Fisher Isotemp Water Baths

Congratulations on your new Fisher Isotemp Water Bath.

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

These water baths are available with chamber capacities of 2, 5, 10, 20, and 28 liters. The 2 liter unit is available configured with either a standard or shallow chamber. Also, a dual chamber unit is available with 5 and 10 liter chambers, with independent controls for each. All units are available to operate from either 120 or 230 volts.

The baths work equally well with water or bath oil as the medium. All models offer the same temperature ranges: ambient to 60°C without the supplied cover, and ambient to 100°C with the cover in place (within physical limitations).

These baths are microprocessor controlled for precise temperatures and reliable, trouble-free operation. Dual thermostats — one controlling the set point temperature and the other operating as a safety — virtually eliminate the possibility of overheating. Although not designed to operate dry, the bath will not be damaged if it is allowed to run dry.

Water Bath Models Available

Capacity/ Type	Model	120 VAC	230 VAC	
2 liter	202	15-462-2	15-462-3	
Single chamber		15-462-S2	15-462-S3	SS Lid
2 liter	202S	15-462-2S	15-462-3S	
Single chamber, shallow		15-462-S2S	15-462-S3S	SS Lid
5 liter	205	15-462-5	15-462-6	
Single chamber		15-462-S5	15-462-S6	SS Lid
10 liter	210	15-462-10	15-462-11	
Single chamber		15-462-S10	15-462-S11	SS Lid
5 and 10 liter	215	15-462-15	15-462-16	
Dual chamber		15-462-S15	15-462-S16	SS Lid
20 liter	220	15-462-20	15-462-21	
Single chamber		15-462-S20	15-462-S21	SS Lid
28 liter	228	15-462-28	15-462-29	
Single chamber		15-462-S28	15-462-S29	SS Lid

An energy-saving removable cover helps to reduce evaporation while helping to maintain a uniform, constant temperature. The cover also allows the water bath to reach higher temperatures. The hinged, see-through gable cover features unique "fins" that keep hands away from hot vapors for easier, safer opening. The cover stays open at the 90° position or, because of its quick-attach hinge, can be lifted off completely to accommodate large glassware.

A plastic rim remains cool to the touch even when operating the bath at maximum temperature.

The unit features a power-on self-test of vital circuitry. This test will automatically be performed each time you turn on the unit. If problems are detected, the system will indicate a warning message on the display.

The calibration of the water bath can be adjusted to optimize its accuracy for the temperature that is used most often in your application. This can be accomplished through a simple procedure accessed from the front panel.

As a convenience, a drain pump is supplied with 10, 20, 28, and dual 5/10 liter models.

All controls are conveniently located on the front panel for easy access. To assure set point security, the temperature can only be changed by entering a specific set menu first. This ensures that the set point cannot be accidentally altered during extended or unattended operation.

To allow you to change the configuration of some units, and to permit easy servicing, your water bath provides front service access to the controller without having to empty the bath.

The water bath features corrosion resistant construction throughout to withstand the rigors of daily lab use.

⚠ Safety information

These instructions contain important operating and safety information. The user must carefully read and understand these instructions before using the water bath.

Your unit has been designed to optimize function, reliability, safety, and ease of use. It is the user's responsibility to install the bath in conformance with local electrical codes.

To avoid electrical shock, always:

- Connect the water bath to a properly grounded electrical outlet of the correct voltage and current handling capacity. Check the nameplate on the back of the unit for the voltage and current rating.
- Disconnect the unit from the power outlet prior to maintenance and servicing. **Note: 230V units are double pole, neutral fusing.**

To avoid personal injury:

- Do not use in the presence of flammable or combustible materials; fire or explosion may result. This device contains components which may ignite such materials.
- Do not remove or modify the grounded power plug. Use only properly grounded outlets to avoid a shock hazard. This unit is not rated for use in hazardous atmospheres.
- Do not continue to operate the bath if the temperature control fails (displays an "E" code or controls erratically) or the backup control fails (red safety light glows continuously when turned completely clockwise or fails to light when turned completely counterclockwise).
- Select a fluid that is not corrosive and is not flammable. The following fluids are not recommended and may damage the unit:
    - Chlorides or bleach.
    - Strong concentrations of any acid.
    - Strong concentrations of any salt.
    - Weak concentrations of hydrochloric acid, hydrofluoric acid, hydrobromic acid, hydroiodic acid, sulfuric acid, or chromic acid.
    - Weak salt solutions containing sodium chloride, calcium chloride, chromate or chromium compounds.
    - Deionized water.
    - Most photographic solutions.
- Do not use a flammable liquid. A fire hazard may result. **This unit is not explosion proof.** Unit contains components which may ignite such materials.
- Use appropriate hand and eye protection when handling hazardous chemicals.
- The interior of the unit can reach temperatures that can cause burns. Avoid contact. The unit can remain hot without visual indication for some time after power is turned off.
- If you will use the water bath with any liquid that will give off fumes, be sure to operate the water bath in a fume hood or with proper ventilation.
- Use the cover to reduce evaporation and to permit reaching higher temperatures.
- Hot liquids pose a burn hazard. Be careful not to reach into the bath when it contains hot liquids. Also be careful of steam rising from hot liquids.
- The unit is intended to be operated with liquid in the chamber. However, it will not be damaged if it temporarily runs dry.
- Do not use in highly corrosive atmospheres; corrosive fumes and spillage may damage the unit and its internal components, creating a shock hazard.
- Fumes from acidic solutions cause corrosion of the stainless steel reservoir. Care should be taken to maintain a neutral pH at all times.
- Refer servicing to qualified personnel.
- Do not place containers directly on bottom of chamber. Bottom can get extremely hot if no liquid is in the chamber. Always use the diffuser tray

Ⓕ Fisher Scientific

Unpacking

The water bath is shipped in a single carton. When unpacking the unit, check each loose item against the packing list below. Should a shortage exist, notify your Fisher branch or representative, identifying the part by name and catalog number.

Note: If there is shipping damage, keep the entire shipment intact — retaining the carton and all packing material — and file a claim with the final carrier. Usually the firm will send an investigator to ascertain liability.

Packing List

Qty	Item Supplied
1	Water Bath
1	Cover Assembly
1	Diffuser Tray
1	Thermometer Clip and Grommet
1	Siphon Pump (10, 20, 28, & dual 5/10 only)
1	Instructions
1	Warranty Card

Assembly and installation

Follow these steps to assemble and install the water bath before operation:

1. The location must:
   - Be indoors.
   - Provide an adequate source of power. Check the label on the back of the unit for voltage and current requirements.
   - Provide adequate clearance to insert samples.
   - Be level, fixed, and capable of supporting the weight of the unit when filled with liquid and samples.
   - Be free of drafts and wide ambient temperature variations such as near a heater or air conditioning vents.
   - Provide a fume hood if hazardous fumes are anticipated when using the water bath.
   - Be convenient to a sink for filling and draining the water bath.

2. Install the cover by inserting the hinge into the lip at the rear of the bath. Angle the cover up while pushing down to lock the hinge in place under the stainless steel tank lip. Remove the cover by lifting the lid and pushing the hinge towards the back to release it from under the tank lip. Covers on the 2 liter shallow, 5 liter, and 10 liter model baths can also be installed and removed by sliding the hinge into place under the rim and tank lips from either side.
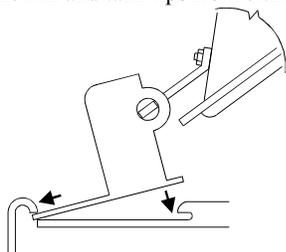
3. Connect the line cord to a suitable grounded electrical outlet.

Repositioning the control panel

Note: This procedure applies to 20 and 28 liter units only.

With 20 and 28 liter units, the control panel can be positioned on the side or the front of the unit in order to achieve the best use of available bench space. To change the position of the control panel, follow these steps:

1. Turn off the unit and disconnect from power source.

2. Allow to cool.

3. Remove thermometer and clip. Remove the cover.

4. Assuming that the water bath is empty, turn it over on a protected surface.

5. Remove two screws retaining the control panel and two screws retaining the blank panel.

   Note: Do not disconnect internal wiring or sensors from control panel.

6. Remove the blank panel.

7. Carefully move the control panel to the new location and reinstall.

8. Install the blank panel at the other location.

9. Return unit to location of use.

10. Reconnect power, turn on and test unit.

Filling the unit

Follow these steps to fill the unit in preparation for use:

Note: If the bath has been used previously, the tank should be thoroughly cleaned before refilling.

1. Fill the water bath with tap water or oil so that the liquid level is approximately 1½ inches (¾ inch with 2 liter shallow model) from the top of the tank when full anticipated load is placed in bath.

2. If a thermometer is used, use the clip provided to hold the thermometer to the side of the bath. Slide the O-ring on the thermometer to position the thermometer to the proper depth.

3. When closing the cover, place the thermometer along the front edge. A notch along the front of the cover clears the thermometer and clip with the cover closed.

4. For optimum results, the same fluid level should be maintained throughout the operating period.

5. If using water, algicide may be added to reduce algae formation. Follow the instructions supplied with the algicide.

Controls and indicators

All controls and indicators are located on the front panel for ease of operation.

Power on/off
Controls line power to unit. Set to **1** position to turn on power, **0** position to turn off power.

°F or °C
Shows whether temperature is being displayed in Fahrenheit or Centigrade.

Display
During standby shows actual temperature; during setups, shows menu modes and values being selected.

Alarm
Lights to show that the backup controller is regulating the temperature rather than the primary controller.

Program
Lights to show that unit is in program mode rather than run mode; see menu below.

Heat
Lights to show when heat is being supplied to the chamber; cycles on and off as heat is requested by the controller.

Menu
Allows you to select the mode of operation. Each time you press the Menu button, the mode changes in this sequence:

- Select temperature units in °F or °C (display shows _C_F).
- Calibrate the unit (display shows CAL).
- Display the actual temperature of the chamber (normal mode of operation).
- The unit will return to normal operation, displaying the actual temperature, if you do not touch any control for a few seconds.

Set
When in the normal mode of operation, allows you to change the temperature setpoint. When in the _C_F mode, allows you to change the temperature units displayed. When in the CALibration mode, allows you to set the temperature offset to calibrate the unit.

Increase (∧)
After entering other than normal mode, increases the displayed value.

Decrease (∨)
After entering other than normal mode, decreases the displayed value.

Safety controller
Sets the Limit temperature above to the primary setpoint; should be set at a higher temperature than the setpoint to give the safety, control in the event that the primary control fails.
Note: The safety control is not as accurate a control as the digital control.

Operation

Follow these procedures for the operation of the unit, including:

- Power up and initial indications.
- Setting the temperature units in °F or °C.
- Setting the temperature setpoint.
- Setting the backup temperature.
- Calibrating the unit.
- Emptying and cleaning the unit.

Power up

Follow these steps to turn on the unit to prepare it for use:

1. Set the power switch to the ON position. The unit will go through a power-on self test that will take several seconds. During this time the display will show the unit's capacity in liters.

2. When the unit has completed its self-test, it will maintain the bath at the last setpoint temperature. The Heat indicator will light when the unit is applying heat to the bath. This indicator will cycle on and off during normal operation.

3. When the display shows normal operation after completing the self-test, continue by setting the temperature setpoint and backup temperature.

4. If the display shows any message after completing the self-test, do not use the unit. Refer to the Troubleshooting section to determine what is causing the message to appear on the display.

Setting the temperature units to °F or °C

Note which indicator is lit to the left of the display, either F for Fahrenheit or C for Centigrade. If the desired indicator is lit, omit this procedure. To change the temperature units, follow this procedure:

1. Press Menu button so display shows _C_F. Press and hold the Set while simultaneously pressing the Increase (∧) or Decrease (∨) button until the display shows the desired temperature units, C for Centigrade or F for Fahrenheit.

2. Release all controls. Within a few seconds, the display will return to normal operation. The desired indicator (F or C) should be lit to the left of the display.

Setting the temperature setpoint

Follow these steps to set the controller so that it maintains the desired temperature:

1. Turn Safety controller knob fully clockwise.

2. Press and hold the Set button to see the current setpoint. The Program indicator lights to show that this is the setpoint. If this setpoint is correct, there is no need to change the setting. The display will return to normal operation when the Set button is released, displaying the actual temperature.

3. To change the setpoint, press and hold the Set button while simultaneously pressing the Increase (∧) or Decrease (∨) button. The display shows the temperature setpoint as you change it. Release the Set button when you have achieved the desired setting. The display will return to normal operation within a few seconds, displaying the actual temperature.

4. To check the setpoint without affecting normal operation, press the Set button at any time. To change the setpoint, repeat step 3 above.

5. Set the Safety temperature according to the procedure below.

Setting the Safety temperature

Follow these steps to set the water bath's Safety temperature controller.
1. Set the Temperature set point 2 to 5 degrees higher than desired temperature. Wait until bath temperature stabilizes as shown by displayed actual temperature.

2. Turn backup controller knob counterclockwise until Alarm light just comes on. Turn the knob clockwise slightly until the light goes off.

3. Set the Temperature set point 5 degrees higher and verify the Safety is controlling 2 to 5 degrees above desired set point.

4. Set the Temperature control to desired temperature, allow the temperature to drift down, and verify the alarm light does not come on. If the light does come on, go back to step 1 setting the Safety higher.

Note; If Alarm Light comes on during normal cycling, turn backup controller knob slighly clockwise and monitor. (If backup and digital controls overlap, the bath will have a wider temperature control band.)
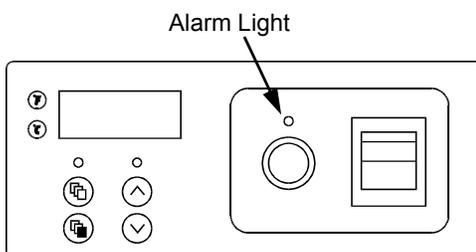
Calibrating the unit

To check the accuracy of the unit, clip a certified thermometer, such as Fisher Cat. No. 15-166A (not supplied with water bath), to the side of the bath as described in the installation instructions. After allowing sufficient time for the temperature to stabilize, compare the thermometer reading to the actual temperature displayed on the unit.

If the displayed temperature does not agree with the thermometer, you can calibrate the controller as follows:

1. Note the difference between the displayed temperature and the thermometer.

   For example: If the displayed temperature is 37 and the thermometer reads 36, the difference is -1, meaning that the display should read 1 lower than it now shows.

2. Press Menu button until display shows CAL.

3. Press and hold the Set button while simultaneously pressing the Increase (∧) or Decrease (∨) button to set the desired temperature offset. Release the Set button when you have achieved the desired setting. The display will return to normal operation within a few seconds, displaying the actual temperature.

   In the example above, you would set the display to read -1.

   Note: The temperature offset can be set up to a range of 5.5°C or 10.0°F.

Emptying and cleaning the unit

Please be advised that stainless steel can and will rust if not regularly cleaned and properly maintained. It is recommended that the bath be cleaned at least on a monthly basis for moderate or continuous use applications. Follow these steps to empty and clean the unit after using it:

1. Turn off power, unplug the unit, and allow to cool completely.

2. If you have a water bath of 2 or 5 liter capacity, pour the liquid from the unit into an appropriate disposal container.

3. If you have any other size water bath, allow the unit to cool and use the hand pump to empty the unit into an appropriate disposal container.

4. Clean the inside of the water bath with mild detergent (such as Joy dishwashing detergent) and warm water. **Do not scrub any surface with steel wool.** (Steel wool leaves small metal particles behind that will rust, causing the pan to look rusty). In instances where a heavy coating of residue has accumulated inside the tank or where there is evidence that corrosion is beginning, the use of a stainless steel cleaner (such as 3M Stainless Steel Cleaner and Polish) is recommended.

5. Rinse and wipe all tank surfaces with clean water.

6. Unit is now ready for next use.

Alarm Light

If you have problems

If you have problems using the unit, follow these general procedures to track down the cause from the symptoms you are experiencing. If an error message appears on the display, refer to the specific error in this chart.

If the problem is not resolved using the table below, Contact technical support at 1-800-926-0505 .

If you are having this	This might be the cause
No power indication	Unit not plugged in; no power at the outlet; incorrect power (make sure outlet matches label on back of unit); defective power cord; defective power switch or fuse (s). (call Technical Support).
No heating	Setpoint or backup not set properly; defective heater or controller (call Technical Support).
Always heating; temperature greater than	Defective controller (call Technical Support).
Very slow heating of samples	Empty tank or extremely low liquid level in tank (add liquid to the tank to improve heating).
Unit heating up slower than normal	Defective controller (call Technical Support).
Alarm light on constantly	Setpoint or backup not set properly; defective primary controller (call Technical Support).
Display not correct	Temperature F or C set in error; temperature not calibrated (perform calibration procedure with thermometer); defective controller (call Technical Support).
Erratic operation	Broken internal electrical connection; defective heater or controller (call Technical Support).
Error message: E1	Failure of temperature sensor or controller (call Technical Support).
Error message: E2	Failure of controller (call Technical Support).
Display shows LLLL at power-up.	Wrong voltage, Controller not set up properly (call Technical Support).

Specifications

These are nominal specifications. Fisher reserves the right to change specifications or designs at any time without incurring obligation.

Power requirements	120 VAC or 230 VAC ± 10%, 50 or 60 Hz
Ambient conditions	+4°C to +35°C, up to 75% relative humidity
Temperature range	Cover open: Ambient to 60 °C Cover closed: Ambient to 100°C
Control	±0.1°C between ambient and 100°C
Uniformity	±0.24°C at 37°C
Stability	±0.5°C at 37°C
*Max. Altitude	2000m
*Over Voltage Category	II (IEC 664)
*Pollution Degree	2 (IEC 664)

*CE Products meet the relevant EC harmonized standards for safety (IEC1010-1/EN61010 and EMC (EN55014, EN55104, EN61000-4-2, -4-4, -4-6, -4-11and ENV50140)

*Applies to 230V units only

Replacement Parts

WARNING: To avoid electrical shock, always disconnect from power supply before maintenance and servicing. Refer servicing to qualified personnel.

Item		Part No.
Cover, 2 liter	Plastic Lid	SPN102304
	Stainless Steel Lid	15-462-32
Cover, 2 liter shallow and 5 liter		
	Plastic Lid	SPN102305
	Stainless Steel Lid	15-462-33
Cover, 10 liter	Plastic Lid	SPN102306
	Stainless Steel Lid	15-462-34
Cover, 20 and 28 liter	Plastic Lid	SPN102307
	Stainless Steel Lid	15-462-35
Hinge, lid (for 2 liter)		SPN102383
Hinge, rim (for 2 liter)		SPN102384
Hinge, lid (for all except 2 liter)		SPN102386
Hinge, rim 28L and Dual Models)		SPN102387
Hinge, rim (for 2S, 5, 10 & 20 liter)		SPN102459
Clip, thermometer (for 2L shallow)		SPN102423
Clip, thermometer (all except 2LS)		SPN102424
Microbicide, 8 oz. Bottle		13-641-337
Pump, Siphon		SPN102391
Controller PC board (120V)		SPN102419
Controller PC Board (230V)		SPN104068
Display PC board		SPN102420
Controller, safety		SPN102499
Sensor, RTD		SPN102331
Diffuser Tray, 2 liter		SPN102352
Diffuser Tray, 2L shallow or 5 liter		SPN102353
Diffuser Tray, 10 liter		SPN102354
Diffuser Tray, 20 or 28 liter		SPN102355
Fuse, Type 3AG 1.25x.25, 10 Amp		SPN45920
Fuse, 5x20mm, F5A 250V		SPN102487

Schematic 120 VAC Unit

Schematic 230 VAC Unit
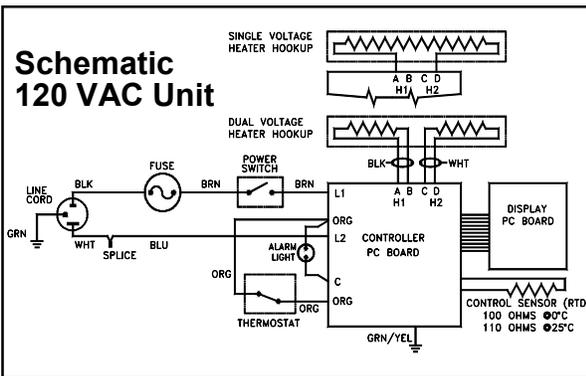
Note: The Stainless steel water bath cover was designed as an alternate to the see through Plastic (polycarbonate) cover. No material is impervious to attack by all chemicals. The Stainless lids are made of a good quality 304 stainless steel which is the same as the tank. Clean with mild soap and water. Rinse with clear tap water.