ELECRO ENGINEERING

700 EVO Aquatic Heater

Installation Instructions & Operating Manual

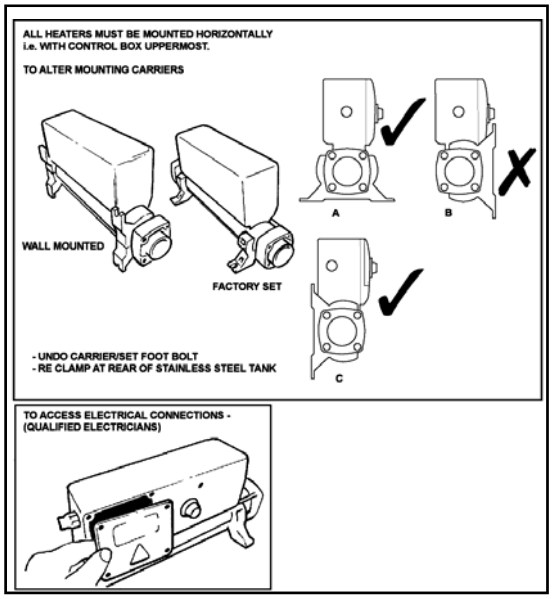
WARNING: THIS HEATER MUST BE INSTALLED BY A QUALIFIED ELECTRICIAN

Incorrect Installation Will Affect Your Warranty

Do Not Discard, Keep For Future Reference

POSITIONING

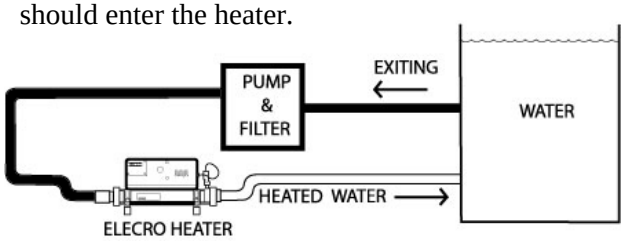
Your Elecro heater must be screw fixed to a firm base or wall. The heater must be horizontal and upright i.e. with the control enclosure located above the flow tube of the heater (see diagram below). Under no circumstances should the heater be operated in any other orientation.



The heater can be installed on both pump and gravity fed systems. It should be installed at a low point in the filtration system. To limit weed and debris build up inside the heater it **must** be sited after i.e. downstream of the filter.

NOTE If the flow direction is reversed (explained later in this booklet) the heater **MUST** remain sited after the filter.

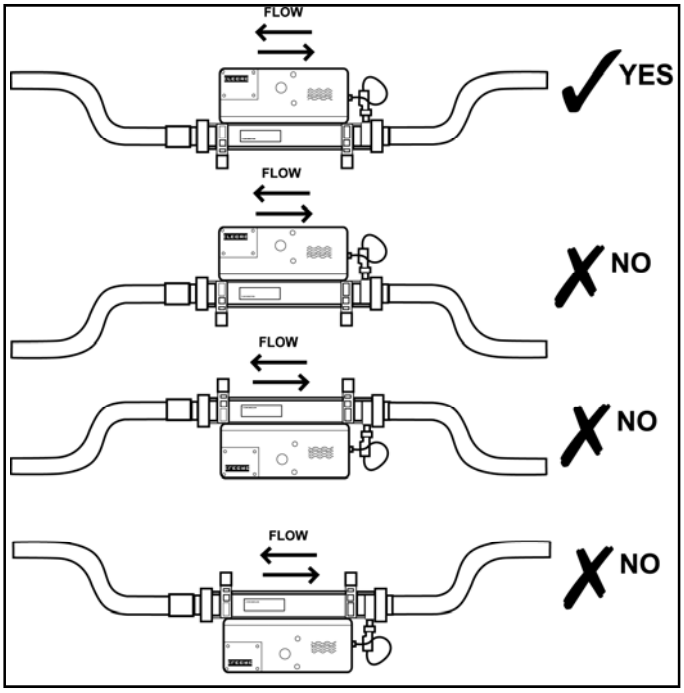
Only clean filtered water should enter the heater.



PIPE WORK

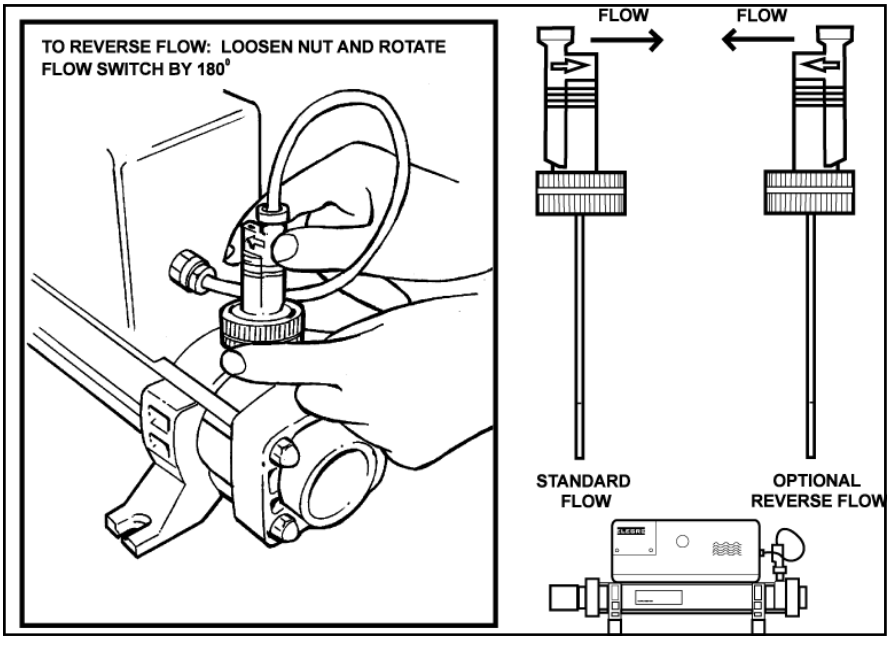
It is essential that the pipe work connecting to and from the heater has a minimum bore (internal diameter) of 1¼'' (32-mm).
To assist correct air purging and to ensure the heater remains completely full of water during operation, the return pipe which carries the water back to the pond must incorporate a safety loop or kick up in the pipe, installed as close as possible to the heater (see diagram on following page).
Note: When coupling to flexible pipe a safety loop can simply be created by routing the pipe up and over an obstacle. Remember to use pipe clips to securely fasten all hose connections.

NOTE: - To allow ease of periodic internal cleaning - it is recommended that the heater is installed with ball valve unions on both water input and output sides. This will allow the water to be shut off on both sides of the heater to allow removal from the system.



FLOW REQUIREMENT

The 700 EVO Aquatic heater is factory set to accept input water from the left and exiting on the right, this can be reversed by rotating the flow switch 180° (i.e. ½ turn) see diagram below.
Warning! The flow switch paddle can be damaged when reversing the flow direction if it is lifted by more than 5-mm from its housing and turned with force. If the flow switch has been rotated it is important to ensure that it is finally locked down in the correct orientation perpendicular (at right angles) to the flow of water.
The flow rate of water entering the heater **must not** exceed 17,000-litres per hour (3,740 UK Gallons per hour). A higher flow rate **will** require the installation of a by-pass to prevent damage to the heating elements. The heater will not operate with a flow rate of less than 1,000-litres per hour (220 Imp Gallons per hour).



ELECTRICAL CONNECTION

The heater must be installed in accordance with the country / regional requirements & regulations. In any event the work must be carried out by a qualified electrician who will provide a certificate of conformity upon completion of the work. The power supply **must** be fitted with a RCD. Cable sections should be calculated at 5-amp / mm² for distances up to 20-metres (these are indicative and should be checked and adapted if necessary for cable lengths over 20-metres).

POWER REQUIREMENTS

Power Output	Single Phase Voltage	Amp
1-kW	230V	5
2-kW	230V	9
3-kW	230V	13
4-kW	230V	18
6-kW	230V	27
8-kW	230V	35

Power Output	3 Phase Voltage	Amp
6-kW	400V	9
8.4-kW	400V	13

WEATHER PROTECTION

The heater should be installed within a dry weather proof enclosure.

CAUTION !

If the heater is not used during winter months in must be drained to prevent frost damage.

WATER QUALITY

The water quality **must** be within the following limits:

Stainless Steel Aquatic Heaters:

PH 6.8 - 8.0

Stainless Steel heaters are **NOT** suitable for use on salt water applications where the concentration of salt is greater than 0.3% (½ oz per UK gallon).

Titanium Aquatic Heaters:

Titanium heaters are suitable for salt water applications.

OPERTING YOUR ELECRO HEATER

Upon completion of the installation, run the water-circulating pump for several minutes to purge the system & heater of air.

On initial power up of the heater the amber Standby light should illuminate. The red Heating light will only illuminate when;

1.) The water circulating pump is delivering a flow volume greater than 1,000-litres per hour.

2.) The temperature knob is set to a value greater than the temperature of the water.

Useful advice: To reduce running costs and speed up the heating process ; Insulate the pond wherever possible.

If it becomes necessary to confirm that your Elecro heater is delivering the specified heat output, an electricity meter reading will be required (taken from the properties main electricity meter). Two readings will need to be taken with an exact one hour interval (i.e. take one meter reading then a second reading exactly one hour later). Then by subtracting the first reading from the second reading the number of units (kilo watts kW) consumed can be calculated. Note that your Elecro heater is also rated in kW hours. To avoid inaccurate results when performing this test, it is important to refrain from using other high current drawing appliances in the property (such as cookers, showers etc). The pond pump and heater will need to be running continuously during the test. A large domestic pond pump of 1 horsepower will draw less than 1-kW in a one hour period.

The conclusion of the test should prove that for example a 6-kW heater and a ½ horsepower pump will draw between 6.3-kW to 6.5-kW in one hour. It is impossible for an Elecro heater to waste energy, if it is drawing power then that power will be turned into heat that will be transferred to the water.

Due to the high efficiency of the Elecro heater no warmth should be detectable from the flow tube of the heater.

TROUBLE SHOOTING

Heater will not switch from Standby (amber light) to Heating (red light)

In most cases this will be the result of one of the following not being met.

Possible cause 1.) - The required temperature has been achieved.

To confirm that the thermostat is requesting the unit to heat increase the required temperature to a greater value by rotating the temperature dial. If a click is felt / heard then the heater red light should now switch on and the amber light switch off. If the heater remains on standby (amber light) then go to possible cause 2.

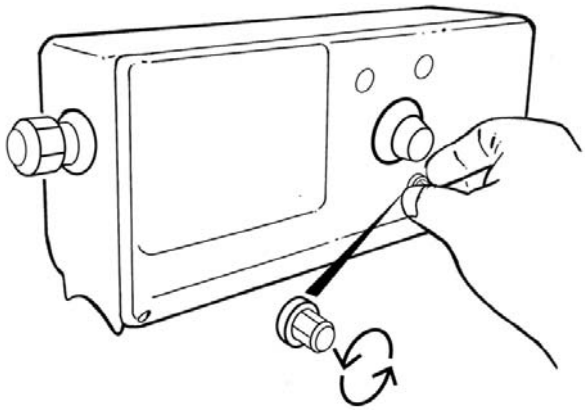
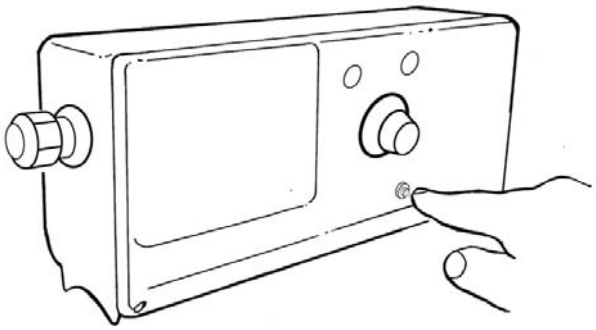
Possible cause 2.) - Insufficient flow

The flow rate travelling through the heater needs to be confirmed to be sufficient. Switch off the circulating pump, close the ball valve unions and un-screw the flow switch. (Use caution as you will experience a small amount of water loss as you un-screw the flow switch and conduct the test). With the heater switched on, manually move the paddle, if the heater then switches on immediately release the paddle to ensure the unit doesn't overheat. Reinstall the flow switch and increase the flow rate through the heater. Chocked filters or blockages can cause significant reduction in flow.

Possible cause 3.) - The high limit thermostat has tripped.

Remedy; Remove the black button cover and press the red button to re-set (see diagram on following page). If a positive click is felt, the cause of the tripping must be investigated and resolved. N.B The cause of the overheat **must** be investigated and rectified to prevent damage to the heating element(s).

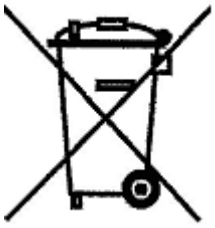
TROUBLE SHOOTING CONTINUED

Step 1 = Unscrew the black cover	Step 2 = Push red button
	

No lights appear on the heater when it is switched on

Possible cause: Power failure external to the heater.
Remedy: - Check any fuses, RCD or other switch components installed in the supply cable.
NOTE—The heater is not fitted with a fuse.

WASTE OF ELECTRICAL / ELECTRONIC EQUIPMENT



This product complies with EU directive 2002/96/EC

Do Not dispose of this product as unsorted municipal waste.

This symbol on the product or on it's packaging indicates that this product should not be treated as household waste. Instead it should be handed over to the applicable collection point for the recycling of electrical and electronic equipment.

By ensuring this product is disposed of correctly you will help prevent potential negative consequences for the environment and human health, which could otherwise be caused by inappropriate waste handling of this product. The recycling of materials will help to conserve natural resources. For more information please contact your local Civic office, your household waste disposal service or the retailer where you purchased the product.

GUARANTEE

Your 700 EVO Aquatic heater is guaranteed for 1 year from the date of purchase against faulty workmanship and materials.

The manufacturer will replace or repair, at it's discretion, any faulty units or components returned to the company for inspection. Proof of purchase may be required.

The manufacturer will not be liable in cases of incorrect installation of the heater, inappropriate use or neglect of the heater.

CE Declaration Of Conformity

The manufacturer declares that the herewith products or ranges

700 EVO ELECTRIC HEATER RANGE

Are in conformity with the provisions:
of the ELECTROMAGNETIC COMPATIBILITY directive 89/336/EEC, as amended 93/068/EEC. Controlled by AEMC Measures laboratory—technical report no P96045T

The harmonised standards have been applied: EN 55014—EN 55104

EN 55011
EN 55022
CEI 801-4
CEI 801-2
CEI 801-3

of the LOW VOLTAGE directive 73/23/EEC.

The harmonised standards have been applied

EN 60335-2-35

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