

OPERATION AND MAINTENANCE MANUAL
CONDITIONING BATH
WITH HEATER/CHILLER



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1.A IMPORTANT NOTICE

The purpose of this manual is to supplement, BUT NOT TO REPLACE the services of qualified personnel to start up and adjust this equipment.

Persons without previous experience with this equipment should not attempt the initial adjustment and check-out procedures required until this installation is considered ready for operation, by a qualified operator.

Each cabinet or bath carries an individual serial number on the nameplate mounted on the cabinet. Please refer to this number when ordering replacement parts or when requesting any further information.

A copy of the complete bill of material applicable to each cabinet and a wiring diagram are shipped with each piece of equipment.

SAFETY PRECAUTIONS

This manual contains important information that ALL users should know and understand before using the equipment.

This information relates to USER SAFETY and PREVENTING EQUIPMENT PROBLEMS.

To help you recognize this information, we use the following terms to draw your attention to certain equipment labels and portions of this manual.

Please pay special attention to any label or information that is highlighted by one of these terms:

===== CAUTION =====

Important information that tells how to prevent damage to equipment, & or how to avoid a situation that may cause injury.

===== NOTE =====

Information that you should pay special attention to.

2.0 INSTALLATION

2.1 Remove the shipping crate and packing material carefully from the bath system. Do not discard the packing material until all of the items on the packing lists have been accounted for.

2.2 Use a fork lift to remove the Bath Tank from the shipping pallet and position the tank in the desired location and level the tank by shimming the legs of the tank. Be sure to allow adequate floor space for maintenance.

2.3 Connect bath "fill" and "drain" lines to their appropriate plant services. Be sure to connect the water supply to the solenoid valve if your system is so equipped.

Connect the drain valve and the overflow to the plant drain connection. These connection points are well marked.

2.4 Connect the electrical supply, usually 15 amps, 110-120 VAC / 60 Hertz / One Phase to the customer's power supply.

===== CAUTION =====
Do not open the control cabinet without disconnecting power sources. It is suggested that all circuits be connected to a single disconnect box whenever possible.

2.5 Fill the bath with water to the desired level and check for leaks. Do not use contaminated water for this will accelerate corrosion and result in additional problems. Some customers treat the water with corrosion preventatives to lengthen the time required between water changes. Tests must be run to determine the effect of any additives prior to their use. Some customers use deionized water in their baths and this seems to be the best long term solution.

It is suggested that the water be changed once a year or more often, depending on local conditions. Do not place any regular steel fittings in the bath or in the water feed line! Only Brass or Stainless Steel components are acceptable.

3.0 DESCRIPTION

The specimen conditioning bath provides temperature control of the test specimens by a temperature controlled water bath.

The basic test bath consists of an insulated stainless steel tank with an external painted steel case and temperature control equipment as needed to satisfy the specific test requirements.

The test baths are usually equipped with heaters and a recirculating pump to provide uniform temperature.

The test baths can also be supplied with an automatic water level control and can be supplied with optional cooling accessories. Cooling is usually provided by the introduction of chilled water into the tank upon demand by the temperature controller.

Specimen mounting provisions are made with stainless steel sheet metal fixtures for small pipe specimens.

Other custom arrangements can be designed to suit individual testing requirements. Please call the factory for further information or for a special price quote.

4.0 CONTROLS

4.1 Main plug into a GFI circuit controls the electrical power to the bath heater, chiller and electrical controls. The bath usually requires 110-120V/50/60Hz/1Ph for the controls and pump.

4.2 Float Switch allows the float to activate the fill solenoid when the water level drops below the set point. Turn switch on left side of tank to "ON".

4.3 Temperature is controlled by the Thermo Scientific controller mounted on top of the external heater/chiller.

===== NOTE =====

Two safety features installed in this system are: The water level must stay between the high and low set points to maintain temperature.

4.4 Temperature Controller maintains bath temperature by activating heating or cooling system as per settings. A sensing thermocouple in the test bath provides temperature measurement for the controller. See safety feature note above if the temperature controller shows as being activated but temperature does not reach set point. To calibrate the controller, see the manufacturer's instruction book located in the back section of this manual. Contact the factory if further information is required.

5.0 OPERATION

5.1 Fill the tank with water or solution to the float valve or the overflow pipe. Remember to allow for displacement of the water or solution whenever specimens are inserted or removed from the bath. **DO NOT OVERFILL THE BATH.**

5.2 Install specimens in the tank.

5.3 Position the specimens so as to not damage the temperature sensing thermocouple located in the bath.

5.4 Turn on the heater/chiller and operate the temperature controls in accord with the manufacturer's instructions to reach the desired testing temperature.

Allow sufficient soak time for the specimens to reach the bath temperature according to ASTM D1598 standard, ISO standard or CSA standard you are using.

6.0 MAINTENANCE

6.1 Change water yearly or as needed, to prevent contamination and bacterial growth.

6.2 Refer to the heater /chiller manufacturer's instructions for additional maintenance procedures.

6.3 Use a commercial stainless steel cleanser to remove stains from the tank when cleaning.

===== CAUTION =====

Extreme care must be taken when doing maintenance or any other work on a heated test bath. Burns or scalding could result by not wearing protective clothing and following established safety procedures.

7.0 ===== CAUTION =====

7.1 Do not run test bath without water covering the controller sensing thermocouple.

7.2 Avoid placing any regular steel parts in the test bath, as severe corrosion will result.

7.3 Use care when opening the heated test bath, some test temperatures are very high and steam burns of hands and arms can result.

===== NOTE =====

WEAR HAND AND ARM PROTECTION

7.4 Use Caution and observe the test bath water level when placing large specimens into the tank to prevent an overflow and possible scalding of the operator. Place all specimens in the tank slowly to avoid this hazard.

7.5 Always check bath and specimen temperature before attempting to work on the specimens to prevent possible scalding of the hands. The specimen connection hoses are of adequate length to permit easy removal of the whole assembly.

7.6 When installing specimens into the tank, care must be taken to prevent damage to the temperature sensing thermocouple.

8.0 BATH COMPONENTS

8.1 An inner stainless steel tank shell with an outer painted steel tank shell, with fiberglass insulation between.

8.2 A fiberglass insulated inner stainless steel tank lid with an outer painted steel tank lid with stainless steel hinges and gas struts.

8.3 Stainless steel specimen rack.

8.5 Electrical control box with on/off switch for automatic water level.