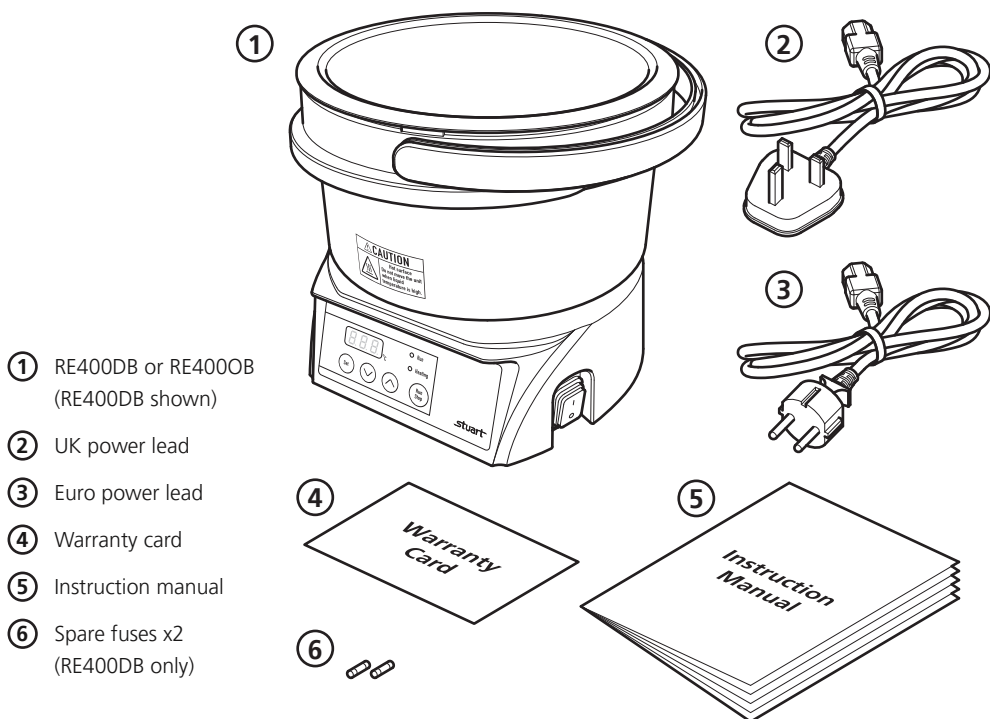


Instruction Manual
STU0001 / Version 1.1

Introduction

Thank you for purchasing this Stuart product. To get the best performance from the equipment, and for your own safety, please read these instructions carefully before use.

Before discarding the packaging check that all parts are present and correct.



Note: Additional packing material may be present.

This equipment is designed to operate under the following conditions:

- ❖ For indoor use only
- ❖ Use in a well ventilated area
- ❖ Ambient temperature range 5°C to 35°C (41°F to 95°F)
- ❖ Altitude to 2000 m (6500 ft)
- ❖ Relative humidity not exceeding 60% and free from condensation.
- ❖ Mains supply fluctuations not exceeding 10% of nominal
- ❖ Overvoltage category II IEC60364-4-443
- ❖ Pollution degree 2 IEC664
- ❖ Use with a minimum distance all round of 200 mm (8 in.) from walls or other items

If the equipment is not used in the manner described in this manual and with accessories other than those recommended by the manufacturer, the protection provided may be impaired.

General Description

Your Rotary Evaporator Bath has been designed to be used with the Stuart range of Rotary Evaporators. They are designed for general purpose laboratory use in which samples are gently heated in a Florentine flask to cause evaporation during rotation.

Important Safety Advice

This equipment is classified as Class 1 (IEC519:part 2) with regard to over temperature protection and should be used accordingly. Users should be aware of the following safety advice:

- ❖ **SHOCK HAZARDS OR UNSAFE PRACTICES ARE DANGEROUS** as they can cause severe personal injury, fire or death.
- ❖ **DO NOT** use combustible substances near hot objects.
- ❖ **DO NOT** use the equipment in hazardous atmospheres.
- ❖ **DO NOT** operate or handle any part of the product with wet hands or use on surfaces that may become flooded.
- ❖ **NEVER** move the product while still connected to the power supply.
- ❖ **HIGH TEMPERATURES ARE DANGEROUS** as they can cause serious burns to operators and ignite combustible material.
- ❖ **USE CARE AND WEAR PROTECTIVE GLOVES TO PROTECT HANDS.**
- ❖ **NEVER** lift or carry the instrument until it has been switched off and allowed to cool.
- ❖ **DO NOT** position the unit so that it is difficult to disconnect from the mains supply using the mains plug.
- ❖ The mains outlet socket used should be located close to the equipment and readily identifiable and accessible to users.
- ❖ **DO NOT** leave equipment switched on and it is not recommended to leave any heating apparatus unattended during operation.
- ❖ The unit should be carried using both hands.

Symbols Defined



WARNING



HOT
SURFACE



RISK OF
ELECTRIC SHOCK



EARTH



FIRE
HAZARD



BIOHAZARD

Electrical Requirements



THIS INSTRUMENT MUST BE GROUNDED

Before connection please ensure that the line supply corresponds to the power requirements below:

RE400DB	1400 W	230 V AC – 50Hz
RE400OB	1400 W	230 V AC – 50-60Hz

The unit is supplied with two mains leads fitted with IEC plugs for connection to the instrument. One lead has a UK 3 pin plug and the other has a 2 pin "Schuko" plug for connection to the mains supply. Choose the lead appropriate for your electrical installation and discard the other. Should neither lead be suitable take the lead with the UK plug and replace the plug with a suitable alternative. This involves cutting off the moulded plug, preparing the cable and connecting to the rewirable plug in accordance with its instructions.

THIS OPERATION SHOULD ONLY BE UNDERTAKEN BY A QUALIFIED ELECTRICIAN.

NOTE: Refer to the equipment rating plate to ensure that the plug and fusing are suitable for the voltage and wattage stated. The wires in the mains cable are as follows:

BROWN - HOT/LIVE

BLUE - NEUTRAL

GREEN/YELLOW – EARTH

The appropriate mains lead should be connected to the instrument BEFORE connection to the mains supply. Should the mains lead require replacement, a cable of 1.25mm² (AWG16) of harmonised code H05VV-F connected to an IEC320 plug should be used.



IF IN DOUBT CONSULT A QUALIFIED ELECTRICIAN

Before Use

Place the Rotary Evaporator Bath on a firm, level surface.



Caution: The Bath may be HOT. As a precaution for the user, take care when handling.

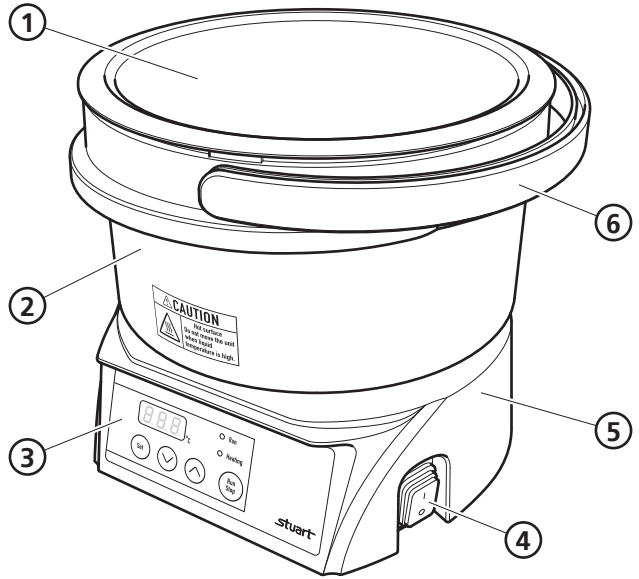
NOTE: If the unit has been used recently the bath may be too hot for your sample. If this is the case, press the stop button and allow the unit to cool before proceeding.

Operation

RE400DB Overview

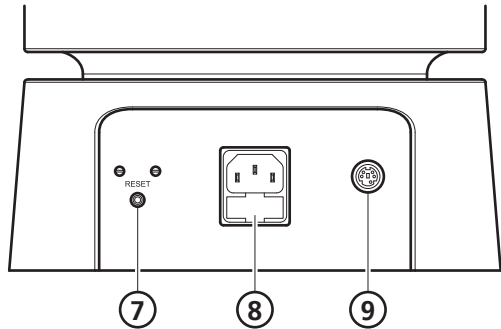
Main View

- ① Bath
- ② Bath cover
- ③ Control panel
- ④ Power switch
- ⑤ Bath base
- ⑥ Handle



Rear View

- ⑦ Reset button for over temperature protector
- ⑧ Fused IEC connector
- ⑨ Service connector



RE400DB

The RE400DB is intended for use with water only.



WARNING: DO NOT use the RE400DB with any liquid other than water.

May cause fire on failure.

Fill the Teflon coated bowl to the required level with cold water. To avoid scale build up and the necessity for cleaning it is recommended that the bowl be filled with distilled or deionised water.

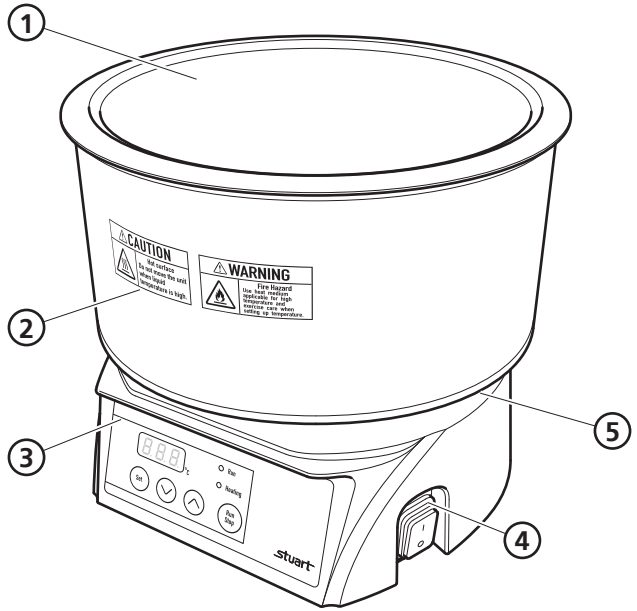
The maximum capacity of the bath is 3 litres and it should not be filled to within less than 2cm from the top of the bowl.

During use water will be lost from the bath by evaporation. For maximum efficiency water should be added periodically and the level maintained.

RE400OB Overview

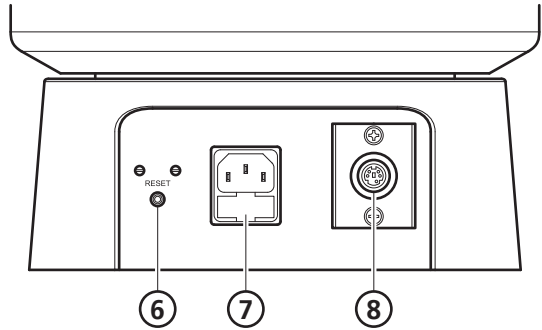
Main View

- ① Bath
- ② Bath cover
- ③ Control panel
- ④ Power Switch
- ⑤ Bath Base



Rear View

- ⑥ Reset button for over temperature protector
- ⑦ Fused IEC connector
- ⑧ Service connector



RE400OB

The RE400OB is intended for use with either oil or water.



WARNING: Oil and water should never be mixed in the bath.

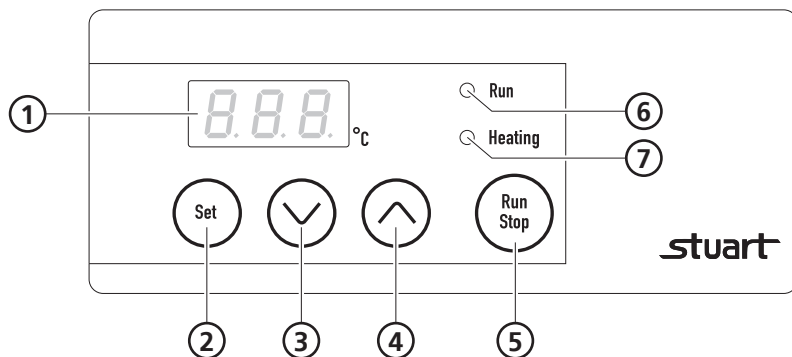
Water will evaporate in an explosive manner if it mixes with oil at a temperature of more than 100°C.

Fill the Teflon coated bowl to the required level with either oil or water.

The maximum capacity of the bath is 2 litres and it should not be filled to within less than 2cm from the top of the bowl.

If being used with water, during use water will be lost from the bath by evaporation. For maximum efficiency water should be added periodically and the level maintained.

RE400DB and RE400OB Control Panel



- ① Display - Temperature is displayed. Alarm is displayed when an abnormal condition occurs.
- ② Set - Use to switch between temperature setting and measurement mode.
- ③ Down key - Press to decrease temperature by 1°C. Press and hold to continually decrease value.
- ④ Up key - Press to increase temperature by 1°C. Press and hold to continually increase value.
- ⑤ Run/Stop - Use to switch between start/stop temperature control.
- ⑥ Run light - Comes on when temperature control is started.
- ⑦ Heating light - Comes on when the heater is supplied with power.

Operation - RE400DB and RE400OB

- ❖ Turn the power switch ON, the current bath temperature will be displayed. The factory setting is 25°C, after initial use the set temperature will be the last used temperature.
- ❖ To set the bath temperature press the **Set** key once, this enables temperature input mode, during this mode the display blinks. Use the **^** and **v** keys to set the desired bath temperature. Each press of the **^** or **v** key will increase or decrease the set temperature by 1°C. Press and hold the **^** or **v** key to continually increase or decrease the value.
- ❖ Press the **Set** key to return to measuring mode or after 10 seconds without a key press the display will go back to measurement mode, press **Set** key to re-enter input mode.
- ❖ Pressing the **Run/Stop** key starts temperature control at the set temperature.
- ❖ Be sure to press the **Run/Stop** key to stop temperature control before turning the power switch off. If the power is turned OFF during Run state, the heater will turn on at the same time the unit is next turned on and an accident could occur.
- ❖ This product has a power outage recovery function.

Setting the alarm function - RE400DB and RE400OB

You can set the upper temperature limit alarm $A-0$ or the power outage recovery function $A-4$.

$A-0$ is the upper temperature limit alarm function.

$A-4$ is the power outage recovery function.

- ❖ Press the **Set** key to switch to measurement mode.
- ❖ Hold the **Set** key for 5 seconds to enter alarm function setting mode, $A-0$ is displayed. Press the Up or Down key to switch between the different alarm functions.
- ❖ When you have set the required alarm function, hold the **Set** key for 5 seconds to return to the measurement mode.

Setting the upper temperature limit alarm - RE400DB and RE400OB

- ❖ Ensure that $A-0$ is displayed.
- ❖ Press the \wedge and \vee key to set the upper temperature limit. Each press of the \wedge or \vee key will increase or decrease the set temperature by 1°C. Press and hold the \wedge or \vee key to continually increase or decrease the value. Upper temperature limit setting range +10°C~200°C. The factory setting is 200°C.
- ❖ Press the **Set** key to return to alarm function setting mode, the setting of the upper temperature limit alarm is completed, $A-0$ will be displayed.
- ❖ Hold the **Set** key for 5 seconds to return to the measurement mode.

Setting the power outage recovery function - RE400DB and RE400OB

You can choose whether temperature control will be resumed when power is turned on again after a power outage by setting the power outage recovery function to on or off .

on , temperature control will resume after the power is restored in the state immediately before the recovery.

off , temperature control will stop irrespective of the state before the recovery.

- ❖ Ensure that $A-4$ is displayed.
- ❖ Press the \wedge or \vee key to switch between on or off . The factory setting is on .
CAUTION: If you have set the function to on , remember that once power is restored after a power cut the unit will automatically turn on.
- ❖ Press the **Set** key to return to alarm function setting mode, the setting of the power outage recovery function is completed, $A-4$ will be displayed.
- ❖ Hold the **Set** key for 5 seconds to return to the measurement mode.

Overheat protector reset procedure - RE400DB and RE400OB

When the overheat protector has been activated the power switch is ON but the display is OFF.

- ❖ Turn the power switch OFF.
- ❖ Confirm why the overheat protector has been activated (eg bath was heated without oil/water or external temperature exceeds 35°C) and make sure that the inside of the bath has sufficiently cooled down and press the '**RESET**' button on the rear of the unit.
- ❖ Turn the power switch ON. The display comes on and temperature control starts. Run light is on.

If it is not possible to reset the overheat protector switch stop operation and contact a local service representative.

Maintenance, Servicing and Cleaning



HOT: Before attempting any maintenance, servicing or cleaning, ensure that the unit is cool, and disconnect from the power supply.

WARNING: Ensure the unit is disconnected from the power supply before attempting any maintenance, servicing or cleaning.

This product range does not require any routine servicing and there are no servicable parts within the equipment. The only user maintenance required is the inspection of the power supply unit and mains power lead set.

With proper care and operation, the equipment should give reliable service, however contamination or general misuse may reduce the effective life of the product and could cause a hazard.

Where used with water, periodically de-scale the bath using a domestic kettle descaler suitable for metal kettles. Follow the instructions for use supplied with the descaler.

The water bath should be thoroughly rinsed before returning to use. Alternatively use a mild detergent to clean the bath. Take care not to damage the Teflon coating during cleaning.

WARNING: Observe any cautionary note on the cleaner regarding protective clothing and effluent control.

The exterior of the unit should be cleaned using damp cloth and a mild detergent solution.

Preventative maintenance should include keeping the product clean by protecting it from spillage, contamination or corrosive environments. If in doubt, please confirm that any intended method of decontamination will not damage the equipment by contacting Cole-Parmer.

NOTE: Do not use solvents for cleaning any parts of this equipment.

In Case of Accidental Spillage



WARNING: DO NOT TOUCH IF A SPILLAGE/BREAKAGE HAS OCCURRED. DISCONNECT THE POWER DIRECTLY AT THE POWER SUPPLY SOURCE.

If any part of the equipment other than the bath has been exposed to liquid, it cannot be assumed to meet all the safety requirements of EN 61010-2-010 until the drying out process has been fully completed and all safety requirements are met before the unit is used again.

In Case of Contamination



WARNING: THE FOLLOWING PROCEDURE IS INTENDED AS A GUIDE. SHOULD SPILLAGE OF A TOXIC OR HAZARDOUS FLUID OCCUR, THEN ADDITIONAL SPECIAL PRECAUTIONS MAY BE NECESSARY.

If the equipment has been exposed to contamination, the Responsible Body is responsible for carrying out appropriate decontamination. If hazardous material has been spilt on or inside the equipment, decontamination should only be undertaken under the control of the Responsible Body with due recognition of possible hazards. Before using any cleaning or decontamination method, the Responsible Body should check with the manufacturer that the proposed method will not damage the equipment. Prior to further use, the Responsible Body shall check the electrical safety of the unit. Only if all safety requirements are met can the unit be used again.

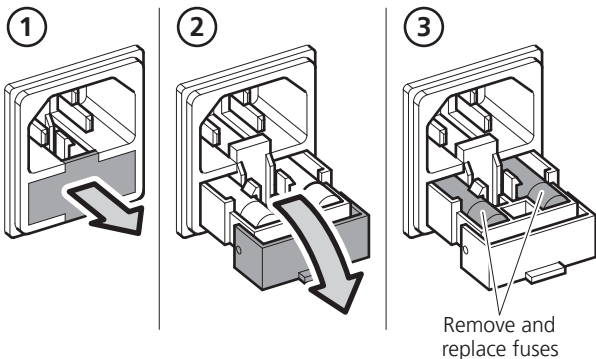
NOTE: In the event of this equipment or any part of the unit becoming damaged or requiring service, the item(s) should be returned to the manufacturer for repair accompanied by a decontamination certificate. Copies of the Certificate are available from the Distributor/Manufacturer.

At the end of its service life, the product must be accompanied by a Decontamination Certificate.

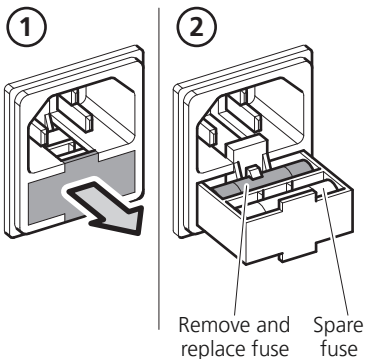
Fuse Replacement

The mains fuse holder is located at the rear of your product. Refer to Electrical Specification (page 11) for correct fuse type and rating. Turn your unit off and disconnect it from the power supply. Always replace fuses with the correct type and rating.

RE400DB



RE400OB



Repairs and Support

Any repairs or replacement of parts **MUST** be undertaken by suitably qualified personnel. Only spare parts supplied or specified by Cole-Parmer or its agents should be used. Fitting of non-approved parts may affect the performance and safety features designed into the instrument. For a comprehensive list of parts required by service engineers conducting internal repairs please contact the service department quoting the model and serial number:

Email: cpSERVICE@coleparmer.com

Tel: +44 (0)1785 810475

For any other technical enquiries please contact the Technical Support Department at:

Email: cpTECHSUPPORT@coleparmer.com

Tel: +44 (0)1785 810433

Warranty

Cole-Parmer Ltd. warrants this instrument to be free from defects in material and workmanship, when used under normal laboratory conditions, for a period of 3 years. In the event of a justified claim Cole-Parmer will replace any defective component or replace the unit free of charge. This warranty does NOT apply if damage is caused by fire, accident, misuse, neglect, incorrect adjustment or repair, damage caused by incorrect installation, adaptation, modification, fitting of non-approved parts or repair by unauthorised personnel.

Cole-Parmer Ltd,
Beacon Road,
Stone,
Staffordshire,
ST15 0SA,
United Kingdom

Email: cpSERVICE@coleparmer.com

Tel: +44 (0)1785 810475

Web: www.stuart-equipment.com

Spares and Accessories

Part No.	Description	Quantity
HH179(S)	UK mains lead moulded plug 230 V - 10A BS1363/A	1
HH180(S)	European mains lead moulded plug 230 V	1

Replacement fuses can be ordered by contacting cpspars@coleparmer.com. Please refer to Electrical Specification (page 11) for correct fuse type and rating.

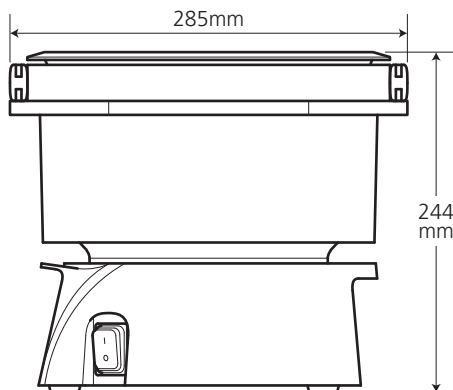
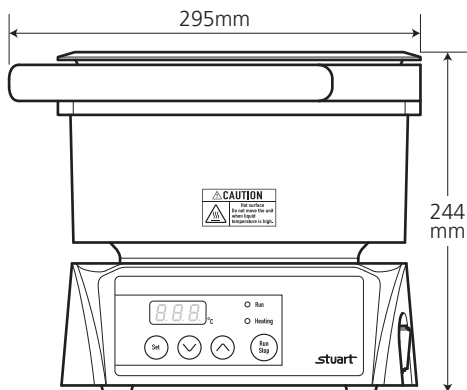
Technical Specification

General Specification	RE400DB	RE400OB
Safety functions	Overheat preventive device Fuse Heat insulation protective bath cover Self diagnostics function	
Bath cover	PET (with glass fiber)	PBT (with glass fiber)
Bath material	SUS304	Aluminium, teflon coating
Bath capacity	Approx. 4.3 litres	Approx. 5 litres
Size of bath (internal)	Ø220 x H120mm	Ø240 x H120mm
Container capacity	Max. 2 litres	Max. 3 litres
External dimensions	W285 x D295 x H244mm	W282 x D282 x H244mm
Weight	3.9kg	4.5kg
Temperature display range	0°C to 210°C	
Display resolution	1°C	
Accuracy	± 1°C (during stirring)	± 3°C (during stirring) Oil ± 1.5°C (during stirring) Water
Ramp rate	Increments of 1°C	
Ceiling temperature setting	+10°C to 120°C	+10°C to 200°C
Display	Digital Display	
Control Sensor	PT sensor	

Electrical specification	RE400DB	RE400OB
Fuse Type	T8A 5 x 20 Glass Slow blow	
Total power consumption	1400W	
Temperature control	P.I.D.	
Oven operating temperature range	Ambient +10°C to 90°C	Ambient +5°C to 180°C Oil Ambient +5°C to 80°C Water
Power supply PSU When ordering a replacement PSU, always quote the instrument's serial number.		
Electricity supply	230 V ~ 50Hz - 6A	230 V ~ 50/60Hz - 6A

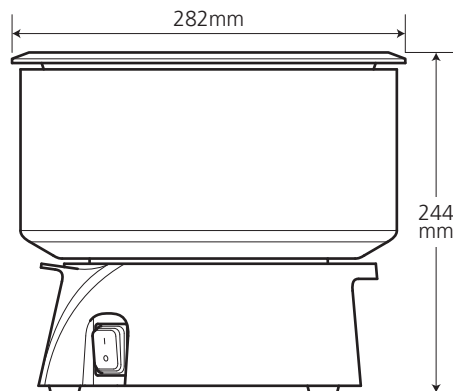
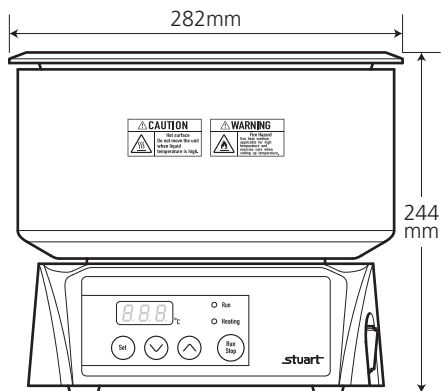
Weights and Dimensions

RE400DB



Weight 3.9kg

RE400OB



Weight 4.5kg

Fault Finding

Problem	Cause	Solution
Display does not work even if the power is switched on.	No mains power.	Check mains power supply.
	Fuse has blown.	Replace the fuse, if fuse blows again immediately stop operation and contact a local service representative.
	Overheat protection has tripped either because bath was heated without oil/water or external temperature exceeds 35°C.	Turn off the power switch and allow the unit to cool. Press the reset switch on the back of the unit. Turn the power switch back on. If overheat trips again contact a local service representative.
	The power switch is malfunctioning	Stop operation and contact a local service representative.
Temperature does not increase. Run light is on and Heating light is off.	Temperature has not been set.	Change the set temperature.
	Set temperature is below current bath temperature.	
Temperature does not increase. Run light is off and Heating light is on.	The Run/Stop key is not pressed.	Press the Run/Stop key to start temperature control
Temperature increases. Heating light is off.	Set temperature is too low.	Set the temperature to 5°C above ambient temperature.
	External temperature is too high.	Set the temperature to higher than the ambient temperature.
	SSR is malfunctioning	Stop operation and contact a local service representative.
Temperature does not increase. Heating light is on.	Heater is disconnected, or the terminal of the heater is off.	Stop operation and contact a local service representative.
	Temperature controller is impaired.	
	SSR is malfunctioning	
Temperature control sensor alarm. Display shows F-1 .	Temperature control sensor has shorted.	Stop operation and contact a local service representative.
	Temperature control sensor is disconnected.	
Upper temperature limit alarm works. Display alternates between A-0 and 125 (liquid temperature).	Measured value exceeds maximum temperature.	Check the upper temperature limit. Adjust the liquid and ambient temperature so that the measured temperature will meet the upper temperature limit.
	Heater is disconnected, or the terminal of the heater is off.	Stop operation and contact a local service representative.
	SSR is malfunctioning	
	Temperature controller is impaired.	

<p>Lower temperature limit alarm works. Display shows ---.</p>	<p>Ambient temperature is lower than 0°C Measured temperature is lower than 0°C</p>	<p>Adjust the ambient temperature to between 5°C and 35°C.</p>
<p>Power outage recovery alarm. Display alternates between A-4 and 25 (liquid temperature). Differs depending on the setting.</p>	<p>Power was shut off during temperature control and power was turned on again</p>	<p>Press the Set key to clear display.</p> <p>Set the temperature control to stop or continue during alarm display by setting on or off in the power outage recovery function.</p> <p>If you can not clear the display with the Set key or on or off in the power outage recovery function, stop operation and contact a local service representative.</p>
<p>Display flashes 888</p>	<p>Temperature sensor id disconnected or the terminal of the sensor is off.</p>	<p>Stop operation and contact a local service representative.</p>



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

and so we cannot guarantee that interference will not occur in practice. Where there is a possibility that injury, damage or loss might occur if equipment malfunctions due to radio frequency interference, or for general advice before use, contact the manufacturer.



EU Declaration of Conformity

Product	Laboratory Equipment	File Number	P225
Manufacturer	Cole-Parmer Ltd Beacon Road Stone, Staffordshire ST15 0SA United Kingdom		

This declaration of conformity is issued under the sole responsibility of the manufacturer

Object of Declaration Digital Water baths - RE Range
(reference the attached list of catalogue numbers)

The object of the declaration described above is in conformity with the relevant Union Harmonisation Legislation:

Low Voltage Directive	2014/35/EU
EMC Directive	2014/30/EU
RoHS Directive	2011/65/EC

References to the relevant harmonised standards used or references to the other technical specifications in relation to which conformity is declared:

IEC/EN 61010-1:2010	Safety requirements for electrical equipment for measurement, control and laboratory use. Part 1: General requirements.
IEC/EN 61010-2-010:2014	Particular requirements for laboratory equipment for the heating of materials.
IEC/EN 61326-1:2013	Electrical equipment for measurement, control and laboratory use. EMC requirements. Part 1: General requirements.

Signed for and on behalf of the above manufacturer

Additional Information Year of CE Marking: December 2016

Place of Issue Stone, Staffordshire, UK

Date of Issue 14 June 2017

Authorised Representative Steve Marriott

Title Technical Director

Signature



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