



Boekel MicroCooler II

Models
260010 and 260010-2

Operating Instructions

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1. Safety

The following symbols marked on the equipment mean:



Caution: Read these operating instructions fully before use and pay particular attention to sections containing this symbol.

Attention: Suivre attentivement les instructions avant l'usage et prêtez une attention particulière aux sections comportant ce symbole.

Always observe the following safety precautions:

- Use only as specified by the operating instructions or the intrinsic protection may be impaired. After transport or storage in humid conditions, dry out the unit before connecting it to the supply voltage. During drying out the intrinsic protection may be impaired.
- Connect only to a power supply with a voltage corresponding to that on the serial number label.
- Connect only to a power supply that provides a safety ground terminal.
- Before moving, disconnect at the power supply socket.
- To reduce the risk of eye injury use safety goggles.
- Do not touch surfaces that become hot during high temperature operation.
- Ensure that the operating temperature is less than the maximum operating temperature of your sample material.
- Ensure that the power switch is easily accessible during use.
- If liquid is spilled inside the unit, disconnect it from the power supply and have it checked by a competent person.
- It is the user's responsibility to carry out appropriate decontamination if hazardous material is spilled on or inside the equipment.
- Ensure that the fan intake and output ports are not blocked or restricted.
- Do not submerge the unit in water.
- The Power Cord supplied with the unit is the disconnect means.

2. Product Information

The Boekel MicroCooler II cold well incubator is a compact and convenient alternative to expensive and bulky refrigerated water baths. The MicroCooler II is an ideal way for labs to incubate or store samples at temperatures from ambient down to 18°C below ambient, typically 4°C. The unit's simple "press to set" controller makes it perfect for maintaining those "difficult" sub ambient temperatures such as the 14°C used in nick translations and ligation reactions or the 17°C used to store oocytes.

The MicroCooler II has a 5 ¾" x 2" well which accommodates a rack holding up to 21 x 1.5 mL microcentrifuge tubes. This rack is supplied with the unit. The MicroCooler II's well has a one-piece construction which allows for the use of water or other liquids in the well. For best temperature transfer uniformity and most efficient heat transfer, fill the cooling well with water to a depth of about 3 cm. As a matter of safe practice, volatile and flammable liquids should not be used in the MicroCooler II well.

Under typical lab ambient temperatures and low humidity, the MicroCooler II has an operating range of ambient down to 18°C below ambient, typically 4°C. The well temperature will typically fluctuate less than +/-1.0°C around the set point under normal operating conditions. Excessively high ambient temperatures or high humidity may negatively affect the MicroCooler II's performance.

3. Assembly

3.1 Unpacking

Remove packing materials carefully, and retain for future shipment or storage of the unit. Inspect for damage. Report all shipping damage to the carrier immediately. The carrier covers shipping damage and repair/replacement for shipping damages must be coordinated through the carrier. Complete and return the Warranty Registration Card at this time or register online. Packs should contain:

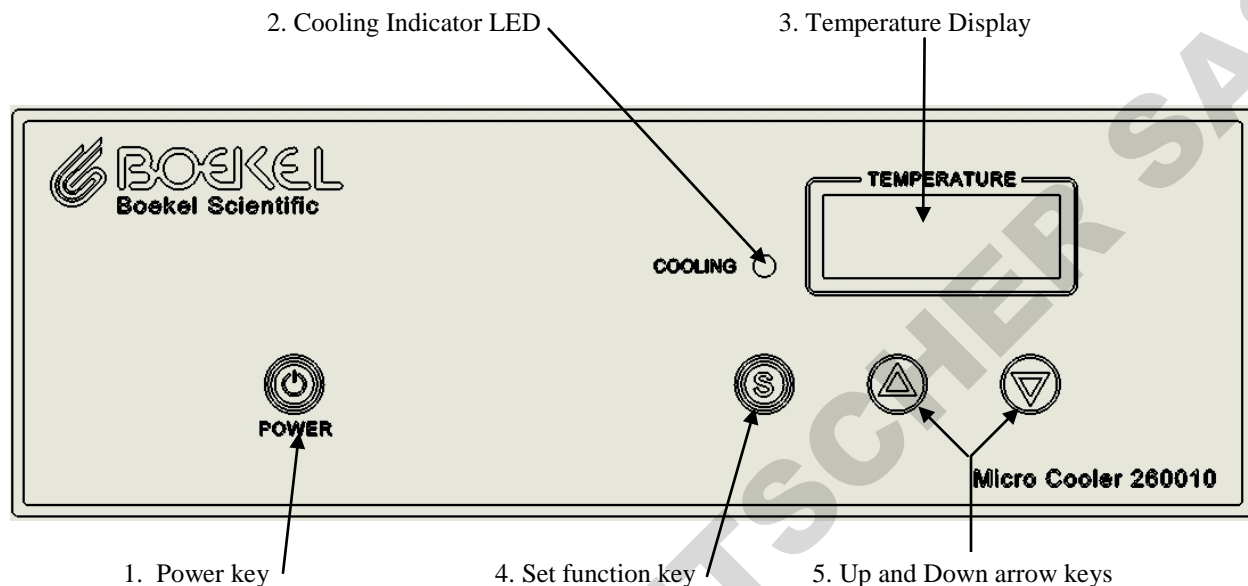
- MicroCooler II
- Operating Instructions
- Well Lid
- Power Cord
- Rack
- Warranty Registration Card

3.2 Installation

Place the MicroCooler II on a flat and stable surface, preferably away from drafts and with sufficient airspace for proper airflow. Do not block fan intake or output ports. Plug power cord into a power supply that matches the voltage listed on the serial number label on the rear of the unit.

4. Operation

4.1 Controls and Displays



1. Power Key (⏻) – Controls Power to the unit
2. Cooling Indicator Light-Green LED indicated cooling Function
3. Temperature Display- Displays the current well temperature of the unit.
4. Set (S) function Key- is used to adjust the temperature of the unit
5. Up (▲) and Down (▼) arrow keys-are used to adjust the set temperature

4.2 Power On/Off

To turn the unit on, press and hold the Power Key (⏻) for one second; upon power start up a display test is run to demonstrate that all display components are functioning properly. To turn the unit off; press and hold the Power Key (⏻) for two or more seconds; the unit will retain the last stored temperature for use the next time the unit is powered on.

4.3 Setting the Well Temperature

To set the temperature of the system, press and hold the Set (S) function key until the temperature display flashes. Press the Up (▲) or Down (▼) arrow key to adjust to the set temperature required. Holding the arrow key down will cause the set temperature to cycle rapidly; a single pressing of the arrow key will move the set temperature one-tenth of a degree. After three seconds of inactivity, the display will stop flashing and the unit

will begin cooling to the set temperature. The Green Cooling indicator LED will indicate the Cooling Function. A blinking indicator LED shows that the system is nearing the temperature set point and will stabilize to the set temperature.

4.4 Operating the MicroCooler II

The MicroCooler II is rated to work at temperatures between ambient and 18°C below ambient, typically 4°C. The MicroCooler II may be programmed to run at temperatures below 4°C; however the MicroCooler II's ability to reach temperatures below 4°C is dependent on the ambient temperature and the relative humidity in the lab environment in which it is operating.

The MicroCooler II has a 5 ¾" x 2" well which accommodates a rack holding up to 21 x 1.5 mL microcentrifuge tubes. This rack is supplied with the unit. The MicroCooler II's well has a one-piece construction which allows for the use of water or other liquids in the well. For best temperature transfer uniformity and most efficient heat transfer, fill the cooling well with water to a depth of about 3 cm. As a matter of safe practice, volatile and flammable liquids should not be used in the MicroCooler II well. For optimum performance, The MicroCooler II should be operated in a cool, dry environment.

Note: The use of the supplied Well Lid is recommended to ensure maximum performance and efficiency of the system.

5. Accessories

5.1 Well Lid

Boekel Part Number B1702577

5.2 Rack

Part Number 260111

6. Fault Diagnosis

Symptom	Possible Cause	Action Required
1. Unit does not operate	<ul style="list-style-type: none"> a. Unit not switched on b. Unit not plugged into power supply c. Fuses blown d. Power supply failure 	<ul style="list-style-type: none"> a. Switch on b. Plug in, switch on c. Replace fuses per 8.2 d. Check that other electrical appliances on the same circuit are working
2. Well temperature does not rise when expected to	<ul style="list-style-type: none"> a. Actual temperature is higher than set temperature 	<ul style="list-style-type: none"> a. Check set temperature

	b. Temperature control circuit fault	b. Have unit checked by competent person
3. Well temperature continues to rise when not expected	a. Actual temperature is lower than set temperature b. Temperature control circuit fault	a. Check set temperature b. Have unit checked by competent person
4. Well temperature does not cool when expected to	a. Actual temperature is lower than set temperature b. Temperature control circuit fault	a. Check set temperature b. Have unit checked by competent person
5. Well temperature continues to cool when not expected	a. Actual temperature is higher than set temperature b. Temperature control circuit fault	a. Check set temperature b. Have unit checked by competent person

7. Technical Specifications

This equipment is intended for indoor use and will meet its performance figures within the ambient temperature range of 10°C to 35°C, with maximum relative humidity of 80% (non-condensing). Installation Category II (transient voltages). Pollution Degree 2 in accordance with IEC 664. Suitable for operation at altitudes of up to 6500 feet.

Specifications:

Temperature Range:	ambient to 18°C below ambient, typically 4°C
Supply Voltage Range:	115V +/- 10%, 50/60 Hz 230V +/- 10%, 50/60 Hz
Power Rating:	Model 260010: 75W Model 260010-2: 75W

8. Maintenance and Service

All Boekel laboratory products are designed to comply with IEC1010-1. No routine maintenance is required.

8.1 Cleaning

Disengage power cord prior to cleaning. The outer casing may be cleaned with water and a damp cloth. Do not submerge or immerse the MicroCooler II in water. Abrasive materials such as paper towels may scratch the well cover or the plastic body. Do not use solvents to clean the well cover or the plastic body. Before using any cleaning or decontamination method, users should check that the proposed method would not damage the equipment.

8.2 Replacement of Fuses

There are two supply fuses located in the fuse drawer. To replace the fuses:

- Disconnect the unit from the power supply.
- Remove the plug from the socket in the back of the unit.
- Pull back on the fuse drawer (see Figure 2).
- Pull out the fuse drawer.
- Check and replace with the correct fuses if necessary. The fuses must be 5mm x 20mm quick acting, rated 250V.
Model 260010: 2AF
Model 260010-2: 1AF
- Push the fuse drawer back in. Reconnect unit to the power supply.

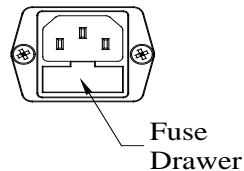


Figure 2

9. Warranty

When used in laboratory conditions and according to these operating instructions, Boekel warrants this product to be free of defective material and workmanship for a period of two years from the date of manufacture. The liability of Boekel for any defective equipment during the warranty period shall be limited to the repair of such equipment or replacement thereof without charge for parts or labor.

10. Service

A Returned Materials Authorization (RMA) number must be obtained before any Boekel products are returned for any reason. A Decontamination Notice must be completed, signed by the user, and returned to Boekel Scientific prior to receiving the RGA number. Please be sure to mark the outside of the return goods package with this RGA number to ensure prompt handling. For more detailed instructions please visit our Website: www.boekelsci.com.

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