

# MaxQ 2506 Open-Air Reciprocating Shaker

Operating Manual and Parts List  
057-823-00 (7004365) Rev. 2



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<b>Models covered in this manual</b>	
<b>Model number</b>	<b>Voltage</b>
SHKA2506 (4365)	120V
SHKA2506-1 (4366)	230V
SHKA2506-1CN (4361)	230V

**MANUAL NUMBER 057-823-00 (7004365)**

2	27615	7/22/11	Revised warranty	ccs
1	27135	3/17/11	Added warranty pages	ccs
0	--	3/22/10	Transfer to Marietta (was 057-823-00 7/23/08)	ccs
<b>REV</b>	<b>ECR/ECN</b>	<b>DATE</b>	<b>DESCRIPTION</b>	<b>By</b>



**Important** Read this instruction manual. Failure to read, understand and follow the instructions in this manual may result in damage to the unit, injury to operating personnel, and poor equipment performance. ▲

**Caution** All internal adjustments and maintenance must be performed by qualified service personnel. ▲

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Important operating and/or maintenance instructions. Read the accompanying text carefully.



Potential electrical hazards. Only qualified persons should perform procedures associated with this symbol.



Equipment being maintained or serviced must be turned off and locked off to prevent possible injury.



Hot surface(s) present which may cause burns to unprotected skin, or to materials which may be damaged by elevated temperatures.



Marking of electrical and electronic equipment, which applies to electrical and electronic equipment falling under the Directive 2002/96/EC (WEEE) and the equipment that has been put on the market after 13 August 2005.



This product is required to comply with the European Union's Waste Electrical & Electronic Equipment (WEEE) Directive 2002/96/EC. It is marked with the WEEE symbol. Thermo Fisher Scientific has contracted with one or more recycling/disposal companies in each EU Member State European Country, and this product should be disposed of or recycled through them. Further information on Thermo's compliance with this directive, the recyclers in your country and information on Thermo products will be available at [www.thermofisher.com](http://www.thermofisher.com).

- ✓ Always use the proper protective equipment (clothing, gloves, goggles, etc.)
- ✓ Always dissipate extreme cold or heat and wear protective clothing.
- ✓ Always follow good hygiene practices.
- ✓ Each individual is responsible for his or her own safety.

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Our **Sales Support** staff can provide information on pricing and give you quotations. We can take your order and provide delivery information on major equipment items or make arrangements to have your local sales representative contact you. Our products are listed on the Internet and we can be contacted through our Internet home page.

Our **Service Support** staff can supply technical information about proper setup, operation or troubleshooting of your equipment. We can fill your needs for spare or replacement parts or provide you with on-site service. We can also provide you with a quotation on our Extended Warranty for your Thermo Scientific products.

Whatever Thermo Scientific products you need or use, we will be happy to discuss your applications. If you are experiencing technical problems, working together, we will help you locate the problem and, chances are, correct it yourself...over the telephone without a service call.

When more extensive service is necessary, we will assist you with direct factory trained technicians or a qualified service organization for on-the-spot repair. If your service need is covered by the warranty, we will arrange for the unit to be repaired at our expense and to your satisfaction.

Regardless of your needs, our professional telephone technicians are available to assist you Monday through Friday from 8:00 a.m. to 6:00 p.m. Eastern Time. Please contact us by telephone or fax. If you wish to write, our mailing address is:

Thermo Fisher Scientific  
401 Millcreek Road, Box 649  
Marietta, OH 45750

International customers, please contact your local Thermo Scientific distributor.

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## Section 1 **Safety Information**

Your Thermo Scientific MaxQ 2506 Shaker 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 cautions and warnings throughout the manual.

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

1. When operating this equipment, always wear protective clothing, glasses and other accessories as specified by the safety regulations of your organization.
2. It is recommended that the equipment is not left unattended while in operation. Do not operate equipment with a damaged electrical cord or allow cord to come into contact with a hot surface. Do not operate equipment in an explosive atmosphere. Do not insert fingers into equipment when it is operating.
3. Do not modify construction and/or assembly of equipment. Keep guards in place. Do not remove tags, labels, decals or other information from the unit.
4. Make sure all vessels are securely clamped before turning on unit. Do not operate the unit at speeds that will cause the contents of vessels to be thrown out. Wherever possible, vessels should be stoppered to prevent hazardous substances being thrown out during the mixing action. Use extra caution with hot or volatile substances so that pressure buildup in container(s) does not cause the stopper to blow off. Do not exceed recommended load.
5. If shaking action will result in the evolution of gases or fumes, carry out the operation under a well-ventilated laboratory hood.
6. To eliminate hazard of electrical shock, make sure floor around machine is dry. In the event of accidental spilling or splashing of liquids, clean up and/or neutralize the spilled liquids before continuing.



## Section 1

### Safety Information

7. Do not use equipment for other than its intended purpose. Use only the accessories and attachments that are shipped with the equipment or are specified for it. Other accessories can produce hazards or make the unit inoperative.

**Note** If installing these shakers on an uneven surface, a leveling kit may be ordered directly from the factory at no charge. ▲

8. Do not operate shaker for extended periods under high humidity conditions. Do not operate shaker in ambient temperatures exceeding 40°C. Do not operate shaker in a CO<sub>2</sub> enriched atmosphere.
9. Perform regular maintenance service as specified in this manual and keep unit in good repair. Do not operate with known defects. Always disconnect equipment from power source before servicing or performing any maintenance procedures.

## Section 2 Description

The Thermo Scientific MaxQ 2506 Open-Air Reciprocating Shaker is sturdy, heavy-duty and designed to produce an accurate linear shaking motion. This makes it ideal for the mixing of samples for extractions, staining and destaining electrophoresis gels, mixing of blood culture products, and other laboratory work. The length of the shaking stroke can be changed in 1/4" (0.635 cm) increments from 1/2" (1.27 cm) to 1-1/2" (3.81 cm) at the option of the user. Users also can change the speed of the shaking action from 10 to 250 motions per minute. This results in a shaking action that ranges from gentle to vigorous agitation to meet a variety of user requirements.

Shaker can be run continuously or in timed intervals ranging from 1 minute to 60 minutes. Speed and timer controls are clearly marked on the front panel and make the shaker easy to operate. All moving components are rubber-mounted contributing to quiet operation.

Optional, interchangeable shaking platforms and vessel clips are available to increase the range of use of a shaker.



## Section 3 Specifications

### Electrical Requirements

SHKA2506 120 Volt, 50/60 Hertz, 40 Watts, 0.45 Amp

SHKA2506-1 240 Volt, 50/60 Hertz, 40 Watts, 0.45 Amp

**Gear Motor** 1/18th HP, DC permanent magnet motor

**Shaking Movement** Reciprocating motion with adjustable stroke range in 1/4" increments from 1/2" to 1-1/2"

**Shaking Speed** 10-250 motions per minute

**Shaking Interval** Continuous or timed intervals from 1 minute to 60 minutes

**Dimensions** 13.5" W X 17.4" D X 7.2" H (34.3 X 44.2 x 18.3 cm)

**Shipping Weight** 27 lbs. (12.3 kg)

### Environmental Operating Conditions

Pollution Degree\*\* .....2

Installation Category\*\* .....II

Altitude .....2000 meters MSL (Mean Sea Level)

Relative Humidity . . .20% to 80% maximum, non-condensing

Electrical Supply .....120 VAC or 240 VAC

Voltage Tolerance .....+10% of normal rated line

Temperature .....0°C to 40°C

Product Usage . . . . This product is intended for use indoors only

*\*\*Refer to IEC 664-1*



## Section 4 Unpacking and Installation

The shipping carton should be inspected upon delivery. When received, carefully examine for any shipping damage before unpacking. If damage is discovered, the delivering carrier should specify and sign for the damage on your copy of the delivery receipt.

Open the carton carefully, making certain that all parts are accounted for before packaging materials are discarded. After unpacking, if damage is found, promptly report it to the carrier and request a damage inspection.

**Important** Failure to request an inspection of damage within a few days after receipt of shipment absolves the carrier from any liability for damage. A damage inspection must be called for promptly. ▲

### Location

Place the shaker on a level surface in a convenient location and near a properly grounded electrical power outlet that matches the requirements of the unit as indicated on its nameplate. A minimum of 1 inch (2.54 cm) of clearance is required on all sides to allow unobstructed access for attaching platforms.

### Platform Installation

Select the appropriate platform for the laboratory vessels or glassware to be shaken. Tighten the thumbscrews at each corner to secure the platform to the shaker. Make sure both sides of the platform are outside of the mounting plate.

**Caution** Do not operate shaker with an unbalanced load. Platforms should be loaded for optimum stability and operation. Do not lift shaker by the platform. ▲

**Note** Disconnect the shaker from the power source when not in use. ▲



## Section 5 Operation

Located on the front panel are easy-to-operate controls: speed control on the left, power switch in the center and timer on the right.

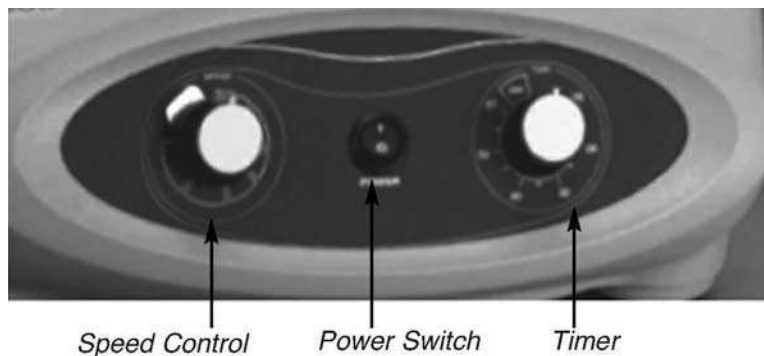
Depress top of power switch to turn “ON” shaker and lower part of switch to turn “OFF” shaker. Turn speed control clockwise to increase speed and counterclockwise to reduce the speed.

The timer allows the operator to select either a continuous run position or a timing cycle where the shaking period can be set from approximately 1 minute to 60 minutes.

**Warning** Do not use in the presence of flammable or combustible materials or explosive gases. Fire or explosion may result, causing death or severe injury. ▲

**Warning** Do not use shaker to mix flammable materials or where the transfer of mechanical energy to glass could cause glass breakage. ▲

**Note** Depress metal tab prior to rotating knob. The tab fixes knob setting and prevents inadvertent motion of the knob. ▲



### Continuous Shaking

Rotate the timer to the “ON” section of the dial, then rotate the speed control clockwise to increase the shaking speed.



## Timed Shaking

The timer is graduated in 5-minute increments to 60 minutes. To start timed shaking, it is first necessary to rotate the timer past the 5-minute setting, and then adjust the shaking speed. After shaking motion is started, rotate the timer to any timed interval from 1 minute to 60 minutes. The timer will count down and stop the shaker when time period has elapsed.

## Setting the Shaker Speed

Adjust the shaking speed to the desired level. The operator should use caution in setting the speed too fast to avoid vessels being jarred loose or knocked over. Maximum speed is factory set at 250 RPM, however MAXIMUM SAFE SPEED may be somewhat less depending on the particular load.

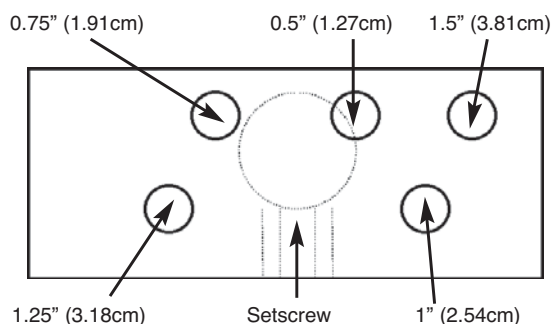
To stop the shaker, rotate the timer knob counterclockwise to 0 and the speed control to the extreme counterclockwise position. Then depress power switch to "OFF" position.

**Caution** Do not operate shaker with an unbalanced load. Platforms should be loaded for optimum stability and operation. Do not lift shaker by the platform. ▲

## Stroke Adjustment

The stroke of the shaker is pre-set at the factory at (minimum) 1/2" (1.27 cm). If a different stroke length is desired, the length of the stroke can be adjusted in 1/4" (0.635 cm) increments from 1/2" (1.27 cm) to 1-1/2" (3.81 cm). To alter the stroke, proceed as follows:

1. Remove rubber mat.
2. Remove platform holder assembly by removing the (10) #8 flat head screws.
3. Remove the 5/16" (0.794 cm) x 1" (2.54 cm) hex bolt that holds the drive rod to the eccentric shaft and move it to the hole that will provide the desired stroke length. After making adjustment, be sure that the bolt is tightened securely.
4. Replace the platform holder. Install the 2 drive rod screws first, then line up holes in nylon glides and install the remaining 8 screws.
5. Put back rubber mat.



**Warning** To avoid risk of electric shock, disconnect equipment from power source before removing bottom cover or performing any service. ▲

## Section 6 Maintenance

Wash the exterior of the unit with a soft cloth using a solution of mild soap and water, rinse off with clean water and dry thoroughly.

**Warning** To avoid risk of electric shock, disconnect equipment from power source before performing any maintenance. ▲

**Note** Make no attempt to service or repair a Thermo Scientific product under warranty before consulting your Thermo Scientific dealer. After the warranty period, such consultation is still advised, especially when the repair may be technically sophisticated or difficult. If assistance is needed beyond what the distributor can provide, please call Technical Services. No merchandise should be returned directly to the factory without obtaining a Return Materials Authorization (RMA) number from Technical Services. ▲

### Preventive Maintenance

After 3 months of steady use, perform the procedures below.

#### Motor Brushes Check/Replacement

1. Remove the platform mounting plate by removing the 4 knurled screws, remove the ribbed mat, remove the (10) #8 flathead screws on the platform mounting plate, then lift it from the unit. Remove the bottom screen.
2. Brushes are located under plastic caps on opposite sides of the motor. The upper brush can be accessed from the top, the lower brush can be accessed from the bottom after removing the perforated bottom panel. Unscrew the plastic caps and slide the brushes out. Replace brushes when they are worn down to 3/16" (0.476 cm) in length.

**Note** If a single brush is worn, both must be replaced. ▲

3. To reassemble, reverse the order of the preceding steps.

## Bearings

Check the bearings at the ends of the drive rod for adequate grease. If bearings are dry or dirty, remove drive rod and soak in solvent to remove old grease and dirt. Blow dry with compressed air. Grease the bearings using a good grade of lithium grease. Reinstall drive rod in the same orientation as before.

## Glides and Rails

1. Check the glides and rails for adequate grease. Once a year or as needed, clean off old grease from glides and rails. Check all parts for wear. Replace worn parts. Apply a thin coat of good grade lithium grease to a 2" (5.08 cm) section at each end of the rails.
2. Reassemble in the reverse order. Install the 2 screws connecting the drive rod to the platform first. Then, install the screws in the nylon glides.

## Replacing Parts

Replacement part procedures follow.

### Speed Control or Timer Replacement

1. Lift unit or turn on either side and remove front feet. Set unit back down and remove 2 screws at the top of nose cap. Remove nose cap.
2. To replace the timer or speed control, remove the control knob (2 setscrews) and a retaining nut to separate it from the panel. Unplug the terminal connections from the old control unit and plug them into the new one.
3. Reverse this sequence to put the nose cap assembly back in place.

### Calibrating a New Speed Control

1. Remove hardware holding nose cap in place. Slide nose cap forward. Locate trim pots on topside of speed control. The right one is the max pot and the left one is the min pot.

**Warning** During calibration procedure, shaker is powered. Use an insulated screwdriver and avoid contact with wiring. ▲

2. Start the unit and rotate the speed control knob fully clockwise (maximum speed). Using a suitable tachometer and a small plastic screwdriver, adjust the maximum speed potentiometer to 250 RPM.
3. Next, rotate the speed control fully counterclockwise (minimum speed). Now adjust the MINIMUM potentiometer to the point at which the platform stops moving.
4. If the procedure has been followed carefully as outlined, the new speed control is now calibrated.

## Section 7 Replacement Parts

Description	Part Number
Ball Bearing (2)	140-256-00
Cordset 120V	470-105-00
Cordset 240V	470-236-00
Motor Assembly	MT1417X1
Motor Brushes (set of 2)	370-272-01
Mount, Flexible (4 required)	790-310-00
Motor Mount Grommet (4)	790-327-00
Platform Mat	790-316-11
Platform Guide (4)	615-239-00
Speed Control Assembly, 120V	227-598-00
Speed Control Assembly, 240V	229-419-00
Timer	270-135-00
Knob	560-274-00
Switch, Power	440-396-00
Fuse 3A	330-389-00
Circuit Breaker 5A	330-138-00
Rubber Mounting Feet (4)	790-078-00

## **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, check first with your dealer. If the dealer cannot process your request, then contact our Technical Services Department.

Prior to returning any materials, please contact our Technical Services Department for a “Return Materials Authorization” number (RMA). Material returned without an RMA number will be refused.

## THERMO FISHER SCIENTIFIC SHAKER WARRANTY USA

The Warranty Period starts two weeks from the date your equipment is shipped from our facility. This allows shipping time so the warranty will go into effect at approximately the same time your equipment is delivered. The warranty protection extends to any subsequent owner during the warranty period.

During the first year, component parts proven to be non-conforming in materials or workmanship will be repaired or replaced at Thermo's expense, labor included. During the second year, component parts proven to be non-conforming in materials or workmanship will be repaired or replaced at Thermo's expense, labor excluded. The Technical Services Department must be contacted for warranty determination and direction prior to performance of any repairs. Expendable items, i.e., glass, filters, light bulbs and lid gaskets are excluded from this warranty.

Replacement or repair of components parts or equipment under this warranty shall not exceed the warranty to either the equipment or to the component part beyond the original warranty period. The Technical Services Department must give prior approval for return of any components or equipment.

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Your local Thermo Sales Office is ready to help with comprehensive site preparation information before your equipment arrives. Printed instruction manuals carefully detail equipment installation, operation, and preventive maintenance.

If equipment service is required, please call your Technical Services Department at 1-800-438-4851 (USA and Canada) or 1-740-373-4763. We're ready to answer any questions on equipment warranty, operation, maintenance, service and special applications. Outside the USA, contact your local distributor for warranty information.



Rev. 0 7/11

## THERMO FISHER SCIENTIFIC INTERNATIONAL SHAKER WARRANTY

The Warranty Period starts two months from the date your equipment is shipped from our facility. This allows shipping time so the warranty will go into effect at approximately the same time your equipment is delivered. The warranty protection extends to any subsequent owner during the warranty period.

During the first year, component parts proven to be non-conforming in materials or workmanship will be repaired or replaced at Thermo's expense, including labor. During the second year, component parts proven to be non-conforming in materials or workmanship will be repaired or replaced at Thermo's expense, excluding labor. Installation and calibration is not covered by this warranty agreement. Expendable items, i.e., glass, filters, light bulbs and lid gaskets are excluded from this warranty.

Replacement or repair of component parts or equipment under this warranty shall not exceed the warranty to either the equipment or to the component part beyond the original warranty period. The Technical Services Department must give prior approval for return of any components or equipment.

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Thermo International Sales Office is ready to help with comprehensive site preparation information before your equipment arrives. Printed instruction manuals carefully detail equipment installation, operation, and preventative maintenance.

If equipment service is required, please call your Technical Services Department at 740-373-4763, or Fax 740-373-4189. We're ready to answer your questions on equipment warranty, operation, maintenance, service and special applications. Outside the USA, contact your local distributor for warranty information.



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Thermo Fisher Scientific  
401 Millcreek Road  
Marietta, Ohio 45750  
United States

[www.thermofisher.com](http://www.thermofisher.com)

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