



# Maxi Mix<sup>®</sup> II Vortex Mixer

Operation Manual and Parts List

**MODEL NUMBERS**

**M37615**

**M37614**

**M37610-33**

**M37610-33CN**

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# General Specifications

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## Declaration of Conformity

We hereby declare under our sole responsibility that this product conforms with the technical requirements of the following standards (230 volt models only):

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

EN 61010-2-051 Part II: Particular Requirements for Laboratory Equipment for Mixing and Stirring.

per the provisions of the Low Voltage Directive 73/23/EEC, as amended by 93/68/EEC.

The authorized representative located within the European Community is:

Thermo Fisher Scientific  
Robert-Bosch-Strasse 1, D-63505  
Langenselbold, Germany.

Copies of the Declaration of Conformity are available upon request.

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## Environmental Conditions

Operating: 17°C - 27°C; 20% - 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 - 65°C; 20% to 80% relative humidity.

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# Safety Information

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## 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.

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## Important Information

Your Thermo Scientific Maxi Mix II Vortex Mixer has been designed with function, reliability, and safety in mind. It is your responsibility to install it in conformance with local electrical codes.

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. For safe operation, please pay attention to the alert signals throughout the manual.

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## 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 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. Do not turn on mixer unless the speed control is turned to minimum; failure to do so may cause accessories and vessels to be thrown off the mixer.
3. Refer servicing to qualified personnel.

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# Introduction

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## Intended Use

The Type M37600 vortex mixers are general laboratory vortex mixers. They are intended for applications where vortexing of single or multiple tubes is required. Vessels with closure tops up to a maximum of 125 ml can also be vortexed.

The unit consists of 1) a mixing surface disc, 2) a three-position power switch and, 3) an adjustable speed control (See Figure 1).

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## Principles of Operation

The mixer incorporates a permanently lubricated motor to drive the mixing platform. A three-position power switch enables the mixer to be operated continuously or by depression of the silicone rubber top. The speed of the mixer is regulated by an adjustable rheostat. Also, suction cup feet are incorporated to prevent unit movement.

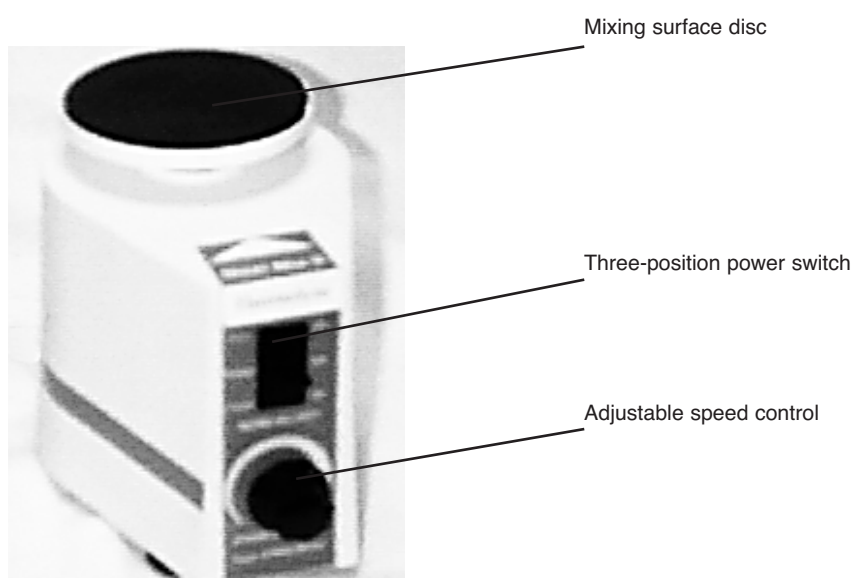


Figure 1: Maxi-Mix II

# Installation



## Warning

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

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

Some misalignment of the motor bearings in this product may have occurred during shipping and handling. Prior to first use, the mixer should be run at maximum speed for 10 minutes to realign the motor bearings.

## Unpackaging

Unpack Maxi-Mix II from box. An interchangeable rubber cup for mixing test tubes and a replacement mixing surface disc are included in the box.

## Site Selection

Place mixer on a sturdy flat surface.

## Specifications

The electrical specifications are located on the specification plate on the back of the unit. Consult customer service if your electrical service is different than those listed on the specification plate.

Model No.	Weight (lbs.)		Dimensions (Inches)			Electrical		
	Net	Ship	H	L	Top Diameter	Volts	Amps	Hz
M37615	6	7	6"	7"	3.5"	120	.45	50/60
M37610-33	6	7	6"	7"	3.5"	230	.20	50
M37610-33CN	6	7	6"	7"	3.5"	230	.20	50
M37614	6	7	6"	7"	3.5"	100	.56	50/60

Specifications

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# Operation



## Warning

Do not turn the mixer on unless the speed control is turned to minimum; failure to do so may cause accessories and vessels to be thrown off the mixer.



## Note

There is no absolute limit on the maximum size of vessel which can be used; much depends on technique, the shape of the vessel, the viscosity of the contents, and the amount of liquid. (Vessels require closure tops to prevent contents from being spilled out during mixing). As a general rule, do not vortex vessels larger than 250 ml and volumes greater than 125 ml.



## Note

Unit may need some loading to slow the motor when going from fast to slow.



## Note

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

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## Power Switch:

The power switch is a combination ON/OFF and mode switch to enable TOUCH operation. Move the power switch to either the "FULL" position or the "TOUCH" position. In the "FULL" position, the mixing head will begin oscillating automatically. In the "TOUCH" position, the mixing head will oscillate when it is depressed.

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## Speed Control:

The speed control is a nonlinear type control. The oscillating speed will increase at a non-uniform rate as the control is turned clockwise.

To operate Maxi-Mix, move power switch to either the "FULL" position or the "TOUCH" position. Turn speed control to the desired setting. Touching the vessel to the disc will initiate the vortex action. Mixing action will intensify as greater pressure is exerted against the mixing surface. To stop the mixing action, remove vessel from disc or move the power switch to the "OFF" position. (See Maintenance and Servicing for installation of the single cup mixing head and the mixing surface disc).

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# Maintenance and Servicing



**Warning**  
Disconnect from power supply before servicing.

Refer servicing to qualified personnel.

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## To Replace the Power Switch:

- a) Disconnect mixer from power supply.
- b) Peel off the mixing surface disc. Hold the mixing platform to keep from turning and remove the platform from the counterweight assembly.
- c) Turn mixer upside down and remove the four screws securing plastic housing. Turn mixer upright and remove housing.
- d) Desolder four wires from switch. **Identify or mark wires disconnected to insure proper placement and connection when reinstalling.**
- e) Remove defective switch.
- f) Install new switch with the number “3” terminal on top. Resolder the wires as identified or marked in Step (d).
- g) Reinstall plastic housing and secure with four screws.
- h) While holding the mixing platform to keep it from turning, secure the platform to the counterweight assembly. If the mixing surface is in good condition, reapply it to the mixing platform.
- i) Reconnect mixer to power supply.

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## To Replace Rheostat (Speed Control):

- a) Disconnect mixer from power supply.
- b) Peel off the mixing surface disc. Hold the mixing platform to keep from turning and remove the platform from the counterweight assembly.
- c) Turn mixer upside down and remove the four screws securing plastic housing. Also, remove two screws securing dial plate.
- d) Turn mixer upright and remove the housing.



- e) Desolder the two wires from rheostat. **Identify or mark wires disconnected to insure proper placement and connection when reinstalling.**
- f) Loosen set screw on knob and remove knob. Remove lock nut from rheostat and remove defective rheostat.
- g) Insert new rheostat into dial plate and secure with lock nut. Resolder the wires as identified or marked in Step (e).
- h) Turn rheostat shaft fully counterclockwise and slide knob over shaft. Align the pointer on knob with the edge of the graduated band. Secure knob with set screw.
- i) Secure dial plate to base.
- j) Reinstall plastic housing and secure with four screws.
- k) While holding the mixing platform to keep it from turning, secure the platform to the counterweight assembly. If the mixing surface is in good condition, reapply it to the mixing platform.
- l) Reconnect mixer to power supply.

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### To Replace Microswitch:

- a) Disconnect mixer from power supply.
- b) Peel off the mixing surface disc. Hold the mixing platform to keep from turning and remove the platform from the counterweight assembly.
- c) Turn mixer upside down and remove four screws securing plastic housing.
- d) Turn mixer upright and remove the housing.
- e) Remove the four screws holding the motor to the rubber mounts. Position motor on its side.
- f) Desolder the two wires from microswitch and remove

microswitch from motor. Save the spring and plunger from defective microswitch. **Identify or mark wires disconnected to insure proper placement and connection when reinstalling.**

- g) Insert spring and plunger into the shaft of the new microswitch. Position microswitch on mounting studs and secure with two screws. Resolder the wires as identified or marked in Step (f).
- h) Reposition motor and secure with four screws.
- i) Reinstall plastic housing and secure with four screws.
- j) While holding the mixing platform to keep it from turning, secure the platform to the counterweight assembly. If the mixing surface is in good condition, reapply it to the mixing platform.
- k) Reconnect mixer to power supply.

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### To Replace Motor:

- a) Disconnect mixer from power supply.
- b) Peel off the mixing surface disc. Hold the mixing platform to keep from turning and remove the platform from the counterweight assembly.
- c) Turn mixer upside down and remove four screws securing plastic housing.
- d) Turn mixer upright and remove the housing.
- e) Desolder the two wires from motor. **Identify or mark wires disconnected to insure proper placement and connection when reinstalling.**
- f) Remove the counterweight assembly, brackets and damper springs from top of motor.
- g) Remove the motor and then the microswitch assembly from bottom of motor.
- h) Reinstall the components removed in Steps (f) and (g) to the new motor.

- i) Resolder the wires as identified or marked in Step (e).
- j) Reinstall plastic housing and secure with four screws.
- k) While holding the mixing platform to keep it from turning, secure the platform to the counterweight assembly. If the mixing surface is in good condition, reapply it to the mixing platform.
- l) Reconnect mixer to power supply.

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### To Replace Damper Springs:

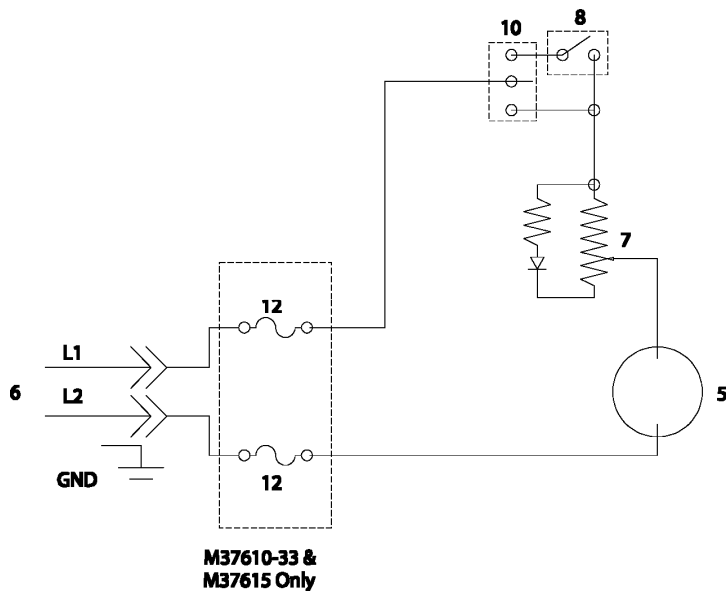
- a) Disconnect mixer from power supply.
- b) Peel off the mixing surface disc. Hold the mixing platform to keep from turning and remove the platform from the counterweight assembly.
- c) Turn mixer upside down and remove four screws securing plastic housing.
- d) Turn mixer upright and remove housing.
- e) Remove defective damper springs.
- f) Install new damper springs.
- g) Reinstall plastic housing and secure with four screws.
- h) While holding the mixing platform to keep it from turning, secure the platform to the counterweight assembly. If the mixing surface is in good condition, reapply it to the mixing platform.
- i) Reconnect mixer to power supply.

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### To Replace Mixing Surface Disc:

- a) Disconnect mixer from power supply.
- b) Peel off old mixing surface disc and clean the bonding area.

## MAINTENANCE AND SERVICING



Wiring Diagram

- c) Remove the paper backing from the new mixing surface disc and apply.
- d) Reconnect mixer to power supply.

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## To Install Single Cup Mixing Head:

- a) Disconnect mixer from power supply.
- b) Peel off mixing surface disc and while holding the mixing platform to keep from turning, remove mixing platform.
- c) While holding the rubber mixing cup to keep from turning, install the single cup mixing head with the hold down screw.
- d) Reconnect mixer to power supply.

# Problem Solving

The Problem Solving tips section is intended to aid in defining and correcting possible service problems. When using the guide, select the problem category that resembles the malfunction, then proceed to the possible causes category and take necessary corrective action.

<b>Problem</b>	<b>Possible Causes</b>	<b>Corrective Action</b>
Mixer doesn't operate when power switch is in the "Full On" position.	Not connected to power supply. Defective power switch. Defective speed control. Defective motor.	Check mixer connections to power supply. Replace power switch. Replace speed control. Replace motor.
Mixer doesn't operate when power switch is in the "Touch On" position and the disc is depressed.	Not connected to power supply. Defective microswitch. Speed control at minimum setting and too much pressure on disc. Defective speed control. Defective motor.	Check mixer connections to power supply. Replace microswitch. Turn speed control to higher setting. Replace speed control. Replace motor.
Mixer doesn't operate when power switch is in either "ON" position.	Not connected to power supply. Defective power switch. Defective speed control. Defective motor.	Check mixer connections to power supply. Replace power switch. Replace speed control. Replace motor.
Speed control doesn't regulate speed.	Defective speed control. Going from fast to slow	Replace speed control. Load the unit to slow the motor.
Internal chattering noise.	Defective spring damper links.	Replace spring damper links.

# Replacement Parts List

Key No.	Part No.	Description	Key No.	Part No.	Description
1	FSX47	Fastener, Screw (2 required)	8	SWM1861X1	Switch Assembly PCB
2	PT376X2	Plate, Mixing Surface Disc (1 extra sent with product)	9	KBX49	Knob
3	PT376X1	Plate, Mixing Platform	10	SWX90	Switch
4	CW1254X1A	Counterweight Assembly	11	SPX47	Damper Springs (2 required)
5	MTX95	Motor for M37615	12	*CP376X1A	Cup Assembly for making test tubes
	MTX96	Motor for M37610-33		FZX59	Fuses for M37610-33 and M37515 (2 required)
	MTX97	Motor for M37614			
6	CR1254X1	Cord Set for M37615	*This is not found on exploded view		
	CR376X1	Cord Set for M37614			
	CR1254X2	Cord Set for M37610-33			
	CRM1861X1	Cordset for M37610-33CN			
7	RS871X1A	Rheostat Assembly for M37615			
	RS871X2A	Rheostat Assembly for M37610-33			
	RS871X3A	Rheostat Assembly for M37614			

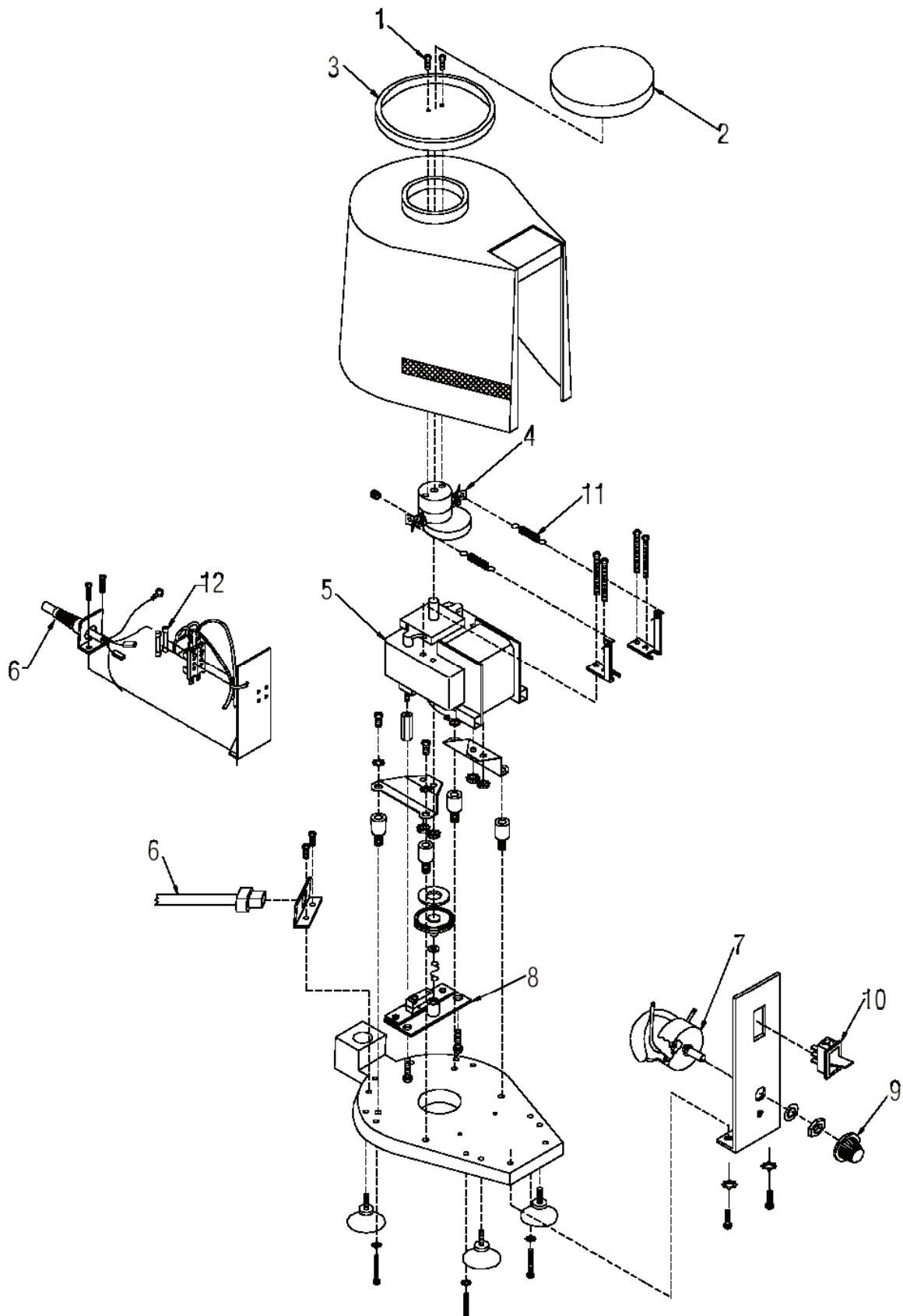
## Ordering Procedures

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 800-943-2006 or 800-926-0505

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.

# Exploded View



Exploded View

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# 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.

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