRUCTIONS WILL VOID YOUR WARRANTY

MANDATORY SAFETY MEASURES

Congratulations for your purchase of a Elite heat pump. Your new Elite heat pump will extend your pool season and bring you years of comfort and enjoyment.

This document will help to answer any questions you may have, will provide technical support and will allow you to take full advantage of your new Elite heat pump safely.

Please take the time to read this document in its entirety.

**IMPORTANT: YOUR HEAT PUMP MUST BE INSTALLED
BY A CERTIFIED ELECTRICIAN.
READ AND FOLLOW ALL INSTRUCTIONS.**



WARNING

Failure to heed the following warnings may result in permanent injury, electrocution or drowning.

ELECTRICAL HAZARDS

- To reduce the risk of electrical shock:
 - All electrical connections should be made by a licensed electrician in accordance with national, provincial and local codes and standards.
 - Before installing or removing any Elite equipment, make sure that all breakers covering the pool area have been turned off.
 - A clearly identified breaker must be installed in order to be able to interrupt power to the heat pump in case of an emergency.
 - Never open the electrical box without having shut off all power sources to the heat pump beforehand.
 - If your heat pump is equipped with a water pump control option, don't forget to turn off the breaker for this pump prior to intervening.

CHEMICAL HAZARDS

- Poorly balanced water may produce bacteria that can affect your health as well as damage your pool and its equipment. Have your water analyzed weekly by an expert.
- To avoid injury when using chemical products, wear rubber gloves and safety goggles, and work in a well-ventilated area. Choose wisely the area where you will be handling these chemicals, as they may damage any surface they come in contact with.

WATER PRESSURE EQUIPMENT HAZARDS

- Your water filtration system works under pressure, and water pressure may go off prior to work beginning. Please refer to the water filtration system instruction manual for more information.

PREVENTING INJURIES AND DROWNING

- To reduce the risk of injury, do not authorize children to operate this device.
- Do not allow anyone, and particularly children, to sit, climb or lean on any installed equipment that is part of your pool operation system. Unless otherwise specified, ALL components of your pool operation system should be at least 1 metre away from the pool so that children may not use them access the pool, which could result in injury or drowning.



WARNING

Failure to heed the following warnings may result in damages to your pool equipment.

- The thermodynamic and electrical specifications are outlined on the rating plate.
- Elite heat pumps have a 240V – 1 phase voltage. Make sure you have the appropriate electrical connections.
- Make sure that there is no watering or sprinkler system near or aimed at the water heater. Most water sprinkling systems are connected to wells whose water contains minerals, sulphur and other aggressive contaminants. These contaminants may promote corrosion and affect the efficiency of your heat pump.



ELECTRICAL WARNINGS



WARNING

Avoir injuries cause by electrical current.

- Installations should be performed by qualified professionals only. Any installation performed by another unqualified individual may entail risks for that individual and/or other people.
- Electrical installation should conform to the National Electrical Code as well as any provincial or municipal standards.

**KEEP THESE INSTRUCTIONS FOR FUTURE
REFERENCE**

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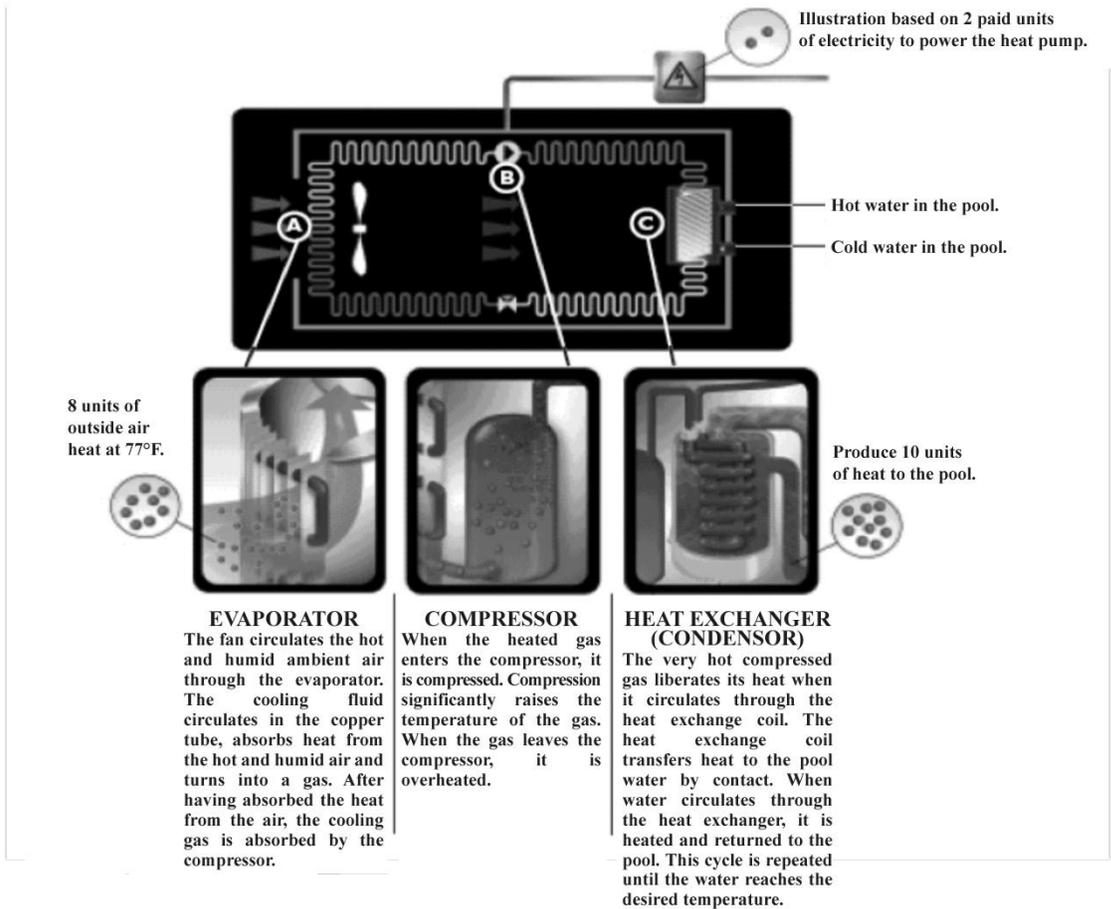
INTRODUCTION

A SOURCE OF SAVINGS

Your heat pump will allow you to realize substantial savings compared to other means of heating your pool. Even if it has a lower heating capacity (BTU / h), which forces it to operate up to 24 hours a day in some cases, the heat pump remains the most inexpensive way to heat your pool, thanks to the use of advanced techniques in thermodynamics.

HOW DOES IT WORK?

Your heat pump works the same way as a water pump. While the water pump transfers water from one place to another, your heat pump transfers heat between the air and the water in your pool. Your heat pump does not produce heat, just like a water pump does not produce water with the energy it consumes. Thus it is possible to achieve yields of up to 600% or 700% under optimum conditions, or a COP of between 6 and 7. In other words, for every kilowatt that your heat pump uses, it transfers up to 6 or 7 kilowatts between the air and the water in your pool. This compares favourably with the 80% to 95% yield of a traditional gas, oil or electric pool water heater. However, it is true that the performance of traditional pool water heaters remains constant regardless of weather conditions, while that of heat pump varies. But even when temperatures are cooler, the heat pump continues to transfer energy and it remains advantageous in night time temperatures as low as 5°C (41°F).



MINIMAL MAINTENANCE

Your new heat pump has been designed to necessitate minimal maintenance. However, if you want your pool to be heated as efficiently as possible, you should abide by the installation and maintenance advice contained in this document.

POSITIONING

Choosing the area where your heat pump will be installed is extremely important. You must respect the following guidelines.

VENTILATION AND ACCESSIBILITY

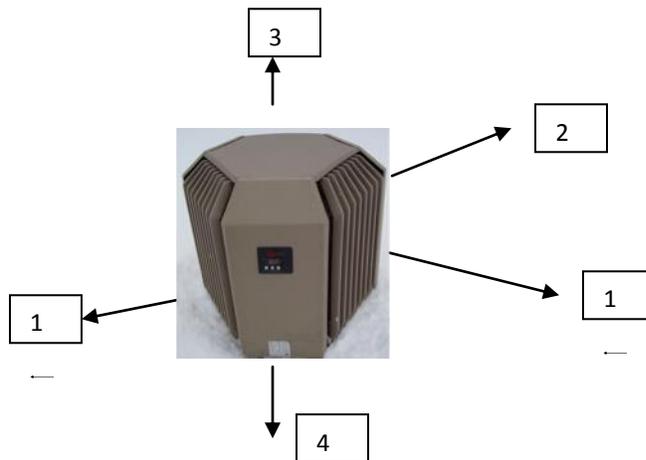
Your heat pump works, in large part, in symbiosis with the surrounding air: it is important that there be adequate ventilation all around the heat pump. Therefore, the device should not be installed in a closed space such as a garden shed or a basement.

IMPORTANT: Your heat pump must have sufficient free space around it to function properly.

You should also clear any obstructions surrounding the heat pump, as indicated in the table below:

	ALL MODELS
(1) in front of the evaporation coil	60 cm = 2 feet
(2) in front of all other surfaces	35 cm = 14 inches
(3) in front of the fan*	120 cm = 4 feet
(4) in front of the service panel	60 cm = 2 feet

*Objects should be placed as far away as possible from the area where air is evacuated.



OTHER RECOMMENDATIONS

You should not install the device below a roof, so that your heat pump becomes buried under snow or receives too much water if the roof is not fitted with gutters. Do not install your heat so that the sun directly hits the regulator. This will not cause damages, but the display will be harder to read. Similarly, you should not install automatic sprinkler near your pool heat pump. The device must be installed on a flat, firm and level surface. A concrete slab or equivalent is preferred. Consider that your device will produce condensation, so there will be water leaking around the unit.

WATER SUPPLY AND BACKFLOW

PLUMBING CONNECTIONS

All Elite model connections have a 1 ½' diameter.

MINIMUM AND MAXIMUM WATER FLOWS

For maximum efficiency, your heat pump must operate with water flows between 57 litres per minute (15 U.S. gallons per minute) and 170 litres per minute (45 U.S. gallons per minute). With a water flow of less than 57 lpm (15 U.S. GPM) and greater than 170 lpm (45 U.S. GPM), the heat pump will not work properly and will suffer damage. (See table below).

A set of valves (Fig. A) to insulate the heat pump and adjust the water flow must be installed.

We recommend installing this set of valves (Fig. A) in order to be able to adjust the optimal water flow circulating in the heat exchanger (condenser). An adjustable automatic bypass valve must be installed when a water pump of 2 HP or more is used to circulate the pool water.

WARNING If the above-prescribed water flows are not respected, damage will ensue and your warranty will be void.

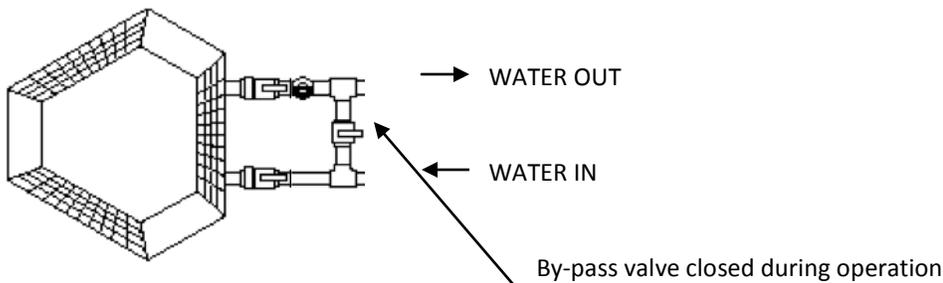


Figure. A (By-Pass)

Your water pump must be able to supply each heat pump with a water flow within the limits listed below.

MODEL	MINIMUM	IDEAL	MAXIMUM
Elite 50 & 65	57 l/m (15 GPM US)	170 l/m (45 GPM US)	170 l/m (45 GPM US)
Elite 85, 100, 115, & 130	77 l/m (20 GPM US)	170 l/m (45 GPM US)	170 l/m (45 GPM US)

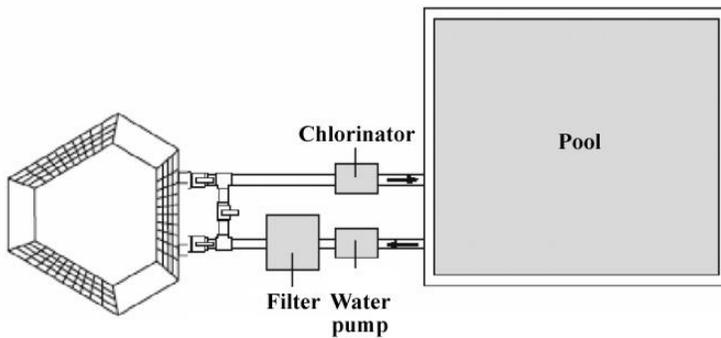
1 U.S. gallon per minute (1GPM US) = 3.78 litres per minute (3.78 l/m)

WARNING Elite pool heat pumps normally operate with a 1.4 bar (20 PSI) water pressure. The maximum operating water pressure is 2.0 bars (30 PSI). Failure to respect the prescribed water pressures will void the warranty of your heat pump.

CHLORINATORS, BROMINATORS AND OTHER AUTOMATIC SYSTEMS

BASIC CONNECTIONS, INLINE CHLORINATOR OR BROMINATOR

This connection is mandatory to ensure the long working life of your pool heat pump.



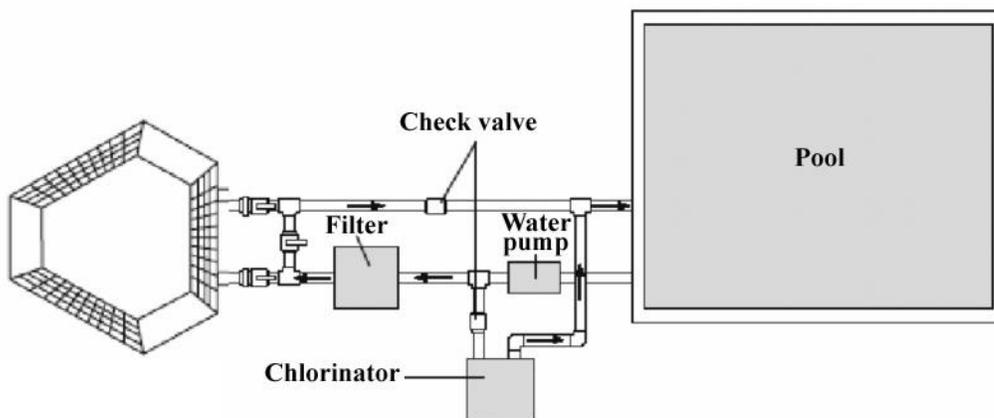
Any automatic distribution system for chemicals, chlorine, bromine or other, must be installed so that the distribution system's water output is located after the pool's heat pump. The heat pump's warranty will be void if the installation is not compliant to this rule.

SALT CHLORINATORS

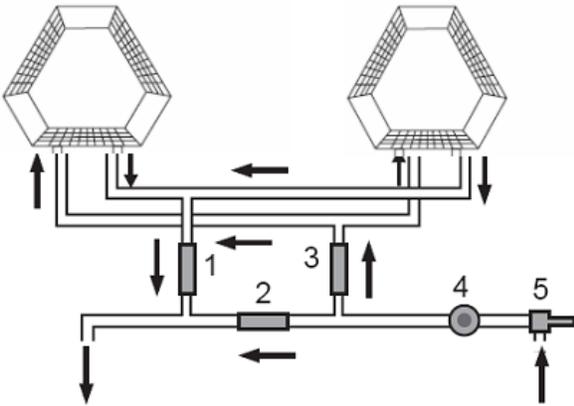
Salt chlorinators are made to be installed as inline chlorinators. Therefore, they must be installed as prescribed in the section above ("inline chlorinator or brominator").

PRESSURIZED CHLORINATOR OR BROMINATOR

Pressurized chlorinators or brominators start by using a small quantity of water as it exits the filter, then add chemicals and forward this highly concentrated solution into the pool. Check valves must therefore be extremely resistant to corrosion. Only use the valves that have been supplied or recommended by the manufacturer of your chlorinator or brominator.



PARALLEL CONNECTION



For larger pools, it may be necessary to connect two heat pumps in parallel. Make sure you install them at least 2 feet apart..

1, 2 and 3: optional valves

4: filter

5: water pump



WARNING

When you shut off the water to one of the heat pumps, the water flow that previously went through the heat pump is redistributed to the other heat pumps. Valves must be adjusted to obtain the prescribed water pressures (see page 7).

CONNECTION TO ELECTRICAL POWER

To ensure your safety and the proper functioning of the device, the electrical connections must be performed by a qualified electrician according to national codes, provincial and local regulations.

A circuit breaker must be installed close to the heat pump, in an accessible location.

Never open the electrical box without shutting off the power to all sources used for the operation of the heat pump. If your heat pump has a pool pump control option, remember to close the circuit breaker to this pump.

The spec sheet for the heat pump contains all the requirements for voltage and amps. If the power cord is damaged, it must be replaced by a qualified electrician.

MAINTENANCE



WARNING

Before any storage or cleaning operation, turn off all electrical circuit breakers.

CLEANING

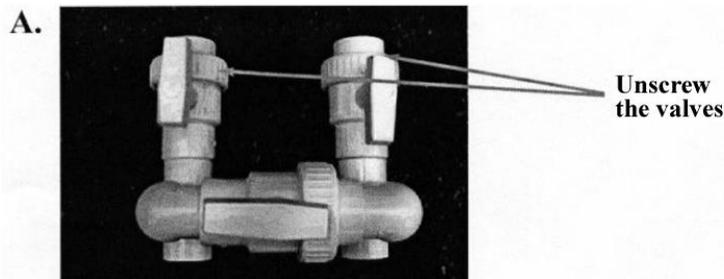
To prolong the working life of the device, you must:

- 1) Clean the pool filter regularly to ensure adequate water flow inside the heat pump.
- 2) Keep the surface of the coil (evaporator) clean and free from obstructions: paper, leaves or other.
- 3) Clean your unit with mild household cleaner and rinse with a garden hose at low pressure.

WINTERIZING (TITANIUM HEAT EXCHANGER)

When the device is exposed to temperatures below freezing, it becomes essential to prevent ice formation within the section containing water by draining the heat pump's heat exchanger. To store your heat pump, you must:

- 1) Turn the device off.
- 2) Turn off the circuit breaker and close the valves.
- 3) Unscrew the water inlet and outlet connections (Figure A).
- 4) Rinse the condenser with tap water and drain the system with air pressure or vacuum.
- 5) Cover the unit with a waterproof drop cloth if left outside all winter.



SEASONAL RESTART

Before restarting your pool heat pump, you must:

- 1) Check and adjust the quality of the pool water.
- 2) Make sure the breaker for the heat pump is turned off.
- 3) Install the heat pump on a level surface and connect all plumbing.
- 4) Clean the pool filter and ensure that the water return system is working properly.
- 5) Turn on the circuit breaker for the pool's heat pump.

WATER BYPASS

Some maintenance operations may require that the pool heat pump be disconnected from the filtration system. To divert the water, you must:

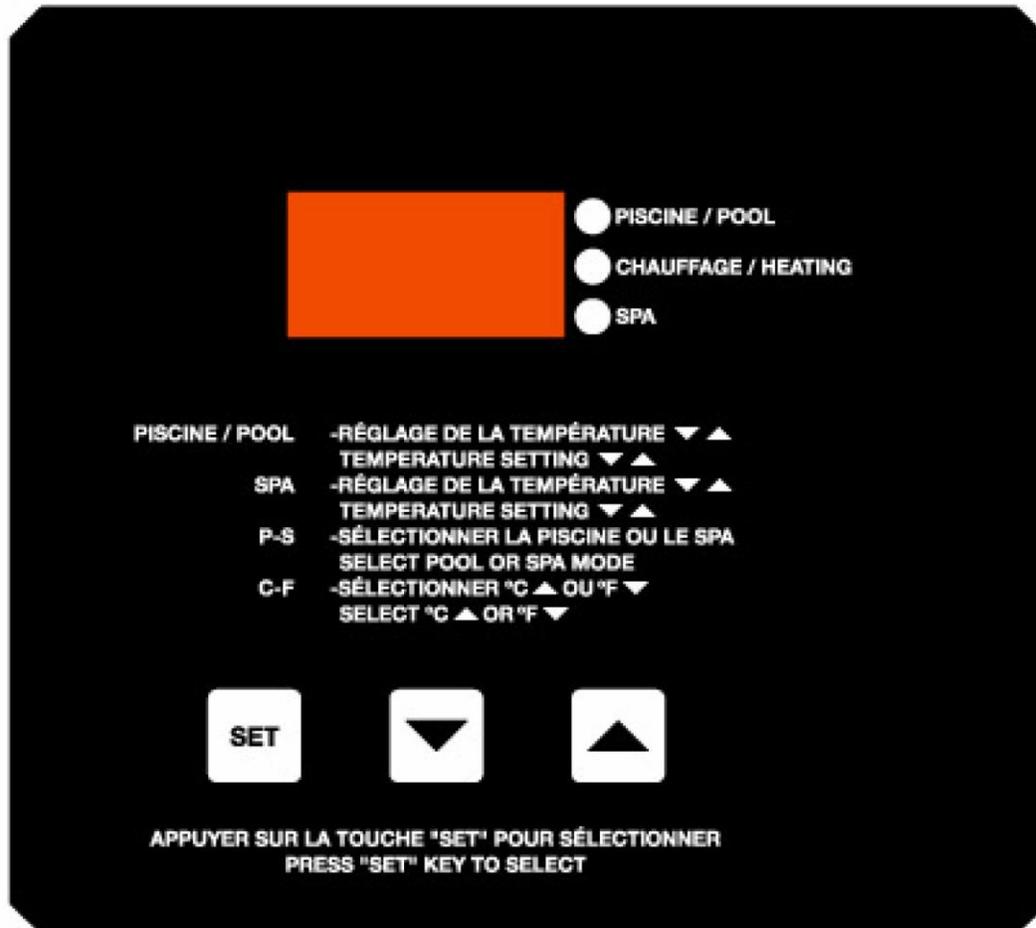
1. Stop the device.
2. Open the bypass valve and close the water inlet and outlet valves.

For longer stops (1 week or more):

3. Unscrew the water inlet and outlet connections

THE REGULATOR SF-501

The regulator features 1 display screen, 3 keys and 3 indicator lights.



KEYBOARD DESCRIPTION

 **DOWN KEY:** Lower the displayed value

 **UP KEY:** Increase the displayed value

POOL HEATING MODE INDICATOR: (green) indicates that the heat pump is heating the pool.

SPA HEATING MODE INDICATOR: (green) indicates that the heat pump is heating the spa.

OPERATION INDICATOR: (red) indicates that the heat pump is working

DIGITAL DISPLAY: Indicates water temperature

OPERATION

1) HOW TO START YOUR HEAT PUMP

The heat pump starts as soon as the water temperature falls below the preset temperature for the pool or the spa. Temperature can be set using the **UP** and **DOWN** keys.

2) MANUAL ACTIVATION OF SWIMMING POOL MODE

Press and hold set key (3 times) until P-S is displayed.

Press down key until POL el displayed. Note: The heat pump is always in pool mode from factory

3) HOW TO CHOOSE THE TEMPERATURE MEASURING UNITS

Press set key (5 times) until F-C is displayed.

Press up key for Fahrenheit

Press down key for Celsius

4) MANUAL ACTIVATION FOR SPA MODE

Press set key (3 times)

Press up key until P-S is displayed.

Press up key until Spa is displayed

5) HOW TO TURN OFF YOUR HEAT PUMP

Press the **DOWN** key until the regulator displays **OFF** (pool or spa)

Note: regulator can be used to determine filtration time on a daily basis.

IMPORTANT: Use this function **ONLY** if there is no external timer. Filter timer wiring should be connected to regulator SF-501. The regulator will control the number of daily operating hours of the filtration pump.

To activate this option, press and hold the **SET** key until dEL is displayed. Then press **SET** twice: **FIL** will appear on screen. Press the **UP** key (4times) until FIL is displayed. Use the **UP** key to choose between **OFF**, 2 to 23 hours a day or **ON** for continuous operation.

To turn off the water filtration system, press the **DOWN** key until the regulator displays **OFF**.

WHEN THIS FUNCTION IS USED, FILTRATION SYSTEM OPERATION WILL BE DIVIDED INTO 6 EQUAL TIME PERIODS A DAY. FILTRATION PUMP WILL TURN ON OR SHUT OFF DEPENDING ON THE AMOUNT OF HOURS CHOSEN AND THE WATER TEMPERATURE. IF DESIRED TEMPERATURE HAS NOT BEEN REACHED, HEATING TIME WILL BE EXTENDED.

CODES

CODE	DESCRIPTION	POSSIBLE CAUSES	ACTION
dpo	Water temperature sensor Heat pump shuts off	Water temperature sensor is not working or has been improperly connected	Call a certified technician
dpc	Evaporator temperature sensor Heat pump shuts off	Evaporator temperature sensor is not working or has been improperly connected	Call a certified technician
LP & LP3	System low pressure detector Heat pump resumes operation when temperature returns to normal Heat pump and filter pump shut off if FIL is between 2 and ON	Loss of cooling fluid (leak) Low pressure sensor is not working or has been improperly connected LP3 will be displayed after having displayed LP on 3 occasions, and heat pump will be shut off	Call a certified technician
HP & HP3	System high pressure detector Heat pump resumes operation when temperature returns to normal Heat pump and filter pump shut off if FIL is between 2 and ON	Water flow has been interrupted or has slowed Valves are closed and bypass is open High pressure sensor is not working or has been improperly connected HP3 will be displayed after having displayed HP on 3 occasions, and heat pump will be shut off	Correct water flow issue and perform regular backwashes if applicable Open valves and close bypass Call a certified technician
OFF		Desired temperature is below 60°/ 15°C	Change desired temperature
Flo & FL3	No water flowing to the heat pump Heat pump resumes operation when water flow is detected Heat pump and filter pump shut off if FIL is between 2 and ON	Pool pump has shut off Valves are closed or flow detector is not working or has been improperly connected Filter is dirty or pool water level is too low FIL function should be set to OFF FL3 will be displayed after having displayed Flo on 3 occasions, and heat pump will be shut off	Correct water flow issue and perform regular backwashes if applicable Open valves and close bypass Call a certified technician
FS	Heat pump is in the midst of its defrosting cycle	This is part of normal operation. Compressor is off, fan is on to eliminate frost	No action required
po	Water temperature sensor Is open Heat pump shuts off	Water temperature sensor is not working or has been improperly connected	Call a certified technician
pc	Water temperature sensor Is short circuit	Water temperature sensor has been improperly connected	Call a certified technician

TROUBLESHOOTING

PROBLEMS	POSSIBLE CAUSES	SOLUTIONS
The device won't start.	<ul style="list-style-type: none"> No power No need for heat Compressor protection delay activated (Power light is flashing) 	<ul style="list-style-type: none"> Make sure circuit breaker is on Check desired temperature and adjust if necessary When the device stops, the regulator imposes a 3-minute delay before restarting compressor to allow for pressure balancing.
The displayed water temperature rises quickly after the compressor starts.	<ul style="list-style-type: none"> Water intake and outlet have been reversed 	<ul style="list-style-type: none"> Check to see if water is circulating in the right direction in the pool water heater.
The device works but the water does not reach the desired temperature.	<ul style="list-style-type: none"> Water connections are reversed Heat loss is greater than the devices heating capacity Pool is too large for the heat pump model 	<ul style="list-style-type: none"> Check to see if water is circulating in the right direction toward condenser. Choose a more powerful model or use more than one heat pump. Choose a more powerful model or use more than one heat pump.
There is a lot of water under the device.	<ul style="list-style-type: none"> Normal runoff due to condensation Abnormal water leak. 	<ul style="list-style-type: none"> No action required (install a drain if necessary) To determine whether this is a leak, turn off the device until all condensation runoff has gone. See if there is still water after 24 to 48 hours.
There is frost on the evaporator.	<ul style="list-style-type: none"> Outdoor temperature is cold Compressor works but fan does not work The defrost sensor is defective – alarm Cooling fluid level is too low 	<ul style="list-style-type: none"> Check to see if defrost is working (the compressor does not operate during defrost – only the fan operates) Call a certified technician Call a certified technician Call a certified technician
Regulator display is hard to read.	<ul style="list-style-type: none"> The regulator display is exposed to direct sunlight 	<ul style="list-style-type: none"> Create some shade above the display to make easier to read.
The fan works, but the compressor does not.	<ul style="list-style-type: none"> Defrost in operation (Defrost indicator lights up) 	<ul style="list-style-type: none"> No action required
The fan works, but the compressor does not work for more than 3 hours.	<ul style="list-style-type: none"> Compressor is broken, in thermal protection mode or connections are loose (Power light is on) 	<ul style="list-style-type: none"> Call a certified technician

QUESTIONS AND ANSWERS

1) Is it possible that my pool has been losing water since my heat pump was installed?

Your pool is not leaking water, but because of the higher temperature of the pool water, water evaporates more than before. Indeed, the greater the temperature difference between pool water and air, the more evaporation occurs.

2) There is water runoff around my heat pump. Could it be leaking?

Your heat pump probably does not have a leak. The water around the heat pump usually results from the condensation of moisture in the air over the cold evaporator of the heat pump, just like condensation on a glass of ice water for example. But if you really want to know if a leak is present in your heat pump, you can turn off the heat pump, but without diverting the water. Wait until the water evaporates around the heat pump. If the water has not dried within 24 to 48 hours or so, or if there is still more water, then it is very likely that it comes from a leak. Contact an authorized service center.

3) The temperature displayed on the heat pump is different from that displayed on my pool thermometer. Is there a problem with my heat pump?

Probably not. Your heat pump includes a controller and calibrated sensors. Most often, the problem lies in the pool thermometer. Although mercury thermometers are often very precise, their casing is not, and the mercury thermometer is often offset with respect to the graduations marked on the casing. The thermometer displays temperatures higher or lower than the actual temperature of the water. To measure the water temperature, you can use an oral thermometer on which the graduations are more precise.

When pools have a bottom drain, it is also possible that the pool heat pump displays a temperature of 1 to 2 degrees lower than that measured at the surface. This is normal because the water is always colder at the bottom of the pool than on the surface.

4) Since installing my pool heat pump, the water pressure in the filter pump has increased. Is this normal?

Yes. The new heat pump, as well as new pipes, are creating added resistance to the flow of water in the system. It is normal to have an increase in pressure of 5 to 7 PSI after installing a pool heat pump.

5) Why doesn't the pool temperature increase when my pool heat pump is operating?

There are three possibilities, when the heat pump is operating:

- The heat pump provides more energy than the pool loses: the temperature increases.
- The heat pump delivers as much energy as the pool loses: the temperature remains stable.
- The heat pump provides less energy than the pool loses: the temperature drops.

Don't forget that heat pump performance varies depending on operating conditions. Heat loss from the pool is dependent on outside temperature, wind and the size of the pool, as well as several other factors.

It is recommended to use an insulating pool cover to reduce heat loss and water evaporation, especially during cold nights.