VWR®

Instruction Manual

Heavy-Duty Vortexer

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Warranty

Manufacturer warrants this product to be free from defects in material and workmanship when used under normal conditions for two (2) years. Please follow instructions for warranty registration on the enclosed warranty card. For your reference, make a note of the serial number, date of purchase and supplier here.

Serial No.:_____Date of Purchase:_____

Supplier:_____

Package Contents

Heavy Duty Vortex Mixer, Standard or Advanced
72" (183cm) power cord
(1) cup head
(1) universal holder
(1) universal holder cover
(1) foam insert (1.5-2.0 mL microtubes, holds 38)
Instruction manual
Warranty card

Installation

Upon receiving the VWR Vortex Mixer, check to ensure that no damage has occurred during shipment. It is important that any damage that occurred in transport is detected at the time of unpacking. If you do find such damage the carrier must be notified immediately.

After unpacking, remove the protective coverings from the feet and place the Vortex Mixer on a level bench or table, away from explosive vapors. Ensure that the surface on which the unit is placed is clean and free of dust. Always place the unit on a sturdy work surface.

The Vortex Mixer is supplied with a power cord that should be plugged into a properly grounded outlet. If the supplied power cord does not meet your needs, please use an approved power cord that suits local codes and electric supply. Replacement of the plug must be made by a qualified electrician.

Maintenance & Servicing

The Vortex Mixer is built for long, trouble-free, dependable service. No lubrication or other technical user maintenance is required. The unit should be given the care normally required for any electrical appliance. Avoid wetting or unnecessary exposure to fumes. Spills should be removed promptly. **DO NOT** use a cleaning agent or solvent on the front panel which is abrasive or harmful to plastics, nor one which is flammable. Always ensure the power is disconnected from the unit prior to any cleaning. If the unit ever requires service, contact your VWR representative.

Environmental Conditions

Operating Conditions: Indoor use only.

Temperature:	4 to 40°C (39 to 104°F).
Humidity:	20% to 85% relative humidity, non-condensing
Altitude:	0 to 6,562 ft (2000 M) above sea level

Non-Operating Storage:

Temperature:	-20 to 65°C (-4 to 149°F)
Humidity:	20% to 85% relative humidity, non-condensing

Installation Category II and Pollution Degree 2 in accordance with IEC 664.

Safety Instructions

Please read the entire instruction manual before operating the Vortex Mixer.

WARNING! DO NOT use the Vortex 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 used with accessories not provided or recommended by the manufacturer, or used in a manner not specified by the manufacturer.

Always operate unit on a level surface for best performance and maximum safety.

DO NOT lift the Vortex Mixer by the head. All heads, including cup head, are removable. They can pop off if lifted by them.

CAUTION! To avoid electrical shock, completely cut off power to the unit by disconnecting the power cord from the wall outlet. Disconnect unit from the power supply prior to maintenance and servicing.

Spills should be removed promptly. **DO NOT** immerse the unit for cleaning.

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

Earth Ground - Protective Conductor Terminal

Alternating Current

Standards & Regulations

Henry Troemner LLC hereby declares under it's sole responsibility that the construction of this product conforms in accordance with the following standards:

Safety standards:

IEC 61010-1	Safety requirements for electrical equipment for measurement, control and laboratory use. Part I: General Requirements.
IEC 61010-2-051	Part II: Particular requirements for laboratory equipment for mixing and stirring.
UL Std. No. 61010-1	

EMC standards:

EN61326-1	IEC6100-3-2/3-3
IEC61000-4-2	IEC61000-4-3
IEC61000-4-4	IEC61000-4-5
IEC61000-4-6	IEC61000-4-11
EN55011	

Associated EU guidelines:

EMC directive 2004/108/EC
LVD directive 2006/95/EC

Heavy Duty Vortex Mixer Specifications

Overall dimensions (L x W x H):	9.5 x 6.6 x 6.3" (24.1 x 16.8 x 16.5cm)
Electrical (50/60 Hz):	120 volts, 0.25 amps, 30 watts 230 volts, 0.13 amps, 30 watts
Fuses:	5mm x 20mm, 5 amp quick acting
Speed range On Mode:	300-2500rpm
Touch Mode:	300-3500rpm
Orbit:	0.194" (4.9mm)
Duty rating:	Continuous duty
Controls, Standard:	See page 5
Advanced:	See page 6
Capacity:	2.5lbs (1.1kg)
Ship weight:	15lbs (6.8kg)

The front panel of the Standard Vortex Mixer contains the switch and control knob needed to operate the unit.

A. 3-way rocker switch: touch/off/on rocker switch starts/stops the vortexing function.

B. Speed control: The speed control knob controls the vortexing speed. User should turn knob clockwise until the vortexer reaches the desired speed.

The front panel of the Advanced Vortex Mixer contains all the switches, controls and displays needed to operate the unit.

A. 3-way rocker switch: touch/standby/on rocker switch starts/stops the vortexing function.

B. Time display: Displays accumulated time (continuous mode) or how much time is remaining (timed mode). The display range is from 0 to 9,999 minutes in one (1) second increments. The display will indicate minutes and seconds until the timer reaches 99 minutes and 59 seconds (99:59), then the display will automatically display minutes up to 9,999.

C. Up/down arrows for set-time control.

D. Speed display: Displays the speed of the Vortex Mixer.

E. Up/down arrows for set-speed control.

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Vortex Mixer Introduction

Your Vortex Mixer is ready for most one-handed applications. The Vortex Mixer operates by mixing samples just prior to testing.

Touch Mode Operation

NOTE: Due to the robust mechanical design of this unit, more downward force is required to operate this unit in Touch Mode to mix single tubes as compared to other models. Another option is to set your unit to the ON mode for mixing a single tube.

Operating Tip:

To ensure the stability of your vortex mixer, it is very important to start with a smooth, clean work surface and the mixers (4) feet. If the mixer starts to "walk", remove the power to the unit and clean the work surface and the (4) feet with isopropyl alcohol.

Standard Vortex Mixer Operating Instructions

1. Make sure the 3-way rocker switch is in the center, off position. Plug the power cord into a properly grounded outlet.
2. For continuous operation, push the rocker switch to the right, on position. For intermittent/touch operation, push the rocker switch to the left, touch position.
3. In either case, turn the speed knob to the desired setting. In the on position, you will see the head in motion immediately. In the touch position, the vessel you are using must be pushed down on the head attachment to achieve motion. To get the desired mix, vary the speed, using the speed knob, and/or vary the angle of contact and pressure against the head.
4. When finished with either continuous or intermittent/touch operation, return rocker switch to the center, off position.
5. The continuous, on mode is for the accessories.
6. The intermittent, touch mode is intended for short mixing times of one (1) minute or less at full speed.
7. To completely cut off power to the unit, disconnect the power cord from the wall outlet.

Advanced Vortex Mixer Operating Instructions

1. Make sure the 3-way rocker switch is in the center, standby position. Plug the power cord into a properly grounded outlet. The unit is now on and in a standby mode.
2. For continuous operation, push the rocker switch to the right, on position. For intermittent/touch operation, push the rocker switch to the left, touch position.
3. In either case, set the speed. In the on position, you will see the head in motion immediately. In the touch position, the vessel you are using must be pushed down on the head attachment to achieve motion. To get the desired mix, vary the speed, using the speed up/down arrows, and/or vary the angle of contact and pressure against the head.

   Setting speed:

   To set the speed press the up/down arrows below the speed display until you reach the desired speed.
   - Speed while running in the on position is 300 to 2500rpm
   - Speed while running in the touch position is 300 to 3500rpm
4. Time operation works in both touch and on positions.

   Setting time:
   - To run in timed mode (programmed time), start by pressing the rocker switch to the left, touch position. Press the up/down arrows below the time display until you reach the desired time. While running unit in timed mode, the time display will show time remaining, counting down to zero (0:00). Four (4) audible beeps will indicate the count down function is complete. The time display will default back to the set time.
   - To run in continuous mode (accumulated time), reset the timer to zero (0:00) before running. Time display will show the accumulated time and run until you press the rocker switch to the center, standby position.
5. When finished with either continuous or intermittent/touch mode, return rocker switch to the center, standby position.
6. The continuous, on mode is for accessories.
7. The intermittent, touch mode is intended for short mixing times of one (1) minute or less at full speed.
8. To completely cut off power to the unit, disconnect the power cord from the wall outlet.

   Beeper Preference:

   To silence the beeper operation (except for error codes), with the unit in standby mode, remove accessories or cup head. Press and hold the head mount. Press the time down arrow. Release the time down arrow. Release the head mount. To restore to factory setting, repeat procedure.

Trouble Shooting (All Units)

Error	Cause of Error	How to Fix
Standard Models Motor does not run in the touch or on mode for standard units. **Advanced Models** E3 Error	**Standard and Advanced Models** There is no motion on the motor or the motor is not working properly.	**Standard and Advanced Models** **1.** Turn the rocker switch to the center off / standby position. **2.** Check to verify the load has not been exceeded. **3.** Check and clear any possible obstructions of the head mount. **4.** If the unit still does not work, please contact your VWR representative.

Accessory Installation Instructions (All Units)

Installing the cup head, microplate trays, universal holder or other head attachments:

1. Move the 3-way rocker switch to the center, off/standby position.
2. Place accessory on head mount of the unit, aligning the square on the bottom of the accessory with the square on the top of the unit. Lower accessory until it is sitting on the head mount.
3. Turn the accessory counter-clockwise until it snaps into place (approximately 1/8 of a turn). Add samples to attachments after the accessory is secured onto the Vortex Mixer. Be sure samples are secure before turning unit on.
4. To remove an installed accessory, move the 3-way rocker switch to the center, off/standby position. Turn the accessory clockwise (approximately 1/8 of a turn) and then lift the accessory straight up. Remove samples before removing the accessories.

- To load a microplate into the microplate tray, position the microplate against the foam bumpers first, then push down the other side to ensure a secure fit. To release a microplate, push it against the microplate tray's foam bumper and lift to remove.
- Maximum speed may vary when vortexing microplates. Speed may be dependant on the height of the skirt on the micoplate or the material of the micoplate.
- Rubber vibration dampeners on the bottom of the microplate tray and universal holder may need to be re-inserted into the proper position when vortexing at high speeds. Squeeze firmly as you maneuver it back into position.

Accessory Installation Instructions (Heavy Duty Vortex Mixer)

Installing the vessel holders:

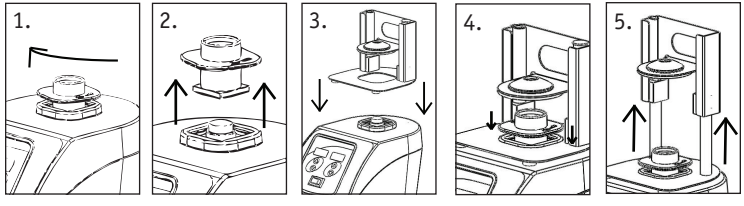
1. Attach the Universal Holder to the vortex mixer.
2. Place the Grip Mat in the bottom of the Universal Holder.
3. Place the flask on top of the Grip Mat, in the center of the holder.
4. Pull the center hole of the Vessel Holder over the sample container.
5. With the arrow on the Vessel Holder close to the front of the unit, the straps should line up with the posts of the Universal Holder.
6. Push the hole on the strap over the posts on the holder. Secure the strap so that it fits into the slot on the holder. Repeat this for the remaining two straps.
7. Be sure the sample is secure before turning unit on.

Installing the Universal Holder Cover:

1. Place the Foam Insert into the Universal Holder.
2. Lay the Universal Holder Cover on top of the foam, and align the edges.
3. Push the hole on the cover down over the post on the holder. Squeeze the strap so that it fits into the slot on the holder, leaving the cover sitting flat on the foam. Repeat this process for the remaining two posts.
4. To remove the accessory cover, secure the straps and pull straight up.

Installing Single Tube Holder:

1. Move the 3-way rocker switch to the center, off/standby position.
2. Remove cup head, or any other accessory from the Vortex Mixer. Turn the cup head clockwise, approximately 1/8 of a turn, (see figure 1) and then lift the accessory straight up (see figure 2). Remove samples before removing the accessories.
3. Align the base plate of the Single Tube Holder over the head mount of the Vortex Mixer with the two Single Tube Holder alignment posts at the back of the unit. Lower Single Tube Holder onto Vortex Mixer, (see figure 3) the magnets will hold the Single Tube Holder in place. To realign this attachment, pull up from the handle until the magnets release, check the alignment and place again.
4. Now that the Single Tube Holder is in place, attach the cup head on the head mount of the unit. Turn the cup head counter-clockwise until it snaps into place, approximately 1/8 of a turn. (see figure 4)
5. Lift up on the spring loaded upper portion of the Single Tube Holder and slide a 2.5 to 4.5" (6.4 to 11.4cm) long tube on the cup head so that the tube is aligned in the middle (see figure 5). You are now ready to mix your sample.



Cup Head

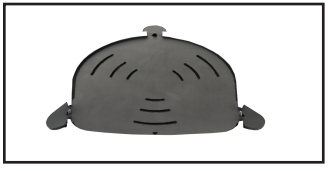
Replacement for Cup Head supplied with Heavy Duty Vortex Mixer. Designed for mixing one tube at a time.

VWR Cat. No. 97043-570

Universal Holder

Replacement for Universal Holder supplied with Heavy Duty Vortex Mixer to mix irregularly shaped objects when Universal Holder Cover is in place. Also used as a holder for the foam tube inserts. Measures 6.1x5.9x3.0" (15.5x15.0x7.6cm)

VWR Cat. No. 97043-574



Universal Holder Cover

Replacement for Universal Holder Cover supplied with Heavy Duty Vortex Mixer. The cover allows for mixing irregularly shaped objects.

VWR Cat. No. 97043-576

Single Tube Holder

Single tube hands free mixing designed to fit on the VWR Heavy Duty Vortex Mixer. Easily attached to the top of mixer and is magnetically secured. Accepts tubes from 2.5 to 4.5" (6.4-11.4cm). Minum tube diameter is 0.75" (19mm)

VWR Cat. No. 97043-602

Microplate Holder (single)

Designed to hold one microplate

VWR Cat. No. 97043-572

Microplate Holder (double)

Designed to hold two standard microplates.

VWR Cat. No. 97043-578

Microplate Holder (quad)

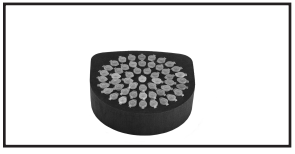
Designed to hold four standard microplates

VWR Cat. No. 97043-580

Stackable Microplate Holder Four

Designed to maximize the capacity of the Heavy Duty Vortex Mixer to eight microplates by stacking the tray on top of the Microplate Holder (quad).

VWR Cat. No. 97043-582



Foam Insert for 0.5mL microtubes

Foam insert holds (52) 0.5mL microtubes.

VWR Cat. No. 97043-584

Foam Insert for 1.5 to 2.0mL microtubes

Foam insert holds (38) 1.5 to 2.0mL microtubes.

VWR Cat. No. 97043-586

Foam Insert for 12-13mm test tubes

Foam insert holds (34) 12-13mm diameter test tubes

VWR Cat. No. 97043-588

Foam Insert for 15-18mm test tubes

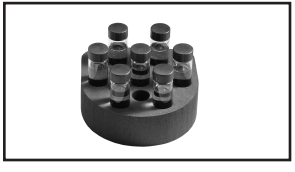
Foam insert holds (20) 15-18mm diameter test tubes. Ideal for 15mL centrifuge tubes.

VWR Cat. No. 97043-590

Foam Insert for 19-21mm test tubes

Foam insert holds (18) 19-21mm diameter test tubes

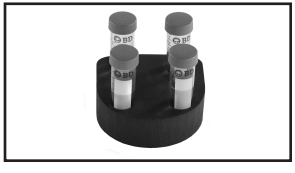
VWR Cat. No. 97043-592



Foam Insert for 22-25mm test tubes

Foam insert holds (13) 22-25mm diameter test tubes.

VWR Cat. No. 97043-594



Foam Insert for 26-29mm test tubes

Foam insert holds (4) 26-29mm diameter test tubes. Ideal for 50mL centrifuge tubes.

VWR Cat. No. 97043-596

Foam Insert Blank

Foam insert without tube openings.

VWR Cat. No. 97043-604

Small Vessel Holder

Rubber holder secures 125 and 250mL Erlenmeyer flasks. Vessel holder also includes a grip mat.

VWR Cat. No. 97043-598

Large Vessel Holder

Rubber holder secures 500 and 1000mL Erlenmeyer flasks. Vessel holder also includes a grip mat.

VWR Cat. No. 97043-600

MANUFACTURED BY:

HENRY TROEMNER LLC

201 Wolf Drive • PO Box 87 • Thorofare, NJ 08086-0087
Phone: 856-686-1600 • Fax: 856-686-1601 • E-mail: troemner@troemner.com
www.troemner.com

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