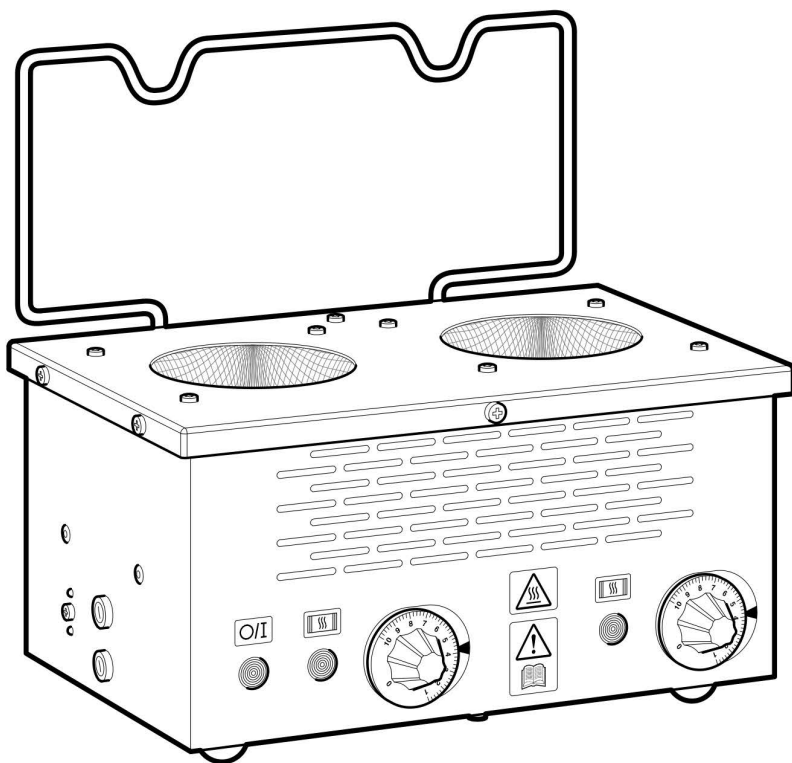


Cole-Parmer®

EH-200 Series Macro-Kjeldahl Extraction Equipment



Instruction Manual
M6895-CPB Version 6.7

Cole-Parmer®
essentials

Please take your time to read this Instruction manual in order to understand the safe and correct use of your new Cole-Parmer product.

It is recommended the responsible Body for the use of this equipment reads this instruction manual and ensures the user(s) are suitably trained in its operation.

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This product is manufactured in Great Britain by Antylia Scientific, part of the Antylia Scientific Group of companies.

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1. INTRODUCTION

The Macro-Kjeldahl Equipment.

The Cole-Parmer EH-200-2 & EH200-2-L Series of products has been designed for Kjeldahl extraction on a macro scale.

These multibank units are available with either 2 or 6 recesses. The units have a stainless-steel housing. There are two capacity sizes available, one for 100-300ml vessels and the second for 500-800ml vessels.

The lower part of the unit houses the control equipment. This is separated from the heating element by a stainless-steel tray and a well-ventilated air space.

Each heating mantle has its own energy regulator incorporating an ON/OFF switch and an amber, mains to heater neon indicator. There is also a mains On indicator (clear) on the front panel. The units are also fused on the supply line and neutral except EH-200-6-L-115 which has no fuses (see Section 5).

Note: EH-200-2 & EH200-2-L products incorporate earth screen and are CE marked.

The six recessed versions when specified for use with 500-800ml vessels is only available in a 230 V~AC rating. All other models are available in 115V~AC or 230V~AC.

Note: EH-200-6-L-115 is only for sale outside of Europe and is not CE approved.

2. SYMBOLS AND USING THIS INSTRUCTION MANUAL

- 2.1. Throughout this Instruction manual the following symbols are shown to identify conditions which pose a hazard to the user, or to identify actions that should be observed. These symbols are also shown on the product, or its packaging. When a symbol is shown next to a paragraph or statement it is recommended the user takes particular note of that instruction in order to prevent damage to the equipment or to prevent injury to oneself or other people.

The Responsible Body and the Operator should read and be familiar with this Instruction manual in order to preserve the protection afforded by the equipment.

To prevent injury or equipment damage it is the manufacturer's recommendation that all persons using this equipment are suitably trained before use.

- 2.2. Symbols Defined.



Caution, risk of danger. See note or adjacent symbol.



Protective conductor terminal to be earthed.
(Do not loosen or disconnect).



Caution / Risk of electric shock.



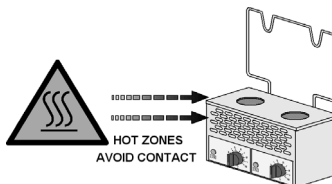
Recyclable Packaging Material.



Material irritant to skin. When handling wear face mask to BS/EN 149 and protective gloves.



Bio Chemical Hazard. Caution required. Will require decontamination.



3. SAFETY INFORMATION

This product has been designed for safe operation when used as detailed in accordance with the manufacturer's instructions.

NOTE: Failure to use this equipment in accordance with this instruction manual may compromise your basic safety protection afforded by the equipment and may invalidate the warranty / guarantee. The warranty / guarantee does not cover damaged caused by faulty installation or misuse of the equipment.

3.1. Prevention of Fire and Electric shock.



To prevent a risk of fire or electric shock, **do not** open your product case without authorisation. Only qualified Service personnel should attempt to repair this Controller.



Only replace fuses with the type as listed in Technical Specification section (See fuse type and rating).



Ensure the Mains Power Supply conforms to rating found on the data plate located on the base of this product.



Never operate this equipment without connection to earth / ground. Ensure the mains supply voltage is correctly earthed / grounded in accordance with current area legislation.

3.2. General Safe Operating Practice.



Always follow good laboratory practice when using this Equipment. Give due recognition to your company's safety and legislative health & safety procedures and all associated legislation applicable to your areas of operation. Check laboratory procedures for substances being heated and ensure all hazards (e.g. explosion, implosion or the release of toxic or flammable gases) that might arise have been suitably addressed before proceeding. When heating certain substances the liberation of hazardous gases may require the use of a fume cupboard or other means of extraction.



Ensure equipment is used on a clean, dry, non-combustible, solid work surface with at least 300mm suitable clearance all around from other equipment.



Do not position the product so that it is difficult to disconnect from the mains supply.



Do not touch the heating element or any glass vessel whilst in use



Do not lean or stretch over equipment, glassware and fixings when in use



Do not immerse the controller in water or fluids.



Do not spill substances onto this unit. If spillage does occur, disconnect unit from mains supply and follow instructions as detailed in Section 'Maintenance'.



To prevent electronic overhear and potential fire, **do not** cover this product when connected to the mains power supply.



Do not obstruct or block the ventilation slots.



Only use an Earth screened mantle with electrically conductive vessels.



Do not leave equipment switch on with empty glassware.



Do not thermally insulate the exposed upper section of the vessel(s), as the insulation used may obstruct the convection cooling airways around the rim of the cartridge enclosure and cause the mantle to overheat



It is not recommended to leave any heating apparatus unattended during operation.



The equipment is not spark, flame or explosion proof and has not been designed for use in hazardous areas in terms of BSEN 60079-14:1997.



Keep flammable, low flash point substances away from the apparatus.



Do not operate or handle any part of the product with wet hands.



Do not leave this product switched on without glass sides in place for prolonged periods.



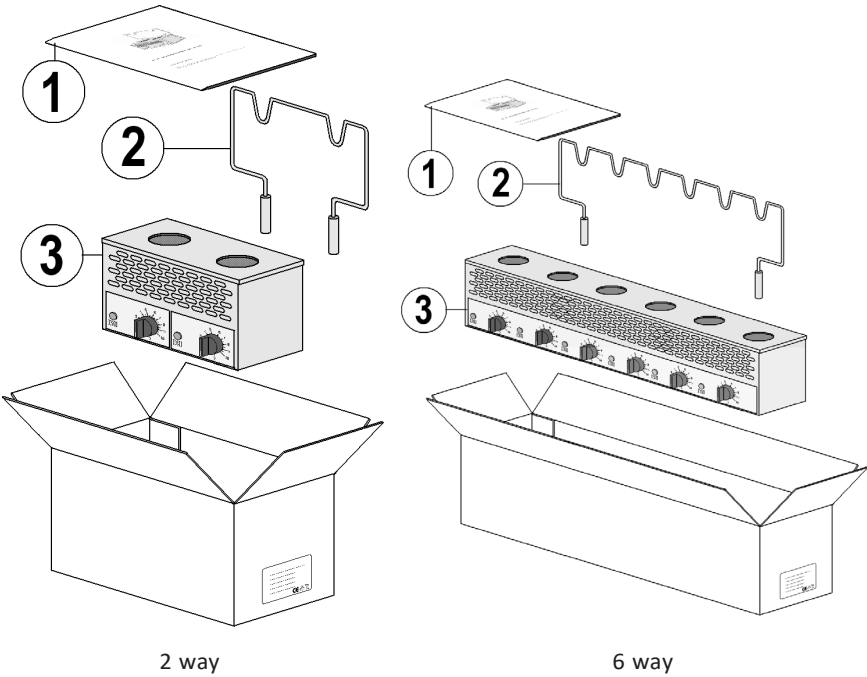
Keep the mains plug and lead set cable away from the heating apparatus being controlled.



ATTENTION: With high energy input and certain configurations of glassware in EH-200 Series products, where the heating contact to glassware is relatively small, localised heating and subsequent 'bumping' of the fluid being heated may occur. Application advice should be sought from the manufacturer

4. **UNPACKING AND CONTENTS**

Please check the contents of your carton against the relevant product diagram
Applicable to all EH-200-2 & EH-200-6 Series products.



Item No	Description	Qty
1	Instruction manual	1
2	Rack	1
3	Product	1

For future reference please record your products Serial and Model Numbers.	Serial Number	Model Number
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5. INSTALLATION

5.1. Electrical safety and Installation

5.2. This equipment is designed for safe operation under the following conditions:-

- Indoor use.
- Altitude up to 2000 meters.
- Temperatures between 5°C and 40°C.
- Maximum relative humidity 80% for temperatures up to 31°C decreasing linearly to 50% relative humidity at 40°C.
- Mains supply voltage fluctuations up to $\pm 10\%$ of the nominal voltage.
- Transient overvoltages typically present on the mains supply. (Overvoltage category II).
- Applicable rated pollution degree 2.

- 5.3.  This equipment must be earthed / grounded to a fixed earth / grounded mains socket outlet. The mains supply is to be earthed / grounded in accordance with current legislation.
- 5.4. Ensure only the correct rated mains input fuses are fitted. (Where applicable ensure the correct mains cable fuse if fitted). See Technical Specification, Section 8 of this Instruction manual.
- 5.5. Check the voltage on the product data label of this unit. Ensure the rating conforms to your local supply. If an 115V product is used in a 230V supply area, then a 230/115V transformer must be installed between the 230V mains supply and the product, by a competent electrician.
- 5.6. This product should be connected to a mains supply source which incorporates a RCD or GFCI device that has a tripping current of 30mA or less. The RCD or GFCI residual Current Device cuts off power to the equipment immediately it detects a current leakage fault. For example, cutting off the power when there is an accidental liquid spillage in a mantle protected with an earth (ground) screen.
- 5.7.  Do not install this product or accessories on a surface which may become flooded
- 5.8. The units up to and including 1800 watts are supplied with a moulded mains cord and plug set wired as follows:-

Green /Yellow	or	Green	= Earth / Ground	
Blue	or	White	= Neutral	
Brown	or	Black	= Live / line hot.	

Note: Units above 1800 watts (i.e. EH-200-6-L and EH-200-6-L-115) are classified as permanently connected equipment and will need to be hardwired by a competent electrician. Guidance notes as follows;

An external switch/circuit breaker and overcurrent protection device must be fitted inline with hardwired equipment. The switch/circuit breaker must be positioned near to the unit and marked clearly as the disconnecting device.

EH-200-6-L (230V): Mains cable is supplied with this model. Free end to be hardwired into a suitable 16Amp rated socket, or isolator unit. (continued)

EH-200-6-L-115 (115V): There are no internal fuses on this model. Suitable fuses must be fitted in the building supply / distribution point as part of the installation. Remove the 4 screws holding the terminal mounting plate on the rear of the unit. Feed mains cable (not supplied) through cable gland and connect to Ground, Neutral and Live connection points on the 3 way mains terminal block. Tighten the cable gland in the required position and replace and secure the terminal mounting plate. Hard wire the free end into a fused isolation unit and fit 35Amp fuses.

Observation: the surface of the heating element of a mantle cartridge will upon receipt look slightly discoloured. This discolouration is normal and occurs at the factory during test when the mantle is first heated up.

6. ENVIRONMENTAL PROTECTION

- 6.1. Maximum consideration has to be given to environmental issues within the design and manufacturing process without compromising end product performance and value.

- 6.2.  Packaging materials have been selected such that they may be sorted for recycling.

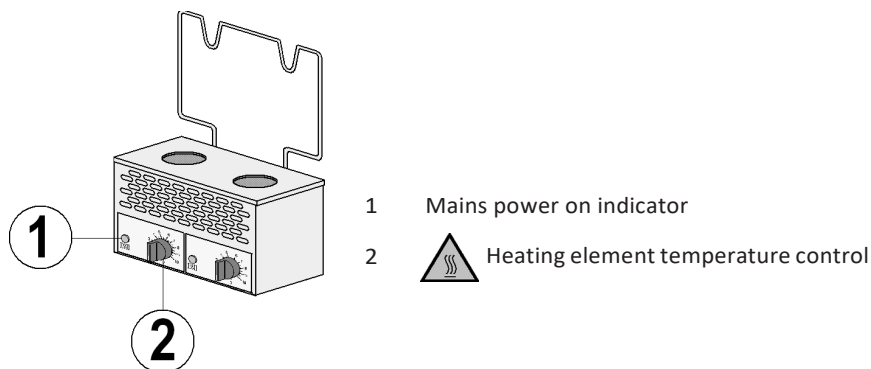
- 6.3.  At the end of your product and accessories life, it must **not be** discarded as domestic waste. Ref: EU Directive 2002/96/EC on Waste Electrical and Electronic Equipment Directive (WEEE). Please contact your distributor / supplier for further information. For end users outside of the EU consult applicable regulations.

- 6.4. This product should only be dismantled for recycling by an authorised recycling company.



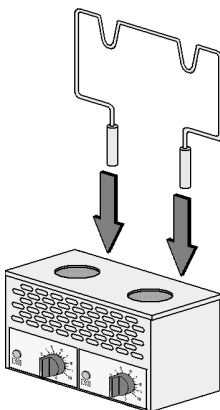
This product and accessories must be accompanied by a completed Decontamination Certificate prior to any Disposal. Copies of the Certificate are available from Distributor/Manufacturer.

7. EQUIPMENT OPERATION



7.1. Place charged, clean dry glass vessels of the size indicated on the label, in the mantle. Where ever possible the vessels should be supported within the mantle by means of a support rod and clamp.

7.2. If a support rod is used, insert it through the clamp onto the bench top.



7.3. Care should be taken to ensure a good contact between the surface of the vessel and the heating element before switching on the power supply. When first used the surface of the heating element will become slightly discoloured. This is due to the dressing in the fabric and will gradually disappear with use.

7.4. Connect to the mains electricity supply ensuring the correct voltage has been applied. See data plate for correct electrical supply voltage.

NOTE: The mains power on indication neon's on will illuminate for each position when the heaters are operational.

7.5. Regulate the temperature by turning the control dial up or down.

7.6.   When finished with the equipment, turn off from the mains electrical supply. Allow the glassware and unit to cool down. Remove glassware.

8. TECHNICAL SPECIFICATION

8.1. General specification

Mains input supply voltage (115V~ AC)	115V – AC $\pm$ 10% at 50/60Hz
Mains input supply voltage (230V~AC)	230V – AC $\pm$ 10% at 50/60Hz
Plug and Lead set	3 core 2 meters long. (No cable supplied on EH-200-6-L-115)
Operating Ambient Temperature	Up to 40 °C.
Heating Element Construction	Thermal insulated element wire stitched into a cartridge construction
Heating Element Temperature	800°C Max
Case construction	Stainless-steel
Thermal Insulation	Ceramic Fibre / Mineral wool
Clamps for Support rods	12.7mm dia max

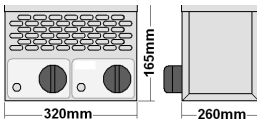
8.2. Power consumption and fuse rating

Unit	Capacity	Total power	Fuse rating
EH-200-2	100-300	600	F5A 6.35 x 32mm Glass Quick Blow
EH-200-2-115	100-300	600	F7A 6.35 x 32mm Ceramic
EH-200-2-EU	100-300	600	F5A 6.35 x 32mm Glass Quick Blow
EH-200-2-L	500-800	1100	F7A 6.35 x 32mm Ceramic
EH-200-2-L-115	500-800	1100	F15A 6.35 x 32mm Glass Quick Blow
EH-200-2-L-EU	500-800	1100	F7A 6.35 x 32mm Ceramic
EH-200-6	100-300	1800	F5A 6.35 x 32mm Glass Quick Blow
EH-200-6-115	100-300	1800	F10A 6.35 x 32mm Glass Quick Blow
EH-200-6-EU	100-300	1800	F5A 6.35 x 32mm Glass Quick Blow
EH-200-6-L	500-800	3800	F10A 6.35 x 32mm Glass Quick Blow
EH-200-6-L-115	500-800	3800	See note**
EH-200-6-L-EU	500-800	3800	F10A 6.35 x 32mm Glass Quick Blow

****Note:** 35Amp fuses to be fitted at the supply/distribution point see section 5

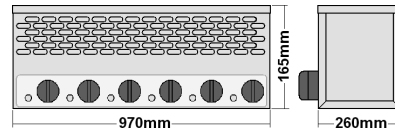
8.3. Weight and Dimensions

EH-200-2, EH-200-2-L



Weight 2.0kg

EH-200-6, EH-200-6-L



Weight 5.8kg

The Ingress Protection rating for this product is classified as IPX 0.

9. MAINTENANCE

9.1. General Information.



Unplug the unit from the mains voltage supply and allow it to cool before undertaking any maintenance tasks.



Maintenance should only be carried out under the direction of the Responsible Body, by a competent electrician. Failure to do so may result in damage to the product and in extreme cases be a danger to the end user.

With proper care in operation this equipment has been designed to give many years of reliable service. Contamination or general misuse will reduce the effective life of this product and may cause a hazard.

Maintenance for the unit should include:

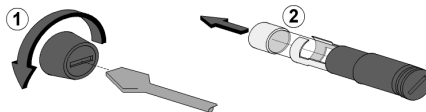
- Periodic electrical safety testing (an annual test is recommended as the minimum requirement).
- Regular inspection for damage with particular attention to the mains lead and plug set.
- Routine cleaning of the equipment should be undertaken using a clean cloth.
- Check the ventilation slots are clear.

DO NOT USE SOLVENTS FOR CLEANING ANY PART OF THIS EQUIPMENT.

9.2. Fuse Replacement

The mains fuse holder is located at rear your product. Refer to Technical specification, 'Fuse Rating' for correct fuse type and rating. Turn your product off and disconnect it from the mains supply.

1 Unscrew the fuse holder cap from the fuse housing and **2** remove the fuse. Fit replacement fuse of the correct rate and value.



9.3. Heater Cartridge Replacement



Attention. The heater contains insulation material made from Refractory Ceramic Fibres (RCF), classified as a category 2 carcinogenic under EU Directive 67/548/EC. Follow the guidelines for working with RCF as laid down under in the ECFIA Code of Practise. Wear suitable protective clothing and gloves.



EH-200 Series mantles contain Rockwool mineral insulation. When handling a suitable facemask which bears the CE mark should be used. A face mask to BS/EN 149 is adequate. When handling, wear gloves. Should skin irritation be experienced it can be lessened by rinsing hands under cold running water before washing. For further information refer to guidance note EH46 published by HMSO and technical data sheets available from Rockwool Limited. Pencoed. Bridgend. CF35 6NY.

In the event of a heater element becoming damaged or open circuit the following procedure should be adopted for its replacement.

- 9.3.1. Unplug or disconnect the mantle from the mains electricity supply.
- 9.3.2. Remove the crosshead fixing screws from the lid and lift the lid off.
- 9.3.3. Disconnect the lid to base earth wire.
- 9.3.4. Remove the three M3 cartridge retention nuts and disconnect the cold leads from the temperature controller PCB.
- 9.3.5. Reverse this process to fit the new cartridge assembly.
- 9.3.6. Replace the earth lead and base and refasten using the previously removed crosshead fixing screws.
- 9.3.7. The responsible body shall check the electrical safety of the product before further use.

9.4. Spillage and Decontamination.

In the event of spillage or glassware fracture, do not touch the mantle. Disconnect the product from the mains electrical supply. Allow the product to cool. Wearing suitable hand protection (giving due consideration to substances that were being heated) carefully remove any pieces of broken glassware. If decontamination is necessary, see section below. Otherwise wipe off all excess liquid from the mantle and surrounding area using an absorbent soft cloth. Drain off any residual fluid retained in the mantle. In the case of excessive spillage/ flask fracture, invert the mantle and allow it to drain for a minimum of one hour. Then place the complete mantle, the correct way up, in a heated oven at 60°C for a minimum period of 24 hours.

If in doubt please consult Customer Support. Refer to section 11.



If the equipment has been exposed to contamination, the Responsible Body is responsible for carrying out appropriate decontamination. If hazardous material has been spilt on or inside the equipment, decontamination should only be undertaken under the control of the Responsible Body with due recognition of possible hazards. Before using any cleaning or decontamination method, the Responsible Body should check with the manufacturer the proposed method will not damage the equipment.

Prior to further use, the Responsible Body shall check the electrical safety of the unit. Only if all safety requirements are met can the unit be used again. The above procedure is intended as a guide. Should spillage occur with a toxic or hazardous fluid then special precautions may be necessary.

Decontamination Certificate.

Note: In the event of this equipment or any part of the unit becoming damaged, or requiring service, the item(s) should be returned to the manufacturer for repair accompanied by a completed decontamination certificate.

Copies of the Certificate are available from Distributor/Manufacturer.

At the end of life, this product must be accompanied by a completed Decontamination Certificate.

10. SPARES AND ACCESSORIES

Order Number	Description
CRM5607	Neon clear (230V)
CRM5619	Neon clear (115V)
CRM5608	Neon amber (230V)
CRM5620	Neon amber (115V)

Model No.	Replacement Heater Cartridge
EH-200-2	REMQ3822/66B/E
EH-EH-200-2-L	REMQ3824/68B/E
EH-200-6	REMQ3822/66B/E
EH-200-6-L	REMQ3824/68B/E
EH-200-2-115	REMQ3822/66BEX1
EH-200-2-L-115	REMQ3824/68BEX1
EH-200-6-115	REMQ3822/66BEX1
EH-200-6-L-115	REMQ3824/68BEX1

Please contact your local sales specialist or email cpspares@antylia.com to enquire about available spares.

Please visit www.coleparmer.com for a full list of available accessories.

11. CUSTOMER AND TECHNICAL SUPPORT

For help and support in using this product, please contact Customer Services at the following address:

Antylia Scientific Ltd.
Beacon Road,
Stone,
Staffordshire,
ST15 0SA,
United Kingdom
Tel: +44 (0)1785 812121

Service: cpservice@antylia.com
General enquiries: cpinfo@antylia.com
Order enquiries: cpsales@antylia.com
Technical support: cptechsupport@antylia.com

www.coleparmer.com



This product meets the applicable CE Directives and UKCA Legislation for radio frequency interference and may be expected not to interfere with, or be affected by, other equipment with similar qualifications. We cannot be sure that other equipment used in its vicinity will meet these standards and so we cannot guarantee

that interference will not occur in practise. Where there is a possibility that injury, damage or loss might occur if equipment malfunctions due to radio frequency interference, or for general advise before use, contact the manufacturer.

Declaration of Conformity is available to view online at www.coleparmer.com

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Pricing on any accessories shown can be found by keying the part number into the search box on our website.

The specifications listed in this brochure are subject to change by the manufacturer and therefore cannot be guaranteed to be correct. If there are aspects of the specification that must be guaranteed, please provide these to our sales team so that details can be confirmed.

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Please contact us if this literature doesn't answer all your questions.