



Vari-Mix Aliquot Mixer Type 48700

Operation Manual
and Parts List

Model	Voltage
M48725	120
M48720-33	220-240
M48720-33CN	220-240

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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.



Warning

In the event of power loss to the branch circuit during operation, flip the switch to “0” or unplug the unit. Failure to do so will result in resumption of operation at an unexpected moment leading to possible injury and/or breakage.



Note

The power cord serves as the main disconnect. Be certain access to the wall connection is not obstructed.

Warnings

Your Thermo Scientific Vari-Mix Aliquot Mixer 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.

To avoid electrical shock, always:

1. Use a properly grounded electrical outlet of correct voltage and current handling capacity.
2. Disconnect from the power supply prior to maintenance and servicing.

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.

Introduction

Congratulations on your purchase of a Vari-Mix Aliquot Mixer.

Important Information

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

Intended Use

This unit is designed to provide gentle but thorough mixing of in vitro specimens.

General Usage

Do not use this product for anything other than its intended use.

Function

Test tube specimens are placed in the grooves of the white silicone pad which is mounted on the platform. The platform rocks at a constant speed to provide gentle and thorough mixing action of vessel contents.

Principles of Operation

The top plate rocks in a cyclic 48° maximum motion at up to 20 rpm and is driven by a variable speed DC gear motor through an eccentric drive shaft, adjustment knob and linkage assembly.

Installation and Operation



Warning

Use a properly grounded electrical outlet of correct voltage and current handling capacity.



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.



Note

If unit fails to rock, check the setting of the knob located on the right hand side of the unit, which establishes the degree of rocking motion desired. This knob may be set in a neutral position, preventing platform from rocking. Refer to **Speed and Tilt Adjustment**.



Note

If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.

Installation

1. Remove the Vari-Mix from the carton. Check electrical specifications and plug into a properly grounded receptacle.

Operation

2. Place tubes in grooves of white silicone pad. Tubes should be centered for balanced mixing. On the side without ridges, the reversible pad will accept tubes over 125 mm in length. The side with ridges will accept tubes less than 125 mm in length.
3. Turn switch ON for mixing action.
4. Adjust speed and amount of tilt to suit your application by following the **Speed and Tilt Adjustment** instructions.

Speed and Tilt Adjustment

The speed of the top plate motion can be adjusted to any speed between approximately 2 rpm and 20 rpm by using the rheostat on the front of the unit. Check using a stopwatch to count cycles during a 1 minute period. The degree of rocking tilt can be adjusted between 1° and 48° with the unit running.

1. Locate the rotating knob on the right end of the unit.
2. Grab and hold the knob, manually stopping the rotation of the knob. The platform will continue to move.

3. When the platform achieves the degree of tilt that you desire for your rocking motion, release the knob. The unit will now tilt that amount on each side every cycle.

Operational Precautions and Limitations

1. Do not overload by weight. Loads over 1 1/4 lbs. may cause jerky rocking action or change the degree of motion.
2. Wash white silicone pad with soap and water and rinse when needed to assure friction-grip quality of pad.

Maintenance and Servicing



Warning

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

1. The drive motor does not require lubrication; however, the shaft and bearing couplings should be greased semi-annually when in constant use. See illustration for location.
2. Jerky rocking motion without a load indicates either the shaft needs lubrication or motor replacement is necessary.
3. Failure of unit to operate when plugged in with toggle switch “ON” indicates defective toggle switch, malfunctioning drive motor, disengaged linkage or degree of motion knob set to neutral position.
4. Spontaneous change of the degree of motion indicates the drive shaft, o-ring or adjustment knob should be replaced.
5. To replace o-ring, remove adjustment knob by removing right hand cover plate, crank link and shoulder bolt in center of adjustment knob.



Caution

Do not put any lubricant on o-ring.

General Cleaning Instructions

Wipe exterior surfaces with lightly dampened cloth containing mild soap solution. Wash white silicone pad with soap and water and rinse.

Performance Characteristics and Specifications

Model	M48725	M48720-33 & M48720-33CN
Volts	120	240
Amps	.05	.02
Hz	50/60	50
Watts	3	3
Design	Designed for continuous service.	Designed for continuous service.
Tube Diameter	6 mm to 20 mm	6 mm to 20 mm
Tube Length	Up to 150 mm	Up to 150 mm
Tube Capacity	16	16
Pad Dimensions	4-1/2" x 12"	4-1/2" x 12"
Ambient Operating Temperature	-4°C - 60°C	-4°C - 60°C
Ambient Relative Humidity	80%	80%
Maximum Weight Capacity of Load	1-1/4 lbs.	1-1/4 lbs.

Environmental Conditions

Operating: -4° - 60°C; 20% to 80% relative humidity, non-condensing. Installation Category II (overvoltage) in accordance with IEC 664. Pollution degree 2 in accordance with IEC 664.
Altitude limit: 2,000 meters
Storage: -25°C to 65°C; 10% to 85% relative humidity.

Declaration of Conformity

We hereby declare under our sole responsibility that this product conforms with the technical requirements of the following standards:

EMC:	EN 61000-3-2	Limits for Harmonic Current Emissions
	EN 61000-3-3	Limits for Voltage Fluctuations and Flicker
	EN 61326-1	Electrical Equipment for Measurement, Control, and Laboratory Use; Part I: General Requirements
Safety:	EN 61010-1	Safety Requirements for Electrical Equipment for Measurement, Control and Laboratory Use; Part I: General Requirements
	EN61010-2-051	Part II: Particular requirements for laboratory equipment for the heating of materials

per the provisions of the Electromagnetic Compatibility Directive 2004/108/EC, and per the provisions of the Low Voltage Directive 2006/95/EC.

The authorized representative located within the European Community is:

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Copies of the Declaration of Conformity are available upon request.

Replacement Parts List

Part No.	Description
PC1108X2	Circuit Board Assembly
SWX135	Switch 120V
SWX136	Switch 240V
RS487X1A	Rheostat Assembly
PT261X1	White Silicone Pad Tube Holder
MT1108X1	Motor Assembly w/Wire Leads
CUX4	Coupling w/Set of Screws
SF487X1	Shaft, Eccentric Less O-Ring
GSX8	O-Ring
KB487X1	Adjustment Knob
LN487X1	Crank Link
FS487X1	Socket Head Shoulder Bolt
CR1105X1	Cord Set (for Model M48725)
CR1108X1	Cord Set (for Model M48720-33)
CRM1862X1	Cord Set (for Model M48720-33CN)
PT261X3B	Top Plate Rocker Assembly w/Drive Pin
FZX35	1/2 Amp (.500 MA 250V), Type T

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 **Thermo Scientific** 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 1-866-9-thermo.

Prior to returning any materials, please contact our Customer Service Department for a "Return Materials Authorization" number (RMA). Material returned without an RMA number will be refused.

One Year Limited Warranty

This Thermo Scientific product is warranted to 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 the manufacturer or (ii) the date the product is purchased by the original retail customer (the "Commencement Date"). Except as expressly stated above, the MANUFACTURER 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 the manufacturer must perform all warranty inspections. In the event of a defect covered by the warranty, we shall, as our sole obligation and exclusive remedy, provide free replacement parts to remedy the defective product. In addition, for products sold within the continental United States or Canada, the manufacturer shall provide free labor to repair the products with the replacement parts, but only for a period of ninety (90) days from the Commencement Date.

The 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 the manufacturer 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 Thermo Scientific products.

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

IN NO EVENT SHALL THE MANUFACTURER 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.

For the name of the authorized Thermo Scientific product dealer nearest you or any additional information, contact us:

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