



INSTRUCTION MANUAL



Laboratory Equipment Pty Ltd

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Warning

2/3D Waver Shaker has been tested and found to comply with safety limits for the CE regulation. Also, 2/3D Waver Shaker is RoHS compliant to deliver confidence product which meets the environmental directive. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy, and if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at their expense. Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment. It is strongly recommended the user to read carefully the following points before this equipment is operated.

1. Read and follow carefully the manual instructions.
2. Do not alter the equipment. Failure adhered to these directions could result in personal and/ or laboratory hazards, as well as invalidate equipment warranty.
3. Use a properly grounded electrical outlet with correct voltage and current handling capacity.
4. Disconnect from power supply before maintenance and servicing. Refer servicing to qualified personnel.
5. In the event, solution is accidentally spilled into the instrument, disconnect grounded plug and the user must carry out appropriate decontamination measurement. For instance, turning it upside down to avoid solution contacting the internal components. Remove bottom cover and inspect to assure solution has not contacted elements, thermostat or connector. Replace damaged parts.
6. Do not use in the presence of flammable or combustible material; fire or explosion may result. This device contains components, which may ignite such materials.
7. Refer maintenance and servicing to qualified personnel.
8. Ensure that the system is connected to electrical service according to local and national electrical codes. Failure to properly connection may create fire or shock hazard.

9. Ensure the appropriate used materials and correction operation to avoid possible hazards of explosion, implosion or release of toxic or flammable gases arising from the materials being sharked.
10. The unit shall be operated Only by qualified personnel.

Safety Information

Use the high level of precautions against any electrical device. Before connecting with the electrical supply, check the supply voltage is within the range stated at the rating label, and this device must be earthed. Place the unit in a safe and dry location and **MUST NOT** touch things in the surrounding. Also do follow the safety precautions for chemicals / dangerous materials.

Environmental Conditions

Ensure the instrument is installed and operated strictly in the following conditions:

- ≤95% RH
- 75 KPa-106 Kpa
- Altitude not to exceed 2000 meters
- Ambient ~ 40°C operating temperature

Avoiding Electrical Shock

Follow the guidelines below to ensure safe operation of the unit.

2/3D Waver Shaker has been designed to use with shielded wires thus minimizing any potential shock hazard to the user. recommends against the use of unshielded wires.

To avoid electrical shock:

1. In the event of solution accidentally spilled into the instrument. It must be dried out for a period of time, at least 2 hours, and restore it to **NORMAL CONDITION** before each operation.
2. Never connect or disconnect wire leads from the power jacks when the red indicator light of power switch is on.
3. **WAIT** at least 5 seconds after stopping a run before handling output leads or

connected apparatus.

4. ALWAYS make sure that hands, work area, and instruments are clean and dry before making any connections or operating the power supply.
5. ONLY connect the power cord to a properly grounded AC outlet.

Avoiding Damage to the Instrument

1. Do not attempt to operate the device if it is damaged.
2. Protect this unit from physical damage, corrosive agents and extreme temperatures (direct sunlight etc).
3. For proper ventilation, keep at least 10 cm of space behind the instrument, and at least 10 cm of space on each side.
4. Do not operate the Waver Shaker in high humidity environments (> 95%), or where condensation may occur.
5. Prior to using any cleaning or decontamination methods other than manufacturer's recommendation, users should check with the manufacturer's instruction to confirm the proposed method will not damage the equipment.

Symbols

The symbols used on 2/3D Waver Shaker are explained below.



Used on 2/3D Waver Shaker to indicate an area where a potential shock hazard may exist.

Used on 2/3 Waver Shaker to indicate a warning. Consult the manual to avoid possible personal injury or instrument damage



Used on 2/3D Waver Shaker to indicate a warning.

MOVING PARTS HANDS OFF



Used on 2/3 Waver Shaker to indicate a disposal instruction.

DO NOT throw this unit into a municipal trash bin when this unit has reached the end of its lifetime. To ensure utmost protection of the global environment and minimize pollution, please recycle this unit.

Product Specifications

Display	LED
Motion	Orbital and nutation (2D or 3D)
Controller	Digital Microprocessor Controller
Speed	5~100 rpm
Adjustable Angle	0 ~ 25°
Timer	0~9999 mins with alarm, continuous 1 min increment.
Operating Temperature	Ambient ~ 40 °C
Carry Capability	15 kg
Platform Dimension (W x L)	33 x 33cm
Additional Platform	Yes
Platform Material	Painted iron metal
Unit Dimension	330 x 450 x 280 mm (W x L x H)
Easy Maintenance	No belt and pulley
Construction	Painted iron metal
Weight	10 kg
Rated Voltages	110V~ / 220V~, 50/60Hz selectable

Product Description

Waver Shaker offers the optimal movement for the multiple staining and washing involved in gel, blotting, microscopy and immunostaining applications. Its combination of vertical and horizontal orbital motion provides more rapid exchange of solvents and better mixing efficiency.

This unit provides with a 33 x 33cm platform with outstanding carry capability. It is perfect for bench top, incubator and cold room operation. The platform angle is easily adjusted from 0 to 25 degree for a vigorous with action and rotational speed of platform is adjusted from 5 to 100 rpm.

Features

Continuous or timed operation with automatic switch-off

Variable shaking speed from 5 to 100 rpm for mixing and wash action

Two shaking moves in 2D or 3D

Adjustable platform angle

Interchangeable / stacking platform, and accessories for a variety of vessels

Microprocessor controller

15 kg carry capability

One of 4 digital red LED display

High quality DC brushless motor

Easy to extension shelf

Light weight for easy mobility

Very easy maintenance

33 x 33cm platform

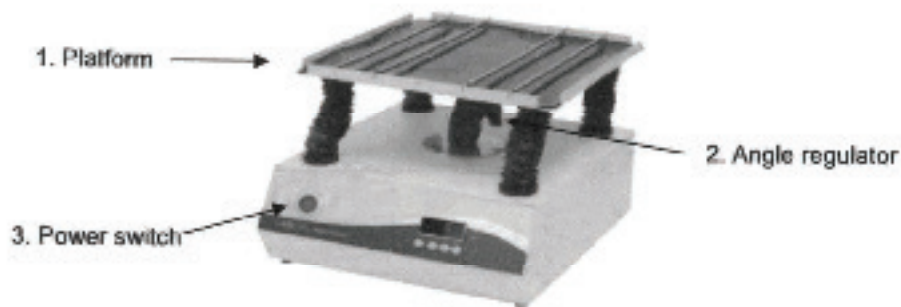
Introduction

Overview

Waver Shaker is a user friendly design for various applications. It is a space compact instrument and having outstanding carry capability to 15kg. Waver Shaker offers a competitive pricing with great value and convenience to the user. More important, MS Waver Shaker is RoHS compliant and designed to comply with the CE regulation.

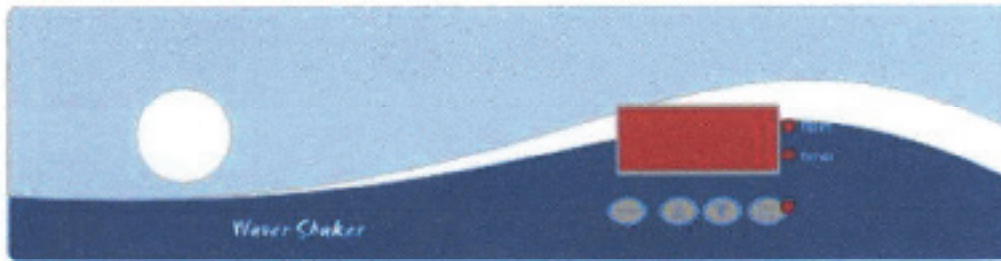
Controls and Features

Please refer to figure on the following page for the location of the following controls and features.

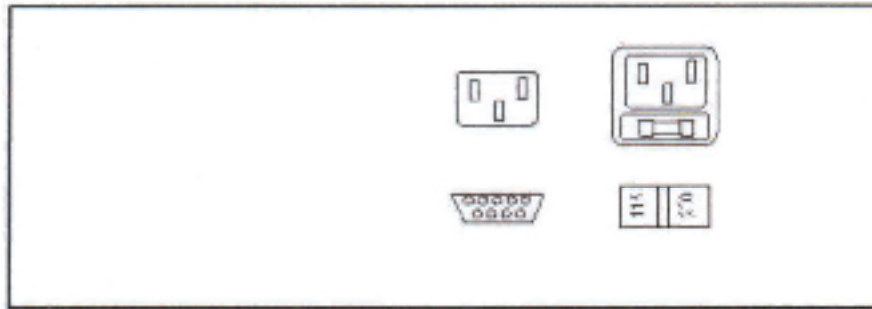


Front of unit









1. Platform : supporting sample
2. Angle regulator : to adjust platform angle
3. Power switch : to turn on or turn off the Waver shaker



Front Control Panel



Rear of Unit


1. AC Power Switch – to switch the unit power ON/OFF
2.  Key – to set either rpm or timer setting mode.
2.  Key – to increase speed / time value
3.  Key – to decrease speed / time value
4.  Key – to activate or stop the unit
5. **TIMER** – This LED light indicates on Timer Setting Mode
6. **Rpm** – This LED light indicates on Rpm setting Mode.
8.  – AC Socket and fuse holder
9.  – Power socket for connecting to MW-WB water bath
10.  RS232 Port – Connect computer to record data
11.  Rated Voltage selection switch – For select suitable rated voltage.



Installation Instructions

2/3D Waver Shaker is actually an already installed instrument. As long as it is placed on a sturdy and level surface in a safe, dry place, and sufficient spare space in the neighborhood for shaking movement, it is ready for operation.


Operation Instructions

1. Place Waver Shaker on a sturdy and level surface in a safe, dry place, away from laboratory traffic.
2. Ensure that the AC power switch is OFF, then plug the three-pronged power cord into a grounded three-prong AC outlet of the appropriate voltage (selectable 115V or 220V as indicated on the rating sticker near the AC cord on the back of the unit).
3. Turn the power ON.

4. Press  Key to select either rpm or timer mode for setting up

5. Press  Key or  Key to adjust the desired rpm and timer.

6. Press the  Key to start shaking.

7. Press  Key again to stop the unit.

Troubleshooting Guide

Many operating problems may be solved by carefully reading and following the instructions in this manual accordingly. Some suggestions for troubleshooting are given below. Should these suggestions not resolve the problem, contact the SERVICE DEPARTMENT or a distributor in your region for assistance. If troubleshooting service is required, please include a full description of the problem.

Problem	Recommendations
LED does not light up	<ol style="list-style-type: none"><li data-bbox="639 663 1332 701">1. Check the FUSE<li data-bbox="639 707 1332 745">2. Ensure that the AC power switch is ON<li data-bbox="639 752 1332 880">3. Check the three-pronged power cord are properly plugged into a grounded three-prong AC outlet of the appropriate voltage

Maintenance

2/3 Waver Shaker equips with DC brushless type motor, and should require no maintenance under normal use. The housing may be cleaned with a moist cloth containing a mild soap solution.

Ordering Information

Cat. No.	Description
MOW-3333	MS Wave Shaker
MOW-3333-FH250	MS Waver Shaker with 9 of 250ml flask holder
MOW-3333-FH500	MS Waver Shaker with 9 of 500ml flask holder
MOW-WB-110/220	Hybridization Water Bath
MOW-3333-WB-110/220	MS Wave Shaker and Hybridization Water Bath

ACCESSORIES

MOW-SP	Strip springs (pack of 2)
MOW-P3333	Additional 33 x 33 cm platform with 4 of adjustable 10cm or 20cm pillars and flat non-slip rubber mat
MOW-DIMPLED	33 x 33cm dimpled mat