



# Electrothermal

For all your heating,  
cooling & stirring needs

CMU Electromantles

Controllers

Heating Cords & Tapes

Histology & Pathology Products

Kjeldahl Equipment

Melting Point Apparatus

Metal Electromantles

Multi (Extraction) Mantles

STEM Omni Reaction Stations

STEM RS Reaction Stations

STEM Integrity 10 Reaction Station

Stirrers



# Bibby Scientific Limited

Some of the most famous names in science...



One of the largest broad based manufacturers of laboratory products worldwide, Bibby Scientific Limited provides internationally recognised brands with reputations for product quality and high performance. These famous brands are now brought together in a single package to offer an excellent level of quality, service and support. We manufacture one of the largest ranges of benchtop equipment available under four famous brand names.



Electrothermal is the newest addition to the Bibby Scientific portfolio and comes with 70 years' heritage for manufacturing heating, cooling and stirring equipment. With a reputation for high quality, Electrothermal leads the market in heating mantles, and also supplies heating cords and tapes, controllers, Kjeldahl equipment, histology and pathology equipment, Electric Bunsen, melting point apparatus, water and ration heaters and a range of reaction stations.



Jenway® makes a wide range of scientific instruments including UV/Vis spectrophotometers, flame photometers, colorimeters, portable and laboratory meters for the measurement of dissolved oxygen, pH, conductivity and specific ions.



The extensive Stuart® range includes blood tube rotators, colony counters, hotplates, hybridisation ovens, rockers, shakers, stirrers and water purification systems.



Techne® is a world leader in the manufacturing of temperature control equipment, including water baths, Dri-Block® heaters, and molecular biology products such as hybridisation incubators and thermal cyclers.



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## Contents

For all your heating, cooling & stirring needs

|      |                                  |
|------|----------------------------------|
| i.   | Introduction to Bibby Scientific |
| ii.  | Contents                         |
| iii. | Welcome to Electrothermal        |
| 5    | Heating Mantles:                 |
| 6    | Electromantle Guide              |
| 7    | CMU Metal Electromantles         |
| 15   | Digi-Mantles                     |
| 19   | EM Electromantles                |
| 25   | Multi (Extraction) Mantles       |
| 31   | Electric Bunsen                  |
| 33   | Kjeldahl equipment               |
| 37   | Heating cords and tapes          |
| 41   | Controllers                      |
| 47   | Melting point apparatus          |
| 53   | Histology and pathology products |
| 57   | Stirrers                         |
| 65   | STEM RS Reaction Stations        |
| 77   | STEM Omni Reaction Stations      |
| 83   | STEM Integrity Reaction Stations |
| 87   | Complementary products           |
| 91   | Technical information:           |
| 92   | Service & Repair                 |
| 93   | Certifications & conformity      |
| 94   | Periodic Table                   |
| 96   | Reaction Station running costs   |
| 98   | Our commitment to customers      |
| 99   | Contact details                  |



# Welcome to Electrothermal

## For all your heating, cooling and stirring needs

The release of our first ever catalogue a few months ago sparked so much interest that we are already onto our second print run. We would like to take this opportunity to acquaint you with our new products and accessories and also our new LabOffers website.

## New products and accessories

We recently launched two new melting point apparatus, Mel-Temp® and the IA9000 series and are delighted that they're already selling so well. This is not surprising however as they tick all the boxes our customers asked for, being quick and easy to use, adjustable for all viewers, and give exceptional value for money. Take a look at them on pages 47 to 52.

Our reaction stations lie at the heart of "Green Lab" and "Lean Lab" working and we view them as the future staples of every laboratory for many scientific disciplines. We have 13 products for you to choose from in our STEM RS, Omni and Integrity series, the newest addition being our STEM Integrity 6 Reaction Station on page 86.

To make our Integrity and Omni series even more useful, we're currently launching a range of new accessories, the first being a new more sensitive IR/NIR probe (see page 85) for solubility and crystallisation work, which is ideal for viscous solutions and large crystals. To support this launch, we have a new application note available for download from our website.

## LabOffers gives you an even better deal

Bibby Scientific have recently launched a new bargain offer website [www.lab-offers.com](http://www.lab-offers.com). It features the best deals available on all 4 Bibby brands, i.e. Electrothermal, Stuart, Techne and Jenway. The offers will change every quarter, so please keep checking back to see what our latest offerings are.

Electrothermal products are designed and manufactured in the UK at our ISO9001:2008 certified site with a "cradle to grave" approach, so that every step of the product's journey from conception to disposal is properly managed and documented. All electrical products produced by Electrothermal conform to the current safety directives, are also compliant with the Waste Electrical and Electronic Equipment Directive, (the WEEE Regulations- Directive 2002/96/EC) and the Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations 2005 (the RoHS Regulations- Directive 2002/95/EC).

All the products featured in this catalogue are available through a wide range of national and international distributors. For your local distributor details and up-to-date product information, please visit our Electrothermal website at [www.electrothermal.com](http://www.electrothermal.com). Here you will also find brochures and technical manuals in PDF format to download, as well as information on news on events, exhibitions and seminars and any special offers.

All Electrothermal products carry a minimum 1 year parts and labour warranty and some have a 3 year warranty. Should you have a query or require technical advice, our Service team at Electrothermal is always on hand to assist you and may be contacted at [help@electrothermal.com](mailto:help@electrothermal.com). We are committed to providing you with the very best in heating, cooling and stirring equipment, as well as the highest level of service over the lifetime of your product.



## Mantles

### CMU, EM Series, Digi-Mantles

We have an extensive range of heating mantles, including CMU Electromantles with metal cases and EM Electromantles with polypropylene cases, some models offering optional stirring functionality, catering for various round bottom flask capacities and being able to accommodate funnels. Digi-Mantles offer accurate electronic control of both heating and stirring and their modular inter-changeable design ensures that the same base controller can accept different-sized heating mantles. Our Multi (Extraction) Mantles can heat between 3 and 6 round bottom flasks simultaneously, providing stirring too if desired. Although mainly used for extraction, they can be used as a space-saving apparatus for heating multiple flasks in any laboratory.

|                |                            |
|----------------|----------------------------|
| <b>Page 6</b>  | Electromantle Guide        |
| <b>Page 7</b>  | CMU Metal Electromantles   |
| <b>Page 15</b> | Digi-Mantles               |
| <b>Page 19</b> | EM Electromantles          |
| <b>Page 25</b> | Multi (Extraction) Mantles |
| <b>Page 31</b> | Electric Bunsen            |

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# Electromantle Guide

The Electrothermal series of heating mantles has been specifically designed to provide a comprehensive answer to heating fluids in round bottom flasks in the modern laboratory.

## Polypropylene Case

| Electromantle Series   | EM                           | EMA                | EMV  | EMX<br>Spill-proof |
|------------------------|------------------------------|--------------------|--|--------------------|
| Functions              | Heating                      | Heating & Stirring | Heating: V-shaped for 60° funnels, round bottom & pear shaped flasks |                    |
| <b>Flask Size (ml)</b> |                              |                    |  |                    |
| 10 - 50                |                              |                    | •  |                    |
| 50                     | •                            | •                  |  |                    |
| 100                    | •                            | •                  |  |                    |
| 100 - 250              |                              |                    | •  |                    |
| 250                    | •                            | •                  |  |                    |
| 500                    | •                            | •                  |  |                    |
| 500 - 1000             |                              |                    | •  | •                  |
| 1000                   | •                            | •                  |  |                    |
| 2000                   | •                            | •                  |  |                    |
| 2000 - 5000            |                              |                    | •  | •                  |
| 3000                   | •                            |                    |  |                    |
| 5000                   | •                            |                    |  |                    |
| Temperature range      | Ambient to 450°C for element |                    |  |                    |
| Max. Stirring Rate     | 520rpm                       |                    |  |                    |
| Certifications         | CE approved                  |                    |  |                    |

## Aluminium Case

| Electromantle Series   | CMU                                  | CMUT<br>Controlled or<br>Uncontrolled | CMUA               | CMUV<br>Controlled or<br>Uncontrolled   | Digi-Mantles       |
|------------------------|--------------------------------------|---------------------------------------|--------------------|---|--------------------|
| Functions              | Heating                              | Heating                               | Heating & Stirring | Heating<br><small>(V-shaped for 60° funnels, round bottom &amp; pear-shaped flasks)</small> | Heating & Stirring |
| <b>Flask Size (ml)</b> |                                      |                                       |                    |   |                    |
| 50                     | •                                    |                                       | •                  |   |                    |
| 100                    | •                                    |                                       | •                  |   |                    |
| 250                    | •                                    |                                       | •                  |   | •                  |
| 250 - 1000             |                                      | •                                     |                    |   |                    |
| 500                    | •                                    |                                       | •                  |   | •                  |
| 1000                   | •                                    |                                       | •                  |   | •                  |
| 2000                   | •                                    |                                       | •                  |   |                    |
| 3000                   | •                                    |                                       | •                  |   |                    |
| 5000                   | •                                    |                                       | •                  |   |                    |
| 10000                  |                                      |                                       |                    | •   |                    |
| 12000                  |                                      |                                       |                    | •   |                    |
| 20000 - 22000          |                                      |                                       |                    | •   |                    |
| Temperature range      | Ambient to 450°C for element         |                                       |                    |   | Ambient to 450°C   |
| Max. Stirring Rate     | 2000rpm                              |                                       |                    |   | 2000rpm            |
| Certifications         | CE and CSA approved; (for 115V only) |                                       |                    |   |                    |

Note: All units have 3 electrical choices, just add suffix X1 to the catalogue number for 115V, X6 for EU Plug 230V  
 Controllers: For remote energy control use MC242, for remote temperature use MC810B



## Metal Electromantles

### CMU Series

The Electrothermal series of heating mantles has been specifically designed to provide a comprehensive answer to heating fluids in round bottom flasks in the modern laboratory.

|                |                                 |
|----------------|---------------------------------|
| <b>Page 8</b>  | CMU Uncontrolled Electromantles |
| <b>Page 10</b> | CMU Controlled Electromantles   |
| <b>Page 11</b> | CMUT Electromantles             |
| <b>Page 12</b> | CMUA Stirring Electromantles    |
| <b>Page 14</b> | CMUV Electromantles             |

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# CMU

## Uncontrolled Mantles

CMU Uncontrolled Electromantles are used in wet chemistry to heat liquids in round bottom flasks. The metal case is designed to remain "cool-to-the-touch" when in operation. Electrothermal heating mantles have a grounded stainless steel earth screen covering the element and are double fused for added safety. The CMU Electromantles are CE and CSA approved for 115V models.

### Technical Specification

|                         |                             |
|-------------------------|-----------------------------|
| Material                | Aluminum powder-coated case |
| Max Element Temperature | 450°C                       |

### 50ml - 250ml Ordering Information

|                            |                 |
|----------------------------|-----------------|
| Dimensions (d x w x h), mm | 175 x 175 x 150 |
| Shipping Weight, kg        | 0.75            |

| Model        | Capacity | Electrical Requirements |
|--------------|----------|-------------------------|
| CMU0050/E    | 50ml     | 230V 50/60Hz, 75W       |
| CMU0050/EX1  | 50ml     | 115V 50/60Hz, 75W       |
| CMU0050/EX6* | 50ml     | 230V 50/60Hz, 75W       |
| CMU0100/E    | 100ml    | 230V 50/60Hz, 100W      |
| CMU0100/EX1  | 100ml    | 115V 50/60Hz, 100W      |
| CMU0100/EX6* | 100ml    | 230V 50/60Hz, 100W      |
| CMU0250/E    | 250ml    | 230V 50/60Hz, 200W      |
| CMU0250/EX1  | 250ml    | 115V 50/60Hz, 200W      |
| CMU0250/EX6* | 250ml    | 230V 50/60Hz, 200W      |

### 500ml - 1000ml Ordering Information

|                            |                 |
|----------------------------|-----------------|
| Dimensions (d x w x h), mm | 220 x 220 x 170 |
| Shipping Weight, kg        | 1.5             |

| Model        | Capacity | Electrical Requirements |
|--------------|----------|-------------------------|
| CMU0500/E    | 500ml    | 230V 50/60Hz, 280W      |
| CMU0500/EX1  | 500ml    | 115V 50/60Hz, 280W      |
| CMU0500/EX6* | 500ml    | 230V 50/60Hz, 280W      |
| CMU1000/E    | 1000ml   | 230V 50/60Hz 380W       |
| CMU1000/EX1  | 1000ml   | 115V 50/60Hz, 380W      |
| CMU1000/EX6* | 1000ml   | 230V 50/60Hz, 380W      |

\*230V models with X6 suffix come with EU plug fitting

## Key Features

- Valuable for fume hood or remote working
- Must be used with a controller; the MC5 & MC242 Controllers are our recommended ones
- Round bottom flask capacity of between 50ml - 5000ml
- "Cool-to-the-touch" design
- Element temperature up to 450°C
- Indicator lamps for power and heater operation
- Replaceable insulated heater cartridge
- An easy to clean, powder coated aluminium outer casing
- Non-skid feet and support rod clamps (not including support rod)
- Added safety features such as a grounded earth screen and double fuses
- CSA approved for 115V models



CMU  
Uncontrolled Mantle

Uncontrolled Mantles

2000ml - 5000ml Ordering Information

|                            |                 |
|----------------------------|-----------------|
| Dimensions (d x w x h), mm | 320 x 320 x 220 |
| Shipping Weight, kg        | 2.75            |

| Model        | Capacity | Electrical Requirements |
|--------------|----------|-------------------------|
| CMU2000/E    | 2000ml   | 230V 50/60Hz, 500W      |
| CMU2000/EX1  | 2000ml   | 115V 50/60Hz, 500W      |
| CMU2000/EX6* | 2000ml   | 230V 50/60Hz, 500W      |
| CMU3000/E    | 3000ml   | 230V 50/60Hz, 500W      |
| CMU3000/EX1  | 3000ml   | 115V 50/60Hz, 500W      |
| CMU3000/EX6* | 3000ml   | 230V 50/60Hz, 500W      |
| CMU5000/E    | 5000ml   | 230V 50/60Hz, 800W      |
| CMU5000/EX1  | 5000ml   | 115V 50/60Hz, 800W      |
| CMU5000/EX6* | 5000ml   | 230V 50/60Hz, 800W      |

CMU

Uncontrolled Mantle



Controller

Uncontrolled CMU Electromantles are designed for use with the MC5 Controller. This may be valuable when remote working is preferred, for example when experiments are being conducted in fume hoods.

Ordering Information

| Model  | Electrical Requirement |
|--------|------------------------|
| MC5    | 230V, 50/60Hz, 800W    |
| MC5X1  | 115V, 50/60Hz, 460W    |
| MC5X6* | 230V, 50/60Hz, 800W    |

\*Comes with EU Plug fitting

MC5

Controller



# CMU

## Controlled Mantles

Electrothermal's metal-cased CMU Electromantles are the culmination of years of experience and continuous design improvement. These well-established products are used throughout many industries for a huge variety of applications. Today, we can confidently guarantee to give you quality products whose reliability and safety continue to make them market leaders.

### 50ml - 250ml Ordering Information

Dimensions (d x w x h), mm 175 x 175 x 150  
Shipping Weight, kg 0.75

| Model        | Capacity | Electrical Requirements     |
|--------------|----------|-----------------------------|
| CMU0050/CE   | 50ml     | 230V 50/60Hz, 75W           |
| CMU0050/CEX1 | 50ml     | 115V 50/60Hz, 75W           |
| CMU0050/CEX6 | 50ml     | 230V 50/60Hz, 75W, EU Plug  |
| CMU0100/CE   | 100ml    | 230V 50/60Hz, 100W          |
| CMU0100/CEX1 | 100ml    | 115V 50/60Hz, 100W          |
| CMU0100/CEX6 | 100ml    | 230V 50/60Hz, 100W, EU Plug |
| CMU0250/CE   | 250ml    | 230V 50/60Hz, 200W          |
| CMU0250/CEX1 | 250ml    | 115V 50/60Hz, 200W          |
| CMU0250/CEX6 | 250ml    | 230V 50/60Hz, 200W, EU Plug |

### 500ml - 1000ml Ordering Information

Dimensions (d x w x h), mm 220 x 220 x 170  
Shipping Weight, kg 1.5

| Model        | Capacity | Electrical Requirements     |
|--------------|----------|-----------------------------|
| CMU0500/CE   | 500ml    | 230V 50/60Hz, 280W          |
| CMU0500/CEX1 | 500ml    | 115V 50/60Hz, 280W          |
| CMU0500/CEX6 | 500ml    | 230V 50/60Hz, 280W, EU Plug |
| CMU1000/CE   | 1000ml   | 230V 50/60Hz 380W           |
| CMU1000/CEX1 | 1000ml   | 115V 50/60Hz, 380W          |
| CMU1000/CEX6 | 1000ml   | 230V 50/60Hz, 380W, EU Plug |

### 2000ml - 5000ml Ordering Information

Dimensions (d x w x h), mm 320 x 320 x 220  
Shipping Weight, kg 2.75

| Model        | Capacity | Electrical Requirements     |
|--------------|----------|-----------------------------|
| CMU2000/CE   | 2000ml   | 230V 50/60Hz, 500W          |
| CMU2000/CEX1 | 2000ml   | 115V 50/60Hz, 500W          |
| CMU2000/CEX6 | 2000ml   | 230V 50/60HZ, 500W, EU Plug |
| CMU3000/CE   | 3000ml   | 230V 50/60Hz, 500W          |
| CMU3000/CEX1 | 3000ml   | 115V 50/60Hz, 500W          |
| CMU3000/CEX6 | 3000ml   | 230V 50/60HZ, 500W, EU Plug |
| CMU5000/CE   | 5000ml   | 230V 50/60Hz, 800W          |
| CMU5000/CEX1 | 5000ml   | 115V 50/60Hz, 800W          |
| CMU5000/CEX6 | 5000ml   | 230V 50/60Hz, 800W, EU Plug |

## Key Features

- Round bottom flask capacity of between 50ml - 5000ml
- "Cool-to-the-touch" design
- Element temperature up to 450°C
- Built-in energy regulator
- Indicator lamps for power and heater operation
- Replaceable insulated heater cartridge
- An easy to clean, powder coated aluminium outer casing
- Non-skid feet and support rod clamps (not including support rod)
- Added safety features such as a grounded earth screen and double fuses
- CSA approved for 115V models

CMU  
Controlled Mantles



## Key Features

- Multiple volume round bottom flask capacity of between 250ml - 1000ml
- "Cool-to-the-touch" design
- Element temperature up to 450°C
- Built-in energy regulator
- Indicator lamps for power and heater operation
- Replaceable insulated heater cartridge
- An easy to clean, powder coated aluminium outer casing
- Non-skid feet and support rod clamps (not including support rod)
- Added safety features such as a grounded earth screen and double fuses
- CSA approved for 115V models

## CMUT

Multiple volume Electromantle



## CMUT

### Multiple volume Electromantle

The CMUT Electromantle is a multiple volume CMU Electromantle, able to accommodate round bottom flasks of between 250ml to 1000ml capacity. Its key features are otherwise the same as for the CMU Electromantle.

### Robust and economical

You can rely on CMU Electromantles to be the heating workhorse within your laboratory: They are economical to run, robust and easy to use, and our wide range of products caters for most sizes, making them flexible enough to meet almost all of your laboratory's heating requirements. Larger capacity products have multiple heating elements to ensure a more even and accurate heat transfer and the CMUT Electromantle has 2 separate circuits for this.

### Ordering Information

Dimensions (d x w x h), mm 220 x 220 x 170  
Shipping Weight, kg 1.5

| Model          | Capacity    | Electrical Requirements |
|----------------|-------------|-------------------------|
| CMUT1000/CE    | 250- 1000ml | 230V 50/50Hz, 300W      |
| CMUT1000/CEX1  | 250- 1000ml | 115V 50/60Hz, 300W      |
| CMUT1000/CEX6* | 250- 1000ml | 230V, 50/60Hz, 300W     |

\*NOTE: Codes ending with the suffix CEX6 come with EU Plug fitting

# CMUA

## Stirring Electromantles

The CMUA Stirring Electromantle shares all the excellent features of the CMU Electromantle but with the added functionality of magnetic stirring. For convenience and safety, the electric circuitry for stirring is built into the base of the heater, enabling powerful stirring over a wide range of solution volumes and viscosities using a magnetic stir bar.

### Magnetic Stirring

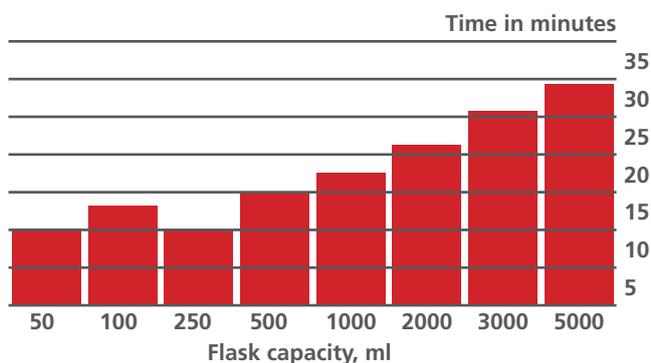
Stirring operation is simply achieved by placing the correct style and sized magnetic stir bar into the flask, selecting the minimum speed on the stirring dial control and then ramping up slowly to the required speed. The correct style and size of stir bar is determined according to the flask volume and the viscosity of its contents.

Stir speed is bi-directional and easily adjustable, and as an added feature, there is an auto-recapture switch fitted. Occasionally, the magnetic coupling to the stir bar may be interrupted and the stirring motion may be temporarily lost. Should there be a need to re-activate stirring, this can be quickly remedied by reducing the stir speed and then activating the auto-recapture switch; normal stirring can then be resumed at the desired speed.

### Time required for boiling

The bar graph illustrates the time required for a half filled flask of water to reach boiling point in each of the flask capacities. For all the boiling tests the ambient temperature was 17°C.

Maximum element temp: 450°C  
Voltage: 115V or 230V AC  
Wattage: Nominal wattage of each flask capacity at rated voltage



## Key Features

- Round bottom flask capacity of between 50ml- 5000ml
- Stirring speed up to 2000rpm
- Auto-recapture of magnetic stir bar; simple switch to re-activate stirring
- "Cool-to-the-touch" design
- Element temperature up to 450°C
- Built-in energy regulator
- Indicator lamps for power and heater operation
- Replaceable insulated heater & stirring cartridge
- An easy to clean, powder coated aluminium outer casing
- Non-skid feet and support rod clamps (not including support rod)
- Added safety features such as a grounded earth screen and double fuses
- CSA approved for 115V models

CMUA



### 50ml - 250ml Ordering Information

|                            |                 |
|----------------------------|-----------------|
| Dimensions (d x w x h), mm | 175 x 175 x 150 |
| Shipping Weight, kg        | 0.75            |

| Model          | Capacity | Electrical Requirements |
|----------------|----------|-------------------------|
| CMUA0050/CE    | 50ml     | 230V 50/60Hz, 60W       |
| CMUA0050/CEX1  | 50ml     | 115V 50/60Hz, 60W       |
| CMUA0050/CEX6* | 50ml     | 230V 50/60Hz, 60W       |
| CMUA0100/CE    | 100ml    | 230V 50/60Hz, 75W       |
| CMUA0100/CEX1  | 100ml    | 115V 50/60Hz, 75W       |
| CMUA0100/CEX6* | 100ml    | 230V 50/60Hz, 75W       |
| CMUA0250/CE    | 250ml    | 230V 50/60Hz, 200W      |
| CMUA0250/CEX1  | 250ml    | 115V 50/60Hz, 200W      |
| CMUA0250/CEX6* | 250ml    | 230V 50/60Hz, 200W      |

CMUA

with Glassware

### 500ml - 1000ml Ordering Information

|                            |                 |
|----------------------------|-----------------|
| Dimensions (d x w x h), mm | 220 x 220 x 170 |
| Shipping Weight, kg        | 1.5             |

| Model          | Capacity | Electrical Requirements |
|----------------|----------|-------------------------|
| CMUA0500/CE    | 500ml    | 230V 50/60Hz, 280W      |
| CMUA0500/CEX1  | 500ml    | 115V 50/60Hz, 280W      |
| CMUA0500/CEX6* | 500ml    | 230V 50/60Hz, 280W      |
| CMUA1000/CE    | 1000ml   | 230V 50/60Hz, 380W      |
| CMUA1000/CEX1  | 1000ml   | 115V 50/60Hz, 380W      |
| CMUA1000/CEX6* | 1000ml   | 230V 50/60Hz, 380W      |

### 2000ml - 5000ml Ordering Information

|                            |                 |
|----------------------------|-----------------|
| Dimensions (d x w x h), mm | 320 x 320 x 220 |
| Shipping Weight, kg        | 2.75            |

| Model          | Capacity | Electrical Requirements |
|----------------|----------|-------------------------|
| CMUA2000/CE    | 2000ml   | 230V 50/60Hz, 500W      |
| CMUA2000/CEX1  | 2000ml   | 115V 50/60Hz, 500W      |
| CMUA2000/CEX6* | 2000ml   | 230V 50/60Hz, 500W      |
| CMUA3000/CE    | 3000ml   | 230V 50/60Hz, 500W      |
| CMUA3000/CEX1  | 3000ml   | 115V 50/60Hz, 500W      |
| CMUA3000/CEX6* | 3000ml   | 230V 50/60Hz, 500W      |
| CMUA5000/CE    | 5000ml   | 230V 50/60Hz, 800W      |
| CMUA5000/CEX1  | 5000ml   | 115V 50/60Hz, 800W      |
| CMUA5000/CEX6* | 5000ml   | 230V 50/60Hz, 800W      |

\*NOTE: Codes ending with the suffix CEX6 come with EU Plug fitting



# CMUV

## Stirring Electromantles

The CMUV Electromantles deliver the benefits of the CMU Electromantle, but do so for very large 60° funnels, as well as pear-shaped and round bottom flasks. This is achieved through a "V-shaped" design for the heating mantle, with funnels being accommodated through a bottom opening in the Electromantle base.

### 10-12 Litre Controlled CMUV Ordering Information

Dimensions (d x w x h), mm 485 x 485 x 300  
Shipping Weight, kg 6

| Model        | Capacity | Electrical Requirements |
|--------------|----------|-------------------------|
| CMUV10/CL    | 10L      | 230V 50/60Hz, 2000W     |
| CMUV10/CLX1  | 10L      | 115V 50/60Hz, 2000W     |
| CMUV10/CLX6* | 10L      | 230V 50/60Hz, 2000W     |
| CMUV12/CL    | 12L      | 230V 50/60Hz, 2000W     |
| CMUV12/CLX1  | 12L      | 115V 50/60Hz, 2000W     |
| CMUV12/CLX6* | 12L      | 230V 50/60Hz, 2000W     |

### 20-22 Litre Controlled CMUV Ordering Information

Dimensions (d x w x h), mm 485 x 485 x 300  
Shipping Weight, kg 8.5

| Model        | Capacity  | Electrical Requirements |
|--------------|-----------|-------------------------|
| CMUV22/CL    | 20 to 22L | 230V 50/60Hz, 3000W     |
| CMUV22/CLX1  | 20 to 22L | 115V 50/60Hz, 3000W     |
| CMUV22/CLX6* | 20 to 22L | 230V 50/60Hz, 3000W     |

### 10-12 Litre Uncontrolled CMUV Ordering Information

Dimensions (d x w x h), mm 485 x 485 x 300  
Shipping Weight, kg 6

| Model       | Capacity | Electrical Requirements |
|-------------|----------|-------------------------|
| CMUV10/L    | 10L      | 230V 50/60Hz, 2000W     |
| CMUV10/LX1  | 10L      | 115V 50/60Hz, 2000W     |
| CMUV10/LX6* | 10L      | 230V 50/60Hz, 2000W     |
| CMUV12/L    | 12L      | 230V 50/60Hz, 2000W     |
| CMUV12/LX1  | 12L      | 115V 50/60Hz, 2000W     |
| CMUV12/LX6* | 12L      | 230V 50/60Hz, 2000W     |

### 20-22 Litre Uncontrolled CMUV Ordering Information

Dimensions (d x w x h), mm 485 x 485 x 300  
Shipping Weight, kg 8.5

| Model       | Capacity  | Electrical Requirements |
|-------------|-----------|-------------------------|
| CMUV22/L    | 20 to 22L | 230V 50/60Hz, 3000W     |
| CMUV22/LX1  | 20 to 22L | 115V 50/60Hz, 3000W     |
| CMUV22/LX6* | 20 to 22L | 230V 50/60Hz, 3000W     |

\*Add X6 suffix for 230V with EU plug

## Key Features

- Accepts 60° funnels
- Accommodates pear-shaped and round bottom flasks
- Large flask/funnel capacities of between 10 to 22 litres
- Complete control of heating is provided by 3 separate electrical circuits that enable independent top, middle and bottom heating of flasks, each controlled with its own dial switch
- Spill-proof protection against electric shocks via a stainless steel screen between the flask and the heating element
- Available with and without controls
- Controller available for uncontrolled model
- "Cool-to-the-touch" design
- Element temperature up to 450°C
- Indicator lamps for power and heater operation
- Replaceable insulated heater cartridge
- An easy to clean, powder coated aluminium outer casing
- Non-skid feet and 3 support rod clamps (not including support rod)
- Added safety features such as a grounded earth screen and double fuses
- CSA approved for 115V models





## Digi-Mantles

### Digital heating and stirring

Digi-Mantles enable a flask of 250ml, 500ml or 1000ml capacity to be heated and stirred through precise electronic control. They have a modular design which allows heating cartridges of different sizes to be interchanged using the same OMCA digital controller as a base, which makes the Digi-Mantles a very cost-effective and space-saving option.

Page 16      OMCA Digi-Mantles

Find out more! Please scan the QR/Mobile Tag with your smartphone for more information



# OMCA Digi-Mantle

## Digital heating and stirring mantle

Digi-Mantles enable a flask of 250ml, 500ml or 1000ml capacity to be stirred and heated up to an element temperature of 450°C through precise electronic control, giving an accurate measure of temperature and stirring. The modular design allows heating cartridges of different sizes to be interchanged using the same OMCA digital controller as a base, which makes the Digi-Mantles a very cost-effective option.

## Heater Cartridge

The heater cartridge ensures that the temperature is uniformly distributed across the flask. Even with the element temperature at 450°C, the outside of the heater cartridge remains "cool-to-the-touch" due to a continuous air flow through ventilation slots beneath and around the rim of the case.

The heating cartridge comes in 3 sizes for heating flasks of 250ml (OMCA0250), 500ml (OMCA0500) and 1000ml (OMCA1000) capacity.

## OMCA Controller

Used to control both temperature and stirring speed independently, the OMCA digital controller has a revolutionary CTC (Capacitance Touch Control) panel, which is both easy to read and use, and you can quickly set the required temperature and stir speed using the up/down arrows. The control panel has separate indicator lights for the power, heater and stirrer functions, along with a 2 x 16 digit display indicating the actual temperature from ambient to 450°C (max element temperature). Stirring speeds from 100 to 2000rpm are obtained by lightly touching the stirrer speed keys.

## Temperature Control

Heating is controlled by a modern state of the art microprocessor, which displays the heat setting as a percentage of the total power. An optional PT100 temperature probe may be used to gauge the temperature of the flask contents more accurately; the temperature probe's heating is controlled via the temperature feedback circuit and the actual temperature is displayed. The temperature probe operates up to 250°C.

## Key Features

- Same OMCA controller accommodates different capacity heating cartridges, ie. interchangeable design
- Round bottom flask capacity of between 250ml - 1000ml
- "Cool-to-the-touch" design
- Greater stirring stability and speeds from 100 to 2000rpm
- Controller with display menus and touch pad interface
- Indicator lights for power, stirrer and heater operation
- Support rod clamps



# OMCA Digi-Mantle

## Digital heating and stirring mantle

### Improved Stirring

The OMCA digital controller and motor arrangement has recently been upgraded to allow for accurate low speed stirring control and higher stirring speeds. Uniform stirring is provided via a motorised rotating magnet assembly positioned to provide maximum flux linkage to rotate the stirrer bars in each reaction vessel.

### Technical Information

| Model                        | Digi-Mantle 250  | Digi-Mantle 500  | Digi-Mantle 1000 |
|------------------------------|------------------|------------------|------------------|
| Catalogue number             | OMCA0250*        | OMCA0500*        | OMCA1000*        |
| Voltage                      | 230V & 115V      | 230V & 115V      | 230V & 115V      |
| Flask capacity               | 250ml            | 500ml            | 1000ml           |
| Controlled block temperature | Ambient          | Ambient          | Ambient          |
| Temperature range            | Ambient to 450°C | Ambient to 450°C | Ambient to 450°C |
| Stir speed range, rpm        | 100 - 2000       | 100 - 2000       | 100 - 2000       |
| Dimensions (d x w x h), mm   | 300 x 300 x 650  | 300 x 300 x 650  | 300 x 300 x 650  |
| Shipping Weight, kg          | 3.1              | 3.1              | 3.1              |

### Ordering Information

| Model     | Description   |
|-----------|---|
| OMCA*     | Digi-Mantle digital controller for temperature and stirring |
| OMCA0250* | Digi-Mantle heating cartridge kit (250ml capacity)          |
| OMCA0500* | Digi-Mantle heating cartridge kit (500ml capacity)          |
| OMCA1000* | Digi-Mantle heating cartridge kit (1000ml capacity)         |
| AZ140940  | Temperature probe (thermocouple)                            |
| OM0250    | Replacement 250ml Digi-Mantle heater cartridge              |
| OM0500    | Replacement 500ml Digi-Mantle heater cartridge              |
| OM1000    | Replacement 1000ml Digi-Mantle heater cartridge             |

\*Add suffixes: X1 for 115V; X6 for 230V with EU Plug

# For all your heating, cooling and stirring needs

Introducing the Electrothermal range of Reaction Stations

With 70 years' experience of supplying laboratories with reliable and safe equipment, Electrothermal is a name you can trust. It is also a name that gives you results - and fast! Our STEM RS and Omni Reaction Stations can dramatically increase laboratory throughput by providing precise control of heating, cooling and stirring for between 6 to 50 vessels simultaneously, held at temperatures from  $-30\text{ }^{\circ}\text{C}$  to  $300\text{ }^{\circ}\text{C}$ .

We have 9 Reaction Stations in our range to meet your needs, providing the same temperature and stirring rate at each position, so that you can directly compare the effects of varying reagent proportions and dilutions.

To make our reaction stations as useful as possible for you, we have a huge range of accessories which facilitate working under inert gas or vacuum conditions, and enable refluxing, phase separation, filtration and rotary evaporation to be carried out. In addition, more precise control of temperature and stirring can be achieved by using our temperature probes and wide selection of stir bars.

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## EM Electromantles

### EM, EMA, EMV and EMX Series

The original "Electromantles" revolutionised round bottom flask heating by incorporating a coiled flexible heating element, which ingeniously wraps the heater around the flask to optimise heat transfer. For maximum safety, the flask is held away from direct contact with the heating element via a grounded earth screen.

This design principle has stood the test of time and has been imitated the world over. With many years of experience, Electrothermal remains at the forefront of laboratory heating and its associated controlling technology.

|                |                    |
|----------------|--------------------|
| <b>Page 20</b> | EM Electromantles  |
| <b>Page 22</b> | EMA Electromantles |
| <b>Page 23</b> | EMV Electromantles |
| <b>Page 24</b> | EMX Electromantles |

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# EM Series

## Heating Electromantle

The EM Electromantle series features a durable, chemically resistant, polypropylene outer housing that minimises damage from spills. They allow maximum heat transfer with minimum risk for flask breakage.

### Robust and economical

Designed with simplicity, flexibility and ease of use, the EM series Electromantle is designed to be the workhorse for your heating applications. All EMs have a built-in energy regulator with indicator lamps for power and heater operation. All mantles have support rod clamps as an integral feature and incorporate a grounded earth screen and double fuses for added safety. Larger capacity products have multiple heating elements, enabling a more even and directed transfer of heat.

### 50ml - 250ml Ordering Information

Dimensions (d x w x h), mm      260 x 175 x 127  
Shipping Weight, kg              0.78

| Model        | Capacity | Electrical Requirements |
|--------------|----------|-------------------------|
| EM0050/CE    | 50ml     | 230V 50/60Hz, 60W       |
| EM0050/CEX1  | 50ml     | 115V 50/60Hz, 70W       |
| EM0050/CEX6* | 50ml     | 230V 50/60Hz, 60W       |
| EM0100/CE    | 100ml    | 230V 50/60Hz, 60W       |
| EM0100/CEX1  | 100ml    | 115V 50/60Hz, 70W       |
| EM0100/CEX6* | 100ml    | 230V 50/60Hz, 60W       |
| EM0250/CE    | 250ml    | 230V 50/60Hz, 150W      |
| EM0250/CEX1  | 250ml    | 115V 50/60Hz, 150W      |
| EM0250/CEX6* | 250ml    | 230V 50/60Hz, 150W      |

### 500ml - 1000ml Ordering Information

Dimensions (d x w x h),mm      310 x 238 x 145  
Shipping Weight, kg              1.25

| Model        | Capacity | Electrical Requirements |
|--------------|----------|-------------------------|
| EM0500/CE    | 500ml    | 230V 50/60Hz, 200W      |
| EM0500/CEX1  | 500ml    | 115V 50/60Hz, 200W      |
| EM0500/CEX6* | 500ml    | 230V 50/60Hz, 200W      |
| EM1000/CE    | 1000ml   | 230V 50/60Hz, 300W      |
| EM1000/CEX1  | 1000ml   | 115V 50/60Hz, 300W      |
| EM1000/CEX6* | 1000ml   | 230V 50/60Hz, 300W      |

## Key Features

- Cool-to-the-touch design
- Max element temperature 450°C
- Built-in energy regulator
- Model EME5000/CE has 2 circuits for upper and lower level heating
- Replaceable insulated heater cartridge
- Indicator lamps for power and heater operation
- A chemically resistant polypropylene outer casing
- A grounded earth screen and double fuses for added safety
- Clamps for 1.3cm diameter support (but not including support rods)



EM Series

## EM Series

### Heating Electromantle

#### 2000ml - 5000ml Ordering Information

|                            |                 |
|----------------------------|-----------------|
| Dimensions (d x w x h), mm | 400 x 350 x 190 |
| Shipping Weight, kg        | 2.58            |

| Model        | Capacity | Electrical Requirements |
|--------------|----------|-------------------------|
| EM2000/CE    | 2000ml   | 230V 50/60Hz, 500W      |
| EM2000/CEX1  | 2000ml   | 115V 50/60Hz, 500W      |
| EM2000/CEX6* | 2000ml   | 230V 50/60Hz, 500W      |
| EM3000/CE    | 3000ml   | 230V 50/60Hz, 500W      |
| EM3000/CEX1  | 3000ml   | 115V 50/60Hz, 500W      |
| EM3000/CEX6* | 3000ml   | 230V 50/60Hz, 500W      |
| EM5000/CE    | 5000ml   | 230V 50/60Hz, 800W      |
| EM5000/CEX1  | 5000ml   | 115V 50/60Hz, 800W      |
| EM5000/CEX6* | 5000ml   | 230V 50/60Hz, 800W      |

EM Series  
with glassware

*\*Comes with EU Plug fitting*



# EMA Series

## Heating and Stirring Electromantle

The EMA Electromantle shares all the standard features of the standard EM but has the added functionality of magnetic stirring. The solid state stirring circuitry is built into the base of the main housing and provides powerful stirring over a range of capacities and viscosities. The stir speed is easily adjusted and is bi-directional. The stir bar is seldom lost due to our "auto-recapture" function.

### Magnetic Stirring

The EMA stirring Electromantle has the added functionality of solution stirring which widens the range of applications. Stirring operation is simply achieved by placing the correct size bar into the flask, turning the stir control to the minimum speed and ramping up slowly. If the magnetic coupling to the stir bar is lost for any reason, the speed control should be reduced slightly and the auto-recapture switch can be activated.

### 50ml - 250ml Ordering Information

Dimensions (d x w x h), mm      260 x 175 x 133  
Shipping Weight, kg                1.73

| Model          | Capacity | Electrical Requirements |
|----------------|----------|-------------------------|
| EMA0050/CEB    | 50ml     | 230V 50/60Hz, 80W       |
| EMA0050/CEBX1  | 50ml     | 115V 50/60Hz, 96W       |
| EMA0050/CEBX6* | 50ml     | 230V 50/60Hz, 80W       |
| EMA0100/CEB    | 100ml    | 230V 50/60Hz, 80W       |
| EMA0100/CEBX1  | 100ml    | 115V 50/60Hz, 96W       |
| EMA0100/CEBX6* | 100ml    | 230V 50/60Hz, 80W       |
| EMA0250/CEB    | 250ml    | 230V 50/60Hz, 170W      |
| EMA0250/CEBX1  | 250ml    | 115V 50/60Hz, 210W      |
| EMA0250/CEBX6* | 250ml    | 230V 50/60Hz, 170W      |

### 500ml - 1000ml Ordering Information

Dimensions (d x w x h), mm      310 x 238 x 157  
Shipping Weight, kg                2.75

| Model          | Capacity | Electrical Requirements |
|----------------|----------|-------------------------|
| EMA0500/CEB    | 500ml    | 230V 50/60Hz, 220W      |
| EMA0500/CEBX1  | 500ml    | 115V 50/60Hz, 270W      |
| EMA0500/CEBX6* | 500ml    | 230V 50/60Hz, 220W      |
| EMA1000/CEB    | 1000ml   | 230V 50/60Hz, 320W      |
| EMA1000/CEBX1  | 1000ml   | 115V 50/60Hz, 400W      |
| EMA1000/CEBX6* | 1000ml   | 230V 50/60Hz, 320W      |

### 2000ml Ordering Information

Dimensions (d x w x h), mm      400 x 350 x 197  
Shipping Weight, kg                5.68

| Model          | Capacity | Electrical Requirements |
|----------------|----------|-------------------------|
| EMA2000/CEB    | 2000ml   | 230V 50/60Hz, 520W      |
| EMA2000/CEBX1  | 2000ml   | 115V 50/60Hz, 670W      |
| EMA2000/CEBX6* | 2000ml   | 230V 50/60Hz, 520W      |

\*Comes with EU Plug fitting

## Key Features

- Accepts flasks from 50ml to 2 litre capacity
- Bi-directional stirring speeds up to 520rpm
- Stir bar "auto-recapture" function
- 'Cool-to-the-touch' design
- Element temperature 450°C
- Built-in energy regulator
- Replaceable insulated heater cartridge
- A chemically resistant polypropylene outer casing
- A grounded earth screen and double fuses for added safety
- Clamps for 1.3cm diameter supports (not including support rods)



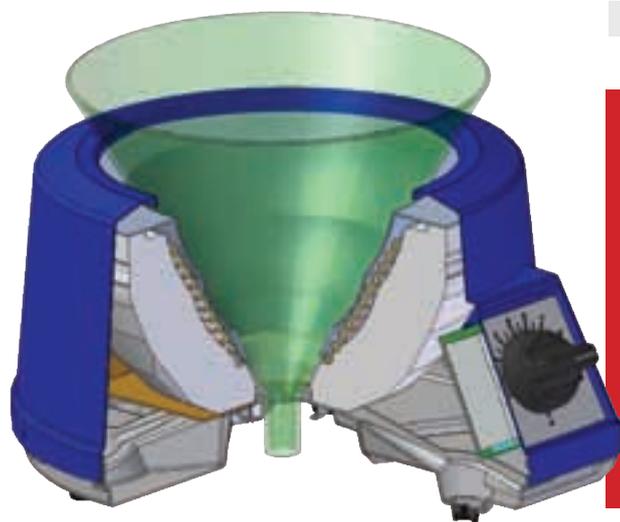
EMA Series

## Key Features

- Bottom opening accommodates round bottom & pear-shaped flasks and 60° funnels
- Capacity between 10ml to 5 litres
- Coiled heating element, suspended within a thermal insulating cartridge, provides maximum heat transfer and support
- Cool-to-the-touch design
- Max element temperature of 450°C
- Built-in energy regulator
- Replaceable insulated heater cartridge
- Indicator lamps for power and heater operation
- A chemically resistant polypropylene outer casing
- A grounded earth screen and double fuses for added safety
- Clamps for 1.3cm diameter supports (not including support rods)



EMV Series



## EMV Series

### V-Shaped Electromantle

Spill-proof Mantles and V-Shaped Mantles may accommodate 60° funnels, pear-shaped or round-bottom flasks. They have been designed to accept a large range of flask and funnel sizes for added flexibility.

Stainless steel screen on all EMV models covers the heater element to protect you from shock hazards due to spills or flask breakage.

### 10ml - 50ml Ordering Information

|                            |                 |
|----------------------------|-----------------|
| Dimensions (d x w x h), mm | 260 x 175 x 127 |
| Shipping Weight, kg        | 0.78            |

| Model         | Capacity     | Electrical Requirements |
|---------------|--------------|-------------------------|
| EMV0050/CE    | 10 to 50ml   | 230V 50/60Hz, 60W       |
| EMV0050/CEX1  | 10 to 50ml   | 115V 50/60Hz, 70W       |
| EMV0050/CEX6* | 10 to 50ml   | 230V 50/60Hz, 60W       |
| EMV0250/CE    | 100 to 250ml | 230V 50/60Hz, 150W      |
| EMV0250/CEX1  | 100 to 250ml | 115V 50/60Hz, 150W      |
| EMV0250/CEX6* | 100 to 250ml | 230V 50/60Hz, 150W      |

### 500ml - 1000ml Ordering Information

|                            |                 |
|----------------------------|-----------------|
| Dimensions (d x w x h), mm | 310 x 238 x 145 |
| Shipping Weight, kg        | 2.76            |

| Model         | Capacity      | Electrical Requirements |
|---------------|---------------|-------------------------|
| EMV1000/CE    | 500 to 1000ml | 230V 50/60Hz, 300W      |
| EMV1000/CEX1  | 500 to 1000ml | 115V 50/60Hz, 300W      |
| EMV1000/CEX6* | 500 to 1000ml | 230V 50/60Hz, 300W      |

### 2000ml - 5000ml Ordering Information

|                            |                 |
|----------------------------|-----------------|
| Dimensions (d x w x h), mm | 400 x 350 x 190 |
| Shipping Weight, kg        | 5.96            |

| Model         | Capacity       | Electrical Requirements |
|---------------|----------------|-------------------------|
| EMV5000/CE    | 2000 to 5000ml | 230V 50/60Hz, 800W      |
| EMV5000/CEX1  | 2000 to 5000ml | 115V 50/60Hz, 800W      |
| EMV5000/CEX6* | 2000 to 5000ml | 230V 50/60Hz, 800W      |

\*Comes with EU Plug fitting

# EMX Series

## Spill-proof Electromantle

Spill-proof Mantles and V-Shaped Mantles may accommodate 60° funnels, pear-shaped or round-bottom flasks. They have been designed to accept a large range of flask and funnel sizes for added flexibility.

A stainless steel liner on all EMX models provides extra electrical and mechanical protection against spills and ensures easy cleaning.

### 500ml - 1000ml Ordering Information

Dimensions (d x w x h), mm 310 x 238 x 145  
Shipping Weight, kg 2.76

| Model          | Capacity      | Electrical Requirements |
|----------------|---------------|-------------------------|
| EMX1000/SCE    | 500 to 1000ml | 230V 50/60Hz, 245W      |
| EMX1000/SCEX1  | 500 to 1000ml | 115V 50/60Hz, 240W      |
| EMX1000/SCEX6* | 500 to 1000ml | 230V 50/60Hz, 245W      |

### 2000ml - 5000ml Ordering Information

Dimensions (d x w x h), mm 400 x 350 x 190  
Shipping Weight, kg 5.96

| Model          | Capacity       | Electrical Requirements |
|----------------|----------------|-------------------------|
| EMX5000/SCE    | 2000 to 5000ml | 230V 50/60Hz, 600W      |
| EMX5000/SCEX1  | 2000 to 5000ml | 115V 50/60Hz, 600W      |
| EMX5000/SCEX6* | 2000 to 5000ml | 230V 50/60Hz, 600W      |

\*Comes with EU Plug fitting

## Key Features

- Bottom opening accommodates round bottom & pear-shaped flasks and 60° funnels
- Capacity between 500ml to 5 litres
- Coiled heating element, suspended within a thermal insulating cartridge, provides maximum heat transfer and support
- Cool-to-the-touch design
- Max element temperature of 450°C
- Built-in energy regulator
- Replaceable insulated heater cartridge
- Indicator lamps for power and heater operation
- A chemically resistant polypropylene outer casing
- A grounded earth liner and double fuses for added safety
- Clamps for 1.3cm diameter supports (not including support rods)



EMX Series



## Multi (Extraction) Mantles

EME 3. EMEA 3, EME 6 and EMEA 6 Series

The EME & EMEA Multi (Extraction) Mantles are designed to heat between 3 & 6 round bottom flasks simultaneously. They are often used for extraction, but may be used wherever heating of multiple flasks is required.

**Page 26** EME 3 and EMEA 3 Multi (Extraction) Mantles

**Page 28** EME 6 and EMEA 6 Multi (Extraction) Mantles

Find out more! Please scan the QR/Mobile Tag with your smartphone for more information



# EME3 and EMEA3 Series

## 3 Recess Multi-Mantles

The Multi-Mantle with three recesses has a built-in electronic controller and offers a choice of heater only (EME3) or heater/stirrer (EMEA3) combination models. The vented case's unique air flow ensures that the case remains "cool-to-touch".

### For both heater only and heater/stirrer models

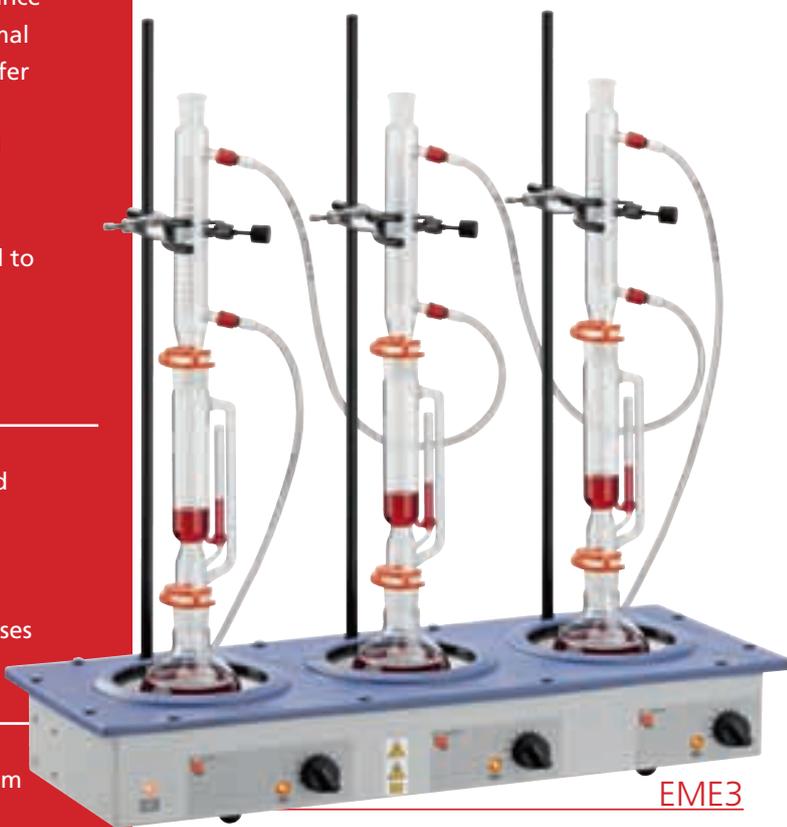
- Individual built-in solid state electronic controls enable easy regulation of the heater, while removing sparking associated with mechanical switching
- 3 x 12.7mm diameter support rods are included
- Round bottom flask capacity from 100ml to 1000ml at all 3 positions
- Top cover is polypropylene and external surfaces are powder coated giving good general chemical resistance
- Coiled heating element is suspended within a thermal insulating cartridge to provide maximum heat transfer and support.
- Earth (ground) screen encloses the heater for added safety
- Individual heater cartridges are replaceable
- Neon lamps indicate when power is on and supplied to heaters and supplied to stirrers

### Additionally for heater/stirrer EMEA3 models

- Heater/stirrer model allows the solution to be stirred and heated simultaneously
- Stirrer models provide a choice of stirring speeds of between 50 to 1000rpm
- One stirring control operates each set of three recesses

### Technical Specification

|                         |  |
|-------------------------|--|
| Material                | Polypropylene top on powder-coated aluminium |
| Max element temperature | 450°C  |



### Ordering Information

#### Heater models

| Model           | No. of Recesses | Flask Capacity | Electrical Requirements     | Dimensions (d x w x h), mm | Shipping Weight |
|-----------------|-----------------|----------------|-----------------------------|----------------------------|-----------------|
| EME3 0100/CEB   | 3               | 3 x 100ml      | 230V 50/60Hz, 180W          | 260 x 630 x 90             | 6.2kg           |
| EME3 0100/CEBX1 | 3               | 3 x 100ml      | 115V 50/60Hz, 210W          | 260 x 630 x 90             | 6.2kg           |
| EME3 0100/CEBX6 | 3               | 3 x 100ml      | 230V 50/60Hz, 180W, EU Plug | 260 x 630 x 90             | 6.2kg           |
| EME3 0250/CEB   | 3               | 3 x 250ml      | 230V 50/60Hz, 450W          | 260 x 630 x 90             | 6.2kg           |
| EME3 0250/CEBX1 | 3               | 3 x 250ml      | 115V 50/60Hz, 450W          | 260 x 630 x 90             | 6.2kg           |
| EME3 0250/CEBX6 | 3               | 3 x 250ml      | 230V 50/60Hz, 450W, EU Plug | 260 x 630 x 90             | 6.2kg           |
| EME3 0500/CEB   | 3               | 3 x 500ml      | 230V 50/60Hz, 600W          | 260 x 630 x 90             | 7.4kg           |
| EME3 0500/CEBX1 | 3               | 3 x 500ml      | 115V 50/60Hz, 600W          | 260 x 630 x 90             | 7.4kg           |
| EME3 0500/CEBX6 | 3               | 3 x 500ml      | 230V 50/60Hz, 600W, EU Plug | 260 x 630 x 90             | 7.4kg           |
| EME3 1000/CEB   | 3               | 3 x 1000ml     | 230V 50/60Hz, 900W          | 260 x 630 x 90             | 7.4kg           |
| EME3 1000/CEBX1 | 3               | 3 x 1000ml     | 115V 50/60Hz, 900W          | 260 x 630 x 90             | 7.4kg           |
| EME3 1000/CEBX6 | 3               | 3 x 1000ml     | 230V 50/60Hz, 900W, EU Plug | 260 x 630 x 90             | 7.4kg           |

### Ordering Information

#### Heater/Stirrer models

| Model           | No. of Recesses | Flask Capacity | Electrical Requirements     | Dimensions (d x w x h), mm | Shipping Weight |
|-----------------|-----------------|----------------|-----------------------------|----------------------------|-----------------|
| EMEA3 0100/CE   | 3               | 3 x 100ml      | 230V 50/60Hz, 220W          | 260 x 630 x 90             | 6.2kg           |
| EMEA3 0100/CEX1 | 3               | 3 x 100ml      | 115V 50/60Hz, 220W          | 260 x 630 x 90             | 6.2kg           |
| EMEA3 0100/CEX6 | 3               | 3 x 100ml      | 230V 50/60Hz, 220W, EU Plug | 260 x 630 x 90             | 6.2kg           |
| EMEA3 0250/CE   | 3               | 3 x 250ml      | 230V 50/60Hz, 490W          | 260 x 630 x 90             | 6.2kg           |
| EMEA3 0250/CEX1 | 3               | 3 x 250ml      | 115V 50/60Hz, 490W          | 260 x 630 x 90             | 6.2kg           |
| EMEA3 0250/CEX6 | 3               | 3 x 250ml      | 230V 50/60Hz, 490W, EU Plug | 260 x 630 x 90             | 6.2kg           |
| EMEA3 0500/CE   | 3               | 3 x 500ml      | 230V 50/60Hz, 640W          | 260 x 630 x 90             | 7.4kg           |
| EMEA3 0500/CEX1 | 3               | 3 x 500ml      | 115V 50/60Hz, 640W          | 260 x 630 x 90             | 7.4kg           |
| EMEA3 0500/CEX6 | 3               | 3 x 500ml      | 230V 50/60Hz, 640W, EU Plug | 260 x 630 x 90             | 7.4kg           |
| EMEA3 1000/CE   | 3               | 3 x 1000ml     | 230V 50/60Hz, 940W          | 260 x 630 x 90             | 7.4kg           |
| EMEA3 1000/CEX1 | 3               | 3 x 1000ml     | 115V 50/60Hz, 940W          | 260 x 630 x 90             | 7.4kg           |
| EMEA3 1000/CEX6 | 3               | 3 x 1000ml     | 230V 50/60Hz, 940W, EU Plug | 260 x 630 x 90             | 7.4kg           |

# EME6 and EMEA6 Series

## 6 Recess Multi-Mantles

The Multi-Mantle with 6 recesses has a built-in electronic controller and offers a choice of heater only (EME6) or heater/stirrer (EMEA6) combination models.

The vented case's unique air flow ensures that the case remains "cool-to-touch".

### For both heater only & heater/stirrer models

- Individual built-in solid state electronic controls enable easy regulation of heater, while removing sparking associated with mechanical switching
- 3 x 12.7mm diameter support rods are included
- Round bottom flask capacity from 100ml to 1000ml at all 6 positions
- Top cover is polypropylene and external surfaces are powder coated giving good general chemical resistance
- Coiled heating element is suspended within a thermal insulating cartridge to provide maximum heat transfer and support
- Earth (ground) screen encloses the heater for added safety
- Individual heater cartridges are replaceable
- Neon lights indicate when power is on and supplied to heaters and supplied to stirrers

### Additionally for heater/stirrer EMEA6 models

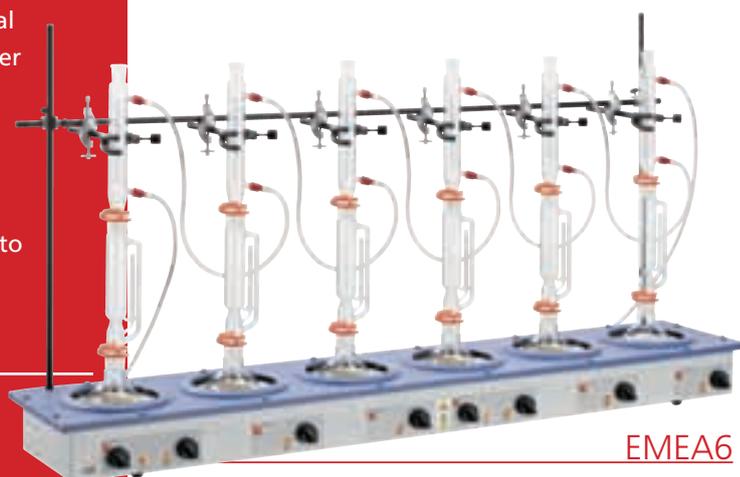
- Heater/stirrer model allows the solution to be stirred and heated simultaneously
- Includes a choice of stirring speeds of between 50 to 1000rpm
- One stirring control operates each set of six recesses

### Technical Specification

|                         |  |
|-------------------------|--|
| Material                | Polypropylene top on powder-coated aluminium |
| Max element temperature | 450°C  |



EME6



EMEA6

### Ordering Information

#### Heater models

| Model           | No. of Recesses | Flask Capacity | Electrical Requirements      | Dimensions (d x w x h), mm | Shipping Weight |
|-----------------|-----------------|----------------|------------------------------|----------------------------|-----------------|
| EME6 0100/CEB   | 6               | 6 x 100ml      | 230V 50/60Hz, 420W           | 260 x 1200 x 90            | 10.1kg          |
| EME6 0100/CEBX1 | 6               | 6 x 100ml      | 115V 50/60Hz, 360W           | 260 x 1200 x 90            | 10.1kg          |
| EME6 0100/CEBX6 | 6               | 6 x 100ml      | 230V 50/60Hz, 420W, EU Plug  | 260 x 1200 x 90            | 10.1kg          |
| EME6 0250/CEB   | 6               | 6 x 250ml      | 230V 50/60Hz, 900W           | 260 x 1200 x 90            | 10.1kg          |
| EME6 0250/CEBX1 | 6               | 6 x 250ml      | 115V 50/60Hz, 900W           | 260 x 1200 x 90            | 10.1kg          |
| EME6 0250/CEBX6 | 6               | 6 x 250ml      | 230V 50/60Hz, 900W, EU Plug  | 260 x 1200 x 90            | 10.1kg          |
| EME6 0500/CEB   | 6               | 6 x 500ml      | 230V 50/60Hz, 1200W          | 260 x 1200 x 90            | 12.5kg          |
| EME6 0500/CEBX1 | 6               | 6 x 500ml      | 115V 50/60Hz, 1200W          | 260 x 1200 x 90            | 12.5kg          |
| EME6 0500/CEBX6 | 6               | 6 x 500ml      | 230V 50/60Hz, 1200W, EU Plug | 260 x 1200 x 90            | 12.5kg          |
| EME6 1000/CEB   | 6               | 6 x 1000ml     | 230V 50/60Hz, 1800W          | 260 x 1200 x 90            | 12.5kg          |
| EME6 1000/CEBX1 | 6               | 6 x 1000ml     | 115V 50/60Hz, 1800W          | 260 x 1200 x 90            | 12.5kg          |
| EME6 1000/CEBX6 | 6               | 6 x 1000ml     | 230V 50/60Hz, 1800W, EU Plug | 260 x 1200 x 90            | 12.5kg          |

### Ordering Information

#### Heater/Stirrer models

| Model           | No. of Recesses | Flask Capacity | Electrical Requirements      | Dimensions (d x w x h), mm | Shipping Weight |
|-----------------|-----------------|----------------|------------------------------|----------------------------|-----------------|
| EMEA6 0100/CE   | 6               | 6 x 100ml      | 230V 50/60Hz, 500W           | 260 x 1200 x 90            | 10.1kg          |
| EMEA6 0100/CEX1 | 6               | 6 x 100ml      | 115V 50/60Hz, 440W           | 260 x 1200 x 90            | 10.1kg          |
| EMEA6 0100/CEX6 | 6               | 6 x 100ml      | 230V 50/60Hz, 500W, EU Plug  | 260 x 1200 x 90            | 10.1kg          |
| EMEA6 0250/CE   | 6               | 6 x 250ml      | 230V 50/60Hz, 980W           | 260 x 1200 x 90            | 10.1kg          |
| EMEA6 0250/CEX1 | 6               | 6 x 250ml      | 115V 50/60Hz, 980W           | 260 x 1200 x 90            | 10.1kg          |
| EMEA6 0250/CEX6 | 6               | 6 x 250ml      | 230V 50/60Hz, 980W, EU Plug  | 260 x 1200 x 90            | 10.1kg          |
| EMEA6 0500/CE   | 6               | 6 x 500ml      | 230V 50/60Hz, 1280W          | 260 x 1200 x 90            | 12.5kg          |
| EMEA6 0500/CEX1 | 6               | 6 x 500ml      | 115V 50/60Hz, 1280W          | 260 x 1200 x 90            | 12.5kg          |
| EMEA6 0500/CEX6 | 6               | 6 x 500ml      | 230V 50/60Hz, 1280W, EU Plug | 260 x 1200 x 90            | 12.5kg          |
| EMEA6 1000/CE   | 6               | 6 x 1000ml     | 230V 50/60Hz, 1880W          | 260 x 1200 x 90            | 12.5kg          |
| EMEA6 1000/CEX1 | 6               | 6 x 1000ml     | 115V 50/60Hz, 1880W          | 260 x 1200 x 90            | 12.5kg          |
| EMEA6 1000/CEX6 | 6               | 6 x 1000ml     | 230V 50/60Hz, 1880W, EU Plug | 260 x 1200 x 90            | 12.5kg          |





## Electric Bunsen

### The Modern Bunsen Burner

Electrothermal's Electric Bunsen combines the advantages of a regular gas burner with the clean, easy operation of our Electromantles. Radiation from the heater is directed upwards to a focal point. The Electric Bunsen is ideal for heating test tubes, crucibles, small flasks and beakers, regardless of their shape.

Page 32      Electric Bunsen

Find out more! Please scan the QR/Mobile Tag with your smartphone for more information



# BA6101

## Electric Bunsen Mantles

Electrothermal's Electric Bunsen, combines the advantages of a regular gas burner with the clean, easy operation of our Electromantles. It is corrosion-resistant and has a cool-to-the-touch base.

Radiation from the heater is directed upwards to a focal point. The Electric Bunsen is ideal for heating test tubes, crucibles, small flasks and beakers, regardless of their shape.

### Technical Specification

|                          |                 |
|--------------------------|-----------------|
| Flask capacity           | 25ml            |
| Material                 | Stainless-steel |
| Max temperature range    | 800°C to 1000°C |
| Shipping weight, kg      | 0.5             |
| Dimensions ( d x h ), mm | 120 x177        |

### Ordering Information

| Without Controller | Electrical requirements     |
|--------------------|-----------------------------|
| BA6101             | 230V 50/60Hz, 480W          |
| BA6101X1           | 115V 50/60Hz, 430W          |
| BA6101X2           | 100V 50/60Hz, 480W          |
| BA6101X3           | 90V 50/60Hz, 430W           |
| BA6101X6           | 230V 50/60Hz, 480W, EU Plug |
| With Controller    | Electrical requirements     |
| BA6101/C           | 230V 50/60Hz, 480W          |
| BA6101/CX1         | 115V 50/60Hz, 430W          |
| BA6101/CX6         | 230V 50/60Hz, 480W EU Plug  |

# MC5

## Electric Bunsen Controller

The MC5 Controller has been designed to provide a comprehensive answer to control the heating of resistive loads such as Electric Bunsens, Electromantles, Heating Tapes and Cords for bench top operation delivering up to a maximum of 800 Watts. A rod support clamp is provided at the rear of the controller to take a standard 12.5mm diameter rod. An accessory extension mains lead is available where remote operation is required e.g. in a fume extraction unit.

### Ordering Information

| Model | Electrical requirements      |
|-------|------------------------------|
| MC5   | 230V, 50/60Hz, 800W          |
| MC5X1 | 115V, 50/60Hz, 460W          |
| MC5X6 | 230V, 50/60Hz, 800W, EU Plug |

## Key Features

- Conical shaped heating element directs radiant heat to the top cavity
- Top cowl deflects heat away from your hand
- Air circulation from the vented housing keeps the base cool enough to hold during operation
- Burner consumes only 400W of power
- Recommended controller is the MC5





## Kjeldahl Equipment

For food analysis

The Macro & Micro-Kjeldahl equipment consists of multi-mantles with 2 or 6 positions which heat to an ultra-high temperature. Both can be used for the Kjeldahl analysis to determine protein content in food.

**Page 34**      Macro-Kjeldahl Equipment

**Page 35**      Micro-Kjeldahl Equipment

Find out more! Please scan the QR/Mobile Tag with your smartphone for more information



# MQ Series

## Macro-Kjeldahl Equipment

The Electrothermal MQ Series of Macro-Kjeldahl Equipment has been designed for Kjeldahl extraction on a macro scale.

These multibank units with either 2 or 6 recesses, have a stainless steel outer casing with back-mounted brackets (supplied with each unit), which can hold support rods of 12.7mm diameter max. There are 2 volume sizes available for both the 2 and 6 recess models, one for 100-300ml vessels and the second for 500-800ml vessels.

Each heating mantle has its own energy regulator incorporating an On/Off switch and a "Mains to Heater" amber neon indicator. There is also a "Mains On" clear neon indicator on the front panel.

The lower part of the unit houses dedicated controllers for each recess. This "cool zone" housing is separated from the heating element by a stainless steel screen and a well-ventilated air space. The heating element consists of thermally insulated element wire stitched into a cartridge, and operates in the temperature range of 550°C to 800°C max.

All MQ Macro-Kjeldahl Equipment models (except MQ3868B/E) incorporate an earth screen to protect the user from electric shocks and are double-fused for extra safety. The rugged stainless steel outer casing is durable and easy to clean.

### Technical Specification

|                         |  |
|-------------------------|--|
| Heating element temp    | 550°C - 800°C maximum  |
| Case material           | Stainless steel  |
| Thermal insulation      | Ceramic fibre/mineral wool   |
| Clamps for support rods | Fitted with adjustable clamps to accept the standard arms supplied |
| Wells capacity, ml      | 100-300  |
| Wells dimensions, mm    | 89 x 45 (diameter x depth)   |
| Wells capacity, ml      | 500-800  |
| Wells dimensions, mm    | 117 x 59 (diameter x depth)  |

### Key Features

- Rugged, easy to clean stainless steel construction
- Back-mounted brackets hold flask support rods (supplied with each unit)
- Choice of 2 or 6 positions
- Choice of 2 flask capacity sizes: 100 - 300ml and 500 - 800ml for both the 2 & 6 position models
- Dedicated controllers for each recess are housed in a "cool zone"
- Grounded stainless steel earth screen covering the heating element.
- Units are double fused for added safety (except for MQ3868B/E which is only available as the 230V model)



## Key Features

- Rugged, easy to clean stainless steel construction
- Back-mounted brackets hold flask support rods (supplied with each unit)
- 6 positions which can accommodate flasks of between 18ml - 50ml capacity
- Dedicated controllers for each recess are housed in a "cool zone"
- Grounded stainless steel earth screen covering the heating element
- Units are double fused for added safety

### MM2313/E



## MM Series

### Micro-Kjeldahl Equipment

The Electrothermal Micro-Kjeldahl Equipment has been designed for Kjeldahl extraction on a micro scale.

These multibank units have 6 recesses in a stainless steel outer casing with back-mounted brackets (supplied with each unit), which can hold support rods of 12.7mm diameter max. This 6 recess model accommodates flasks of between 18-50ml only.

Each heating position has its own energy regulator incorporating an On/Off switch and a "Mains to Heater" amber neon indicator. There is also a "Mains On" clear neon indicator on the front panel.

The lower part of the unit houses dedicated controllers for each recess. This "cool zone" housing is separated from the heating element by a stainless steel screen and a well-ventilated air space. The heating element consists of thermally insulated element wire stitched into a cartridge, and operates in the temperature range of 550°C to 800°C max.

The MQ Micro-Kjeldahl Equipment models incorporate an earth screen to protect the user from electric shocks and are double-fused for extra safety.

The rugged stainless steel outer casing is durable and easy to clean.

### Technical Specification

|                         |  |
|-------------------------|--|
| Heating element temp    | 550°C - 800°C maximum  |
| Case material           | Stainless steel  |
| Thermal insulation      | Ceramic fibre/mineral wool   |
| Clamps for support rods | Fitted with adjustable clamps to accept the standard arms supplied |
| Wells capacity, ml      | 18-50ml  |

# Macro and Micro-Kjeldahl Equipment

## Ordering Information

### Macro-Kjeldahl Extraction Heaters

| Model        | No of Recesses | Capacity (ml) | Operating Temperature | Electrical Requirements | Dimensions (d x w x h), mm | Weight (kg) |
|--------------|----------------|---------------|-----------------------|-------------------------|----------------------------|-------------|
| MQ3822B/E    | 2              | 100 to 300ml  | 550°C - 800°C         | 230V 50/60Hz, 600W      | 260 x 320 x 165            | 2kg         |
| MQ3822B/EX1  | 2              | 100 to 300ml  | 550°C - 800°C         | 115V 50/60Hz, 600W      | 260 x 320 x 165            | 2kg         |
| MQ3822B/EX6* | 2              | 100 to 300ml  | 550°C - 800°C         | 230V 50/60Hz, 600W      | 260 x 320 x 165            | 2kg         |
| MQ3824B/E    | 2              | 500 to 800ml  | 550°C - 800°C         | 230V 50/60Hz, 1100W     | 260 x 320 x 165            | 2kg         |
| MQ3824B/EX1  | 2              | 500 to 800ml  | 550°C - 800°C         | 115V 50/60Hz, 1100W     | 260 x 320 x 165            | 2kg         |
| MQ3824B/EX6* | 2              | 500 to 800ml  | 550°C - 800°C         | 230V 50/60Hz, 1100W     | 260 x 320 x 165            | 2kg         |
| MQ3866B/E    | 6              | 100 to 300ml  | 550°C - 800°C         | 230V 50/60Hz, 1800W     | 260 x 970 x 165            | 5.8kg       |
| MQ3866B/EX1  | 6              | 100 to 300ml  | 550°C - 800°C         | 115V 50/60Hz, 1800W     | 260 x 970 x 165            | 5.8kg       |
| MQ3866B/EX6* | 6              | 100 to 300ml  | 550°C - 800°C         | 230V 50/60Hz, 1800W     | 260 x 970 x 165            | 5.8kg       |
| MQ3868B/E**  | 6              | 500 to 800ml  | 550°C - 800°C         | 230V 50/60Hz, 3300W     | 260 x 970 x 165            | 5.8kg       |

## Ordering Information

### Micro-Kjeldahl Extraction Heaters

| Model      | No of Recesses | Capacity   | Operating Temperature | Electrical Requirements | Dimensions (d x w x h), mm | Weight (kg) |
|------------|----------------|------------|-----------------------|-------------------------|----------------------------|-------------|
| MM2313/E   | 6              | 18 to 50ml | 550°C - 800°C         | 230V 50/60Hz, 600W      | 160 x 520 x 162            | 3.5kg       |
| MM2313/EX1 | 6              | 18 to 50ml | 550°C - 800°C         | 115V 50/60Hz, 600W      | 160 x 520 x 162            | 3.5kg       |
| MM2313/EX6 | 6              | 18 to 50ml | 550°C - 800°C         | 230V 50/60Hz, 600W      | 160 x 520 x 162            | 3.5kg       |

\*NOTE: Codes ending with the suffix EX6 come with EU Plug fitting

\*\*NOTE: Wired in directly and are not double-fused

## Kjeldahl Method for Protein Content

The method consists of heating a substance with sulphuric acid, which decomposes the organic substance by oxidation to liberate the reduced nitrogen as ammonium sulphate. In this step potassium sulphate is added to increase the boiling point of the medium (from 169°C to 189°C). Chemical decomposition of the sample is complete when the medium has become clear and colourless (initially very dark).

The solution is then distilled with sodium hydroxide (added in small quantities) which converts the ammonium salt to ammonia. The amount of ammonia present (hence the amount of nitrogen present in the sample) is determined by back titration. The end of the condenser is dipped into a solution of boric acid. The ammonia reacts with the acid and the remainder of the acid is then titrated with a sodium carbonate solution with a methyl orange pH indicator.

Degradation:  $\text{Sample} + \text{H}_2\text{SO}_4 \rightarrow (\text{NH}_4)_2\text{SO}_4 + \text{CO}_2 + \text{SO}_2 + \text{H}_2\text{O}$

Liberation of ammonia:  $(\text{NH}_4)_2\text{SO}_4 + 2\text{NaOH} \rightarrow \text{Na}_2\text{SO}_4 + 2\text{H}_2\text{O} + 2\text{NH}_3$

Capture of ammonia:  $\text{B}(\text{OH})_3 + \text{H}_2\text{O} + \text{NH}_3 \rightarrow \text{NH}_4^+ \text{B}(\text{OH})_4^-$

Back-titration:  $\text{B}(\text{OH})_3 + \text{H}_2\text{O} + \text{Na}_2\text{CO}_3 \rightarrow \text{NaHCO}_3 + \text{NaB}(\text{OH})_4 + \text{CO}_2 + \text{H}_2\text{O}$

The Kjeldahl method's universality, precision and reproducibility have made it the internationally-recognized method for estimating the protein content in foods and it is the accepted standard method.



## Heating Cords & Tapes

### HT & HC Series for surface heating

The HT and HC series of Heating Tapes and Cords are a range of flexible resistance heater elements for use in a wide range of commercial/industrial surface heating applications. Once the Heating Tape /Cord has been installed around the item to be kept at an elevated temperature, it is recommended that it is connected to one of Electrothermal's MC controllers.

- |                |                               |
|----------------|-------------------------------|
| <b>Page 38</b> | HC1 glass fibre cords         |
| <b>Page 39</b> | HT7 and HT9 glass fibre tapes |
| <b>Page 40</b> | HC5 quartz fibre cords        |

Find out more! Please scan the QR/Mobile Tag with your smartphone for more information



# HC1

## Glass fibre cords

HC1 Glass Fibre Cords are ideal for indoor use for dry metal and glassware applications which require observation; they are especially suited to high temperature, high wattage applications.

HC1 Glass Fibre Cords have an element wound on a glass fibre core and covered in braided glass fibre outer sheath. They are available in different lengths to accommodate a broad range of temperatures up to 450°C. As with all the tapes and cords, the use of an energy or temperature controller is recommended.

## Ordering Information

| Model   | Length, mm | Electrical Requirements |
|---------|------------|-------------------------|
| HC101   | 305        | 230V, 60W               |
| HC101X1 | 305        | 115V, 60W               |
| HC102   | 610        | 230V, 120W              |
| HC102X1 | 610        | 115V, 120W              |
| HC103   | 1220       | 230V, 240W              |
| HC103X1 | 1220       | 115V, 240W              |
| HC104   | 2440       | 230V, 480W              |
| HC104X1 | 2440       | 115V, 480W              |
| HC105   | 4880       | 230V, 960W              |
| HC105X1 | 4880       | 115V, 960W              |
| HC106   | 9760       | 230V, 1920W             |

Please note: Outside diameter approx. 5mm

## Key Features

- For high wattage applications
- Operational temperature range up to 450°C
- Cord is spiralled around the tube being heated to give a surface loading power concentration up to 4W/cm<sup>2</sup>
- Linear loading: 195W/m (60W/ft)
- Available in different lengths from 1 foot (30.5cm) to 32 feet (976cm)
- Insulated unheated flexible lead at each end (122cm)
- Approximate outside diameter of 5mm
- All models have dual voltage choice of 115V and 230V (except for the HC106 model which is available as 230V only)
- For use in dry conditions only
- Use of MC227 Single output controller, MC228 2-Way output controller or MC810B Digital controller is recommended



## Key Features

### Key features of both the HT7 and HT9 series

#### Glass Fibre Tapes

- Operational temperature range up to 450°C
- Cord is spiralled around the tube being heated to give a surface loading power concentration up to 0.62W/cm<sup>2</sup> (4W/in<sup>2</sup>)
- Linear loading: 164W/m (50W/ft)
- Available in different lengths from 2 feet (61cm) to 32 feet (976cm)
- Insulated unheated flexible lead at each end of 3.5in (9cm)
- Approximate width of 25mm
- All models have dual voltage choice of 115V and 230V (except for the HT75524, HT75532, HT95524 and HT95532 models which are available as 230V only)
- For use in dry conditions only
- Use of MC227 Single output controller, MC228 2-Way output controller or MC810B Digital controller is recommended

## HT7 and HT9



## HT7 and HT9 Series

### Glass Fibre Tapes

HT7 and HT9 Glass Fibre Tapes are flexible heaters that are ideal for heating columns, pipes, valves and transfer lines, especially when these applications need to be observed. They can be applied to metal pipes as well as glassware.

Both HT7 and HT9 Series Glass Fibre Tapes have an element wound on a glass fibre core and covered in braided glass fibre outer sheath; the HT9 series additionally has a braided earth (ground) wire beneath the outer sheath.

They are available in different lengths to accommodate a broad range of temperatures with a maximum element temperature of up to 450°C. As with all the tapes and cords, the use of an energy or temperature controller is recommended.

### Ordering Information

| Model    | Length, mm | Electrical Requirements |
|----------|------------|-------------------------|
| HT75502* | 610        | 115 or 230V, 100W       |
| HT95502* | 610        | 115 or 230V, 100W       |
| HT75503* | 910        | 115 or 230V, 150W       |
| HT95503* | 910        | 115 or 230V, 150W       |
| HT75504* | 1220       | 115 or 230V, 200W       |
| HT95504* | 1220       | 115 or 230V, 200W       |
| HT75506* | 1830       | 115 or 230V, 300W       |
| HT95506* | 1830       | 115 or 230V, 300W       |
| HT75508* | 2440       | 115 or 230V, 400W       |
| HT95508* | 2440       | 115 or 230V, 400W       |
| HT75512* | 3660       | 115 or 230V, 600W       |
| HT95512* | 3660       | 115 or 230V, 600W       |
| HT75516* | 4880       | 115 or 230V, 800W       |
| HT95516* | 4880       | 115 or 230V, 800W       |
| HT75524  | 7320       | 230V, 1200W             |
| HT95524  | 7320       | 230V, 1200W             |
| HT75532  | 9760       | 230V, 1600W             |
| HT95532  | 9760       | 230V, 1600W             |

Please note: standard width 25mm

\* Add X1 suffix for 115V tape

# HC5

## Quartz fibre cords

HC5 Quartz Fibre Cords are ideal for indoor use for dry metal and glassware applications which require observation; they are especially suited to high temperature, high wattage applications.

HC5 Quartz Fibre Cords have a high temperature wire heating element wound on a quartz fibre core which is covered in a braided quartz fibre outer sheath. They are available in different lengths to accommodate a broad range of temperatures up to 800°C. As with all the tapes and cords, the use of an energy or temperature controller is recommended.

## Ordering Information

| Model   | Length, mm | Electrical Requirements |
|---------|------------|-------------------------|
| HC501   | 305        | 230V, 100W              |
| HC501X1 | 305        | 115V, 100W              |
| HC502   | 610        | 230V, 200W              |
| HC502X1 | 610        | 115V, 200W              |
| HC503   | 1220       | 230V, 400W              |
| HC503X1 | 1220       | 115V, 400W              |
| HC504   | 2440       | 230V, 800W              |
| HC504X1 | 2440       | 115V, 800W              |
| HC505   | 4880       | 230V, 1600W             |

Please note: Outside diameter approx. 5mm

## Key Features

- For high temperature, high wattage applications
- Operational temperature range up to 800°C
- Cord is spiralled around the tube being heated to give a surface loading power concentration up to 6.5W/cm<sup>2</sup>
- Linear loading: 328W/m (100W/ft)
- Available in different lengths from 1 foot (30.5cm) to 16 feet (488cm)
- Insulated unheated flexible lead at each end (61cm)
- Approximate outside diameter of 5mm
- All models have dual voltage choice of 115V and 230V (except for the HC505 model which is available as 230V only)
- For use in dry conditions only
- Use of MC227 Single output controller, MC228 2-Way output controller or MC810B Digital controller is recommended



HC5



## Controllers

For power, stirring and temperature control

Electrothermal have a comprehensive range of controllers to provide power and temperature control for all your laboratory equipment.

- Page 42** MC5, MC242, MC227 and MC228X1  
1-Way Controllers
- Page 44** MC240 2-way controller
- Page 45** MC810B digital controller
- Page 46** FM110 Flow Monitor

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# 1-Way Controllers

## Introduction

There is a choice of 3 models of 1-Way Controllers which operate up to 800W (MC5), 1800W (MC242) or 2300W (MC227); MC228X1 operates up to a maximum of 1100W. These controllers can control one piece of laboratory equipment at a time, or an equivalent load, ie. on a CMUV22/L which has 3 elements, you can have an MC5 on each element.

## MC5 Controller

### Operates at up to 800W

The MC5 Controller has been designed to provide a complete answer in controlling the heating of resistive loads for bench top operation. It delivers power up to a maximum of 800 Watts and is suitable for EM series Electromantles, CMU series Electromantles, Electric Bunsen and Heating Tapes/Cords.

The MC5 Controller has 2 neon indicators; "Power On" white neon light and "Mantle/Bunsen Heater On" amber neon light. It has a regulator control knob which can be turned clockwise to increase power. As the knob is turned, the controller's amber neon lamp will pulsate to show that power is being supplied to the equipment being controlled, e.g. mantle, heating tape or cord. The pulse frequency will decrease as the regulator control knob setting is increased, and at maximum setting, the amber neon will be continually illuminated.

A rod support clamp is provided at the rear of the controller to take a standard 12.5mm (½") diameter rod. The MC5 has a short mains output lead with an IEC socket to connect it to the resistive load. An accessory extension mains lead is available where remote operation is required (e.g. in a fume extraction unit).

### Technical Specification

|                              |  |
|------------------------------|--|
| Electrical requirements      | 230V 50/60Hz, 800W or<br>115V, 50/60Hz, 460W |
| Controller power consumption | < 1 Watt                                     |
| Dimensions (d x w x h), mm   | 130 x 95 x 105                               |
| Weight, kg                   | 0.42   |

### Ordering Information

| Model  | Capacity       | Electrical Requirements |
|--------|----------------|-------------------------|
| MC5    | MC5 Controller | 230V, 50/60Hz, 800W     |
| MC5X1  | MC5 Controller | 115V, 50/60Hz, 460W     |
| MC5X6* | MC5 Controller | 230V, 50/60Hz, 800W     |

\*Model with X6 suffix comes supplied with EU plug



MC5  
With Electric Bunsen

### MC227 / MC228X1



### MC242



## MC242

Controller: Operates at up to 800W

The MC242 Controller has been designed to regulate the power input to laboratory heating equipment such as Electromantles, Heating Tapes and Cords. It operates up to a power load of 1800W for the 230V model and 1150W for the 115V model.

The MC242 Controller has 2 neon indicators:  
 "Power On" white neon light  
 "Mantle/Bunsen Heater On" amber neon light;

It has a regulator control knob which can be turned clockwise to increase power. As the knob is turned, the controller's amber neon lamp will pulsate to show that power is being supplied to the equipment being controlled, e.g. mantle, heating tape or cord. The pulse frequency will decrease as the regulator control knob setting is increased, and at maximum setting, the amber neon will be continually illuminated.

A rod support clamp is provided at the rear of the controller to take a standard 12.5mm (½") diameter rod.

The MC242 Controller has a short mains output lead with an IEC socket to connect it to the resistive load. An accessory extension mains lead is available where remote operation is required (e.g. in a fume extraction unit).

### Technical Specification

For MC242 Controller

Electrical requirements    230V, 50/60Hz, 1800W  
 Controller power            < 1 Watt consumption

## MC227 and MC228X1

Controller: Operates at up to 2300W

Both power controllers have been designed to regulate the power input to laboratory heating equipment up to 2300W. The MC227 Controller is a 230V controller, and MC228x1 is its 115V equivalent version and operates up to 1100W.

The MC227 and MC228X1 Controllers have 1 "Mantle/Bunsen Heater On" amber neon indicator. They also have a regulator control knob which can be turned clockwise to increase power. As the knob is turned, the controller's amber neon lamp will pulsate to show that power is being supplied to the equipment being controlled, e.g. mantle, heating tape or cord. The pulse frequency will decrease as the regulator control knob setting is increased, and at maximum setting, the amber neon will be continually illuminated.

A rod support clamp is provided at the rear of the controller to take a standard 12.5mm (½") diameter rod, so that it may be mounted on a standard ½" (12mm) diameter scaffold or retort stand, stand directly on the bench, or be wall mounted using a mounting bracket.

The MC227 and MC228X1 Controllers have a short mains output lead with an IEC socket to connect it to the resistive load. An accessory extension mains lead is available where remote operation is required (e.g. in a fume extraction unit).

### Technical Specification

For MC227 Controller

Electrical requirements    230V,50/60Hz, 2300W  
 Controller power            < 1 Watt consumption

## Ordering Information

| Model    | Description                               | Electrical Requirements | Dimensions (d x w x h) | Weight |
|----------|---|-------------------------|------------------------|--------|
| MC227    | Single place percentage On/ Off, die-cast | 230V, 50/60Hz, 2300W    | 11.5 x 12 x 8cm        | 0.82kg |
| MC228X1  | Single place percentage On/ Off, die-cast | 115V, 50/60Hz, 1100W    | 11.5 x 12 x 8cm        | 0.82kg |
| MC227X6* | Single place percentage On/ Off, die-cast | 230V, 50/60Hz, 2300W    | 11.5 x 12 x 8cm        | 0.82kg |
| MC242    | Single place percentage On/ Off           | 230V, 50/60Hz, 1800W    | 13 x 9.5 x 10.5cm      | 0.42kg |
| MC242X1  | Single place percentage On/ Off           | 115V, 50/60Hz, 1150W    | 13 x 9.5 x 10.5cm      | 0.42kg |
| MC242X6* | Single place percentage On/ Off           | 230V, 50/60Hz, 1800W    | 13 x 9.5 x 10.5cm      | 0.42kg |

\*Comes with EU Plug fitting

# MC240

## 2-Way Controller

The MC240 is a 2 channel device which provides the user with the option to control two pieces of laboratory equipment running simultaneously, but independently of each other. It operates up to a maximum of 800W per circuit, at either 115 or 230 Volts.

The MC240 2-Way Controller has been designed to work with:

- EM series Electromantles
- CMU series Electromantles
- Electric Bunsen
- Heating Tapes and Cords

The MC240 Controller has 3 neon indicators:

- "Power On" green neon light
- "Mantle/Bunsen Heater On" amber neon light for channel 1
- "Mantle/Bunsen Heater On" amber neon light for channel 2

In addition, for both channels there is a mains output, control knob and protection fuses. Both regulator control knobs can be turned clockwise to increase power. As each knob is turned, the controller's amber neon lamp will pulsate to show that power is being supplied to the equipment being controlled for that channel, e.g. mantle, heating tape or cord. The pulse frequency will decrease as the regulator control knob setting is increased, and at maximum setting, the amber neon will be continually illuminated. The MC240 Controller has a short mains output lead with an IEC socket to connect it to the resistive load. An accessory extension mains lead is available where remote operation is required (e.g. in a fume extraction unit).

### Technical Specification

|                              |                      |
|------------------------------|----------------------|
| Controller power consumption | < 1 Watt per channel |
| Dimensions (d x w x h), mm   | 100 x 200 x 98       |
| Weight, kg                   | 1.1                  |

### Ordering Information

| Model    | Capacity                       | Electrical Requirements |
|----------|--------------------------------|-------------------------|
| MC240    | Double place percentage On/Off | 230V, 50/60Hz, 800W     |
| MC240X1  | Double place percentage On/Off | 115V, 50/60Hz, 800W     |
| MC240X6* | Double place percentage On/Off | 230V, 50/60Hz, 800W     |

*\*Comes with EU Plug fitting*

### Key Features

- Able to control two pieces of laboratory equipment simultaneously
- Three neon indicators
- Operates up to a maximum of 800W per circuit, at either 115 or 230 Volts.



MC240  
2-Way Controller

## Key Features

- PTFE-covered platinum resistance thermometer is included for measurements to 270°C
- Zinc die-cast outer case is suitable for the bench or can be mounted on a 12.7cm support rod
- Programming is done by up/down controls
- Three-digit LED display allows you to set a 1°C resolution over a range of -10°C to 800°C



MC810B

With stand

## MC810B

### Digital Controller

The MC810B Digital Controller provides a convenient means of temperature control, using microprocessor techniques to give ease of operation and good accuracy.

It can be used in 3 ways:

- In On/Off mode with the hysteresis loop controlling power switching
- As a PID (Proportional, Integrated, Derivative) controller
- As a temperature measuring device up to 270°C or more, depending upon the probe accessory used

The MC810B Digital Controller may be used in conjunction with a suitable heating or cooling device e.g. Electromantle or Electric Bunsen. For clear operation, the MC810B Digital Controller has an On/Off Power switch, "Power On" amber neon indicator and an Exit/Standby button.

Programming is done via the Up/Down controls on the front panel and the 3 digit LED display allows you to set a 1°C resolution over a range of -10°C to 800°C. Temperature sensing is performed by a plug-in PTFE covered platinum resistance thermometer probe which is suitable for measurements up to 270°C. There is a 5 pin DIN socket for the temperature probe. The sample temperature is displayed on the 3-digit LED display.

The MC810B Digital Controller has a zinc die-cast outer case, and is suitable for bench and retort stand mounting or wall mounting using the wall bracket and retort rod clamps provided. It has a short mains output lead with an IEC socket to connect it to the resistive load. An accessory extension mains lead is available where remote operation is required (e.g. in a fume extraction unit).

### Technical Specification

|                              |   |
|------------------------------|---|
| Electrical requirements      | 230V, 50/60Hz, 1500W<br>115V, 50/60Hz, 750W |
| Controller power consumption | <2W   |
| Dimensions (d x w x h), mm   | 100 x 120 x 80                              |
| Weight, kg                   | 1.1   |

### Ordering Information

| Model     | Description        | Electrical Requirements |
|-----------|--------------------|-------------------------|
| MC810B    | Digital Controller | 230V, 50/60Hz, 1500W    |
| MC810BX1  | Digital Controller | 115V, 50/60Hz, 750W     |
| MC801BX6* | Digital Controller | 230V, 50/60Hz, 1500W    |

\*Comes with EU Plug fitting

# FM110

## Flow Monitor

Flow monitors can be used in conjunction with the Multi (Extraction) Mantles EME and EMEA series. The new Electrothermal FM110 Flow Monitor has been carefully designed to provide increased safety in the laboratory by the monitoring of aqueous liquid used in heating-cooling applications and process control. The turbine assembly is comprised of components made from chemically resistant materials such as PVDF, sapphire, ceramic and viton. A rod support clamp is provided at the rear of the controller to take a standard 12.5mm (1/2") diameter rod.

Two versions of the Flow Monitor are available, covering different flow rates as follows.

FM110 0.5 to 15 litres/min with a fixed alarm point of 4 to 5 litres/min

FM1102B 0.1 to 5 litres/min with a fixed alarm point of 0.4 to 0.7 litres/min

Once the alarm is triggered, the output from the flow monitor will switch off the extraction mantle.

### Technical Specification

|                               |  |
|-------------------------------|--|
| Mains supply voltage          | 110 - 120V, 50/60Hz<br>220 - 240V, 50/60Hz   |
| Maximum load current          | 115V = 15A<br>230V = 10A   |
| Mains output                  | Non-detachable 3 core mains cable with moulded IEC socket<br>(230V) or USA socket (115V) |
| Remote alarm output           | 2-pin DIN socket<br>5-pin DIN socket   |
| Rod clamp size                | 12.7mm diameter  |
| Manual reset control          | 2-position slide switch (front panel)  |
| Reset mode control            | 2-position slide switch (side panel)   |
| Operating ambient temperature | 5°C to 40°C  |
| Fluid temperature parameters  | -30°C to +80°C   |



## Ordering Information

| Model    | Description                                 |
|----------|---|
| FM110*   | Flow monitor; 0.5 - 15 litres/min flow rate |
| FM1102B* | Flow monitor; 0.1 - 5 litres/min flow rate  |

\*Note: Add X1 suffix for 115V and X6 suffix for 230V with EU plug

## Accessories - Ordering Information

### Controllers

| Part Code | Description  |
|-----------|--|
| AZ6745    | Mains cord and moulded IEC plug and lead set (UK).     |
| AZ6747    | Mains cord and moulded IEC plug and lead set (Schuko). |
| AZ6705    | Temperature Probe 250°C Max.                           |
| AZ6706    | Temperature Probe 400°C Max.                           |
| AZ6741    | Temperature Probe 800°C Max.                           |
| M6332     | Extension Lead (Europe)                                |
| M6902     | Extension Lead (UK)                                    |



## Melting Point Apparatus

### Mel-Temp® and IA9000 Series

Electrothermal's range of melting point apparatus consists of the Mel-Temp® and IA9100, IA9200, IA9300. The Mel-Temp® gives a temperature resolution of  $\pm 1^{\circ}\text{C}$ , whereas the IA900 series has a temperature resolution of  $\pm 0.1^{\circ}\text{C}$  and other performance enhancements.

**Page 48**      1101D & 1102D Mel-Temp®

**Page 50**      IA9100, IA9200, IA9300 Melting Point Apparatus

Find out more! Please scan the QR/Mobile Tag with your smartphone for more information



# 1101D and 1102D Mel-Temp®

## Digital Melting Point Apparatus

The updated 1101D Mel-Temp® Digital Melting Point Apparatus offers a quick and easy way to measure the melting points of samples at a budget price. It is ideal for multiple users, being ergonomically designed to ensure comfortable viewing for everyone, with a height-adjustable extension arm and a viewing head that may be rotated to suit each user. As a visual aid, the viewing head holds a viewing magnifier that offers 8x magnification.

As a further convenience, the extension arm is completely collapsible and can be neatly folded away into the unit, so that the unit can be stored flat to save space.

Each Digital Mel-Temp® comes supplied with a complimentary pack of 50 capillary tubes, its own power supply and power cable.

The 1101D Mel-Temp® has power requirements of 115-120V and 50-60Hz. The 1102D Mel-Temp® Digital Melting Point Apparatus has exactly the same functionality, but has power requirements of 230-240V; 50-60Hz.

## Performance

- Membrane keypad with simple menus for intuitive use
- Push button controls are conveniently located to ensure that temperatures can be recorded without looking away from the sample
- Digital microprocessor with  $\pm 1^\circ\text{C}$  resolution provides fast warm-up and accurate temperature control
- Samples in 3 capillary tubes may be viewed simultaneously

## Safety and convenience

- 3 Audible beeps indicate that the oven temperature is stable and ready for sample
- Adjustable arm with 8x viewing magnifier can be folded away into the unit
- Adjustable object lens for sharp focus
- Rotating viewing head and safety eye piece to protect against glare and hot zone
- Integral light and wide angle 8x magnifier enhance sample observation, so that all 3 samples can be viewed without eye strain
- Units can be calibrated by the user on their site or by manufacturer/service organisation. If calibrated by the user, a calibration kit is required.

## Key Features

- Temperature resolution  $\pm 1^\circ\text{C}$
- Accommodates 3 Melting point capillaries of up to 2mm outside diameter
- Tube Guide removal for cleaning and use of cold finger
- 32-bit Processor
- 4 x 1 Melt memory capacity
- 13-key membrane keypad



1101D

1102D also available

# 1101D and 1102D Mel-Temp®

## Digital Melting Point Apparatus

### Technical Information

|                             |   |
|-----------------------------|---|
| Colour                      | Black   |
| Processor                   | 32-bit Processor  |
| Keypad                      | 13-key membrane keypad  |
| Capillary tubes             | Accommodates 3 capillary tubes up to 2mm OD (Storage for pack 100)        |
| Tube Guide                  | Tube Guide removal for cleaning and use of cold finger                    |
| Lens                        | 40mm diameter lens (magnification 8x) removable and with adjustable focus |
| LED                         | White LED illuminated oven  |
| Melt memory                 | 4 x 1 Melt memory capacity  |
| Temperature range           | Ambient to 400°C  |
| Fixed temperature ramp rate | 1.0°C/minute  |
| Fast temperature ramp rate  | 10°C/minute   |
| Temperature resolution      | ±1°C  |
| Accuracy                    | ±1%   |
| Temperature sensor          | PT100 Platinum Resistance   |
| Display                     | 2 Rows of 12 characters with backlit LCD                                  |
| Power requirements          | 115-120V, 50-60Hz for 1101D<br>230-240V, 50-60 Hz for 1102D               |
| Dimensions (d x w x h), mm  | 355 x 200 x 80  |
| Shipping weight, kg         | 2.5   |

### Ordering Information

#### 1101D and 1102D Mel-Temp®

| Model   | Description                     | Electrical Requirements         |
|---------|---------------------------------|---------------------------------|
| 1102D   | Mel-Temp® Fixed Ramp Rate Model | 230V, 50/60Hz, 45W              |
| 1101D   | Mel-Temp® Fixed Ramp Rate Model | 115V, 50/60Hz, 45W              |
| 1102DX6 | Mel-Temp® Fixed Ramp Rate Model | 230V, 50/60Hz, 45W with EU plug |

*\*Please note that each instrument is supplied with a pack of 50 capillary tubes, power supply and power cable.*

### Accessories - Ordering Information

| Part Code | Description                            |
|-----------|--|
| AZ9001    | Cold Finger                            |
| AZ9002    | Dust Cover                             |
| AZ9218    | P-nitrotoluene                         |
| AZ9118    | Carbazole (245.61deg) 0.5g             |
| AZ9253    | Calibration Key                        |
| AT4042    | Capillary Tubes 1.5mm (10x100 pack)    |
| AT4043    | Capillary Tubes 2.0mm (10x100 pack)    |
| PR2000S   | Printer (with connecting ribbon cable) |
| AT4044    | Paper Roll (2) and ribbon for printer  |
| AZ9220    | 1A PSU Mains lead (UK)                 |
| AZ9220X1  | 1A PSU Mains Lead (115V – USA)         |
| AZ9220X6  | 1A PSU mains Lead (European)           |

# IA9100, IA9200, IA9300

## Digital Melting Point Apparatus

### Features of all 3 models of the IA9000 series:

The updated IA9000 series Digital Melting Point Apparatus offers a quick way to measure the melting points of samples, without sacrificing accuracy; the temperature resolution is within 0.1°C. It is ideal for multiple users, being ergonomically designed to ensure comfortable viewing for everyone, with a height-adjustable extension arm and a viewing head that may be rotated to suit each user. As a visual aid, the viewing head holds a viewing magnifier that offers 8x magnification.

As a further convenience, the extension arm is completely collapsible and can be neatly folded away into the unit, so that the unit can be stored flat to save space.

Each IA9000 series model comes supplied with a complimentary pack of 50 capillary tubes, its own power supply and power cable. The IA9000 series operates at both 115V and 230V.

### Performance

- Membrane keypad with simple menus for intuitive use
- Push button controls are conveniently located to ensure that temperatures can be recorded without looking away from the sample
- Digital microprocessor with  $\pm 0.1^\circ\text{C}$  resolution provides fast warm-up and accurate temperature control
- Samples in 3 capillary tubes may be viewed simultaneously

### Safety and convenience

- 3 Audible beeps indicate that the oven temperature is stable and ready for sample
- Adjustable arm with 8x viewing magnifier can be folded away into the unit
- Adjustable object lens for sharp focus
- Daylight-balanced LEDs for improved sample illumination
- Rotating viewing head and safety eye piece to protect against glare and hot zone
- Integral light and wide angle 8X magnifier enhance sample observation, so that all 3 samples can be viewed without eye strain
- Units can be calibrated in the field or at the factory; if in the field a calibration kit is required
- Improved calibration procedure using a calibration key

## Additional features

### Additional features of the IA9200 and IA9300 series Digital Melting Point apparatus

- Temperature resolution  $\pm 0.1^\circ\text{C}$
- Selectable ramp rates between 0.2°C/min and 10°C/min; the IA9200 has a default setting of 0.2°C/min and the IA9300 has a default setting of 1°C/min
- Date and time facility
- PC output facility
- Interface with optional PR2000S Printer
- Printer output facility via RS232-C serial port
- USB output to flash drive
- 3 x 2 Melt memory capacity (IA9300 only)
- Batch memory of 500 Melts (IA9300) and 1000 Melts (IA9200)



IA9100

IA9200, IA9300 also available

## Technical Information

| Model  | IA9100         | IA9200   | IA9300   |
|--|----------------|--|--|
| 32-bit Processor   | •              | •  | •  |
| Accommodates 3 Capillary Tubes up to 2mm OD<br>(Storage for pack 100)                  | •              | •  | •  |
| Tube Guide removal for cleaning<br>and use of cold finger.                             | •              | •  | •  |
| 40mm diameter Lens (magnification x 8)<br>removable and with adjustable focus          | •              | •  | •  |
| Oven temperature range (ambient to 400°C)  | •              | •  | •  |
| Temperature resolution $\pm 0.1^\circ\text{C}$   | •              | •  | •  |
| Accuracy $\pm 1\%$   | •              | •  | •  |
| 13-key membrane keypad   | •              | •  | •  |
| Cooling temp selection   | •              | •  | •  |
| Fast ramp rate of $10^\circ\text{C}/\text{minute}$ .                                   | •              | •  | •  |
| Selectable ramp rate of $1.0^\circ\text{C}/\text{min}$ & $10^\circ\text{C}/\text{min}$ | •              |  | •  |
| Selectable ramp rates of $0.2 - 10^\circ\text{C}/\text{min}$                           |                | •<br>(default $0.2^\circ\text{C}/\text{min}$ ) | •<br>(default $1.0^\circ\text{C}/\text{min}$ ) |
| White LED illuminated oven   | •              | •  | •  |
| Nicad battery for memory, clock back-up  |                | •  | •  |
| Date & Time facility   |                | •  | •  |
| PC Output facility   |                | •  | •  |
| Printer Output facility  |                | •  | •  |
| USB Output to flash drive  |                | •  | •  |
| Display (2 rows of characters with backlit LCD)  | •              | •  | •  |
| 4 x 1 Melt memory capacity   | •              | •  |  |
| 3 x 2 Melt memory capacity   |                |  | •  |
| Batch memory capacity of 500 melts   |                |  | •  |
| Batch memory capacity of 1000 melts  |                | •  |  |
| Serial (RS232-C) Port for Printer  |                | •  | •  |
| Dimensions (d x w x h), mm   | 355 x 200 x 80 | 355 x 200 x 80                                 | 355 x 200 x 80                                 |
| Shipping Weight, kg  | 2.5            | 2.5  | 2.5  |

# IA9100, IA9200, IA9300

## Digital Melting Point Apparatus

### Ordering Information

| Model    | Description   | Electrical Requirements     |
|----------|---|-----------------------------|
| IA9100   | Fixed Ramp Rate Model   | 230V, 50/60Hz, 45W          |
| IA9100X1 | Fixed Ramp Rate Model   | 115V, 50/60Hz, 45W          |
| IA9100X6 | Fixed Ramp Rate Model   | 230V, 50/60Hz, 45W, EU Plug |
| IA9200   | Programmable Ramp Rate Model                                      | 230V, 50/60Hz, 45W          |
| IA9200X1 | Programmable Ramp Rate Model                                      | 115V, 50/60Hz, 45W          |
| IA9200X6 | Programmable Ramp Rate Model                                      | 230V, 50/60Hz, 45W, EU Plug |
| IA9300   | Beginning/Ending Recording Model<br>for Pharmacopeia Requirements | 230V, 50/60Hz, 45W          |
| IA9300X1 | Beginning/Ending Recording Model<br>for Pharmacopeia Requirements | 115V, 50/60Hz, 45W          |
| IA9300X6 | Beginning/Ending Recording Model<br>for Pharmacopeia Requirements | 230V, 50/60Hz, 45W, EU Plug |

*\*Please note that each instrument is supplied with a pack of 50 capillary tubes, power supply and power cable.*

## Accessories

### Digital Melting Point Apparatus

### Ordering Information

| Part Code | Description                            |
|-----------|--|
| AZ9001    | Cold Finger                            |
| AZ9002    | Dust Cover                             |
| AZ9218    | P-nitrotoluene                         |
| AZ9118    | Carbazole (245.61deg) 0.5g             |
| AZ9253    | Calibration Key                        |
| AT4042    | Capillary Tubes 1.5mm (10x100 pack)    |
| AT4043    | Capillary Tubes 2.0mm (10x100 pack)    |
| PR2000S   | Printer (with connecting ribbon cable) |
| AT4044    | Paper Roll (2) and ribbon for printer  |
| AZ9220    | 1A PSU Mains lead (UK)                 |
| AZ9220X1  | 1A PSU Mains Lead (115V – USA)         |
| AZ9220X6  | 1A PSU mains Lead (European)           |



## Histology & Pathology Products

### Equipment for preparing samples

This range consists of three products. Electrothermal's Paraffin Wax Dispenser heats wax to a liquid state and provides convenient 'wax on tap' for pathology and histology laboratories. The Paraffin Section Mounting Bath is designed to assist with the handling of paraffin wax samples in histology and pathology laboratories. It is essentially a hot distilled water floating out bath that allows for the manipulation of paraffin wax sections onto glass slides. The Slide Drying Bench aids in the preparation of microscope slides at the specimen mounting stage.

**Page 54**      MH8523B Paraffin Wax Dispenser

**Page 55**      MH8516 Paraffin Section Mounting Bath

**Page 56**      MH6616 Slide Drying Bench

Find out more! Please scan the QR/Mobile Tag with your smartphone for more information



# MH8523B

## Paraffin Wax Dispenser

Electrothermal's Paraffin Wax Dispenser heats wax to a liquid state and provides convenient 'wax on tap' for pathology and histology laboratories. It complements both the Paraffin Wax Mounting Bath and the Slide Drying Bench to provide a complete set of paraffin wax sampling equipment for the modern laboratory. The Paraffin Wax Dispenser has a 4.5 litre capacity to ensure an ample supply of wax on tap. It is intended to be used solely for paraffin wax with a melting range from 45°C to 65°C inclusive.

An excellent feature is that the wax dispenser tap is kept heated to ensure that the wax always remains flowing and on tap. The dispenser tap is heated by an independent temperature-controlled element mounted inside it, which prevents the wax from cooling down, solidifying and blocking the tap. The tap is a non-drip swivel lever and has a replaceable filter. There is a mains power On/Off switch, with 4 additional neon lights to indicate:

- "Power On" (white neon)
- "Wax Bath Heater On" (amber neon)
- "Tap Heater On" (amber neon)
- "Wax Bath Over Temperature" (red warning neon)

The bath heater rotary control dial has a graded temperature scale, and the temperature of the paraffin wax dispenser is controlled by a built-in thermostat controlling the temperature from ambient to 75°C. The tap has its own tap heater adjustment control.

If an over temperature condition occurs, a "Wax Bath Over Temperature" red neon light will illuminate and the heater control for the bath will automatically turn off at 105°C. For added safety, a non-resettable thermal fuse has also been included. The Paraffin Wax Dispenser has a black PTFE coated aluminium interior, a powder coated black and white aluminium exterior and a durable black metal lid. It is virtually maintenance free and extremely easy to clean.

### Technical Information

|                        |  |
|------------------------|--|
| Material               | Powder coated aluminium case                       |
| Temperature            | Ambient +5°C to 75°C (10 - 80°C scale)             |
| Weight                 | 4.5kg  |
| Dimensions (h x d), mm | 3000 x 280<br>100mm overhang for the tap assembly. |

### Ordering Information

### Key Features

- 4.5 litre capacity
- Ambient to 75°C operating temperature range
- Fitted with safety over-temperature cut-out at 105°C and non-resettable thermal fuse
- Heated tap to prevent wax from solidifying in the tap
- Swivel lever non-drip tap with replaceable fitter

MH8523B



| Model     | Capacity   | Electrical Requirements     |
|-----------|------------|-----------------------------|
| MH8523B   | 4.5 litres | 230V 50/60Hz, 185W          |
| MH8523BX1 | 4.5 litres | 115V 50/60Hz, 175W          |
| MH8523BX6 | 4.5 litres | 230V 50/60Hz, 185W, EU Plug |

## Key Features

- PTFE black interior and powder coated white aluminium exterior is virtually maintenance free and extremely easy to clean
- Excess or damaged sections may be simply removed by skimming a filter paper over the water surface
- 70°C nominal temperature for 2 litres of water attained within 120 minutes

## MH8516



Accurate water temperature is then maintained through an energy regulator which supplies power to a silicone rubber mat heater in controlled timed pulses. Overheating of the bath is prevented by a thermal fuse within the heater mat which automatically cuts out at too high a temperature.

The Paraffin Section Mounting Bath has a PTFE black interior and powder coated white aluminium exterior, which makes it virtually maintenance free and extremely easy to clean. It comes supplied with an IEC moulded cord and lead set and the IEC socket houses protection fuses for both the live and neutral power supply lines.

If required, the lid is supplied separately as part number AZ9241.

## Technical Information

|                            |   |
|----------------------------|---|
| Bath material              | Aluminium base with PTFE coated interior          |
| Temperature                | Ambient + 5°C to 75°C using arbitrary 1- 10 scale |
| Dimensions (d x w x h), mm | 330 x 330 x 140                                   |
| Weight, kg                 | 2.7   |

## Ordering Information

| Model    | Capacity                           | Electrical Requirements     |
|----------|------------------------------------|-----------------------------|
| MH8516   | 2.25 litres                        | 230V 50/60Hz, 240W          |
| MH8516X1 | 2.25 litres                        | 115V 50/60Hz, 240W          |
| MH8516X6 | 2.25 litres                        | 230V 50/60Hz, 240W, EU Plug |
| AZ9241   | Paraffin Section Mounting Bath Lid |                             |

## MH8516

### Paraffin Section Mounting Bath

The MH8516 Paraffin Section Mounting Bath is designed to assist with the handling of paraffin wax samples in histology and pathology laboratories. It is essentially a hot distilled water floating out bath that allows for the meticulous manipulation and location of paraffin wax sections onto glass slides. In the event of having any damaged sections or an excess of wax, both may be easily removed by skimming a filter paper across the water surface.

A white neon light indicates "Power On", and an amber neon light indicates "Heater On". The required temperature is selected using the heater dial and a nominal temperature of 70°C is typically achieved with 2 litres of water within 120 minutes.

# MH6616

## Slide Drying Bench

The Slide Drying Bench aids in the preparation of microscope slides at the specimen mounting stage. It complements both the Paraffin Wax Dispenser and the Paraffin Wax Mounting Bath to provide a complete set of paraffin wax sampling equipment for the modern laboratory.

Accepting up to 50 slides (76 x 25mm), the Slide Drying Bench has the facility for drying slides in different orientations- across the drying support bars, angled from the bars, or flat without the bars.

There is an On/Off switch, and "Power On" white neon and "Heater On" amber neon indicators.

The silicone rubber mat element heater provides heating up to 100°C, and the temperature is controlled from 10°C to 100°C by a built-in energy regulator.

The case and top are powder-coated aluminium and the unit comes complete with handy carrying handles.

### Technical Information

|                            |                                      |
|----------------------------|--------------------------------------|
| Material                   | Powder coated aluminium base and top |
| Max Element Temp.          | 100°C                                |
| Dimensions (d x w x h), mm | 180 x 390 x 95                       |
| Weight, kg                 | 1.8                                  |

### Key Features

- Up to 50 slides capacity
- Different drying orientations
- Operates up to 100°C max
- Replacement elements are easily fitted



MH6616

### Ordering Information

| Model    | Capacity  | Electrical Requirement      |
|----------|-----------|-----------------------------|
| MH6616   | 50 slides | 230V 50/60Hz, 150W          |
| MH6616X1 | 50 slides | 115V 50/60Hz, 150W          |
| MH6616X6 | 50 slides | 230V 50/60Hz, 150W, EU Plug |



## Stirrers

Equipment for stirring up to 24 litres of fluid

Our range of stirrers includes low profile single and multi-position stirrers, mini-stirrers, slow speed stirrers and immersible stirrers which can operate underwater. Many of our stirrers have the choice of integral control or may be controlled by an external controller.

|                |                         |
|----------------|-------------------------|
| <b>Page 58</b> | Low profile stirrers    |
| <b>Page 59</b> | Mini stirrers           |
| <b>Page 60</b> | Slow speed stirrers     |
| <b>Page 62</b> | Immersible stirrers     |
| <b>Page 63</b> | Multi-position stirrers |

Find out more! Please scan the QR/Mobile Tag with your smartphone for more information



# Low Profile Stirrer

## Stirrers

Low profile stirrers may be used either with an integral controller or an external remote controller (AS645). The maximum achievable stirring speed of 2000rpm is affected by the stir bar, type, shape of the vessel, the volume and the viscosity of the solution.

- Uses Stir Trac technology which has strong magnetic coupling
- Rated for continuous use and sealed to IP65 standards
- Stirring speed range from 350 to 2000rpm
- Operating temperature 0 to 50°C
- Glass fibre housing
- Recommended controller is the AS645 controller



## Technical Information

Dimensions (d x w x h)                      255 x 255 x 60mm

## Integrated Controllers - Ordering Information

Integrated controllers, same speed at all positions

| Part Code | Model | No. of positions | Capacity | Description   | Weight | Electrical Requirements |
|-----------|-------|------------------|----------|---------------|--------|-------------------------|
| PS60040   | AS629 | 1                | 2L       | Stir platform | 0.8kg  | 230V, 50/60Hz, 7W       |
| PS60057   | AS639 | 1                | 24L      | Stir platform | 1.9kg  | 230V, 50/60Hz, 7W       |
| PS60042   | AS631 | 4                | 1L       | Stir platform | 2.4kg  | 230V, 50/60Hz, 28W      |
| PS60043   | AS632 | 5                | 400ml    | Stir platform | 2.7kg  | 230V, 50/60Hz, 35W      |
| PS60044   | AS633 | 9                | 250ml    | Stir platform | 3.2kg  | 230V, 50/60Hz, 63W      |

## Remote Controllers - Ordering Information

Remote controllers, same speed at all positions use with stir bar stirrers; all to be used with AS645 Controller

| Part Code | Model | No. of positions  | Capacity | Description   | Weight | Electrical Requirements |
|-----------|-------|-------------------|----------|---------------|--------|-------------------------|
| PS60062   | AS644 | 1                 | 24L      | Stir platform | 1.9kg  | 230V, 50/60Hz, 7W       |
| PS60030   | AS626 | 4                 | 1L       | Stir platform | 2.4kg  | 230V, 50/60Hz, 28W      |
| PS60032   | AS628 | 5                 | 400ml    | Stir platform | 2.7kg  | 230V, 50/60Hz, 35W      |
| PS60031   | AS627 | 9                 | 250ml    | Stir platform | 3.2kg  | 230V, 50/60Hz, 63W      |
| PS60063   | AS645 | Remote controller |          |               |        |                         |

Small and convenient, mini-stirrers can stir up to a volume of 1 litre fluid, over a stirring speed range of 350 - 2000rpm.

A digital version is available which has an LED display to show the actual stirrer speed.

- Stir speed of between 350 - 2000rpm
- Up to 1 litre stir capacity

### Technical Information

|                         |                  |
|-------------------------|------------------|
| Dimensions (d x w x h)  | 143 x 143 x 66mm |
| Weight                  | 0.5kg            |
| Electrical requirements | 230V, 50/60Hz    |

### Integrated Controllers - Ordering Information

Integrated controllers, same speed at all positions

| Part Code | No. of positions | Capacity | Description                       | Weight | Electrical Requirements |
|-----------|------------------|----------|-----------------------------------|--------|-------------------------|
| PS61013   | 1                | 1L       | Standard Mini stirrer             | 0.5kg  | 230V, 50/60Hz           |
| PS61014   | 1                | 1L       | Digital Mini stirrer              | 0.5kg  | 230V, 50/60Hz           |
| PS61066   | 1                | 1L       | Unbranded Mini stirrer            | 0.5kg  | 230V, 50/60Hz           |
| PS61034   | -                | -        | Mini stirrer 12V transformer (UK) |        |                         |
| PS61035   | -                | -        | Mini stirrer 12V transformer (EU) |        |                         |
| PS61036   | -                | -        | Mini stirrer 12V transformer (US) |        |                         |
| PS60081   | -                | -        | Power adaptor 12V D (110V)        |        |                         |

# Slow Speed Stirrers

## Stirrers with Integral Control

Slow speed stirrers feature sophisticated, electronically controlled magnetic drivers for precision stirring, which is reproducible to better than 1rpm. They are designed for stirring cell culture media or similar substances at slow speed, and may be used with a choice of suspended, pendulum or stir bar stirrers.

- Designed for stirring cell culture media or similar substances at slow speed.
- They may be used with an external controller
- Recommended controller is the AS614 controller
- Splash-proof non-corrosive polymer case
- Low-profile, easy-to-clean design
- Speed range from 0 to 150rpm



## Accessories - Ordering Information

### Slow Speed Stirrers

| Part Code | Model | Description  |
|-----------|-------|--|
| PS60019   | AS614 | Remote controller with LCD                         |
| AT60064   | -     | PTFE coated magnetic stir bar 60mm x 10mm (5 pack) |
| AT60066   | -     | PTFE coated magnetic stir bar 25mm x 6mm (5 pack)  |

# Slow Speed Stirrers

## Stirrers with Integral Control

### Integral Controller - Ordering Information

Integral controllers, use with suspended & stir bar stirrers

| Part Code | Model | No. of positions | Capacity | Description   | Dimensions (d x w x h), mm | Weight (kg) | Electrical Requirements |
|-----------|-------|------------------|----------|---------------|----------------------------|-------------|-------------------------|
| PS60046   | AS635 | 1                | 2L       | Stir platform | 150 x 150 x 70             | 0.8         | 230V, 50/60Hz, 10W      |
| PS60059   | AS641 | 1                | 5L       | Stir platform | 260 x 260 x 70             | 2           | 230V, 50/60Hz, 10W      |
| PS60060   | AS642 | 1                | 10L      | Stir platform | 260 x 260 x 70             | 2           | 230V, 50/60Hz, 10W      |
| PS60055   | AS637 | 1                | 24L      | Stir platform | 260 x 260 x 70             | 2           | 230V, 50/60Hz, 10W      |
| PS60058   | AS640 | 4                | 2L       | Stir platform | 260 x 260 x 70             | 2.7         | 230V, 50/60Hz, 10W      |

### Integral Controller - Ordering Information

Integral controllers, use with pendulum stirrers

| Part Code | Model | No. of positions | Capacity | Description   | Dimensions (d x w x h), mm | Weight (kg) | Electrical Requirements |
|-----------|-------|------------------|----------|---------------|----------------------------|-------------|-------------------------|
| PS60046   | AS635 | 1                | 2L       | Stir platform | 150 x 150 x 70             | 0.8         | 230V, 50/60Hz, 10W      |
| PS60059   | AS641 | 1                | 5L       | Stir platform | 260 x 260 x 70             | 2           | 230V, 50/60Hz, 10W      |
| PS60060   | AS642 | 1                | 10L      | Stir platform | 260 x 260 x 70             | 2           | 230V, 50/60Hz, 10W      |
| PS60055   | AS637 | 1                | 24L      | Stir platform | 260 x 260 x 70             | 2           | 230V, 50/60Hz, 10W      |
| PS60058   | AS640 | 4                | 2L       | Stir platform | 260 x 260 x 70             | 2.7         | 230V, 50/60Hz, 10W      |

### Remote Controller - Ordering Information

Remote controllers, use with suspended and stir bar stirrers; all to be used with AS614 controller

| Part Code | Model | No. of positions | Capacity | Description   | Dimensions (d x w x h), mm | Weight (kg) | Electrical Requirements |
|-----------|-------|------------------|----------|---------------|----------------------------|-------------|-------------------------|
| PS60017   | AS612 | 1                | 5L       | Stir platform | 260 x 260 x 70             | 2           | 230V, 50/60Hz, 10W      |
| PS60018   | AS613 | 1                | 10L      | Stir platform | 260 x 260 x 70             | 2           | 230V, 50/60Hz, 10W      |
| PS60054   | AS636 | 1                | 24L      | Stir platform | 260 x 260 x 70             | 2           | 230V, 50/60Hz, 10W      |
| PS60016   | AS640 | 4                | 2L       | Stir platform | 260 x 260 x 70             | 2.7         | 230V, 50/60Hz, 10W      |

### Remote Controller - Ordering Information

Remote controllers, use with pendulum stirrers; all to be used with AS614 controller

| Part Code | Model | No. of positions | Capacity | Description   | Dimensions (d x w x h) | Weight (kg) | Electrical Requirements |
|-----------|-------|------------------|----------|---------------|------------------------|-------------|-------------------------|
| PS60068   | AS646 | 1                | 5L       | Stir platform | 260 x 260 x 70         | 2           | 230V, 50/60Hz, 10W      |
| PS60069   | AS647 | 1                | 10L      | Stir platform | 260 x 260 x 70         | 2           | 230V, 50/60Hz, 10W      |
| PS60070   | AS648 | 1                | 24L      | Stir platform | 260 x 260 x 70         | 2           | 230V, 50/60Hz, 10W      |
| PS60016   | AS611 | 4                | 2L       | Stir platform | 260 x 260 x 70         | 2.7         | 230V, 50/60Hz, 10W      |

# Immersible Stirrers

## Stirrers

Immersible Stirrers are completely sealed for use when immersed or in high humidity applications. They are ideal for stirring in water baths, incubators and environmental chambers up to a temperature of 50°C.

They can accommodate stir volumes of 400ml to 2 litres and can be used with or without a controller; the recommended controller is the AS625 2-channel remote controller.

- Immersible stirrers can be used with the 2-channel remote controller (AS625)
- Control up to six stir pads with one controller
- Stirring capacities from 400ml to 2L
- Case material is moulded ABS
- Stir speed range from 350 to 2000rpm
- Includes oval stir bar



## Technical Information

Stirring Range 350 to 2000rpm

Temperature Range - 5 to 50°C

## Immersible Stirrer with Integral Control - Ordering Information

Integral controllers, use with suspended & stir bar stirrers

Electrical Requirements 230V, 50/60Hz, 12W

| Part Code | No. of positions | Capacity | Description      | Dimensions (d x w x h), mm | Weight (kg) |
|-----------|------------------|----------|------------------|----------------------------|-------------|
| PS60002   | 1                | 400ml    | Stir pad         | 77 dia x 68                | 0.5         |
| PS60003   | 1                | 1L       | Stir pad (AS604) | 102 dia x 68               | 0.9         |
| PS60004   | 1                | 2L       | Stir pad (AS606) | 152 dia x 68               | 1.5         |

## Immersible Stirrer with Remote Control- Ordering Information

Remote controller, same speed at all positions use with stir bar stirrers;

All to be used with AS625 controller

Electrical Requirements 230V, 50/60Hz, 12W

| Part Code | No. of positions | Capacity | Description                       | Dimensions (d x w x h), mm | Weight (kg) |
|-----------|------------------|----------|-----------------------------------|----------------------------|-------------|
| PS60084X1 | 1                | 400ml    | Stir pad                          | 77 dia x 68                | 0.5         |
| PS60086X1 | 1                | 1L       | Stir pad                          | 102 dia x 68               | 0.9         |
| PS60085X1 | 1                | 2L       | Stir pad                          | 152 dia x 68               | 1.5         |
| PS60029   |                  |          | AS625 2-Channel remote controller |                            |             |

*Add X1 suffix for 115V and X6 suffix for 230V with EU plug*

# Multi-Position Stirrers

## Stirrers

Multi-Position Stirrers offer six individually controlled stirring positions. These multi-position stirrers control multiple experiments with varied speeds from 350 to 2000 rpm.

Includes: Stirrer, 6-channel external controller (AS601) and 1 stir bar for each position.

- Low-profile design is stable and easy to clean
- Each position is controlled independently using external controller
- AS601 6-channel remote is recommended controller
- Material is moulded ABS (high impact)
- Operating temperature: 0 to 40°C
- Stir speed range: 350 - 2000rpm



### Technical Information

|                            |                    |
|----------------------------|--------------------|
| No. of Stirring Positions  | 6                  |
| Capacity                   | 250ml per position |
| Dimensions (d x w x h), mm | 165 x 250 x 63     |
| Weight                     | 2.5kg              |

### Multi-position stirrers - Ordering Information

Remote controller, individual speed control at all positions to be used with AS601 controller

Electrical Requirements 230V, 50/60Hz, 63W

| Part Code | Model | No. of positions | Capacity | Description                                 |
|-----------|-------|------------------|----------|---|
| PS60001*  | AS602 | 6                | 250ml    | Stir platform for use with AS601 Controller |
| PS60006*  | AS601 | -                | -        | 6-Channel remote controller                 |
| PS60087*  |       |                  |          | PS60001 and PS60006 combined kit            |

*Add X1 suffix for 115V and X6 suffix for 230V with EU plug*

# Electromantles' Emporium with over 50 varieties

## The Electrothermal range of Heating Mantles

Electrothermal's Electromantle heating mantles come in all sizes to heat round bottom and pear-shaped flasks and funnels from just 10ml to 22,000 ml capacity. With a choice of metal or polypropylene cases, we have Electromantles that can function with an integral or external controller, and can also stir and have adjustable volume capacity if required.

Our Multi-Mantles with 3 or 6 positions in series are often used for extraction, but can be used for any heating application up to 450°C. We also have a range of Digi-Mantles that offer full fingertip control through a digital touchscreen for both heating and stirring, giving superb accuracy.

Electrothermal's Electromantles are world-renowned for their quality and reliability, having been around for 70 years. They are super-safe, automatically cutting out if any liquid is spilled onto the element, to protect you from electric shocks. All models are cool-to-touch during operation, so that they can be picked up without injury, even when the element temperature is at 450°C. This is critically important in a busy laboratory, especially for schools and colleges.



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## STEM RS Reaction Stations

### Equipment for parallel synthesis

The STEM RS series Reaction Stations enable parallel synthesis to be carried out by offering the same controlled temperature and stirring rates at several reaction positions simultaneously.

The STEM RS Reaction Stations give you a choice of:

- 6 to 50 positions
- Working sample volumes of between 10-30ml (but up to 250ml for RS600)
- Operational temperature range of ambient to 150°C
- Optional higher temperature models for up to 300°C
- Powerful stirring rate of between 400 - 2000rpm
- Wide range of accessories

|                |   |
|----------------|---|
| <b>Page 66</b> | STEM RS Reaction Stations                   |
| <b>Page 67</b> | STEM RS600 Reaction Station                 |
| <b>Page 68</b> | STEM RS900 Reaction Station                 |
| <b>Page 69</b> | STEM RS1000 Reaction Station                |
| <b>Page 70</b> | STEM RS2500 Reaction Station                |
| <b>Page 71</b> | STEM RS5000 Reaction Station                |
| <b>Page 72</b> | STEM RS9000 Reaction Station                |
| <b>Page 74</b> | Accessories for RS series Reaction Stations |

Find out more! Please scan the QR/Mobile Tag with your smartphone for more information



# RS600, RS900, RS1000, RS2500, RS5000, RS9000

## STEM RS Reaction Stations

The Stem RS Reaction Stations enable parallel synthesis to be carried out by offering the same controlled temperature and stirring rates at several reaction positions simultaneously. They can be used for a wide range of applications from simple synthesis to process optimisation. The RS9000 is the exception in that it carries out controlled heating and shaking, as opposed to stirring.

The STEM RS Reaction Station range accommodates sample sizes from 2ml to 250ml in a wide range of vessel sizes and heating formats. Adaptor sleeves can be used to accommodate non-standard vessel sizes. The well-insulated reaction unit keeps the casework cool-to-touch; it gives quick heat-up times, excellent temperature uniformity across the block, and a thermal cut-out eliminates runaway conditions. High performance magnetic stirrers beneath each sample position ensure maximum coupling between the stirrer bar in the sample and the powerful motor. The combination of precise electronic control and rugged design ensures operator safety, while a PTFE coating protects the unit from chemical spills.

### There are 5 models of STEM RS Heater/Stirrer Reaction Stations, giving you a choice of:

- 6 to 50 positions depending upon model (RS600 has 6 positions; RS900 and RS1000 have 10 positions; RS2500 has 25 positions and RS5000 has 50 positions)
- Working sample volumes of between 10-30ml, (but up to 250ml for RS600 only)
- RS600 model accommodates 57.5mm diameter vessels (also accommodates 40mm and other diameter vessels with appropriate adaptor sleeves)
- RS900, RS1000, RS2500, RS5000 models accommodate 24mm/25mm diameter vessels (also accommodate 16mm and other diameter vessels with appropriate adaptor sleeves)
- Operational temperature range of ambient to 150°C (ambient to 250°C for RS600 only)
- Optional higher temperature models for up to 300°C for some models (ie. RS600H, RS1000H)
- Powerful stirring rate of between 400 - 2000rpm, with bi-directional stirring option
- Optional PC-based external control software is available to schedule stir/heat profiles over varying time delays
- Wide range of accessories, including reflux and inerting head accessory, rotary evaporator adaptors, phase separation heads, filtration adaptors, glass condensers, temperature probes, and a selection of stir bars.



| Part Code (230V)            | PS80034                        | PS80067                   | PS80010                         | PS80025                   | PS80050                   |
|-----------------------------|--------------------------------|---------------------------|---------------------------------|---------------------------|---------------------------|
| Part Code (115V)            | PS80043                        | PS80068 (24mm)            | PS80033 (24mm)                  | PS80036 (24mm)            | PS80037 (24mm)            |
| Model                       | RS600                          | RS900                     | RS1000                          | RS2500                    | RS5000                    |
| Higher temperature model    | RS600H                         |                           | RS1000H                         |                           |                           |
| Stirred positions           | 6                              | 10                        | 10                              | 25                        | 50                        |
| Tube diameter               | 57.5 mm                        | 24 or 25mm                | 24 or 25mm                      | 24 or 25mm                | 24 or 25mm                |
| Tube diameter with sleeves  | 40mm                           | 16mm, 20mm                | 16mm, 20mm                      | 16mm, 20mm                | 16mm, 20mm                |
| Sample volume               | Up to 250ml                    | 10- 30ml                  | 10- 30ml                        | 10-30ml                   | 10-30ml                   |
| Stir speed range            | 400 - 2000rpm                  | 400 - 2000rpm             | 400 - 2000rpm                   | 400 - 2000rpm             | 400 - 2000rpm             |
| Soft start (to full ramp)   | Adjustable<br>0 – 10 mins      | Adjustable<br>0 – 10 mins | Adjustable<br>0 – 10 mins       | Adjustable<br>0 – 10 mins | Adjustable<br>0 – 10 mins |
| Temperature Range           | Ambient to 250°C               | Ambient to 150°C          | Ambient to 150°C                | Ambient to 150°C          | Ambient to 150°C          |
| (Ambient)                   | Ambient to 300°C<br>for RS600H |                           | Ambient to 300°C<br>for RS1000H |                           |                           |
| Temp Stability              | ± 0.5°C                        | ± 0.5°C                   | ± 0.5°C                         | ± 0.5°C                   | ± 0.5°C                   |
| Time to max temp            | 15 min                         | 15 min                    | 15 min                          | 30 min                    | 30 min                    |
| Interface port              | RS232/RS485<br>& manual        | RS232<br>& manual         | RS232/RS485<br>& manual         | RS232/RS485<br>& manual   | RS232/RS485<br>& manual   |
| Electrical req. (All 230V)  | 50/60Hz, 600W                  | 50/60Hz, 300W             | 50/60Hz, 300W                   | 50/60Hz, 800W             | 50/60Hz, 800W             |
| Dimensions, (w x h x d), mm | 248 x 312 x 157                | 240 x 140 x 215           | 80 x 150 x 305                  | 250 x 145 x 365           | 250 x 145 x 460           |
| Shipping Weight, kg         | 10kg                           | 5.4kg                     | 4kg                             | 10kg                      | 13.8kg                    |

## Key Features

- 6 position reaction station
- 57.5mm diameter vessels
- Can accommodate 40mm and other diameter vessels with appropriate adaptor sleeves
- Sample sizes up to 250ml
- Controlled temperature range from ambient to 250°C
- Powerful stir speed from 400 to 2000rpm
- Bi-directional stir speed
- Manual control or external control via the RS232/RS485 interface ports
- Optional PC-based external control software available to schedule stir/heat profiles over varying time delays
- Variety of accessories available including reflux and inerting head accessory, rotary evaporator adaptors, phase separation heads, filtration adaptors, glass condensers, temperature probes, and a selection of stir bars
- High temperature RS600H option with temperature range from ambient to 300°C
- Compact footprint for easy integration onto a robotic platform



RS600H

High temperature model

## STEM RS600

### Reaction Station

The RS600 is a six position reaction station designed for 57.5mm diameter vessels (also 40mm and other diameter vessels with appropriate adaptor sleeves), and sample sizes up to 250ml.

With a controlled temperature range from ambient +5°C to 250°C, it has a powerful stir speed from 400 to 2000rpm, including a bi-directional stirring option. It has either manual control or external control via the RS232/RS485 interface ports.

Optional PC-based external control software is available to schedule stir/heat profiles over varying time delays.

The RS600 can be used with a reflux and inerting head accessory, plus a range of accessories including rotary evaporator adaptors, phase separation heads, filtration adaptors, glass condensers, temperature probes, and a selection of stir bars.

It is also available as a high temperature RS600H option with temperature range from ambient to 300°C.

### Technical Information

|                             |   |
|-----------------------------|---|
| Model                       | RS600   |
| High temp model             | RS600H  |
| Stirred positions           | 6   |
| Tube diameter               | 57.5mm  |
| Tube diameter sleeves       | 40mm  |
| Sample volume               | Up to 250ml                                     |
| Stir speed range            | 400 - 2000rpm                                   |
| Soft start (to full ramp)   | 0 - 10mins<br>(Adjustable)                      |
| Temperature range (ambient) | Ambient to 250°C<br>Ambient to 300°C for RS600H |
| Temperature stability       | ±0.5°C  |
| Time to max/min temp        | 15mins  |
| Interface port              | RS485 RS232 & manual                            |
| Dimensions (w x d x h), mm  | 248 x 157 x 312                                 |
| Shipping weight, kg         | 10kg  |

### Ordering Information

| Part Code | Model  | Voltage | No. of Bores | Bore Diameter |
|-----------|--------|---------|--------------|---------------|
| PS80034*  | RS600  | 230V    | 6            | 57.5mm        |
| PS80043   | RS600  | 115V    | 6            | 57.5mm        |
| PS80034H* | RS600H | 230V    | 6            | 57.5mm        |
| PS80043H  | RS600H | 115V    | 6            | 57.5mm        |

\*Comes with EU Plug fitting

# STEM RS900

## Reaction Station

The RS900 is a 10 position reaction station designed for 24mm/25mm diameter vessels (also 16mm and other diameter vessels with appropriate adaptor sleeves), and sample sizes from 10ml to 30ml.

The unit has a controlled temperature range from ambient to 150°C, along with a powerful stir speed from 400 to 2000rpm.

## Technical Information

|                             |                            |
|-----------------------------|----------------------------|
| Model                       | RS900                      |
| Stirred positions           | 10                         |
| Tube diameter               | 24 or 25mm                 |
| Tube diameter sleeves       | 16mm, 20mm                 |
| Sample volume               | 10 - 30ml                  |
| Stir speed range            | 400 - 2000rpm              |
| Soft start (to full ramp)   | 0 - 10mins<br>(Adjustable) |
| Temperature range (ambient) | Ambient to 150°C           |
| Temp stability              | ±0.5°C                     |
| Time to max/min temp        | 15mins                     |
| Interface port              | RS232 & manual             |
| Dimensions (w x d x h), mm  | 240 x 215 x 140            |
| Shipping weight, kg         | 5.4                        |

## Key Features

- 10 position reaction station
- 24mm/25mm diameter vessels
- Can accommodate 16mm and other diameter vessels with appropriate adaptor sleeves
- Sample sizes from 10ml to 30ml
- Controlled temperature range from ambient to 150°C
- Powerful stir speed from 400 to 2000rpm
- Manual/external control via the RS232 interface port
- Compact footprint for easy integration onto a robotic platform
- Low running costs as only 300W power consumption



RS900

## Ordering Information

| Part Code | Model | Voltage | No. of Bores | Bore Diameter |
|-----------|-------|---------|--------------|---------------|
| PS80067*  | RS900 | 230V    | 10           | 24mm          |
| PS80067A* | RS900 | 230V    | 10           | 25mm          |
| PS80068   | RS900 | 115V    | 10           | 24mm          |
| PS80068A  | RS900 | 115V    | 10           | 25mm          |

\*Comes with EU Plug fitting

## Key Features

- 10 position reaction station
- 24mm/25mm diameter vessels
- Can accommodate 16mm and other diameter vessels with appropriate adaptor sleeves
- Sample sizes from 10ml to 30ml
- Controlled temperature range from ambient to 150°C
- Powerful stir speed from 400 to 2000rpm
- Manual/external control via the RS232/RS485 interface ports
- Compact footprint for easy integration onto a robotic platform
- Low running costs for RS1000 as only 300W power consumption
- High temperature RS1000H option with temperature range from ambient to 300°C
- RS1000H has 600W power consumption as it can operate at higher temperature



RS1000

## STEM RS1000

### Reaction Station

The RS100 is a 10 position reaction station designed for 24mm/25mm diameter vessels (also 16mm and other diameter vessels with appropriate adaptor sleeves), and sample sizes from 10ml to 30ml, along with a controlled temperature range from ambient to 150°C.

The unit has a powerful stir speed from 400 to 2000rpm, and permits both manual, and external control via the RS232/RS485 interface ports. It has a compact footprint for easy integration onto a robotic platform.

The RS100 is also available as a high temperature RS1000H option with temperature range from ambient to 300°C.

### Technical Information

|                             |  |
|-----------------------------|--|
| Model                       | RS1000   |
| High temp model             | RS1000H  |
| Stirred positions           | 10   |
| Tube diameter               | 24 or 25mm                                       |
| Tube diameter sleeves       | 16mm, 20mm                                       |
| Sample volume               | 10 - 30ml  |
| Stir speed range            | 400 - 2000rpm                                    |
| Soft start (to full ramp)   | 0 - 10mins<br>(Adjustable)                       |
| Temperature range (ambient) | Ambient to 150°C<br>Ambient to 300°C for RS1000H |
| Temperature stability       | ±0.5°C   |
| Time to max/min temp        | 15mins   |
| Interface port              | RS232/RS485 & manual                             |
| Dimensions (w x h x d), mm  | 80 x 150 x 305                                   |
| Shipping weight, kg         | 4  |

### Ordering Information

| Part Code | Model     | Voltage | No. of Bores | Bore Diameter |
|-----------|-----------|---------|--------------|---------------|
| PS80010*  | RS1000    | 230V    | 10           | 24mm          |
| PS80010A* | RS1000    | 230V    | 10           | 25mm          |
| PS80033   | RS1000    | 115V    | 10           | 24mm          |
| PS80033A  | RS1000    | 115V    | 10           | 25mm          |
| PS80071*  | RS1000H** | 230V    | 10           | 24mm          |
| PS80071A* | RS1000H** | 230V    | 10           | 25mm          |
| PS80073   | RS1000H** | 115V    | 10           | 24mm          |
| PS80073A  | RS1000H** | 115V    | 10           | 25mm          |

\*Add X6 suffix for 230V with EU plug

\*\*Model numbers with suffix H are high temperature models

# STEM RS2500 and RS2400

## Reaction Stations

The RS2500 is a 25 position reaction unit & the RS2400 a 24 position reaction station, designed for 24mm/25mm diameter vessels. They both accommodate 16mm and other diameter vessels with appropriate adaptor sleeves, and sample sizes from 10ml to 30ml. They have a controlled temperature range from ambient to 150°C, along with a powerful stir speed from 400 to 2000rpm.

Both manual and external control are permitted via the RS232/RS485 interface ports and they have a compact footprint for easy integration onto a robotic platform.

## Key Features

- Choice of 25 position (RS2500) or 24 position (RS2400) reaction stations
- 24mm/25mm diameter vessels
- Can accommodate 16mm and other diameter vessels with appropriate adaptor sleeves
- Controlled temperature range from ambient to 150°C
- Powerful stir speed from 400 to 2000rpm
- Manual, and external control via the RS232/RS485 interface ports
- Compact footprint for easy integration onto a robotic platform

RS2500

## Technical Information

|                             |                            |
|-----------------------------|----------------------------|
| Model                       | RS2500/RS2400              |
| Stirred positions           | 25/24                      |
| Tube diameter               | 24 or 25mm                 |
| Tube diameter sleeves       | 16mm, 20mm                 |
| Sample volume               | 10 - 30ml                  |
| Stir speed range            | 400 - 2000rpm              |
| Soft start (to full ramp)   | 0 - 10mins<br>(Adjustable) |
| Temperature range (ambient) | Ambient to 150°C           |
| Temperature stability       | ±0.5°C                     |
| Time to max/min temp        | 30 mins                    |
| Interface port              | RS485/RS232 & manual       |
| Dimensions (w x h x d), mm  | 250 x 145 x 365            |
| Shipping weight, kg         | 10                         |



## Ordering Information

| Part Code | Model  | Voltage | No. of Bores | Bore Diameter |
|-----------|--------|---------|--------------|---------------|
| PS80054   | RS2400 | 115V    | 24           | 24mm          |
| PS80054A  | RS2400 | 115V    | 24           | 25mm          |
| PS80057*  | RS2400 | 230V    | 24           | 24mm          |
| PS80057A* | RS2400 | 230V    | 24           | 25mm          |
| PS80025*  | RS2500 | 230V    | 25           | 24mm          |
| PS80025A* | RS2500 | 230V    | 25           | 25mm          |
| PS80036   | RS2500 | 115V    | 25           | 24mm          |
| PS80036A  | RS2500 | 115V    | 25           | 25mm          |

\*Comes with EU Plug fitting

## Key Features

- 50 position reaction station
- 24mm/25mm diameter vessels
- Can accommodate 16mm and other diameter vessels with appropriate adaptor sleeves
- Sample sizes from 10ml to 30ml
- Controlled temperature range from ambient +5°C to 150°C
- Powerful stir speed from 400 to 2000rpm
- Manual/external control via the RS232/RS485 interface ports
- Compact footprint for easy integration onto a robotic platform



## STEM RS5000

### Reaction Station

The RS5000 is a 50 position reaction station designed for 24mm/25mm diameter vessels (also 16mm and other diameter vessels with appropriate adaptor sleeves), and sample sizes from 10ml to 30ml. It has a controlled temperature range from ambient to 150°C and a powerful stir speed from 400 to 2000rpm.

### Technical Information

|                             |                            |
|-----------------------------|----------------------------|
| Model                       | RS5000                     |
| Stirred positions           | 50                         |
| Tube diameter               | 24 or 25mm                 |
| Tube diameter sleeves       | 16mm, 20mm                 |
| Sample volume               | 10 - 30ml                  |
| Stir speed range            | 400 - 2000rpm              |
| Soft start (to full ramp)   | 0 - 10mins<br>(Adjustable) |
| Temperature range (ambient) | Ambient to 150°C           |
| Temperature stability       | ±0.5°C                     |
| Time to max/min temp        | 30 mins                    |
| Interface port              | RS485/RS232 & manual       |
| Dimensions (w x h x d), mm  | 250 x 145 x 460            |
| Shipping weight, kg         | 13.8                       |

### Ordering Information

| Part Code | Model  | Voltage | No. of Bores | Bore Diameter |
|-----------|--------|---------|--------------|---------------|
| PS80037   | RS5000 | 115V    | 50           | 24mm          |
| PS80037A  | RS5000 | 115V    | 50           | 25mm          |
| PS80050*  | RS5000 | 230V    | 50           | 24mm          |
| PS80050A* | RS5000 | 230V    | 50           | 25mm          |

\* Add X6 suffix for 230V with EU plug fitting

# STEM RS9000

## Heater/Shaker Reaction Station

The RS 9000 Heater/Shaker Reaction Station can be used within a robotic workstation or as a stand-alone apparatus in the lab. On a robotic platform, heating and shaking cycles can be controlled by external software or as part of a fully automated system through the RS232/ RS485/ GSI OC ports; for standalone use, there is the additional option of controlling heating and shaking cycles via the user friendly touchscreen.

The CTC panel (Capacitance Touch Control) of the touchscreen enables the temperature and shaking speeds to be changed using up/down arrows and the actual values are clearly displayed on a high definition LCD display which has an anti-glare coating. The LCD display is cool blue to be visible in both bright and dim lighting conditions, without deleteriously affecting light-sensitive chemicals. The touchscreen has a laminated toughened glass panel that is chemically resistant to most acids and solvents.

### Temperature probe

The RS9000 operates over a temperature range of ambient 5°C to 150°C. An optional temperature probe can be purchased and plugged into the din socket on the front panel.

### X-Y Gyration system

The RS9000 can handle heavy workloads and give 24 hour continuous operation with uniform agitation of between 100-600rpm. For stability, the RS9000 has a solid bronze chassis on which the X-Y gyration system is mounted, which is a robust two axis slide plate mechanism. Tapered roller bearings ensure smooth agitation cycles and give accurate control of agitation speed even at low revolutions. Advanced micro-controllers monitor temperature and agitation speed constantly and make the required adjustments as necessary which has been proven to provide many years of reliable service.

### Interchangeable blocks

The RS9000 has a range of different reaction blocks that can be inter-changed to give a choice of both reaction vessel capacities and formats that can be fitted into the same working footprint. If desired, the reaction blocks can also be customised to accept different vessels and tray sizes.

### Auto-Park

The RS9000 has a unique "auto-park" feature which ensures the platform always stops in the same X-Y co-ordinate. This allows for automated sampling and additions.

## Key Features

- Very versatile as reaction blocks can be inter-changed to accommodate different vessels and tray formats
- Can be used on a robotic platform or within a laboratory
- Choice of touchscreen control or external control via RS232/ RS485/ GSI OC ports
- Operates over a temperature range of ambient to 150°C
- Agitation speed of 100-600 rpm
- Optional temperature probe
- 2-axis X-Y gyration system on solid bronze chassis that is both reliable and stable
- Auto-park feature enables use on robotic platforms
- Soft start ramping to minimise splashing
- Very safe to operate
- Provides many years of reliable use with continuous 24 hours heating and agitation



RS9000

## Safety Features

The RS9000 has a thermal cut-off that eliminates runaway conditions. The 'Hot block' warning via a highly visible warning display icon alerts you to when the block temperature is above 50°C, even when the apparatus is unplugged from the power supply. The RS9000 can be stopped rapidly in case of emergency by pressing down on the front sliding door; the front display will indicate "Door Open" and immediately stop. Heating and stirring can be reset after stopping by closing the door and pressing the function key zones on the front panel to reactivate.

## Soft Start Ramping

Soft Start Ramping allows controlled build-up to the set speed (from 0 to 10 mins). This feature minimises splashing of vessel contents, wetting of flask closures and fragmentation of specimens.

## Technical Specification

|                            |   |
|----------------------------|---|
| Electrical requirements    | 230V, 50-60Hz, 900W   |
| Heating temp. range        | Ambient + 5°C to 150°C  |
| Timer range                | 1 - 99 hours  |
| Agitation speed            | 100 - 600 rpm   |
| LCD display                | Backlit blue double line 13 dot matrix  |
| Glass touch panel          | 3mm clear with 2mm anti-reflective clear with a toughed grey laminate bonded sandwich |
| Touch key zones            | Capacitance sensor touch  |
| Product weight.            | 42kg (excluding a reaction block being in place)                                      |
| Max. load weight           | 7 kg max for each reaction block  |
| Dimensions (w x d x h), mm | 240 x 510 x 165   |

## Ordering Information

| Part Code | Description   |
|-----------|---|
| PS83000*  | RS9000 Agitator Reaction Station                        |
| AZS4141   | Heater Cartridge (110V)                                 |
| AZS4142   | Heater Cartridge (230V)                                 |
| M7876     | Motor Brushes. (2 per)                                  |
| PS80052   | Reaction Block for test tubes, 96 x 16mm OD             |
| PS80064   | Reaction Block for test tubes, 40 x 24mm OD             |
| PS80074   | Reaction Block for 4 x standard Micro-titre plates      |
| PS80047   | Reaction Block for 4 x 96 well PTFE Micro-titre plates  |
| PS80065   | Reactor for Charybdis (holds two blocks) Calypso System |
| PS80048   | 96 well PTFE Micro-titre plate, 9 x 8mm ID              |
| PS80114   | Reaction Block for 96 x 1.5ml Micro-titre tubes         |
| PS80049   | 96 well PTFE Micro-titre plate lid                      |
| PS80051   | 96 well PTFE Micro-titre complete with lid              |
| AZ140940  | Temperature probe (external)                            |

\*Add x1 suffix for 115V model

Note: Customised reactor blocks also available

# Accessories

## For RS Series Reaction Stations

| Part Code | Accessory                                    | RS Model |     |      |      |      |
|-----------|--|----------|-----|------|------|------|
|           |  | 600      | 900 | 1000 | 2500 | 5000 |
| AT60067   | Stir bar PTFE coated 15mm x 4mm              |          | •   |      | •    | •    |
| ATS10101  | Adaptor sleeve 11mm - 25mm (10 pack)         |          | •   |      |      |      |
| ATS10210  | Adaptor sleeve 12mm - 25mm (10 pack)         |          | •   |      |      |      |
| ATS10211  | Adaptor Sleeve 25mm - 23mm (10 pack)         |          | •   |      |      |      |
| ATS10212  | Adaptor Sleeve 25mm - 18/16mm (10 pack)      |          | •   |      |      |      |
| PS80087   | Temperature probe                            | •        | •   | •    | •    | •    |
| PS80155   | Adaptor sleeve RS900 25-22mm (10 pack)       |          | •   |      |      |      |
| AZ6745    | Power cable without plug                     | •        | •   | •    | •    | •    |
| AZ6746    | 115V Power cable with US plug                | •        | •   | •    | •    | •    |
| AZ6747    | 230V Power cable with EU plug                | •        | •   | •    | •    | •    |
| AZS4024   | Fuse 8A SLO BLO                              | •        | •   |      |      |      |
| AZS4010   | Motor  |          |     | •    |      |      |
| AZS4100   | PCB Display                                  |          |     | •    |      |      |
| AZS4101   | PCB Microprocessor                           |          |     | •    |      |      |
| AZS4186   | RS1000 front fascia label                    |          |     | •    |      |      |
| AZS4189   | RS1000 115V power PCB assy                   |          |     | •    |      |      |
| AZS4310   | Adaptor sleeve 25-24 dia (25 pack)           |          |     |      | •    | •    |
| ATS10031  | Stir bar retriever                           |          |     | •    |      |      |
| ATS10019  | Inerting cap without valve (6 pack).         |          |     | •    |      |      |
| ATS10020  | Inerting cap assembly – (6 pack)             |          |     | •    |      |      |
| ATS10025  | Temp probe inerting caps (6 pack)            |          |     | •    |      |      |
| ATS10026  | Spare plug for ATS10025 (6 pack)             |          |     | •    |      |      |
| ATS10028  | Large elliptical mag bar (20 pack)           |          |     | •    |      |      |
| ATS10029  | Large octagonal mag bar (20 pack)            |          |     | •    |      |      |
| ATS10030  | Cross shape mag bar Medium (20 pack)         |          |     | •    |      |      |
| ATS10033  | Octagonal stir bar small (40 pack)           |          |     | •    |      |      |
| ATS10034  | Cross stir bar – small (40 pack)             |          |     | •    |      |      |
| ATS10035  | Elliptical stir bar – small (40 pack)        |          |     | •    |      |      |
| PS80088   | Reaction pot                                 | •        |     |      |      |      |
| PS80013   | PTFE caps sili septa to fit 80112 (100 pack) | •        |     |      |      |      |
| PS80134   | Adaptor sleeve 57.5 to 35mm (6 pack)         | •        |     |      |      |      |
| PS80142   | Adaptor sleeve 57.5 to 50.5mm (6 pack)       | •        |     |      |      |      |
| AZS4192   | RS600 Motor                                  | •        |     |      |      |      |
| AZ4194    | RS600 M2 PT100 PCB                           | •        |     |      |      |      |
| AZ4195    | RS600 Transformer                            | •        |     |      |      |      |
| ATS10056  | Adaptor sleeve 24mm to 16mm (10 pack)        |          | •   | •    |      |      |
| ATS10201  | Adaptor sleeve H/Pres RS600 (6 pack)         | •        |     |      |      |      |
| ATS10240  | Adaptor sleeve 56-28 (6 pack)                | •        |     |      |      |      |
| ATS10242  | Adaptor sleeve 44.0 to 26 dia. (1 off)       | •        |     |      |      |      |
| ATS10381  | Adaptor sleeve 56 - 24 (6 pack)              | •        |     |      |      |      |
| PS80011   | Adaptor sleeve 24mm to 20mm tubes (10 pack)  |          | •   | •    |      |      |
| PS80011A  | Adaptor sleeve 25mm to 20mm (10 pack)        |          | •   | •    |      |      |
| PS80012   | Adaptor sleeve 24mm to 16mm (10 pack)        |          | •   | •    |      |      |
| PS80012A  | Adaptor sleeve 25mm to 16mm tubes (10 pack)  |          | •   | •    |      |      |
| PS80013   | Adaptor sleeve 24mm to 20mm tubes (10 pack)  |          | •   | •    |      |      |
| PS80013A  | Adaptor sleeve 25mm to 20mm tubes (25 pack)  |          |     |      | •    |      |
| PS80014   | Adaptor sleeve 24mm to 16mm tubes (25 pack)  |          |     |      | •    |      |

\*Note: For 115V, add X1 suffix For 230V with EU plug, add X6 suffix

| Part Code | Accessory   | RS Model |     |      |      |      |
|-----------|---|----------|-----|------|------|------|
|           |   | 600      | 900 | 1000 | 2500 | 5000 |
| PS80014A  | Adaptor sleeve 25 to 16mm (25 pack)               |          |     |      | •    |      |
| PS80015A  | Adaptor sleeve 25 to 18mm (10 pack)               |          | •   | •    |      |      |
| PS80016   | Adaptor sleeve 24 to 20mm tubes                   |          | •   | •    | •    | •    |
| PS80016A  | Adaptor sleeve 25 to 20mm tubes                   |          | •   | •    | •    | •    |
| PS80017   | Adaptor sleeve 24 to 16mm tubes                   |          | •   | •    | •    | •    |
| PS80017A  | Adaptor sleeve 25 to 16mm TU tubes BES            |          | •   | •    | •    | •    |
| PS80018   | Adaptor sleeve Liquid reflux 24-25mm tubes        |          | •   | •    | •    | •    |
| PS80041   | Adaptor sleeve 56mm to 47mm bottles (6 pack)      | •        |     |      |      |      |
| PS80081   | Adaptor sleeve 25mm to 24mm tubes (10 pack)       |          | •   | •    |      |      |
| PS80156   | Adaptor sleeve 25mm to 17mm (50 pack)             |          |     |      |      | •    |
| PS80126   | Adaptor sleeve 25mm to 20mm reflux unit (50 pack) |          |     |      |      | •    |
| PS80131   | Adaptor sleeve 57.5mm to 25mm (6 pack)            | •        |     |      |      |      |
| PS80133   | Adaptor sleeve 57.5mm to 45mm (6 pack)            | •        |     |      |      |      |
| PS80134   | Adaptor sleeve 57.5mm to 35mm (6 pack)            | •        |     |      |      |      |
| PS80142   | Adaptor sleeve 57.5mm to 50.5mm (6 pack)          | •        |     |      |      |      |
| ATS10353  | Reflux unit (liquid cooled) 6 x 50.5mm tubes      | •        |     |      |      |      |
| PS80024   | Reflux unit (liquid cooled) 10 x 24mm tubes       |          | •   | •    |      |      |
| PS80024A  | Reflux unit (liquid cooled) 10 x 25mm tubes       |          | •   | •    |      |      |
| PS80026   | Reflux unit (liquid cooled) 25 x 24mm tubes       |          |     |      | •    |      |
| PS80026A  | Reflux unit (liquid cooled) 25 x 25mm tubes       |          |     |      | •    |      |
| PS80027   | Reflux unit (liquid cooled) 50 x 24mm tubes       |          |     |      |      | •    |
| PS80027A  | Reflux unit (liquid cooled) 50 x 25mm tubes       |          |     |      |      | •    |

*\*Note: For 115V, add X1 suffix For 230V with EU plug, add X6 suffix*

# Easy, accurate and ergonomic

## The all-new IA 9000 series Melting Point Apparatus

The all-new IA9000 series Digital Melting Point Apparatus offers a quick way to measure the melting points of samples without sacrificing accuracy, with a temperature resolution of  $\pm 0.1^{\circ}\text{C}$ .

It is ideal for a busy laboratory, being ergonomically designed to ensure comfortable viewing for everyone, with a height-adjustable extension arm and an 8x magnification viewing head that rotates to suit each user. The extension arm is collapsible and can be neatly folded away into the unit, so that the unit can be stored flat to save space.

Key features are:

- 3 samples may be run simultaneously
- Membrane keypad with simple menus for intuitive use
- Selectable ramp rates between  $0.2^{\circ}\text{C}/\text{min}$  and  $10^{\circ}\text{C}/\text{min}$
- Improved calibration procedure using a calibration key
- Results are recordable and held in batch memory
- PC output facility with optional printer



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## STEM Omni Reaction Stations

### Equipment for Parallel Synthesis

The STEM Omni Reaction Stations enable you to conduct parallel synthesis for either 6 or 10 reaction positions simultaneously, maintaining the same controlled temperature and stirring rate at each position.

The STEM Omni Reaction Stations give you a choice of:

- 6 or 10 positions
- Working sample volumes of between 2 to 250ml
- Operating temperature range of ambient to 220°C
- Temperature range may be extended down to -30°C with a cooling plug and chiller accessory
- Stirring rate of between 100 - 2000rpm
- Wide range of accessories

**Page 78**     STEM Omni 1000 and 6000 series

**Page 81**     Accessories for OS6000 Series

**Page 82**     Accessories for OS1025

Find out more! Please scan the QR/Mobile Tag with your smartphone for more information



# Omni 1000 and 6000 Series

## STEM Omni Reaction Stations

The STEM Omni Reaction Stations enable you to conduct parallel synthesis for either 6 or 10 reactions simultaneously. They offer a modular design which enables you to build up your own parallel synthesis system in 5 steps, by ordering your choice of:

| Step | Part Description                          |
|------|---|
| 1    | Omni Controller (same for all Omni range) |
| 2    | Omni heater cartridge                     |
| 3    | Omni cooling plug                         |
| 4    | Omni reaction vessels                     |
| 5    | Omni reflux head                          |

The Omni Controller base unit remains the same for all Omni models, and one base unit can accommodate sample volumes from 2ml to 250ml. All heating blocks, glassware and reflux heads are interchangeable. The Omni Reaction Station footprint is compact and can be placed into any fume hood, or within a small bench space.

You have a choice of either 10 or 6 positions within your Omni Reaction Station. 10 position units allow up to 10 reactions with working volumes of:

| Working volume | Omni Model |
|----------------|------------|
| 2 - 25ml       | OS1025     |

6 place units allow up to 6 reactions with working volumes of:

| Working volume | Omni Model |
|----------------|------------|
| 5 - 50ml       | OS6050     |
| 50 - 100ml     | OS6100     |
| 100 - 250ml    | OS6250     |

| Part Code | Description   |
|-----------|---|
| OS1025*   | Series 1025 kit for 10 position Omni Reaction Station (working vol. 2 - 25ml)   |
| OS6050*   | Series 6050 kit for 6 position Omni Reaction Station (working vol. 5 - 50ml)    |
| OS6100*   | Series 6100 kit for 6 position Omni Reaction Station (working vol. 50 - 100ml)  |
| OS6250*   | Series 6250 kit for 6 position Omni Reaction Station (working vol. 100 - 250ml) |
| OSCA*     | Omni station controller   |
| ATS10112* | Cooling plug for OS6050, OS6100 and OS6250                                      |
| ATS10114* | Cooling plug for OS1025   |

*\*Add X1 suffix for 115V and X6 for 230V with EU plug*

## Key Features

With the exception of different working volumes, all of the models within the Omni 1000 and 6000 series STEM Omni Reaction Stations offer the same outstanding performance features:

- Interchangeable, modular design
- Stirring stability and speeds of 100 - 2000 rpm
- Simple menus and touch pad interface to control the system performance
- All heater cartridges are equipped with "in block heaters" that allow temperatures up to 220°C
- High level of stability ( $\pm 1.5^\circ\text{C}$ ) across the heater cartridge itself
- An external temperature probe to increase temperature accuracy to  $\pm 0.5^\circ\text{C}$
- A "cool to touch" outer casing
- Selected cartridges can also be used in conjunction with a cooling plug to extend the operating temperature range from  $-30^\circ\text{C}$  to  $220^\circ\text{C}$



OS1025

### Technical Specification

| Cat no   | OS1025                                    |                                |  |
|--|---|--------------------------------|--|
| <b>Model</b>                                     | <b>Series 1025</b>                        |                                |  |
| Voltage  | 230 & 115 V*                              |                                |  |
| Number of positions                              | 10  |                                |  |
| Well diameter, mm                                | 24.5/ 25.5mm                              |                                |  |
| Working volume, ml                               | 2- 25 ml                                  |                                |  |
| Temperature range                                | Ambient to 220°C                          |                                |  |
| Temperature range using cooling plug and chiller | -30°C to 220°C                            |                                |  |
| Stir speed range rpm                             | 100 - 2000 rpm                            |                                |  |
| Electrical requirements                          | All 230V models: 50/60Hz, 500W            | All 115V models: 50/60Hz, 500W |  |
| Dimensions (w x d x h), mm                       | 235 x 330 x 300                           |                                |  |
| Shipping Weight (kit), kg                        | 10kg for all models, (with glassware)     |                                |  |
| Shipping Weight (unit), kg                       | 4.1kg for all models, (without glassware) |                                |  |

| Cat no   | OS6050                                    | OS6100                         | OS6250             |
|--|---|--------------------------------|--------------------|
| <b>Model</b>                                     | <b>Series 6050</b>                        | <b>Series 6100</b>             | <b>Series 6250</b> |
| Voltage  | 230 & 115 V*                              | 230 & 115 V*                   | 230 & 115 V*       |
| Number of positions                              | 6   | 6                              | 6                  |
| Well diameter, mm                                | 40.5mm                                    | 56.5 mm                        | 56.5 mm            |
| Working volume, ml                               | 5- 50ml                                   | 50- 100ml                      | 100- 250ml         |
| Temperature range                                | Ambient to 220°C                          | Ambient to 220°C               | Ambient to 220°C   |
| Temperature range using cooling plug and chiller | -30°C to 220°C                            | -30°C to 220°C                 | -30°C to 220°C     |
| Stir speed range rpm                             | 100 - 2000 rpm                            | 100 - 2000 rpm                 | 100 - 2000 rpm     |
| Electrical requirements                          | All 230V models: 50/60Hz, 600W            | All 115V models: 50/60Hz, 600W |                    |
| Dimensions (w x d x h), mm                       | 235 x 330 x 450                           | 235 x 330 x 450                | 235 x 330 x 550    |
| Shipping Weight (kit), kg                        | 10kg for all models, (with glassware)     |                                |                    |
| Shipping Weight (unit), kg                       | 4.1kg for all models, (without glassware) |                                |                    |

Add X1 suffix for 115V and X6 suffix for 230V model with EU plug

### Included in the Omni Reaction Station Kit

| Part Code                         | OS1025 kit      | OS6050 kit     | OS6100 kit     | OS6250 kit     |
|-----------------------------------|-----------------|----------------|----------------|----------------|
| Omni controller, 230V             | •               | •              | •              | •              |
| Omni heater cartridge             | 10 x 25mm bores | 6 x 56mm bores | 6 x 56mm bores | 6 x 56mm bores |
| Reducing sleeves*                 |                 | •              | •              | •              |
| Not included for 115V models      |                 |                |                |                |
| Omni reaction vessels (glassware) | 10 x 25ml       | 6 x 50ml       | 6 x 100ml      | 6 x 250ml      |
| Not included for 115V models      |                 |                |                |                |
| Inerting caps                     | •               | •              | •              | •              |
| Not included for 115V models      |                 |                |                |                |
| Stirrer bars                      | •               | •              | •              | •              |
| Omni reflux head                  | •               | •              | •              | •              |

Notes: \*Reducing sleeves may be ordered separately for OS1025

Omni cooling plug is not contained within the kits, but may be ordered separately

# Components of Omni 1000 and 6000 Series

## STEM Omni Reaction Stations

### Omni Temperature Sensor 1

For fast and more precise temperature control, the temperature probe can be inserted either into a machined pocket in the reaction block or via a thermocouple pocket directly in one of the reaction vessels. The temperature sensor attaches directly into the Omni Controller

### Omni Gas-tight PTFE caps 2

By using a simple bi-directional open/close lever, each reaction vessel can be controlled separately. Each vessel cap has a septum to allow sampling at each vessel position.

### Omni Reflux Head 3

Efficient condensing and refluxing, for samples up to 25ml, is provided through the use of a liquid-cooled aluminium reflux head. Cooling is introduced through the inlet/outlet ports. Individual reaction positions are numbered (1-10) for simplified tube and sample identification. A central gas inlet/outlet port, combined with the gas-tight PTFE caps allows for a vacuum to be pulled and/or inert gas (nitrogen) to be ported into each individual tube.

### Omni Reaction Vessels 4

24mm and 25mm x 150mm threaded glass reaction vessels which can handle volumes from 2 – 250ml. Solutions can be added and removed through the top of the reaction vessel.

### Omni Cooling Plug 5

Allows the reaction unit to cool down to -30°C, greatly expanding the types of chemistry you can perform with this equipment. The cooling plug is simple to use: Insert the cooling plug into the reaction unit and attach cooling lines to the inlet/outlet via quick disconnects. Melting ice is no longer a problem with the cooling plug.

### Omni Heater Cartridge 6

Encased reaction unit ensures accurate temperature uniformity across the unit. Unique patented air flow through ventilation slots beneath and around the rim of the case ensures a cool case temperature, allowing it to be safe to touch.

### Omni Controller 7

Used to control both temperature and stirring speed, the Omni Controller is easy to operate. Temperature and speed can be separately enabled to provide complete control of reactions. Both temperature and speed are individually adjustable by depressing the up/down keys on the interface. The control panel (on the controller) has 3 indicator lights: "Power On", "Heater On" and "Stirrer On", so that you can closely view the performance of your system. A 2 x 16 digit display indicates the actual temperature from -30°C to 220°C. Stirring speed is reflected by simply touching the stirrer speed knob.

OS6100



### Ordering Information

| Part Code | Accessory  | Model |        |        |
|-----------|--|-------|--------|--------|
|           |  | O6050 | OS6100 | OS6250 |
|           | Round Bottom Flask Capacity                                  | 50ml  | 100ml  | 250ml  |
| OSCA*     | Omni-Station Controller, 230V                                | •     | •      | •      |
| ATS10096  | Reducing column R45 22SVL (6 pack)                           | •     | •      | •      |
| ATS10111  | Dean & Stark R45 reducer column (2 pack)                     | •     | •      | •      |
| ATS10116  | Reflux/Inerting head. 6 x 56                                 |       | •      | •      |
| ATS10108  | 50ml Round Bottom flask, 40mm OD,R45, (6 pack)               | •     |        |        |
| ATS10092  | 100ml Round Bottom flask R45 (6 pack)                        |       | •      |        |
| ATS10094  | 250ml Round Bottom flask (6 pack)                            |       |        | •      |
| ATS10110  | Reducer sleeves 56-40mm (6 pack)                             | •     |        |        |
| ATS10141  | Inerting cap 22mm, (6 pack)                                  | •     | •      | •      |
| ATS10143  | Inerting Caps, 22SVL Twin septum (6 pack)                    | •     | •      | •      |
| ATS10097  | Stir bar 15 x 10 Elip, Rare Earth                            | •     | •      | •      |
| ATS10186  | Stir bars 25 x 14 ELI, Rare Earth (6 pack)                   | •     | •      | •      |
| OSD656    | Block cartridge 6 x 56, 230V                                 | •     | •      | •      |
| ATS10095  | Condenser Rotavis (1 off)                                    | •     | •      | •      |
| ATS10112  | Cooling plug OM 6 x 56mm                                     | •     | •      | •      |
| ATS10145  | 50ml Round Bottom flask, 40OD, Baf, R45, (2 pack)            | •     |        |        |
| ATS10148  | 50ml Round Bottom flask, 40OD, Crys, R45, (2 pack)           | •     |        |        |
| ATS10146  | 100ml Round Bottom flask, 56OD, Baf, R45, (2 pack)           |       | •      |        |
| ATS10149  | 100ml Round Bottom flask, 56OD, Cry, R45, (2 pack)           |       | •      |        |
| ATS10147  | 250ml Round Bottom flask, 56OD, Baf, R45, (2 pack)           |       |        | •      |
| ATS10150  | 250ml Round Bottom flask, 56OD, Cry, R45, (2 pack)           |       |        | •      |
| ATS10157  | Rotary evaporator, Plain, A24 Rodaviss 45, (2 pack)          | •     | •      | •      |
| ATS10158  | Rotary evaporator, HiBoil, A24 Rodaviss 45, (2 pack)         | •     | •      | •      |
| ATS10159  | Rotary evaporator, Filterd, A24 Rodaviss 45, (2 pack)        | •     | •      | •      |
| ATS10160  | Plain B34 to Rotavis 45 rotary evaporator (2 pack)           | •     | •      | •      |
| ATS10161  | Plain B29 to Rotavis 45 rotary evaporator (2 pack)           | •     | •      | •      |
| ATS10162  | Rotary evaporator B34 hiboil Rod45 (2 pack)                  | •     | •      | •      |
| ATS10163  | Rotary evaporator B29 HiBoil Rod45 (2 pack)                  | •     | •      | •      |
| ATS10164  | Rotary evaporator Filtered Plain B34 to Rodaviss 45 (2 pack) | •     | •      | •      |
| ATS10165  | Rotary evaporator Filtered Plain B29 to Rodiviss 45 (2 pack) | •     | •      | •      |
| ATS10169  | Nitrogen bubbler (2 pack)                                    | •     | •      | •      |
| ATS10170  | Dropping funnel, cranked, 50ml                               | •     |        |        |

\*Add X1 suffix for 115V model and X6 for 230V with EU plug

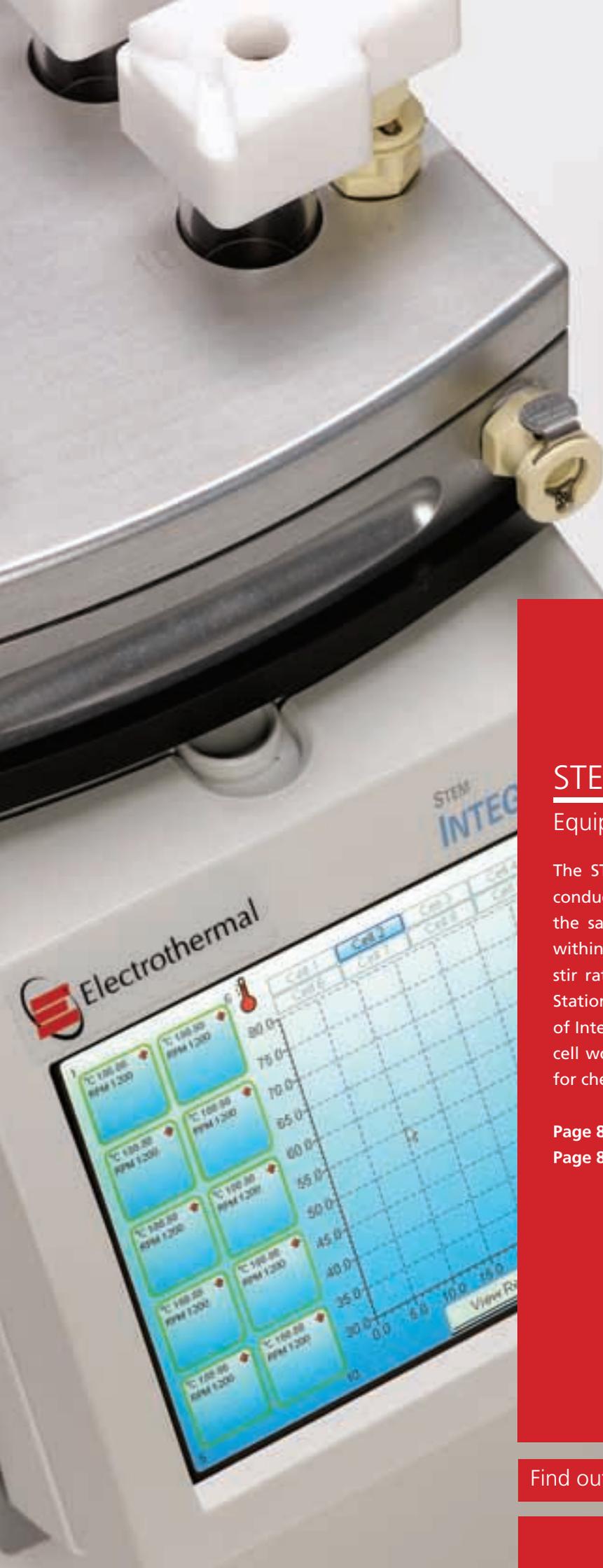
# Accessories for the OS1025

## STEM Omni Reaction Station

### Ordering Information

| Part Code | Accessory   | Model         |
|-----------|---|---------------|
|           |   | <b>OS1025</b> |
|           | Round Bottom Flask Capacity                           | 50ml          |
| OSCA*     | Omni Station Controller 230V                          | •             |
| ATS10075  | Test tubes 24x150mm 22 thread (10 pack)               | •             |
| ATS10377  | Inerting cap and probe hole (10 pack)                 | •             |
| AZS4206   | Stir bars 10 x 6 oval R/E (10 pack)                   | •             |
| OSD1025   | Block cartridge, 10 x 25, 230V                        | •             |
| ATS10115  | Reflux/inert head, 10 x 25mm                          | •             |
| ATS10031  | Stir bar retriever                                    | •             |
| ATS10063  | Temperature probe, 5 pin, PT100                       | •             |
| ATS10075  | Test tubes, 24 x 150mm, 22 thread (10 pack)           | •             |
| ATS10076  | Test tubes, 24 x 150mm, 22 thread pocket (10 pack)    | •             |
| ATS10077  | Dean & Stark, 24 x 150mm, 22 thread (10 pack)         | •             |
| ATS10079  | Phase separation head, 22svl (2 pack)                 | •             |
| ATS10080  | Mini condenser, 22svl (2 pack)                        | •             |
| ATS10081  | Filtration adaptor/tap, 9.5 dia (2 pack)              | •             |
| ATS10082  | Rotary Evaporator Adaptor, Plain A24-22mm,(2 pack)    | •             |
| ATS10083  | Rotary Evaporator, HiBoil, A24-22mm (2 pack)          | •             |
| ATS10084  | Rotary Evaporator, Plain, B34-22,(2 pack)             | •             |
| ATS10085  | Rotary Evaporator Adaptor, HiBoil B34-22 (2 pack)     | •             |
| ATS10086  | Rotary Evaporator Adaptor, Filtr B34-22 (2 pack)      | •             |
| ATS10087  | Rotary Evaporator Adaptor Plain B29-22 (2 pack)       | •             |
| ATS10088  | Rotary Evaporator Adaptor, HiBoil B29-22, (2 pack)    | •             |
| ATS10089  | Rotary Evaporator Adaptor, Filter B29-22, (2 pack)    | •             |
| ATS10090  | Rotary Evaporator Adaptor, Filter, A24-22mm, (2 pack) | •             |
| ATS10114  | Cooling Plug  | •             |
| ATS10118  | Cap Pressure Reaction 24/25OD                         | •             |
| ATS10119  | Pressurised Vessel 24mm (1 pack)                      | •             |
| ATS10134  | RV small 24mm crystal (10 pack)                       | •             |
| ATS10135  | RV large 24mm crystal (10 pack)                       | •             |
| ATS10137  | Stir-Bar, D-Cross,13x17D, Rare Earth, 20P             | •             |
| ATS10144  | Inerting Caps, 22svl, Twin septum (10 pack)           | •             |

\*Add X1 suffix for 115V model and X6 for 230V with EU plug



## STEM Integrity Reaction Stations

Equipment for parallel synthesis

The STEM Integrity 10 Reaction Station enables you to conduct 10 different reactions simultaneously within the same reaction unit, each reaction being conducted within its own cell, at its own individual temperature and stir rate. The newly launched STEM Integrity 6 Reaction Station enjoys shares the same performance characteristics of Integrity 10, but has 6 positions instead of 10. Its larger cell working volumes make Integrity 6 particularly suited for chemistry labs.

**Page 84**      STEM Integrity 10 Reaction Station  
**Page 86**      STEM Integrity 6 Reaction Station

Find out more! Please scan the QR/Mobile Tag with your smartphone for more information



# STEM Integrity 10

## Reaction Station

The STEM Integrity 10 Reaction Station can control 10 different reaction processes simultaneously and monitor each of the Integrity 10 reaction cells independently.

The temperature is controllable from -30 to 150°C with a very high degree of accuracy and maintained by either the block itself or by using a probe in the solution.

With a temperature stability of  $\pm 0.2^\circ\text{C}$  and a minimal set point overshoot of  $0.1^\circ\text{C}$ , extreme accuracy is guaranteed.

Each cell has an individually controlled magnetic stirrer and can accommodate sample volumes of between 2 and 25ml. Intrusive or non-intrusive IR turbidity probes are available to determine solubility/crystallisation measurements via turbidity.

## Technical Specification

|  |   |
|--|---|
| Number of positions                              | 10  |
| Cell cavity diameter                             | 25.5 mm                                     |
| Glass vessel fill level                          | 2 - 25 ml                                   |
| Temperature range                                | - 30 to + 150°C                             |
| Temperature difference between any two positions | 180°C                                       |
| Temperature overshoot (max)                      | 0.1°C                                       |
| Max. controlled heating/cooling rate             | 5°C/min                                     |
| Controlled heating/cooling ramp rate             | 0.1°C/min to 5°C/min in 0.1°C/min steps     |
| Stir speed range                                 | 350 - 1200rpm/min                           |
| Viscosity capacity                               | glycerine at 25°C                           |
| Recommended stir bars                            | 12/ 4.5 mm (cylindrical) or 10/ 6 mm (oval) |

### Measured external temp. (optional thermometer) range

|                                   |                          |
|-----------------------------------|--------------------------|
| Temperature range                 | -40 to + 160°C           |
| Temperature resolution            | $\pm 0.01^\circ\text{C}$ |
| Temperature accuracy              | $\pm 0.5^\circ\text{C}$  |
| Stirrer speed range               | 350 - 1200/min           |
| Stirrer resolution                | 1rpm/min                 |
| Stirrer accuracy                  | $\pm 1\text{rpm/min}$    |
| Electrical requirements           | 230V, 50/60Hz, 1100W     |
| Dimensions (unit) (w x d x h), mm | 153 x 430 x 160          |
| (power supply), mm                | 153 x 415 x 160          |
| Weight (unit), kg                 | 9.5                      |
| (power supply), kg                | 10.5                     |

## Key Features

- 10 individual cells in one reaction station
- Individual control of temperature and stirring rate for each cell
- Temperature range of -30°C to 150°C
- Stirring rate of 350rpm - 1200rpm
- Cell working volume of 2ml - 25ml
- Optional attachments for refluxing, and working under vacuum or inert gas conditions
- Optional multi-temp temperature probes for temperature control by contents
- Optional multi-infrared probes for solubility/crystallisation studies
- Automatic microprocessor control through a touchscreen
- Warranty: 3 years parts and labour



**Integrity10**  
Part Code: PS20000

### Notes:

- Minimum temperature is linearly dependent upon the temperature of the cooling fluid. Specified range assumes a cooling fluid temperature supply of 5°C at a flow rate of  $\geq 2.5\text{L/min}$  and a cooling capacity of 1100W
- Stir performance only guaranteed using recommended stir bars
- RS232 & RS485 ports, RJ45 ethernet socket & GSI0C protocol socket for connecting and controlling Integrity 10 as part of an integrated system
- SD card acts as Integrity 10 hard drive; optional USB port for data storage

| Part Code   | Description   |
|-------------|---|
| PS20000*    | Integrity 10 with 10 individually controlled cells with PSU                         |
| ATS20001    | Integrity 10 Reflux unit with inerting caps   |
| ATS10075    | Glass tubes 24/150 mm, 22 thread (10 Pack)  |
| AZS4206     | Stirrer bars 10/ 6 mm (10 Pack)   |
| ATS10001    | Multi-Temp 10 module  |
| ATS10027    | Thermocouple probe (6 Pack)   |
| ATS10027/10 | Thermocouple probe (10 Pack)  |
| ATS10232E   | Multi IR box  |
| ATS10360/1  | Non Intrusive IR sensor   |
| ATS10360/5  | Non Intrusive IR sensor (5 Pack)  |
| ATS10360/10 | Non Intrusive IR sensor (10 Pack)   |
| ATS11005    | Integrity software  |
| ATS10230    | Intrusive IR probe stainless steel DIP-NIR5-BNSD (Pack of 1)                        |
| ATS10231    | IR Probe DIP-NIR5-BNSD (10 Pack)  |
| ATS10230H   | Intrusive IR probe in Hastelloy (nickel-based alloy with high corrosion resistance) |
| ATS10395    | Intrusive IR/NIR sensor 661.6004 - NIR, 10mm in Hastelloy (Pack of 1)               |



ATS10395

\*Note: For 115V, add X1 suffix, for 230V with EU plug, add X6 suffix

## Intrusive IR Probes for Integrity 6 and 10

| Part Code                           | ATS10395   | ATS10230 (stainless steel- pack 1)<br>ATS10231(stainless steel- pack 10)<br>ATS10230H (Hastelloy- pack 1)  |
|-------------------------------------|--|--|
| Description                         | Intrusive IR/NIR probe 661.6004-NIR, 10mm  | Intrusive IR probe DIP-NIR5-BNSD   |
| Key features                        | Ultra-mini Immersion probe<br>Large window at probe tip<br>Ideal for large crystals and highly viscous solutions | World's smallest fibre optic dipping probe<br>Ideal for multi-channel applications   |
| Optical light path                  | 10 mm $\pm$ 0.02 mm  | 5mm  |
| Materials in contact with sample    | Sapphire<br>Kalrez 6375 (perfluoroelastomer)<br>Hastelloy C-22, PEEK (polyether ether ketone)                    | Choice of stainless steel or Hastelloy<br>(nickel-based alloy with high corrosion resistance)  |
| Probe housing                       | Designed to fit Integrity 10   | Designed to fit Integrity 10   |
| <b>Dimensions:</b>                  |  |  |
| Outer tip diameter                  | 6 mm   | 1.5 mm (17-gauge needle size)  |
| Min. immersion depth                | 20 mm  | 7mm (tip to upper edge of sample window)   |
| Total length                        | 215 mm   | 180mm (including handle)   |
| Max. temperature at the probe shaft | 150°C  |  |
| Pressure range sample               | 1 bar up to 6 bar  |  |
| Fibre optic fibres                  | Quartz built-in cables with low OH content (NIR)   | Quartz built-in cables   |
| Core diameter optic fibres          | 600 $\mu$ m  | 2 x 400 $\mu$ m  |
| Total length                        | 2 x 1.4 m  | 1.5m (from connector to tip)   |
| Cable connectors                    | FSMA type 905  | SMA  |
| Chemical resistance                 | Very good chemical resistance  | Can be used in almost any organic and inorganic solvents except HF and strong acids. HF will dissolve the quartz fibre and strong acids will corrode the stainless steel |
| Recommended cleaning solutions      |  | Distilled water, detergent, alcohol, acetone   |

# STEM Integrity 6

## Reaction Station

The STEM Integrity 6 Reaction Station enables you to conduct 6 different reactions simultaneously within the same reaction unit, each reaction being conducted within its own cell, at its own individual temperature and stir rate. If desired, fast heating and cooling rates can be selected, with temperature ramps of between 0.1°C/min to 5°C/min. There is also a crash function for even faster temperature changes, which is ideal for kinetic determinations.

Extreme temperature accuracy is guaranteed, with a temperature stability of  $\pm 0.2^\circ\text{C}$  and a maximum set point overshoot of 0.1°C. The temperature may be maintained either through the block itself or by using a probe within each cell's solution.

This accuracy can be maintained over a wide temperature range of  $-30^\circ\text{C}$  to  $150^\circ\text{C}$ , with precise, independently controlled temperature profiles, and homogeneous sample mixing may be assured with stirring rates of between 0rpm to 1300rpm using magnetic stirrers.

With working volumes of between 10ml to 50ml, the STEM Integrity 6 is an excellent screening tool for most laboratories and can also be used to establish ideal process conditions.

### Technical Specification

|  |  |
|--|--|
| Number of positions                              | 6  |
| Cell cavity diameter                             | 40.5 mm  |
| Cell working volume                              | 10 – 50ml  |
| Glass vessel fill level                          | 2 - 25 ml  |
| Temperature range                                | $-30$ to $+150^\circ\text{C}$  |
| Temperature difference between any two positions | $180^\circ\text{C}$  |
| Temperature overshoot (max)                      | $0.1^\circ\text{C}$  |
| Max. controlled heating/cooling rate             | $5^\circ\text{C}/\text{min}$   |
| Controlled heating/cooling ramp rate             | $0.1^\circ\text{C}/\text{min}$ to $5^\circ\text{C}/\text{min}$ in $0.1^\circ\text{C}/\text{min}$ steps |
| Stir speed range                                 | 0 - 1300rpm/min  |
| Viscosity capacity                               | glycerine at $25^\circ\text{C}$  |
| Recommended stir bars                            | 12/ 4.5 mm (cylindrical) or 10/ 6 mm (oval)  |

### Measured external temperature (optional thermometer) range

|                                   |                               |
|-----------------------------------|-------------------------------|
| Temperature range                 | $-40$ to $+160^\circ\text{C}$ |
| Temperature resolution            | $\pm 0.01^\circ\text{C}$      |
| Temperature accuracy              | $\pm 0.5^\circ\text{C}$       |
| Stirrer speed range               | 350 - 1200/min                |
| Stirrer resolution                | 1rpm/min                      |
| Stirrer accuracy                  | $\pm 10$ rpm/min              |
| Electrical requirements           | 230V, 50/60Hz, 900W           |
| Dimensions (unit) (w x d x h), mm | 153 x 430 x 160               |
| (power supply), mm                | 153 x 415 x 160               |
| Weight (unit), kg                 | 9.5                           |
| (power supply), kg                | 10.5                          |

## Key Features

- 6 individual cells in one reaction block
- Individual control of temperature and stirring rate for each cell
- Temperature range of  $-30^\circ\text{C}$  to  $150^\circ\text{C}$
- Stirring rate of 0 rpm- 1300 rpm
- Cell working volume of 10ml- 50ml
- Optional attachments for refluxing, and working under vacuum or inert gas conditions
- Optional multi-infrared probes for solubility/ crystallisation studies
- Automatic microprocessor control through a touchscreen
- Warranty: 3 years parts and labour



STEM Integrity 6  
Reaction Station

Bibby Scientific

## Complementary products

Also available from Bibby Scientific

Bibby Scientific Ltd is one of the largest broad based manufacturers of laboratory products worldwide. Bibby Scientific Ltd provides internationally recognised brands with reputations for product quality and exceptional performance. These famous brands are now brought together in a single package to offer an excellent level of quality, service and support.

- Page 88** Stuart® Benchtop Science Equipment
- Page 89** Jenway® Equipment for Analysis
- Page 90** Techne® Equipment for the Life Sciences



# Complementary products

Also available from Bibby Scientific...

## Stuart® Equipment



### Benchtop Science Equipment

The Stuart® range of benchtop science equipment includes block heaters, blood tube rotators, colony counters, hotplates, stirrers, rockers and shakers, rotary evaporators and water baths. Stuart® are also market leaders in melting point apparatus and water stills. The entire range is protected by BioCote® antimicrobial protection.



#### Block Heaters

Suitable for microbiology and clinical laboratories



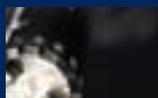
#### Centrifuges

Mini centrifuge range



#### Colony Counter

Ideal for all microbiology applications



#### Homogenisers

Designed for the homogenisation of material



#### Hotplates and Stirrers

Available with metal or ceramic surfaces



#### Incubators

For accurate temperature controlled applications



#### Melting Point Apparatus

Determine high accuracy melting points



#### Mixers

For sample agitation within the laboratory



#### Rotary Evaporators

Commonly used for separating solvents



#### Rockers and Shakers

Available in orbital, linear, gyratory and see-saw actions



#### Water Baths and Purification

6, 15 and 24L capacity water baths

[www.stuart-equipment.com](http://www.stuart-equipment.com)





## Jenway® Equipment

### Equipment for Analysis

The extensive range of Jenway® high quality scientific and analytical instrumentation includes visible and UV/Visible spectrophotometers, flame photometers, colorimeters, portable and laboratory meters for the measurement of dissolved oxygen, pH, conductivity and specific ions.



#### Colorimeters

Ideal for routine basic colour measurements



#### Conductivity meters

Ranging from portable to advanced laboratory meters



#### Dissolved oxygen meters

Standard method used in water quality analysis



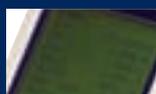
#### Flame photometers

Accurate analytic method for determining certain ion concentrations



#### Fluorimeters

Advanced fluorescence detection



#### Ion meters

Accurately determine low concentrations



#### pH meters

Ranging from portable to advanced laboratory meters



#### Spectrophotometers

Spectroscopy is one of the most established techniques used to identify the presence and concentration of many molecular entities. Jenway have four ranges of visible and UV/visible spectrophotometers, designed to suit a wide range of budgets.



## Complementary products

Also available from Bibby Scientific...

## Techne® Equipment



### Equipment for the Life Sciences

Techne® is a long established name and world leader in the manufacture of temperature control and essential equipment for the life sciences, research, clinical and general laboratories. The Techne® range of products encompasses temperature controlled water baths, Dri-Block® heaters, cell culture equipment and molecular biology products such as hybridisation incubators and thermal cyclers.



#### Baths and Thermoregulators

Allows precise temperature control



#### Biological Stirrers

Ideal for the growth of suspension cell culture



#### Dri-Block® Heaters

Compact constant temperature Dri-Block heating



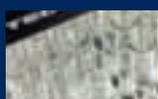
#### Gelation Timers

Accurate measurement of gelation in the laboratory



#### Hybridisation Incubators

Ideal for blotting techniques



#### Sample Concentrators

Accelerates concentration of samples



#### Sample Cooling

Sample incubation under sub-ambient temperature



#### Thermal Cyclers

Compact, robust and versatile, the range includes models to suit every application and budget. All models feature Peltier technology, easily interchangeable blocks, intuitive user interfaces and networkable to a PC for ease of control and programming.

[www.techne.com](http://www.techne.com)





## Technical Information

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Electrothermal have a Technical Support team who are on hand to help with any applications advice and questions you may have about our products and how to use them. We also have a team of dedicated engineers whose expertise you can draw upon. There are two fully equipped laboratories which are used for developing applications, testing new products and assisting with customer protocols.

|                |                                |
|----------------|--------------------------------|
| <b>Page 92</b> | Service and Repair             |
| <b>Page 93</b> | Certifications and conformity  |
| <b>Page 94</b> | Periodic Table                 |
| <b>Page 96</b> | Reaction station running costs |
| <b>Page 98</b> | Our commitment to customers    |
| <b>Page 99</b> | Contact details                |

# Service and Repair

## Technical information

Electrothermal's products are manufactured to the highest standards, but should your equipment develop a fault or simply need a service, we have a dedicated service team on hand to help you.

In the first instance, to discuss your requirements, please contact us on:

Email: [help@electrothermal.com](mailto:help@electrothermal.com)

Tel: +44 (0) 702 303 350

Fax: +44 (0) 702 468 731

If you need to return any equipment to us for repair, you will first need a reference number from our Service Department, which should be enclosed with your faulty equipment. We will also require a clear written description of the fault and a completed Decontamination Certificate to confirm that the returned product does not harbour any harmful substance. The Decontamination Certificate is included in your product's Instruction Manual, but may also be obtained as a downloadable PDF from our website [www.electrothermal.com](http://www.electrothermal.com) or we can e-mail you with a copy.

Please mark your returned goods with the reference number and mark for the attention of the Service Department at:

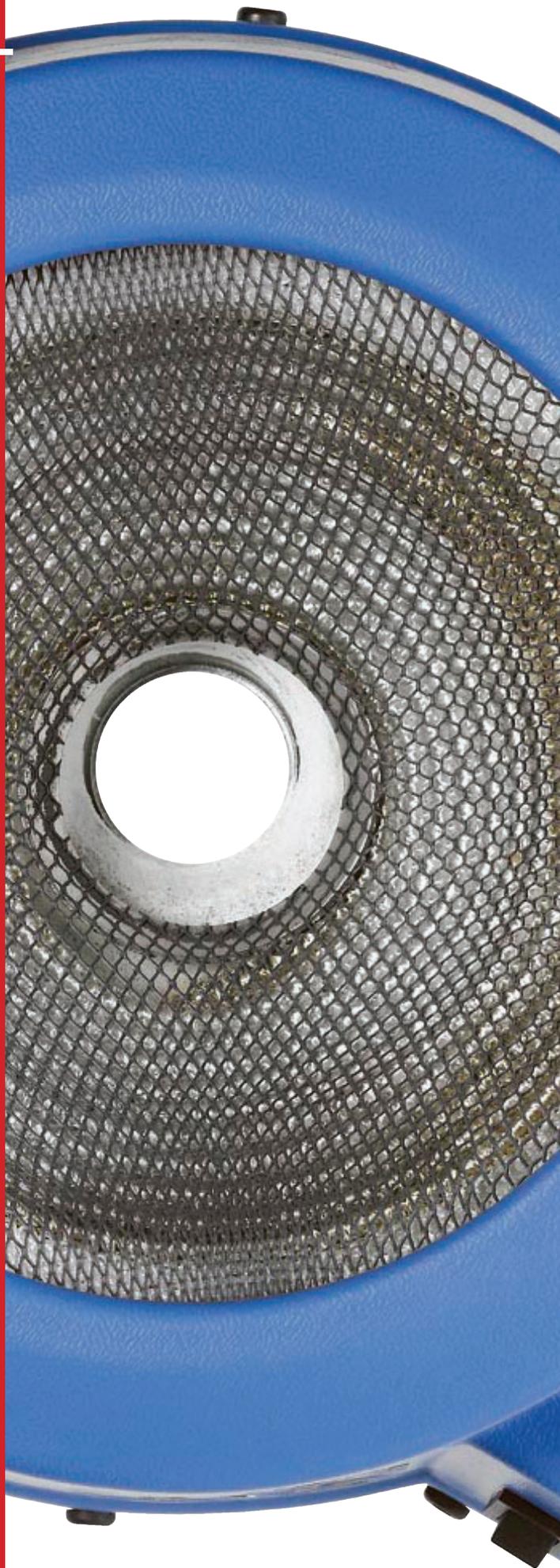
Electrothermal  
Electrothermal House  
Unit 12A, Purdey's Way,  
Purdey's Industrial Estate,  
Rochford,  
Essex  
SS4 1ND  
United Kingdom

We aim to investigate your faulty equipment and return it to you within 7 working days.

Our Service Department is also happy to help you should you require onsite repairs or equipment calibration.

## Warranty

All Electrothermal products come with a one year warranty for parts and labour as standard. Some of our goods, the Integrity 10 and Integrity 6 Reaction Stations, come with an extended warranty of three years parts and labour. All replacement parts are guaranteed for 6 months.



### CE Conformity

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All Electrothermal ranges of laboratory equipment are rigorously tested against applicable standards and are CE marked in accordance with EC legislation. This is reinforced by a comprehensive technical data base which has been established over many years of experience in the design and manufacture of laboratory heating equipment.

### CSA Conformity

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The 115V models of the CMU series of Electromantles have CSA (Canadian Standards Association) approval and are eligible to bear the CSA mark with adjacent indicators 'C' and 'US' for Canada and US respectively. CSA certification particularly applies for the US and Canada as it tests products to US and Canadian standards. A copy of the CE or CSA compliance documents may be requested from our Service Department by emailing them at [help@electrothermal.com](mailto:help@electrothermal.com)

### WEEE & RoHS Regulations

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The Waste Electrical and Electronic Equipment (the WEEE Regulations-Directive 2002/96/EC) legislation is now in place in the UK. The WEEE Directive endeavours to reduce the amount of electrical and electronic equipment waste going to landfill or being incinerated, by promoting its re-use, recycling and other forms of recovery.

The Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations 2005 (the RoHS Regulations-Directive 2002/95/EC) are now legally applicable in the UK. They apply to any new electrical and electronic equipment that has entered the European market since July 1st 2006 and aim to restrict the use of lead, mercury, cadmium, hexavalent chromium, polybrominated biphenyls (PBB) and polybrominated diphenylether (PBDE) in such products. Electrothermal complies with both the WEEE and RoHS Regulations, being environmentally responsible and promoting manufacturing good practice.

### ISO 9001: 2008

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Electrothermal first gained ISO 9001 quality system registration in 1994 and is currently certified to the International Quality Standard BS EN ISO 9001-2008. This ensures that Electrothermal is committed to providing the highest quality products, services and customer satisfaction. The scope of our certificate No. CERT-0050898 is the design, manufacture, servicing and supply of laboratory, medical, defence and industrial heating equipment, instruments and control devices. Further details of our certification may be downloaded from our website [www.electrothermal.com](http://www.electrothermal.com)



# Periodic table

No. - Atomic Number      M.P. - Melting Point      B.P. - Boiling Point

| Name        | Symbol | No. | Atomic Weight | M.P. (°C) | B.P. (°C) | Density (g/cm <sup>3</sup> ) | Ionisation energy (eV) |
|-------------|--------|-----|---------------|-----------|-----------|------------------------------|------------------------|
| Actinium    | Ac     | 89  | 227           | 1050      | 3200      | 10.07                        | 5.17                   |
| Aluminum    | Al     | 13  | 26.9815       | 660       | 2467      | 2.7                          | 5.9858                 |
| Americium   | Am     | 95  | 243           | 994       | 2607      | 13.67                        | 5.9738                 |
| Antimony    | Sb     | 51  | 121.76        | 630       | 1750      | 6.68                         | 8.6084                 |
| Argon       | Ar     | 18  | 39.948        | -189      | -186      |                              | 15.7596                |
| Arsenic     | As     | 33  | 74.9216       | 81        | 613       | 5.72                         | 9.7886                 |
| Astatine    | At     | 85  | 210           | 302       | 337       |                              | 9.3                    |
| Barium      | Ba     | 56  | 137.327       | 725       | 1140      | 3.59                         | 5.2117                 |
| Berkelium   | Bk     | 97  | 247           | 986       |           | 14.78                        | 6.1979                 |
| Beryllium   | Be     | 4   | 9.0122        | 1278      | 2970      | 1.85                         | 9.3227                 |
| Bismuth     | Bi     | 83  | 208.9804      | 271       | 1560      | 9.75                         | 7.2856                 |
| Bohrium     | Bh     | 107 | 264           |           |           |                              |                        |
| Boron       | B      | 5   | 10.811        | 2300      | 2550      | 2.34                         | 8.298                  |
| Bromine     | Br     | 35  | 79.904        | -7        | 59        | 3.12                         | 11.8138                |
| Cadmium     | Cd     | 48  | 112.411       | 321       | 765       | 8.65                         | 8.9938                 |
| Calcium     | Ca     | 20  | 40.078        | 839       | 1484      | 1.55                         | 6.1132                 |
| Californium | Cf     | 98  | 251           | 900       | 15.1      | 6.2817                       |                        |
| Carbon      | C      | 6   | 12.0107       | 3500      | 4827      | 2.26                         | 11.2603                |
| Cerium      | Ce     | 58  | 140.116       | 795       | 3257      | 6.77                         | 5.5387                 |
| Cesium      | Cs     | 55  | 132.9055      | 29        | 678       | 1.87                         | 3.8939                 |
| Chlorine    | Cl     | 17  | 35.453        | -101      | -35       | 3.21                         | 12.9676                |
| Chromium    | Cr     | 24  | 51.9961       | 1857      | 2672      | 7.19                         | 6.7665                 |
| Cobalt      | Co     | 27  | 58.9332       | 1495      | 2870      | 8.9                          | 7.881                  |
| Copper      | Cu     | 29  | 63.546        | 1083      | 2567      | 8.96                         | 7.7264                 |
| Curium      | Cm     | 96  | 247           | 1340      |           | 13.5                         | 5.9915                 |
| Dubnium     | Db     | 105 | 262           |           |           |                              |                        |
| Dysprosium  | Dy     | 66  | 162.5         | 1412      | 2562      | 8.55                         | 5.9389                 |
| Einsteinium | Es     | 99  | 252           | 860       |           |                              | 6.42                   |
| Erbium      | Er     | 68  | 167.259       | 1522      | 2510      | 9.07                         | 6.1077                 |
| Europium    | Eu     | 63  | 151.964       | 822       | 1597      | 5.24                         | 5.6704                 |
| Fermium     | Fm     | 100 | 257           | 1527      |           |                              | 6.5                    |
| Fluorine    | F      | 9   | 18.9984       | -220      | -188      | 1.7                          | 17.4228                |
| Francium    | Fr     | 87  | 223           | 27        | 677       |                              | 4.0727                 |
| Gadolinium  | Gd     | 64  | 157.25        | 1311      | 3233      | 7.9                          | 6.1501                 |
| Gallium     | Ga     | 31  | 69.723        | 30        | 2403      | 5.91                         | 5.9993                 |
| Germanium   | Ge     | 32  | 72.64         | 937       | 2830      | 5.32                         | 7.8994                 |
| Gold        | Au     | 79  | 196.9665      | 1064      | 2807      | 19.32                        | 9.2255                 |
| Hafnium     | Hf     | 72  | 178.49        | 2150      | 5400      | 13.31                        | 6.8251                 |
| Hassium     | Hs     | 108 | 277           |           |           |                              |                        |
| Helium      | He     | 2   | 4.0026        | -272      | -269      |                              | 24.5874                |
| Holmium     | Ho     | 67  | 164.9303      | 1470      | 2720      | 8.8                          | 6.0215                 |
| Hydrogen    | H      | 1   | 1.0079        | -259      | -253      | 0.09                         | 13.5984                |
| Indium      | In     | 49  | 114.818       | 157       | 2000      | 7.31                         | 5.7864                 |
| Iodine      | I      | 53  | 126.9045      | 114       | 184       | 4.93                         | 10.4513                |
| Iridium     | Ir     | 77  | 192.217       | 2410      | 4527      | 22.4                         | 8.967                  |
| Iron        | Fe     | 26  | 55.845        | 1535      | 2750      | 7.87                         | 7.9024                 |
| Krypton     | Kr     | 36  | 83.8          | -157      | -153      |                              | 13.9996                |
| Lanthanum   | La     | 57  | 138.9055      | 920       | 3469      | 6.15                         | 5.5769                 |
| Lawrencium  | Lr     | 103 | 262           | 1627      |           |                              | 4.9                    |
| Lead        | Pb     | 82  | 207.2         | 327       | 1740      | 11.35                        | 7.4167                 |
| Lithium     | Li     | 3   | 6.941         | 180       | 1347      | 0.53                         | 5.3917                 |
| Lutetium    | Lu     | 71  | 174.967       | 1656      | 3315      | 9.84                         | 5.4259                 |
| Magnesium   | Mg     | 12  | 24.305        | 639       | 1090      | 1.74                         | 7.6462                 |
| Manganese   | Mn     | 25  | 54.938        | 1245      | 1962      | 7.43                         | 7.434                  |
| Meitnerium  | Mt     | 109 | 268           |           |           |                              |                        |

No. - Atomic Number      M.P. - Melting Point      B.P. - Boiling Point

| Name          | Symbol | No. | Atomic Weight | M.P. ( °C ) | B.P. ( °C ) | Density (g/cm <sup>3</sup> ) | Ionisation energy (eV) |
|---------------|--------|-----|---------------|-------------|-------------|------------------------------|------------------------|
| Mendelevium   | Md     | 101 | 258           |             |             |                              | 6.58                   |
| Mercury       | Hg     | 80  | 200.59        | -39         | 357         | 13.55                        | 10.4375                |
| Molybdenum    | Mo     | 42  | 95.94         | 2617        | 4612        | 10.22                        | 7.0924                 |
| Neodymium     | Nd     | 60  | 144.24        | 1010        | 3127        | 7.01                         | 5.525                  |
| Neon          | Ne     | 10  | 20.1797       | -249        |             | -246                         | 21.5645                |
| Neptunium     | Np     | 93  | 237           | 640         | 3902        | 20.2                         | 6.2657                 |
| Nickel        | Ni     | 28  | 58.6934       | 1453        | 2732        | 8.9                          | 7.6398                 |
| Niobium       | Nb     | 41  | 92.9064       | 2468        | 4927        | 8.57                         | 6.7589                 |
| Nitrogen      | N      | 7   | 14.0067       | -210        | -196        | 1.25                         | 14.5341                |
| Nobelium      | No     | 102 | 259           | 827         |             |                              | 6.65                   |
| Osmium        | Os     | 76  | 190.23        | 3045        | 5027        | 22.6                         | 8.4382                 |
| Oxygen        | O      | 8   | 15.9994       | -218        | -183        | 1.43                         | 13.6181                |
| Palladium     | Pd     | 46  | 106.42        | 1552        | 2927        | 12.02                        | 8.3369                 |
| Phosphorus    | P      | 15  | 30.9738       | 44          | 280         | 1.82                         | 10.4867                |
| Platinum      | Pt     | 78  | 195.078       | 1772        | 3827        | 21.45                        | 8.9587                 |
| Plutonium     | Pu     | 94  | 244           | 640         | 3235        | 19.84                        | 6.0262                 |
| Polonium      | Po     | 84  | 209           | 254         | 962         | 9.3                          | 8.417                  |
| Potassium     | K      | 19  | 39.0983       | 64          | 774         | 0.86                         | 4.3407                 |
| Praseodymium  | Pr     | 59  | 140.9077      | 935         | 3127        | 6.77                         | 5.473                  |
| Promethium    | Pm     | 61  | 145           | 1100        | 3000        | 7.3                          | 5.582                  |
| Protactinium  | Pa     | 91  | 231.0359      | 1568        | 15.4        |                              | 5.89                   |
| Radium        | Ra     | 88  | 226           | 700         | 1737        | 5.5                          | 5.2784                 |
| Radon         | Rn     | 86  | 222           | -71         | -62         |                              | 10.7485                |
| Rhenium       | Re     | 75  | 186.207       | 3180        | 5627        | 21.04                        | 7.8335                 |
| Rhodium       | Rh     | 45  | 102.9055      | 1966        | 3727        | 12.41                        | 7.4589                 |
| Rubidium      | Rb     | 37  | 85.4678       | 39          | 688         | 1.63                         | 4.1771                 |
| Ruthenium     | Ru     | 44  | 101.07        | 2250        | 3900        | 12.37                        | 7.3605                 |
| Rutherfordium | Rf     | 104 | 261           |             |             |                              |                        |
| Samarium      | Sm     | 62  | 150.36        | 1072        | 1900        | 7.52                         | 5.6437                 |
| Scandium      | Sc     | 21  | 44.9559       | 1539        | 2832        | 2.99                         | 6.5615                 |
| Seaborgium    | Sg     | 106 | 266           |             |             |                              |                        |
| Selenium      | Se     | 34  | 78.96         | 217         | 685         | 4.79                         | 9.7524                 |
| Silicon       | Si     | 14  | 28.0855       | 1410        | 2355        | 2.33                         | 8.1517                 |
| Silver        | Ag     | 47  | 107.8682      | 962         | 2212        | 10.5                         | 7.5762                 |
| Sodium        | Na     | 11  | 22.9897       | 98          | 883         | 0.97                         | 5.1391                 |
| Strontium     | Sr     | 38  | 87.62         | 769         | 1384        | 2.54                         | 5.6949                 |
| Sulfur        | S      | 16  | 32.065        | 113         | 445         | 2.07                         | 10.36                  |
| Tantalum      | Ta     | 73  | 180.9479      | 2996        | 5425        | 16.65                        | 7.5496                 |
| Technetium    | Tc     | 43  | 98            | 2200        | 4877        | 11.5                         | 7.28                   |
| Tellurium     | Te     | 52  | 127.6         | 449         | 990         | 6.24                         | 9.0096                 |
| Terbium       | Tb     | 65  | 158.9253      | 1360        | 3041        | 8.23                         | 5.8638                 |
| Thallium      | Tl     | 81  | 204.3833      | 303         | 1457        | 11.85                        | 6.1082                 |
| Thorium       | Th     | 90  | 232.0381      | 1750        | 4790        | 11.72                        | 6.3067                 |
| Thulium       | Tm     | 69  | 168.9342      | 1545        | 1727        | 9.32                         | 6.1843                 |
| Tin           | Sn     | 50  | 118.71        | 232         | 2270        | 7.31                         | 7.3439                 |
| Titanium      | Ti     | 22  | 47.867        | 1660        | 3287        | 4.54                         | 6.8281                 |
| Tungsten      | W      | 74  | 183.84        | 3410        | 5660        | 19.35                        | 7.864                  |
| Uranium       | U      | 92  | 238.0289      | 1132        | 3818        | 18.95                        | 6.1941                 |
| Vanadium      | V      | 23  | 50.9415       | 1890        | 3380        | 6.11                         | 6.7462                 |
| Xenon         | Xe     | 54  | 131.293       | -112        | -108        |                              | 12.1298                |
| Ytterbium     | Yb     | 70  | 173.04        | 824         | 1466        | 6.9                          | 6.2542                 |
| Yttrium       | Y      | 39  | 88.9059       | 1523        | 3337        | 4.47                         | 6.2173                 |
| Zinc          | Zn     | 30  | 65.39         | 420         | 907         | 7.13                         | 9.3942                 |
| Zirconium     | Zr     | 40  | 91.224        | 1852        | 4377        | 6.51                         | 6.6339                 |

# Reaction Station Running Costs

## Comparison chart

| Reaction station series         | RS      |                   |                               |                             | Omni                       |  |
|---------------------------------|---------|-------------------|-------------------------------|-----------------------------|----------------------------|--|
|                                 | Model   | RS900<br>& RS1000 | RS1000H                       | RS600<br>& RS600H           | RS2400, RS2500<br>& RS5000 | OS1025                                 |
| No. of positions                | 10      | 10                | 6                             | 24, 25 & 50<br>respectively | 10                         | 6                                      |
| Max. temperature                | 150°C   | 300°C             | 250°C & 300°C<br>respectively | 150°C                       | 220°C                      | 220°C                                  |
| Min. temp                       | Ambient | Ambient           | Ambient                       | Ambient                     | -30°C                      | -30°C                                  |
| Sample volumes at each position | 10-30ml | 10-30ml           | Up to 250ml                   | 10-30ml                     | 2 -25ml                    | 5-50ml;<br>50- 100ml,<br>100ml - 250ml |
| Power consumption               | 300W    | 600W              | 600W                          | 800W                        | 500W                       | 600W                                   |

### Maximum running costs @ 14.5p per kW/h

|  |       |        |        |        |        |        |
|--|-------|--------|--------|--------|--------|--------|
| Per hour, £                                    | £0.04 | £0.09  | £0.09  | £0.12  | £0.07  | £0.09  |
| Per week, £ (8 hours x 5 days)                 | £1.60 | £3.60  | £3.60  | £4.80  | £2.80  | £3.60  |
| Per year, £ (50 weeks)                         | £80   | £180   | £180   | £240   | £140   | £180   |
| No. of hotplates                               | N/A   | N/A    | N/A    | N/A    | N/A    | N/A    |
| 1 year's running costs, 8 hours x 5 days/week  | £80   | £180   | £180   | £240   | £140   | £180   |
| 10 years' running costs, 8 hours x 5 days/week | £800  | £1,800 | £1,800 | £2,400 | £1,400 | £1,800 |
| 1 year's running costs, 24 hours x 5 days/week | £240  | £540   | £540   | £720   | £420   | £540   |
| 2 years' running costs, 24 hours x 5 days/week | £480  | £1,080 | £1,080 | £1,440 | £840   | £1,080 |
| 3 years' running costs, 24 hours x 5 days/week | £720  | £1,620 | £1,620 | £2,160 | £1,260 | £1,620 |
| 4 years' running costs, 24 hours x 5 days/week | £960  | £2,160 | £2,160 | £2,880 | £1,680 | £2,160 |

#### Notes:

- The average cost of UK electricity was quoted as being 14.5p per kW/h on the UK Government's [www.directgov.uk](http://www.directgov.uk) website in Jan 2012
- Although costs of electricity will vary across countries, the general trends will remain the same, being based upon energy consumption figures
- Water usage has not been factored into these calculations. To minimise water usage, it is recommended that water is recycled wherever possible and that it is turned off when the reactions are completed

# Reaction Station Running Costs

## Comparison chart

| Reaction station series         | Integrity                  |              | Hotplate stirrers             |            |                                |            |
|---------------------------------|----------------------------|--------------|-------------------------------|------------|--------------------------------|------------|
| Model                           | Integrity 6                | Integrity 10 | Lower power consumption, 550W |            | Higher power consumption, 550W |            |
| No. of positions                | 6                          | 10           | 1                             | 1          | 1                              | 1          |
| Max. temperature                | 150°C                      | 150°C        | 300- 450°C                    | 300- 450°C | 300- 450°C                     | 300- 450°C |
| Min. temp                       | -30°C                      | -30°C        | Ambient                       | Ambient    | Ambient                        | Ambient    |
| Sample volumes at each position | 10 - 50ml<br>100ml - 250ml | 2 - 25ml     | Variable                      | Variable   | Variable                       | Variable   |
| Power consumption               | 900W                       | 1100W        | 550W                          | 550W       | 950W                           | 950W       |

### Maximum running costs @ 14.5p per kW/h

|  |        |        |         |         |         |         |
|--|--------|--------|---------|---------|---------|---------|
| Per hour, £                                    | £0.13  | £0.16  | £0.08   | £0.08   | £0.14   | £0.14   |
| Per week, £ (8 hours x 5 days)                 | £5.20  | £6.40  | £3.20   | £3.20   | £5.60   | £5.60   |
| Per year, £ (50 weeks)                         | £260   | £320   | £160    | £160    | £280    | £280    |
| No. of hotplates                               | N/A    | N/A    | 6       | 10      | 6       | 10      |
| 1 year's running costs, 8 hours x 5 days/week  | £260   | £320   | £960    | £1,600  | £1,680  | £2,800  |
| 10 years' running costs, 8 hours x 5 days/week | £2,600 | £3,200 | £9,600  | £16,000 | £16,800 | £28,000 |
| 1 year's running costs, 24 hours x 5 days/week | £780   | £960   | £2,880  | £4,800  | £5,040  | £8,400  |
| 2 years' running costs, 24 hours x 5 days/week | £1,560 | £1,920 | £5,760  | £9,600  | £10,080 | £16,800 |
| 3 years' running costs, 24 hours x 5 days/week | £2,340 | £2,880 | £8,640  | £14,400 | £15,120 | £25,200 |
| 4 years' running costs, 24 hours x 5 days/week | £3,120 | £3,840 | £11,520 | £19,200 | £20,160 | £33,600 |

#### Notes:

- The average cost of UK electricity was quoted as being 14.5p per kW/h on the UK Government's [www.directgov.uk](http://www.directgov.uk) website in Jan 2012
- Although costs of electricity will vary across countries, the general trends will remain the same, being based upon energy consumption figures
- Water usage has not been factored into these calculations. To minimise water usage, it is recommended that water is recycled wherever possible and that it is turned off when the reactions are completed

# Our commitment to our customers

## Company statement

Being part of the Bibby Scientific group, Electrothermal are market leaders in the design and manufacture of laboratory heating, cooling and stirring equipment. Incorporated since 1943, we employ 50 people in Rochford, Essex, and both develop and manufacture a huge range of products on site. Along with the other Bibby Scientific brands of Stuart, Techne and Jenway, Electrothermal provide a wealth of scientific equipment for the global scientific community. Our customers are diverse and include major pharmaceutical, industrial and chemical companies, alongside educational establishments and governments worldwide.

We are committed to meeting the needs of our customers in 8 ways:

### We are UK manufacturers of top quality equipment

We manufacture all our own products on site in Rochford, working mainly with local UK suppliers to provide a full spectrum of equipment, from world-leading Electromantles to highly accurate and state-of-the-art reaction stations. In fact, many drug trials in the pharmaceutical industry rely on our STEM Integrity 10 Reaction Station to assure them of certain safety characteristics, guarding against rogue polymorphs which alter the physical properties of the drug.



### We can make bespoke apparatus

If you visit our website [www.electrothermal.com](http://www.electrothermal.com), you'll find a treasure trove of laboratory equipment- and if we haven't got it, but there's sufficient business justification, we can probably make it for you. Over the years, whilst the bulk of our business is off the shelf, we do still make bespoke pieces of apparatus.

### We make world-leading and well-loved products

One of our more unusual products (featured on our website) is used by the military to ensure that our troops get a hot drink and meal whilst encased inside the very cramped quarters of a tank, supply lorry or helicopter. Our Water and Ration Heater heats water and MREs (Meals Ready-to-Eat) whilst keeping a low thermal signature to protect against detection. It's very popular with both the UK and US armed forces, so much so that the US forces have affectionately re-named it as the "Combat Crock-Pot Morale Booster" and the UK forces similarly refer to it as the "Morale Booster"- quite an accolade for any product!



### We are committed to continuous improvement

Electrothermal are totally committed to continuous improvement. This applies to all areas of our business, whether they are new innovations, applications, territories and/or collaborations. Despite being a mature business, we're aiming for about 30% growth this year by expanding our reach and through new product launches, and early indications are that we'll achieve this.

### We have a global market presence

We will be at all the major international shows for our industry, such as Achema and Arablab, but will also be present at various international conferences, as we have an academic reference group of professors and doctors who are currently using our equipment. As Peter Day, our General Manager says: "It's always good to hear of these Professors' work using our products- not only because it's good for our business to have this level of product endorsement, but it's also making a genuine scientific contribution to the world".



# Our commitment to our customers

## Company statement

### We put our customers at the heart of our business

Electrothermal operate a very customer focussed approach to business. We recognise that satisfied customers tend to be loyal customers, so we work in a customer-centric way. Our open culture promotes immediate focus on any challenges to the business and we engage everyone by using clear visual tools to overcome barriers and reach our goals. All employees receive Practical Process Improvement (PPI) training and are engaged in both major and minor projects. We also use daily quick bite meetings (SQDIP) in each department to ensure an agile response to challenges we face.



### We measure customer satisfaction each and every day

Transparency is paramount to maintaining quality at Electrothermal, and so we have a balanced scorecard approach to running the business which is linked to simple visual metrics. We believe that our best measure that this works is given not by internal measurement, but by our customers, being evidenced by our many longstanding customers and also the growing number of new customers that are now using our products and services.

### We live by our values to deliver quality goods and service to you

Quality is not just a concept at Electrothermal, and we are reaping the benefits of this approach: We are one company that's reversing the current trend of imports into the UK and are actually exporting most of our goods, even to China and India. The best recipe for business longevity and success is to offer a wide choice of high quality goods, at a fair price and with exceptional customer service... and to consistently deliver these ingredients to you.



Peter Day neatly sums this up: "We do not have any tag lines or exhortations, but we do live and work by our values: Integrity, Focus, Commitment and Innovation."

## Our helplines

To ensure that we answer your queries promptly, we have set up different helplines:

- For general enquiries: [info@electrothermal.com](mailto:info@electrothermal.com)
- For product help: [help@electrothermal.com](mailto:help@electrothermal.com)
- For help with Integrity 6 & 10: [integrityhelp@electrothermal.com](mailto:integrityhelp@electrothermal.com)
- To place an order: [orders@electrothermal.com](mailto:orders@electrothermal.com)

Our full range of products may be seen on our website: [www.electrothermal.com](http://www.electrothermal.com)

Should you prefer to talk to us, we may be contacted on: [Tel: +44 \(0\)1702 303 350](tel:+44(0)1702303350)



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Apparatus

Metal Electromantles

Multi (Extraction) Mantles

STEM Omni Reaction Stations

STEM RS Reaction Stations

STEM Integrity 10 Reaction Station

Stirrers



Find out more!!!

Please scan the QR/Mobile Tag with your smartphone for more information

[www.electrothermal.com](http://www.electrothermal.com)

Bibby Scientific

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