

Holland
Green
Science



20206003
Aqua Vitae
Rotary Evaporator
User Manual

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I. Disclaimer & Warranty

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- Products of the company are under the patent protection of China and other countries and regions (inclusive of obtained patents and patents currently under application).
- The company reserves the right to change product specifications without notice.
- The contents of the manual are subject to change without notice.
- The manual's content must not be copied, extracted, or modified in any form without the Company's permission.

LIMITED WARRANTY & DISCLAIMER

Products sold by the Company are intended solely for the use(s) specified by the manufacturer and are not to be used for any other purposes including, but not limited to, unauthorized commercial purposes. Buyer warrants and represents that Buyer will properly test, use, qualify, and/or validate each Product for intended use, and, to the extent authorized, manufacture and market any final articles made from the Company's Products in accordance with the practices of a reasonable person who is an expert in the field, and in strict compliance with all applicable national, state and local laws and regulations. Buyer acknowledges and understands that the purchase of Products only conveys to Buyer the non-transferable right for only the Buyer to use the Products purchased in compliance with the applicable manufacturer's Published User Statement, Limited User Statement, or Limited License, if any. While this manual contains certain representations of the potential dangers from the instrument or equipment, Buyer is solely responsible for conducting any research necessary to learn the hazards involved for any of its intended uses of the instrument or equipment purchased from the Company and to properly warn its customers, employees and other personnel who may be exposed to such instrument or equipment of any risks involved in using or handling the instrument or equipment.

The Company warrants that this product will operate or perform substantially in conformance with the Company's published specifications and be free from defects in material and workmanship, when subjected to normal, proper and intended storage and usage by properly trained personnel, for the duration of the manufacturer's warranty period set forth in this product documentation, published specifications or package inserts. If a manufacturer's warranty period is not specified in the product documentation, published specifications or package inserts, the warranty period shall be one (1) year from the date of Bill of Sale to Buyer for equipment, and the earlier of any stated expiration dates or ninety (90) days for all other products (the "Warranty Period"). The Company agrees during the Warranty Period, to repair or replace, at the Company's option, defective Products so as to cause the same to operate in substantial conformance with said published specifications; provided that Buyer shall (a) promptly notify the Company in writing upon the discovery of any defect, which notice shall include the product model and serial number (if applicable) and details of the warranty claim; and (b) after the Company's review, the Company will provide Buyer with service data and/or a Return Material Authorization ("RMA"), which may include biohazard decontamination procedures and other product-specific handling instructions, then, if applicable, Buyer may return the defective Products to the Company with all costs prepaid by Buyer. Replacement parts may be new or refurbished, at the election of the

Company. All replaced parts shall become the property of the Company. Shipment to Buyer of repaired or replacement Products shall be made in accordance with the Delivery provisions of the Terms & Conditions agreed to by the purchase of this product. Consumables are expressly excluded from this warranty.

Notwithstanding the foregoing, Products supplied by the Company but not manufactured by the Company are not warranted by the Company, and the Company disclaims all warranties associated with the accuracy of any original manufacturer or third-party supplier Product information, but the Company agrees to assign to Buyer any warranty rights in such Product that the Company may have from the original manufacturer or third-party supplier, to the extent such assignment is allowed by such original manufacturer or third-party supplier.

In no event shall the Company have any obligation to make repairs, replacements or corrections required, in whole or in part, as the result of (i) normal wear and tear, (ii) accident, disaster or event of force majeure, (iii) misuse, fault or negligence of or by Buyer, (iv) use of the Product in a manner for which they were not designed, (v) causes external to the Product such as, but not limited to, power failure or electrical power surges, (vi) improper storage and handling of the Product or (vii) use of the Product in combination with equipment or software not supplied by the Company. If the Company determines that Product for which Buyer has requested warranty services are not covered by the warranty hereunder, Buyer shall pay or reimburse the Company for all costs of investigating and responding to such request at the Company's then prevailing time and materials rates. If the Company provides repair services or replacement parts that are not covered by this warranty, Buyer shall pay the Company therefor at the Company's then prevailing time and materials rates.

Any installation, maintenance, repair, service, relocation or alteration to or of, or other tampering with, the product performed by any person or entity other than the company without the company's prior written approval, or any use of replacement parts not supplied by the company, shall immediately void and cancel all warranties with respect to the product.

The obligations created by this warranty statement to repair or replace a defective product shall be the sole remedy of buyer in the event of a defective product. Except as expressly provided in this warranty statement, the company disclaims all other warranties, whether express or implied, oral or written, with respect to the products, including without limitation all implied warranties of merchantability or fitness for any particular purpose or use. the company does not warrant that the products are error-free or will accomplish any particular result.

Nothing in this manual or in the terms and agreement agreed to at the time of purchase shall be construed to provide for the transfer, assignment or alienation of the limited warranties provided by the company herein to any other party other than buyer, including but not limited to, successors, heirs, subsidiaries or any other third person.

The warranties identified above are the sole and exclusive warranties with respect to this product and are in lieu of all other warranties, express or implied. all other warranties are expressly disclaimed, including, without limitation, those of non-infringement, merchantability, or fitness for a specific purpose or use (whether arising from statute, or otherwise in law, or from a course of dealing, or usage of trade). This warranty is not transferable from the original purchaser to a subsequent owner. further, the

company is not liable in cases of deliberate, negligent or accidental misuse of the products, use with inappropriate reagents or consumables, damage caused by disaster, repair or modifications done by anyone other than the company. The company does not warrant that the product will not infringe the intellectual property rights of a third party either alone or in combination with other products or in the operation of any process. The company's total liability for breach of these warranties shall be limited to the gross purchase price for the product as stated in the relevant invoice or order under which the activity giving rise to liability arises. Under no circumstances shall the company be liable for indirect, incidental, consequential, special or punitive damages (including loss of business or profits) under any theory of liability hereunder.

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.

LIMITATION OF LIABILITY

Notwithstanding anything to the contrary contained herein, the liability of the company under these terms and conditions (whether by reason of breach of contract, tort, indemnification, or otherwise, but excluding liability of the company for breach of warranty (the sole remedy for which shall be as provided under this section) shall not exceed an amount equal to the lesser of (a) the total purchase price theretofore paid by buyer to the company with respect to the product(s) giving rise to such liability or (b) one hundred thousand dollars (\$100,000), whichever is less.

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II. Safety



IMPORTANT Safety Items to be Observed.

! 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 is 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 distill 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 devices.
- 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 vapour 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 the formation of any peroxides and remove the peroxides if any. Many organics easily form peroxides, such as methoxy pyridine, diethyl ether, dioxane, tetrahydrofuran, and unsaturated hydrocarbostyrl, 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 a further operation, please let each part cool down.
- When the instrument is not rotating, never heat the evaporating flask. The 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 an 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 de-energized only when the power cable is disconnected from the power source.
- Ensure the instrument and its accessories are protected from 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. Aqua Vitae - Introduction

Users are advised to carefully read this manual prior to using or operating the Aqua Vitae 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 ServiceEurope@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	20206003
Product Name	Aqua Vitae
Voltage [VAC]	100-120/200-240
Frequency [Hz]	50/60
Power [W]	1400
Motor	External Rotor Brushless Motor
Speed Range [rpm]	20-280
Speed Display	LCD
Reversible Direction of Rotation	Yes
Temperature Range [°C]	RT -180
Heat Control Accuracy[°C]	Water: $\pm 1^{\circ}\text{C}$ Oil $\pm 3^{\circ}\text{C}$
Temperature Display	LCD
Heat Output [W]	1300
Lift	Motor
Stroke [mm]	150
Timer [mm]	1-999
Dimensions [D x W x H, mm]	465 x 457 x 583
Weight	19.44 kg / 42.86lbs
Water Bath Volume	5 L
Evaporation Flask Volume	2 L
Ambient Temperature [°C]	5-40

Model	20206003
Product Name	Aqua Vitae
Relative Humidity	80%
Protection Class acc. to DIN 60529	IP20
USB	Yes


V. 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 ServiceEurope@hollandgreenscience.com.

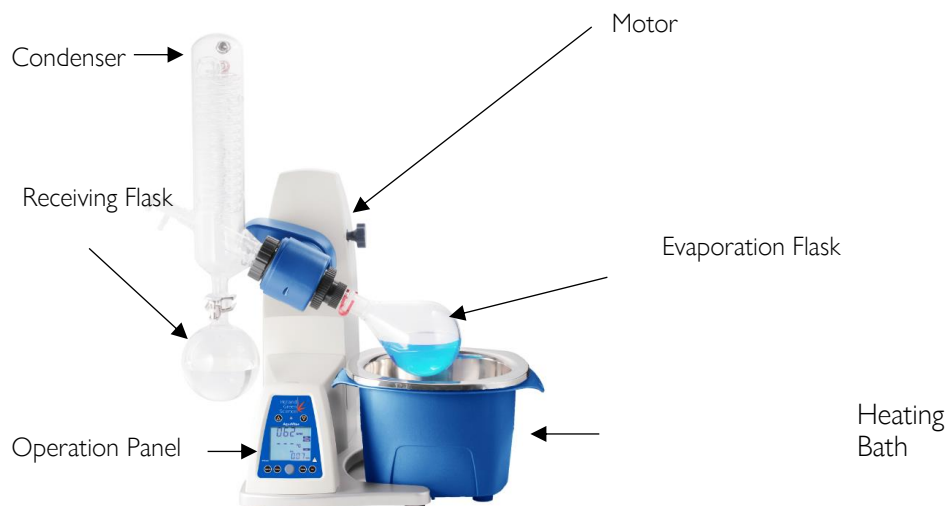
The package includes the following items

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

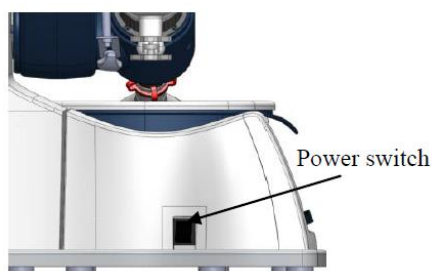
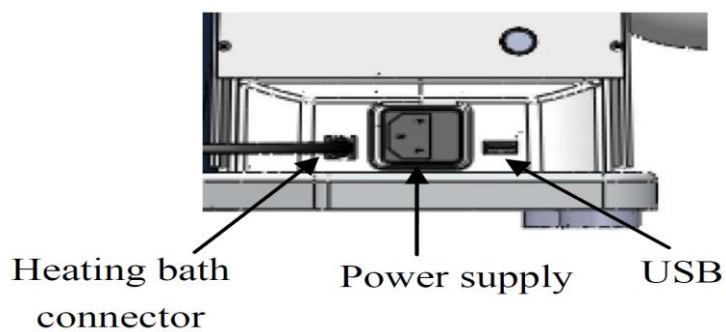
	<p>CAUTION:</p> <p>If there is any visible damage to the instrument, please do not connect the instrument to a power supply.</p>
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VI. Technical Overview

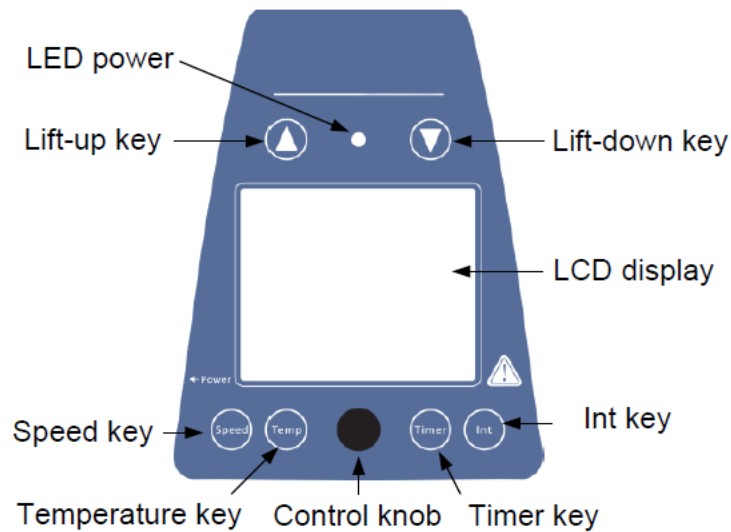
6.1 Aqua Vitae Rotary Evaporator



6.2 Power Supply and Power Switch

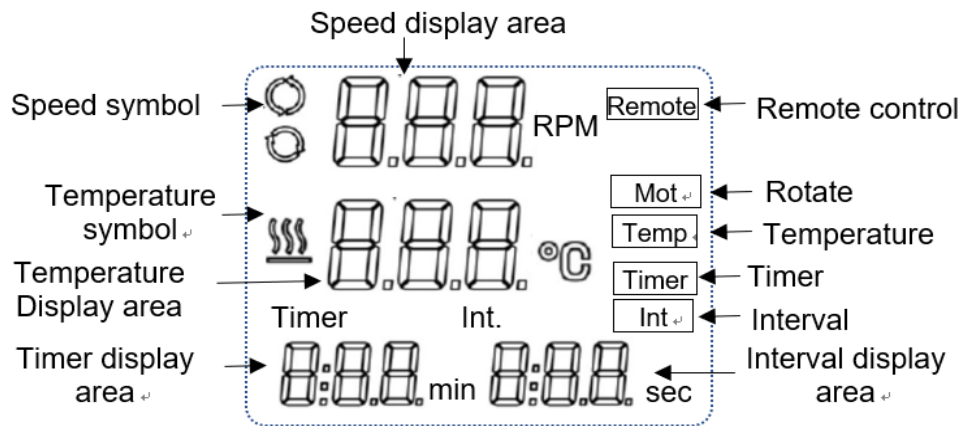


6.3 User Interface



Items	Descriptions
Speed Key	Push the Speed Key and then rotate the Control Knob to set the rated speed in the range from 20 to 280.
Temperature Key	Push the Temperature Key and then the rotate Control Knob to set the rated temperature in the range from room temperature to 180°C.
Timer Key	Push the Timer Key and then rotate the Control Knob to set the timer in the range from 1 to 999min.
Int Key	Push the Int Key and then rotate the Control Knob to set the interval for change rotation direction in the range from 1 to 999s.
Control Knob	Clockwise rotate the Control Knob to increase program values. Rotate the Control Knob anti-clockwise to decrease program values. Press the Control Knob , to switch the unit ON or OFF.
Lift-UP Key	Press the Lift -Up Key, to lift up. Release the Lift-Up Key to stop the lift and remain in position.
Lift-DOWN Key	Press the Lift -Down Key , the lift goes down. Release the Lift-Down Key to stop and remain in required position.

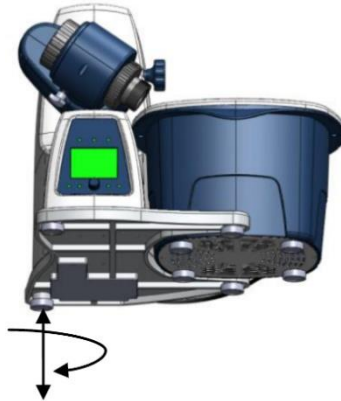
6.4 Display



Characters	Description
Remote Control	Displays when under remote control.
Mot	Displays when motor rotating function is switched ON
Temp	Displays when the heating function is switched ON.
Timer	Displays when timer function is switched ON.
Int	Displays when Interval function is switched ON.
Speed Display Area	When setting speed, displays the setting value and flashes The setting value does not flash until real speed reaches the set point.
Speed Symbol	Display when the rotating function is switched ON.
Temperature Display Area	When setting temperature, displaying the setting value. When the heating function is switched ON, displaying the real value.
Temperature	Display when the heating function is switched ON.
Timer Display Area	When setting timer, displaying the rated time. When the timer function is switched ON, displaying remaining time.
Interval Display Area	Displaying the "Int" target value.

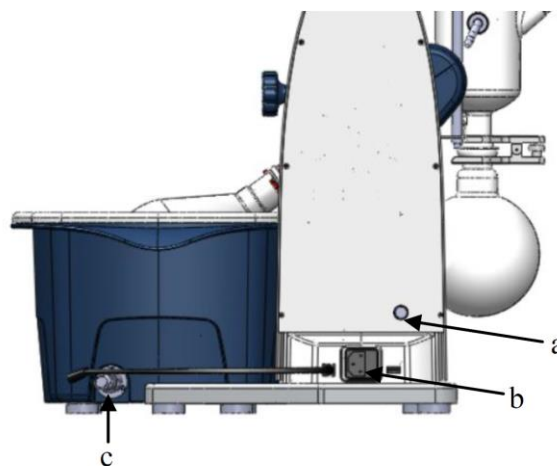
VII. Installation Instructions

- Adjustable base

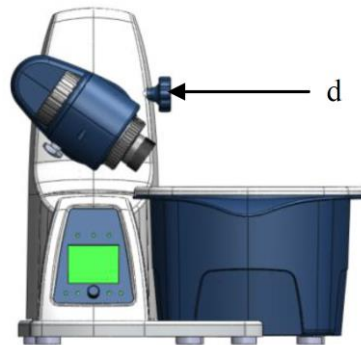


CAUTION! Loosen the Transportation Lock

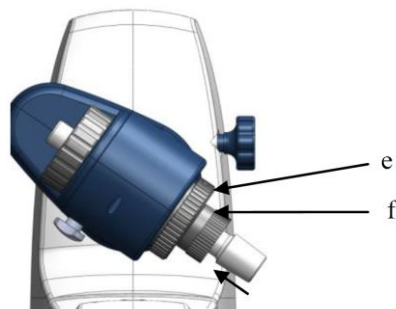
- Hold the lift with your hand on the height position and remove the thumb screw on the back of the instrument **(a)**.
- Once the transportation lock has been removed, the lift moves slowly to its upper end position. The distance is 150mm.
- Connect the device to the power supply using power cable **(b)**.
- Connect the heating bath to the device **(c)**.



- Remove the clamping device for the angle setting of the rotation drive on the right side of the lift by rotating the knurled screw **(d)** counter clockwise.
- Set the drive at an angle of approx.30°
- Then secure the rotation drive from being accidentally turned by tightening the knurled screw in a clockwise direction.

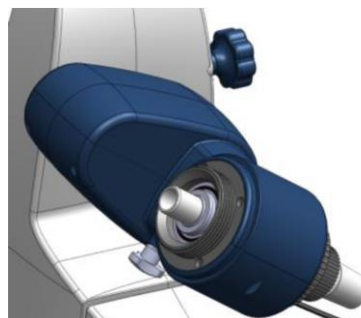


- Open the locking device on the drive head by turning it 60° counter clockwise **(e)**
- Feed the vapour tube in until it bottoms out.
- Then lock the locking device by turning it clockwise by 60°.
- The plastic screw nut **(f)** helps loosen tight-fitting piston ground-in connections
 - Hold the tight-fitting evaporator piston and counter clockwise **(e)**, and then turn the plastic screw nut **(f)** until the evaporator piston neck releases.

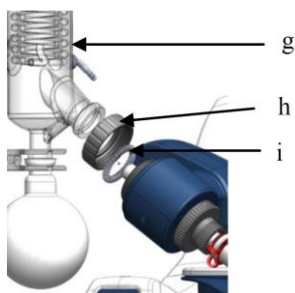


Note: Prior to commissioning, hand-tighten the plastic screw nut (f)

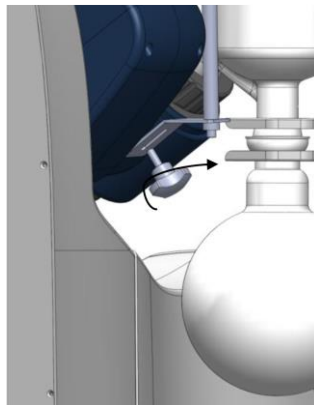
- Installing the Condenser Seal -



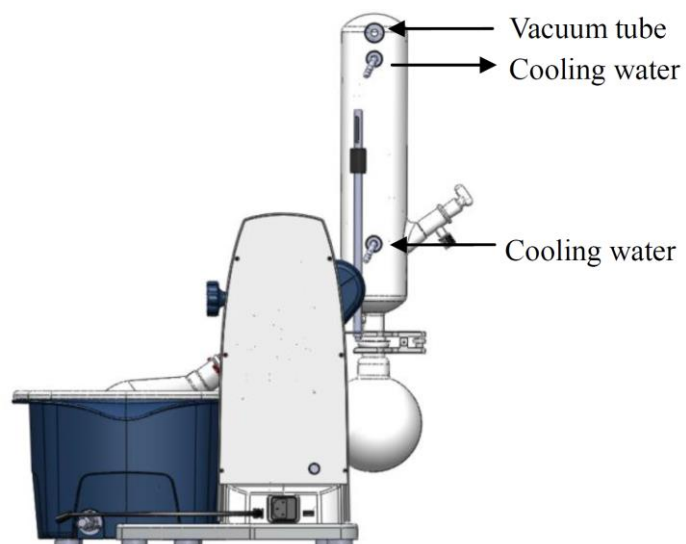
- Installing the Condenser (g).
 - Load the cap nut (h) and locking spring (i) to the condenser and turn.
 - Tighten the cap nut hand-screwed (h). Start the device at 200 rpm for 2 min and then tighten the cap nut firmly.



- Installing the vertical glassware condenser locking device
Use the transportation screw on the back of the instrument



- Connecting Hoses - Error! Reference source not found.



Note:

Please do not remove the evaporating flask and receiving flask while the instrument is in operation.

VIII. Operating Instructions

- Confirm the required operating voltage and power supply voltage match the instrument requirements specified refer to the instrument name plate
- Switch power 'ON' and instrument will initialise
- Pressing the 'Lift-Up / Lift-Down Keys', allows the lift to go up or down. Releasing the 'Lift-Up / Lift-Down Keys', stops the lift in current position.
- Push the 'Speed Key' and then rotate the 'Control Knob' to set the speed.
- Push the 'Temperature Key' and then rotate the 'Control Knob' to set the temperature.
- Push the 'Timer Key' and then rotate the 'Control Knob' to set the timer.
- Deactivate the 'Timer' by setting the target value to "0".
- Press the 'Int Key' and then rotate the 'Control Knob' to set the interval value.
- Deactivate the 'Interval' by setting the target value to "0".
- Press the 'Control Knob', to switch 'ON' or 'OFF'.

8.1 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 whilst the instrument is running.

Before operating the instrument, ensure the inside of the heating bath is clean and be sure to remove all foreign objects from the heating bath

When any strange noise or any other abnormality occurs during operation, please stop the instrument immediately.

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

IX. Fault Diagnosis

- If the instrument cannot be powered ON
 - Check whether the power cord is unplugged or if power supply is switched 'OFF'
 - Check fuse
- **Fault** upon 'Self-Test'
 - Switch OFF the instrument, make sure the instrument in safe condition, then switch ON.

ERR 003, lift operation timeout

- Load overweight

- **ERR 005**, lift fault
 - Check whether the transportation lock is loose
 - Exceeded maximum weight limit

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 ServiceEurope@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.

Holland Green Science Europe B.V.

Mauritskazerne D41, Office D21

Nieuwe Kazernelaan 2

6711 JC EDE, The Netherlands

Tel: +31643498156

E-mail: SalesEurope@hollandgreenscience.com

E-mail: ServiceEurope@hollandgreenscience.com

Chamber of Commerce number: 82526494

VAT number: NL862505744B01