G2 Heat Exchanger

Installation & Operating Manual

ELECRO

ENGINEERING

Important Notes!

Congratulations on purchasing your new Elecro Heat Exchanger. Elecro heat exchangers are manufactured in the UK, to exacting standards and use the highest quality materials, to ensure exceptional performance and reliability please take a moment to read these instructions. Your new heat exchanger must be installed and operated as specified.

This heat exchanger must be installed correctly by qualified personnel only, and in accordance with any national/ regional requirements / regulations.

Visión general del producto

Standard G2 Heat Exchanger

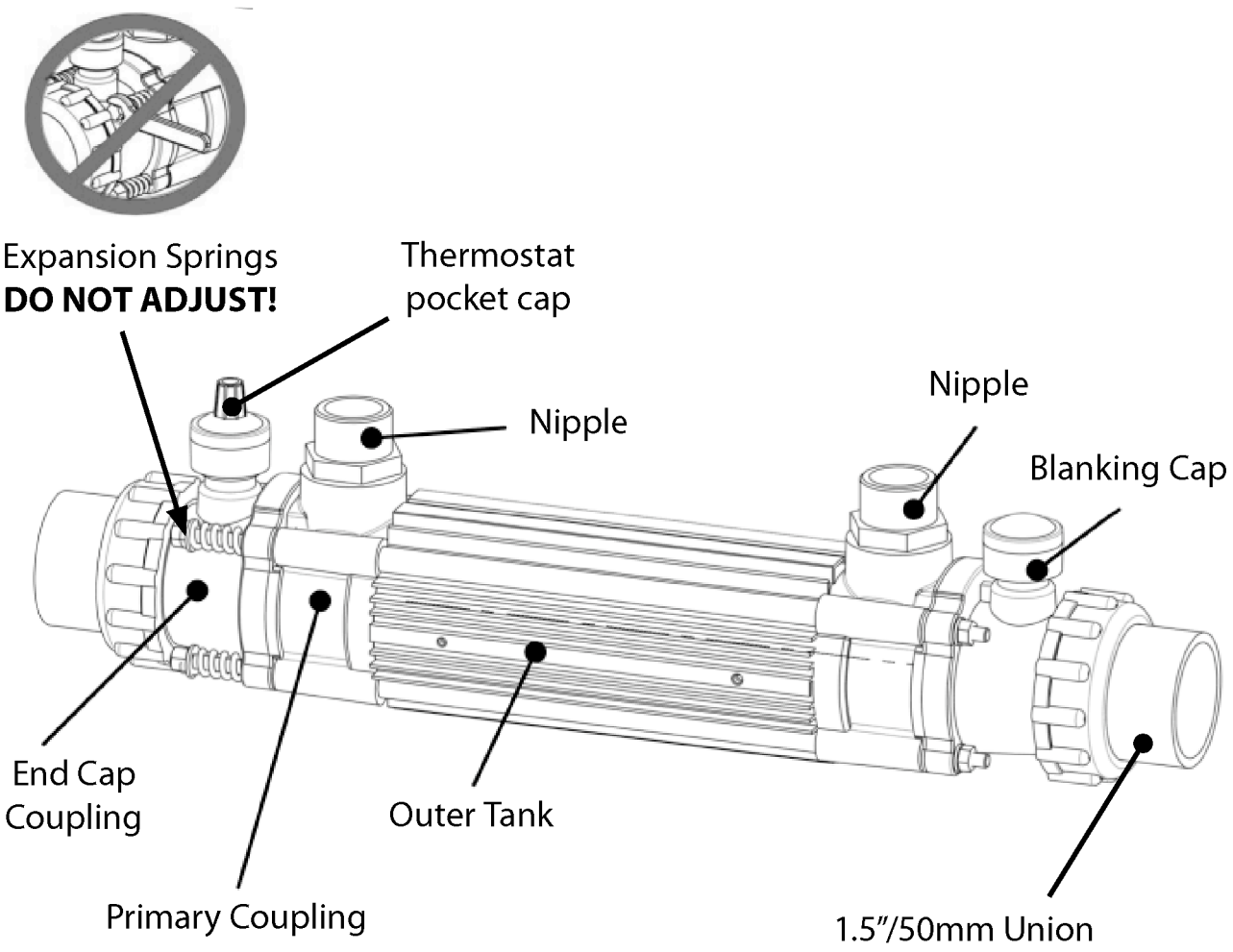
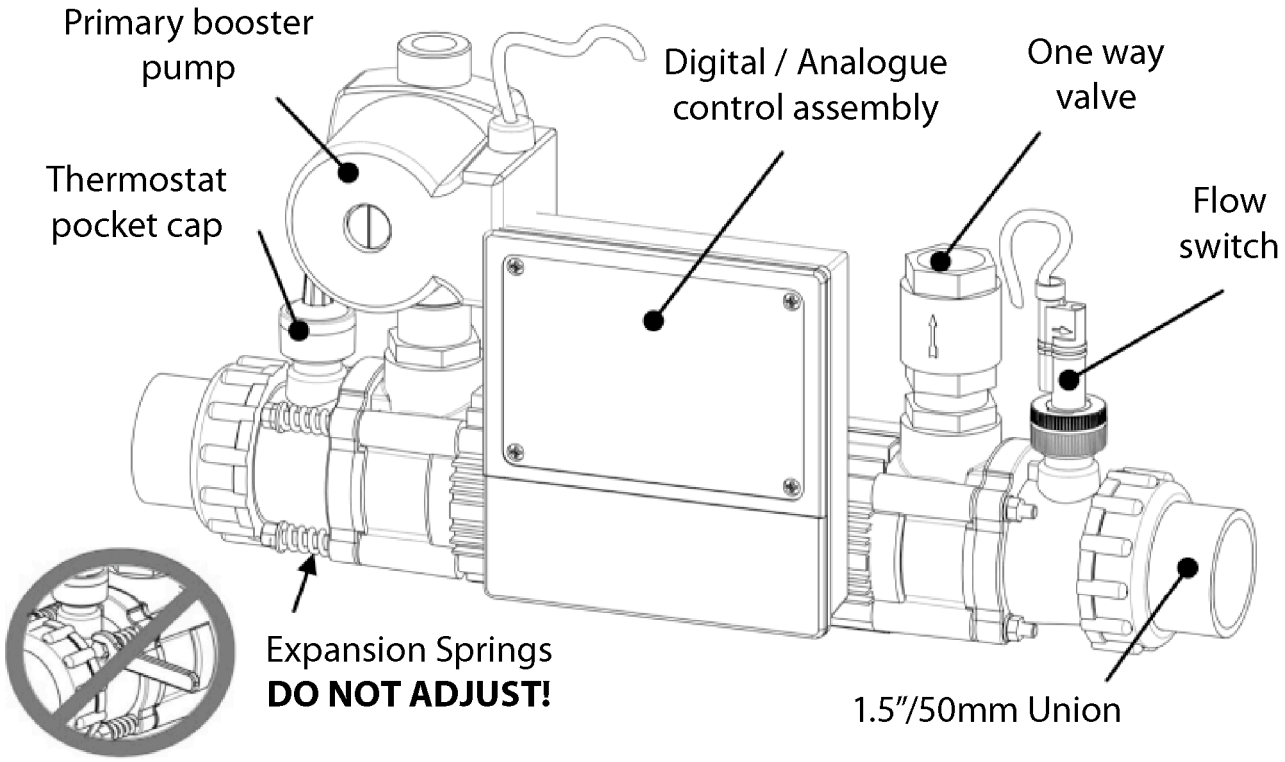


Fig 1.

With optional Equipped kit



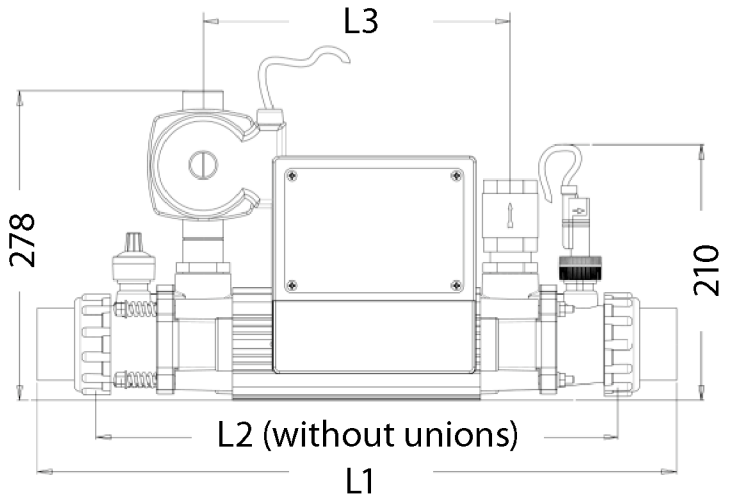
Specification

Transfer values

Standard Power Output	Primary (HOT) Flow (m^3/h)	Primary (HOT) Head Loss (kpa)	Secondary (POOL) Flow (m^3/h)	Secondary (POOL) Head Loss (kpa)	ΔT 15°C (kW)	ΔT 20°C (kW)	ΔT 30°C (kW)	ΔT 40°C (kW)	ΔT 50°C (kW)	ΔT 60°C (kW)	ΔT 70°C (kW)
30-kW	1.1	6.1	10	5.0	9	11	16	20	26	30	33
30-kW	1.3	6.8	10	5.0	10	13	18	23	31	34	39
30-kW	1.3	6.8	14	7.0	11	15	20	26	34	41	46
49-kW	1.6	7.7	16	9.2	13	18	25	34	41	50	56
49-kW	1.8	8.3	16	9.2	14	20	28	38	45	55	62
49-kW	2.2	9.6	17	9.8	16	22	33	44	52	64	73
85-kW	2.4	11.3	17	10.6	22	28	40	53	64	75	81
85-kW	2.7	12.9	17	10.6	26	32	46	60	73	82	89
85-kW	3.2	14.7	17	10.6	28	34	49	64	77	90	102
122-kW	3.8	18.3	19	12.6	33	43	68	75	93	108	120
122-kW	4.2	20.0	19	12.6	36	48	70	89	108	126	143
122-kW	4.6	21.1	19	12.6	38	52	73	95	116	137	156

ΔT = Temperature difference between Primary (Hot) and Secondary (Pool)
To calculate BTU multiply kW x 3412
kW x 3412 = BTU Output
Note: Maximum primary operating temperature is 95°C

Dimensions (mm) - Optional equipped kit



	L1	L2	L3
30-kW	540	426	247
49-kW	710	596	417
85-kW	840	726	547
122-kW	1000	886	707

Fig 2.

Dimensions (mm) - Standard G2 heat exchanger

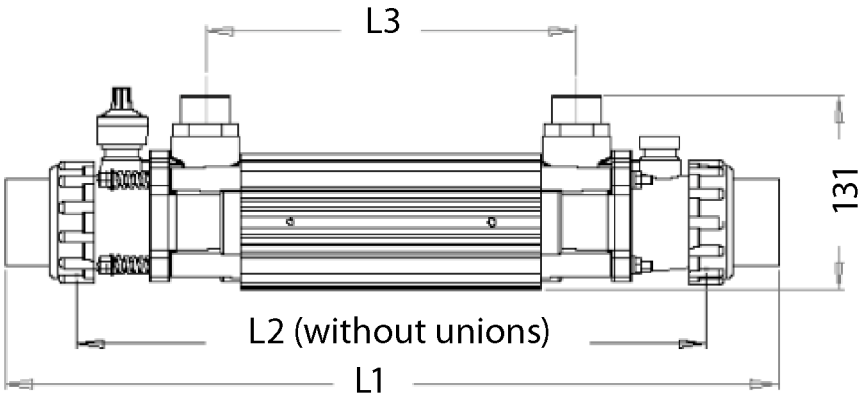


Fig 3.

Installation

Your Elecro Heat Exchanger can be installed either horizontally or vertically. (Please see figures 4 / 5) A wall bracket is supplied for the Horizontal installation only, see figure 6.

With optional Equipped kit

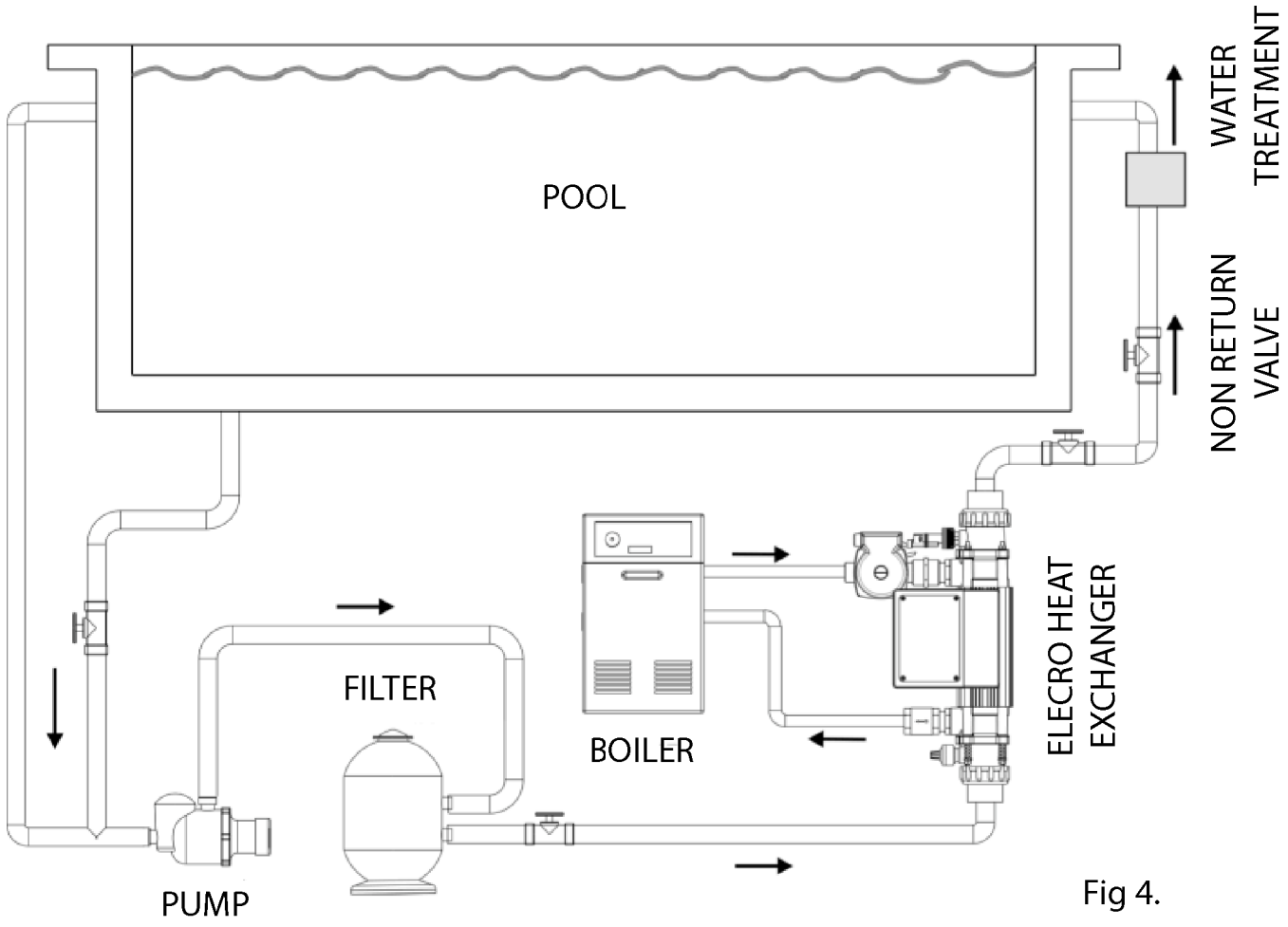


Fig 4.

Horizontal installation

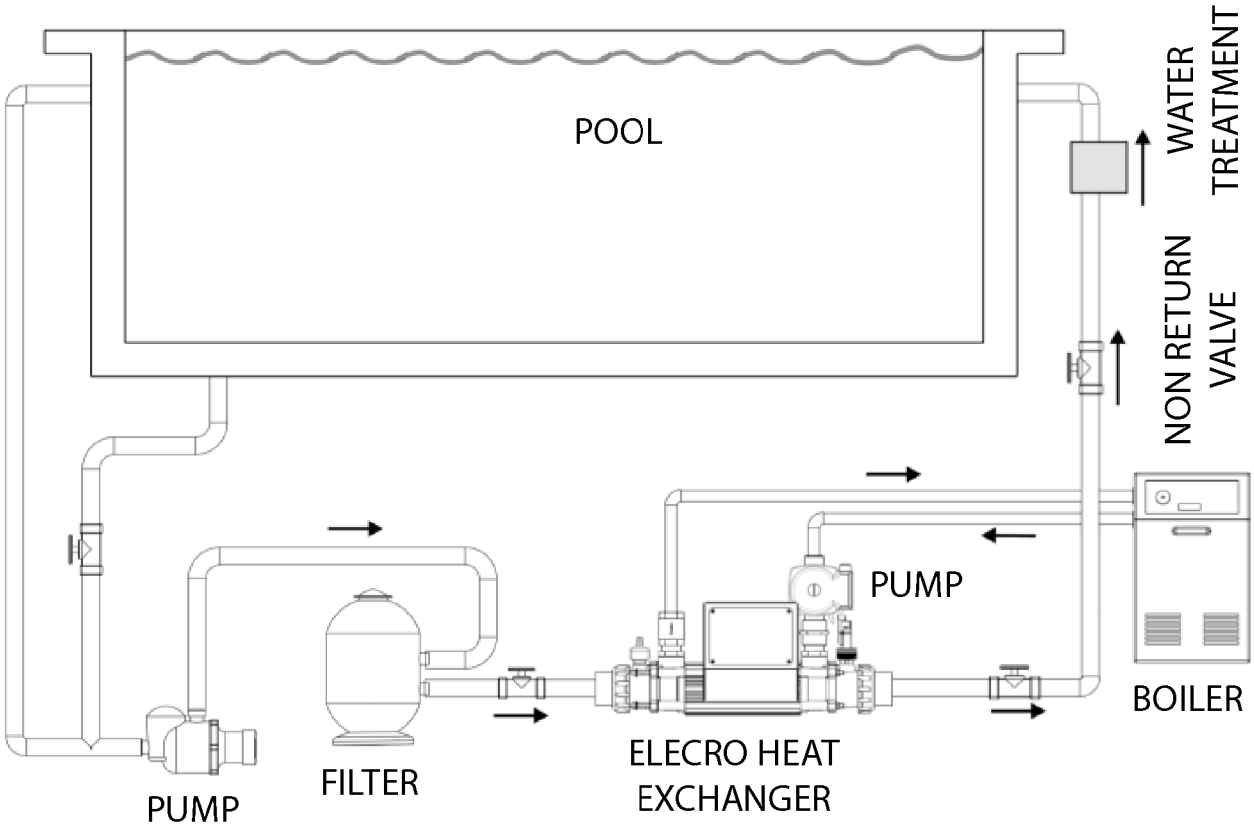


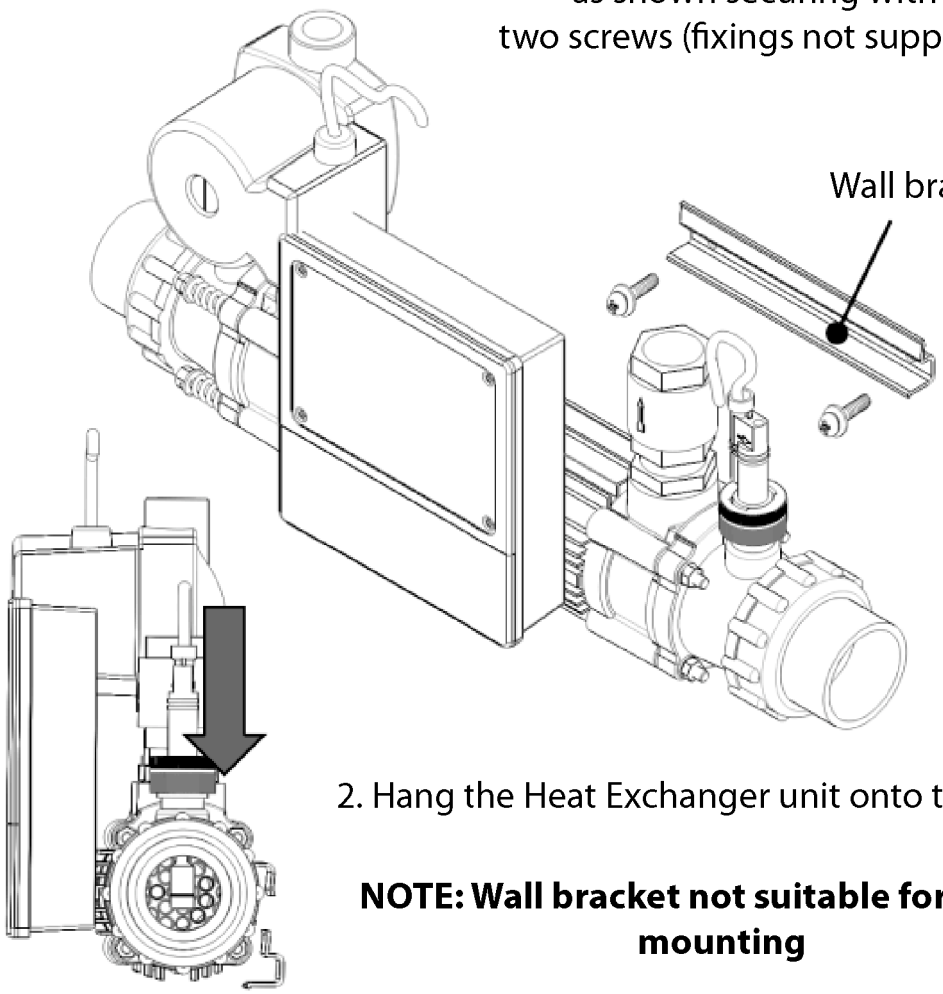
Fig 5.

Horizontal wall mounting:

1. Fix the supplied wall bracket as shown securing with two screws (fixings not supplied)

Wall bracket

Fig 6.



2. Hang the Heat Exchanger unit onto the bracket

NOTE: Wall bracket not suitable for Vertical mounting

Your Elecro Heat Exchanger should be connected to the two independent water circuits as follows:

1. Connection to Water Filtration Circuit (Secondary)
The heat exchanger should be plumbed inline, after the filtration pump and filter and before any water treatment equipment. It should be fed with clean water. Weed / debris should not be allowed to enter the heat exchanger. Universal 1.5" / 50mm ABS plastic adapter unions for connection to rigid PVC or ABS pipe are included (stepped internal diameter to accommodate both sizes). The heat exchanger should be installed as close as possible to the boiler to minimise heat loss.

To assist with correct air purging and to ensure that the heat exchanger remains full of water during operation, it should be installed at the lowest point in the filtration circuit.

If the heat exchanger is installed in a vertical plain, it is essential that the pool/pond water (secondary circuit) enters low and exits high.

2. Connection to Heating or Cooling Circuit (Primary)

The heat exchanger should be connected directly to the primary heating circuit i.e. boiler, via the provided 1" BSP male brass connectors, see diagram below.

NOTE: The circulation pump of the primary circuit should be controlled by a thermostat, which should be connected via the filtration pump to allow heating only when the filtration pump is running.

Air bleed valves should be installed at the high points of the primary circuit. To ensure correct temperature detection, it is essential that the thermostat / thermistor is positioned at the water inlet of the heat exchanger. The thermostat pocket and flow switch use a common port, and can thus be swapped as required.

Use two wrenches to fasten fittings. Wrench No. 1 should remain steady.

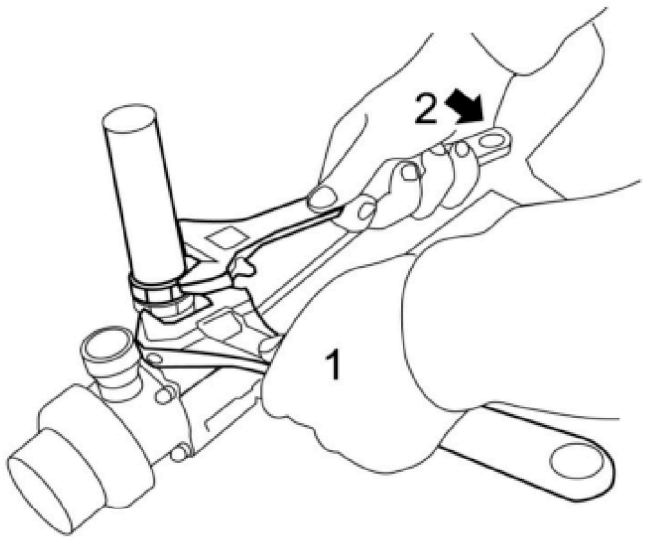


Fig 7.

NOTE: The Thermostat Control is only included with the 'Optional' fully equipped kit. The standard unit is supplied only with a Thermostat pocket and blanking cap.

Care should be taken not to over tighten any connections, as this could result in damage to the heat exchanger. Only use the supplied brass connectors as other uncertified connectors may leak or cause damage to the unit.

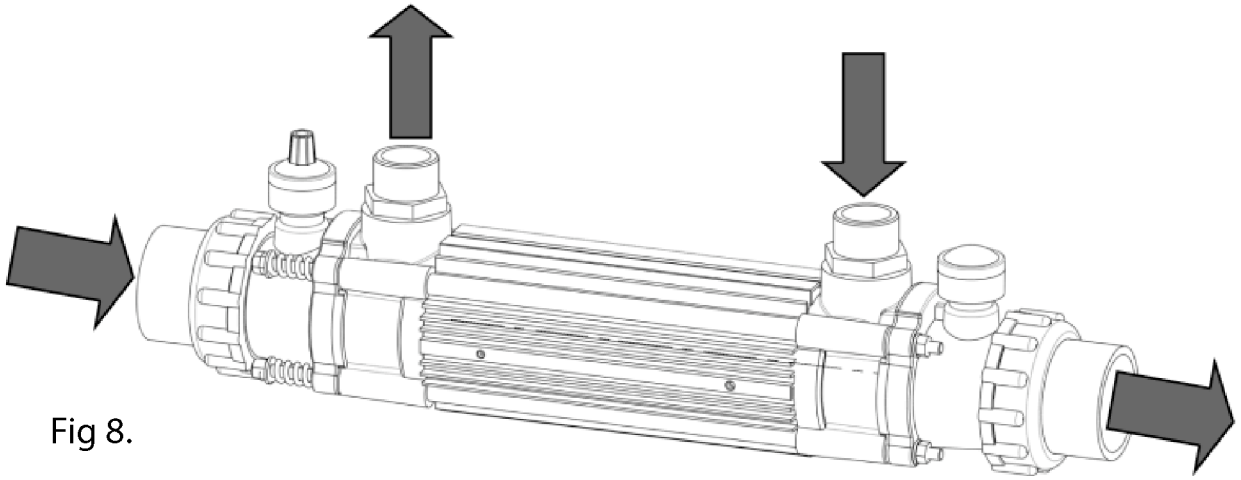


Fig 8.

Circulation direction:
The primary and secondary circuits should be installed so water flows are counter current i.e. The hot water from the primary circuit should flow in the opposite direction to the water in the secondary circuit.

CAUTION
If the heat exchanger is not used during winter months it must be drained to prevent frost damage.

NOTE: For Winterising / maintenance - it is recommended that the heat exchanger is installed with isolation valves on both water input and output sides of the primary and secondary circuits. This will allow the water to be shut off on both sides and aid removal from the system, when required.

Water quality

To prevent damage to your heat exchanger, the water quality must be kept within the following limits:
Chlorine Content: Max 3mg/l (ppm)
Chloride Content: Max 150mg/l
PH: 6.8-8.0
Calcium Hardness: 200-1000mg/l (ppm)
Stainless Steel heater exchangers are NOT suitable for use with salt Water.

Equipped Heat Exchanger (optional equipped kit)

For Elecro heat exchangers purchased with the optional equipped kit, these include the following items:

Primary Booster Pump (Primary heating circuit)
Flow Switch
Digital or analogue temperature control

If installing with the equipped kit it is essential to take note of the flow direction indicated on the, non-return valve and primary booster pump.

The heat exchanger should be set up as per the following diagrams, taking care to respect the indicated flow directions. For pool / pond water entering on the left side of the heat exchanger, the primary water flow and equipment should be arranged as shown in fig.9.

For pool / pond water entering on the right side of the heat exchanger, the primary water flow and equipment should be arranged as shown in fig.10.

Secondary Water flow - left to right

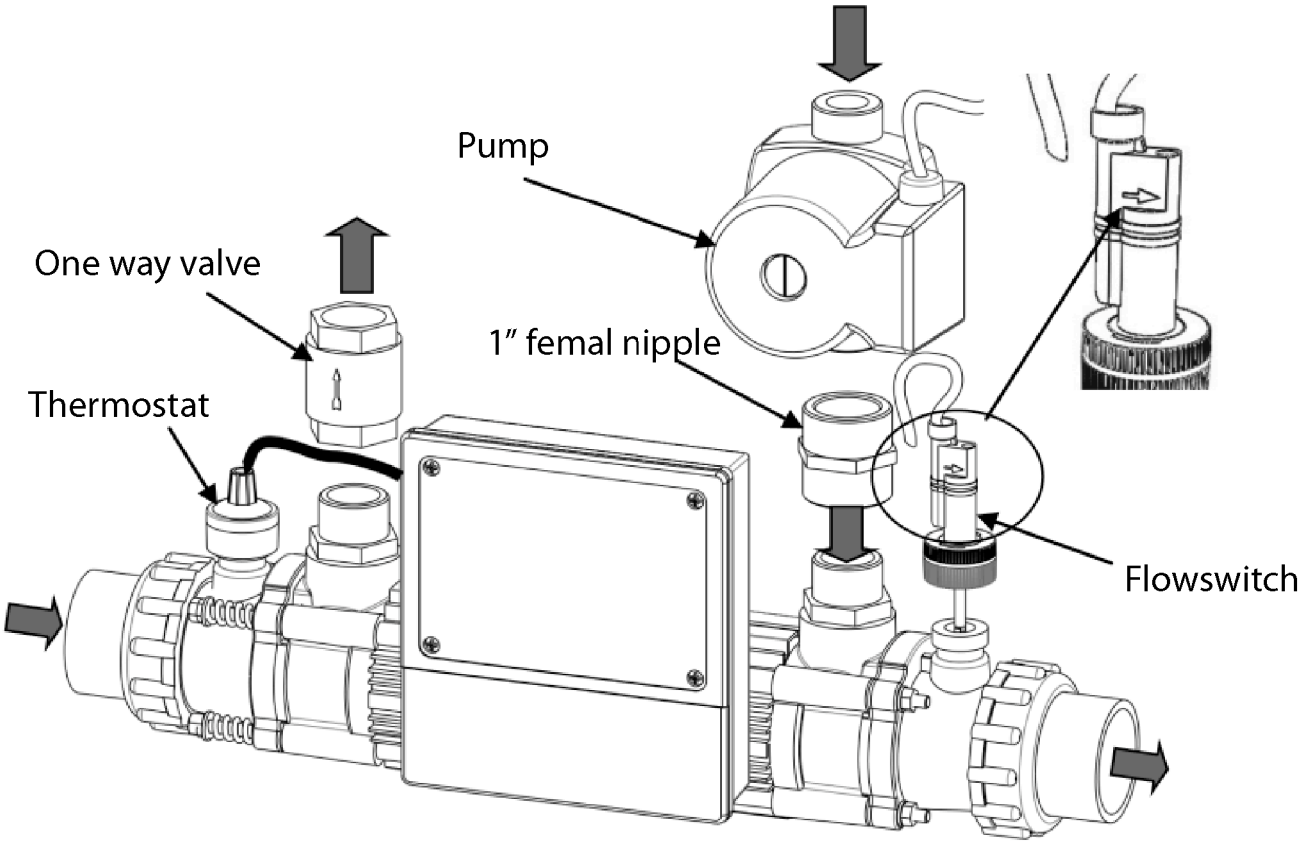
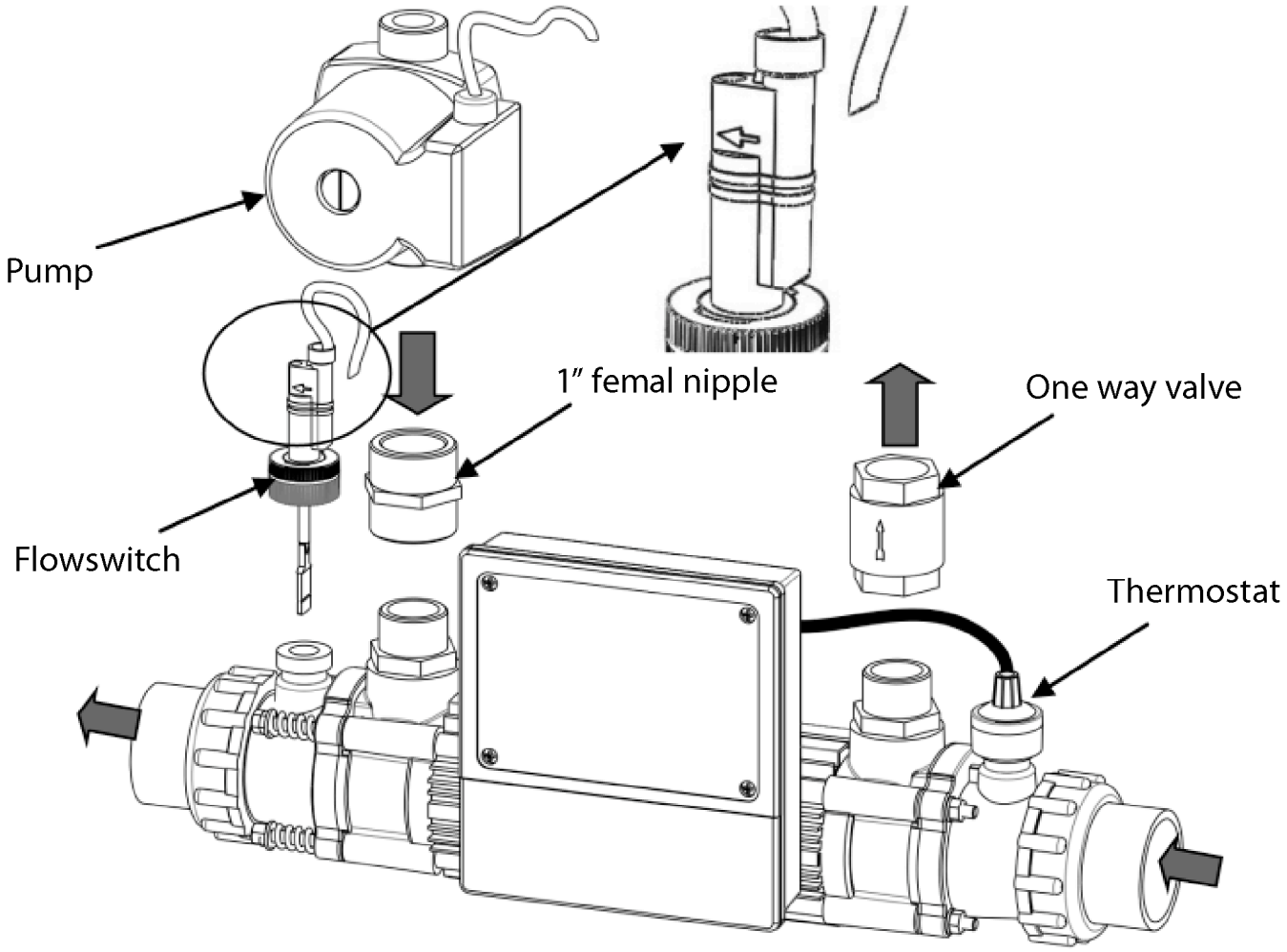


Fig 9.

Secondary water flow right to left

Fig 10.



The control box can be attached to the Elecro Heat Exchanger as shown in the diagram above using the fixings provided.

Electrical connection

Electrical connection:
Undo the lower cover screws and remove the electrical cover. All electrical connections should be made into the relevant terminal block position, according to the labelled positions.

Connection explanation:
Ensure that the Earth ring is securely connected using the Controller fix-ing bolts and washers as shown fig:11 (this is then looped to terminals 3 & 6 internally).
Terminals 1, 2 & 3 connect to the mains incoming power supply as indicated.
Terminals 4, 5 & 6 connect to the Grundfos pump supply cable as indicated.
Terminals 7 & 8 connect to the flow switch.

For Analogue only:
Terminals 9 & 10 is the volt free switched output to control the heating appliance.

Earth terminal ring secured using enclosure fixing Bolts and washers located behind the lower access cover.

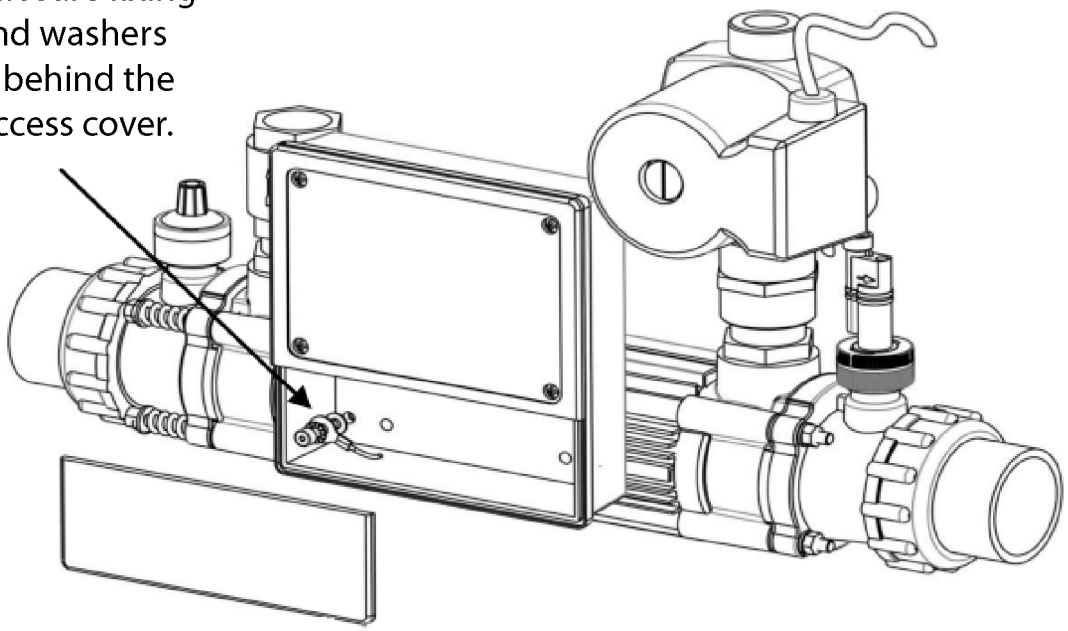


Fig 11.

Electrical

For Digital only:
Terminals 9 & 10 connect to the temperature sensing probe.
Terminals 11 & 12 is the volt free switched output to control the heating appliance.
Terminals 13 & 14 is the Priority Heating volt free switched output to control the filtration pump (explained later).

Controller instructions

For Elecro Heat Exchangers, equipped with analogue control, the control dial should be rotated to the desired water temperature.

For Elecro Heat Exchangers, equipped with digital control. The current water temperature is displayed in the red upper display. The lower green display 'required temperature' can be selected by the user. This is the temperature you would like your water to be maintained at.

Press and hold for 2 seconds to power the control on/off

Press to increase set temperature (required water temperature)

Press to decrease set temperature (required water temperature)

Press and release to activate / deactivate 'Priority Heating'

Time switching delay

To prevent overheating of the switch components within the heating appliance caused by frequent on and off switching (cycling), the digital controller has been pre-programmed with a time delay function.
This prevents rapid fluctuations in temperature or velocity from switching the heating appliance on and off more than once in a two minute period.

The time delay mode is indicated by the flashing LED next to the symbol  on the digital display (figure 12).

Differential

When the water has reached the required temperature the heating appliance will switch off and will not switch back on until the water temperature has dropped 0.6˚C. This value is known as the differential and is also in place to prevent overheating of the switch components caused by cycling.

Priority Heating function ensures your water is constantly maintained at the required temperature. When priority heating is activated the Priority Heating Icon on the bottom right of the display will illuminate. The control will now monitor the water temperature, and start both the circulation pump and heating process when necessary.

NOTE: Priority Heating requires electrical connection to the filtration pump contactor as shown fig. 13.

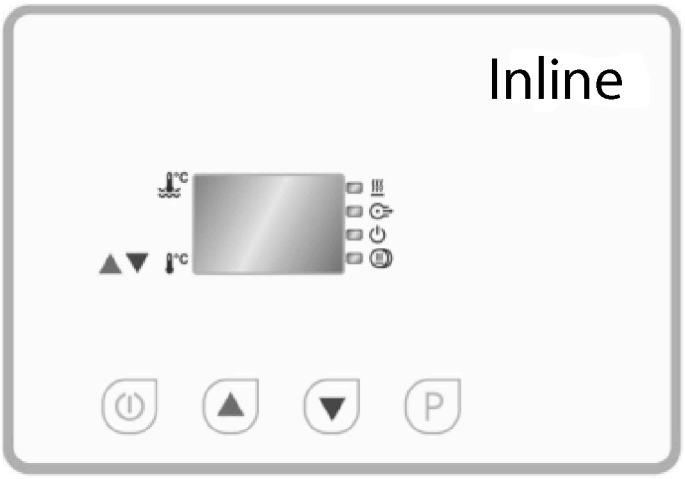


Fig 12.

Priority Heating wiring schematic

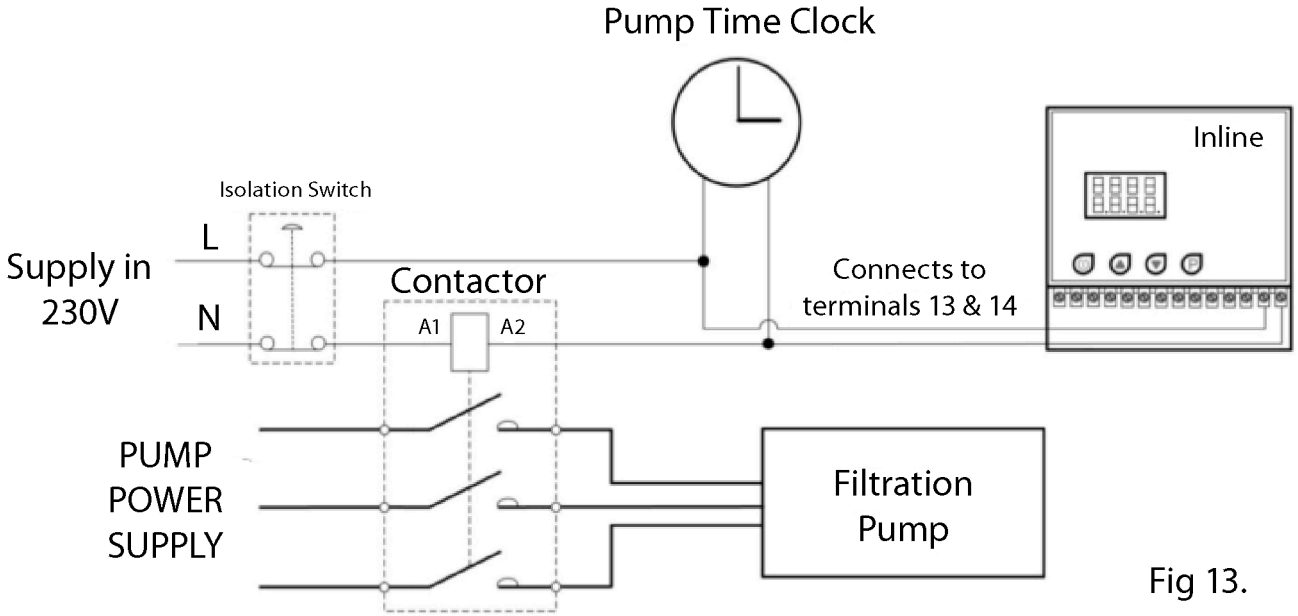


Fig 13.

Guarantee

Your Elecro heat exchanger is guaranteed for two years from the date of purchase against faulty workmanship and materials.

ELECRO ENGINEERING LTD 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.

ELECRO ENGINEERING LTD will not be liable in cases of incorrect installation, inappropriate use or neglect.

CE Declaration Of Conformity
The manufacturer declares that the herewith products or ranges.

HEAT EXCHANGERS

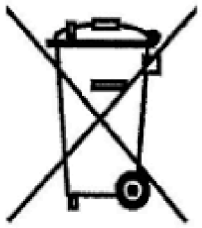
Are in conformity with the provisions:
of the ELECTROMAGNETIC COMPATIBILITY directive 89/336/EEC, as amended 93/068/EEC. Controlled by AEMC Measures laboratory—technical report no P96045T
The harmonised standards have been applied: EN 55014—EN 55104
EN 55011
EN 55022
CEI 801-4
CEI 801-2
CEI 801-3
of the LOW VOLTAGE directive 73/23/EEC.
The harmonised standards have been applied
EN 60335-2-35

RoHS compliance statement

Elecro Engineering Limited certify that our Heater Exchanger range complies in accordance with RoHS Directive 2002/95/EC on the restriction of hazardous substances.

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.

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