



Titer Plate Shakers

Operation Manual and Parts List

MODEL NO.

4625
4625-1CE
4625-1CECN

Table of Contents

Safety Information	3
Alert Signals	3
Warnings	3
General Specifications	5
Description	7
Installation	8
Shipping Carton.....	8
Leveling	8
Electrical Requirements	8
Operation	9
Controls	9
Loading the Platform	9
Starting/Stopping the Shaker	10
Setting the Speed Control	10
Power Mains Protection	10
Maintenance	10
Replacing Parts	11
Speed Control	11
Silicone Tubing Sections	11
Motor Brushes	12
Replacement Parts.....	13
Ordering Procedures	14
Warranty	15

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.



Hot Surface

Hot surfaces alert you to a possibility of personal injury if you come in contact with a surface during use or for a period of time after use.



Electric Shock

Cautions you to risks of electric shock.

Your Thermo Scientific Lab-Line Titer Plate 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 alert signals 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.

Warnings

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 or explosive gases. Do not use in the presence of pressurized or sealed containers. Fire or explosion may result, causing death or severe injury.
2. Use appropriate hand and eye protection when handling hazardous chemicals.
3. Refer servicing to qualified personnel.
4. Do not modify construction and/or assembly of equipment.
5. Do not remove tags, labels, decals, or other information from the unit.
6. Stand clear of equipment when it is operating.
7. Do not leave equipment unattended while it is in operation. Do not operate equipment with a damaged electrical cord or allow cord to come into contact with a hot surface.

8. Use equipment only for its intended purpose. Use only the accessories and attachments that are shipped with the equipment or are specified for it. Substituting other attachments or accessories can produce hazards or make the unit inoperative.
9. Perform regular maintenance service as specified in this manual and keep unit in good repair. Do not operate with known defects.
10. Make sure all vessels are securely clamped before turning on unit. 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.

General Specifications

POWER REQUIREMENTS:

Model 4625:	120 VAC, 60 Hz, 20 Watts, 0.4 Amp
Model 4625-1CE:	220-240 VAC, 50 Hz, 24 Watts, 0.3 Amp
Model 4625-1CECN	220-240 VAC, 50 Hz, 24 Watts, 0.3 Amp

MOTOR: Continuous-duty rated, high-efficiency DC motor features high torque, full ball-bearing construction, and ceramic permanent magnets. Brushes are user replaceable.

SHAKING SPEED: Speed range is 40 to 1100 rpm.

TIMER: Range: Up to 5 minutes in 1-minute increments or continuous run operation.

SHAKER MOTION: 0.120-inch orbit

DIMENSIONS: 11" W x 11" D x 7" H (28 x 28 x 18 cm)

SHIPPING WEIGHT: 25 lbs. (11 kg.)

Environmental Conditions

POLLUTION DEGREE:	2
INSTALLATION CATEGORY:	II
ALTITUDE:	2000 Meters MSL (Mean Sea Level)
HUMIDITY:	80% maximum, non-condensing
ELECTRICAL SUPPLY:	120VAC or 240VAC
VOLTAGE TOLERANCE:	±10% of normal rated line
TEMPERATURE:	15°C to 40°C
PRODUCT USAGE:	This product is intended for use indoors only

Declaration of Conformity

(for 220-240 volt, -33 CE models only)

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
	EN 61010-2-051	Part II: Particular requirements for laboratory equipment for mixing and stirring

per the provisions of the Electromagnetic Compatibility Directive 89/336/EEC, as amended by 92/31/EEC and 93/68/EEC, and 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.

Description

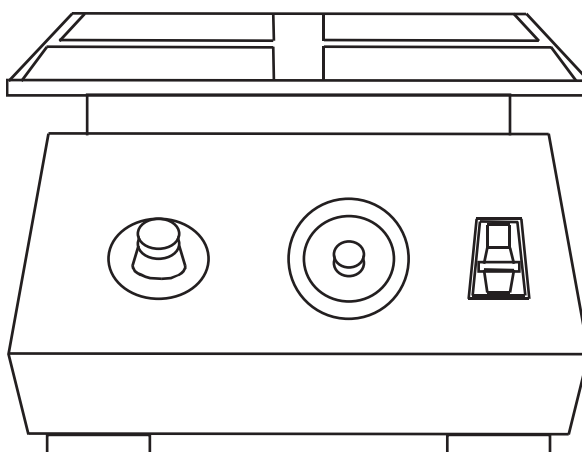
Thermo Scientific Lab-Line Titer Plate Shakers are sturdy, heavy-duty units designed to produce an accurate 0.120-inch orbital shaking motion that is ideal for many kinds of laboratory work with titer plates.

Controls are clearly marked, self-explanatory and make the shaker easy to use and operate.

Users can operate the Titer Plate Shaker at a range of speeds from 40 to 1100 rpm to produce shaking movement ranging from gentle rotation to vigorous agitation to meet specific user requirements.

For increased versatility, a rocker switch on the control panel enables users to select either a constant shaking motion or a timed cycle up to 5 minutes for accurate, repetitive runs.

The ribbed platform provides a non-skid surface and retaining springs which act to hold the titer plates securely in place. In addition, rubber feet at the corners hold the shaker firmly on a counter surface and prevent the shaker from “walking.”



Installation

Shipping Carton

This 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 properly.

IMPORTANT: Failure to request an inspection of damage within a few days after receipt of shipment absolves the carrier from any liability for damage. You must call for a damage inspection promptly.

Leveling

Place the shaker on a level surface in a convenient location and near a properly grounded electrical outlet that matches the requirements of the unit as indicated on the nameplate. A minimum of 1/2-inch clearance is required on all sides of the unit to provide unobstructed rotation.



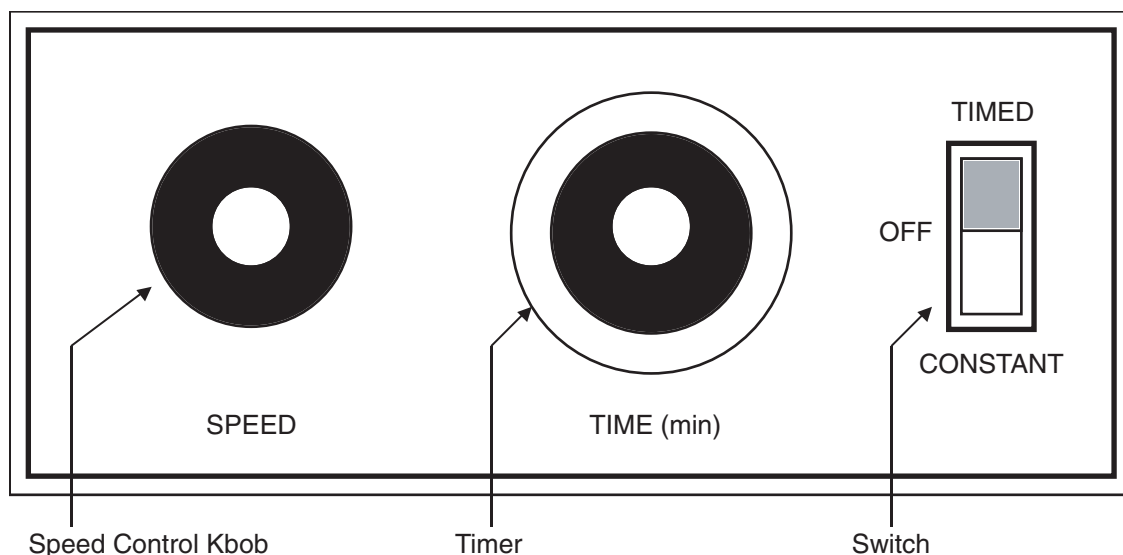
Warning

Leave the shaker disconnected when not in use.

Electrical Requirements

- Use a properly grounded electrical outlet of correct voltage and current handling capacity.
- Do not remove or modify grounded power plug. Use only properly grounded outlets to avoid shock hazard.

Operation



Control Panel



Warning

Do not use in the presence of flammable or combustible materials or explosive gases. Do not use in the presence of pressurized or sealed containers. Fire or explosion may result, causing death or severe injury.



Note

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



Caution

Before proceeding make certain that selector switch is in the OFF position and speed control is at the ZERO position.

Controls

Located on the front panel are easily accessible controls, from left to right: speed control, timer and selector switch.

Speed control: rotate knob clockwise to increase shaking speed and counterclockwise to decrease the speed.

Timer: permits setting a timed shaking period from approximately 5 seconds to 5 minutes. Each timed cycle is exactly repeatable until a new timed period is selected.

Selector switch: allows the operator to select either a "Timed" cycle or a "Constant" run position. The center position is the OFF position.

Loading the Platform

Insert a filled titer plate in the spring-tensioned holder by pushing the plate against the springs until the titer plate is resting on the ribbed bottom of the platform and is securely locked in position.

**Note**

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

Starting/Stopping the Shaker

- For continuous shaking action, push the selector switch to the **CONSTANT** position.
- In the event a timed period of shaking is desired, push selector switch to **TIMED**. Next, turn the black arrow on the timer dial to the setting corresponding to desired timing period. Press center button on timer to start the timing period. The shaker shuts off automatically at the end of the timed cycle. During the cycle the white dot on the dial will rotate to indicate elapsed time.
- During either the **CONSTANT** or **TIMED** shaking periods, the operator can stop the shaker by simply pushing selector switch to the center or **OFF** position.

Setting the Speed Control

- After starting the shaker, turn the speed control clockwise to the desired level of shaking action.
- It is not necessary to return the speed control to the start or zero position after completion of each shaking cycle. Once a satisfactory shaking speed is found, the control may be left at that setting.
- To stop the shaker, turn the switch to **OFF**.
- If the shaker will not be used again soon, disconnect the plug from its electrical outlet.

Power Mains Protection

If a fuse or circuit breaker blows, have a qualified person replace them with a properly rated fuse or circuit breaker. See Replacement Parts section of this manual.

Maintenance



Note

Make no attempt to service or repair a Thermo Scientific product under warranty before consulting your distributor. After the warranty period, such consultation is still advised, especially when the repair may be technically sophisticated or difficult.



Warning

Disconnect plug from electrical outlet before attempting any maintenance or repair of the unit.

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



Warning

Do not operate shaker without platform. To do so will produce a serious imbalance and cause the entire unit to walk. In addition, exposed rotating parts will be a hazard to fingers.

Replacing Parts

Speed Control:

Replacement of the speed control requires removal of the bottom cover casting. Turn unit over and remove 6 screws holding cover and lift off.

To replace 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 terminal unit and plug them into the new one. Reverse this sequence to put the control unit back into position.

The new control unit must be calibrated in the following manner. Locate the maximum and minimum speed potentiometers on the speed control. Lay the unit on its side and elevate the housing so that the titer plate platform will clear the table to permit an unobstructed area of shaking motion.

Start the unit and turn the speed control knob fully clockwise (maximum speed). Using a suitable tachometer and a small plastic screwdriver, adjust the maximum speed potentiometer to 1100 rpm.

Next, rotate the speed control fully counterclockwise (minimum speed). Now adjust the "minimum" potentiometer to the point at which platform stops moving.

If the procedure as outlined has been followed carefully, the new speed control is now calibrated.

Replace bottom cover casting and insert and securely tighten the 6 screws that were previously removed.

Silicone Tubing Sections:

To replace the silicone tubing sections on the platform, remove the 4 screws holding the platform and lift off. Silicone rubber tubing is available from most laboratory supply houses or from Thermo Scientific. Use 1/4" ID x 7/16" OD and cut to 1-5/16" length.

Reassemble the unit carefully by following the reverse order from the preceding.

Motor Brushes:

Motor brushes should be checked every three months for wear. Turn the unit upside down and remove bottom casting to expose the motor. 2 brushes are located under plastic caps on opposite sides of the lower part of the motor. Unscrew the plastic caps and slide the brushes out. Replace brushes when they are worn down to 3/16" in length. Always replace both brushes even if only one brush is worn down.

Replacement Parts

DESCRIPTION	PART NUMBER
Bearing:	015-020-00
Circuit Breaker, 1 Amp, 4625:	330-158-00
Circuit Breaker, 0.8 Amp, 4625-1CE:	330-399-00
Cordset 4625:	CR1472X1
Cordset 4625-1CE:	CR1472X2
Cordset 4625-1CECN	CRM1882X1
Motor 4625:	MT1472X1
Motor 4625-1CE:	MT1472X2
Eccentric Shaft Assembly:	015-372-00
Fuse 5x20, 4 A, 4625-1CE (2):	FZX53
Motor Brush Set:	370-277-00
Platform Mat:	790-316-01
Retaining Ring, 11/16":	500-339-00
Retaining Spring (2):	850-083-00
Rubber Feet (4):	790-078-00
Speed Control, 4625:	227-841-00
Speed Control, 4625-1CE:	229-419-00
Speed Control Knob:	560-223-00
Switch:	440-373-00
Timer, 4625:	270-122-00
Timer, 4625-1CE:	270-129-00
Tube, Restraining (3):	790-298-01
Wave Washer:	564-354-00
Wiring Schematic, 4625:	228-310-00
Wiring Schematic, 4625-1CE:	228-466-00

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 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.

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:

North America: USA/Canada +1 866 984 3766 (866-9-THERMO) www.thermo.com

Europe: Austria +43 1 801 40 0, Belgium +32 2 482 30 30, France +33 2 2803 2180, Germany national toll free 08001-536 376,

Germany international +49 6184 90 6940, Italy +39 02 02 95059 434-254-375, Netherlands +31 76 571 4440, Nordic/Baltic countries +358 9 329 100,

Russia/CIS +7 (812) 703 42 15, Spain/Portugal +34 93 223 09 18, Switzerland +41 44 454 12 12, UK/Ireland +44 870 609 9203

Asia: China +86 21 6865 4588 or +86 10 8419 3588, India toll free 1800 22 8374, India +91 22 6716 2200, Japan +81 45 453 9220,

Other Asian countries +852 2885 4613 Countries not listed: +49 6184 90 6940 or +33 2 2803 2180