Water Bath

110 – 120 Voltage

Cascade Sciences

CWB-30

Installation - Operation Manual

Warning: This product contains chemicals, including triglycidyl isocyanurate, known to the State of California to cause cancer as well as birth defects or other reproductive harm. For more information, go to www.P65Warnings.ca.gov.

¡Advertencia! Este producto contiene sustancias químicas, incluido el triglicidil isocianurato, que el Estado de California sabe que causa cáncer, así como defectos de nacimiento u otros daños reproductivos. Para obtener más información, visite www.P65Warnings.ca.gov**.**

Avertissement! Ce produit peut vous exposer à des produits chimiques, dont l'isocyanurate de triglycidyle, reconnu par l'État de Californie pour provoquer le cancer, des anomalies congénitales ou d'autres problèmes de reproduction. Pour plus d'informations, visitez le site www.P65Warnings.ca.gov.

CWB-30 Water Bath

110 – 120 Voltage

Installation and Operation Manual

Part Number (Manual): 4861831

Revision: November 6, 2019

Part ID Number:

Model Name	CWB-30
Part ID	SWB30

TABLE OF CONTENTS

CERTIFICATIONS

This certificate satisfies NRTL safety requirements

TÜV SÜD CUE

Certificate Number: U8 13 12 64872 027

These units are CUE listed by TÜV SÜD as water baths for appropriate professional, industrial, or educational use. TÜV SÜD America Inc. is an OSHA recognized NRTL and a Standards Council of Canada accredited certification body.

The units have been tested to the following requirements:

CAN/CSA C22.2 No. 61010-1:2012
CAN/CSA C22.2 No. 61010-2-010/R:2009
UL 61010A-2-010:2002
UL 61010-1:2012
EN 61010-1:2010
EN 61010-2-010:2003

This product CUE certified under Model Number SWB30.

CERTIFICATIONS

UNIT SPECIFICATIONS

These water baths are 110 – 120 voltage single phase units. Please refer to the unit data plate for individual electrical specifications.

Technical data specified applies to units with standard equipment at an ambient temperature of 25°C and at nominal voltage. The temperatures specified are determined in accordance to factory standards respecting the recommended wall clearances of 10% of the height, width, and depth of the inner chamber. All indications are average values, typical for units produced in the series. We reserve the right to alter technical specifications at all times.

Temperature Performance

Range	Uniformity @ All Temps	Stability @ All Temps
Ambient +5° to 80°C	±0.4°C	± 0.1°C

Heat Up Times from Ambient (25°C)

To 80°C
169 Minutes

Power

AC Voltage	Amperage	Frequency	Phase
110 – 120	7.0	50/60 Hz	1

Weight

Shipping	Unit Weight
39 lb / 17 kg	33.4 lb / 15.2 kg

UNIT SPECIFICATIONS

CAPACITY

Volume

Cubic Feet	Liters
1.06	30.0

DIMENSIONS

Dimension drawing on next page.

By Inches

Exterior W × D × H	Interior W × D × H
15.9 x 20.3 x 15.5	12.0 x 13.9 x 12.0

By Millimeters

Exterior W × D × H	Interior W × D × H
404 x 516 x 394	305 x 353 x 305

UNIT DIMENSION DRAWING

Exterior Dimensions

Total Height: 19.8 in (508 mm)

Width: 12.0 in (305 mm)

Body Height:

15.9 in (394 mm)

Depth: 20.3 in (516 mm)

Width: 15.9 in (404 mm)

Height: 12.0 in (305 mm)

Interior Dimensions

(Bath Tank)

Depth: 13.9 in (353 mm)


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READ THIS MANUAL

Failure to follow the guidelines and instructions in this user manual may create a protection impairment by disabling or interfering with the unit safety features. This can result in injury or death.

Before using the unit, read the manual in its entirety to understand how to install, operate, and maintain the unit in a safe manner. Ensure all operators are given appropriate training before the unit begins service.

Keep this manual available for use by all operators.

Intended Applications and Locations

CWB-30 water baths are engineered for constant temperature, general purpose warming applications in professional, industrial, and educational environments. The baths are not intended for use at hazardous or household locations.

CONTACTING ASSISTANCE

Please have the following information ready when calling or emailing Technical Support: the **model number, serial number,** and the **part ID** (see page 16).

Phone: 503 847-9047

Cascade Sciences
6725 NE Evergreen Pkwy
Ste 106
Hillsboro OR, 97124

ENGINEERING IMPROVEMENTS

Cascade Sciences continually improves all of its products. As a result, engineering changes and improvements are made from time to time. Therefore, some changes, modifications, and improvements may not be covered in this manual. If your unit's operating characteristics or appearance differs from those described in this manual, please contact your water bath dealer or customer service representative for assistance.

WATER QUALITY REQUIREMENTS

The bath will need to be regularly refilled with water during operation.

The manufacturer recommends using distilled water or filtered tap water to fill the tank. The water should have a neutral pH in the resistance range of 50K Ohm/cm to 1M Ohm/cm or a conductivity range of 20.0 uS/cm to 1.0 uS/cm. Using unfiltered tap water may create mineral buildup, corrosion, or biological contamination in the tank.

Do not use deionized water, acid, or other corrosive materials to fill the bath. These will damage the unit and **void the manufacturing warranty.**

RECEIVING YOUR UNIT

INSPECT THE SHIPMENT

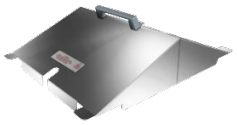
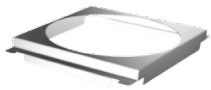
- When a unit leaves the factory, safe delivery becomes the responsibility of the carrier.
- **Damage sustained during transit is not covered by the manufacturing defect warranty.**
- Save the shipping carton until you are certain that the unit and its accessories function properly.

When you receive your unit, inspect it for concealed loss or damage to its interior and exterior. If you find any damage to the unit, **follow the carrier's procedure for claiming damage or loss**.

1. Carefully inspect the shipping carton for damage.
2. Report any damage to the carrier service that delivered the unit.
3. If the carton is not damaged, open the carton and remove the contents.
4. Inspect the unit for signs of damage. See the orientation depictions on the next pages as a reference.
5. The unit should come with an Installation and Operation Manual.
6. Verify that the correct number of accessory items has been included.
7. Carefully check all packaging for accessory items before discarding.

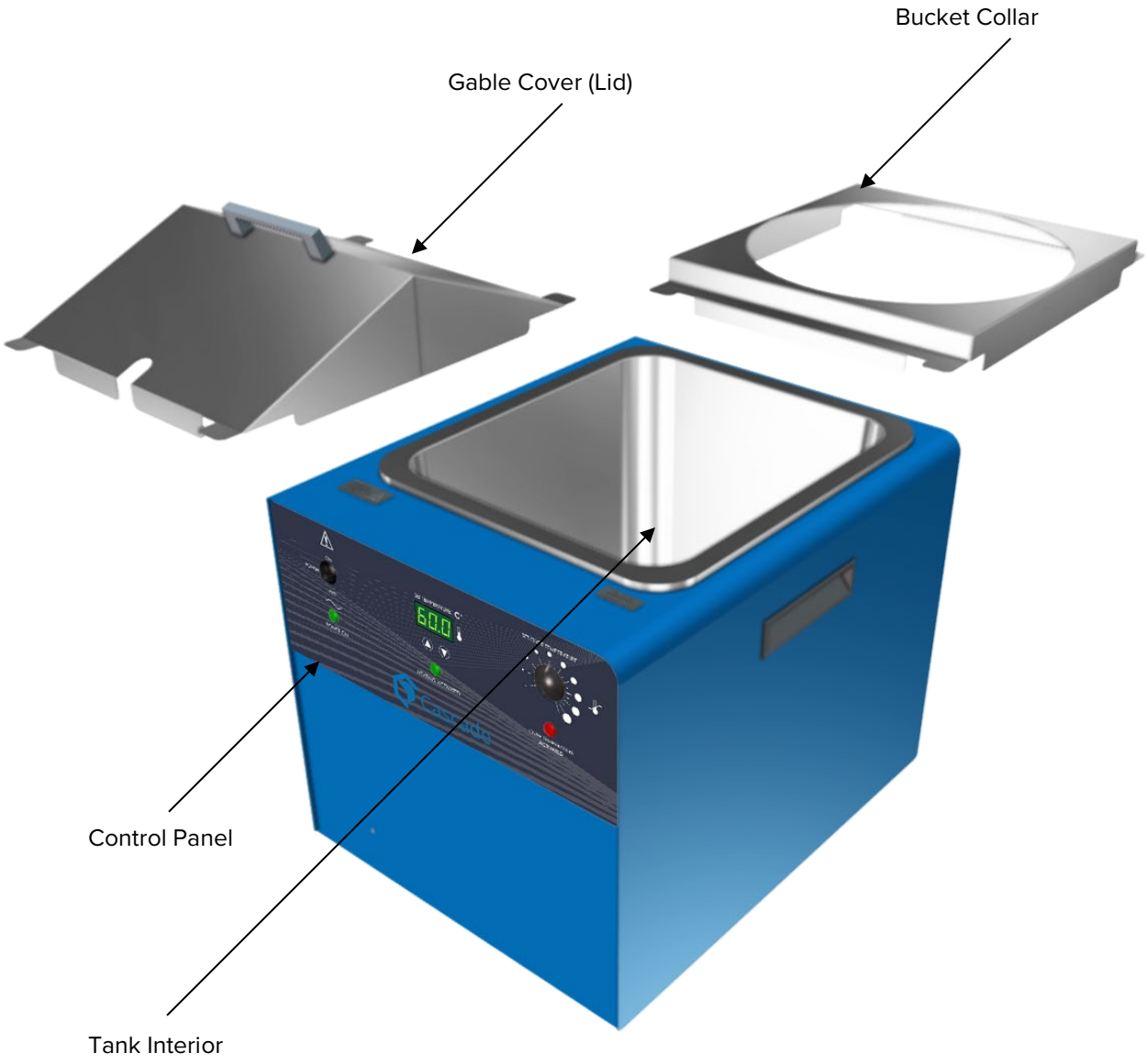
Included Accessory Items:

Gable Cover	Bucket Collar	Power Cord
1	1	1

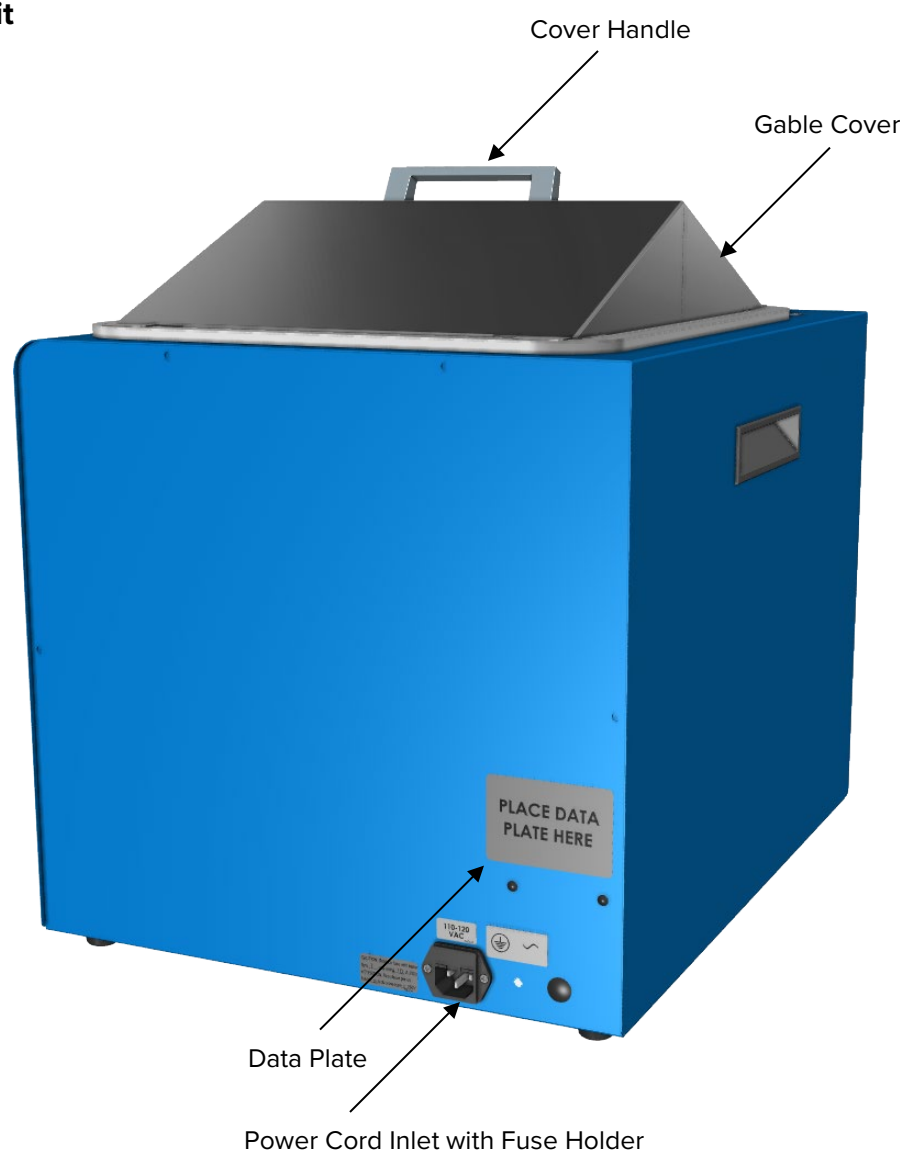

ORIENTATION IMAGES

CWB-30 Water Bath



Note: The Bucket Collar and the Gable Cover cannot be mounted on the bath at the same time.

Back of Unit


Cover Handle
Gable Cover
PLACE DATA PLATE HERE
Data Plate
Power Cord Inlet with Fuse Holder

RECORDING DATA PLATE INFORMATION

Record the unit **serial number**, **model number**, and **part ID** below for future reference. Your distributor or Tech Support needs this information to provide accurate help during support calls and emails.

- The data plate is located on the back of the unit, above the power cord inlet.

Date Plate Information

MODEL NO:	
SERIAL NO:	
PART ID:	

INSTALLATION PROCEDURE CHECKLIST

For installing the unit in a new workspace location.

Pre-Installation

- ✓ Check that the required ambient conditions for the unit are met, page 18.
- ✓ Check that the spacing clearance requirements are met, page 18.
    - Unit dimensions may be found on page 7.
- ✓ Check that a suitable electrical outlet and power supply is present, page 19.

Install the water bath in a suitable workspace location

- ✓ Review the lifting and handling instructions, page 20.
- ✓ Verify that the unit is level, page 21.
- ✓ Install the unit in its workspace location, page 21.

Set up the water bath for use

- ✓ Clean and disinfect the unit and accessories (recommended), page 22.
- ✓ Assemble the water bath cover, page 23.

Required Ambient Conditions

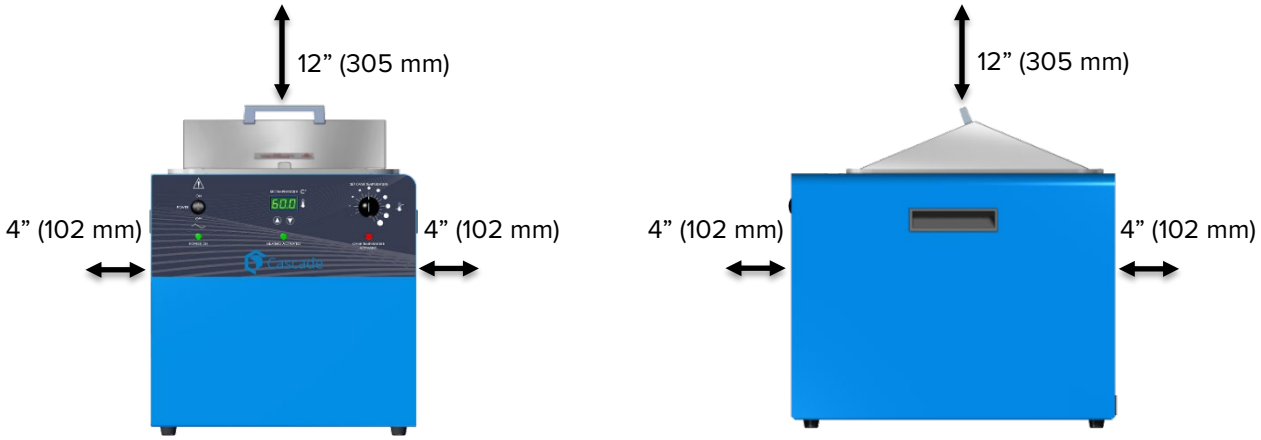
These units are built for use indoors at room temperatures between **15°C and 40°C (59°F and 104°F)**, at no greater than **80% Relative Humidity** (at 25°C / 77°F). Operating outside these conditions may adversely affect the unit temperature performance.

When selecting a location to install the unit, consider all environmental conditions that can adversely impact its temperature performance. These include:

- Proximity to ovens, autoclaves, or any other device producing significant radiant heat
- Heating and cooling vents or other sources of fast-moving air currents
- High-traffic areas
- Direct sunlight

Required Clearances

These clearances are required to provide air flows for ventilation and cooling.



4 inches (102 mm) of clearance is required on the sides and back.

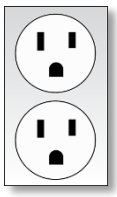
12 inches (305 mm) of headspace clearance is required between the top of the unit and any overhead partitions to allow sufficient space for operators to remove the cover.

POWER SOURCE REQUIREMENTS

When selecting a location for the unit, verify each of the following requirements is satisfied:

Power Source

The power source must match the power requirements listed on the unit data plate (located on the back of the unit, above the power cord inlet).



Standard NEMA 5-15R wall socket

- The water baths are intended for **110 – 120 volt 50/60 Hz** applications at **7 amps.**
    - **The unit may be damaged if the supplied voltage varies by more than 10% from the data plate rating.**
- The power source must be **single (1) phase** and **protective earth grounded**.
- Use a separate circuit to prevent loss of the unit due to overloading or circuit failure. The circuit must meet or exceed the amperage requirements listed on the unit data plate.
- **The recommended wall circuit breaker for this unit is 15 amps.**
- The wall power source must conform to all national and local electrical codes.

Power Cord

The unit must be positioned so that all operators can quickly unplug the power cord in the event of an emergency.

- Each unit is provided with a **110V, 15A, 8 ft 2 in (2.5 m) NEMA 5-15P** power cord.
- Always use this cord or an identical replacement.

Fuses

Each unit ships with a fuse installed in a fuse holder next to the power cord inlet.

- The fuse must be installed and intact for the unit to operate.
- Always find and fix the cause of a blown fuse prior to putting the unit back into operation.
- Fuse type:
    - 250V T10A 5x20mm

GENERAL POWER SAFETY

Your unit and its recommended accessories are designed and tested to meet strict safety requirements. It is designed to connect to a power source using the specific power cord type shipped with the unit.

For continued safe operation of your unit, always follow basic safety precautions including:

- Always plug the unit power cord into a protective earth grounded electrical outlet that conforms to national and local electrical codes. If the unit is not grounded properly, parts such as knobs and controls can conduct electricity and cause serious injury.
- Do not bend the power cord excessively, step on it, or place heavy objects on it.
- A damaged cord can be a shock or fire hazard. Never use a power cord if it is damaged or altered in any way.

LIFTING AND HANDLING

The unit is heavy. Use appropriate lifting devices sufficiently rated for these loads. Follow these guidelines when lifting the unit:

- Lift the unit from its bottom surface or with the side mounted handles.
- Doors, handles, and knobs are not adequate for lifting or stabilization.
- Restrain the unit completely while lifting or transporting so it cannot tip.
- Remove all moving parts during transfers to prevent shifting and damage.
    - Drain the tank before moving the unit.

LEVELING

The water bath is equipped with non-adjustable rubber feet to raise it off the counter and prevent sliding.

The unit must be level and stable for safe operation.

INSTALL THE WATER BATH

Place the unit in a workspace location that meets the criteria discussed in the previous entries of the Installation section.

Deionized and Distilled Water

Do not use deionized water to clean the unit or accessories, even if DI water is readily available in your laboratory.

- Use of deionized water may corrode metal surfaces and **voids the manufacturing warranty.**
- The manufacturer recommends the use of distilled water in the resistance range of 50K Ohm/cm to 1M Ohm/cm, or a conductivity range of 20.0 uS/cm to 1.0 uS/cm, for cleaning applications.

Installation Cleaning and Disinfecting

The manufacturer recommends cleaning and disinfecting the unit and accessories prior to installation.

Cleaning the Unit

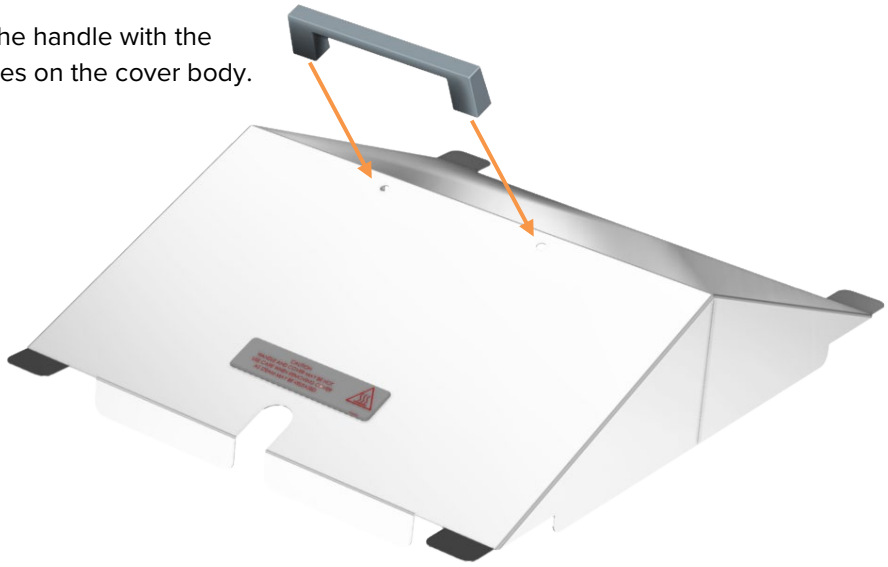
- The unit was cleaned at the factory but may have been exposed to contaminants during shipping.
- Remove all wrappings and coverings from the unit accessories prior to cleaning and assembly.
- Please see the Cleaning and Disinfection procedures on page 37 in the User Maintenance chapter for information on how to clean and disinfect without damaging the unit.

Assemble the Water Bath Cover

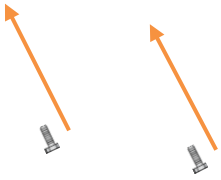
Note: The unit ships with the handle installed on the underside of the cover.

1. Uninstall the handle from the underside of the cover.

2. Align the handle with the screw holes on the cover body.



3. Insert the 2 included screws through the underside of the cover body and into the holes on the handle.



4. Use a **Phillips screwdriver** to tighten the screws until the handle is securely fastened. Do not overtighten.

Do not place the cover on the unit at this time.

End of Procedure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GRAPHIC SYMBOLS

The unit is provided with graphic symbols on its exterior. These identify hazards and adjustable components as well as important notes in the user manual.

Symbol	Definition
	Consult the user manual Consulter le manuel d'utilisation
	Temperature display Indique l'affichage de la température
	Over Temperature Limit system Thermostat température limite contrôle haute
	AC Power Repère le courant alternatif
	I/ON O/OFF I indique que l'interrupteur est en position marche. O indique que le commutateur est en position d'arrêt.
	Adjusts UP and DOWN Ajuster le haut et vers le bas
	Potential shock hazard Risque de choc électrique
	Recycle the unit. Do not dispose of in a landfill. Recycler l'unité. Ne jetez pas dans une décharge
	Protective earth ground Terre électrique
	Caution hot surface Attention surface chaude


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CONTROL PANEL OVERVIEW

Control Panel

Power Switch

Power is supplied when the switch is in the (I) ON position.

Set Temperature Display and Controls

Shows the current water tank temperature. The **Up** and **Down** arrow buttons are used to access the Temperature Setpoint (SP) or Calibration Offset (C O) display modes and input the temperature setpoint or calibration adjustment value.

Heating Activated

The green light illuminates when the unit is calling for power to the heating elements.

Over Temperature Limit Control (OTL)

This graduated dial sets the mechanical heating cut off for the Over Temperature Limit system (OTL). The OTL prevents unchecked heating of the tank in the event of a hardware failure or external heat spike. For more details, please see the **Over Temperature Limit System** description in the Theory of Operations (page 29).

Over Temperature Activated

The red light illuminates when the OTL system cuts off heating to the water bath tank by rerouting power away from the heating elements.


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THEORY OF OPERATION

Heating

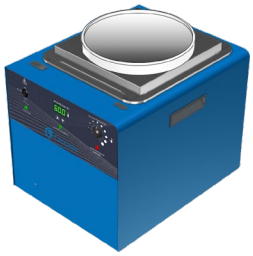
When powered, the water bath heats to and then maintains an operator-selected temperature setpoint. The unit temperature controller senses the temperature of the water via a solid-state probe located in the front wall of the unit. When the controller detects that the temperature of the water has dropped below the target setpoint, it pulses power to the heating elements below the bottom of the water bath tank.

The water bath uses Proportional – Integral – Derivative (PID) control to avoid significantly overshooting the setpoint. This means the rate of heating slows as the water temperature approaches the target temperature. If the water temperature is above the setpoint, the water bath uses minimal heating to control the rate of cooling and avoid dipping below the setpoint.

Additionally, the PID loops optimize heating rates for the temperature environment around the water bath. If the water bath is operating in a cool room, it will increase the length of heating pulses to compensate. Likewise, when operating in a warm room the water bath uses shorter pulses. If the ambient temperature conditions change significantly, there may be minor over or undershoots as the unit adapts. Operating the unit without the gable cover or without the bucket and collar will affect the PID and temperature uniformity.

CWB water baths rely on natural heat radiation for cooling. These units can achieve a low-end temperature of the ambient room temperature plus the internal waste heat of the bath.

Heat-up and small-sample configuration



Bucket configuration

The Over Temperature Limit System

The OTL is an operator-set, mechanical heating cutoff connected to a hydrostatic sensor probe in the front wall of the unit. The system operates independently of the main microprocessor temperature controller and routes power away from the water bath heating elements if the tank temperature exceeds the OTL temperature cutoff setting. It will continue doing so as long as the tank temperature remains above the OTL setting. This helps safeguard the unit by preventing runaway heating in the event of electronics failures or a sudden external heat spike.

The OTL must be set by the operator in order to function. The manufacturer recommends a setting of approximately 1°C above the highest temperature setpoint of your heating application. A red indicator illuminates when the OTL is rerouting power.

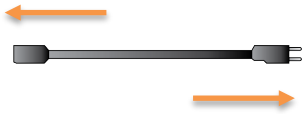
Heating in a Water Bath

The natural circulation of the water within the tank promotes temperature uniformity.

Put the Water Bath into Operation

Perform the following steps and procedures to put the unit into operation after installing it in a new workspace environment.

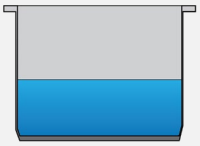
1. Plug in the Power Cord



Attach the power cord that came with the unit to the power inlet receptacle on the back of the unit.

Plug the power cord into the workspace electrical supply outlet.

2. Fill with water



Fill the tank to the appropriate level with water.

- See page 31.

Place the cover on the water bath.

3. Power the water bath

Place the unit **Power Switch** in the ON (I) position.

4. Set the Temperature Setpoint

Set the Temperature Setpoint to your application temperature.

- See page 33.

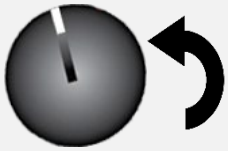
5. Allow the water bath to heat for a minimum of 4 hours

Run the unit for at least 4 hours undisturbed (for example, overnight) with the gable cover on prior to:

- Setting the Over Temperature Limit.
- Loading product.

This helps ensure a stable temperature environment.

6. Set the Over Temperature Limit



Set the Over Temperature Limit. See page 34.

- The unit must be heated **and stable** at your application temperature to perform this procedure.

The water bath is now ready for use.

- You may **Load Product**, page 35.

End of Procedure

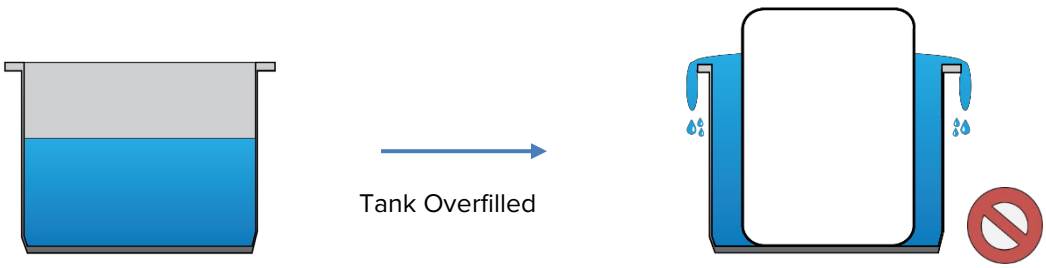
Fill With Water

Note: See page 12 for water quality requirements when filling the tank.

Bucket Collar Configuration

1. Fill the tank with distilled or filtered tap water to a level appropriate to your product or sample container size.

    - The water level will rise when product container is loaded. Ensure that the combined volume of water and the container does not cause the tank to overflow.



Continued on next page

Fill with Water, Continued

2. Place gable cover on the water bath.

    - Leave the gable cover on while the bath water heats up to and stabilizes at your set point temperature. See the Set the Temperature Setpoint procedure.

3. The unit may now be turned on. **Do not load product at this time.**

End of Procedure

SET THE TEMPERATURE SETPOINT

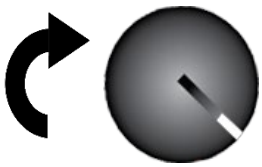
Perform the steps below to adjust the setpoint to your process or application temperature.

Set Temperature Setpoint

1

Turn the **OTL** dial clockwise to its max setting, if not already set at max.

- This prevents the heating cutoff system from interfering with this procedure.



2

Briefly push and release either the **Up** or **Down** arrow button to access the temperature setpoint adjustment mode.

- The display will briefly flash the letters “SP”, then show the flashing, adjustable temperature setpoint.

Note: The display will automatically exit the adjustment mode after 5 seconds of inactivity, with the last shown setpoint value saved.

Setpoint Adjustment Mode

Initial Setpoint

3

Adjust the setpoint to your application temperature using the **Up** and **Down** arrow buttons.

New Setpoint

4

Wait 5 seconds after entering the setpoint.

- The display will stop flashing, and the setpoint is now saved in the controller.
- The unit will now automatically heat or passively cool to match your setpoint.
- The display will revert to showing the current water temperature.

Heating to New Setpoint

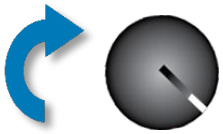
End of Procedure

Note: Test the OTL system at least once per year to verify its functionality. **Failure to set the OTL voids the manufacturing defect warranty if over temperature damage occurs.**

Set the Over Temperature Limit (OTL)

This procedure sets the mechanical heating cutoff to approximately 1˚C above the current water temperature. **Perform this procedure when the unit has been running with no temperature fluctuations at your application temperature for at least 4 hours.**

1. Set OTL control dial to its maximum setting, if not already set to max.



2. Turn the dial counterclockwise until the OTL alarm light illuminates.

- There is a soft click when the OTL begins rerouting power away from the heating elements.

3. Slowly turn the dial clockwise until the OTL alarm light turns off.

- The Over Temperature Limit is now set approximately 1˚C above the current water temperature.

4. Leave the OTL dial set just above the activation point.

Optional: Turn the dial slightly to the left (counterclockwise).

- This sets the OTL cutoff threshold nearer to the current water temperature.

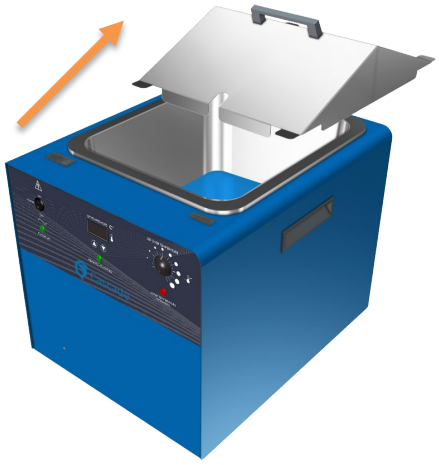
If the Over Temperature Limit sporadically activates after setting the control, turn the dial very slightly to the right (clockwise). If the OTL continues activating, check for ambient sources of heat or cold that may be adversely impacting the unit temperature stability. If you find no sources of external or internal temperature fluctuations, contact Tech Support or your distributor for assistance.

End of Procedure

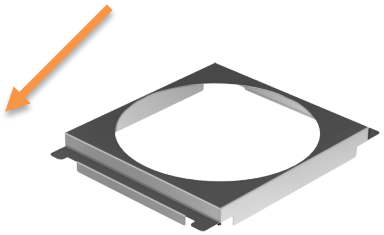
LOAD PRODUCT

Note: Condensate may form on the underside of the gable cover. When removing the cover, exercise caution to avoid dripping condensate onto your product container or other surfaces.

Load product after the water bath has run for at least **4 hours**.

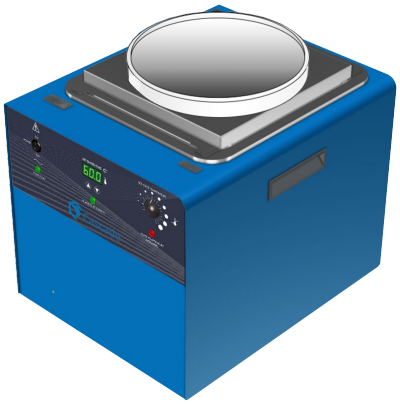


1. Remove the gable cover from the bath.



2. **Optional**: Mount the bucket collar on the bath if you will be loading a 5-gallon bucket container.
    - The cover may be placed back on the bath after loading samples if a bucket container is not being used.

Note: The gable cover will not fit over a bucket



3. Load the product or sample container(s).
    - Uneven heating may result if the product level in your container is higher than the water inside the bath tank.
    - Ensure any accessories or containers used inside the water bath tank will not suffer damage when brought to temperature.

Bucket loaded in water bath

Caution: A metal bucket placed in the bath may grow hot to the touch. Use proper PPE to minimize burn risk.

Attention: Un seau en métal placé dans la baignoire peut devenir chaud au toucher. Utilisez un équipement de protection individuelle approprié pour minimiser les risques de brûlure..

MONITOR WATER LEVEL

Caution: Heated water vapor may escape when the cover is lifted. Operators should avoid direct contact with the vapor as any waterborne contaminants may be hazardous.

The water level in the tank must be regularly checked when in use. Minimize cover openings to reduce evaporation. Allowing the tank to run dry can melt plastic accessories or otherwise damage the tank and product. **The manufacturing defect warranty does not cover damage caused by melted or otherwise overheated accessory items in a dry tank.**

When operating the tank at temperatures of 40°C or higher and while using the bucket and collar there is a greater potential for water loss. Check the water level **at least every half hour**. Frequent checks allow for smaller additions of water to maintain a proper fill level. Adding a significant amount of water to the bath during a heating application will impact the temperature stability and uniformity of the bath water.

MAINTAINING WATER QUALITY

There are several manufacturer-recommended methods for helping to prevent biological contamination and prolonging times between fully emptying and disinfecting the tank:

- Thermally decontaminating the unit by operating it above 60°C for 30 minutes or more will destroy most algae, fungus, or pathogens.
- Using commercial biocides to help prevent the growth of microbes. Check with your laboratory requirements when selecting biocides to ensure they are compatible with your process.

Warning: Disconnect this unit from its power supply prior to performing maintenance or services.

Avertissement: Débranchez cet appareil de son alimentation électrique avant d'effectuer la maintenance ou les services.

Cleaning and Disinfecting

If a hazardous material or substance has spilled in the tank, immediately initiate your site's Hazardous Material Spill Containment protocol. Contact your local Site Safety Officer and follow instructions per the site policy and procedures.

- The water bath tank should be cleaned prior to first use.
- Periodic cleaning is required.
- Do not use spray on cleaners or disinfectants. These can leak through openings and coat electrical components.
- Consult with the manufacturer or their agent if you have any doubts about the compatibility of decontamination or cleaning agents with the parts of the equipment or with the material contained in it.
- Do not use cleaners or disinfectants that contain solvents capable of harming paint coatings or stainless steel surfaces. **Do not use chlorine-based bleaches or abrasives; these will damage the tank.**

Warning: Exercise caution if cleaning the unit with alcohol or flammable cleaners. Always allow the unit to cool down to room temperature prior to cleaning and make sure all cleaning agents have evaporated or otherwise been completely removed prior to putting the unit back into service.

Avertissement: Soyez prudent lorsque vous nettoyez l'appareil avec de l'alcool ou des produits de nettoyage inflammables. Laissez toujours refroidir l'appareil à la température ambiante avant le nettoyage et assurez-vous que tous les produits de nettoyage se sont évaporés ou ont été complètement enlevés avant de remettre l'appareil en service.

Cleaning

1. Disconnect the unit from its power supply.
2. Remove all removable interior components and accessories.
3. Drain the water bath.
    - The manufacturer recommends draining the bath using a siphon. Clean and disinfect any siphoning equipment regularly.
    - **Always allow the bath to cool to ambient temperature before draining the tank.**
4. Clean the unit with a mild soap and water solution, including all corners.
    - **Do not use an abrasive cleaner**, these will damage metal surfaces.
    - **Do not use deionized water to rinse or clean with.**
5. Rinse with distilled water and wipe dry with a soft cloth.

Disinfecting

When disinfecting the unit, keep the following in mind:

- Always turn off and disconnect the unit to safeguard against electrical hazards.
- For maximum effectiveness, disinfection procedures are typically performed after cleaning.
- Drain the water bath.
- Disinfect the unit using commercially available disinfectants that are non-corrosive, non-abrasive, and suitable for use on stainless steel and glass surfaces. Contact your local Site Safety Officer for detailed information on which disinfectants are compatible with your applications.
- Disinfect all surfaces in the tank, making sure to thoroughly disinfect the corners.
- Left over volatile disinfecting agents can contaminate your product. Make sure that disinfecting agents have been rinsed or otherwise removed from the unit surfaces prior to refilling the tank.
- When disinfecting external surfaces, use disinfectants that will not damage painted metal, glass, and plastic.

Minimizing Contamination Exposure

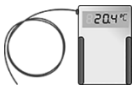
Suggestions for minimizing exposure of the unit to potential contaminants:

- Maintain a high air quality in the laboratory workspaces around the water bath.
- Avoid placing the water bath near sources of air movement such as doors, air vents, or high traffic routes in the workspace.
- Minimize the number of times the cover is opened during normal operations.

Electrical Components

Electrical components do not require maintenance. If the unit electrical systems fail to operate as specified, please contact your distributor or Technical Support for assistance.

Calibrate the Temperature Display

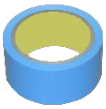


Note: A calibration reference device must be purchased separately. For best results, use a digital device with thermocouple probes. The device must be accurate to at least 0.1°C and should be regularly calibrated by a third party. **Never use alcohol or mercury-based thermometers.**

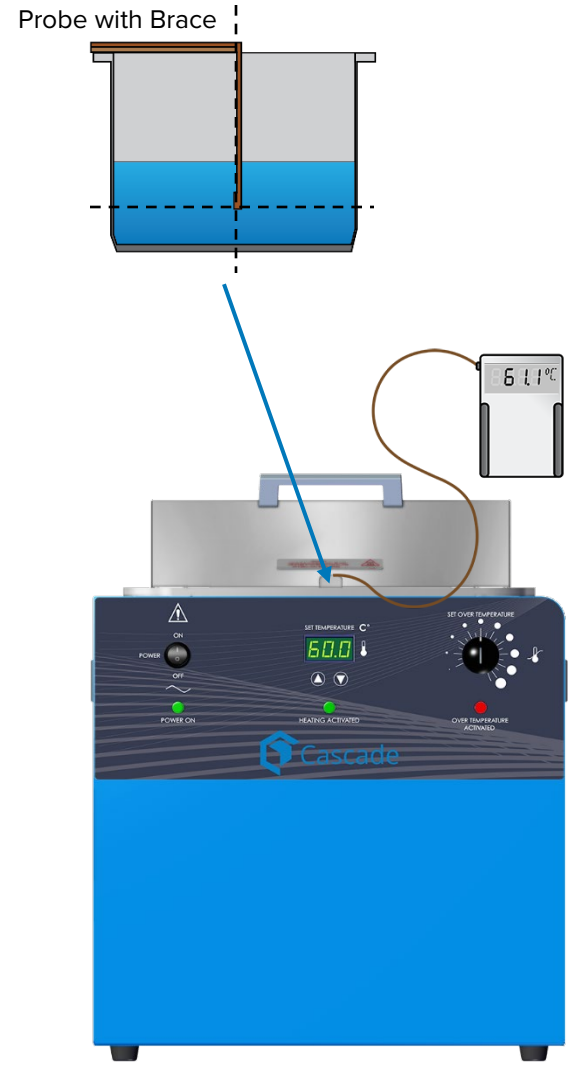
Cascade Sciences CWB water baths do not normally require calibration. Should your SOP or Quality program require calibrations, follow this guideline.

Temperature calibrations match the temperature display to the actual water temperature in the bath tank. The actual temperature is supplied by a calibrated reference sensor device. Calibrations compensate for long-term drifts in the microprocessor controller as well as those caused by the natural material evolution of the sensor probe in the tank. Calibrate as often as required by your laboratory or production protocol, or regulatory compliance schedule. Always calibrate to the standards and use the calibration setup required by your industry requirements or laboratory protocol.

Suggested Calibration Setup



Heat-resistant non-stick tape recommended



1. Introduce the reference device thermocouple probe into the tank. Rigid, non-conductive items, such as a wooden tongue depressor, may be used as a brace for the probe.

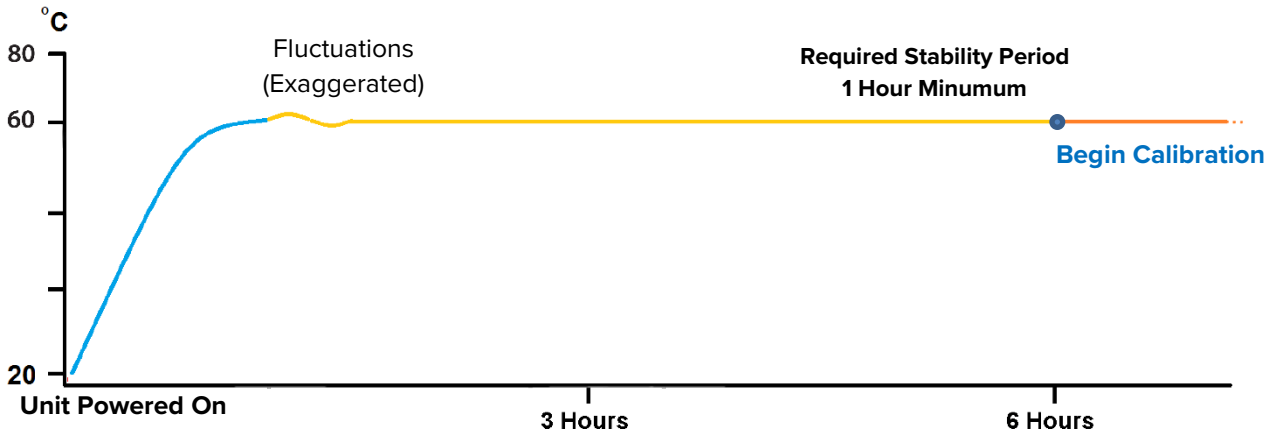
2. Horizontal: Position the sensor probe head as close as possible to the horizontal center point of the tank. Vertical: The probe head must be fully submerged, halfway between the surface of the water and the bottom of the tank to prevent heatsinking.

3. Secure the probe brace in position using non-stick tape.

4. Place the gable cover on the unit. Failure to cover the tank will result in an inaccurate calibration.

5. The unit temperature must be stable in order to perform an accurate calibration.

- The water bath must run for at least 4 hours prior to conducting a calibration.
- The temperature is considered stabilized when the bath has operated with the cover on at your calibration temperature for at least 1 hour with no fluctuations greater than the specified stability of the unit (see page 7).



Temperature Calibration Procedure

1 Once the unit temperature has stabilized, compare the reference device and unit temperature display readings.

- If the readings are the same, or the difference between the two falls within the acceptable range of your protocol, the display is accurately showing the temperature in the tank. **The Temperature Calibration procedure is now complete**.

-Or-

- If the difference falls outside of your protocol range, advance to step 2.

Reference Device

2 A display calibration adjustment must be entered to match the display to the reference device. See next step.

Reference Device

Continued on next page

Temperature Calibration Continued

3

Place the display in temperature calibration mode.

a. Press and hold both the **Up** and **Down** temperature arrow buttons simultaneously for approximately 5 seconds.

b. Release the buttons when the temperature display shows the letters “C O”. The display will begin flashing the **current temperature display value**.

Note: The display will automatically exit calibration mode after ! seconds of inactivity, with the last shown temperature display value saved.

4

Use the **Up** and **Down** arrow buttons to adjust the current display temperature value until it matches the reference device temperature reading.

Reference Device

5

After matching the display to the reference device, wait 5 seconds.

- The temperature display will cease flashing and store the corrected tank display value.
- The water bath will now begin heating or passively cooling in order to reach the setpoint with the corrected display value.

Cooling to Setpoint

6

Allow the water bath to operate for at least 1 hour undisturbed to stabilize **after the unit has achieved the corrected temperature setpoint.**

- Failure to wait until the unit is fully stabilized will result in an inaccurate reading.

Setpoint Achieved

Continued on next page

Temperature Calibration Continued

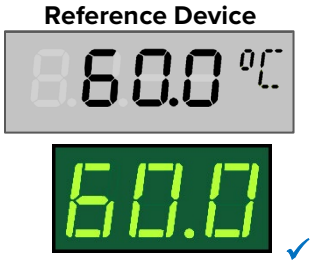
7

Compare the reference device reading with the unit temperature display.

- If the reference device and the tank temperature display readings are the same, or the difference falls within the range of your protocol, **the water bath is now calibrated for temperature.**

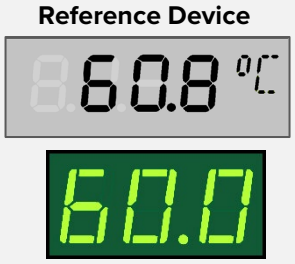
-Or-

- See the next step if the readings fail to match or fall outside of your protocol range.



8

If the difference still falls outside the acceptable range of your protocol, repeat steps 3 – 7 up to two more times.



9

If the temperature readings of the unit temperature display and the reference device still fall outside your protocol after 3 calibration attempts, contact your distributor or **Technical Support** for assistance.

End of Procedure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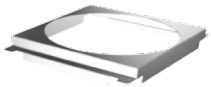
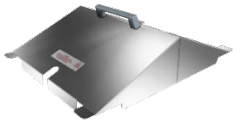
PARTS LIST

Description	Parts Number	Description	Parts Number
Fuse, T10A 250V 5x20mm	 **3300516**	Bucket Collar	 **5071519**
Power Cord, 110V, 15A, 8 ft 2 in (2.5 m) NEMA 5-15P	 **1800510**	Gable Cover	 **9750511**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