

# Operation Manual



BBWA 2400 series

## Water Bath

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## 01 Warranty

Thank you for purchasing from Biolab. In normal use conditions, the instrument is guaranteed for a period of 24 months from the date of purchase. The warranty is valid only if the product is original. It does not apply to any product or parts of it that have been damaged due to incorrect installation, improper connections, improper use, accident or abnormal conditions of operation. The manufacturer declines all responsibility for damage caused by failure to follow instructions, lack of maintenance and any unauthorized modification.

## 02 Contents of package

The instrument is delivered complete with the following parts:

- 1 main unit (THE WATER BATH)
- Power supply cable
- User manual
- 2 core of fuse

## 03 Instruction for Safety



### 3.1 Dangerous!

possible to cause serious loss to properties or injuries to personages

3.1.1 The Product must be safely grounded and kept away from electromagnetic interference source (make sure not to use the ZL or neutral line as the earth wire).

3.1.2 Before use, make sure that the power supply has the voltage in compliance with the requirement of the Product.

3.1.3 The product should use a separate socket, and make sure the plug and socket is properly grounded.

3.1.4 With the production running, it is not allowed to pull out and plug in the power plug at random without turning off the power switch.

3.1.5 Random extension or cutting of the product's power cable is prohibited.

3.1.6 Unauthorized repair is not allowed and such authorized repair should be carried out by the special personage.

### 3.2 Warning!

possible to cause losses to properties or injuries to personages

3.2.1 Make sure to read and understand thoroughly the Product's Operating Instructions before the operation may be carried out.

3.2.2 304 stainless steel material is not acid resistance, so please pay attention to the corrosion prevention measures. Never place corrosive materials inside the unit to prevent damage.

3.2.3. To take out the power plug, make sure not to pull directly the power cable.

3.2.4. The power cord must be removed from receptacle when any of the following occur:

- When replacing the fuse.
- When the product is waiting for overhaul due to faults.
- When the product goes out of service for a long time.
- When the product is being moved.

### 3.3 Caution!

It may influence the lifetime cause the abnormal operation of the product

3.3.1 The product should be located on the solid and hard surface to keep it in a horizontal mode.

3.3.2 Keep certain space around the product.

3.3.3 The product must be used in the specified conditions.

3.3.4 Fill pure water into water bath up to 1/2—2/3 of the full height.

3.3.5 Prohibit to use the water bath when no water, so that not burn out the heater.

## 04 Product introduction



- ① LCD display
- ② Controller
- ③ Drain / water circulation port
- ④ Handle
- ⑤ Cover handle
- ⑥ Switch
- ⑦ Fuse
- ⑧ Separate over-temperature protector
- ⑨ Power socket

## 05 Technical parameters

Model	BBWA-2402	BBWA-2403	BBWA-2404
voltage	AC220V / 50Hz		
Input power	750W	1450W	1450W
temperature Range	Ambient+5 ~ 100°C/Ambient+9~212°F		
Temperature fluctuation	±0.2°C/±0.36°F		
Tracking alarm	≤2°C(3.6°F)		
Internal Dimension (W*H*D, mm)	305*150*245	505*150*330	505*150*330
Internal Dimension (W*H*D, in)	12.0*5.1*9.7	19.9*5.9*13.0	19.9*5.9*13.0

External Dimension (W*H*D, mm)	353*340*265	558*340*342	558*340*342
External Dimension (W*H*D, in)	14.0*13.4*10.4	22.0*13.4*13.5	22.0*13.39*13.5

※ “P” means the water bath with the circulation pump

## 06 Structural Description

The shell of water tank is made of high quality steel plates; the surface is coated with plastic; internal liner, top cover and shelf are made of optimal corrosion-resistant stainless steel; on the bottom, there is a U-type electrical heating tube directly immersed into water. In front of the water bath, there is a control panel and the LCD screen.


## 07 Operator panel and the functional description


### 7.1 Controller interface and LCD display description






- ① temperature display
- ② temperature setting
- ③ time setting
- ④ system operation status

### 7.2 COMMANDS and DESCRIPTION

7.2.1. The  button permits the working parameters setting.

7.2.2. The  button permits to change quickly the digit (program, units, tens, etc.) of the value of the parameter you are editing.

7.2.3. In combination with the  key allows access to menus with password

7.2.4.  or  adjustment buttons allow you to increase or decrease the value of the operating parameter being edited.

7.2.5. The  button permits to start / stop a cycle operation.

7.2.6. The ON/OFF button allows to turn on and turn off the instrument

## 08 Operating methods

8.1 Fill clean warm water into water tank up to 1/2 ~2/3 of the full height;

### 8.2 Switching on the instrument:


8.2.1 Connect the power cord to a power outlet with a protective ground connection.


8.2.2 Turn on the instrument by pressing the button ON / OFF. Button and the display will light up. The display shows the initialization sequence and then the instrument is ready for use.


NOTE: every time you turn the instrument beeps intermittently, the icon of visual alarm and the word "end" appear on the display, indicating that a heating cycle had been done before. Press any button to silence the audible signal and the icon appears.

### 8.3 Setting of parameters




#### 8.3.1 Working temperature


① When the instrument is switched on, pressing one time the  button, the set temperature value starts to blink. Set the desired temperature value (in Celsius degrees) pressing keys.



② It's possible a quick movement between the digits using the  button.

③ Confirm the set value with another press of  button.

#### 8.3.2 Working time

① After confirming the temperature, the last value of the set time (timer) starts flashing. Set the desired value (hh:mm) by pressing  or  keys. It's possible a quick movement between the digits using the  button.

② Confirm the set value with another press of  button.

NOTE: the value "00:00" indicates the operating mode "continuous", that means once you start the operating cycle by the  button, it continues maintaining the set temperature until it is stopped manually .

③ If you set a value of time, such as 1 hour, the instrument will reach the set temperature and will maintain it for an hour.

8.4 After the experiment, turn off the pump, switch, pull the plug at the lower right side about 30cm, unplug the plug and make the water tank empty, swipe the water.

8.5 To improve control accuracy and keep the main performance about the products. Temperature accuracy shall be amended or adjust to improve or maintain product performance.

8.5.1 Put 0.1°C/0.1°F indexing mercury thermometer (or Digital Thermometer with Resolution of 0.1°C/0.1°F) into the working chamber; the mercury thermometer temperature sensor should be at the geometric center of the available space.

8.5.2 Choosing one point in temperature range, when the measured value is equal to the set value, then constant temperature around 1~2hour (the different specifications have different constant temperature), Observed the gap between measured value of mercury meter and the value of controller should be less than or equal to  $\pm 0.5$  °C/0.9°F.

8.6 With model “p”: plug the silicone tube on water outlet port, meanwhile turn on the pump switch, drain to the outside.

## 09 Maintenance and Precautions

### 9.1 Maintenance

9.1.1. Always keep the internal and external of the water tank clean; do not wipe the shell with the chemical solution, which can cause chemical reaction, to prevent any chemical reaction.

9.1.2. If the instrument is planned not to be used for a long time, cover it with a plastic thin film dust shroud and place it in a drying room so as to prevent the temperature control instrument from being moisturized and out of use.

9.1.3. The instrument is not suitable to be used in the environments of high voltage, heavy current, intense magnetic field or corrosive gases to prevent the instrument from being damaged by intervention and prevent the persons from the risks of the electroshock.

### 9.2 Precautions

9.2.1 The shell of the water bath shall be grounded effectively to guarantee the safe use.

9.2.2 Before filling water, never press down the power switch so as to prevent the electrical heating tube from being burnt.

9.2.3 If you do not need to use the timer, set Time=0.

9.2.4 When any sound and light alarms are sent out from the water tank, please check whether the set temperature deviates from the normal range or not; if not, stop using and invite the professional personnel to inspect it or hand it over to our factory for repairing.

9.2.5 Unless necessary, never disassemble the side plate of the temperature control unit so as to guarantee the safety.



# 10 Troubleshooting

Symtoms	Possible causes	Remedies
No power after startup (pilot lamp is not on)	Power socket is not energized or plug is in poor contact.	Make it repaired.
	Chamber power line broken or plug not inserted properly.	Make it repaired or inserted again.
	Power switch is broken (or not turned on)	Make it repaired by the professional personnel
	Fuse blown	If the fuse still burned out after the replacement and energization, you need to check if the switch, heater or temperature controller are short-circuited or leaked (insulation resistance of 0) and restart after repairing.
Displayed error on the screen	Sensor is out of order or wiring is broken (knocked off)	Pt100 is repaired or replaced.
No temperature rise	Check if timer is set up and time is up.	Refer to the operation of timing function.
	The controller does not work (without output)	When <b>OUT</b> light doesn't shine or 3061 is broken, replace it.
	Setting temperature is lower than the internal temperature	Open the door until the internal temperature becomes the same as or lower than the setting temperature
Temperature control is inaccurate (static difference is large)	Difference between room temperature and set temperature is less than 10 degrees Celsius	Minimum temperature under control :Ambient+10°C(18°F)



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