

Holland
Green
Science



10206001
Alchemist
Rotary Evaporator
User Manual

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For claims under the warranty please contact your local supplier. You may also send the instrument directly to manufacturer, enclosing the invoice copy and by giving reasons for the claim.

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II. Safety

! DANGER (may cause serious damage to property and or casualties)

- Please carefully read this User Manual prior to operating the instrument and observe the instructions on safe operation.
- According to the type of medium handled, please always wear applicable PPE when operating the instrument
- Avoid inhalation and contact with toxic liquids, gases, spatters, vapor, dust, biological or microbiological mediums as these may be harmful to the operator
- Place the instrument on a stable, dry, clean, antiskid, and fireproof surface.
- Make sure there is sufficient space above the instrument and ensure the glass assembly is not exceeding the height of the instrument.
- The power source must be grounded reliably and away from any sources of electromagnetic interference.
- Ensure that the instrument and its accessories are free of any potential defects.
- Confirm that the voltage and frequency of the power supply matches the specified voltage and frequency specified prior to use.
- Before use, please carefully examine the instrument and accessories, especially the glass assembly for any damage. Do not use if any parts are damaged.
- Ensure the glass assembly handled with care. The following can result in damage to the glass assembly:
 - Incorrect installation
 - Excessive mechanical force
 - Rapid change in temperature
- Ensure the instrument will not move due to vibration
- Note the potential dangers that can arise
 - Flammable substance
 - Flammable low-boiling-point medium
 - Breakage of glass component
- Never distil or heat any substance whose ignition point is lower than the temperature set for the safety of the heating bath.
- The heating bath safety temperature should be at least 25 °C lower than the ignition point of the medium being handled.
- Please do not operate or use this instrument in an explosive environment, underwater or use this instrument with any dangerous substances.
- This instrument is only suitable for mediums that do not react with the energy generated during the handling process in a way that might cause danger.
- The instrument must be monitored all the time whilst in operation.

! WARNING (may cause property damage or personal injury)

- Only accessories listed as “optional accessories” for use, can guarantee operational safety.
- Please use this instrument in a closed fume hood or other suitable protective device.
- Please monitor the flow rate of the coolant via the outlet of the cooler.
- To prevent pressure build-up, the glass assembly must be kept vented when operating under normal pressure.
- Please note that gases, vapours, or other substances can pose danger through overflow

from the upper opening of the condensation tube. To minimise or avoid such danger, please take suitable measures, such as connecting the cooling tube and scrubbing bottle or other effective extraction devices downwards.

- The glass evaporating flask may not be heated on one side. The evaporating flask must rotate during the heating phase.
- The glass assembly's design pressure tolerance is 10mbar. Ensure the vacuum value of the glass assembly under 10mbar. When performing vacuum distillation, the steam must be condensed before release

If the residue after distillation is likely to decompose when exposed to oxygen, add inert gas to equalize pressure.

- Avoid the formation of peroxides, as the decomposition of peroxides accumulated during the distillation process might result in explosion.
- Protect liquids forming peroxides from sources of light, especially ultraviolet irradiation.
- Before distillation please examine formation of any peroxides and remove the peroxides if any. Many organics easily form peroxides, such as methoxy pyridine, diethyl ether, dioxane, tetrahydrofuran, unsaturated hydrocarbostyryl, such as tetrahydronaphthalene, diene, isopropyl benzene, ketone, and solutions of the above substances.
- The heating bath, heating medium, evaporating flask and glass assembly might become hot during operation and remain hot for a while after operation ceases. Before further operation, please let each part cool down.
- When the instrument is not rotating, never heat the evaporating flask. Sudden appearance of foams or gases indicates that the medium inside the evaporating flask is boiling. If this occurs, please immediately shut down the heating bath and lift the evaporating flask above the heating bath, keep the surrounding danger area well ventilated and inform all surrounding personnel.
- Raise or lower the heating bath only when the flask is not in rotation.

! ATTENTION (may affect operational performance or service life)

- When operating the instrument reduce the motor speed to prevent the medium within the heating bath from splattering.
- When operating the instrument, never touch any rotating parts. Instrument failure or instrument imbalance may damage the glass assembly. When imbalance or abnormal noise occurs, please immediately turn off the instrument and or reduce the rotation speed.
- In the event of a power failure, the instrument will not automatically restart / power on.
- The instrument is deenergised only when the power cable is disconnected from the power source.
- Ensure the instrument and its accessories are protected external vibration.
- Only accredited and qualified professional repair technicians can open the instrument or conduct required repairs. Persons performing repairs on the instrument other than those selected or approved by the Company shall operate to void any warranty contained hereinabove for the product.

III. Introduction

Users are advised to carefully read this manual prior to using or operating the rotary evaporator to be aware of all precautions outlined and ensure operation is in accordance with the instructions contained within this manual.

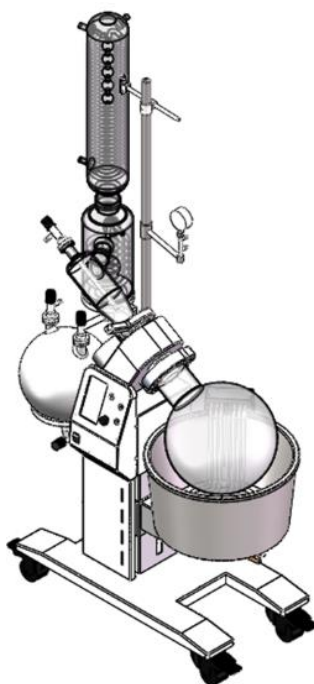
3.1 After Sales Support

If problems are encountered or technical support is required when installing or using the instrument, please contact serviceusa@hollandgreenscience.com

The company may provide technical assistance and information regarding the instrument or equipment or service without charge at its sole discretion. Buyer assumes sole responsibility for any reliance on or use of such assistance and information, and the company makes no warranty thereon.

Upon contact the following information is required:

- Product serial number (located on the instrument nameplate)
- Description of issue or problem
- Method and or operating steps you have undertaken towards resolution.
- Your contact details inclusive of telephone number and email address.



3.2 Proper Use

The instrument is designed for non-residential use and to be used in conjunction only with accessories recommended within this manual and by the manufacturer.

IV. Technical Specifications

Model	10206001
Product Name	Alchemist
Temperature Range	Room temp. ~180°C
Control Accuracy	Water: ±1°C Oil: ±3°C
Rotation Speed	10~150rpm
Power Specification	220V 50/60Hz 1 phase – 4600W
Evaporation Capacity	Max.4.0L/h (water vapor volume)
Ultimate Vacuum	< 2.6hpa
Temperature Control	Microprocessor PID control
Display	LCD (temperature/speed/direction or rotation/time)
Stroke Displacement	Automatic 180mm
Safety Features	Motor Over-current Protection, Residual Current Device, Lifting Overload Protection, Boil-dry Protection, Over-Temperature Protection
Sample /Receiving Flask	Round Flask 20L/Round flask 10L with Drain Valve
Condenser	Two-Section Vertical Triple Serpentine Condenser, Cooling Surface 1.2m ²
Heating Bath Size	Φ450*240mm
Takeover Caliber	Cooling/Suction Nozzle Outer Diameter 16mm, Vacuum Pump Nozzle Outer Diameter 16mm
Dimension [D×W×H]	1160mm×600mm×1860mm
Ambient Temperature	0-40 C
Altitude	<2000M
Connectors	Cooling/Suction nozzle outer diameter: 10mm Vacuum pump nozzle outer diameter: 10mm


IV. Inspection

Packing List

Unpack the equipment carefully and check for any damage which may have arisen during transport. In the event of identified damage, please contact serviceusa@hollandgreenscience.com

The package includes the following items

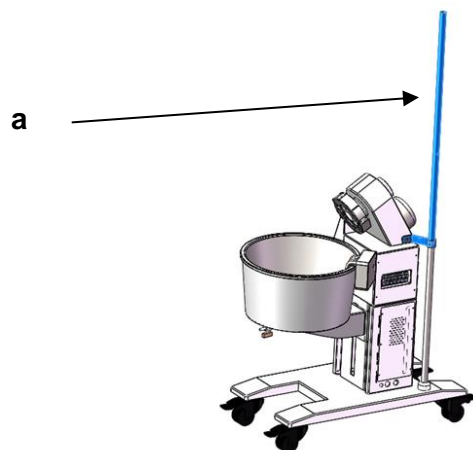
Item Description	Quantity
Main Unit	1
Vertical Glass Assembly	1
Quick Setup Card	1

	<p>CAUTION:</p> <p>If there is any visible damage to the instrument, please do not connect the instrument to a power supply.</p>	
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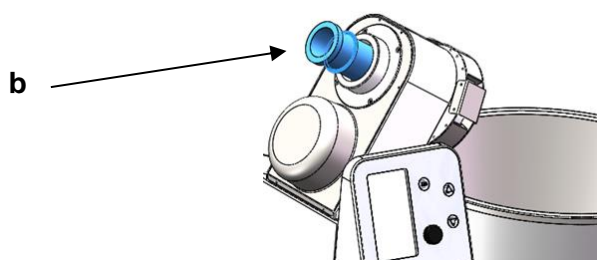
V. Installation

6.1 Installation Instructions

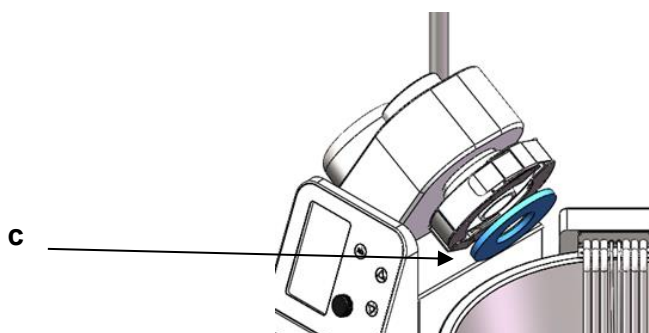
Mount the glassware support rod (**a**) to the corresponding position and tighten the screws on the fixing metal plate.



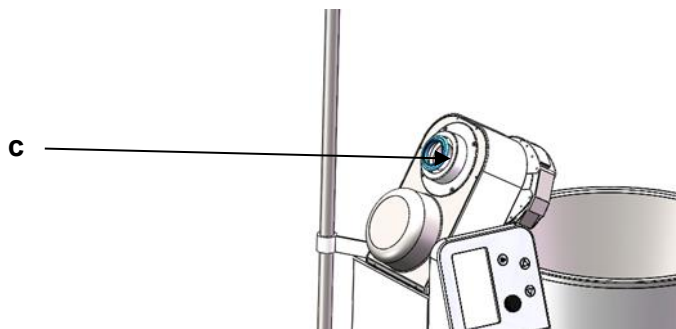
Place the vapor tube (**b**) with the PTFE washer into the corresponding position.



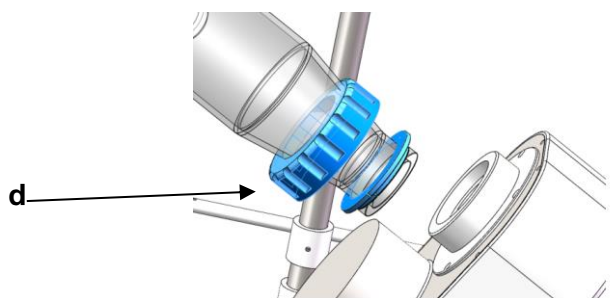
Insert the sealing gasket (**c**) into the corresponding position and apply silicon grease lubricant.



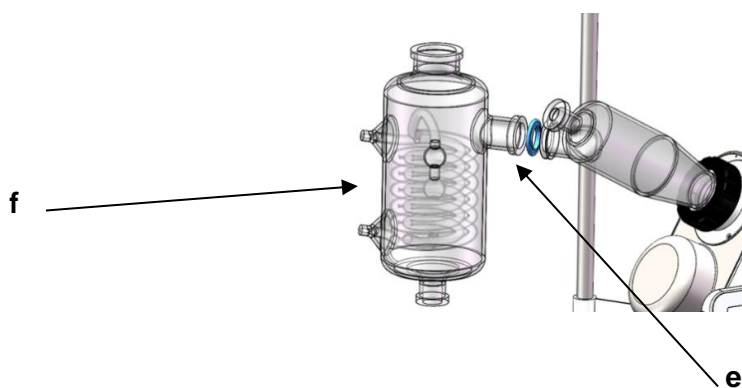
Place in a sealing ring of corresponding size.



Mount the glassware adapter with locknut (**d**) in conjunction with the glass fastener. (Be sure to tighten securely)



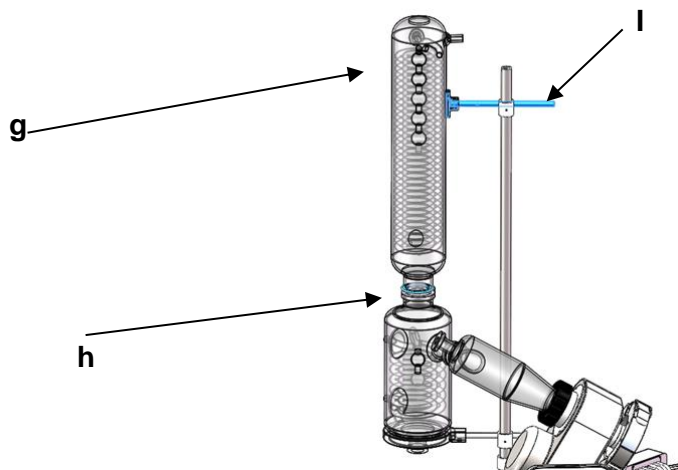
Add a sealing ring (**e**) of corresponding size and fix the small condenser (**f**) to the corresponding interface and adjust the condenser to an upright position.



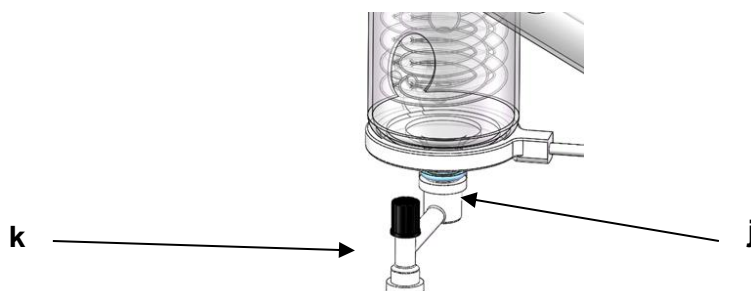
Properly adjust the position of the small condenser, move the corresponding bracket ring to the corresponding position and tighten the two screws in turn (be sure to have the bracket ring fitted into the bottom of the small condenser).



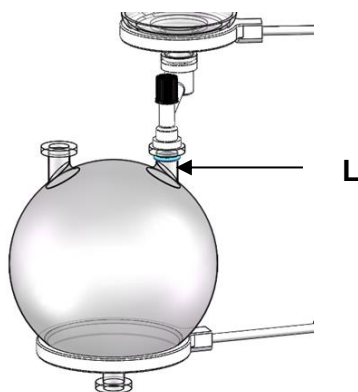
Mount the sealing ring (**h**) of corresponding size, fix the large condenser (**g**) to the top of the small condenser, properly adjust the position of the clamp (**l**) and then tighten the screws.



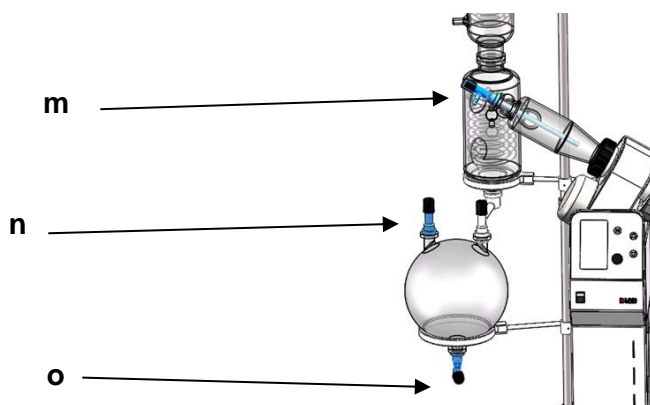
Mount the sealing ring (**j**) of corresponding size and fix the valve (**k**) of the receiving flask to the corresponding position.



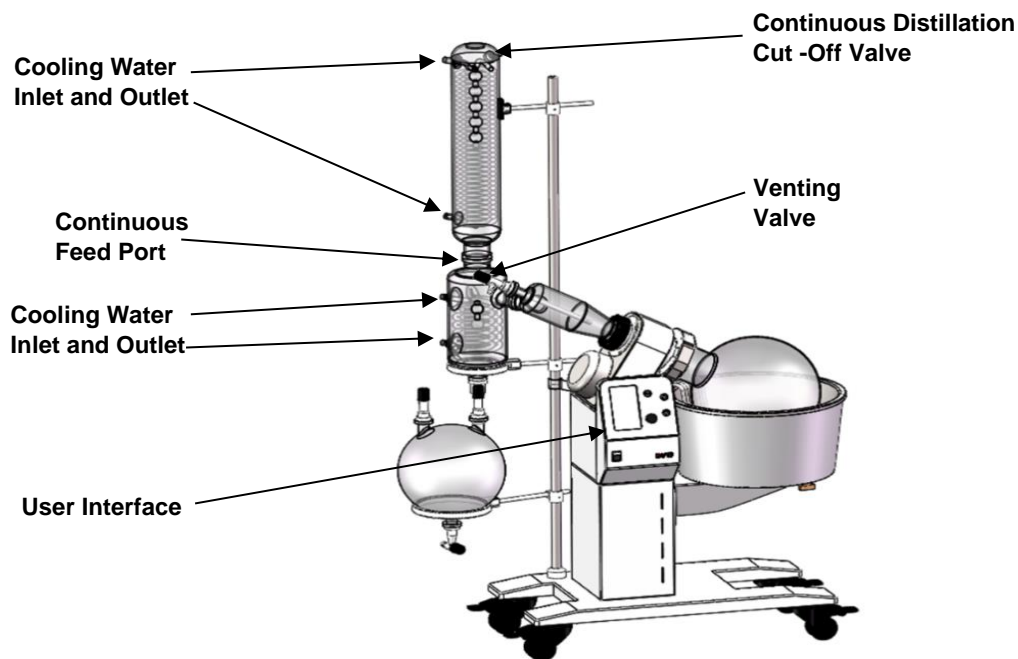
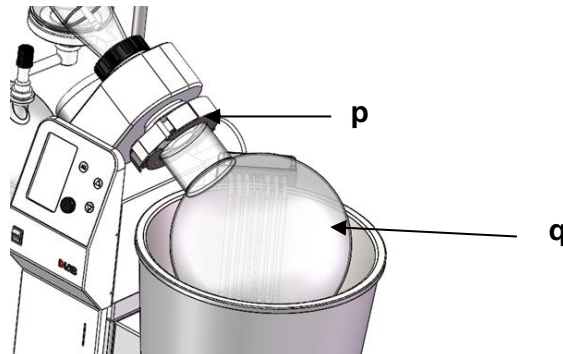
Mount the sealing ring (**L**) of corresponding size, fix the collecting bottle to the corresponding position and then properly adjust the position of the strut before tightening it securely.



Mount the sealing ring of corresponding size and mount three valve ports (**m / n / o**) to the corresponding positions.



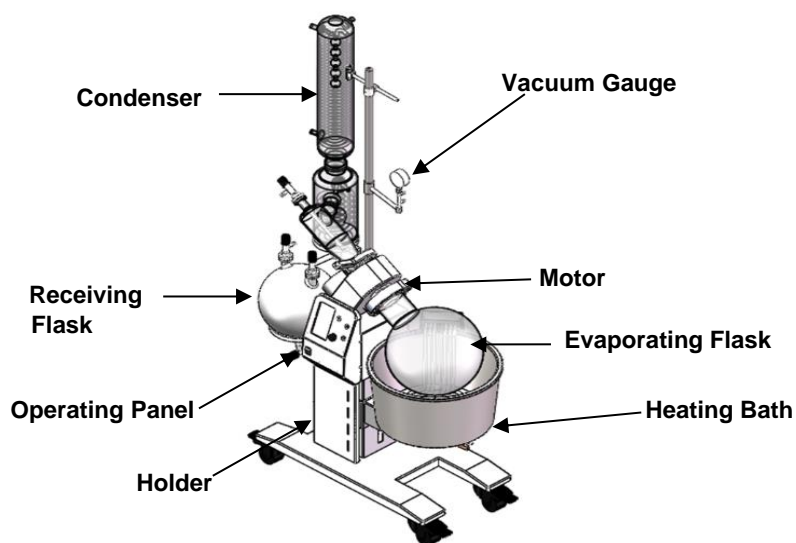
Mount the sealing ring of corresponding size and then fix the evaporating flask (q) to the corresponding position with the clamping mechanism (p)



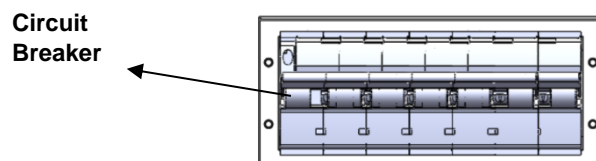
Note:

To ensure good sealing performance, each glass ground joint may be coated with a layer of sealing grease.

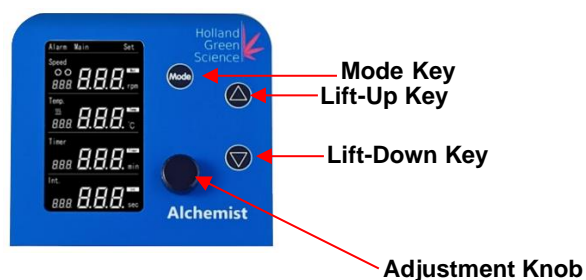
VII. Operating Instructions







7.1 Control

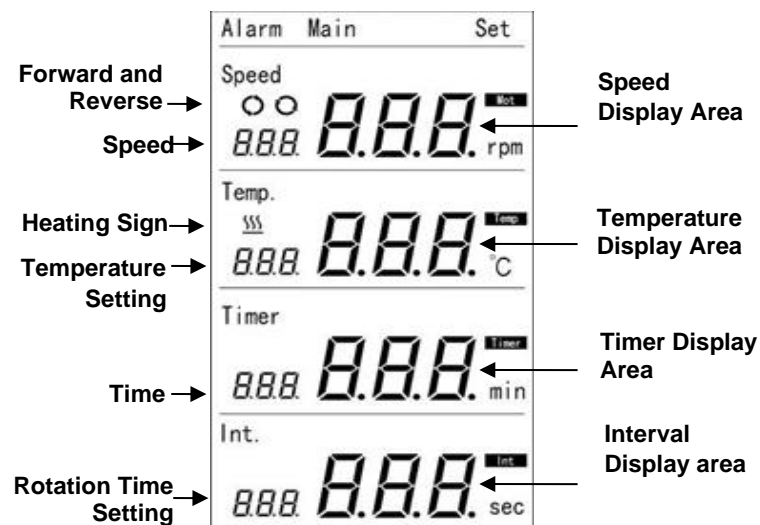


7.2 User Interface



Icon	Name	Description
	Mode Key	Switch between modes, the mode adjustment sequence is speed adjustment → temperature adjustment → timing adjustment → forward and reverse rotation time adjustment.
	Adjustment Knob	Press the Knob to 'RUN' and press again to 'STOP' While in the adjustment mode, TURN the Knob clockwise to increase the parameter and TURN the Knob counter-clockwise to decrease the parameter.
	Lift- UP- Key	Press this key to raise the water bath.
	Lift- DOWN Key	Press this key to lower the water bath.

7.3 Display Parameters



Name	Description
Speed Display Area	Realtime rotation speed
Temperature Display Area	Realtime temperature
Timer Display Area	Count down time
Interval Display Area	Count down time before reverse
Forward and Reverse	Clockwise and anti-clockwise rotation
Speed	Speed set-point
Heating Sign	Illuminated when heating
Temperature Setting	Range: ambient to ~180°C
Time	Count down time setting
Rotation Time Setting	Forward and reverse rotation interval time setting

7.4 Setting Operating Parameters

When turning on the power switch, the display will light and show the last operating parameters after the instrument completes a self-test.

7.4.1 Setting Rotation Speed

Briefly press the Mode key. When the speed character is flashing, the current mode is the speed adjustment mode. Turn the knob clockwise to increase the speed or turn the knob counter-clockwise to reduce the speed. The speed setting range is 10rpm-150rpm; when the speed is set to 0rpm, the rotation function is deactivated.

After adjusting the parameter, the parameter will be saved automatically without further operation. This instrument supports speed parameter adjustment during operation in the same manner as described above.

When the speed is set above 100rpm, the evaporation flask may splash water bath fluid.

7.4.2 Setting Temperature

After adjusting the speed parameter, briefly press the Mode key again. When the Temp character is flashing, the current mode is in the 'Temperature Adjustment Mode', turning the knob clockwise increases the temperature and turning the knob counter-clockwise decreases the temperature. The temperature setting range is 20°C-180°C; when the temperature is set at 0°C, the heating function is deactivated.

After adjusting the parameter, the parameter will be saved automatically without further operation.

This instrument supports temperature parameter adjustment during operation in the same manner as described above.

When the liquid inside the heating bath is water, the set temperature may not exceed 90°C.

7.4.3 Setting Time

After adjusting the temperature parameter, briefly press the Mode key again. When the Timer character is flashing, the current mode is the 'Timing Adjustment Mode', in which turning the knob clockwise increases the set time and turning the knob counter-clockwise decreases the set time. The timing setting range is 0min-999min; when the time is set to 0min, the timing function is deactivated.

After adjusting the parameter, the parameter will be saved automatically without further operation. This instrument supports timing parameter adjustment during operation in the same manner as described above.


7.4.4 Setting Time Intervals Between Forward and Reverse Rotation

After adjusting the timing parameter, briefly press the set Mode again. When the 'Int character' is flashing, the current mode is the 'Forward/Reverse Rotation Timing Adjustment Mode', in which turning the knob clockwise increases the forward/reverse rotation interval and turning the knob counter-clockwise decreases the forward/reverse rotation interval. The forward/reverse rotation interval setting range is 0s - 999s; when the forward/reverse rotation interval is set at 0s, the forward/reverse rotation function is deactivated.

After adjusting the parameter, the parameter will be saved automatically without further operation. This instrument supports forward/reverse rotation interval adjustment during operation in the same manner as described above.

7.4.5 Heating Bath Height Adjustment



Note: The height of the heating pot cannot be adjusted during operation.

Press the  key without release to start raising heating kettle. When the heating kettle rises to the top position as required, it will not further rise.

Hold the  key to lower the heating kettle until it reaches the lowest position.

7.4.6 Heating Bath Operation

Press the Knob to Start Heating Kettle Operation

Press the  key or  key to adjust the heating kettle up to a suitable position (the liquid level in the heating kettle should be on the same level as the liquid level in the evaporating flask).

Start timing after start up.

The time display shows the remaining running time.

When the remaining time is 0 minutes, the instrument stops running.

VIII. End of Operation

The instrument stops when the set time ends.

The instrument stops when the knob is pressed.

The instrument stops when any error is displayed.

After the end of an operation, the program will automatically save the set parameters of the current operation. When starting the instrument again, the program will automatically load the set parameters of the last operation.



Caution:

Do not move or lean against the instrument while the instrument is running.

Before operating the instrument, ensure the inside of the heating bath is clean and be sure to remove any foreign objects from the heating bath, such as plastic bags.

When any strange noise or any other abnormality occurs during operation, please stop the instrument immediately and contact a qualified service technician.

It is not possible to move the heating kettle up or down during operation.

IX. Fault Diagnosis

9.1 Error Display

This instrument is capable of self-diagnosis such that the temperature display window will show the error code when the instrument cannot operate due to any failure.

The instrument will automatically stop when a failure occurs during operation and the time display window will show the error code and sound an audible alarm.

Refer below **Table of Fault Diagnosis** to identify the cause of failure to address accordingly.

Error Code	Possible Causes	Solutions
Er1	Too high temperature inside the heating kettle.	Contact a service technician.
	Sensor disconnected	Check the temperature sensor for proper connection.
Er2	Heating kettle without liquid inside.	Add water or silicone oil into the kettle.
	Sensor disconnected	Check the temperature sensor for proper connection.
Er3	Er1 and Er2 displayed at the same time.	Same as Er1 and Er2
Er4	Heating kettle without liquid inside.	Add water or silicone oil into the kettle.
	Sensor disconnected	Check the temperature sensor for proper connection.
Er5	Er1 and Er4 displayed at the same time.	Same as Er1 and Er4
Er6	Er2 and Er4 displayed at the same time.	Same as Er2 and Er4
Er7	Er1, Er2 and Er4 displayed at the same time.	Same as Er1, Er2 and Er4

Note: Errors 2 and 4 are of similar phenomenon detected by different mechanisms.

X. Maintenance and Cleaning

Keep the instrument dry and clean in routine operations.

Clean the outer surface with a non-abrasive cleanser and only connect the power supply when the entire instrument surface is dry.

If liquid or moist solids enters the instrument, please immediately disconnect the power supply and contact ServiceUSA@hollandgreenscience.com

- Surface stains on the instrument should be cleaned only by a clean, soft rag and detergent.
- The power must be disconnected before any maintenance or cleaning.
- Do not clean the instrument with any corrosive cleaning solutions.
- If the instrument is left unused for a long period, switch 'OFF' the power and store within a dry, clean, level, and stable surface at normal temperature.



Caution!

Before any Maintenance or Inspection, the Power Cable
MUST be removed from the power socket.
