USER MANUAL

RDV4600 Vortex Mixer

Variable Speed Vortex Mixer

Read all instructions carefully before operating this equipment.

1. Overview

The RDV4600 is a variable speed vortex mixer designed for daily laboratory use. A smooth-action speed dial provides precise control from 0 to 3,000 RPM, and two operating modes — touch-activated and continuous — make it suitable for both quick spot-mixing and longer unattended runs. Compatible with microtubes, standard test tubes, and multi-tube attachments without attachment changes for most common formats.

2. Technical Specifications

Parameter	Value
Model	RDV4600
Type	Vortex Mixer
Speed Range	0–3,000 RPM
Speed Control	Variable dial
Operating Modes	Touch-activated and continuous
Motor Power	60W
Voltage	AC 100–240V (universal)
Vessel Compatibility	Microtubes, test tubes, multi-tube attachments
Certification	CE
Country of Origin	China
Warranty	1 Year
Part Number	RDV4600

3. Safety Precautions

WARNING Do not operate the mixer with open, cracked, or overfilled vessels. Sample ejection at high speed may cause injury or contamination.

CAUTION Ensure tubes are fully seated and caps are secure before starting. Loose vessels may become dislodged during vortexing.

- Place the instrument on a stable, level surface before operation. Vibration will cause movement on uneven surfaces.
- Do not place fingers near the mixing head while the instrument is running.
- Disconnect power before cleaning or performing any maintenance.
- Do not use near open flames or flammable solvents.
- Wear appropriate PPE when handling biological or chemical samples.

4. Installation

4.1 Placement

- Place on a flat, stable benchtop with at least 10 cm clearance on all sides.
- Avoid placement near vibration sources, direct sunlight, or heat-generating equipment.
- Ensure the surface can support the instrument weight with a loaded mixing head.

4.2 Power Connection

1. Confirm local supply voltage is within the AC 100–240V range.
2. Connect the power cord to the instrument inlet and plug into a grounded outlet.
3. The instrument is ready for use — no additional setup is required.

5. Operation

5.1 Speed Control

Turn the speed dial to set the desired mixing intensity between 0 and 3,000 RPM. Rotate clockwise to increase speed. Start at a lower setting and increase gradually when working with new sample types to avoid splashing or vessel displacement.

5.2 Touch-Activated Mode

4. Set the mode switch to Touch.
5. Place the tube firmly against the mixing head cup attachment.
6. Apply downward pressure to activate mixing — the motor runs only while pressure is applied.
7. Release pressure to stop immediately.

NOTE	Touch mode is recommended for quick reagent additions, resuspension checks, and any task where precise control of mixing duration is required.

5.3 Continuous Mode

8. Set the mode switch to Continuous.
9. Switch the power ON — the motor will run continuously at the set speed.
10. Place tubes against the mixing head as needed, or use a multi-tube attachment for hands-free operation.
11. Switch the power OFF to stop.

NOTE	Continuous mode is suited for longer unattended mixing runs, timed incubation steps, and protocols requiring sustained agitation.

5.4 Tube Compatibility

The RDV4600 is compatible with the following vessel formats without attachment changes:

- Microcentrifuge tubes (0.5 mL, 1.5 mL, 2.0 mL)

- Standard test tubes (12 mm, 13 mm, 16 mm diameter)
- Multi-tube attachments (sold separately) for parallel processing

NOTE For multi-tube attachments, confirm the attachment is fully seated and locked before starting continuous mode operation.

6. Recommended Applications

Application	Recommended Mode	Suggested Speed
Cell pellet resuspension	Touch	Low — 200–600 RPM
Reagent reconstitution	Touch or Continuous	Medium — 1,000–2,000 RPM
DNA/RNA sample mixing	Touch	Low-medium — 500–1,500 RPM
Protein mixing / incubation	Continuous	Medium — 1,000–2,000 RPM
Vigorous homogenization	Touch or Continuous	High — 2,000–3,000 RPM
General sample preparation	Touch or Continuous	As required by protocol

7. Cleaning and Maintenance

7.1 Routine Cleaning

12. Power off and unplug the instrument before cleaning.
13. Wipe exterior surfaces with a lint-free cloth dampened with 70% isopropyl alcohol or mild detergent.
14. Clean the mixing head cup with a damp cloth or cotton swab. Remove any sample residue promptly.
15. Allow all surfaces to dry fully before reconnecting power.

CAUTION Do not immerse the instrument in liquid. Do not spray cleaning agents directly onto the instrument. Do not use abrasive materials on the mixing head.

7.2 Maintenance Schedule

Frequency	Task
After each use	Wipe mixing head and exterior surfaces clean
Weekly	Inspect power cord and plug for damage
Monthly	Inspect mixing head cup for wear, cracks, or deformation
Annually	Full performance check and service inspection by qualified technician

8. Troubleshooting

Symptom	Possible Cause	Action
No power	Unplugged; faulty outlet; damaged cord	Check all connections; test outlet; inspect cord
Excessive vibration	Uneven surface; unbalanced attachment	Level the surface; confirm attachment is fully seated
Motor runs but no mixing	Tube not seated properly on mixing head	Reposition tube with firm downward pressure
Touch mode not activating	Insufficient pressure; worn cup	Apply firm pressure; inspect cup for wear
Overheating / auto-shutdown	Extended continuous use; blocked ventilation	Allow 15 min cool-down; clear ventilation area
Speed inconsistent	Mechanical obstruction; motor fault	Inspect head for debris; contact service if persistent

NOTE	Do not attempt internal repair or disassembly. Contact your authorized service representative if the issue cannot be resolved with the steps above.

9. Warranty and Service

The RDV4600 is covered by a 1-year limited warranty from the date of purchase against defects in materials and workmanship under normal use. The warranty does not cover damage from misuse, unauthorized modification, improper power supply, or normal wear of consumable parts.

To obtain service, contact your authorized distributor with the model number (RDV4600), serial number, proof of purchase, and a description of the issue.

10. Regulatory Information

The RDV4600 bears the CE marking, confirming conformity with applicable EU directives for laboratory equipment. Dispose of the instrument in accordance with local WEEE regulations — do not discard as unsorted municipal waste.

Document Revision History

Version	Date	Summary
1.0	April 2026	Initial release