

Type 17600 Single Block Modular Dri-Bath

OPERATION MANUAL AND PARTS LIST SERIES 821

Model	Series	Volt
DB17614	821	100
DB17615	821	120
DB17610	821	240
DB17610-26	821	220 with European plug

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IMPORTANT INFORMATION

This manual contains important operating and safety information. You must carefully read and understand the contents of this manual prior to the use of this equipment.

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Safety Information

Alert Signals

**Warning**

Warnings alert you to a possibility of personal injury.

**Caution**

Cautions alert you to a possibility of damage to the equipment.

**Note**

Notes alert you to pertinent facts and conditions.

Your Thermolyne Dri-Bath Test Tube Incubator has been designed with function, reliability, and safety in mind. It is your responsibility to install it in conformance with local electrical codes. For safe operation, please pay attention to the alert boxes throughout the manual.

Warnings

To avoid electrical shock, always:

1. Use a properly grounded electrical outlet of correct voltage and current handling capacity.
2. Disconnect from power supply before maintenance and servicing. Refer servicing to qualified personnel.
3. In the event solution is accidentally spilled into the bath, disconnect grounded plug and turn incubator upside down to avoid solution contacting the internal components. Remove bottom cover and inspect to assure solution has not contacted elements, thermostat or connectors. Replace damaged parts.

To avoid personal injury:

1. Do not use in the presence of flammable or combustible materials; fire or explosion may result. This device contains components which may ignite such materials.
2. Refer servicing to qualified personnel.
3. Ensure that the Dri-Bath is connected to electrical service according to local and national electrical codes. Failure to properly connect may create a fire or shock hazard.
4. Always use the supplied handle to remove hot blocks to avoid burning your fingers.
5. "Caution: Hot Surface. Avoid Contact." The dri-bath block will become hot and remain hot without visual indication for some time after use.

Please note the following WARNINGS:

WARNING

THIS PRODUCT CONTAINS REFRACTORY CERAMIC, REFRACTORY CERAMIC FIBER OR FIBERGLASS (GLASS WOOL) INSULATION WHICH CAN PRODUCE RESPIRABLE FIBERS AND DUST WHEN HANDLED. THESE FIBERS OR DUSTS CAN CAUSE IRRITATION AND CAN AGGRAVATE PRE—EXISTING RESPIRATORY DISEASE. REFRACTORY CERAMIC INSULATIONS MAY CONTAIN OR MAY FORM CRYSTALLINE SILICA (CRYSTOBALITE) WHICH MAY CAUSE LUNG DAMAGE (SILICOSIS).

THE INTERNATIONAL AGENCY FOR RESEARCH ON CANCER (IARC) HAS CLASSIFIED REFRACTORY CERAMIC FIBER AND FIBERGLASS AS (2B) POSSIBLY CARCINOGENIC. IARC HAS CLASSIFIED CRYSTALLINE SILICA AS (2A) PROBABLY CARCINOGENIC.

The insulating materials are located in the door, the hearth collar, in the chamber of the product or the top plate assembly. Tests performed by the manufacturer indicate that there is no significant risk of exposure to dust or respirable fibers resulting from operation of this equipment under normal conditions. However, there may be a risk of exposure to respirable dusts or fibers when repairing or maintaining the insulating materials, or when otherwise disturbing the materials in a manner which causes release of dust or fibers therefrom. Through the use of proper handling procedures you can work safely with these insulating materials and minimize any exposure. Accordingly, before you repair or replace any insulating materials, or perform any other servicing on this product which could disturb or cause exposure to dust from insulating materials, you should consult the appropriate Material Safety Data Sheets (MSDS's) for such products with respect to proper handling and appropriate protective equipment. For additional MSDS's, or additional information concerning the handling of refractory ceramic products, please contact the Customer Service Department of Barnstead International.



Warning

Refer servicing to qualified personnel:
1-800-446-6060
1-800-553-0039

Introduction

The Dri-Bath Test Tube Incubator provides a controlled dry heat environment for test tubes containing in vitro diagnostic specimens or samples for a qualitative or quantitative procedure. For proper application of this product, refer to the clinical laboratory method specified by the manufacturer of your test reagent or to methods established by medical technology.

Principles of Operation

An adjustable thermostat energizes an element adhering to the base of a thin wall aluminum plate. The flat surface of the heat block rests on the flat surface of the plate to maximize heat transfer. Test tubes placed in the block contact the walls of the wells to provide constant precise temperatures to the test tube contents. Adjusting the temperature knob varies the distance between contacts to obtain precise temperature settings.

Specifications

Electrical Specifications

Model	Volts	Amps	Watts	Hz
DB17614	100	.52	52	50/60
DB17615	120	.63	75	50/60
DB17610	240	.31	75	50/60
DB17610-26	220	.34	75	50/60

Operating Specifications

Operating Dri-Bath Temperature Range: 25°C to 115°C

Operating Temperature	Stability	Uniformity	Heat-up Time 4 ml/13mm tube	Heat-up Time 14 ml/25 mm tube
37°C	±0.7°C	±0.25°C	10 min.	15 min.
56°C	±0.7°C	±0.35°C	18 min.	21 min.
100°C	±0.7°C	±0.5°C	24 min.	30 min.

Stabilization time between adjustments: 2.5 min/°C at 100°C
8 min/°C at 37°C

Repeatability: Will be constant if line voltage and ambient remain constant. At 100°C a 10% change in voltage will result in a 1% change in temperature.

Operating Ambient Temperature Range: 68°F (20°C) to 74°F (24°C)

Definitions



Note

For the most accurate temperature indication of the solution, the solution level should not exceed the block level and the thermometer tips should be placed in identical positions in the tubes. The thermometers should be suspended off the bottom by approximately 1/8 inch while maintaining the correct immersion depth specified for your thermometer. Allow the bath temperature to stabilize before reading.

Dri-Bath Stability:

Refers to the temperature stability of the test tube contents after the temperature has stabilized. May be measured by inserting a calibrated thermometer scaled in .1 of a degree centigrade into any given tube.

Dri-Bath Uniformity:

The maximum temperature difference between any two points (wells) in the Dri-Bath blocks. Uniformity may be determined by inserting the proper size test tubes containing equal amounts of solution and a calibrated thermometer into any two wells. The temperature difference is the uniformity rating.

Installation and Operation



Note

Once you have your Dri-Bath set to the temperature you desire, you can speed your daily set-up time by marking the Dri-Bath dial at the point that the Dri-Bath stabilized at your chosen temperature. Then, after turning to temperature knob to full "ON" to heat the block as rapidly as possible, you can set the temperature directly. The temperature should be checked prior to testing. Alternatively, you can leave the temperature knob at the point that the Dri-Bath stabilized at your chosen temperature when you turn the Dri-Bath on. This will allow the Dri-bath to reheat to your desired temperature without requiring any adjustment. However, the Dri-Bath may require additional time for its initial heat-up using this method. The temperature should be checked prior to testing.

Installation

Remove the Dri-Bath incubator from the carton. Check the base dial plate for electrical data and plug into the appropriate grounded receptacle.

Operation

Insert a 45 mm Immersion Depth calibrated laboratory thermometer into the test tube containing a representative sample of your test solution. The solution height in the tube should not exceed 48 mm. Turn the control switch "ON," place the test tube in the block and turn the temperature knob full "ON." Watch the thermometer until the mercury level approaches the desired setting. Then turn the temperature knob to the left until the temperature stabilizes at the desired setting. Slight adjustment to the right or left will enable you to bring the temperature to your exact temperature. Wait 8 min/°C between adjustments to stabilize the temperature before further adjustments are made. The temperature should be checked prior to each *in vitro* diagnostic test.

Operational Precautions and Limitations

Warning:

Do not use in the presence of flammable or combustible materials. Fire or explosion may result; this device contains components which may ignite such materials. "Caution: Hot Surface. Avoid Contact." The Dri-Bath block will become hot and remain hot without visual indication for some time after use.

In the event solution is accidentally spilled into the bath, disconnect grounded plug and turn incubator upside down to avoid solution contacting the internal components. Remove bottom cover and inspect to assure solution has not contacted elements, thermostat or connectors. Replace damaged parts. Always use the supplied handle to remove hot blocks to avoid burning your fingers.

Note:

1. Do not place incubator in a draft, sunlight or near a piece of equipment which emits heat as this may produce inaccurate temperatures.
2. Test tube levels should not exceed the level of the well depth (48 mm).
3. Placing a full load of cold tubes in block will extend the recovery time to the set temperature.
4. Using short test tubes will result in better temperature uniformity since less area is exposed to ambient.
5. For safe removal of the blocks when they are too hot, insert the handle provided into the holes in the sides of the block and lift up.
6. The incubator may be sterilized by ethylene oxide sterilization.
7. Only test tubes matching the size of the block wells should be used for incubation to obtain the best results.
8. Blank blocks may be purchased for special incubating applications. Contact Barnstead International at 1-800-553-0039 for more information.

Maintenance and Servicing

**Warning**

To avoid electrical shock, always disconnect from power supply before maintenance and servicing.

**Warning**

Refer servicing to qualified personnel.

Cleaning

The Dri-Bath may be cleaned with a moist cloth containing a mild soap solution. The blocks are aluminum and may be cleaned with any of the commercial aluminum cleaners on the market.

Disassembly

1. Turn incubator upside down.
2. Remove the four screws from the bottom cover plate and remove cover.
3. Turn control knob to the left. Line should point to #1 which corresponds with the stop on the control shaft.
4. Loosen set screw and remove knob.
5. Remove four element plate assembly screws.
6. Disconnect wires from assembly and remove element plate and thermostat assembly.
7. The dial plate is held in position by drive pins. Tap the drive pin tip gently and unscrew.
8. The rocker switch should be compressed on the sides for removal.
9. The pilot light is difficult to remove; the ceramic body should be broken for easiest removal.

Parts List



Warning

To avoid electrical shock, always disconnect from power supply before maintenance and servicing. Refer servicing to qualified personnel.

Replacement Parts

DB17614 (100V) DB17615 (120V) <u>PART NO.</u>	DB17610 (240V) <u>PART NO.</u>	DB17610-26 (220V) <u>PART NO.</u>	<u>DESCRIPTION</u>
CNX59	CNX59	CNX59	Control
CR82X1	CR82X2	CR285X1	Cord Set
CS176X1	CS176X1	CS176X1	Case
FTX3B	FTX3B	FTX3B	Foot
HN165X1	HN165X1	HN165X1	Handle
KBX84	KBX84	KBX84	Knob
PL176X1	PL176X2	PL176X2	Pilot Light, Power
PL176X3	PL176X4	PL176X4	Pilot Light, Control
PT176X1B	PT176X2A	PT285X1A	Element Assembly
DL821X1	DL821X1	DL821X1	Dial Plate
SWX45	SWX45	SWX45	Switch
SRX12	SRX12	SRX12	Strain Relief
CV176X1	CV176X1	CV176X1	Cover, Btm.

Blocks

<u>Part No.</u>	<u>Number of Wells</u>	<u>Tube Size</u>	<u>Tube Volume</u>	<u>Well Depth</u>	<u>Well Size</u>
BK165X3A	30	6	.62	48	6.5
BK165X4A	20	10	2.4	48	10.5
BK165X5A	20	13	4.5	48	13.75
BK165X6A	12	15	6.3	48	15.75
BK165X7A	12	16	7.39	48	16.75
BK165X8A	12	20	12.2	48	20.75
BK165X9A	6	25	19.9	48	25.75
BK165X2A	<i>Solid aluminum block to be machined by user</i>				
BK165X12A	20	12	4.1	48	12.75
BK165X13A	12	18	9.8	48	18.75
BK165X17A	20	<i>(1.5 ml Eppendorf Micro Tube)</i>			
BK165X20A	20	<i>(0.5 ml Eppendorf Micro Tube)</i>			
BK165X21A-1	<i>Square cuvette block, 12 cuvette capacity</i>				

Ordering Procedures

Please refer to the Specification Plate for the complete model number, serial number, and series number when requesting service, replacement parts or in any correspondence concerning this unit.

All parts listed herein may be ordered from the Barnstead International dealer from whom you purchased this unit or can be obtained promptly from the factory. When service or replacement parts are needed we ask that you check first with your dealer. If the dealer cannot handle your request, then contact our Customer Service Department at 563-556-2241 or 800-553-0039.

Prior to returning any materials to Barnstead International, please contact our Customer Service Department for a "Return Goods Authorization" number (RGA). Material returned without a RGA number will be refused.

One Year Limited Warranty

Barnstead International (“BARNSTEAD”) warrants that if a product manufactured by Barnstead shall be free of defects in materials and workmanship for one (1) year from the first to occur of (i) the date the product is sold by BARNSTEAD or (ii) the date the product is purchased by the original retail customer (the “Commencement Date”). Except as expressly stated above, BARNSTEAD MAKES NO OTHER WARRANTY, EXPRESSED OR IMPLIED, WITH RESPECT TO THE PRODUCTS AND EXPRESSLY DISCLAIMS ANY AND ALL WARRANTIES, INCLUDING BUT NOT LIMITED TO, WARRANTIES OF DESIGN, MERCHANT ABILITY AND FITNESS FOR A PARTICULAR PURPOSE.


An authorized representative of BARNSTEAD must perform all warranty inspections. In the event of a defect covered by BARNSTEAD’s warranty, BARNSTEAD shall, as its sole obligation and exclusive remedy, provide free replacement parts to remedy the defective product. In addition, for products sold by BARNSTEAD within the continental United States or Canada, BARNSTEAD shall provide provide free labor to repair the products with the replacement parts, but only for a period of ninety (90) days from the Commencement Date.

BARNSTEAD’s warranty provided hereunder shall be null and void and without further force or effect if there is any (i) repair made to the product by a party other than BARNSTEAD or its duly authorized service representative, (ii) misuse (including use inconsistent with written operating instructions for the product), mishandling, contamination, overheating, modification or alteration of the product by any customer or third party or (iii) use of replacement parts that are obtained from a party who is not an authorized dealer of BARNSTEAD.

Heating elements, because of their susceptibility to overheating and contamination, must be returned to the BARNSTEAD factory and if, upon inspection, it is concluded that failure is due to factors other than excessive high temperature or contamination, BARNSTEAD will provide warranty replacement. As a condition to the return of any product, or any constituent part thereof, to BARNSTEAD’s factory, it shall be sent prepaid and a prior written authorization from BARNSTEAD assigning a Return Goods Number to the product or part shall be obtained.

IN NO EVENT SHALL BARNSTEAD BE LIABLE TO ANY PARTY FOR ANY DIRECT, INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES, OR FOR ANY DAMAGES RESULTING FROM LOSS OF USE OR PROFITS, ANTICIPATED OR OTHERWISE, ARISING OUT OF OR IN CONNECTION WITH THE SALE, USE OR PERFORMANCE OF ANY PRODUCTS, WHETHER SUCH CLAIM IS BASED ON CONTRACT, TORT (INCLUDING NEGLIGENCE), ANY THEORY OF STRICT LIABILITY OR REGULATORY ACTION.

The name of the authorized Barnstead International dealer nearest you may be obtained by calling 1-800-446-6060 (563-556-2241) or writing to:

 **Barnstead International**
an Apogent company *Your Lab Starts Here*

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