product manual

H-4239A

Hydrometer Jar Bath

Humboldt Hydrometer Jar Bath

The Humboldt Hydrometer Jar Bath is designed to provide a 68°F (20°C) ambient temperature throughout the unit by using a microprocessor-based temperature control. The H-4239A water bath is fully-insulated and includes a circulating pump, which ensures a constant water temperature throughout bath.

The H-4239A Water bath provides:

- Fast & effortless auto-tuning of temperatures
- Simultaneously shows the set point and process temperature on its dual-digital display
- Smoothly handles critical temperature processes with ramp-to-setpoint
- Processes and equipment are protected by set point range limiting
- Percent power limit protects components from stress
- Rapid cycling provides fast system response
- Operator lockout guards against unwanted changes
- All exposed parts are stainless steel, and the front panel is water and corrosion resistant

Models covered in this manual include:

- Hydrometer Jar Water Bath, 110V 50/60Hz— H-4239A
- Hydrometer Jar Water Bath, 220V 50/60Hz— H-4239A.4F

Microprocessor-based temperature control for precise temperature control throughout the range. Includes a circulating pump, ensuring constant water temperature. The H-4239A can accommodate (8) hydrometer jars at a time. All models include a stainless steel shelf, which supports specimens while allowing 2" (51mm) of free circulating water above and below specimens.

Tank Volume: 20.5 gallons (77.6 Liters)

Dimensions: ID: 37"L x 8"W x 16"D (940 x 203 x406 mm)

Overall dimensions: 48"L x 11"W x 19"D (1220 x 280 x483 mm)

Meets ASTM D422; AASHTO T88. Shipping wt. 47 lbs. (21.4kg)

Product Description

This product is intended for use only in accordance with the directions and specifications contained in this User Guide. While the Humboldt Hydrometer Jar Water Bath can be used for many uses within labs, it was designed specifically for use in providing a consistent temperature bath for storing hydrometer jars in accordance with ASTM D422, AASHTO T88 and UNE 103.102 to determine the
particle size distribution of very fine materials, such as silt and clay. The control processor in the H-4239A provides a consistant bath temperature of 68°F (20°C)
accurate to within 0.1% of input span ±1°F.

The Humboldt Hydrometer Jar Water Bath is fully insulated to help easily maintain constant temperature. The H-4239A can accommodate (8) hydrometer jars at a time. All models include a stainless steel shelf, which supports specimens while allowing 2" of free circulating water above and below specimens;
a chiller, and all necessary tubes and connections.

Initial Installation

Your Humboldt water bath was thoroughly inspected and tested prior to being shipped and should be ready to operate once initial installation procedures are completed.

To begin, please remove all packaging. Water baths are packed, one to a box, with the bath, shelf, and tubes and connections. The chiller unit for the bath is shipped in a separate box. Inspect all components and make sure they are free of any damage, which could have occurred during shipping. If shipping damage is observed, please contact Humboldt or your local agent and file a claim with any carriers involved.

Your Humboldt water bath should be placed on a table or bench that is level. Check unit for power requirements and connect the line cord plug into a suitable electrical outlet.

Slowly fill the bath with water. The water level should be approximately 2" (50mm) from the top when hydrometer jars are placed in the bath.

Every Humboldt hydrometer jar water bath is calibrated to a certified thermometer to ensure accurate temperatures during operation. In most cases you should not need to recalibrate you water bath. However, if you need to access the controller for calibration purposes, please contact Humboldt for step-by-step directions.

WARNING

UNIT SHOULD NEVER BE USED WITH LESS THAN 8 INCHES (200mm) OF WATER FROM THE TOP OF THE SHELF. IF THE UNIT IS EMPTIED WHEN HOT, IMMEDIATELY REFILL WITH A MINIMUM OF 8 INCHES (200mm) OF WATER

Operation

Once set-up has been completed and the water bath has been filled with water.

The bath is ready for operation.

To power on the unit, FIRST, turn on the power for the chiller. This switch is located at the bottom of the back of the chiller. This switch can be left on, as the operation of the chiller is controlled by the controller located on the water bath. However, if this switch is not turned on, the unit will not cool.

Once the chiller has been turned on, Push the POWER switch down on the water bath to turn the controller on. The heating indicator to the left of the POWER switch will illuminate and show you the current temperature of the bath on top of the controller in red and the current set point, on the bottom in green.

Use the arrows on the controller to set the desired temperature you would like to operate the bath at, i.e. the set point. The set point is indicated by the bottom number on the control, which is in green. Humboldt Hydrometer Jar Water Baths

are capable of heating and cooling the bath.

Once you have set the setpoint for the bath, either the heating element or the cooler will begin to heat or cool the bath. This will be indicated by a flashing light to the right of the actual temperature reading, the top number on the controller. Once the bath temperature has stabilized at the desired temperature, the thermostat will call on the heater or the cooler to maintain that temperature.

Typical time to cool a bath from 85°F (30°C) to 68°F (20°C) is 4 hours.

Digital Controller Factory Setup

H-4239A, Hydrometer Jar Water Bath, 110V 50/60Hz models come set to °F

H-4239A.4F, Hydrometer Jar Water Bath, 220V 50/60Hz models come set to °C

If you desire to change this setting, hold the two arrow buttons in at the same time and hold for 5-10 seconds. Pushing the blue scroll button allows the display to advance to the next setting, while using the up and down arrows you can change the actual setting.

WARNING

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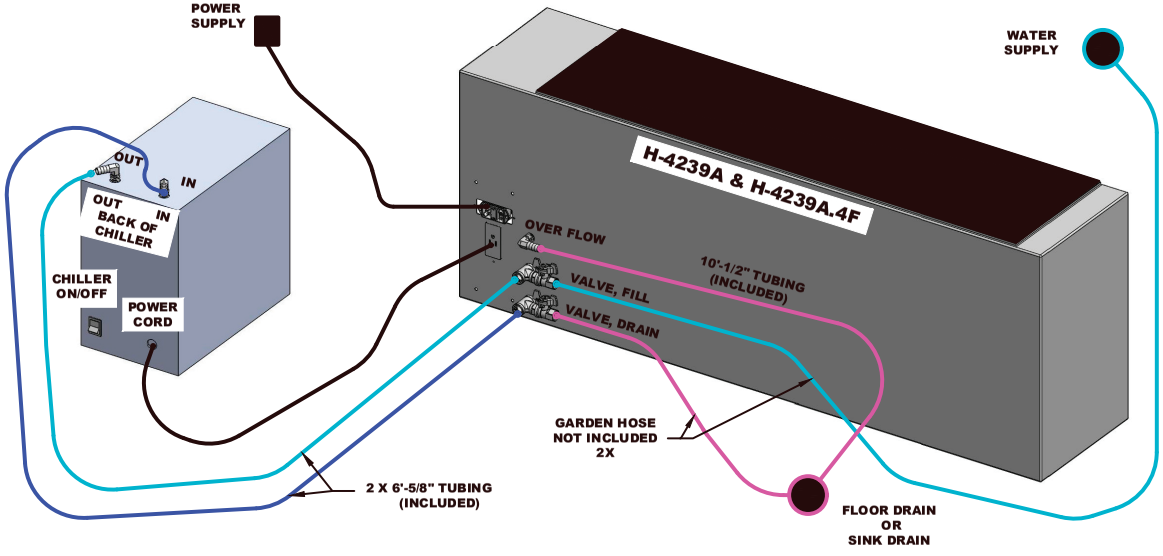

ELECTRICAL WIRES

WATER LINE INTO TANK

CHILLED WATER LINE TO TANK

DRAIN LINES FROM TANK

FILLING: OPEN TOP VALVE
OPERATION: CLOSE BOTH VALVES
DRAINING: OPEN BOTTOM VALVE

DO NOT SCALE
UNLESS OTHER SPECIFIED
.XX DIMENSIONS MAY VARY +/-.010
.XXX DIMENSIONS MAY VARY +/-.005
FRACTIONAL DIMENSIONS MAY VARY +/-.015
ANGLES MAY VARY +/-1/2deg.

REVISIONS

LTR	DESCRIPTION	CBN	BY	DATE
A	RELEASE	--	AC	04-18-23
B				
C				
D				
E				

HUMBOLDT MFG. CO.
ELGIN, ILLINOIS 60123 USA

TITLE: **HYDROMETER JAR BATH PLUMBING DIAGRAM**

DRAWN: AC
APPROVED: BT

H-4239A
H-4239A.4F

REV. A

Warranty

Humboldt Mfg. Co. warrants its products to be free from defects in material or workmanship. The exclusive remedy for this warranty is Humboldt Mfg. Co., factory replacement of any part or parts of such product, for the warranty of this product please refer to Humboldt Mfg. Co. catalog on Terms and Conditions of Sale. The purchaser is responsible for the transportation charges. Humboldt Mfg. Co. shall not be responsible under this warranty if the goods have been improperly maintained, installed, operated or the goods have been altered or modified so as to adversely affect the operation, use performance or durability or so as to change their intended use. The Humboldt Mfg. Co. liability under the warranty contained in this clause is limited to the repair or replacement of defective goods and making good, defective workmanship.

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Testing Equipment for Construction Materials

HUMBOLDT

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