
Operator's Manual

Economy Water Baths



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Introduction

Thank you for choosing this Water Bath. It is designed to handle a wide range of laboratory procedures, including: incubation, inactivation, and agglutination as well as most pharmaceutical, serological, biomedical, and industrial procedures.

To ensure optimum temperature uniformity, your Water Bath features an energy efficient, large-area heater and thermostatic control to provide temperature uniformity. A redundant safety thermostat is standard on all models.





General Safety Information

When installed, operated, and maintained according to the directions in this manual and common safety procedures, your Water Bath should provide safe and reliable temperature control. Please ensure that all individuals involved in the installation, operation, or maintenance of this Water Bath read this manual thoroughly prior to working with the unit.

	This symbol marks chapters and sections of this instruction manual that are particularly relevant to safety. When attached to the unit, this symbol draws attention to the relevant section of the instruction manual.
	This symbol indicates that hazardous voltages may be present.
	This symbol marks information that is particularly important.
	This symbol indicates alternating current.
	This symbol on the Power Switch / Circuit Breaker indicates that it places the unit into a fully powered state.
	This symbol on the Power Switch / Circuit Breaker indicates that it disconnects power to the unit.
	This symbol on the Power Switch indicates that it places the unit in a standby mode. It DOES NOT fully disconnect the unit from the power supply.
	This symbol indicates a protective conductor terminal.
Read all instructions pertaining to safety, set-up, and operation. Proper operation is the users' responsibility.	

Safety Recommendations

To prevent injury to personnel and/or damage to property, always follow your workplace's safety procedures when operating this equipment. You should also comply with the following safety recommendations:

	<p>WARNING:</p> <ul style="list-style-type: none">• Always connect the power cord on this Water Bath to a grounded (3-prong) power outlet. Make certain that the outlet is the same voltage and frequency as your unit.• Never operate the Water Bath with a damaged power cord.• Always turn the Water Bath OFF and disconnect mains power before performing any maintenance or service.
	<p>WARNING:</p> <ul style="list-style-type: none">• Never operate the Water Bath without bath fluid in the reservoir. Periodically check the reservoir to ensure that the liquid depth is within acceptable levels. Always refill the reservoir using the same bath fluid type that is already in the reservoir. Bath oil must not contain any water contaminants and should be preheated to the actual bath temperature before adding as there is an explosion hazard at high temperatures.• Use compatible bath fluids only.• Always drain all fluid from the reservoir before moving or lifting your Water Bath. Be sure to follow your organization's procedures and practices regarding the safe lifting and relocation of heavy objects.
	<p>WARNING: Always allow the bath fluid to cool to ambient temperature before draining.</p>
	<p>WARNING: It is the user's responsibility to properly decontaminate the unit in the event hazardous materials are spilled on exterior or interior surfaces. Consult manufacturer if there is any doubt regarding the compatibility of decontamination or cleaning agents.</p>

Regulatory Compliance & Testing

CSA (60 Hz units)

CAN/CSA C22.2 No. 0-M91 — General Requirement Canadian Electrical Code, Part II
CAN/CSA C22.2 No. 1010.1-92 — Safety Requirements for Electrical Equipment for Measurement, Control, and Laboratory Use; Part I: General Requirements
UL Std. No. 61010A-1 — Electrical Equipment for Laboratory Use, Part I: General Requirements
IEC 61010-1 — Safety Requirements for Electrical Equipment for Measurement, Control, and Laboratory Use; Part I: General Requirements

CE (50 Hz units)

EC Low Voltage Directive 2006/95/EC
EC Electromagnetic Compatibility Directive 2004/108/EC
IEC 61010-1-2001
IEC 61010-2-2001
IEC 61326:2005 / EN 61326 : 2006

Unpacking Your Water Bath

Your water bath is shipped in a special carton. Retain the carton and all packing materials until the unit is completely assembled and working properly. Set up and run the unit immediately to confirm proper operation. Beyond one week, your unit may be warranty repaired, but not replaced. If the unit is damaged or does not operate properly, contact the transportation company, file a damage claim, then contact the company where your unit was purchased.



WARNING: Keep unit upright when moving. Be sure to follow your company's procedures and practices regarding the safe lifting and relocation of heavy objects.

Contents

The items included with your Water Bath are:

- Water Bath
- Gabled Reservoir Cover Assembly
- Sample Tray
- Operator's Manual
- Power Cord

Controls

Temperature Set Dial
Increases / decreases
set point temperature.

Safety Thermostat
Used to adjust safety
set point temperature.



**Over Temperature
Safety Indicator**
Lights when bath
temperature exceeds
safety set temperature.

Heat Indicator
Lit when heater is
active.

Power Switch
Turns power to the
Controller ON and
OFF.

Installation and Startup


Your Water Bath is designed to be simple to setup and install. The only tools required are a flat-head screwdriver and a container for adding water or another suitable fluid to the bath reservoir.


General Site Requirements

Locate your Water Bath on a level surface in an area that is free from drafts and wide ambient temperature variations, such as near heater or air conditioning vents. Do not place it where there are corrosive fumes, excessive moisture, or in excessively dusty areas.

Avoid voltage drops by using properly grounded power outlets wired with 14 gauge or larger diameter wire and, if possible, be close to the power distribution panel. The use of extension cords is not recommended; this will reduce the potential for problems caused by low line voltage.

Adding Liquid to the Bath Reservoir

	<p>WARNING: Read the safety data sheet for the bath fluid being used carefully before filling reservoir.</p> <p>WARNING: See <i>Technical Information</i> in the rear of this manual for a list of compatible liquids.</p> <p>WARNING: If the proper fluid level is not maintained, the unit could possibly be damaged (fluid level too low) or the bath may overflow (fluid level too high).</p>
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	<p>CAUTION: Fumes from acidic solutions may cause corrosion of the stainless steel reservoir. Care should be taken to maintain a neutral pH at all times.</p>
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Fill bath so that liquid level is approximately one inch (2.54 cm) from top when samples are placed in bath.

To ensure accurate reading of temperature, the fluid level should not be less than 2 inches (5.08 cm) from the bottom of the unit. Operation of the bath without fluid will not damage the heater, but will cause permanent discoloration of the tank and will not provide accurate temperature information.

Distilled water is preferred for temperatures from 50° to 194°F (10° to 90°C). A variety of fluids can be used with the bath depending on the application. The fluid must be compatible with 300 series stainless steel. See *Technical Information, Reservoir Fluids* in the rear of this manual for a list of compatible fluids.

If using water, a few drops of polyclean Algaecide (part number 004-300040) should be used to help prevent algae formation.

	<p>WARNING: Always drain all fluid from the reservoir before moving or lifting your Water Bath. Be sure to follow your organization's procedures and practices regarding the safe lifting and relocation of heavy objects.</p>
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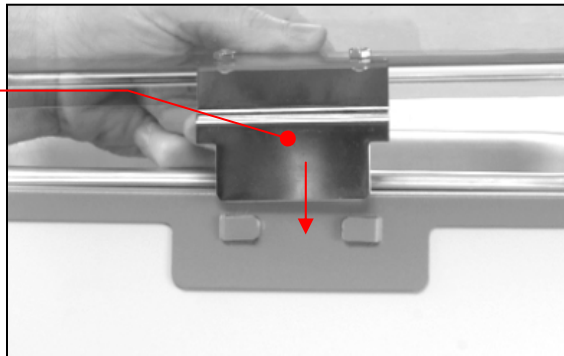
	<p>WARNING: To avoid the potential for burns, allow the Water Bath to cool completely before cleaning or performing any maintenance.</p>
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Attaching the Reservoir Cover

Your water bath comes fully assembled. To achieve stable operating temperatures above 60°C/140°F, use of the included reservoir cover is required. To attach the reservoir cover, insert the hinge into the bracket on the rear of the bath housing.

When properly installed, the lid tilts up to a 90° position, allowing condensate to drain back into the bath.

Insert reservoir cover hinge into bracket on rear of bath housing.



Electrical Power



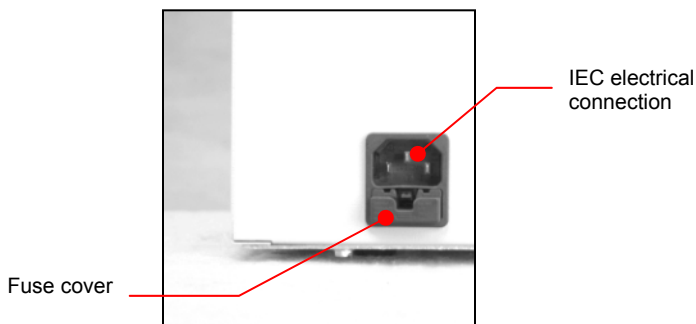
WARNING: The Water Bath's power cord must be connected to a properly grounded electrical receptacle. Make certain that this electrical outlet is the same voltage and frequency as your Water Bath. The correct voltage and frequency for your Water Bath are indicated on the identification label on the rear of the unit.



CAUTION: The use of an extension cord is not recommended. If one is necessary, it must be properly grounded and capable of handling the total wattage of the unit. The extension cord must not cause more than a 10% drop in voltage to the unit.

Insert female end of included IEC line cord into the IEC electrical outlet on rear of the water bath. Insert the male end of the line cord into a properly grounded wall outlet.

Once the unit is plugged in, • • will be displayed on the controller, indicating the unit is in stand-by mode. The unit will stay in stand-by mode until powered ON by pressing the Power Button on the front control panel.

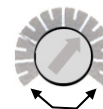


Controller Setup

Safety Set Temperature

This is a “Do Not Exceed” temperature setting for your Water Bath and is the temperature at which the heater will be turned OFF should the liquid level in the bath drop too low or the Water Bath malfunctions. It is normally set about 5° higher than the desired operating temperature. The Safety Set temperature is adjusted as follows:

1. Using a flat blade screwdriver, rotate the Safety Thermostat clockwise until it stops.
2. Turn power to the controller ON.
3. Set the bath to the desired safety set temperature.
4. Once the bath temperature has stabilized at the desired value, slowly rotate the Safety Thermostat counter-clockwise until the Safety Indicator light turns ON.
5. Slowly rotate the Safety Thermostat clockwise until the Safety Indicator light turns OFF.



Your bath is now ready for operation.



WARNING: The Safety Thermostat is user-adjustable. Do not force the control dial beyond the stops at either end of the dial's range.



NOTE: If the Safety Set is activated during normal operation, the Safety Indicator light will turn ON and **FE3** will appear on the digital display.

Normal Operation

Turning Your Water Bath ON

Place the Power Switch on the front panel in the ON position. If the actual bath temperature is lower than the set point temperature, the heating symbol will light.

Adjusting the Set Point Temperature

Rotate the Temperature Set Dial until the indicator is at the desired set point temperature. Use an external thermometer to read the actual bath temperature; adjust the Temperature Set Dial as needed until the bath temperature stabilizes at the desired operating temperature.

Routine Maintenance & Troubleshooting



WARNING: Hazardous voltages may be present. Disconnect power before performing maintenance.

Cleaning the Bath

Thoroughly clean the bath before each use. Use only mild soap and water when cleaning. Do not use steel wool as damage to the unit may result. Non-steel scouring pads are acceptable.

The entire unit is housed in a tough, well-insulated stainless steel casing that is corrosion and chemical resistant.

Disassembling the Bath

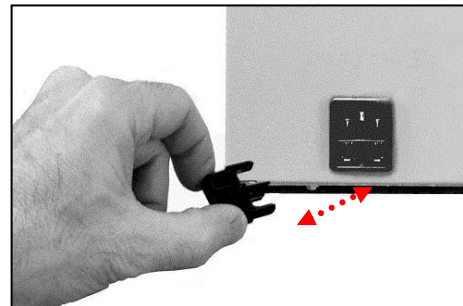
The following procedure should only be performed by a qualified service technician.

1. Unplug the bath from its power source.
2. Drain the bath of all fluid; remove the thermometer, clip, cover and sample tray.
3. Turn the bath upside down to expose the bottom. Remove the screws around the outer edge of the tank bottom plate.
4. Slide the bottom plate toward the front of the unit and lift off.
5. At this point, all the internal components are accessible for replacement.

Replacing Fuses

To check / replace fuses:

1. Unplug the power cord from the rear of the unit.
2. Locate and remove the fuse cover located on the top of the IEC power receptacle on the rear of the unit.
3. Check and replace fuses as needed; replace cover.



Troubleshooting Chart

Problem	Cause	Corrective Action
No power to unit	Electrical power disconnected Blown or loose fuse Controller turned OFF	Check that power cord is connected to the bath and is plugged into an operating electrical outlet. Check that fuse is in place and intact. Turn Controller ON
No heating	Set point lower than bath temperature Bath temperature above Safety Set temperature Liquid level in bath is too low	Check set point temperature; increase as required. Check if Safety Set indicator light is lit; adjust Safety Set temperature as required. Check that liquid level is at least 2 inches (5.08 cm) above bottom of tank; add fluid as required.
Insufficient heating	Improper line voltage Recent change in set point or heat load Bath cover not in place	Check that line voltage meets specifications. Allow sufficient time for bath temperature to stabilize when changes in heat load or set point are made. Check that bath cover is in place.

Technical Information

Performance Specifications

Working Temperature: Ambient +5° to 100°C (ambient +10° to 212°F)
60°C (140°F) without cover


Temperature Uniformity: ±0.2°C @ 37°C (±0.4°F @ 98.6°F)

Temperature Stability: ±0.25°C (±0.5°F)


Reservoir Size	Reservoir Dimensions (L x W x D)	Heater Wattage	Electrical Requirements	
			120 V, 60 Hz	240 V, 50 Hz
2 liter	3.9 x 4.3 x 5.5" 9.9 x 10.9 x 14 cm	300	2.5 A	1.25 A
2 liter shallow	5 x 10.8 x 1.9" 12.7 x 27.4 x 4.8 cm	300	2.5 A	1.25 A
5 liter	5 x 10.8 x 5.5" 12.7 x 27.4 x 14 cm	500	4.2 A	2.1 A
10 liter	10.6 x 11.6 x 5.5" 26.9 x 29.5 x 14 cm	500	4.2 A	2.1 A
20 liter	9.5 x 17.5 x 5" 24.1 x 44.5 x 12.7 cm	1000	8.3 A	4.15 A
28 liter	9.5 x 17.5 x 7" 24.1 x 44.5 x 17.8 cm	1000	8.3 A	4.15 A


Environmental Conditions	Indoor use only	
	Maximum Altitude:	2000 meter
	Operating Ambient:	5° to 35°C (41° to 95°F)
	Relative Humidity:	80%, non-condensing
	Installation Category:	II
	Pollution Degree:	2

Reservoir Fluids

	WARNING: Do not operate unit with any potentially flammable materials, as a fire hazard may result.
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Fluid Description	Specific Heat			Normal Temperature Range	Extreme Temperature Range
	@ Fluid Temperature	BTU/lb°F	KJ/Kg°C		
distilled water	50°C	1.00	4.18	10° to 90°C	2° to 100°C
polyclear MIX 30	50°C	1.00	4.18	15° to 90°C	2° to 100°C
polycool HC -50	-30°C	0.62	2.59	-50° to 100°C	-62° to 118°C
polycool EG -25 (50/50 mix with distilled H ₂ O)	-20°C	0.78	3.26	-25° to 100°C	-30° to 115°C
polycool EG -25 (30/70 mix with distilled H ₂ O)	0°C	0.89	3.72	0° to 95°C	-15° to 107°C
polycool PG -20 (50/50 mix with distilled H ₂ O)	-10°C	0.83	3.47	-20° to 100°C	-30° to 115°C
polycool PG -20 (30/70 mix with distilled H ₂ O)	5°C	0.92	3.85	5° to 90°C	-10° to 107°C
polycool MIX -25 (50/50 mix with distilled H ₂ O)	-20°C	0.78	3.26	-25° to 100°C	-30° to 115°C
polycool MIX -25 (30/70 mix with distilled H ₂ O)	0°C	0.89	3.72	0° to 95°C	-15° to 107°C

	<p>WARNING: DO NOT USE THE FOLLOWING LIQUIDS</p> <ul style="list-style-type: none"> • Automotive antifreeze with additives** • Hard tap water** • Deionized water with a specific resistance > 1 meg ohm • Any flammable fluids • Concentrations of acids or bases • Solutions with halides: chlorides, fluorides, bromides, iodides or sulfur • Bleach (Sodium Hypochlorite) • Solutions with chromates or chromium salts • Glycerine • Syltherm fluids <p>** At temperatures above 40°C, additives or mineral deposits may develop. If deposits are allowed to build up, the unit may overheat and fail. Higher temperatures and higher concentrations of additives will hasten deposit build up.</p>
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	<p>CAUTION: Fumes from acidic solutions may cause corrosion of the stainless steel reservoir. Care should be taken to maintain a neutral pH at all times.</p>
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Stay within the fluid's normal range for best temperature stability and low vaporization. At fluid's high temperature extreme:

- A fume hood may be required to prevent the buildup of vapors inside the room.
- Fluid lost from vapor will have to be frequently replenished.
- Caution must be taken to stay well below the fluid's flashpoint.

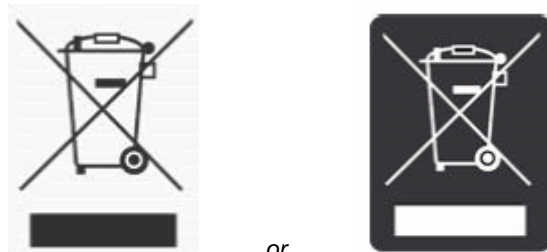
Application Notes

For optimum results, maintain fluid level throughout the operating period, adding fluid as needed. Attempt to refill fluid at same temperature as bath.

Use the bath lid and/or hollow plastic floating balls to help prevent heat and vapor loss.

This unit is designed for indoor use only with an allowable ambient temperature between +5°C to 30°C (41° to 86°F) and relative humidity not greater than 80%.

Equipment Disposal (WEEE Directive)



This equipment is marked with the crossed out wheeled bin symbol to indicate it is covered by the Waste Electrical and Electronic Equipment (WEEE) Directive and is not to be disposed of as unsorted municipal waste. **Any products marked with this symbol must be collected separately, according to the regulatory guidelines in your area.**

It is your responsibility to correctly dispose of this equipment at lifecycle-end by handing it over to an authorized facility for separate collection and recycling. It is also your responsibility to decontaminate the equipment in case of biological, chemical and/or radiological contamination, so as to protect the persons involved in the disposal and recycling of the equipment from health hazards. By doing so, you will help to conserve natural and environmental resources and you will ensure that your equipment is recycled in a manner that protects human health.

Requirements for waste collection, reuse, recycling, and recovery programs vary by regulatory authority at your location. Contact your local responsible body (e.g., your laboratory manager) or authorized representative for information regarding applicable disposal regulations.

Replacement Parts

Model(s)	Part Description	Part Number (120V, 60Hz)	Part Number (240V, 50Hz)
All Baths (120V)	Fuse, 10 Amp	200-455	---
All Baths (240V)	Fuse, 6.3 Amp	---	200-253
All Baths	Line cord IEC-320-13	225-227	225-228
All Baths	Rubber Feet	300-561	300-561
All Baths	Controller	510-370	510-371
2 liter Bath	2 Liter Tank Assembly with Heater	510-467	510-468
2 liter Shallow Bath	2 Liter Shallow Tank Assembly with Heater	510-469	510-470
5 liter Bath	5 Liter Tank Assembly with Heater	510-471	510-472
10 liter Bath	10 Liter Tank Assembly with Heater	510-473	510-474
20 liter Bath	20 Liter Tank Assembly with Heater	510-475	510-476
28 liter Bath	28 Liter Tank Assembly with Heater	510-477	510-478
2 liter Bath	Gabled Polycarbonate Lid	510-435	
2 liter Shallow and 5 liter Baths	Gabled Polycarbonate Lid	510-436	
10 liter Bath	Gabled Polycarbonate Lid	510-437	
20 and 28 liter Baths	Gabled Polycarbonate Lid	510-438	

Bath Fluids

Circulating Bath Fluids	Quantity	Part Number
polyclean Algaecide	8 oz / 236 ml	004-300040
polyclean Algaecide	Twelve 8 oz / 236 ml bottles	004-300041
polyclean Bath Cleaner	8 oz / 236 ml	004-300050
polyclean Bath Cleaner	Twelve 8 oz / 236 ml bottles	004-300051
polycool EG -25 (ethylene glycol)	1 gal / 4.5 liter	060340
polycool PG -20 (propylene glycol)	1 gal / 4.5 liter	060320
polycool HC -50 (water-based heat transfer fluid)	1 gal / 4.5 liter	060330
polycool MIX -25 (50/50 blend polycool EG -25 / H ₂ O plus polyclean algaecide)	Five 0.5 gal / 2.27 liter	004-300060
polyclear MIX 30 (distilled water plus polyclean algaecide)	Five 0.5 gal / 2.27 liter	004-300062

Service and Technical Support

If you have followed the troubleshooting steps outlined previously and your Water Bath still fails to operate properly, contact the supplier from whom the unit was purchased. Have the following information available for the customer service person:

- Model, Serial Number, and Voltage (from back panel label)
- Date of purchase and purchase order number
- Supplier's order number or invoice number
- A summary of the problem

Warranty

The manufacturer agrees to correct for the original user of the product, either by repair (using new or refurbished parts), or at the manufacturer's election, by replacement (with a new or refurbished product), any defects in material or workmanship which develop during the warranty period. The standard warranty is twenty-four (24) months after delivery of the product. In the event of replacement, the replacement unit will be warranted for the remainder of the original warranty period or ninety (90) days, whichever is longer. For purposes of this limited warranty, "refurbished" means a product or part that has been returned to its original specifications. In the event of a defect, these are your exclusive remedies.

If the product should require service, contact the manufacturer's/supplier's office for instructions. When return of the product is necessary, a return authorization number is assigned and the product should be shipped, transportation charges pre-paid, in either its original packaging or packaging affording an equal degree of protection to the indicated service center. To insure prompt handling, the return authorization number must be placed on the outside of the package. A detailed explanation of the defect should be enclosed with the item.

The warranty shall not apply if the defect or malfunction was caused by accident, neglect, unreasonable use, improper service, acts of God, modification by any party other than the manufacturer, or other causes not arising out of defects in material or workmanship.

EXCLUSION OF IMPLIED WARRANTIES. THERE ARE NO WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THOSE OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE WHICH EXTEND BEYOND THE DESCRIPTION AND PERIOD AS STATED IN THE OPERATOR'S MANUAL INCLUDED WITH EACH PRODUCT.

LIMITATION ON DAMAGES. THE MANUFACTURER'S SOLE OBLIGATION UNDER THE WARRANTY IS LIMITED TO THE REPAIR OR REPLACEMENT OF A DEFECTIVE PRODUCT AND THE MANUFACTURER SHALL NOT, IN ANY EVENT, BE LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES OF ANY KIND RESULTING FROM USE OR POSSESSION OF THIS PRODUCT.

Some states do not allow: (A) limitations on how long an implied warranty lasts; or (B) the exclusion or limitation of incidental or consequential damages, so the above limitations or exclusions may not apply to you. This warranty gives you specific legal rights and you may have other rights that vary from state to state.

Manufactured by:

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