

**ANALOG DRY BATH INCUBATOR**  
**MODELS 112001, 112001-2, 112002, 112002-2, 112004 & 112004-2**  
**(PLEASE READ THESE INSTRUCTIONS COMPLETELY BEFORE OPERATING)**

### PRODUCT INFORMATION

Boekel Analog Dry Bath Incubators are designed to be used with standard aluminum dry blocks (nominally 3" x 3¾" x 2") of varying configurations for heating test tubes, microtubes and other small vessels. They can also accept blocks which hold a wide variety of microplates.

The Boekel Dry Baths have recently been redesigned with a sleeker, more aesthetically pleasing appearance. The 112001 replaces the 110001 one block capacity unit, but is now designed for 150° C maximum temperature. The 112002 is a direct replacement for the 110002 two block capacity unit. The 112004 directly replaces the 110004 four block capacity unit. Both the 112002 and 112004 have a maximum temperature of 130° C. The three block capacity unit has been discontinued.

The dry baths described in this manual provide an accurate and reliable source of heat that are ideal for incubation, culture inactivations, enzyme reactions, melting and boiling points, plus a wide variety of routine heating applications.

Heating blocks have a black anodized aluminum finish for superior heat uniformity.

### UNPACKING

1. Remove the Incubator and Block Extractor from the carton.
2. Inspect for damage. Report all shipping damage to the carrier immediately. Shipping damages are covered by the carrier. Repair and/or replacement for shipping damages must be coordinated through the carrier.
3. Retain all packaging material in the event that the unit must be returned.
4. Completely fill out and return the self-addressed Boekel Warranty Registration Card to Boekel Scientific. If you prefer, you may register online at our website ([www.boekelsci.com](http://www.boekelsci.com))

### SET-UP

1. Location - Place the unit in a draft-free location near a grounded electrical outlet meeting the power requirement. The unit should be level, though operation does not depend on this. Position the unit away from edges of the laboratory bench where there is no danger of accidental burns or knocking the unit over.

2. Heating Blocks – Select an aluminum block designed for the test vessel(s) to be heated. Insert the heating block(s) into the heating well.
3. Electrical Connection – Each dry bath incubator is supplied with a three-wire line cord. It should be plugged into a grounded outlet of appropriate voltage.
4. Thermometer (supplied by user) – Insert an immersion-type thermometer with the appropriate temperature scale into the thermometer well of the heating block. For more accurate temperature readings, the thermometer should be inserted into either the vessel being heated or a “test” vessel next to it. Particularly at elevated temperatures, an even more accurate reading will be obtained by positioning an immersion-type thermometer with the immersion references line level with the top of the block or the top of the contents of the “test” vessel. A thermometer marked at 35mm will be correctly immersed to the top of the block.

### OPERATION

**Warning!** To avoid danger of fire and/or explosion, do not heat materials above their auto-ignition temperature.

**Caution:** Turn the power switch off (o) when not in use. This extends the life of the heating element and reduces the hazards of accidental burns.

1. To achieve the desired reaction or result, do not place materials in block until required temperature has been reached.
2. Turn the power switch on (I). An amber heater lamp indicates when power is being supplied to the heating element.
3. Set the thermostat control knob corresponding to the range selected. Dials are marked “0” to “10” for reference purpose only. The higher the number, the higher the temperature that will be reached.
4. Check thermometer at frequent intervals to determine if desired temperature is being reached. When the temperature has stabilized, make adjustments to raise or lower temperature as required.
5. Insert test tubes or other vessels into the heater block once the temperature has stabilized at the desired point.
6. Use the block extractor to facilitate insertion or removal of block modules.

**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 shipment. 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.

**SERVICE: RETURN AUTHORIZATION IS REQUIRED.**

Should service be required, contact your salesperson or call Boekel Scientific Customer Service at: 215-396-8200. Units returned for repair must be in clean condition.

**SPECIFICATIONS AND PERFORMANCE**

**Dimensions:**

1 Block Model 112001	8" w x 9.8" d x 3.5" h
112001-2	(20.3 x 24.9 x 8.9 cm)
2 Block Model 112002	8" w x 9.8" d x 3.5" h
112002-2	(20.3 x 24.9 x 8.9 cm)
4 Block Model 112004	8" w x 13" d x 3.5" h
112004-2	(20.3 x 33 x 8.9 cm)
Standard Block	3" w x 3 ¾" d x 2" h
	(7.6 x 9.5 x 5.1 cm)

**Shipping Weight:**

1 Block Model 112001/112001-2	6.0 lbs. (2.7 kg)
2 Block Model 112002/112002-2	6.0 lbs. (2.7 kg)
4 Block Model 112004/112004-2	7.0 lbs. (3.2 kg)
Standard Block	2.0 lbs. (1.0 kg)

**Power:**

1 Block Model 112001	115 VAC, 100 watts
1 Block Model 112001-2	230 VAC, 100 watts
2 Block Model 112002	115 VAC, 150 watts
2 Block Model 112002-2	230 VAC, 150 watts
4 Block Model 112004	115 VAC, 300 watts
4 Block Model 112004-2	230 VAC, 300 watts

**Temp Range:**

1 Block Model 112001/112001-2	ambient +5° C to 150° C
2 Block Model 112002/112002-2	ambient +5° C to 130° C
4 Block Model 112004/112004-2	ambient +5° C to 130° C
<b>Uniformity:</b>	±0.50° C @ 37° C

**Stability:**

1 Block Model 112001/112001-2	±0.45° C @ 37° C
2 Block Model 112002/112002-2	±0.45° C @ 37° C
4 Block Model 112004/112004-2	±0.50° C @ 37° C

Temperature Stability was determined by using NIST traceable thermometers placed in 16MM glass test tubes, with oil, placed in standard 16MM aluminum blocks. The thermometers were suspended in the test tubes. The stability numbers shown above are an average of two readings for the Dry Bath Incubator.

**Definitions:**

**Uniformity** is the variation in temperature in the block at any instant in time.

Optional Heating	Accommodates
<b>Blocks</b>	
110006	30 tubes up to 6mm
110010	20 tubes up to 10mm
110013	20 tubes up to 13mm
110016	6 tubes up to 25mm
110020	6 tubes up to 25mm
110025	30 tubes up to 6mm
110035	Combination:
	3 tubes up to 25mm
	5 tubes up to 13mm
	6 tubes up to 6mm
110040	1.5 microcentrifuge tubes by 24 places
110045	0.5 ml tubes by 24 places
110048	0.2 ml tubes by 24 places
110051	96 well Microplate
110096	0.2 ml PCR tubes
110099	1.5 ml "dolphin" tubes 24 plcs.
110002LID*	Lid for 112001 and
	112002 Dry Baths
110004LID*	Lid for 112004 Dry Baths
* Temp Limited	

**Stability** is the variation in temperature at a single point over a long period of time.

Note: The temperature variation that is obtained when using thermometers placed in the thermometer hole will be greater than listed above. The oil retards the overall temperature swing of the block. This method of testing was used since it is the method that has been used historically on Boekel Analog Dry Bath Incubators.