

Operators Manual

Microprocessor Controlled Water Baths

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Read all instructions pertaining to safety, setup and operation.

Proper operation is the users' responsibility.

Section 1 - General Information

1.1 Warranty

Thank you for purchase. We are confident your new water bath will serve you for a long time. Our warranty is as follows:

The manufacturer agrees to correct for the original user of this product, either by repair, or at the manufacturer's election, by replacement, any defect which develops after delivery of this product within the period as stated on the warranty card. In the event of replacement, the replacement unit will be warranted for 90 days or warranted for the remainder of the original unit's parts or labor warranty period, whichever is longer.

If this product requires service, contact the manufacturer/supplier's office for instructions. When return of the product is necessary, a return authorization number will be assigned and the product should be shipped, (transportation charges pre-paid), to the indicated service center. To insure prompt handling, the return authorization number should be placed on the outside of the package and a detailed explanation of the defect enclosed with the item.

This warranty shall not apply if the defect or malfunction was caused by accident, neglect, unreasonable use, improper service, or other causes not arising out of defects in material or workmanship. There are no warranties, expressed or implied, including, but not limited to, those of merchantability or fitness for a particular purpose which extends beyond the description and period set forth herein.

The manufacturer's sole obligation under this warranty is limited to the repair or replacement of a defective product and 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. You may have other rights which vary from state to state.

1.2 Unpacking

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.

1.3. Package Contents

- Water Bath
- Lid Assembly
- Sample Tray
- Operators Manual
- Warranty Card
- Thermometer Clip
- Siphon Pump* (*10, 20, 28 Liter & Dual Chamber Models Only)

1.4 Description

Water Baths offer the versatility needed to handle virtually any laboratory procedure : incubation, inactivation, agglutination; as well as most pharmaceutical, serological, biomedical and industrial procedures.

Your water bath utilizes an energy efficient, large-area heater and thermostatic control to provide temperature uniformity. PID microprocessor control (Proportional Integral Derivative.) provides proportional heat control, anticipating the approach to your set temperature and prevents overshoots.

A redundant thermostat is standard on all models. Although not designed as a dry bath, operation of the bath without liquid will not damage bath or heaters.

1.5 Water Bath Specifications

Temperature Range : Ambient +5°C to 100°C (60°C without cover)

Temperature Uniformity : ± 0.1°C

Temperature Stability : ± 0.25

Section 2 - Set Up

2.1. Location

Set your water bath on a table or bench that is level and in an area that is free from drafts and wide ambient temperature variations, such as near heater or air conditioning vents.

2.2 Assembly

The water bath comes fully assembled for your convenience.

For applications above 60°C, the cover is required. Insert the lid's hinge into the bracket on the bath casing. Properly installed, it tilts up to a 90° position. Condensation drains back into the bath.

If a thermometer is used, bend the supplied thermometer clip to securely hold onto your thermometer. Hang clip on the center front edge of the bath. Line clip up to the lid's front notch.

2.3 Reservoir Fluids

Distilled water is preferred, but a variety of fluids can be used with the bath depending on the application. The fluid must be compatible with 300 series stainless steel. Use fluids that satisfies safety, health and compatibility requirements.

The following fluids are not recommended and may cause damage to the unit:

- Any flammable fluids
- Deionized water
- Chlorides or bleach
- Automotive antifreeze with additives
- Most photographic solutions.
- Strong concentrations of any acid or bases
- Mild concentrations of any acid with the following elements (or Halides) in their formulas: Chlorine (Cl), Fluorine (F), Sulfur (S), Chromium salts,

NOTE: Fumes from acidic solutions may cause corrosion of the stainless steel reservoir. Care should be taken to maintain a neutral pH at all times.

Warning!

Do not operate unit with any potentially flammable materials, fire hazard may result.

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.
- If using water, a few drops of Lab Algicide (Cat.No. 08796-00) reduces algae formation.

FLUID DESCRIPTION	SPECIFIC HEAT @25°C	NORMAL RANGE	EXTREME RANGE
Water	1.00	10°C — 90°C	2°C — 100°C
Ethylene Glycol 30%/Water 70%	.90	0°C — 95°C	-15°C — 107°C
Ethylene Glycol 50%/Water 50%	.82	-20°C — 100°C	-30°C — 100°C
Ethylene Glycol 100%	.62	50°C — 125°C	0°C — 155°C*
Methanol 60% / Water 40%	.52	-45°C — 0°C	—
Dynalene™-HC 50	.76	-50°C — 60°C	-62°C — 60°C
DC200 5 cs Silicone Oil	.32	-35°C — 65°C	-50°C — 125°C*
DC200 10 cs Silicone Oil	.34	-20°C — 80°C	-35°C — 165°C*
DC200 20 cs Silicone Oil	.36	0°C — 100°C	-10°C — 230°C*
DC200 50 cs Silicone Oil	.39	50°C — 150°C	5°C — 270°C*
DC510 50 cs Silicone Oil	.39	50°C — 150°C	5°C — 270°C*
DC550 125 cs Silicone Oil	.42	100°C — 200°C	80°C — 232°C*
DC710 500 cs Silicone Oil	.45	150°C — 250°C	125°C — 260°C*

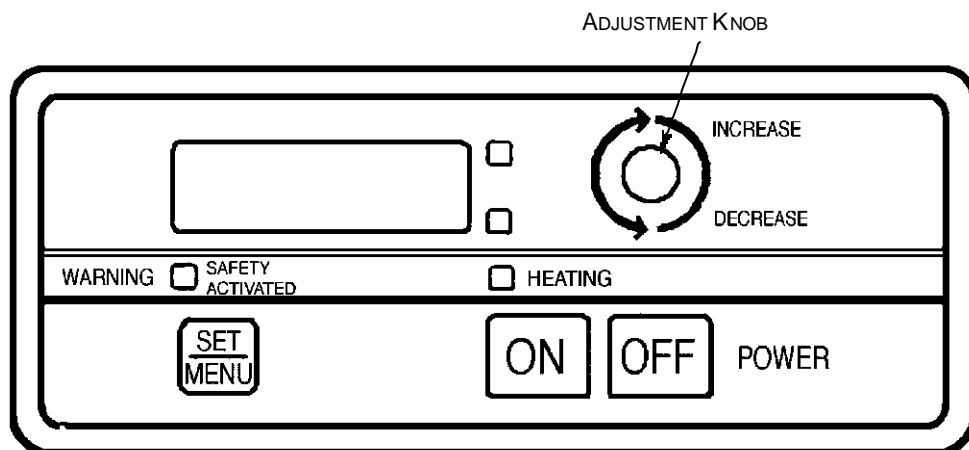
*WARNING - Fluid's flashpoint temperature.
DC fluids are manufactured by Dow Corning.

Section 3 - Operation

3.1 Operation

1. Check data plate (on rear of unit) for power requirements. Connect line cord plug to a suitable grounded electrical outlet.
2. Fill bath so that liquid level is approximately 1-inch from top when samples are placed in bath.
3. Rear panel power switch should be ON. Press the front panel ON button. The LED illuminates. The display indicates your set temperature for a few seconds, then displays the actual bath temperature. If the display does not light, check circuit breaker on the rear panel and check power source.

NOTE: The 120 volt models have a circuit breaker button that protrudes approx. $\frac{3}{16}$ inch. When tripped it extends to $\frac{5}{16}$ inch. 240 volt models have a rocker-type circuit breaker.



Operation 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 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 +4°C to 35°C, and relative humidity not greater than 75%.
- The Dual Chamber Model contains two reservoir tanks, 5-liter & 10-liter, with independent controllers. These controllers can be set to run two separate operations simultaneously.

3.2. Setting Temperature

Before Setting Temperature. Turn the Safety Set to dial position 10. On 240V models the Safety Set is recessed. Remove the cap, then use a standard screwdriver to rotate clockwise.

Your water baths have two thermostat controls: (1) A microprocessor based primary controller and (2) a secondary safety set hydraulic thermostat backup. Proper operation involves setting both controls. The Primary Control System uses the the Setting Adjustment knob to set your desired temperature. The Second System uses the Safety Set to set the secondary control temperature slightly higher than the primary control temperature.

To set the temperature, or Primary Control

1. Press the Set/Menu button. The flashing °C / °F indicates the bath is in the temperature setting mode.
2. While the indicator is flashing, turn the Setting Adjustment knob to the desired temperature. The new setting is accepted in a few seconds or press Set/Menu button again.
3. The Set Temperature may be changed or checked anytime during operation by pressing the Set/Menu button.
4. When the bath temperature has stabilized, the Heat Indicator will cycle on and off as the controller calls for heat to maintain the set temperature.

3.3 Setting the Safety Set

This dual system protects samples from damage due to overheating. If the bath temperature reaches the Safety Set temperature due to primary control failure, the Warning Indicator lights to show the safety control has been activated, taking over control, permitting operation until the primary control can be repaired.

1. First, the bath must be stabilized at your desired set temperature.
2. Turn the Safety Set counter-clockwise until the Warning Indicator comes on.
3. Turn clockwise to adjust the Safety Set temperature 1°C to 2°C higher than the bath temperature, until indicator goes off.

3.4 Setting the High Limit

This feature is to limit the readout setability so the operating temperature setting cannot easily be set above whatever High Limit you select. It is not an over temperature feature which shuts off the bath.

1. Press and hold the Set/Menu button until the display reads "Unit".
2. Turn the Setting Adjustment knob until the display reads "HI-L" (High Limit),
3. Press Set/Menu and enter the desired value using the Setting Adjustment knob. The setting is accepted after a few seconds or press the Set/Menu to go back to the "Unit" display.

Your Set Temperature cannot be set greater than 'HI-L' High Limit.

3.5 Converting Readout to °F or °C

1. Press and hold the Set/Menu button until the display reads "UNITS".
2. Press Set/Menu again then turn the Setting Adjustment knob to select °C or °F.
3. Press Set/Menu again or the setting is accepted after a few seconds.

3.6 Control Panel Position For The 20 & 28 liter

These larger models have a control panel that can be positioned on the front or side of the unit to achieve best use of bench space. To change the position of the controller:

1. Unplug unit from power source.
2. Remove the two screws from the front control panel. Carefully remove the control panel, and disconnect the controller's ribbon cable.
3. Remove the two screws from the cover plate on the side of unit. Reconnect the controller's ribbon cable into the side mount. (The ribbon cable is keyed - take care in reconnecting.)
4. Replace the cover plate and screws in the front panel.
5. Reconnect unit to power source.

3.7 To Return To Factory Default

Switch off the rear panel power, then press and hold the Set/Menu button while switching the rear panel power back on.