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VWR® Multi Modes Nutating Mixer
Instruction Manual

Version: 1
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CE

Table of Contents

Section 1 Inspection and Installation

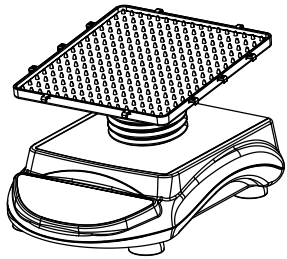
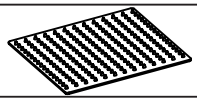
1. Inspect package and contents upon receipt of the instruments. If the package or instrument is severely damaged or if there are any missing pieces, please contact VWR Customer Service.

2. Unpack the instrument, ensure all parts of the instrument and accessories not missing or damaged. Make sure to take out all the components before discarding the packaging. If any parts or accessories are missing or damaged, please contact VWR Customer Service.

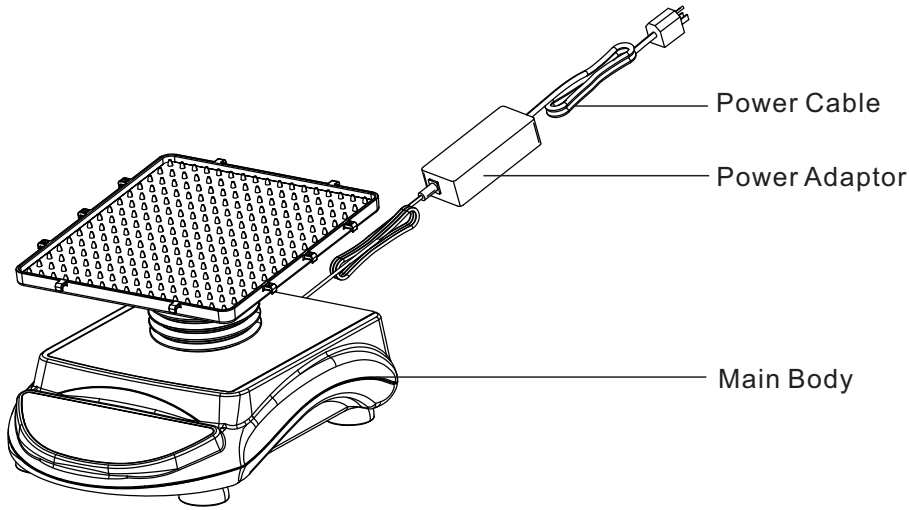
3. Place the instrument on a level and firm surface to avoid vibration and noise.

1.1 Packing List

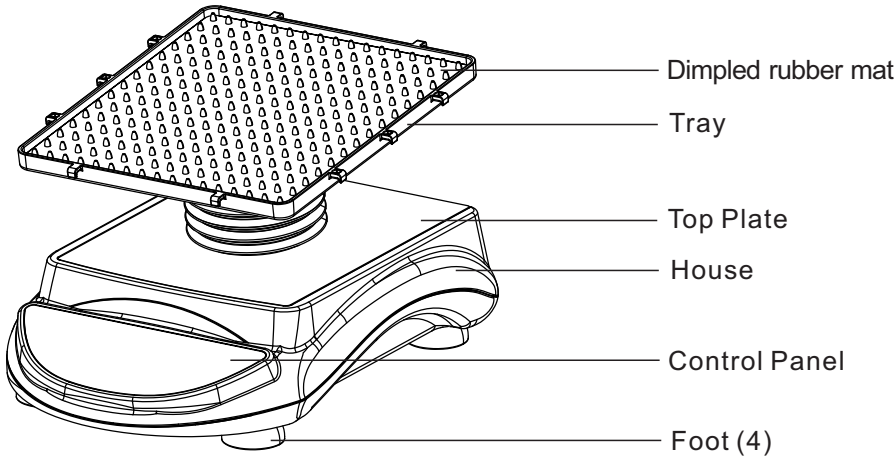
Table -1 Packing List

Model	76595-812	
Dimpled rubber mat	1	
General Power Adaptor	1	
US Plug	1	
Rubber Strips	6	

1.2 Connections



1.3 Structure Diagram



Section 2 Overview

2.1 Specifications

Speed and Angle

Speed Range	5 to 100rpm
Speed Accuracy	±1rpm
Pendulum Angle (Reciprocal Mode)	0 to 360°
Rotating Angle (Vibrate Mode)	0 to 5°
Tilt Angle Range	7°
Display Mode	LED
Display Accuracy	1rpm

Note: Maximum speed/tilt angle may vary with heavy or unbalanced loads.

Load

Max Load at Centered Position	0.8kg (1.8lb)

Time

Orbital Mode /Reciprocal Mode	0 to 250 seconds
Vibrate Mode	0 to 5 seconds
Cycle Index	0 to 125
Continuous Operation	Set Cycle No. to 0
Timing Range	1min to 99h59min

Size

Overall Dimensions	440×296×243mm (17.3×11.7×9.6in.)
Orbit Diameter	23mm (0.9in)
Tray Dimensions	327×289×22mm (12.9×11.4×0.9in.)
Package Dimensions	505×385×360mm (19.9×15.2×14.2in.)

Weight

Net Weight	6.7Kg(14.7lb)
Gross Weight	9.1Kg(20.0lbs)

Power Supply Requirement

Power Supply	AC100~240V ,50Hz/60Hz,0.1A

Others

Noise Level	<55dB with no load
Certificate	ROHS, WEEE, cCSAus, CE Mark

2.2 Environmental Conditions

Application Environmental Conditions: indoor use

Temperature	5 to 40°C (41 to 104°)
Humidity	20% to 85%
Altitude	≤2,000 m
Voltage Fluctuation	±10% of the nominal voltage

Storage Environmental Conditions

Temperature	0 to 60°C (32 to 140°F)
Humidity	20% to 90%, non-condensing

2.3 Safety Instructions

Please read the entire instruction manual before operating the Multi Modes Nutating Mixer.

WARNING DO NOT use the Multi Modes Nutating Mixer in a hazardous atmosphere or with hazardous materials for which the unit was not designed. Also, the user should be aware that the protection provided by the equipment may be impaired if accessories used are not provided or recommended by the manufacturer, or are used in a manner not specified by the manufacturer.

CAUTION ! To avoid electrical shock, completely cut off power to the unit by disconnecting the power cord from the unit or unplugging it from thewall outlet.

Disconnect unit from the power supply prior to maintenance and service. Any spills should be removed promptly. Biohazard spills should be cleaned using approved liquid promptly. Solvent spills are a fire hazard. Stop the unit immediately, and DO NOT operate until clean up is complete and vapors have dissipated.

DO NOT immerse the unit for cleaning.

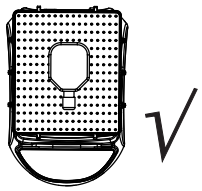
DO NOT operate the unit if it shows signs of electrical or mechanical damage.

Position of Loads

Place the loads in the recommended positions below:

1. Place load at the center of the tray
2. Place loads symmetrically around the center of the tray
3. Make sure to use rubber strips to fasten containers onto the tray

Centered Placement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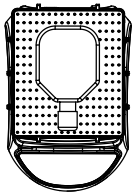
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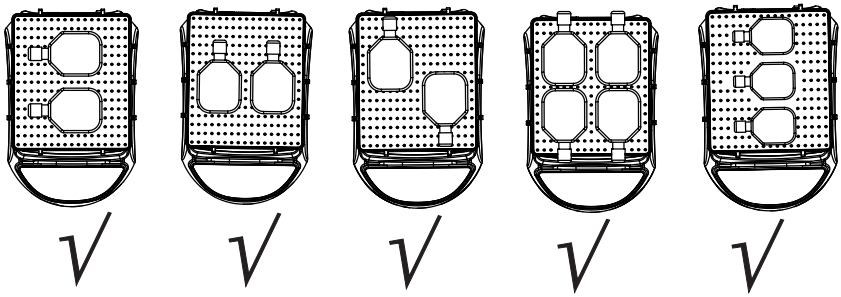
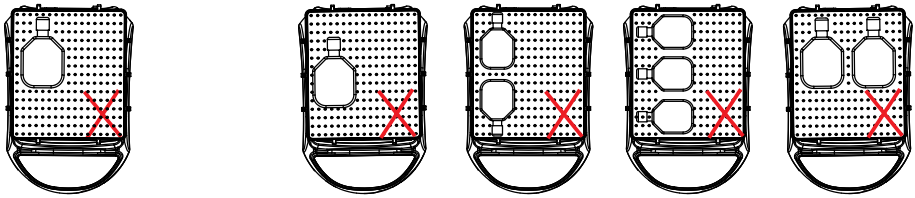
Symmetrical Placement

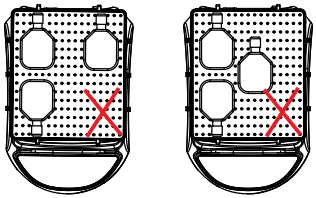


Asymmetrical placement

Cornered Placement **One-Sided Placement**



Other Placement



⚠ **Warning:** Normal operation of the instrument may be affected and even cause damage if loads are placed asymmetrically.

Application areas of this Multi Modes Nutating Mixer include gel colorization/ decolorization, sample cleaning, antibody staining, hybridization, immunoprecipitation, blot, and small volume tissue culture.

2.4 Capacity and Speed

Cell Culture Flask(cm2)	Capacity(ml)	Max Speed(rpm)
25	≤30/40	100
75	≤225	100
150	≤450	100
175	≤600	100
225	≤400	100
	≤800	80

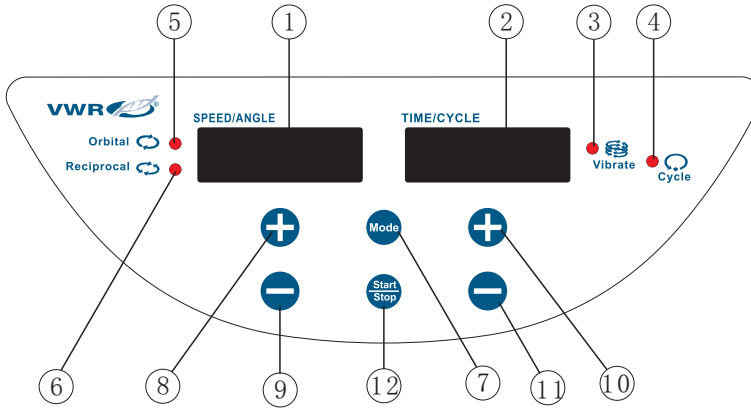
Warning: The rotation speed is inversely proportional to the load. When the instrument is operating, it is recommended to adjust the rotation speed from low to high, step-by-step and run the instrument at an appropriate speed to avoid spillage of liquids.

For your safety, please always use rubber strip to hold samples.

Section 3 Operation

This chapter covers the control panel and its operation.

3.1 Operations of the Control Panel



The front panel contains all the controls needed to operate the unit.

1. **LED Display Window 1**: Shows rotation speed or rotation angle.
2. **LED Display Window 2**: Shows time or cycle index.
3. **Vibrate Indicator Light**: The instrument is in Vibrate Mode when this light is on.
4. **Cycle Indicator Light**: The loop function is in use when this light is on.
5. **Orbital Indicator Light**: The instrument is in Orbital Mode when this light is on.
6. **Reciprocal Indicator Light**: The instrument is in Reciprocal Mode when this light is on.
7. **Mode Button**: Press this button to choose operation mode needed.
8. **UP Arrow Button 1**: Press this button to increase rotation speed or angle.
9. **DOWN Arrow Button 1:** Press this button to decrease rotation speed or angle.
10. **UP Arrow Button 2**: Press this button to increase time or cycle value.
11. **DOWN Arrow Button 2**: Press this button to decrease time or cycle value.
12. **Start/Stop Button**: Press this button to start/stop the instrument.

Introduction of Operation Modes

Orbital Mode

1. Horizontal tilt angle 7°, continuous 360° rotating around the axis.
2. Rotation speed range: 5-100 rpm, continuously adjustable.
3. Timer range: 0-250 seconds, if set to 0, the instrument is not operating in this mode.

Reciprocal Mode:

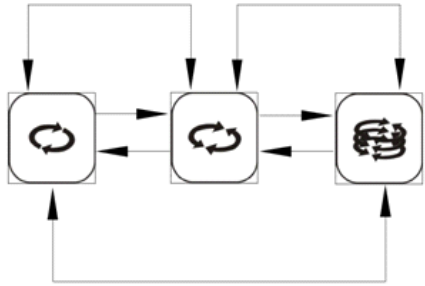
1. Horizontal tilt angle 7°, rotating around the axis.
2. Pendulum angle range: 0-360°, can be adjusted by every 30°.
3. Rotation speed range: 5-100 rpm, continuously adjustable.
4. Timer range: 0-250 seconds, if set to 0, the instrument is not operating in this mode.

Vibrate Mode:

1. Horizontal tilt angle 7°, rotating around the axis.
2. Pendulum angle range: 0-5°, can be adjusted by every 1°.
3. Timer range: 0-250 seconds, if set to 0, the instrument is not operating in this mode.

Operation Cycle:

Each operation cycle is composed by two or more operation modes. The number of cycles can be between 0 to 125. When number of cycle is set to 0, the instrument will operate in continuous mode.



Preparation

1. Connect all the components according to the figures shown on page 1-3 of this manual. Make sure to use a grounded power outlet.
2. Press the power button on the back right side of the instrument and put it to “|” position; then the instrument is in standby.

3.2 Settings

1. Single mode continuous operation

1.1 Press "Mode"to select the desired operation mode and the corresponding indicator light will turn on. Press "+"or "−" on the left to set the necessary rotation speed and angle on the left-hand-side of the LED display window. (Press "Mode" to switch settings between speed and angle)
1.2 Press "+"or "−" on the right to set any time.
1.3 Press "Mode" until Cycle Indicator Light is on. Press"−" on the right to decrease the time to 0.
1.4 Press "Start/Stop" to start operation.
1.5 Press "Start/Stop" again to end operation.

2. Single mode timed operation

2.1 Press "Mode"to select the desired operation mode and the corresponding indicator light will turn on. Press "+"or "−" on the left to set the necessary rotation speed and angle on the left-hand-side of the LED display window. (Press "Mode" to switch settings between speed and angle)
2.2 Press "+" or "−" on the right to set time needed.
2.3 Press"Mode"again until Cycle Indicator Light is on. Press"+"or "−" to set the required number of cycles which is between 0-125. (Timer range is the product of set time and number of cycles. The maximum time that can be set is 250×125 =31250 seconds.)
2.4 Press "Start/Stop"to start operation.
2.5 Press "Start/Stop" to end operation.

3.Multi-mode continuous operation

3.1 Press "Mode" to select desired operation mode and the corresponding indicator light will turn on. Press "+"or "−" on the left to set necessary rotation speed and angle on the left-hand-side of the LED display window. (Press "Mode" to switch settings between speed and angle)
3.2 Press"+"or "−" on the right to set time needed.
3.3 After setting one operation mode, press "Mode" again to switch to another mode indicated by the corresponding indicator light and repeat step 3.1, 3.2 to set corresponding parameters.
3.4 Combination of 2-3 operation modes is allowed. (When the time is set to 0, the procedure will skip the corresponding mode during operation.)
3.5 Press "Mode" until the Cycle Indicator Light is on. Press "+"or "−" on the right to decrease the number of cycles to 0.
3.6 Press "Start/Stop" to start operation.

3.7 Press " Start Stop " to end operation.

4. Multi-mode timed operation

4.1 Press " Mode "to select desired operation mode and the corresponding indicator light will turn on. Press " ⊕ " or " ⊖ " on the left to set the necessary rotation speed and angle on the left-hand-side of the LED display window. (Press " Mode " to switch settings between speed and angle)
4.2 Press " ⊕ "or " ⊖ " on the right to set time needed.
4.3 After setting one operation mode, press " Mode " again to switch to another mode indicated by the corresponding indicator light and repeat set 4.1, 4.2 to set corresponding parameters.
4.4 Combination of 2-3 operation modes is allowed. (When the time is set to 0, the procedure will skip the corresponding mode during operation.)
4.5 Press " Mode " until the Cycle Indicator Light is on. Press " ⊕ "or " ⊖ " on the right to set the number of cycles between 0-125.
4.6 Press " Start Stop " to start operation.
4.7 Press " Start Stop " to end operation.

Table of Mode Combinations

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Orbital	ON	ON	ON	ON	ON	ON	ON	ON	ON	OFF	OFF	OFF	OFF	OFF
Reciprocal	ON	OFF	WAIT	OFF	WAIT	OFF	WAIT	ON	ON	ON	WAIT	ON	OFF	ON
Vibrate	ON	ON	ON	OFF	OFF	WAIT	WAIT	OFF	WAIT	ON	ON	WAIT	ON	OFF

Finish Operation

When you are finished using the instrument, please press the power switch on the back right side and put it into the "O" state. Unplug the unit and store it according to the storage guide.

Alarm System

While operating in timer mode, the instrument will stop running automatically when the timer goes off and the alarm will sound.

Power Recovery

If the power supply is cut off suddenly and the instrument is in use, the unit will automatically run at the previously set parameter upon power restoration. The display window will flash. Press any button to stop flashing.

Section 4 Safety Tips and Maintenance

Safety Tips

1. Use an independent power supply.
2. Check if the local power supply voltage is suitable for use.
3. Do not drag the power supply cable when unplugging.
4. Do not use a non-specified power cable nor damage cable.
5. Service should only be performed by a qualified professional.
6. The power supply must be unplugged under the following situations:
   a. when the unit is moved
   b. when the electrical cabinet or the moving component is opened
   c. when the equipment is malfunctioning
   d. when the equipment is not in use

Maintenance

a. This instrument uses a step motor. It is maintenance free and has a long service life, high quality, and low noise level.
b. Surface can be cleaned with a mild detergent and water.

Clean Spill

If accidental spillage of liquids occurs on the surface of the instrument due to mishandling or broken containers, clean up the liquid immediately. If the liquid has already leaked into the unit, cut off the power supply first and immediately clean up the liquid on the surface of the instrument. Then place the instrument in a ventilated and dry environment for 24 hours before reuse. If the instrument is still not functioning after drying for 24 hours, please contact the manufacturer.

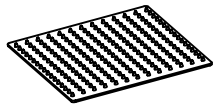
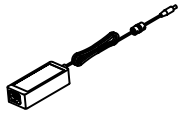
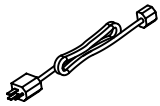
Warning: Disassembling/Assembling without a qualified professional's guidance may cause the instrument to malfunction.

Section 5 Troubleshooting

Please refer to the following table to troubleshoot if any malfunction occurs. If the problem still exists, contact your local sales representative.

Error	Cause	Solution
Cannot start machine, LED display window off	Power disconnected	Connect the power
	Power adaptor failure	Replace power adaptor
	Switch off	Switch on
No shaking of the tray	Electrical malfunction	Contact VWR
	Mechanical malfunction	Contact VWR
	Over-weighted or unbalanced load	Adjust the weight and position of load, decrease rotation speed
Loud noise	Load moving	Change silicone pad or fasten load
	Tray loose	Fasten tray screws
	Machine case loose	Fasten machine case screws
Other	Keep record for maintenance	

Section 6 Optional Accessories/ Spare parts

Description	Cat. No.	Dimensions	Figure
Dimpled Rubber Mat	76595-818	298×258mm	
Rubber Strips	76595-816	180×7mm (6pcs/pack)	
General Power Adaptor	/	AC 100~240V, 50/60HZ	
US Plug	/	125VAC,10A 1.8m	

WARRANTY CARD

Save this card carefully please. When you need service, contact the service company with card & invoice.

Warranty Card

User Name		Telephone	
Address			
Zip Code		E-mail	
Product Name		Model	
Serial number		Purchase Date	

- Warranty Scope:
  1.Warranty period is 24 Months from purchase date.

- Warranty is not valid under the following circumstances:
  1. Warranty term is expired.
  2. Damage due to improper use, maintenance or handling.
  3. Unmatched serial numbers, or modification of serial numbers.

Customer service hotline：please contact VWR's customer service department at 1-800-932-5000.
User: the above information should be completed by the seller.

Maintenance records

Completed by maintenance organizations, and they should help customers to paste maintenance records in the appropriate position!

The 1 time	Maintenance company's name		Maintenance Date	
	Address		Tel	
	Maintenance documents No.		Maintenance personnel to sign	
The 2 time	Maintenance company's name		Maintenance Date	
	Address		Tel	
	Maintenance documents No.		Maintenance personnel to sign	
The 3 time	Maintenance company's name		Maintenance Date	
	Address		Tel	
	Maintenance documents No.		Maintenance personnel to sign	