



# ***Tube Rotator***

## *Operating Instructions*



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# 1. Safety












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The following symbols mean:-



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

## **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.
-  As the unit is producing shaking or rotational movement, be aware of the surface that the unit will be placed upon. Always place unit on a solid, level work surface or laboratory bench.
-  Connect only to a power supply with a voltage corresponding to that on the external AC adapter label.
-  Ensure that the main switch and isolating device (power supply connector) are easily accessible during use.
-  Before moving, disconnect at the power supply socket.
-  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 spilt on or inside the equipment.
-  Before using any cleaning or decontamination method except those recommended by the manufacturer, user should check with the manufacturer that the proposed method will not damage the equipment.
-  Clean the unit only with a damp cloth, do not use chemical cleaning agents.
-  Always ensure proper balancing of tubes in Carousel prior to operation.

## 2. General Information

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The Boekel Scientific Tube Rotator unit is designed for rotating various sized laboratory tubes at a variety of mixing angles at speeds ranging from 4 to 80 rpm for a time of up to 99 hours and 59 minutes.

This device can be used in:

- Blood Banks
- Liquid – Liquid Extractions
- Dissolving Samples
- Room Temperature Blots

# 3. Getting Started

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## 3.1 Unpacking

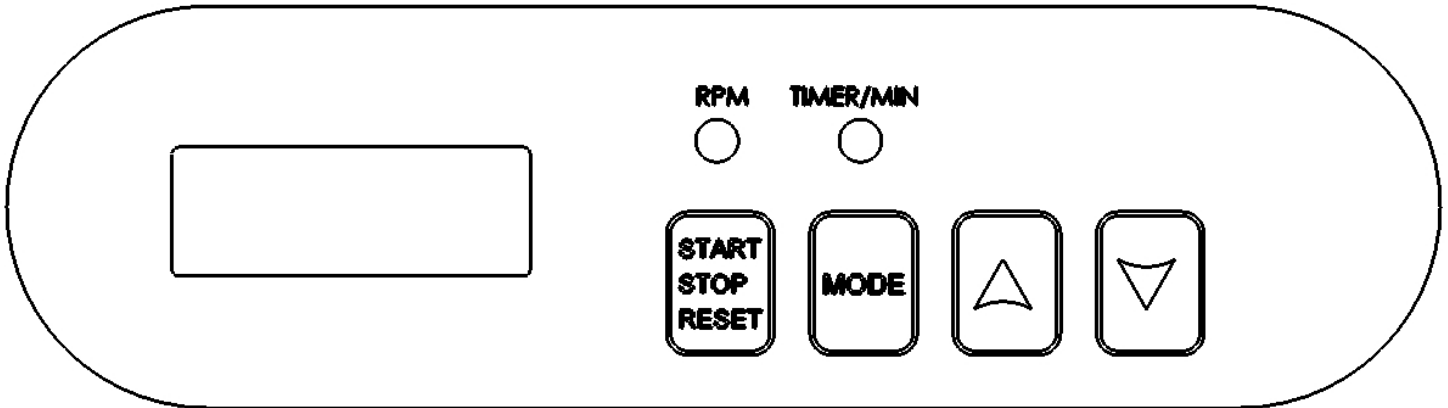
Remove packing materials carefully, and retain for future shipment or storage of the unit.

## 3.2 The Boekel Scientific Tube Rotator unit includes:

- Tube Rotator... .....1 piece
- External AC Adapter.....1 piece
- Tube Carousel (260653) .....1 piece
- Carousel Mounting Knob.....1 piece
- Operating Instructions.....1 copy

# 4. Operation

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- 4.1 Connect the Tube Rotator to the AC/DC adapter and the adapter to the main power supply and the power cord to power supply outlet.
- 4.1.1 Attach Carousel to carousel mounting plate and secure Hub Tension Knob (see section 4.8). Clip the sample tubes into the tube clamps on the tube carousel making sure that the rotor is balanced at all times
- 4.2 Turn on the power using the toggle switch at the back right side of the unit.
- 4.3 **Setting the Speed and Timer functions**
  - 4.3.1 The Mode button toggles between the RPM function and the Timer/MIN function. The Rpm light indicates the speed on the digital display at which the unit will operate. The Timer/MIN light indicates the timer function on the digital display. If the digital display reads OFF, the unit will count up until the operator stops the function. A flashing indicator lamp demonstrates that the unit is paused in cycle and should be reset (See Section 4.6) prior to changing set functions.
  - 4.3.2 If you wish to increase the speed of the unit, push the Mode button so that the Rpm light is lit. Then use the arrow up key ▲ to toggle to the desired rpm.
  - 4.3.3 If you wish to decrease the speed of the unit, push the Mode button so that the rpm light is lit. Then use the arrow down key ▼ to toggle to the desired rpm.

- 4.4 If you wish to set a time using the Timer function, push the mode switch so that the Timer/Minute light is on. The display will then read either a number or OFF. If OFF is displayed, then use the up arrow key ▲ until the desired minutes and hours of rotation is displayed. If a number is displayed use the arrow up key ▲ to increase the time of rotation or the arrow down key ▼ to decrease the displayed time of rotation
- 4.5 Once the desired speed and time have been set, push the Start/Stop/Reset button to start and stop the rotator. The Start/Stop/Reset button can be pushed at any time to stop the rotator.
- 4.6 If the Timer is set at 0 and you wish to program a new time function, you must Reset the instrument. To do this, make certain that the Timer light is flashing. If it is not, push the mode switch until it is lit, then push and hold the Start/Stop/Reset button for about 3 seconds until the display reads OFF. You may now use the arrow keys to set a new time.

#### 4.7 **Changing the Angle of the Carousel**

- 4.7.1 To change the Carousel tilt angle stop the rotator using the Start/Stop/Reset button.
- 4.7.2 Turn off the rotator using the toggle switch at the back right of the instrument and remove all sample tubes from the carousel.
- 4.7.3 Loosen both tension adjustment knobs at either side of the vertical support bar and adjust the carousel to the desired angle.
- 4.7.4 Tighten the two tension adjustment knobs and install sample tubes into carousel making sure that the carousel is balanced
- 4.7.5 Turn the rotator on at the toggle switch at the back right of the instrument.

#### 4.8 **Changing Carousels**

- 4.8.1 Turn off the Tube Rotator using the toggle switch at the back right of the instrument.
- 4.8.2 Loosen and remove the Hub Tension Knob at the center of the carousel.
- 4.8.3 Remove the Carousel and replace with the desired Carousel making certain that the mounting pins on the back of the carousel are inserted into the corresponding holes on the carousel mounting plate. The carousel should sit flush against this plate and should not wobble.
- 4.8.4 Replace the Hub Tension Knob at the center of the hub and tighten.
- 4.8.5 Turn on the Tube rotator at the toggle switch at the back right of the instrument.

# 5. Specifications

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- **The Boekel Scientific Tube Rotator provides:**

- Digital Microprocessor Control.
- Adjustable speed provides gentle or vigorous mixing action.
- Adjustable angled head offers mixing angles from 90 to 180 degrees
- Five Carousel options provide greater versatility for most tube mixing needs
- Timer feature offers time-down or time-up counting feature
- 2 Year warranty

- **Speed range** .....4 to 80 rpm

- **Carousel angle** .....90-180 degrees

- **Timer** .....Up to 99 Hrs and 59 minutes

- **Carousel Capacity**

**Re-order Number**

|   |        |
|---|--------|
| 14 X 27 – 34 mm tubes (50 ml Tubes)           | 260653 |
| 46 X 9 -11 mm tubes (1.5/2.0 ml Tubes)        | 260651 |
| 28 X 14 – 18 mm tubes (15 ml Tubes)           | 260652 |
| 63 X 14 mm glass culture tubes (drum rotor)   | 260655 |
| 63 X 18.5 mm glass culture tubes (drum rotor) | 260654 |

- **Power**..... 24VDC, 2.70A via 100-240 volt AC adaptor



# 6. Warranty and Service

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## 6.1 Warranty

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

## 6.2 Service

A Boekel Scientific Returned Material Authorization (RMA) number provided by Boekel Scientific is required before any Boekel products are returned for any reason. Contact Boekel Customer Service at 1-800-336-6929 Extension 5. A Decontamination Certificate must be completed, signed by the user, and returned to Boekel Scientific prior to receiving the RMA number. Please be sure to mark the outside of the returned goods package with this RMA number to ensure prompt handling.

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