Manual No.16623

Thermostatic Water Bath

User Manual

Applicable models: single-opening, 2-opening, 4-opening, and 6-opening models. Please read this manual carefully before operating the equipment and keep it for future reference.

Contents

1 Product Overview

1.1 Intended Use

The multi-opening thermostatic water bath uses electric heating and is mainly used for distillation, drying, concentration, and warm maceration of chemicals or biological products. It is suitable for laboratories in universities, vocational schools, research institutions, testing organizations, and industrial enterprises. Single-opening, 2-opening, 4-opening, and 6-opening models are available for processing multiple samples.

1.2 Working Principle and Features

The equipment heats water through an electric heating tube immersed in the bath. A digital temperature controller monitors and adjusts the temperature so that the water remains within the set range. The water level sensor automatically cuts off the power and gives an alarm when the water level is too low, reducing the risk of dry heating.

- Digital temperature display for clear operation.
- Temperature setting, timed operation and continuous operation.
- Stainless steel bath liner that is durable and easy to clean.
- Water level protection and over-temperature protection.
- Single-opening, 2-opening, 4-opening, and 6-opening product models.

1.3 Structure Description

Component	Description
Stainless Steel Inner Tank	Holds the water and provides a temperature-controlled bath for heating samples.
Removable Multi-Ring Lid	Accommodates sample containers of different diameters and helps reduce heat loss.
Stainless Steel Lid Plate	Supports the removable lids and covers the top of the water bath.
Sample Rack	Supports sample containers and prevents them from contacting the heating element.

Heating Element	Heats the water inside the bath.
Control Panel	Sets and displays the temperature and operating time.
Power Switch	Turns the unit on or off.
Temperature sensor	Measures the bath temperature and sends feedback to the controller.
Drain System	A drain outlet and hose are provided on models with 2, 4, 6, or 8 openings. The single-opening model does not include a drain system.

2 Safety Warnings and Precautions

2.1 Operating Safety

Before operating the equipment, the operator must read this manual carefully and understand the structure, operating method and safety requirements. Untrained personnel or personnel who have not read this manual must not operate the equipment. Incorrect operation may cause burns, electric shock, equipment damage or sample loss.

2.2 Electrical Safety

- This equipment uses 110 V AC at 60 Hz and is supplied with a grounded U.S. plug. Use a socket with reliable protective grounding.
- Before connecting the power, make sure that the supply voltage matches the rating on the equipment nameplate.
- Hold the plug when connecting or disconnecting it. Do not pull the power cord.

- A damaged power cord must be replaced by a qualified person with a cord of the same specification.
- Keep the plug and socket away from water during operation, cleaning and maintenance.
- Do not use the equipment in wet, dusty, corrosive, strongly magnetic or high temperature locations.

2.3 Water Level and Dry Heating Protection

Fill the tank with clean water to approximately two-thirds of its depth. Keep the tubular heating element fully submerged throughout operation. Do not overfill the tank, as heated water may overflow. If the water level becomes too low, the low-water protection system may shut off heating and sound an alarm.

2.4 Operating Precautions

- The bath, lid and nearby parts may become hot during operation. Do not touch them directly.
- Stop the equipment and wait for it to cool before removing samples. Wear heat resistant gloves when necessary.
- Do not move the equipment or touch the temperature sensor during heating.
- If abnormal sound, odor, smoke, display or function occurs, switch off the power and contact the supplier or qualified service personnel.
- When the equipment will not be used for a long time, switch off the power, unplug it and cover it to prevent dust.
- Use clean water only as the bath medium. Do not use flammable liquids, volatile solvents, or combustible media.
- Do not heat sealed containers. Pressure buildup may cause leakage, rupture, or injury.
- Do not leave the equipment unattended while it is operating.

- Do not allow water to splash onto the control panel, power switch, plug, or power cord. If water enters the equipment, disconnect the power immediately and contact qualified service personnel.

2.5 Cleaning and Maintenance

Switch off and unplug the equipment before cleaning. Clean the bath with a soft cloth after the equipment has cooled. Use a soft cloth moistened with a small amount of alcohol or neutral detergent for stains on the housing. Do not use steel wool, strong acids, strong alkalis or corrosive solvents.

3 Technical Specifications

3.1 Normal Operating Conditions

Item	Specification
Ambient temperature	-5 ℃ to 50 ℃
Relative humidity	35% to 85%
Power supply	110 V AC, 60 Hz

3.2 General Technical Parameters

Item	Specification
Temperature control range	Room temperature + 5 ℃ to 99.9 ℃
Temperature control accuracy	1 ℃
Temperature uniformity	≤±1 ℃
Resolution	0.1 ℃

Item	Specification
Timing range	0 to 999 min; 0 disables timing
Operating method	Three button control with increase/decrease adjustment and long press fast adjustment
Temperature correction range	-4.9 ℃ to +4.9 ℃
Water level protection	Automatic power cut-off and alarm at low water level

3.3 Product Series

The product is available in single opening, 2 opening, 4 opening, 6 opening versions. Rated power, capacity, overall dimensions and weight vary by model and shall be confirmed by the equipment nameplate, purchase contract or factory technical documents. Except for the single-opening model, all listed models are equipped with a drain tube.

Item	Single-Opening	2-Opening	4-Opening	6-Opening
Bath Capacity	3.5L	7L	13L	20L
Rated Power	300 W	600 W	800 W	1500 W
Drain Hose	No	Yes	Yes	Yes
Dimensions	200x200x200 mm	345x200x200 mm	345x345x200 mm	510x345x200 mm
Weight	3.2 kg	4.6 kg	6.8 kg	8.6 kg

3.4 Lid Dimensions

Lid dimensions are given in cm and rounded to one decimal place. The outer diameter and inner diameter are listed in the table below.

Lid Insert No.	Outer Diameter (mm)	Inner Diameter (mm)
1	134	98
2	111	78
3	90	58
4	69	40
5 (Solid Lid)	50	/

4 Preparation

4.1 Installation

Place the equipment on a level, stable, heat resistant and well ventilated workbench. Keep sufficient clearance around the equipment. Keep it away from flammable materials, corrosive substances and water sources, and make sure the power plug can be reached easily.

4.2 Adding Water

1. Make sure the equipment is switched off and the bath is clean.

2. Add a suitable amount of clean water.

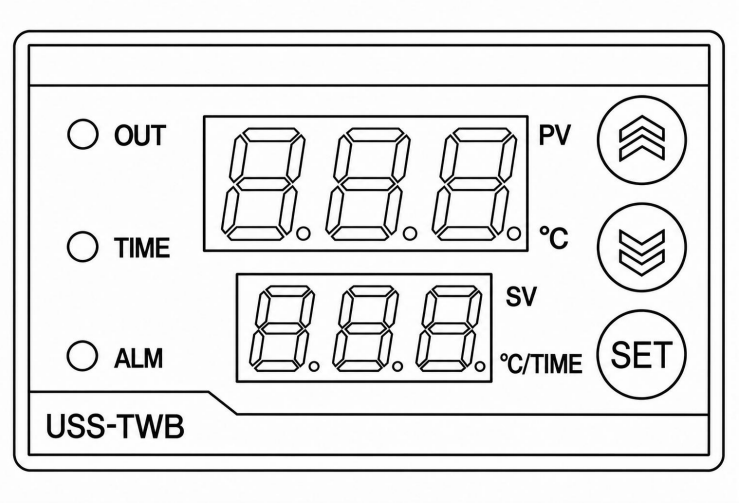
Water Requirements:

Distilled water is recommended to reduce scale buildup and corrosion. Deionized (DI) water is also suitable, while clean tap water may be used for short-term operation but should be replaced and the system cleaned regularly in hard-water areas. Do not use mineral water, salt water, corrosive or flammable liquids, or contaminated water.

3. Make sure the heating tube and all active openings remain below the water level.

4. Check the bath, drain system and power cord for leakage, damage or looseness.

4.3 Control Panel



Key or display	Function
Temp display	Displays the set temperature or current temperature.
Time display	Displays the set time, remaining time or end message.
SET	Enters temperature, time and internal parameter settings.
Up key	Increases temperature or time. Long press moves the cursor and adjusts quickly.
Down key	Decreases temperature or time. Long press moves the cursor and adjusts quickly.

5 Operation Guide

5.1 Power On

After confirming that the water level is correct, connect the power and turn on the power switch. The controller gives a beep and enters the parameter setting state. The displays show the temperature and time parameters.

5.2 Temperature Setting

1. In the stop state, press SET once to enter temperature setting. The upper display shows SP and the lower value flashes.
2. Press the Up key to increase the set temperature or the Down key to decrease it. Long press for fast adjustment.
3. Press SET again to confirm the temperature and enter time setting.

5.3 Time Setting

1. After entering time setting, the upper display shows ST and the lower time value flashes.
2. Press the Up key to increase the time or the Down key to decrease it. Long press for fast adjustment.
3. Set the time to 0 to disable timing. The equipment will continue to operate after reaching the set temperature until it is stopped manually or the power is disconnected.
4. Press SET again to return to the normal display or standby state.

5.4 Timed Operation

When the bath reaches the set temperature, the timer starts counting down and the TIME indicator flashes. At the end of timing, heating stops. The display shows End and may give an audible alert.

5.5 Checking Remaining Time and Restarting

Press the Up key during operation to view the remaining time. After about 3 seconds, the display returns to the temperature display. After timed operation ends, press the Down key to start the next cycle.

Caution: The water and samples may remain hot after operation. Wait until the equipment has cooled before removing samples.

6 Temperature Calibration

6.1 Temperature Correction Parameter

The controller is factory calibrated. The factory setting of C0.0 is 0.0. Adjust the correction value only when a verified measurement shows a difference between the displayed and actual bath temperature.

6.2 Adjustment Procedure

1. Enter the controller parameter-setting state.

2. Press SET repeatedly until C0.0 appears. C0.0 is the temperature error-correction parameter.

3. Press the Up or Down key to adjust the correction value. The adjustment range is -4.9°C to +4.9°C.

4. After adjustment, press and hold SET for 3 seconds to exit the setting state.

Leave the value at 0.0 unless correction is necessary. An incorrect correction value may cause the displayed temperature to differ from the actual temperature.

7 Tank Drainage

The 2-opening, 4-opening, and 6-opening models are equipped with a drain hose. The single-opening model has no drain hose. Stop the equipment and switch off the power before draining. Drain only when the water temperature is below 40°C.

1. On models with a drain hose, open or pull out the drain outlet.
2. Open the sealing cap and allow the water to flow out.
3. After draining, tighten the sealing cap.
4. Return the drain outlet to its original position.
5. The single-opening model has no drain hose. Use a suitable container to remove or pour out the water manually, and keep water away from electrical parts.

Do not drain the bath while it is hot. Hot water may cause burns.

8 Failure Analysis and Troubleshooting

The checks below are limited to simple inspection. Electrical parts, sensors, controllers and heating components must be serviced by qualified personnel.

Symptom	Possible cause	Corrective action
No response on the display after power on	No power	Check the power connection and socket.
No response on the display after power on	Blown fuse	Replace the fuse with the same specification.
No response on the display after power on	Power switch failure	Contact the supplier or qualified service personnel.
Actual and displayed temperatures differ greatly	Temperature sensor damaged or data abnormal	Check the sensor; contact the supplier or manufacturer if necessary.
No heating	Heating tube, relay or control component failure	Stop using the equipment and contact qualified service personnel.
Keys do not respond	Key or controller failure	Contact the supplier or manufacturer.
Err or -Err appears	Sensor initialization failure, abnormal sensor data or low water level	Check the water level and restart. Contact service personnel if the problem remains.

If the problem cannot be solved, record the model, number of openings, display code and symptom, then contact the supplier or manufacturer.

Contact

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