



ThermoWorks

Mini Temperature Calibration Bath



Operating Instructions

Please read this Manual before using the product. Keep the manual handy for future reference and ensure it is given to anyone who is to use the Bath.

Regular calibration (check) of a thermometer is essential to maintain confidence in your readings. The Mini Temperature Calibration Bath provides a handy source of hot and cold water.

Description

The Mini Temperature Calibration Bath is a simple, easy to use device to aid in the comparison calibration of temperature probes. Water or oil may be placed in either the cup provided or directly into the main well of the bath. Detailed instructions for use are given later in the manual. Please observe the following safety instructions.

General Safety

We wish you to use the Calibration Bath as safely as possible – please follow these simple precautions:

- Connect the bath to power by using either –
 1. The main adapter to a 100-240 volt supply, or
 2. The special cable for a cigarette lighter (12V supply).
- Do not pull the plug from the cigarette lighter by the cable.
- If any cable is damaged, it must be replaced to prevent possible electrical hazards.
- Do not operate the bath if it is damaged.
- This bath should only be repaired by specialist personnel – return it to your supplier.
- Pull out the plug from the power source when cleaning and after use.
- Ensure that the ventilation slots are not covered.

Operation Safety

- Before starting the bath ensure that the power supply cable and the plug are dry.
- Never start the bath with wet hands.
- Do not operate the bath on hot surfaces or near naked flames.
- Do not immerse the bath in water.
- Protect the bath and cable from heat and moisture.
- Do not allow water to enter the ventilation slots.
- The manufacturer cannot be held liable for damage resulting from improper use or operation.

Connecting to a cigarette lighter

- Only use the bath when the vehicle is stationary.
- The ignition may need to be switched on to power the lighter socket.

Parts List

- 1 No. Mini Bath
- 1 No. Connection cable with mains adapter
- 1 No. Connection cable for cigarette lighter (12volt)
- 1 No. Calibration Cup

If any of the above parts are missing, please contact ThermoWorks.

Technical Description

The bath is used to cool or warm water, in order to provide calibration sources.

The bath is a compact, tabletop device, and can cool to approx. 36°F (20°C) less than the ambient temperature, and heat to a temperature of approx. 130°F (56°C). The cooling system is a non-wearing, CFC-free, Peltier device. The excess heat is discharged by a fan.

Operation

The bath is used to provide both cold and warm water as a source for comparison calibration of thermometer probes.

In tests, using crushed ice and water, the bath was able to maintain a stable temperature of 32°F (0°C) $\pm 0.9^\circ\text{F}$ ($\pm 0.5^\circ\text{C}$) for over four hours.

Cooling

Place either cold water or a water and crushed ice mixture into the calibration cup. Place the cup into the bath.

Connect to a power source and press the “Cold” button.

The operating indicator should glow and the bath starts cooling.

Note that the bath does not switch off and will continue to cool down to a temperature that is approximately 36°F (20°C) below the ambient temperature. Therefore, if used in a cool place, the water will eventually freeze.

When you wish to end cooling, press the “Off” button.

Disconnect from the power supply.

Heating

For warm water, connect the bath to a power supply and press the “Hot” button. (Reduce heating time by filling with warm water.)

The operating indicator should glow and the bath starts heating.

The bath stops heating when the contents reach a temperature of approx. 130°F (56°C).

This prevents the bath from over-heating. A thermostat control starts the heating again if the contents drop in temperature.

When you wish to end heating, press the “Off” button.

Disconnect from the power supply.

Calibration

Regular calibration (check) of a thermometer is essential to maintain confidence in your readings. The Mini Temperature Calibration Bath provides a handy source of hot and cold water to check one or more instruments against a Reference Thermometer. An annual calibration to National Standards, by an authorized/accredited laboratory, is recommended, but you should also check your instrument on a regular basis for obvious signs of error.

The frequency of calibration check will be dependent on how important accurate measurement is to your business or process.

The calibration bath must be used in conjunction with a Reference Thermometer. This will have been checked against and/or be traceable to National Standards.

The Reference Thermometer will have a Certificate of Calibration, and this can be used to determine the actual temperature that the thermometer is reading by using a correction figure - being the difference between the “Test Temperature” and the “Instrument Reading”.

Calibration Procedure

- Place the Reference Thermometer Probe, and the instrument probe that you wish to compare, together into the Calibration Cup.
- Allow both temperature readings to stabilize – this will depend on the speed of response of both instruments.
- Slight agitation will assist with the speed of response.
- When the readings have stabilized, compare the readings of the two (or more) instruments.
- They should read the same, or be within an acceptable tolerance. This tolerance is dependent on the accuracies of each instrument and the importance of correct measurement to your organization.
- If the instrument under test is out of adjustment by more than an acceptable tolerance, it requires to be adjusted by a competent person with access to specialized equipment. It is recommended that you contact the manufacturer or supplier for advice.
- **Note:** If, with some low -cost instruments, a rapid fluctuation of reading is experienced, the bath should be turned off for the short period of actual calibration.

Cleaning and Care

Caution! Before cleaning the bath disconnect the unit from any power source.

Caution! Do not clean the bath by immersing any part in water.

Caution! Do not use abrasive cleaning agents or scourers, as this will damage the surface finish of the bath. Occasionally clean both the interior and exterior with a damp cloth.

Technical Data

Connection Voltage	12 Volt DC or 100-240 volt AC
Power Consumption	20 W
Accuracy	$\pm 0.9^{\circ}\text{F}$ ($\pm 0.5^{\circ}\text{C}$) in a stable temperature environment
Temperature Range	36°F (20°C) below ambient, to approx. 130°F (56°C)
Weight	1.32 lbs (0.6 kg)



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