WATER BATHS

MODELS: WPC65, WPC75, WPC85

INSTALLATION AND OPERATION MANUAL

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Operation Manual

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REV 01/04
4861565

These units are circulating water bath for professional, industrial or educational use where the preparation or testing of materials is done at approximately atmospheric pressure and no flammable, volatile or combustible materials are being heated. These units are not intended for hazardous or household locations or use.

Section 1

RECEIVING AND INSPECTION

Your satisfaction and safety require a complete understanding of this unit. Read the instructions thoroughly and be sure all operators are given adequate training before attempting to put the unit in service. Note that this equipment must be used only for its intended application; any alterations or modifications will void your warranty.

1.1 **Inspection:** The carrier, when accepting shipment, also accepts responsibility for safe delivery and is liable for loss or damage. On delivery, inspect for visible exterior damage, note and describe on the freight bill any damage found, and enter your claim on the form supplied by the carrier.

1.2 Inspect for concealed loss or damage on the unit itself, both interior and exterior. If any, the carrier will arrange for official inspection to substantiate your claim.

1.3 **Return Shipment:** Save the shipping carton or crate until you're sure all is well. If for any reason you must return the unit, first contact your service representative for authorization and supply data plate information. Please see the manual cover for information on where to contact customer service.

1.4 **Accessories:** Verify that all of the equipment indicated on the packing slip is included with the unit. Carefully check all packaging before discarding. Each unit is equipped with 1 thermometer clip and 1 rack.

Section 2

INSTALLATION

Local city, county, or other ordinances may govern the use of this equipment. If you have any questions about local requirements, please contact the appropriate local agency. Installation may be performed by the end user. It is unnecessary for this unit to be installed by a technician.

Under normal circumstances this unit is intended for use indoors, at room temperatures between 5° and 40°C, at no greater than 80% Relative Humidity (at 25°C) and with a supply voltage that does not vary by more than 10%. Customer service should be contacted for operating conditions outside of these limits.

2.1 Power Source: Check the data plate for voltage, cycle, wattage and ampere requirements. If matched to your power source, plug the power cord into a grounded outlet. VOLTAGE SHOULD NOT VARY MORE THAN 10% FROM THE DATA PLATE RATING. These units are intended for 50/60 Hz application. A separate circuit is recommended to preclude loss of product due to overloading or circuit failure. NOTE: Electrical supply to the unit must conform to all national and local electrical codes.

2.2 Location: In selecting a location, consider all conditions which might affect performance, such as heat from radiators, ovens, autoclaves, etc. Avoid direct sun, fast-moving air currents, heating/cooling ducts and high-traffic areas. Allow a minimum of 5cm between the unit and walls or partitions which might obstruct free airflow.

2.3 Lifting / Handling: These units are heavy and care should be taken to use appropriate lifting devices that are sufficiently rated for these loads. Units should be lifted from their bottom surfaces. Handles and knobs are not adequate for lifting or stabilization. The unit should be completely restrained from tipping during lifting or transport. All moving parts such as trays or covers should be removed during transfer to prevent shifting and damage.

2.4 Cleaning: These units were cleaned at the factory, but not sterilized. Remove any racks if assembled and clean the bath with a disinfectant that is suitable for your application. Rinse clean with water and wipe dry. DO NOT USE chlorine-based bleaches or abrasives as this can damage the stainless steel tank. DO NOT USE spray cleaners that might leak through openings and cracks and get on electrical parts or that may contain solvents that will harm the coatings. A similar periodic cleaning is recommended.

WARNING: Never clean the unit with alcohol or flammable cleaners with the unit connected to the electrical supply. Always disconnect the unit from the electrical service when cleaning and assure all volatile or flammable cleaners are evaporated and dry before reattaching the unit to the power supply.

2.5 Bath Cover: Using the bath cover will accelerate heat-up times and reduce evaporation. The cover must be used to reach set points above 60°C. Note that the cover is not designed to be air tight and create a pressurized environment.

Section 3

CONTROLS OVERVIEW (See Figure 1)

3.1 **Power Switch:** The main I/O (On/Off) power switch, located at the back of the bath, controls all power to the unit. It must be in the ON position before any systems are operational. The lamp in the switch will be lit when the unit is energized.

3.2 **Main Temperature Controller:** This control consists of the digital display, and Up/Down arrow pads for inputting set point temperature and calibration.

3.3 **Over Temperature Safety Thermostat:** This controller is marked OTP and is completely independent of the Main Controller. The Safety guards against any failure of the Main Controller which would allow temperature to rise past set point. If temperature rises to the Safety set point, the Safety takes control of the heating element and allows continued use of the water bath until the problem can be resolved or service can be arranged.

3.4 **Heating Light:** This light is ON when the Main Controller has activated the heating element to reach and maintain set point.

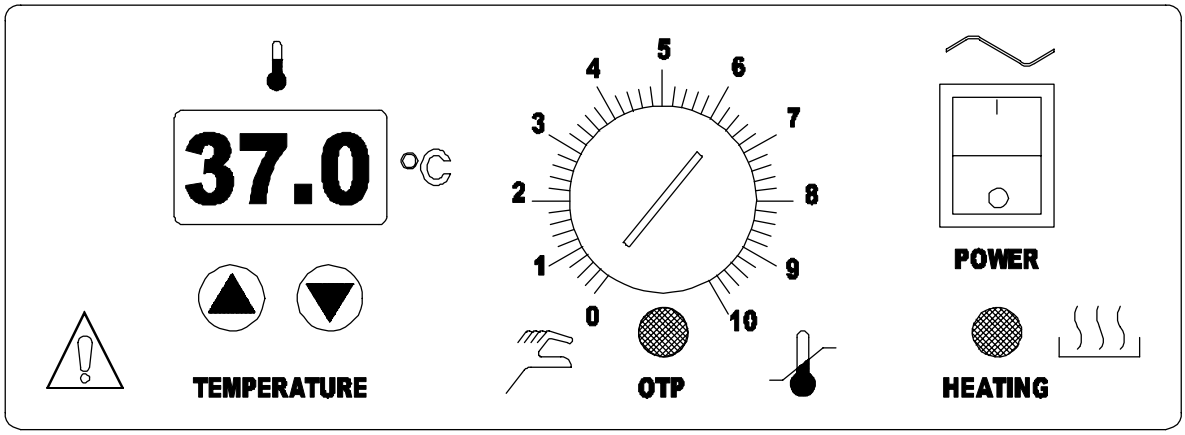
3.5 **OTP Light:** This light is ON when the Over Temperature Safety Thermostat is activated. Under normal operating conditions this light should never be on.

3.6 **Fuse: (On CE units only)** The fuse is located next to the power cord at the back of the unit and is an added measure of protection against power source variations. This fuse must be installed for the bath to operate. If blown it can be replaced once the reason for interruption has been cleared.

3.7 **Circuit Breaker: (Non CE units)** The circuit breaker is located next to the power cord at the back of the unit and is an added measure of protection against power source variations. When tripped it can be manually reset by pushing in the extended button once the source for interruption has been cleared.

3.8 **Circulation Pump:** This pump is energized by turning on the main I/O power switch. DO NOT operate pump models without water as this will cause damage to the pump.

Figure 1



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Section 4

OPERATION

WARNING: THESE BATHS ARE NOT INTENDED FOR USE AS ACID BATHS. USE AS AN ACID BATH WILL CAUSE SEVERE DAMAGE TO BATH COMPONENTS. DO NOT USE DEIONIZED WATER, TAP WATER, OR CHEMICALS. USE DISTILLED WATER ONLY. DO NOT TURN THE UNIT ON UNLESS THE TANK HAS WATER UNIT. IF ALLOWED TO RUN WITHOUT WATER AT MAXIMUM TEMPERATURE, THE COATING MAY PEEL OFF.

4.1 Check power supply against unit serial plate; they must match. Plug service cord into the electrical outlet.

4.2 Fill bath to your required depth with distilled water. DO NOT USE tap water. DO NOT USE deionized water. Note that normal depth is two-thirds full, but depth must be at least 5cm.

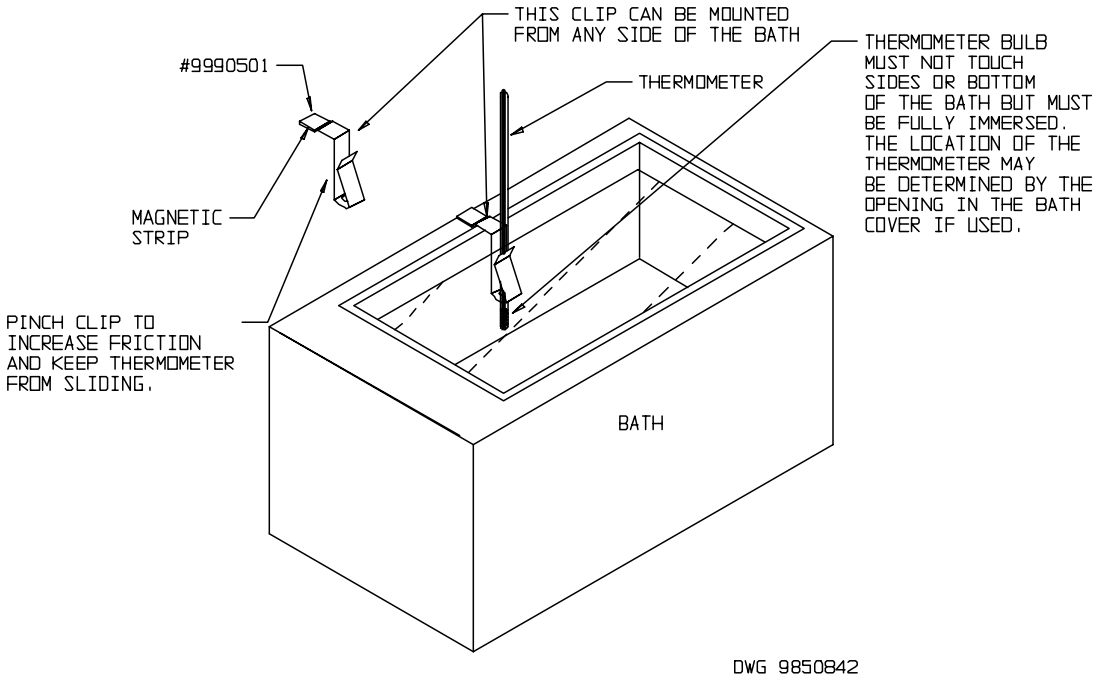
4.3 Push the main power switch to the I/On position, and turn the Over Temperature Safety to its maximum position, clockwise.

4.4 **Set Main Temperature Control:** Enter desired set point temperature. To enter set point mode on the Control, press either the Up or Down arrow pad one time. The digital display will start to blink, going from bright to dim. While blinking, the digital display is showing set point. To change set point, use the Up and Down arrow pads. If the arrow pads are not pressed for five (5) seconds, the display will stop blinking and will read the temperature in the bath. Allow the water bath at least two hours to stabilize once set point is established.

4.5 **Calibrating The Control:** It is recommended that the digital display be calibrated once the unit is in its working environment. The water bath, having reached set point and allowed to stabilize, is ready to calibrate. Place a reference thermometer in the bath. A clip is provided with your accessory package. **See Figure 2** for placement. Allow the thermometer to reach temperature and stabilize for one hour. Compare the reading on the reference thermometer with the digital display. If there is a difference, put the display into calibrate mode by pressing both the UP/DOWN arrow pads at the same time until the two outside decimal points start to blink. When the decimal points are blinking, the display can be changed to match the reference thermometer by pressing on the UP or DOWN arrow pads until the display reads the correct value. If the arrow pads are not pressed for five (5) seconds the display will revert back to its original parameter. Allow the unit to stabilize again, verify temperature, and repeat calibration if necessary.

4.6 **Set Over Temperature Safety Thermostat:** As mentioned in step 4.3, the Safety Thermostat should be initially set to its maximum position, (clockwise), to allow the water bath to stabilize. Once the bath is stabile at the desired set point, turn Safety Thermostat counterclockwise until the OTP light turns on. Next turn the Thermostat clockwise just until the OTP light turns off. Then turn the Thermostat clockwise two (2) of the smallest division on its scale past the point where the light went out. This will set the Safety Thermostat at approximately 1°C above Main Temperature set point.

Figure 2



Section 5

MAINTENANCE

Note: Prior to any maintenance or service on this unit, disconnect power cord from the power supply and drain water from the tank.

5.1 **Draining Tank:** The circulating pump can be used to aid in draining the bath. Position the bath near a drain or container to which the bath water is to be transferred. With the bath turned off and water cooled, connect a flexible 3/8" OD tube to the tank outlet located on the right front side of the unit, and place the other end in the drain or container. Turn the Over Temperature control to O. Turn the power switch on and begin draining. After the bath is half drained, elevate the back of unit slightly and continue to drain until water has stopped flowing through the tube, then turn the power switch off. Wipe up any remaining water with an absorbent towel.

5.2 **Cleaning:** Heavy water bath use causes soiling. Clean the bath and rack with a mild soap and water solution, rinse with clean water and wipe dry with soft cloth. The polymer coated rack and stainless steel tank will not rust, but foreign materials in the tank may rust or leave rust spots. If corrosion is seen, scrub out the stains with a mild soap. DO NOT USE steel wool or abrasives. **Failure to do this may permanently damage the tank.** DO NOT USE spray cleaners that might leak through openings and cracks and get on electrical parts or that may contain solvents that will harm the coatings. A similar periodic cleaning is recommended.

WARNING: Never clean the unit with alcohol or flammable cleaners with the unit connected to the electrical supply. Always disconnect the unit from the electrical service when cleaning and assure all volatile or flammable cleaners are evaporated and dry before reattaching the unit to the power supply.

5.3 There is no maintenance required on any electrical components. If the unit fails to operate as specified, please see Section 6.0 Troubleshooting, prior to calling for customer service.

WARNING: The heating element of this bath does not contact the tank bottom, thus will not burn out if the tank is allowed to run dry; however, the pump is operating anytime the unit is turned on, and if the tank is allowed to run dry, the pump will burn out. THE TANK SHOULD NEVER BE ALLOWED TO RUN DRY.

WARNING: If tank boils dry while containing plasticware, the plastic will melt. If you intend to use test-tube racks, remember that plastic coated wire racks may wear and expose metal which can cause damage. Preferably, use all plastic.

WARNING: possible problems with pum if set at maximum temperature and allowed to run over long periods of time.

Section 6

TROUBLESHOOTING

TEMPERATURE

Temperature too high	
	1/ Main controller set too high-see section 4.4 2/ Main controller failed on – call Customer Service. 3/ Wiring error – call Customer Service.
Display reads "HI" or "400"+	
	Probe is unplugged, is broken or wire to sensor is broken – call Customer Service.
Temperature spikes over set point and then settles to set point	
	Recalibrate – see section 4.5
Temperature too low	
	1/ Main controller set too low – see section 4.4 2/ Bath temperature not recovered from water being added – wait for display to stop changing. 3/ Unit not recovered from power failure or being turned off – bath will need a minimum of 2 hours to warm up and stabilize. 4/ Element failure – compare current draw to data plate. 5/ Main controller failure – confirm with front panel lights that controller is calling for heat. 6/ Wiring problem – check all functions and compare wiring to wiring schematic in section 7.0 - especially around any areas recently worked on. 7/ Loose connection – call Customer Service.
Display reads "LO"	
	1/ If ambient temperature is lower than range of unit – compare set points and ambient temperature to rated specifications in section 7.0. 2/ Sensor is plugged in backwards – call Customer Service.
Unit will not heat over a temperature that is below set point	
	1/ Confirm that amperage and voltage match data plate. 2/ Confirm that set point is set high enough. 3/ Check calibration – using independent thermometer, follow instructions in section 4.5
Unit will not heat up at all	
	1/ Check amperage – amperage should be virtually at maximum rated (data plate) amperage. 2/ Do all controller functions work? 3/ Has the fuse/circuit breaker blown?
Indicated bath temperature unstable	
	1/ ±0.1 may be normal, especially without the use of bath cover.

	2/ Is ambient room temperature radically changing – either door opening or room airflow from heaters or air conditioning ? – stabilize ambient conditions. 3/ Calibration sensitivity – recalibrate, see section 4.5. Call customer service if re-calibration does not resolve fluctuation. 4/ Assure that the bath is at least 1/3 full. 5/ Electrical noise – remove nearby sources of RFI including motors, arcing relays or radio transmitters. 6/ Bad connection on temperature sensor or faulty sensor – call Customer Service.
Will not maintain set point	
	1/ Assure that set point is at least 5 degrees over ambient room temperature. 2/ See if ambient is fluctuating – check for adjacent open doors or HVAC duct openings; stabilize ambient conditions.
Display and Reference thermometer don't match	
	1/ Calibration error – see section 4.5. 2/ Temperature sensor failure – call Customer Service. 3/ Controller failure – call Customer Service. 4/ Allow at least two hours to stabilize. 5/ Verify that reference thermometer is certified.
Can't adjust set points or calibration	
	1/ Turn entire unit off and on to reset. 2/ If repeatedly happens, call Customer Service.
Calibrated at one temperature, but not at another	
	This can be a normal condition when operating temperature varies widely. For maximum accuracy, calibration should be done as close to the set point temperature as possible.
MECHANICAL	
Water leaking	
	1/ Dry bath and check the tank with flashlight to see if leak is noticeable. 2/ Fill tank again and see if leak repeats and find source of leak. Call Customer Service if continues.
Holes or rust in water bath tanks	
	1/ Assure that clean, distilled water is used – Deionized water, tap water and chemicals should never be used in the tank. USE DISTILLED WATER ONLY. 2/ Assure that no test sample has leaked into bath water. 3/ No metallic products should be in the tank with exception of the polymer coated rack.
OTHER	
Controller on at all times - "locked-up"	
	1/ Turn unit off and on to reset. 2/ If cannot change any condition on the front panel, call Customer Service.
Front panel displays are all off	
	Check for wire damage.
Unit or wall fuse/circuit breaker is	

blown	
	1/ Check wall power source. 2/ Compare current draw and compare to specs on data plate. 3/ See what other loads are on the wall circuit.
Unit will not turn on	
	1/ Check wall power source. 2/ Check fuse/circuit breaker on unit or in wall. 3/ Check all wiring connections, especially around the on/off switch.
Unit is smoking – out of box	
	This is not an uncommon occurrence for new units. The elements will burn off protective coatings. Run the bath at high temperature for one hour until smoke dissipates.

Section 7

PARTS LIST

Description	115V	220V
Circulating Pump	102086	102088
Cooling Fan	110026	110024
Element – WPC65	9570582	9570583
Element- WPC75	NA	9570584
Element – WPC85	9570743	9570744
Fuse, 10 Amp	NA	3300516
Gable Covers – WPC65	9750510	9750510
Gable Covers – WPC75	NA	9750512
Gable Covers – WPC85	9750511	9750511
Main Temperature Control	1750591	1750592
On/Off Switch	103351	103351
Over Temperature Safety Control	1750595	1750595
Pilot Light, Green	200021	200021
Pilot Light, Red	200020	200020
Power Cord	100014	101990
Power Cord - European	1800500	1800500
Tank – WPC65	7930508	7930508
Tank – WPC75	NA	9550653
Tank – WPC85	7930511	7930511

UNIT SPECIFICATION

Weight	Shipping	Net
WPC65	36 lbs.	30 lbs.
WPC75	170 lbs.	78 lbs.
WPC85	48.2lbs.	37.1 lbs.

Dimensions	Exterior WxDxH (in.)	Interior WxDxH (in.)
WPC65	14 x 29 x 9.5	11.5 x 19.5 x 6
WPC75	51 x 26.5 x 24.5	18 x 36 x 9
WPC85	16 x 23.5 x 15.5	12 x 14 x 11

Capacity	Liters
WPC65	30
WPC75	100
WPC85	30

Temperature	Range	Uniformity
WPC65	Amb. +5 to 100°C	±.1 @ 37°C
WPC75	Amb. +5 to 70°C	±.3 @ 37°C
WPC85`	Amb. +5 to 100°C	±.2 @ 44.5°C

Wire Diagram