



**NE5 SERIES ANALOGUE SHAKING  
WATER BATHS**

**NE5-28 28 LITRE ANALOGUE**



**NE5 SERIES DIGITAL SHAKING  
WATER BATHS**

**NE5-10D 10 LITRE DIGITAL  
NE5-28D 28 LITRE DIGITAL**

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 vapors can cause scolding.
14. Use a thermometer to check the temperature - do not touch the liquid.

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## LOCATION

The product must be placed on a smooth, level and sturdy work surface, preferably near a drain for emptying. Use in a ventilated kitchen. 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

Remove the product from its packaging and retain over the warranty period. Contents consist of:

- Bath
- Stainless steel reciprocating trolley
- Stainless steel perforated shelf
- Power lead and Instruction manual

## ASSEMBLY

28 Litre Baths: Place the trolley into the bath locating the drive arm into the white bush and tighten the locking knob on the drive arm by hand. Accessory clip trays can then be placed on the trolley. When fitting ensure the trays fits over the trolley at the drive arm end and into the trolley at the far end. Fit the power lead into the socket at the rear.

10 Litre Bath: Place the trolley into the bath locating the drive arm into the white bush and tighten the locking knob on the drive arm by hand. Fit the eyebolt handles on both sides.

## SAFETY



Do not touch any electrical contacts or open any closure panels.  
**RISK OF ELECTRIC SHOCK!!**  
NE5-10D and NE5-28D : Class 1 (IEC519 Part 2)  
NE5-28 : Class 2 (IEC519 Part 2)

## 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.

Minimum liquid level - must cover the top of the trolley by 50mm  
Maximum flask immersions - 120mm from the top of the trolley

Place the trolley in the place as per assembly instructions. Fill to the minimum liquid level. Place the perforated shelf with clips, racks etc on the trolley and then adjust the water level to suit. Optimal temperature performance is achieved when liquid level covers the top of the trolley by 75 to 120mm.

### Suitable Liquids

Operating temperatures from ambient +5°C to 99°C, for general use we recommend:

- Distilled Water
- 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)
- Virkon dissolved in distilled water has proven efficacy against bacteria (incl microbacteria), viruses, spores and fungi in a variety of independent tests using different protocols.

## OPERATING INSTRUCTIONS



Ensure the stainless steel trolley is fitted and fill the bath with water following Liquid Level Instructions. SWITCHING THE BATH ON WHEN DRY WILL DAMAGE THE HEATER AND MAY INVALIDATE YOUR WARRANTY.

### NE5 SERIES ANALOGUE SHAKING BATH

1. Connect the mains power lead to an electrical supply. Turn the bath on using the green mains power switch located on the rear.
2. Adjust the temperature control knob to the desired setting. Temperature can be set between ambient +5°C to 99°C.
3. Amber heater neon will illuminate to indicate heater activity.

4. Allow the water temperature to stabilise taking an actual reading in the middle of the bath using a thermometer.
5. Adjust the shaker speed by rotating the control knob. Speed can be set between 0 to 400 strokes per minute. Dial indicates stroke speed at 100, 200, 300 and 400 markers.
6. OPTIONAL: Setting the "Experiment Protector" . Ensure the adjustable overtemperature device dial is turned fully clockwise. Set the temperature that you wish the safety device to operate at as per point 4 above. Allow the liquid to reach this temperature and settle. Slowly turn the dial back anticlockwise until it clicks. Now adjust the temperature to the actual operating temperature required. Allow the liquid to cool to this setting. The adjustable overtemperature safety device is now set and during fault condition will cut off all heating protecting work/sampling from overheating and damage.

## NE5-10D and NE5-28D: CONTROLLER KEYS AND LEDS



- U: To activate program
- P: To program set point and set point and timer
- UP ARROW: To increase temperature and timer set point values
- DOWN ARROW: To decrease temperature and timer set point values
- NOTE: When program is running, temperature and timer, a green dot appears above "Prg" on display. To indicate heating/temperature control a red indicator flashes on the top right of the display near marking 1.

## OPERATING INSTRUCTIONS

Connect the mains power lead to the electrical supply. Switch the digital shaking water bath ON using the green mains switch located on the rear of the unit. The controller will perform a self test. The display will then show actual bath temperature on start up.

## SETTING SP1 SET POINT

1. Press DOWN ARROW key once. "SP1" (set point) will flash on the top line of the display in red. The lower line of green text indicates the set point temperature.
2. Use the UP and DOWN arrow keys to select desired temperature.
3. Press P to confirm settings.
4. Display will revert to temperature display. Red top display shows actual bath temperature and bottom green display indicates SP1 set point temperature.

## SETTING PROGRAM SET POINT (Pr.S1) AND TIMER PROGRAM (Pr.t1)

1. Press P twice. "Pr.S1" (program set point and timer).
  2. Use UP and DOWN arrow keys to set "SP1" as above.
  3. Press P to confirm settings.
  4. "Pr.t1" will flash on display.
  - 5 Use UP and DOWN arrow keys to set time required in hours and minutes. Press P to confirm.
  6. Press and hold U key for approx 3 seconds to revert to home screen.
  7. Press and hold U key for approx 1 second to activate the program.
  8. Timer will activate when SP1 temperature is reached.
  9. When set time is reached P.End will be displayed with an audible alarm.
  10. Press and hold U key for 3 seconds to cancel P.End message and alarm.
- Note: Press and hold U key at any point to deactivate/stop running the program.
11. When Pr.S1 timer period has ended temperature reverts back to SP1.

## STROKE ADJUSTMENT NE5-28 AND NE5-28D

1. Open the access door on the side of the bath.
2. Power is isolated from controls and drive system, a warning indicator will illuminate - it is then safe to adjust the stroke.
3. Turn the drive block by hand until a knurled adjustable screw is visible.
4. Rotate this screw using a flat head screwdriver clockwise to reduce stroke length or anticlockwise to increase stroke length. There are a number of graduations shown on the drive arm indicating stroke length. The first line indicates 10mm and further lines are positioned at 10mm intervals. The factory setting is 20mm. Increasing stroke length decreases quoted speed and likewise decreasing stroke length increases quoted speed.
5. Close the access door and switch the bath back on.

## 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 either nitric acid (10%) on a cloth -WEAR PROTECTIVE EQUIPMENT - or Bar Keepers Friend, a stainless steel surface cleanser.

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 been tested by independent specialist houses using internationally recognised test methods and proven to be effective against a wide range of 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.

#### 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!!**

## Common Spare Parts

Description	Part Number	Quantity	Where Used:
Controller	EX1311	1	NE5-10D and NE5-28D
Inlet Socket	EX0854	1	NE5-10D, NE5-28 and NE5-28D
Motor and Gearbox	SA01511	1	NE5-10D, NE5-28 and NE5-28D
Sensor	ET0835	1	NE5-10D, NE5-28 and NE5-28D
6.3 amp Fuse	EF0094	2	NE5-28 and NE5-28D
5 amp Fuse	EF0096	2	NE5-10D
Speed Control	EX1139	1	NE5-10D, NE5-28 and NE5-28D
400 Watt Element	EE0562	1	NE5-10D
1000 Watt Element	EE0825	1	NE5-28 and NE5-28D

## ACCESSORIES FOR THE NE5 SERIES SHAKING BATHS

### Stainless Steel Lids

SL1-8	Stainless Steel Gable Lid to suit 10 Litre Shaking Water Bath
SL1-22	Stainless Steel Gable Lid to suit 28 Litre Shaking Water Baths
SL1-22H	St/Steel Hinged Gable Lid to suit 28 Litre Shaking Water Baths

### GRP Lids

GL1-22	Hinged Gable Lid to suit 28 Litre Shaking Baths
GL1-8	Hinged Gable Lid to suit 10 Litre Shaking Bath
GL1-8AF	Lift Off Gable Lid to suit 10 Litre Shaking Bath
GL1-22AF	Lift Off Gable Lid to suit 28 Litre Shaking Baths

### Stainless Steel Flask Clip Trays to suit 28 Litre Shaking Baths

SFT0025	39 x 25ml Stainless Steel Flask Clip Tray
SFT0050	32 x 50ml Stainless Steel Flask Clip Tray
SFT0100	18 x 100ml Stainless Steel Flask Clip Tray
SFT0250	12 x 250ml Stainless Steel Flask Clip Tray
SFT0500	8 x 500ml Stainless Steel Flask Clip Tray
SFT1000	5 x 1000ml Stainless Steel Flask Clip Tray
SFT2000	2 x 2000ml Stainless Steel Flask Clip Tray
SFT9000	Stainless Steel Universal Spring Tray to fit 28 Litre Bath
STT004	Stainless Steel Test Tube Rack Tray
SFT9010	Stainless Steel Universal Spring Tray to suit 10 Litre Bath
SA01773	Stainless Steel Perforated Tray to suit 10 Litre Bath

Stainless Steel Flask Clips - attached directly to 10L Bath or to SBF01804 for 28L Bath

FC0025	25ml Flask Clip
FC0050	50ml Flask Clip
FC0100	100ml Flask Clip
FC0250	250ml Flask Clip
FC0500	500ml Flask Clip
FC1000	1000ml Flask Clip
FC2000	2000ml Flask Clip
M11	Microtitre Clip

Stainless Steel Test Tube Racks: Dimensions: 270 x 70 x 138mm

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
6900	12 Hole x 32mm Diameter

Immersion Cooler: for use with Digital Baths Only

DC1-300	Immersion cooler (ambient to -15°C)
NE5-MB	Mounting Clamp

Miscellaneous Accessories

BP0368	Polypropylene Spheres - pack of 200 - 2 packs required
TC-1	Thermometer and Clip





### DECLARATION OF CONFORMITY

We herewith confirm the following product:  
NE5 Series Analogue and Digital Shaking Water 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 2012/65/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