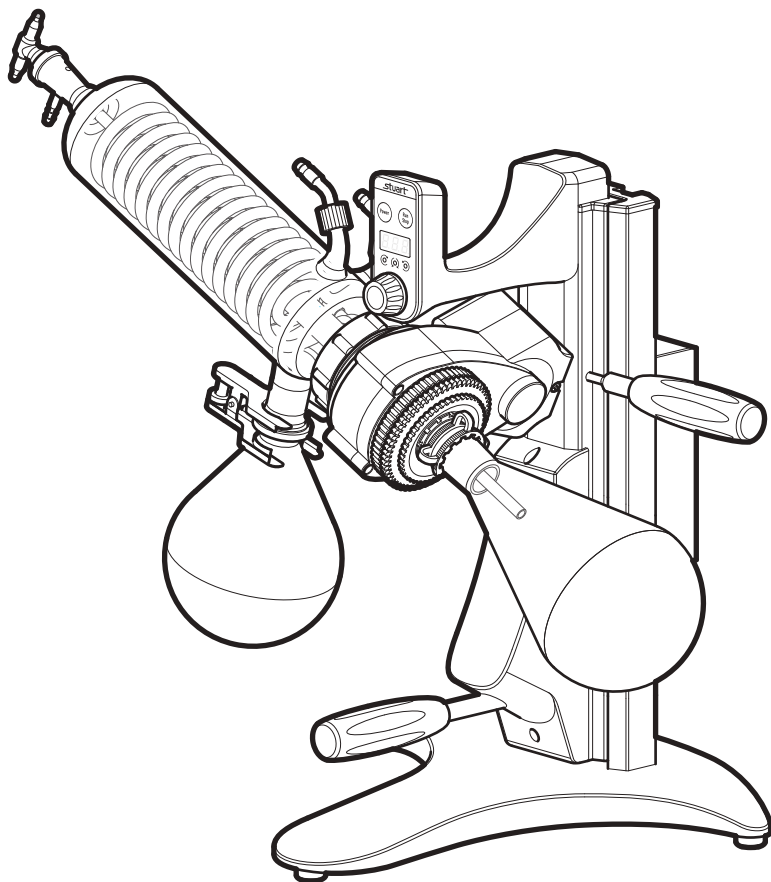




Rotary Evaporator
RE400, RE400P
RE401, RE401P
RE402 & RE402P



Instruction Manual
STU0002 / Version 1.1

Section 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.

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.

1.1 General Description

A Rotary Evaporator is a distillation unit that incorporates an efficient condenser with a rotating sample flask. As the flask containing the solvent is rotated, it continually transfers a thin layer of liquid over the entire inner surface. This gives a very large surface area for evaporation, the sample or Florentine flask can additionally be heated by an accessory bath to accelerate the process. The entire system has been designed to be vacuum tight, an accessory vacuum pump can be connected to reduce the overall pressure and hence the boiling point of your sample.

1.2 Important Safety Advice

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 equipment with wet hands or use on surfaces that may become flooded.
- ❖ **NEVER** move the equipment 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 equipment during operation.
- ❖ **DO NOT** position the equipment 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 equipment should be carried using both hands.
- ❖ If the jacking mechanism is to be raised without the glassware fitted great care must be taken. Without the weight of the glass the jack will rise rapidly and can cause damage to the mechanism. Unlock the jack carefully while applying downward pressure to control the movement.
- ❖ As the equipment is likely to be used under vacuum, before operation, examine all glassware carefully for scratches or chemical etching. Use of damaged glassware under vacuum could result in an implosion. It is recommended the equipment is operated behind a safety screen
- ❖ The equipment is fitted with a power outage recovery mode. In case of mains interruption you can choose if you want the rotation to continue or stop once the power is restored, see section 3.4. In case of fault or mechanical failure the equipment will NOT continue to operate on removal of fault.

1.3 Symbols Defined



1.4 Electrical Requirements



THIS INSTRUMENT MUST BE GROUNDED

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

Model	Power	Supply requirements
RE400/P	8 W	100 V - 230 V ~ 50/60 Hz
RE401/P	8 W	100 V - 230 V ~ 50/60 Hz
RE402/P	8 W	100 V - 230 V ~ 50/60 Hz

The equipment is provided with a power supply unit and three power cables consisting of a UK 3-pin and a “Schuko” 2-pin plug for 230 V installations and a NEMA 5-15 plug for 120V installations.

Choose the power cable appropriate for your electrical installation and discard the others. Should none of the power cables be suitable for connecting to the power supply, replace the plug with a suitable alternative.

There are 2 power sockets on the rear of the stand, either of which may be used. The spare power socket must not be used with any other product, this is to avoid accident or malfunction.

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:

230 V a.c.	120 V a.c.
HOT/LIVE - BROWN	BLACK - HOT/LIVE
NEUTRAL - BLUE	WHITE - NEUTRAL
EARTH - GREEN/YELLOW	GREEN - EARTH

The appropriate power cable and power adaptor combination should be connected to the equipment BEFORE connection to the mains supply.

Should the mains lead require replacement please contact cpspares@coleparmer.com.

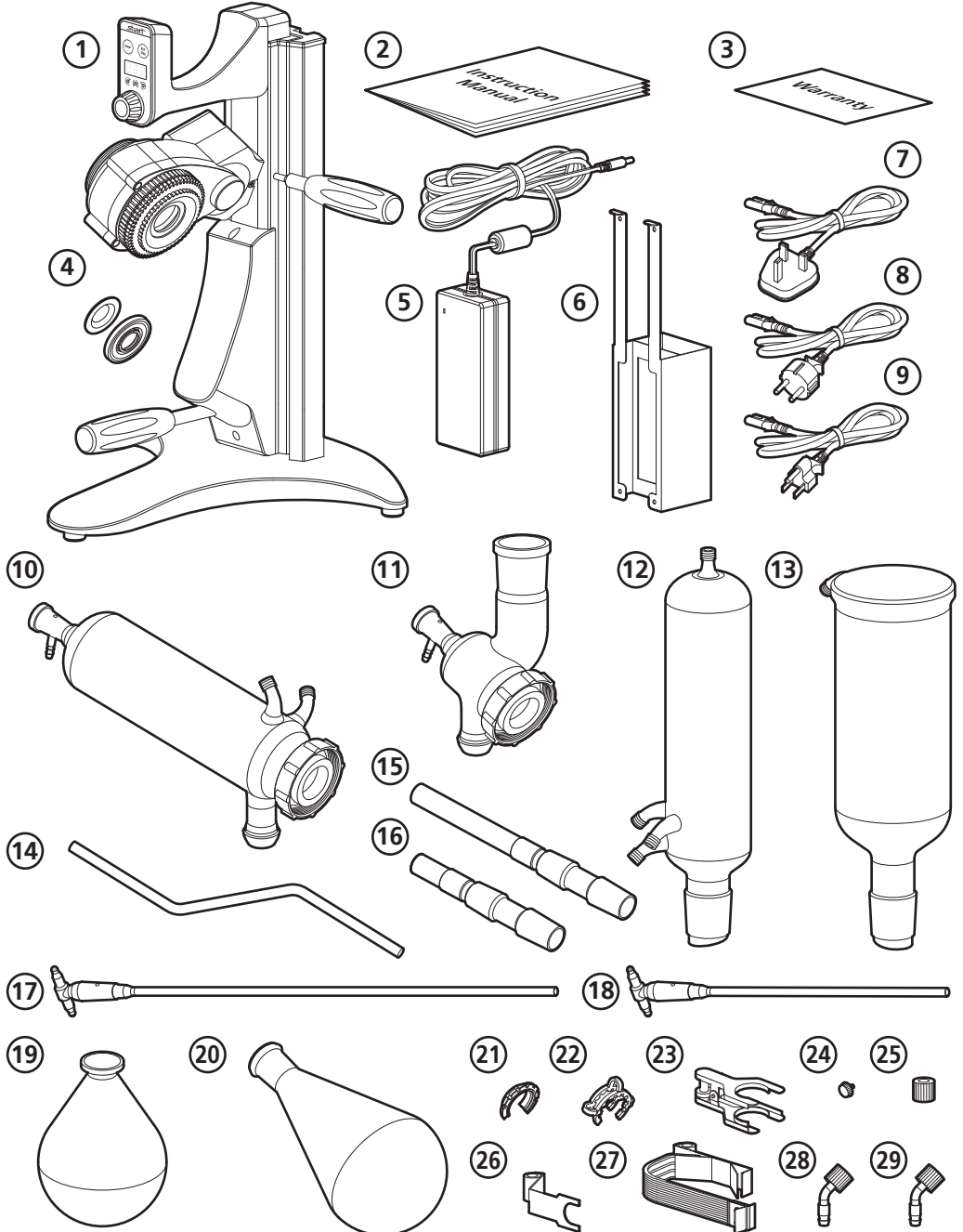


IF IN DOUBT CONSULT A QUALIFIED ELECTRICIAN

Section 2 - Installation

2.1 Unpacking

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



Ref. No.	Description	 RE400/P	 RE401/P	 RE402/P
1	Stand	x1	x1	x1
2	Instruction manual	x1	x1	x1
3	Warranty	x1	x1	x1
4	Vacuum seal	x1	x1	x1
5	Power supply unit	x1	x1	x1
6	Power supply holder	x1	x1	x1
7	UK Power lead	x1	x1	x1
8	EU Power lead	x1	x1	x1
9	US Power lead	x1	x1	x1
10	Diagonal condenser	x1	-	-
11	Condenser adaptor	-	x1	x1
12	Vertical condenser	-	x1	-
13	Cold finger condenser	-	-	x1
14	Support bar	-	x1	x1
15	Vapour tube for diagonal condenser	x1	-	-
16	Vapour tube for vertical and cold finger condenser	-	x1	x1
17	Feed tube for diagonal condenser	x1	-	-
18	Feed tube for vertical and cold finger condenser	-	x1	x1
19	Receiving flask, 1l	x1	x1	x1
20	Florentine flask, 1l	x1	x1	x1
21	Retaining clip	x1	x1	x1
22	Conical joint clip	x1	x1	x1
23	Spherical joint clip	x1	x1	x1
24	Thumb screw	-	x3	x3
25	Screw plug	-	x1	-
26	Support bar clamp	-	x1	x1
27	Clamp	-	x1	x1
28	Vacuum nozzle (white)	x1	x1	x1
29	Cooling nozzle (grey)	x2	x2	-

2.2 Installation Conditions

This equipment is designed to operate safely under the following conditions:

- ❖ For indoor use only
- ❖ Use in a well ventilated area
- ❖ Ambient temperature range 5°C to 40°C (41°F to 104°F)
- ❖ Altitude to 2000m (6500 ft)
- ❖ Relative humidity not exceeding 80% (temperature 31°C) decreasing to 50% (temperature 40°C) 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 300mm (12in.) from walls or other items

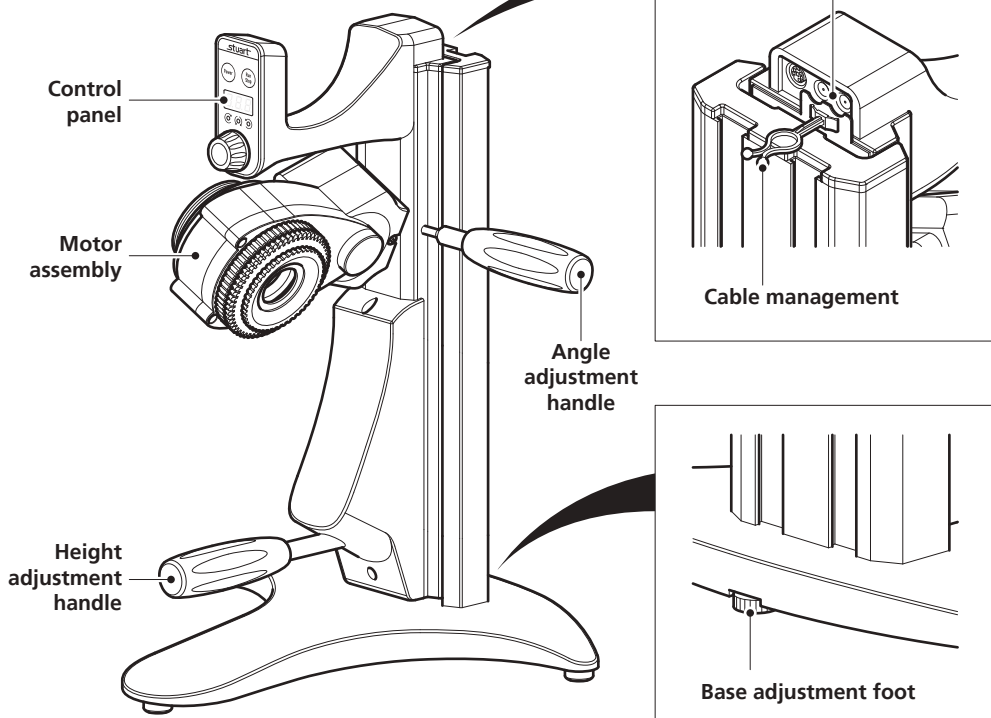
Place the equipment on a clean, firm, level surface which is free from drafts. Avoid installation on a slippery surface or on a surface prone to vibration or on a surface prone to flooding. You will require easy access to power, water supply, drain and vacuum line to use your rotary evaporator.

In order to allow the glassware to be raised and lowered, a minimum headroom of 710mm is required for the RE400/P and 1030mm for the RE401/P and RE402/P.



The plastic coated glassware used on products RE400P, RE401P and RE402P is limited to 80°C and therefore unsuitable for use with the RE400OB and other oil baths. Ensure you use a suitable bath for your glassware.

2.3 Overview



2.4 Assembly



If the jacking mechanism is to be raised without the glassware fitted, great care must be taken. Without the weight of the glass the jack will rise rapidly and can cause damage to the mechanism. Unlock the Height adjustment handle carefully while applying downward pressure to control the movement.



See the table below for the steps required to assemble your RE400/P, RE401/P or RE402/P

	Step 1	Step 2	Step 4	Step 5	Step 6	Step 7	Step 8	Step 9	Step 10	Step 11	Step 12	Step 13	Step 14	Step 15
RE400/P	✓	✓	✓	✓	✓	✓	✓	✓	✓	-	-	-	✓	✓
RE401/P	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
RE402/P	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

2.4.1 Step 1

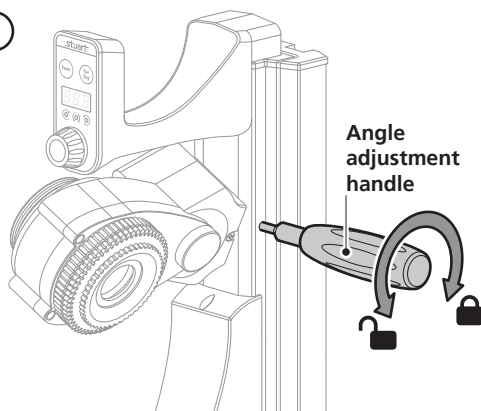
Use the base adjustment foot at the back of the stand to adjust the level. Turning the foot anti-clockwise will lower the stand, turning the foot clockwise will raise the stand.

2.4.2 Step 2

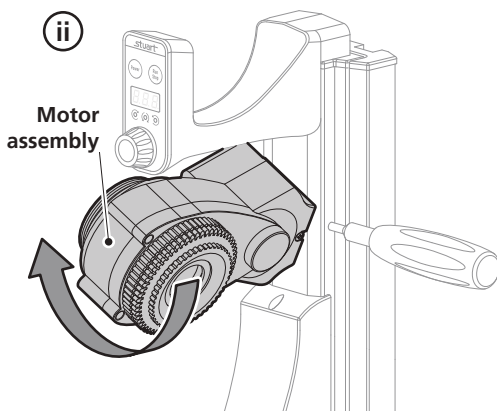
The rotary evaporator is set up so that the florentine flask will be on the right hand side when fully assembled. If you require the florentine flask to be on the left hand side you will have to rotate the **Motor assembly**. To do this turn the **Angle adjustment handle** anti-clockwise 5 full 360° turns to unlock and then rotate the **Motor assembly** clockwise as far as it will go, when the **Motor assembly** is in the correct position turn the **Angle adjustment handle** clockwise to lock.

NOTE: Right hand assembly is shown for illustrative purposes. Assembly is the same process if the florentine flask is on the left or right hand side.

i

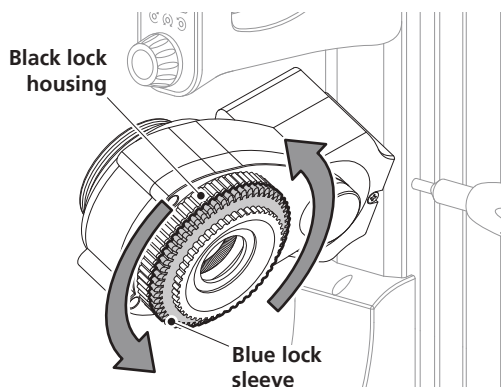


ii



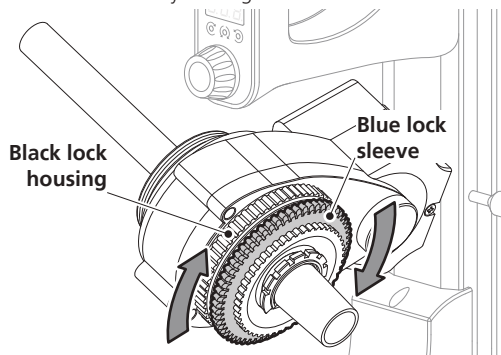
2.4.3 Step 3

Hold the **Black lock housing** securely and loosen the **Blue lock sleeve** by turning anti-clockwise by 360°.



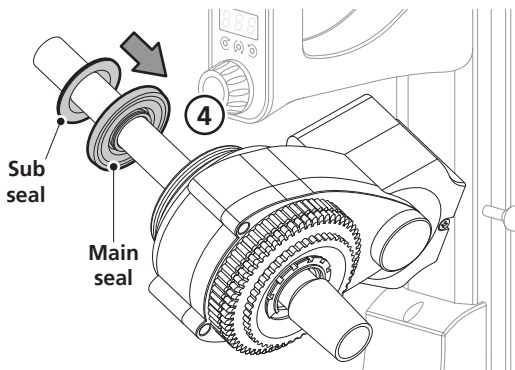
2.4.5 Step 5

Hold the **Black lock housing** securely and tighten the **Blue lock sleeve** by turning clockwise.



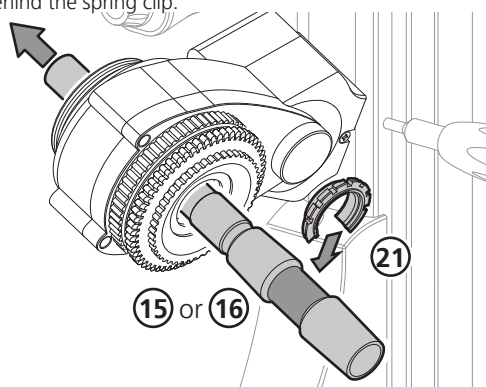
2.4.7 Step 7

The **Vacuum seal** (4) consists of a main and sub seal. Push the **Main seal** and **Sub seal** onto the **Vapour tube** as far as they will go.



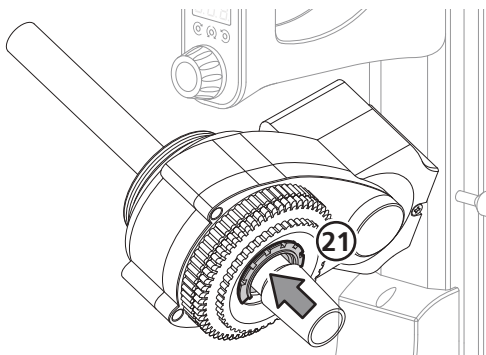
2.4.4 Step 4

Clip the **Retaining clip** (21) onto the **Vapour tube** (15) or (16) and insert the vapour tube into the motor assembly and push into position until it locates firmly behind the spring clip.

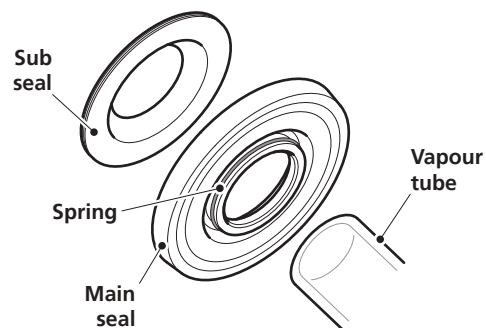


2.4.6 Step 6

Push and click the **Retaining clip** (21) into position.



NOTE: Make sure you have fitted the **Main seal** and **Sub seal** in the correct orientation to avoid damage. Ensure the **Spring** side of the main seal is facing towards the **Vapour tube**.

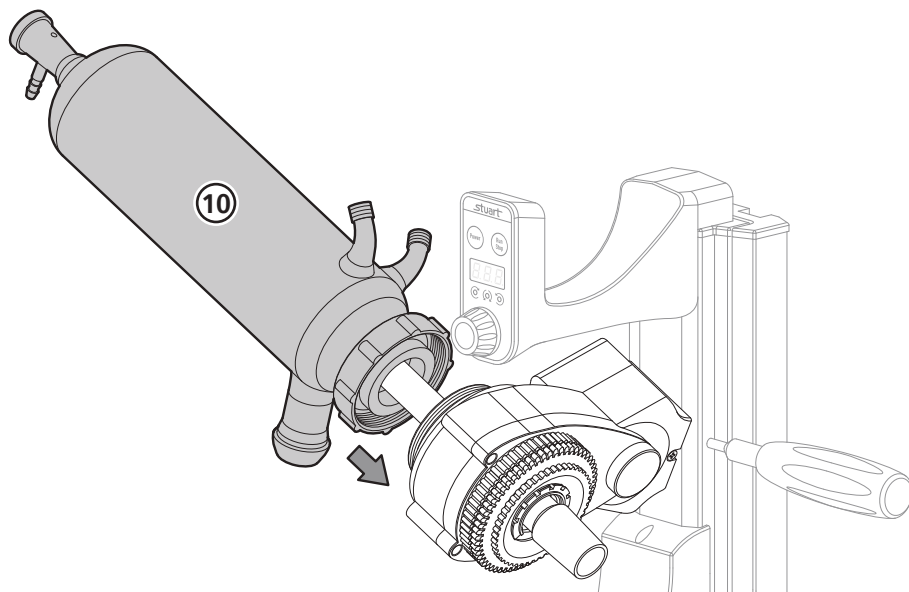


2.4.8 Step 8

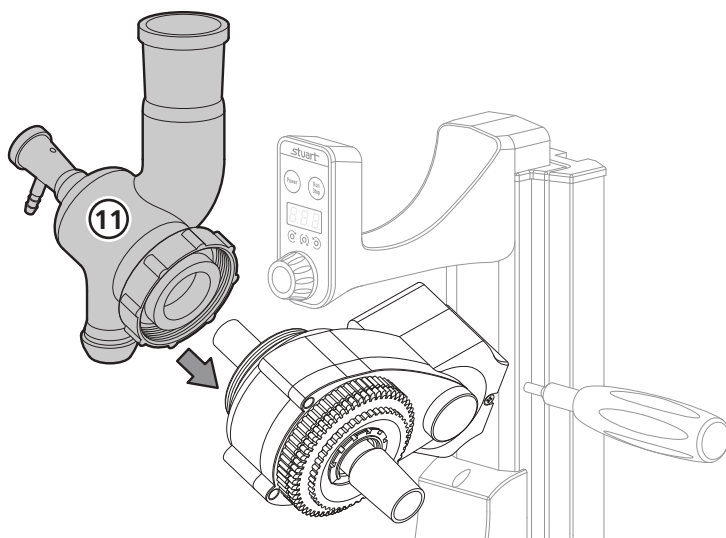
Place the **Diagonal condenser** (10) (RE400/P) or the **Condenser adaptor** (11) (RE401/P and RE402/P) over the vapour tube so that it butts up to the vacuum seal. Ensure the spherical joint points downwards and support the diagonal condenser as you screw the retaining cap onto the motor assembly.

NOTE: Check that the vapour tube is central through the diagonal condenser (RE400/P) and doesn't foul the diagonal condenser cooling coil. Look down the end of the diagonal condenser to check that no fouling occurs.

RE401/P

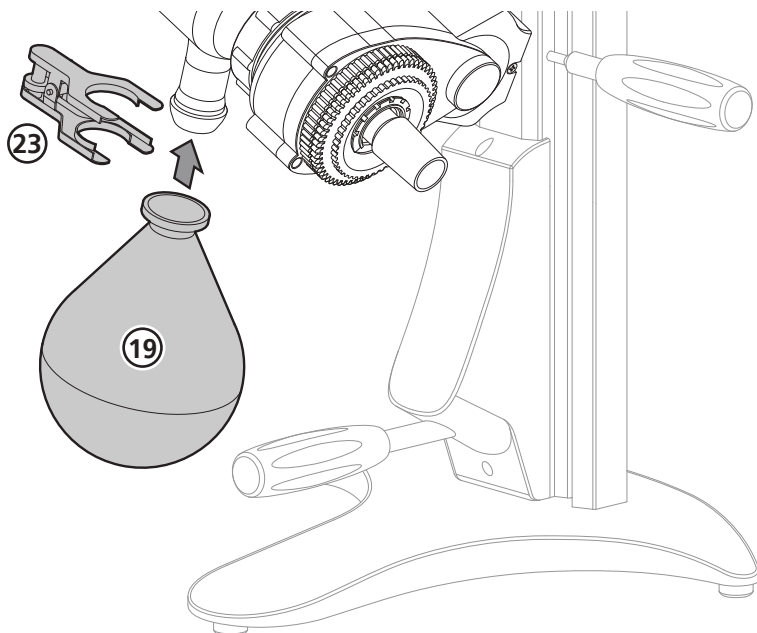


RE401/P and RE402/P



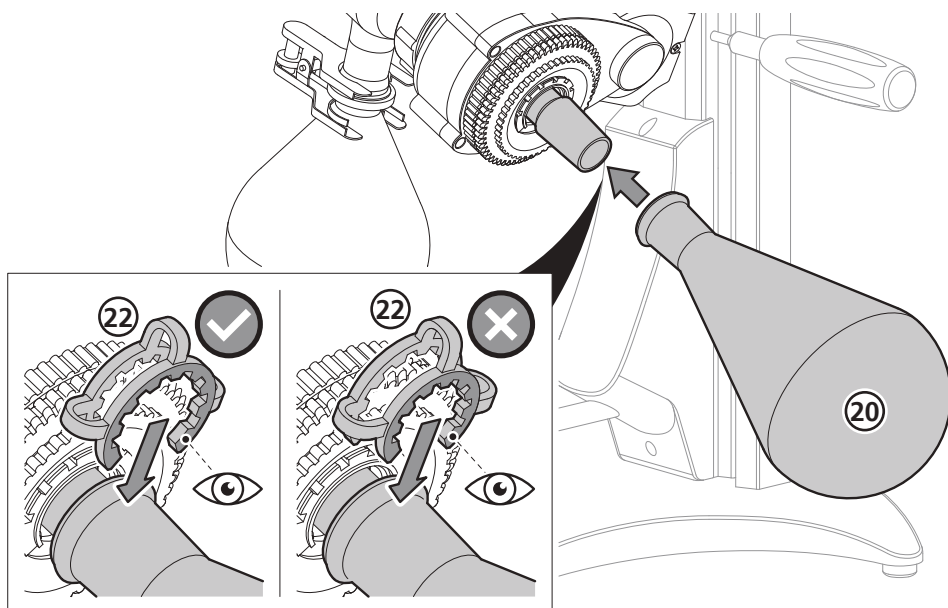
2.4.9 Step 9

Attach the **Receiving flask (19)** using the **Spherical joint clip (23)**.



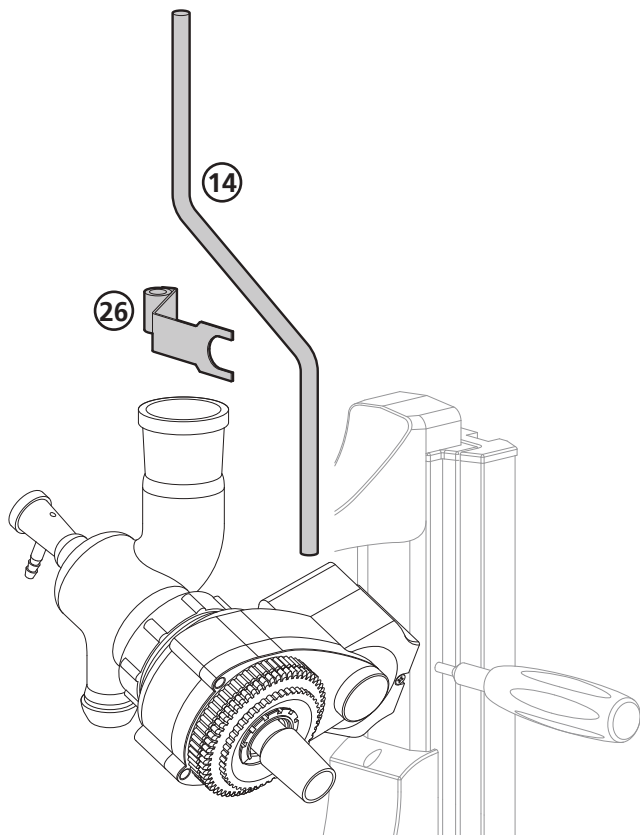
2.4.10 Step 10

Place the **Florentine flask (20)** over the vapour tube and secure with the **Conical joint clip (22)**. Ensure you fit the conical joint clip the correct way to prevent damage.

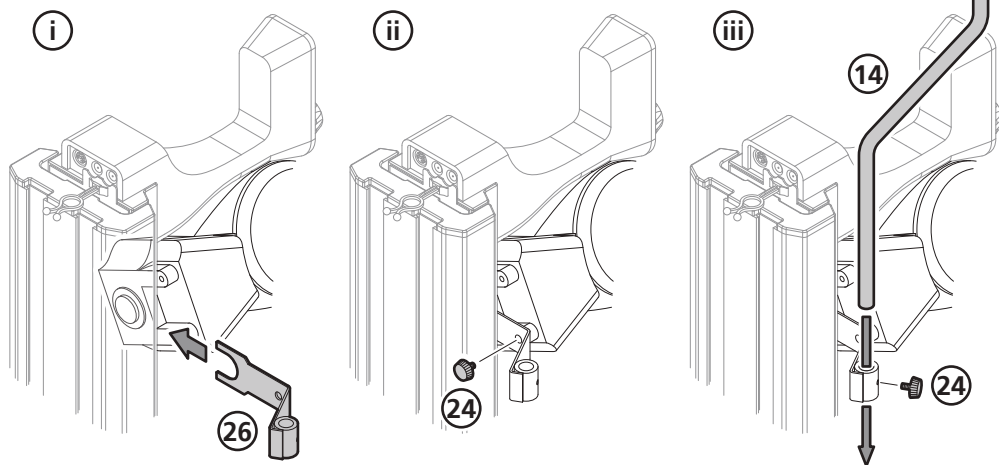


2.4.11 Step 11

Attach the **Support bar clamp** (26) and **Support bar** (14).



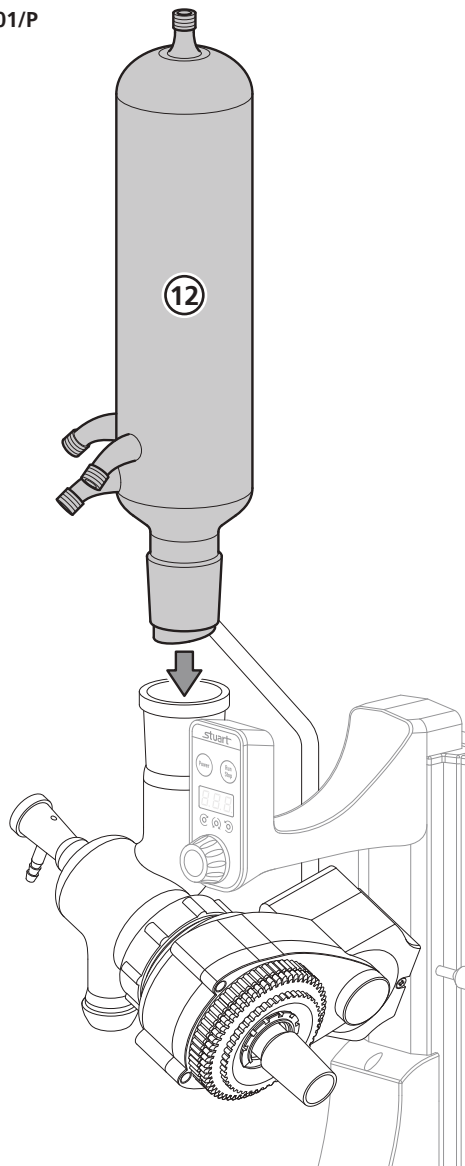
Use **Thumb screws** (24) to attach the **Support bar clamp** (26) and **Support bar** (14) to the rear of the stand.



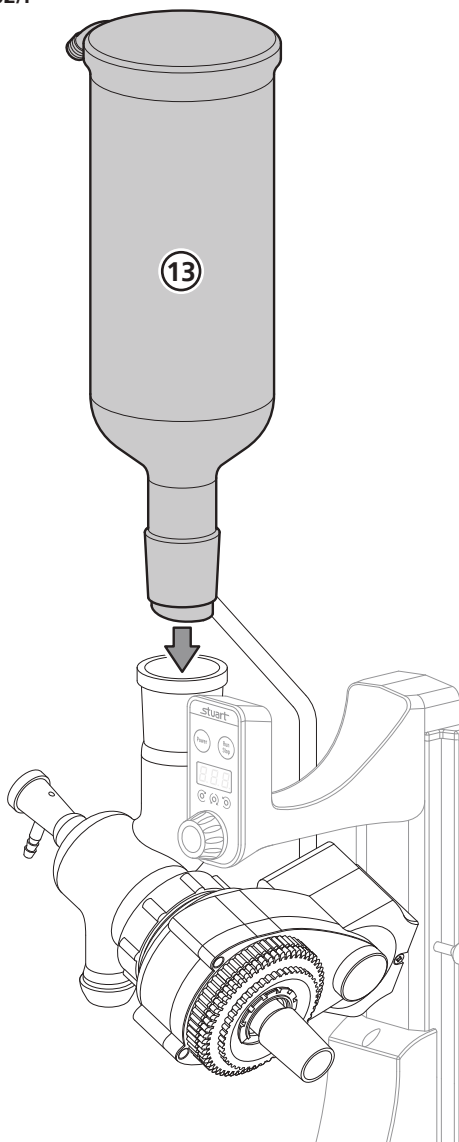
2.4.12 Step 12

Carefully insert the **Vertical condenser 12 (RE401/P)** or the **Cold finger condenser 13 (RE402/P)** into the adaptor.

RE401/P



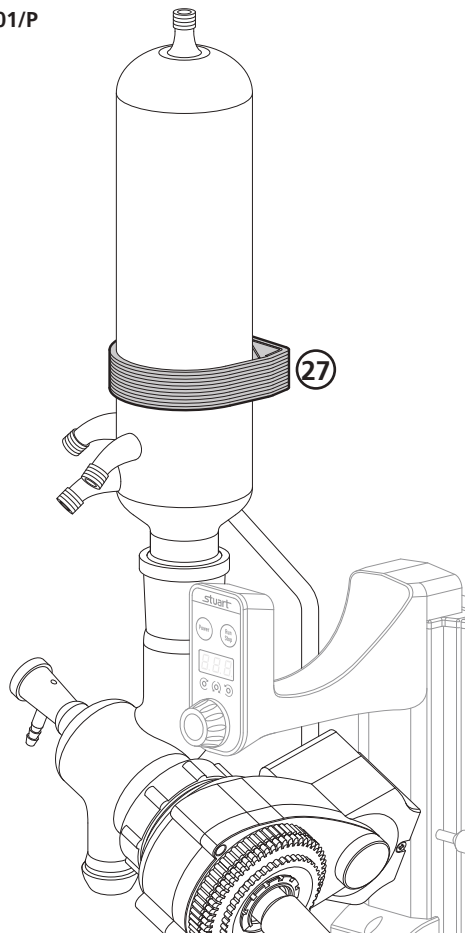
RE402/P



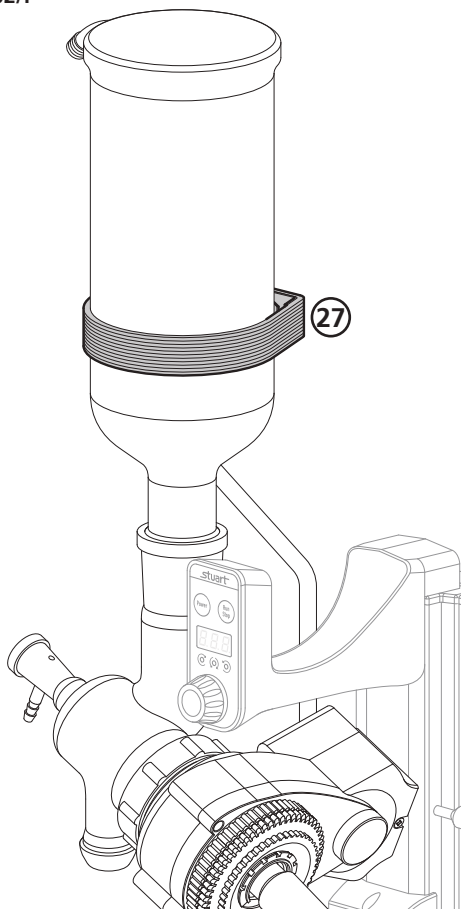
2.4.13 Step 13

Attach the **Clamp (27)** to the support bar and then carefully attach to the vertical condenser (**RE401/P**) or the cold finger condenser (**RE402/P**).

RE401/P

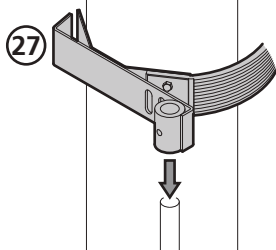


RE402/P

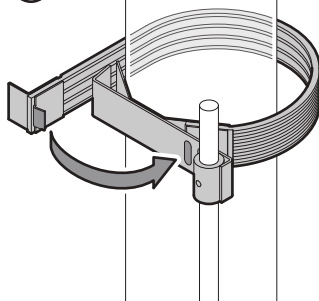


Attach the **Clamp (27)** and support bar to the vertical condenser (**RE401/P**) or the cold finger condenser (**RE402/P**) and secure with a **Thumb screw (24)**.

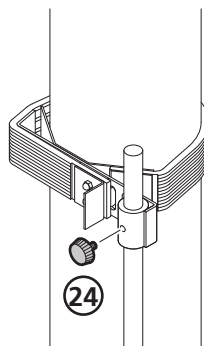
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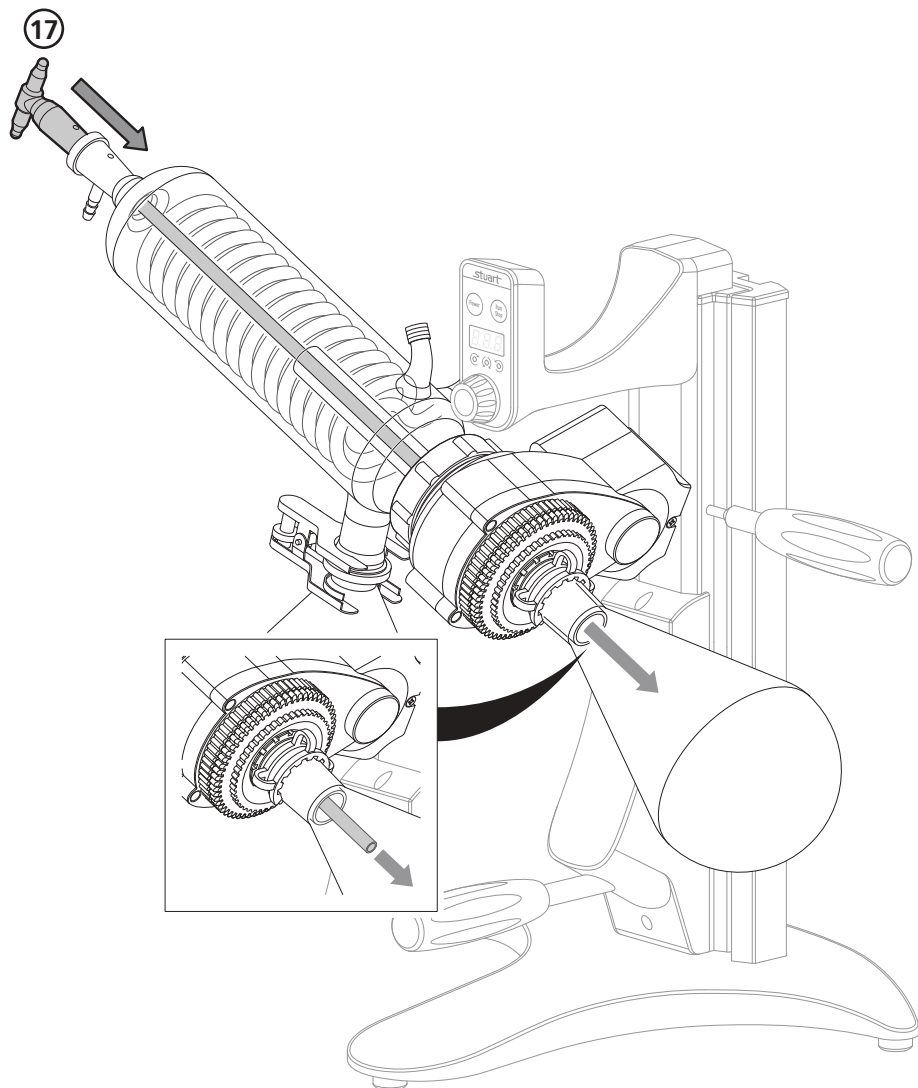


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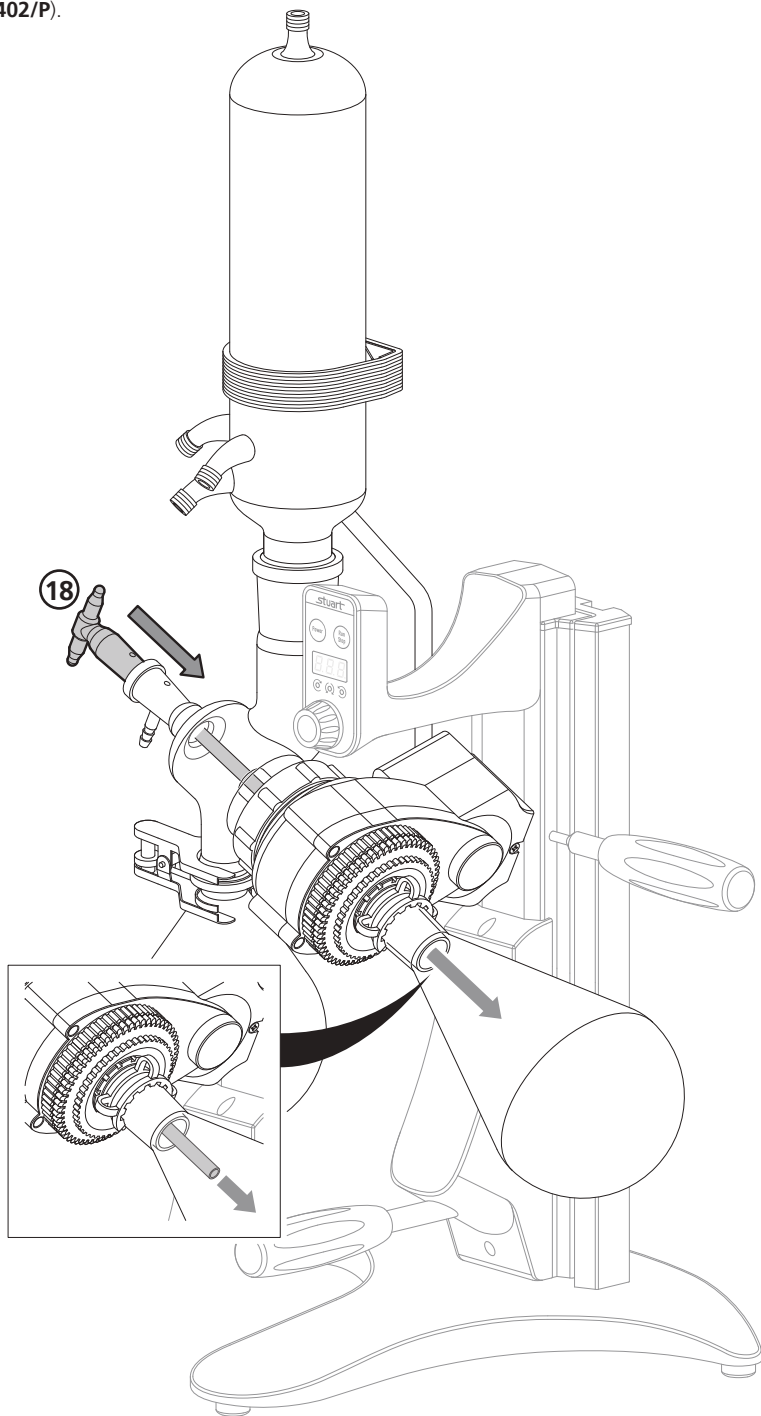


2.4.14 Step 14

Carefully insert the **Feed tube 17** so it goes through the centre of the cooling coil and vapour tube and into the florentine flask (**RE400/P**).



Carefully insert the **Feed tube 18** so it goes through the centre of the vapour tube and into the florentine flask (**RE401/P** and **RE402/P**).



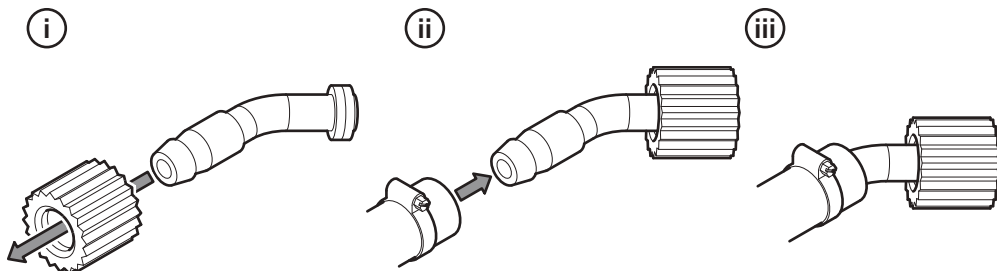
2.4.15 Step 15

To get the best results we recommend you connect the rotary evaporator to a water inlet, water outlet and vacuum line*, flexible hose of 9mm I.D. is required. Ensure you identify every connection correctly before starting. Water inlet/outlet uses the grey connectors and vacuum line uses the white connector.

*Connecting the rotary evaporator to a vacuum line is optional, however, for the rotary evaporator to be used under reduced pressure you must connect a vacuum line and suitable vacuum pump.

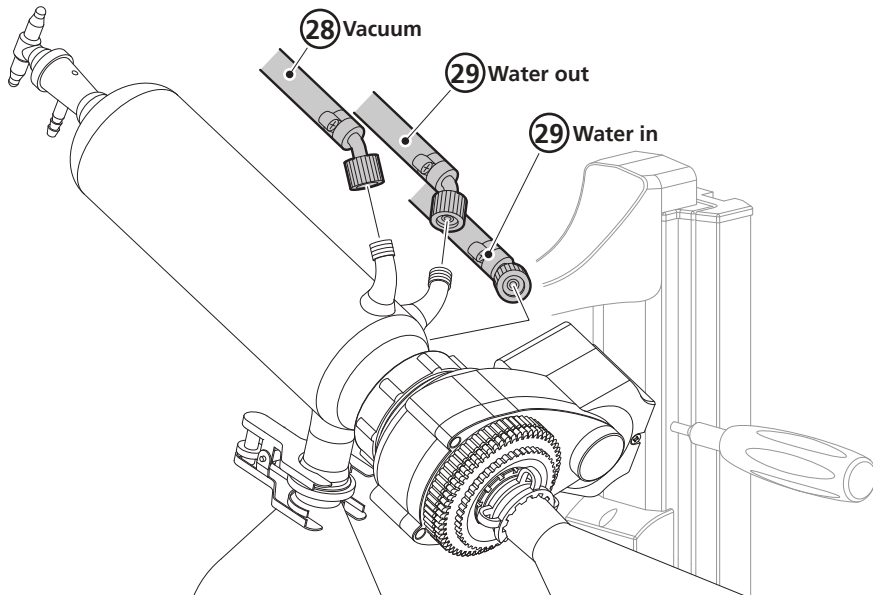
Assemble the connectors and push the hoses over the correct connectors and secure with a suitable clip e.g. Jubilee as shown below.

NOTE: Only use hose that is suitable for use under vacuum for the vacuum connection.



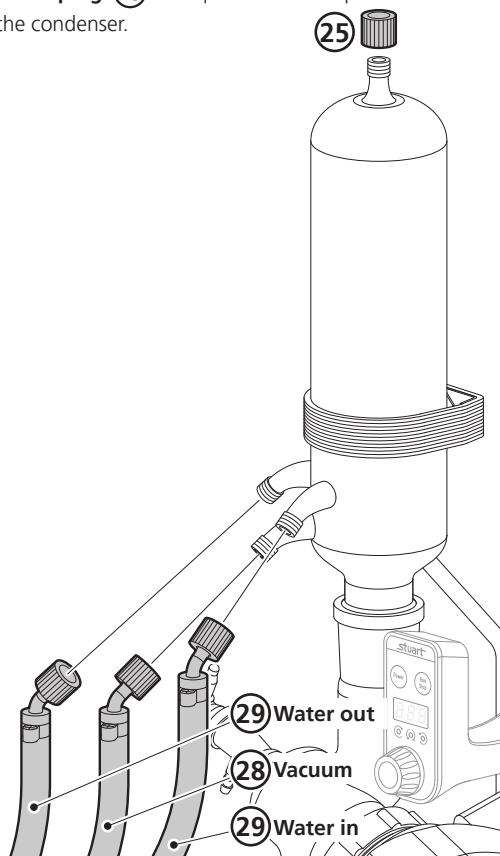
Ensure you connect the hoses to the correct water inlet, water outlet and vacuum connection as shown.

RE400/P



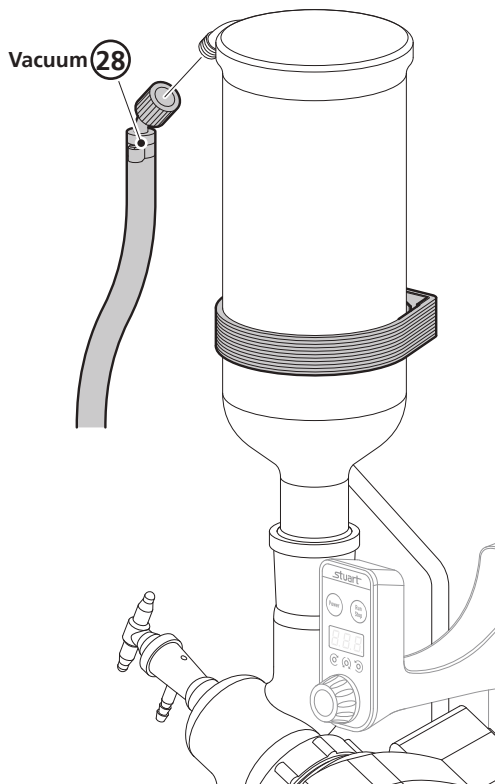
RE401/P

As well as vacuum and water connections a **Screw plug** 25 is required at the top of the condenser.



RE402/P

You will only need to attach a vacuum line to the **RE402/P**.

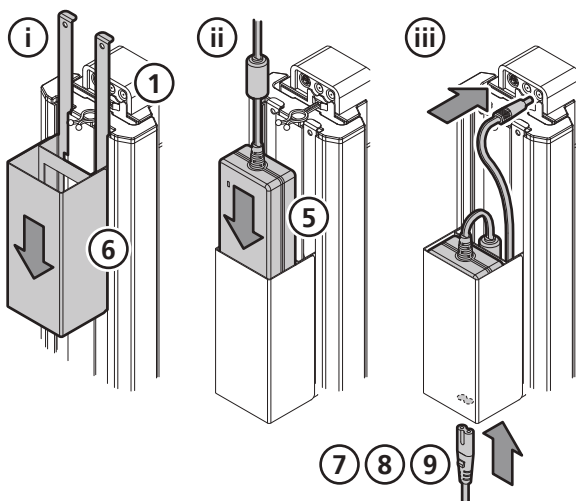


Optional power supply holder

Slide the **Power supply holder** 6 down into position on the back of the **Stand** 1.

Slide the **Power supply unit** 5 into the power supply holder. Loose cables can be stored at the front of the power supply holder.

Connect the **Power lead** 7, 8 or 9 to the power supply unit. Connect the power supply unit to the power socket on the stand and use the cable management to tidy the loose cable.

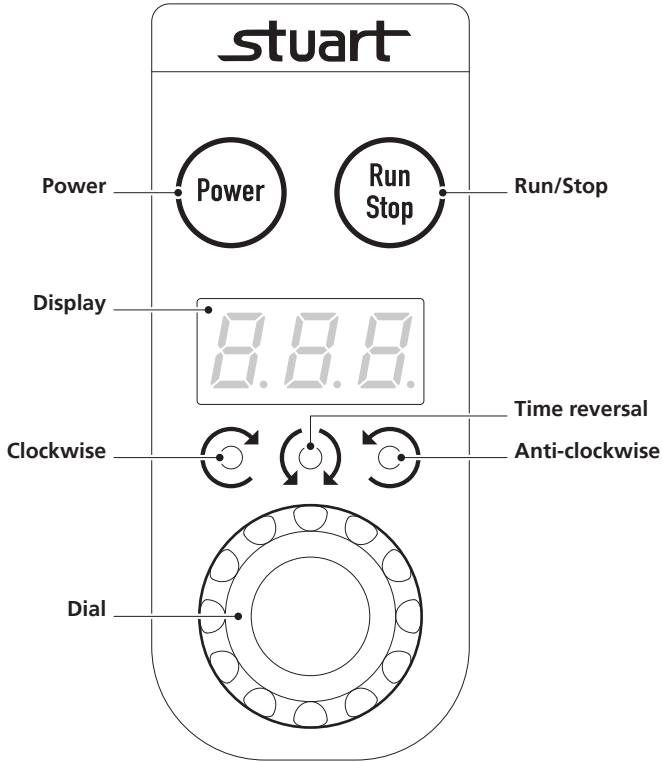


Section 3 - Operation



Anti-clockwise rotation mode is selected and the power outage recovery is OFF when shipped.

3.1 Control panel



Power: On/Off button

Run/Stop: This starts or stops the equipment

Display: The display shows current speed and set-up details.

Clockwise: Indicates the specimen flask is turning clockwise.

Anti-clockwise: Indicates the specimen flask is turning anti-clockwise.

Time reversal: Indicates Time reversal mode is active, see section 3.3 for more details.

Dial: Use the dial to select rotation modes and to set rotation speed and time.

NOTE: Before using check all connections are tight.

3.2 Setting the rotation direction and speed

- a. Press **Power**, the display will come on and show the number of rotations as 0 .
- b. Press and hold the **Dial** for 5 seconds or more, the display will show rot , turn the dial to select the required rotation direction light will illuminate. Press the **Dial** once to enter chosen rotation mode.

- c. Press the **Dial** again. The display will flash $\overline{20}$ or the number of rotations from the previous session. Turn the **Dial** to the required speed and press the **Dial** once to confirm.

NOTE: Turning the **Dial** slowly increases the number in increments of 1, turning the **Dial** quickly increases the number in increments of 10.

NOTE: You can change the rotation speed at anytime during rotation by pressing the **Dial** once and turning to the required speed.

3.3 Setting the time reversal mode

- a. Press **Power**, the display will come on and show the number of rotations as $\overline{0}$.
- b. Press and hold the **Dial** for 5 seconds or more, the display will show $\overline{r o t}$, turn the dial to select **Time reversal** mode. The Time reversal mode and Clockwise or Anti-Clockwise lights will illuminate.
- c. Press the **Dial** again. The display will flash $\overline{20}$ or the number of rotations from the last session. Turn the **Dial** to the required speed and press the **Dial** once to confirm.

NOTE: Turning the **Dial** slowly increases the number in increments of 1, turning the **Dial** quickly increases the number in increments of 10.

NOTE: You can change the rotation speed at anytime during rotation by pressing the **Dial** once and turning to the required speed.

- d. The display will alternate between the timer indicator $\overline{t n r}$ and the time used in the previous session. While the display is flashing turn the **Dial** to the required amount of time. Press the **Dial** to confirm and exit Time reversal mode.

NOTE: You can change the amount of time at anytime during rotation by pressing the Dial twice and turning to the required amount of time.

3.4 Power outage recovery mode

The equipment is fitted with a Power outage recovery mode.

Setting the power outage recovery mode

Press and hold the **Dial** for 5 seconds or more, the display will show $\overline{r o t}$, press and hold the **Dial** again for 5 seconds, the display will flash the current mode. Turn the **Dial** to select $\overline{P o n}$ or $\overline{P o f}$. Press the **Dial** once to exit power outage recovery.

Power outage recovery mode On

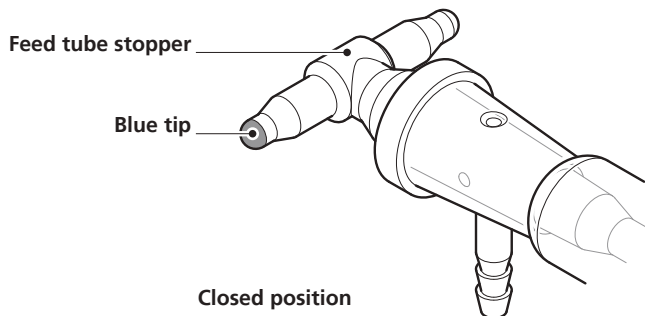
When the power is shut off during rotation, rotation will resume when power is recovered. Display alternates between number of rotations and $\overline{P o n}$. Display can be cleared by pressing **Dial**.

Power outage recovery mode Off

When the power is shut off during rotation, rotation will stop when power is recovered. Display alternates between number of rotations and $\overline{P o f}$. Display can be cleared by pressing **Dial**.

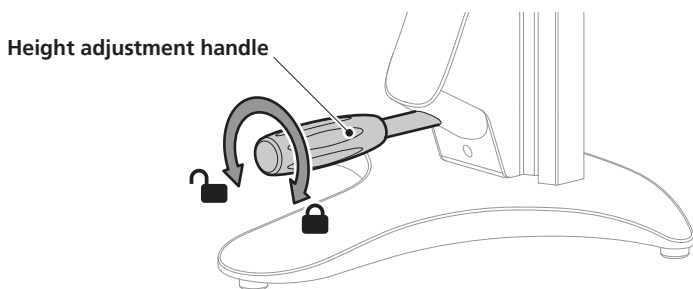
3.5 Batch Operation

- a. Remove the florentine flask from the vapour tube and fill with the liquid to be evaporated. Ensure that the flask is never more than half full. Re-fit the florentine flask to the vapour tube.
- b. Examine the **Feed tube stopper** and ensure that the **Blue tip** faces towards you in the closed position.



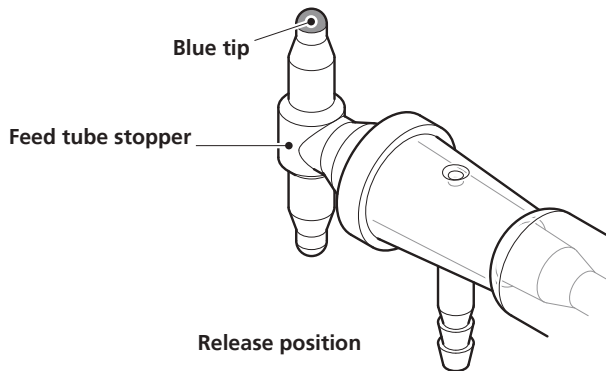
- c. Ensure that water is flowing through the condenser at approx. 60l/hr (**RE400/P** and **RE401/P**) or that the cold trap is filled with ice or dry ice (**RE402/P**).
- d. Connect to the mains power supply.
- e. Raise the glassware assembly to its highest position. To do this turn the **Height adjustment handle** anti-clockwise to unlock and allow the glassware assembly to raise up, when the glassware assembly is in the correct position turn the **Height adjustment handle** clockwise to lock.

NOTE: Unlock the **Height adjustment handle** carefully while applying downward pressure to control the movement.



- f. Place a suitable water bath directly under the florentine flask.
NOTE: A choice of digital baths designed for use with the rotary evaporator are available from Stuart. Please contact cpsales@coleparmer.com for details.
- g. Lower the glassware assembly until the florentine flask is partially immersed in the water.
NOTE: Ensure that the florentine flask does not touch the bath and that no liquid overflows as the flask is submerged.
- h. Press **Power**, see section 3.1.
- i. Set the rotation direction and speed required, see section 3.2.
NOTE: Ensure that rotation is not so fast that liquid splashes out of the bath.

- j. If evaporation at reduced pressure is required a vacuum line will need to be attached. Turn on the vacuum pump and set to the required value
NOTE: A choice of vacuum pumps designed for use with the rotary evaporator are available from Stuart. Please contact cpsales@coleparmer.com for details.
- k. Set the temperature of the water bath as required.
- l. Press **Run/Stop** to begin.
- m. When evaporation is complete release the vacuum by slowly turning the **Feed tube stopper** so that the **Blue tip** points upwards in the release position.

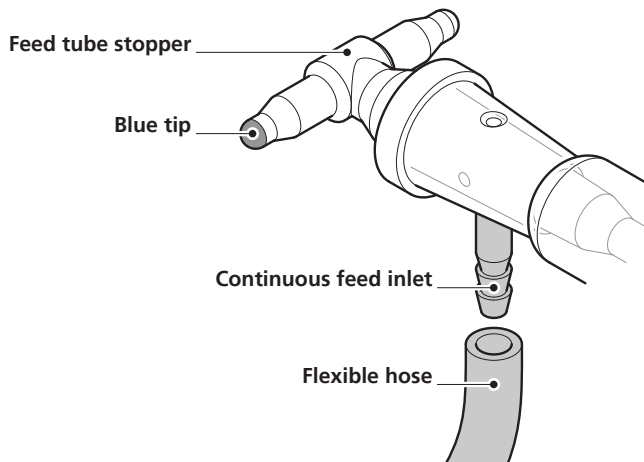


- n. Set the rotation speed to \square and press Run/Stop to stop. Raise the glassware clear of the water bath.

3.6 Continuous Feed Operation

When the equipment is used under reduced pressure it is possible to replenish the liquid in the florentine flask without interrupting the evaporation or removing the florentine flask.

- a. Examine the **Feed tube stopper** and ensure that the **Blue tip** points towards you in the closed position. Attach a suitable length of **Flexible hose** to the **Continuous feed inlet** of the **Condenser / Adaptor**.



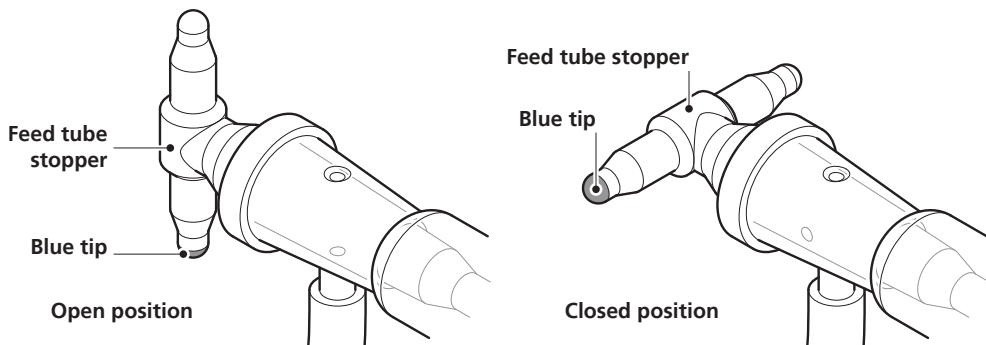
- b. Follow **Batch Operation** steps **b - k**.

- c. Immerse the open end of the flexible hose into the container holding the liquid to be evaporated. Ensure there are no kinks in the hose and that there is no strain on the feed inlet.
- d. With the equipment under vacuum, slowly turn the **Feed tube stopper** so the **Blue tip** points downwards in the open position. The vacuum will draw liquid into the florentine flask. When sufficient liquid has entered the florentine flask turn the **Feed tube stopper** so the **Blue tip** points towards you in the closed position. Further quantities of liquid can be added during evaporation by reopening the **Feed tube stopper**.

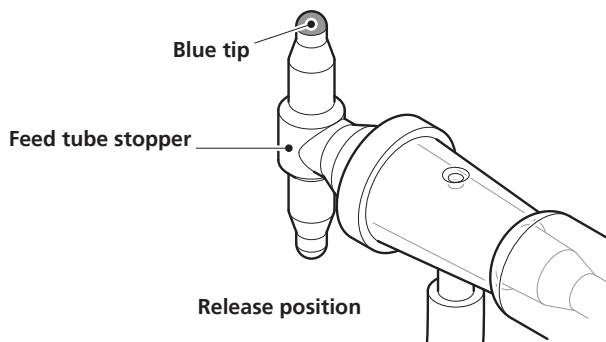
NOTE: Ensure there is sufficient capacity in the florentine flask to cope with any additional liquid. ALWAYS ensure the florentine flask is NEVER more than half full.

NOTE: Ensure there is sufficient capacity in the florentine flask to cope with any additional condensation.

NOTE: The evaporator MUST NOT be used with florentine flasks bigger than 2 litres or receiving flasks bigger than 1 litre.



- e. Press **Run / Stop** to begin.
- f. If the receiving flask requires emptying during operation the following procedure should be adopted:
- Release the vacuum and stop rotation.
 - Raise the glassware clear of the water bath.
 - Wait until boiling stops and liquid stops dripping into the receiving flask.
 - The receiving flask may now be removed.
- g. When evaporation is complete release the vacuum by slowly turning the **Feed tube stopper** so that the **Blue tip** points upwards in the release position. Set the rotation speed to \square and press Run/Stop to stop. Raise the glassware clear of the water bath.



- n. Set the rotation speed to \square and press Run/Stop to stop. Raise the glassware clear of the water bath.

Section 4 - Accessories and Spare Parts

4.1 Optional Accessories

Part Code	Description
RE400DB	Digital water bath
RE400OB	Digital high temperature bath (unsuitable for use with plastic coated glassware)
RE3011C	Fixed vacuum pump
RE3022C	Variable vacuum pump
SRC5	Recirculating cooler, 3 litre capacity
SRC15	Recirculating cooler, 16.5 litre capacity

Please visit www.stuart-equipment.com for a full list of available accessories.

4.2 Spare Parts

Part Code	Description
RE400/MS	Stand
RE100/VS	Vacuum seal
RE400/PS	Power supply unit
RE400/CO	Diagonal condenser
RE400/ADPT	Condenser adaptor
RE400/VC	Vertical condenser
RE400/CF	Cold finger condenser
RE400/BAR	Support bar
RE100/VT	Vapour tube for diagonal condenser
RE400/VT/CF	Vapour tube for vertical and cold finger condenser
RE400/VR	Feed tube for diagonal condenser
RE400/VRV	Feed tube for vertical and cold finger condenser
RE100/RF/1L	Receiving flask 1000ml
FD1L/4RE/1	Florentine flask 1000ml
RE300/MS/192600	Retaining clip
KCM29	Conical joint clip
JC35/1	Spherical joint clip
RE400/SCREW	Thumb screw
RE400/SUPPORT	Support bar clamp
RE400/CLAMP	Clamp
RE400/CONNECT	{ Vacuum nozzle (white) Cooling nozzle (grey)

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

Section 5 - Maintenance, Servicing and Cleaning



WARNING: Before attempting any maintenance, servicing or cleaning, ensure that the equipment has been allowed to cool down.



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

5.1 Routine Maintenance

Ensure the external surfaces of the unit are clean and free from dust. The sample area should always be kept clean and any accidental spillage should be wiped away immediately. To give added protection when not in use, the equipment should be disconnected from the mains supply. Follow the advice below for cleaning your equipment:

Stand and motor

Ensure the unit is switched off and disconnected from the mains supply before cleaning. Wipe down the unit with a soft damp cloth and a mild detergent solution. Do not use bleach or abrasives. Do not allow cleaning liquids to ingress inside the equipment. Never immerse the unit, cables or plugs in water or any other liquids. Allow any wet surfaces to dry before re-connecting to the mains supply and commencing use.

Glassware

All glassware parts should be cleaned regularly and examined for scratches, cracks and chemical etching. Replace any damaged parts.

Plastic coated glassware

The plastic coated glassware should not be exposed to temperatures above 80°C and is not dishwasher proof.

Vacuum Seal

We recommend the vacuum seal is washed regularly with distilled or deionised water and allowed to dry naturally.



WARNING: This product does not contain bio-seals as per EN 61010-1-2010 and cannot provide any level of containment in case of a spill or release of toxic, radioactive, or pathogenic micro-organisms thus these materials are not recommended to be used in this product.

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 unit has been exposed to liquid, it cannot be assumed to meet all the safety requirements of EN 61010-1-2010 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.

5.2 Service, Repairs and Support

Any service, 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 technical support enquiries please contact:

Email: cptechsupport@coleparmer.com

Tel: +44 (0)1785 810433

5.3 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.

This warranty does not apply to the glassware or vacuum seal.

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

Section 6 - Environmental Protection

6.1 Packaging Material



Packaging materials have been carefully selected so they can be sorted for recycling.

6.2 Waste Electrical and Electronic Equipment Directive (WEEE)



At the end of your product and accessories life, it must not be discarded as domestic waste. Ref: EU Directive 2012/19/EU on Waste Electrical and Electronic Equipment Directive (WEEE). Please contact your distributor / supplier for further information. For end users outside of the EU consult applicable regulations.

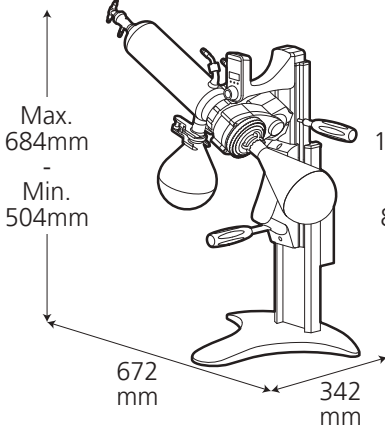
Section 7 - Technical Specification

7.1 General Specification

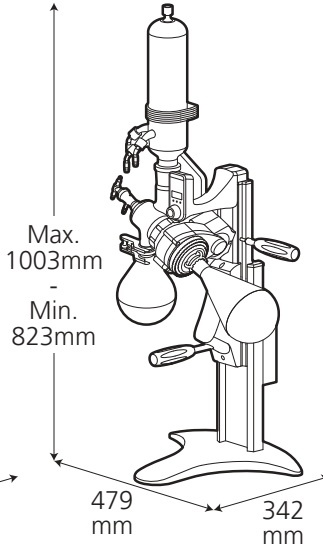
	RE400/P	RE401/P	RE402/P
Speed	10 - 310rpm		
Vacuum	3mm Hg		
Lift distance	180mm		
Motor	DC brushless motor		
Electrical supply	100 - 240V, 50/60Hz, 8W		
Warranty	3 years		

7.2 Weights and Dimensions

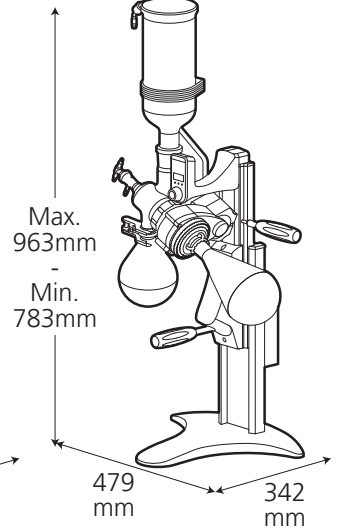
RE400/P - 8.2kg



RE401/P - 8.9kg




RE402/P - 8.9kg



Section 8 - Trouble Shooting

Problem	Cause	Solution
Display does not work even if the power is turned on.	No mains power.	Check mains power supply.
	Power is not reaching the equipment.	Check power lead and adaptor are securely connected and inserted into the power socket on the back of stand.
	The display or control board is malfunctioning.	Stop operation and contact a local service representative.
Display is on but the motor doesn't rotate when started.	Control board is malfunctioning.	Stop operation and contact a local service representative.
	Motor is malfunctioning.	
	The bearings have rusted.	
	The timing belt is defective.	
Rotation is slipping.	The blue lock sleeve is loose.	Turn the blue lock sleeve clockwise whilst holding the black lock sleeve.
	Motor is malfunctioning.	Stop operation and contact a local service representative.
	The control board is malfunctioning.	
	The pulley and belt are worn.	
Strange noises are heard during rotation.	The vacuum seal is worn.	Replace vacuum seal.
	The blue lock sleeve is loose.	Turn the blue lock sleeve clockwise whilst holding the black lock sleeve.
	The motor bearings are worn.	Stop operation and contact a local service representative.
	The pulley and belt are worn.	
The vacuum level is low. Decompression leakage is occurring.	The decompressing unit's performance has been compromised.	Check the hose for leakage
	The specimen flask and vapour tube are not connected properly.	Check the conical joint clip and glassware are fitted correctly.
	The blue lock sleeve is loose.	Turn the blue lock sleeve clockwise whilst holding the black lock sleeve.
	The vacuum seal is worn.	Replace the vacuum seal.
	The vapour tube is worn.	Replace the vapour tube.
	The vacuum nozzle is worn.	Replace the vacuum nozzle.
	The vacuum hose has deteriorated.	Replace the vacuum hose.
The stand can not be raised or lowered. The stand can not be locked. The sliding operation is slow or produces strange noises.	The height adjustment mechanism is broken.	Stop operation and contact a local service representative.
	The coil spring has deteriorated.	
	The height adjustment mechanism sliding bearing is worn.	

Problem	Cause	Solution
Rotation error <i>A 19</i> is displayed.	Motor bearing is worn.	Stop operation and contact a local service representative.
	The motor or control board is malfunctioning.	
	The motor is being obstructed.	*Remove obstruction.
	The selected rotation has not been reached and is lower due to overload.	*Remove the cause of overload.
		* Error <i>A 19</i> can be cleared by pressing the dial. If the problem persists, contact a local service representative.
The rotation speed is more than selected or over 310rpm.	The motor or control board is malfunctioning.	Stop operation and contact a local service representative.
Power outage recovery error <i>P o F</i> is displayed and rotation has stopped.	Power has been interrupted and then restored during rotation.	Error <i>P o F</i> can be cleared by pressing the dial. Error <i>P o F</i> can also be cleared by pressing the run/stop button.
Power outage recovery error <i>P o n</i> is displayed during rotation.	Power has been interrupted and then restored during rotation.	Error <i>P o n</i> can be cleared by pressing the dial.
Underbar  is displayed.	The display or control board are malfunctioning.	Stop operation and contact a local service representative.



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 Rotary Evaporators - 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 61010-2-051:2015	Particular requirements for laboratory equipment for mixing and stirring.
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 07 July 2017

Authorised Representative Steve Marriott

Title Technical Director

Signature 