NE4HT CIRCULATING WATER BATHS

NE4D SERIES STIRRED DIGITAL WATER BATHS

NE4P CIRCULATING WATER BATHS

NE4D/CT STIRRED DIGITAL CLEAR TANK BATHS

Clifton Range®

High quality products at affordable prices

Dear Customer

The Clifton Range® is part of Nickel-Electro Ltd a family firm based in Weston-Super-Mare which was incorporated as a limited company in 1941 but its roots can be traced back to 1935 when the business first started. Now in its 3rd generation of family members, the company prides itself on being a strongly established, independent British manufacturer.

Thank you for purchasing this piece of Clifton Range® temperature control equipment. To get the best performance from your equipment and for your own safety please read these instructions carefully before use.

GENERAL NOTES

1. This product is designed for laboratory use only. Always follow good laboratory practice.
2. Fill the tank prior to connection to electrical supply.
3. Use caution when topping up/draining the tank. If this product is not used in accordance with these instructions then basic safety protection may be affected.
4. The mains supply cord fitted to this product is heat resistant and should be replaced with an equivalent type by a qualified electrician.
5. Ensure that the power supply has a safety earth (ground) terminal.
6. Ensure that the mains switch and power supply connector are accessible during use.
7. Before using any cleaning or decontamination method please refer to the Maintenance and Cleaning section to ensure the proposed method will not damage the unit.
8. Connect only to a power supply with the corresponding voltage to that specified on the rating label positioned on the rear of the unit.
9. Do not block ventilation slots during use and always follow installation instructions.
10. Ensure substances being heated present no risk of a hazard (explosion, implosion or release of toxic or flammable gases) or that these have been addressed. When heating substances where liberation of gases occurs suitable extraction should be used.
11. Use only liquids specified within this Instruction Manual within their specified temperature range.
12. Drain before moving the bath.
13. We recommend using a lid above 60˚C. Take care when lifting the lid as steam and hot vapours can cause scolding.

LOCATION

The product must be placed on a smooth, level and sturdy work surface, preferably near a drain for emptying. Use in a ventilated room. Suitable for use in ambient temperatures 5°C to 40°C with a maximum humidity 80% (temperature 31°C) decreasing to 50% (temperature 40°C).

DO NOT block or restrict ventilation slots. DO NOT place directly next to hot heat surfaces. ENSURE that there is sufficient space around the product to allow it to provide optimum temperature control.

UNPACKING AND ASSEMBLY

Remove the product from its packaging and retain over the warranty period. Contents consist of: (all products include a power lead and instruction manual)

NE4-8D NE4-14D NE4-22D and NE4-28D	Digital thermostirrer mounted on a st/steel bridge unit fitted to the st/steel tank of selected size and st/steel shelf.
NE4-14D/CT and NE4-22D/CT	Digital thermostirrer mounted on a st/steel bridge unit, clear tank of selected size, st/steel shelf, clamping plate and screws. Place thermostirrer onto right hand end of tank. Place clamping plate in between tank rim and st/steel bridge unit. Fit screws and tighten.
NE4-38D and NE4-56D	Digital thermostirrer mounted on a st/steel bridge unit, st/steel tank if selected size, fixing screws, st/steel shelf. Fit the thermostirrer onto the tank and screw into place.
NE4-25D	Digital thermostirrer mounted on a st/steel bridge unit, deep chambered tank, st/steel shelf, black nylon propellor and fixing screws. Fit the thermostirrer onto the tank and screw into place.
NE4-8P, NE4-14P, NE4-22P and NE4-28P	Digital thermocirculator mounted on a st/steel bridge unit, st/steel tank of selected size and st/steel shelf.
NE4-D, NE4-P and NE4-HT	Digital thermostirrer or thermocirculator. An accessory NE4-MB mounting bracket is required to attach the unit to any tank/vessel with a maximum wall thickness of 30mm.
NE4-8HT, NE4-14HT and NE4-22HT	Digital thermocirculator mounted on a st/steel bridge unit, st/steel tank of selected size and st/steel shelf.

SAFETY

Do not touch any electrical contacts or open any closure panels.
RISK OF ELECTRIC SHOCK!!
NE4-D, NE4-D/CT and NE4-P are Class 1 (IEC519-Part 2) low liquid level protection, ref to over temperature condition.
NE4-HT Class 2 (IEC519) adjustable overtemperature protection device and low liquid level protection.

POWER LEAD AND CONNECTION TO ELECTRICAL SUPPLY

Check the electrical supply is compatible with the rating label.
IF IN DOUBT CONSULT AN ELECTRICIAN. THE PRODUCT MUST BE EARTHED!
Where the mains supply or plug connection differs refer to local regulations or consult an electrician.

LIQUID LEVEL AND SUITABLE LIQUIDS

Always ensure the product is disconnected from the electrical supply before filling and emptying.

Tank Capacity	Minimum Liquid Level	Maximum Liquid Level
8, 14 and 22 Litre	70mm above the shelf	Not exceeding the ridge in the tank
28 and 56 Litre	130mm above the shelf	Not exceeding the ridge in the tank
38 Litre	130mm above the shelf	
NE4-25D	To MIN level in the tank	

SUITABLE LIQUIDS

Operating temperatures and recommended liquid options are as follows:

-20˚C to Ambient	100% Heat Transfer Liquid (the LB range is formulated for temperatures from -45˚C to 90˚C and provides complete protection from freezing and algae growth and safeguards against corrosion) 100% Car Antifreeze (Ethylene Glycol)
Ambient to 99˚C	Distilled Water Virkon dissolved in distilled water: proven efficacy against bacteria (incl mycrobacteria), viruses, spores and fungi in a variety of independent tests using different protocols. Heat Transfer Liquid (the LB range is formulated for temperatures from -45˚C to 90˚C and provides complete protection from freezing and algae growth and safeguards against corrosion)
99˚ to 130˚C	NE4-HT Series: Silicon Oils - upto 10 centistokes, please note 11 to 50 centistokes bath will operate outside temperature control specifications. Synthetic Thermal Liquids.

PLEASE NOTE: ABOVE 60˚ or below room temperature the bath should be covered by a lid or layer of polypropylene spheres to achieve optimum performance.

N4-P AND NE4-HT SERIES CONNECTING CIRCULATED SUPPLY

This range of water baths are designed for external circulation of temperature controlled water in a closed circuit.

1. Switch unit off.
2. Inlet and Outlet 'Push and Lock' connectors are located on the rear of the bridge unit behind the thermocirculator. These are fitted with a factory fitted link which needs to be removed to fit the desired pipes/hoses.
3. Depress the collar on the push and lock connector, remove the link and replace with the desired 6mm diameter pipe/hose.
4. To check for leakage prior to normal operation: fill the tank with water/oil and turn the unit on. Any leaks will be apparent and the pipe/hose can be replaced as appropriate.

OPERATING INSTRUCTIONS

Switch the unit on using the mains switch located on the rear. The switch will illuminate and and the controller will perform a self test. When the unit is switched off all time and temperature values remain in memory.

SETTING TEMPERATURE

1. Press and hold the DOWN arrow, or the FUNCTION key to display SP1: the set temperature. The set temperature indicator will illuminate.
2. Use the UP and DOWN arrow keys to select required temperature.
3. After setting the temperature the display flashes between SP1 and set temperature value and will then revert to show actual liquid temperature. Heater indicator will illuminate.
4. The Clifton water bath is now set and will heat and control the liquid to set temperature.

SETTING TIME

1. Press FUNCTION key until "t" appears on the display. Display will alternate between "t" and time displayed as h:mm.
2. Use the UP and DOWN arrows to select time required. Minimum 0 hours 01 minutes: 00:01 and maximum 9 hours 59 minutes: 9:59.
3. Press FUNCTION key to confirm. Display will flash 4 times then revert to actual liquid temperature.

TIMER OPERATION

1. To start the timer press the RUN key for more than 1.5 seconds. The timer will automatically start once the bath has reached set temperature. Heater indicator will illuminate continuously while liquid temperature is being raised to set point.
2. Heater indicator will flash when set temperature has been reached and is being maintained. Timer indicator will flash showing the timer is running.
3. To view time remaining press UP arrow until "t" appears and time remaining is displayed as h:mm.
4. An audible beeping and "END" message indicates timed period has finished. Press the RUN key to deactivate the beep and clear the "END" message.

POWER INTERRUPT DURING TIMER MODE

If the power is interrupted during the timer mode, the display shows "P.OFF" when resumed. To clear press and hold the RUN key until display reverts to actual temperature. Timer mode will then continue. To deactivate the timer press and hold the RUN key.

UNDER AND OVER TEMPERATURE ALARM

The under/over temperature alarm is automatically set 4˚C below/above set temperature. When in alarm condition the "under/over temperature alarm" warning indicator illuminates and actual bath temperature is shown. All heating/cooling is switched off. Note: if an accessory dip cooler is being used cooling will continue. Once water temperature has risen above/fallen below alarm setting then the indicator clears and actual bath temperature is displayed.

Note: when in over temperature alarm condition the motor and heater are switched off on the NE4-P and NE4-HT. NE4D models, the motor remains on but the heater is switched off.

Always investigate the cause of the under/over temperature alarm.

SAFETY EXPERIMENT PROTECTOR - HT SERIES ONLY

1. To set the device turned the safety device knob (located on the rear of the unit) fully clockwise.
2. Set the temperature on the controller to the temperature you wish the device to operate at using the instructions on page 6. Allow the liquid to reach this temperature and settle.
3. Slowly turn the knob back anticlockwise until it clicks.
4. Adjust the temperature on the controller to the actual required operating temperature - the value should be less than in point 2. When in alarm condition the heater is switched off and the motor remains on.

LOW LIQUID LEVEL FLOAT SWITCH "FiLL" MESSAGE

The bath features a low liquid level alarm - display will read "FiLL". Heating will be switched off if the liquid falls below the recommended level. Stirring action will continue. To reset top up the liquid carefully as spitting may occur.

CARE AND MAINTENANCE

Please ensure that the washing agent and sanitizing agent are BSI accredited and approved by the H&S department for use on laboratory equipment and stainless steel within your laboratory.

DISCONNECT THE BATH FROM THE POWER SUPPLY PRIOR TO CLEANING

BASIC CLEANING

The stainless steel crevice free tank should provide years of valuable service and is resistant to chloride containing solutions but it is important to avoid high concentrations of halogens- particularly chloride. Halogen deposits may show as rust which can be cleaned off with nitric acid (10%) on a cloth. WEAR PROTECTIVE EQUIPMENT!

The Clifton Range® bath should be emptied at the end of each day, then for interior surfaces:

• WASH • RINSE • DRY •

Drain Outlet: Please ensure that the above cleaning process includes the outlet on the base of the tank, paying particular attention to flushing the outlet and tap thoroughly.

Scale Build Up: In hard water areas limescale can build up and reduce the efficiency of the water bath. Cleaning at the end of each day can prevent this but periodically it may be necessary to descale the bath. Add 1 litre of vinegar to the normal capacity of water and heat for 1 hour to 50˚C.

EXTERIOR ANTI BACTERIAL PAINTED SURFACES

The water bath should be cleaned at regular intervals by wiping external surfaces with a cloth or sponge soaked in warm water with a mild detergent. DO NOT USE STRONG SOLVENTS OR SOLUTIONS CONTAINING CHLORINATED HYDROCARBONS, ESTERS, KETONES OR ABRASIVE CLEANERS AS THIS MAY DAMAGE THE BUILT IN ANTI BACTERIAL PROPERTIES.

The “anti-bacterial” paint finish inhibits the growth of bacteria. It has bee tested by independent specialist houses using internationally recognised test methods and proven to be effective against a wide range if bacteria including Escherichia Coli and Staphylococcus Aureus (MRSA).

We recognise hygienic coatings are part of a controlled approach to a cleaner working environment. Within the paint formulation is an active ingredient with proven anti-bacterial properties which is maintained throughout its life span. In a laboratory environment this is one less source of contamination. Unlike detergents the anti-bacterial paint finish does not offer an instantaneous action, but is intended for long term general protection against bacterial growth.

Moisture on the painted surface is necessary for the bacterium to absorb the agent and be affected by it. The coating is therefore less active in very dry conditions although moisture in the atmosphere will maintain some activity. Areas where moisture is trapped are difficult to clean and allow bacteria to proliferate but these areas are most active for the anti-bacterial coating improving defence against bacterial growth.

DECONTAMINATION OF EQUIPMENT

Clifton laboratory equipment can be decontaminated after spillage or contact with HIV or hepatitis infected blood samples by using rapid disinfectants.

We recommend VIRKON tablets for the safe and rapid disinfection of equipment. Please follow the User Instructions carefully. Virkon solution only requires 10 minutes contact time to be effective. Care should be taken with stainless steel tanks and it is important that virkon solution is not left in contact with metal surfaces "for longer than is necessary".

We recommend PERASAFE powder for the safe and rapid chemical sterilant of equipment. Please follow the User Instructions carefully.

Please contact your distributor or Day-Impex Ltd for further information relating to these products.

WARRANTY TERMS AND CONDITIONS

1. Nickel Electro Ltd warrants to the Customer that the product purchased is free from defects in materials and workmanship.
2. Provided the terms of payment are duly complied with, Nickel Electro Ltd undertakes to remedy any original defects arising from faulty materials or workmanship, in any goods manufactured/supplied by Nickel Electro Ltd, which under proper and normal conditions of use, may develop within a period of three years from the date of delivery.
3. In the case of components which by their nature of application have an unpredictable life, this guarantee shall only be to the extend of the guarantee given by the manufacturers of these articles.
4. Nickel Electro Ltd will accept no liability, where in the opinion of the company the defect has been caused by damage due to the Customers failure to follow operating instructions, correct installation, wear and tear, or damage due to the use of spare parts other than those spare parts of Nickel Electro Ltd or which are recommended by Nickel Electro Ltd, the defect has been caused by alterations or repairs being undertaken by a person(s) other than an authorised representative of Nickel Electro Ltd.
5. Any damage claim must be in writing, and give the serial number and description of the goods, order number and date of delivery, and will not apply where any names or serial numbers or other information which may be attached to or inscribed upon the goods have been removed, covered up or defaced in any way.
6. Any goods or parts thereof, which may require repair or replacement, shall be repaired or replaced (at the discretion of Nickel Electro Ltd) at the works of Nickel Electro Ltd. The product to be repaired shall be delivered carriage paid back to Nickel Electro Ltd by the customer at the Customer's risk and expense. Any such goods or parts will be delivered by Nickel Electro Ltd to the Customer free within the United Kingdom but if required to be borne by the Customer. All faulty parts removed from the equipment will become Nickel Electro Ltd's property. Any other repairs or work by Nickel Electro Ltd will be carried out under the terms and conditions for specialist engineers currently in force.
7. In the event of replacement with a new or reconditioned model, the replacement unit will continue the warranty period of the original equipment.
8. If any goods or parts thereof are returned unnecessarily all cost involved, including a charge for inspection, handling and the return carriage must be paid by the sender. In no circumstances shall any of the goods be returned to Nickel Electro Ltd without its prior written consent.
9. Please retain the original packaging over the warranty period.

NON WARRANTY INFORMATION

Spare parts shall be made available for a period of 3 years after a piece of equipment is discontinued.

Common Spare Parts

Description	Part Number	Qty	Where Used:
Temperature Controller Only	EX1300	1	NE4D, P and HT Series
Cables Controller Connection	EX1301	1	NE4D, P and HT Series
Controller Display K30 Blue	EX1164	1	NE4D, P and HT Series
Power Entry Module	EX0854	1	NE4D, P and HT Series
Motor	EM0940	1	NE4D, P and HT Series
Solid State Relay	EX1035	1	NE4D, P and HT Series
Propellor	BX0556	1	NE4D, P and HT Series
Float Switch and Probe	ES1183	1	NE4D, P and HT Series
Element 1250W	EE0941	1	NE4D, P and HT Series
Element 2000W	EE0975	1	NE4-56D and NE4-56P
Fuse 6.3A	EF0094	2	NE4D, P and HT Series
Fuse 7A	EF0436	1	NE4D, P and HT Series

PORTABLE APPLIANCE TESTING

These tests should be conducted by a qualified person.

DO NOT PAT test the waterbath unless it contains water.

DO NOT Flash Test!!

ACCESSORIES FOR THE NE4D, NE4D/CT, NE4-P AND NE4-HT SERIES STIRRED AND CIRCULATING WATER BATHS

Stainless Steel Lids

SL4-8	Gabled Lid to suit 8 Stirred Baths
SL4-14	Gabled Lid to suit 14 Litre Stirred Baths
SL4-22	Gabled Lid to suit 22 and 28 Litre Stirred Baths
SL4-38	Gabled Lid to suit 38 Litre Stirred Baths
SL4-56	Gabled Lid to suit 56 Litre Unstirred Baths

LD4-8	Flat Lift Off Lid to suit 8 Litre Stirred Baths
LD4-14	Flat Lift Off Lid to suit 14 Litre Stirred Baths
LD4-22	Flat Lift Off Lid to suit 22 and 28 Litre Stirred Baths
LD4-38	Flat Lift Off Lid to suit 38 Litre Stirred Baths
LDR4-14	4 Hole x 105mm Ringed Lid to suit 14 Litre Bath
LDR6-22	6 Hole x 105mm Ringed Lid to suit 22 and 28 Litre Baths

Stainless Steel Test Tube Racks

Dimensions: 270 x 70 x 138mm

Quantity Req: 2/4 Litre = 1 Rack, 8 Litre = 2 Racks, 5/14 Litre = 4 Racks, 9, 22 and 28 Litre = 6 Racks, 56 Litre = 12 Racks

6870	26 Hole x 17mm Diameter
6871	16 Hole x 26mm Diameter
6872	36 Hole x 13mm Diameter
6873	18 Hole x 19mm Diameter/suitable for 1.5ml Microtubes
6875	50 Hole x 32mm Diameter/suitable for 50ml Falcon Tubes Dimensions: 260 x 290 x 170mm
6900	12 Hole x 32mm Diameter

Flat n Fold™ Stainless Steel Test Tube Racks

6770	26 Hole x 17mm Diameter
6771	16 Hole x 26mm Diameter
6772	36 Hole x 13mm Diameter
6773	18 Hole x 19mm Diameter
6800	14 Hole x 32mm Diameter

Stainless Steel Raised Shelves

RS4-14	To suit 14, 22, 28 and 38 Litre Stirred Baths
RS4-22	To suit 22, 28 and 38 Litre Stirred Baths

Polypropylene Spheres

BP0368	Pack of 200

Insulated Hose

HS-1	Push fit insulated hose for circulating bath -40 to 130˚C 1m length
HS-2	Push fit insulated hose for circulating bath -40 to 130˚C 2m length

Thermometer

TC-1	Thermometer Clip complete with Spirit Filled Bent Stem Thermometer

Miscellaneous

BKF-1	Barkeepers Friend - surface cleanser for stainless steel
BA-5	Bath Armor™ 4 Litres
BA-12	Bath Armor™ 12 Litres
LB-2.5	Lab Bath 4590 Heat Transfer Fluid 2.5 Litres
LB-5.0	Lab Bath 4590 Heat Transfer Fluid 5.0 Litres
DC1-300	Dip Cooler
DC2-300	Dip Cooler
NE4-MB	Mounting bracket allows controllers to be mounted on separate tanks

DECLARATION OF CONFORMITY	
We herewith confirm the following product: NE4-D Digital Stirred, NE4-D/CT Digital Clear Tank, NE4-HT Circulating and NE4-P Circulating Baths	
Conforms with the requirements outlined by the following European Directives:	Conforms with the requirements outlined in the following United Kingdom Directives:
Low Voltage Directive 2014/35/EU	Electromagnetic Compatibility Regulations 2016
EMC Directive 2014/30/EU	Electrical Equipment (Safety) Regulations 2016
RoHS Directive 2011/65/EU	RoHS Directive 2011/65/EU

Conforms with the requirements of the following standards:	
BS EN 61010-1: 2010	Safety requirements for electrical equipment for measurement, control and laboratory use
BS EN 61010-2-010: 2014	
BS EN 61326-1: 2013	Electrical equipment for measurement, control and laboratory use - EMC requirements

Designed and manufactured in the United Kingdom by:
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FINAL INSPECTION AND ELECTRICAL SAFETY TEST REPORT

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NICKEL - ELECTRO LTD.

Manufacturers of the Clifton Range