

RDT SERIES

Laboratory Tube Mixers

PRODUCT MANUAL

Models: RDT3510 | RDT3516 | RDT3720 | RDT3732

Fixed-Speed Tube Mixers

For Clinical, Diagnostic, and Research Laboratory Applications



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1. Product Overview

The RDT Series laboratory tube mixers are engineered for gentle, reproducible mixing of biological and chemical samples used in clinical, diagnostic, and research laboratories. The RDT Series is divided into two main categories: the RDT300 Series (fixed-speed, 24 rpm) and the RDT400 Series (variable-speed, 5–30 rpm), each available in single-layer and double-layer configurations with Type A (standard) or Type B (extended) trays. This manual covers the fixed-speed RDT300 Series models.

Intended Use

RDT Series mixers are designed for mixing sample tubes containing blood, plasma, reagents, buffers, and biological specimens. They are suitable for use in standard laboratory environments, temperature-controlled incubators, and cold rooms.

Series Overview

The RDT300 Series provides a simple, reliable fixed-speed mixing solution for routine laboratory applications where consistent performance and ease of operation are essential. Operating at a constant 24 rpm, these mixers deliver gentle, reproducible agitation for a wide range of sample types. Single-layer models offer a compact, space-saving design, while double-layer models provide twice the sample capacity without increasing the instrument footprint, making them ideal for laboratories requiring higher throughput.

2. Product Comparison

The following table provides a side-by-side comparison of all models in the RDT Series to assist in selecting the appropriate instrument for your application.

Model	Series	Speed	Layers	Positions	Pause Button
RDT3510	RDT300	24 rpm	1	10	Yes
RDT3516	RDT300	24 rpm	1	16	Yes
RDT3720	RDT300	24 rpm	2	20	Yes
RDT3732	RDT300	24 rpm	2	32	Yes

3. Safety Information

Read all safety instructions before operating any RDT Series instrument. Failure to follow these instructions may result in instrument damage, sample contamination, or personal injury.

General Safety Precautions

- Do not operate the instrument with damaged tubes, cracked containers, or improperly sealed samples.
- Ensure all tube caps are securely fastened before loading. Mixing will cause spillage from unsecured containers.
- Do not exceed the rated tube positions. Overloading may cause mechanical imbalance and reduce instrument lifespan.

- Position the instrument on a stable, level surface or ensure it is properly secured within its incubator or cold room installation.
- Do not operate in environments with flammable gases or explosive atmospheres.
- Do not disassemble or modify the instrument. Refer all service to qualified personnel.
- Disconnect power before cleaning or performing maintenance.
- Use only the power adapter and voltage specifications indicated on the instrument label.

Biological Safety

- Handle all biological samples in accordance with institutional biosafety protocols and applicable regulations and standards.
- When working with infectious or hazardous materials, always use appropriate personal protective equipment (PPE).
- Decontaminate the instrument surfaces after exposure to biohazardous materials following your facility's standard operating procedures.

4. Installation and Setup

4.1 Unpacking

Carefully remove the instrument from its packaging. Inspect for any shipping damage before proceeding. Retain the original packaging materials for future transport. Verify that all components listed in the packing slip are present.

4.2 Environmental Requirements

- Operating temperature: 2°C to 40°C (compatible with standard laboratory incubators and cold rooms)
- Relative humidity: 20%–80%, non-condensing
- Place on a stable, vibration-free surface or mount securely within a temperature-controlled enclosure
- Ensure adequate clearance around the instrument for ventilation and safe operation

4.3 Power Connection

Before connecting power, verify that your local supply voltage matches the specification on the instrument label. RDT300 Series models connect directly to a standard AC 110 V, 60 Hz electrical outlet. Never operate the instrument using an incompatible power source.

4.4 Loading Tubes

Place sample tubes into the tray positions, ensuring each tube is secured within the designated tube wells. Distribute tubes evenly across the tray to maintain mixing balance. For partial loads, distribute tubes symmetrically to minimize vibration. Ensure all caps are tightly closed before initiating mixing.

5. Operation

5.1 Fixed-Speed Models (RDT3510, RDT3516, RDT3720, RDT3732)

Fixed-speed models operate continuously at 24 rpm, providing gentle, reproducible mixing without requiring speed adjustment.

1. Connect the instrument to the appropriate power source.
2. Turn the power switch ON.
3. Press the Red Pause button to start mixing. If the tray does not begin rotating after the power is turned on, press the Red Pause button once to place the instrument in the Run mode.
4. Press the Red Pause button at any time to temporarily stop tray movement for loading or unloading samples.
5. Press the Red Pause button again to resume mixing.
6. Turn the power switch OFF and disconnect the instrument from the power source before cleaning, maintenance, or long-term storage.

NOTE: The **Red Pause** button is a momentary push button and does not indicate its current operating state. If the instrument is powered on but the tray is not rotating, press the **Red Pause button** once to resume mixing.

5.2 Application Guidelines

Mixing ensures continuous, gentle agitation that prevents cells from settling, maintains sample uniformity, and avoids the foaming or shear stress caused by vortexing or other high-agitation methods. This makes it especially well-suited for the following applications:

- Whole blood mixing for hematology and coagulation assays
- Blood bank sample preparation and reagent homogenization
- Immunoassay incubation and bead-based assay protocols
- Nucleic acid hybridization and extraction procedures
- Reagent and buffer preparation in clinical and research settings

6. Maintenance and Care

6.1 Routine Cleaning

Disconnect the instrument from power before cleaning. Wipe exterior surfaces with a damp cloth moistened with a mild laboratory detergent or 70% isopropanol. Do not allow liquids to enter the motor housing or electrical components. Do not use abrasive cleaners, strong solvents, or bleach on the exterior housing.

6.2 Decontamination

For decontamination of the tray surface and tube holders following biohazard exposure, apply a suitable disinfectant in accordance with your facility's biosafety protocols. Allow adequate contact time before wiping clean with a damp cloth. Ensure no residue remains on contact surfaces before resuming use.

6.3 Inspection

Periodically inspect the instrument for signs of wear, damage to the tray mechanism, deterioration of tube retaining components, or unusual vibration during operation. If any abnormality is observed, discontinue use and contact your authorized service representative.

6.4 Storage

When not in use for extended periods, clean the instrument thoroughly, disconnect from power, and store in a clean, dry environment within the temperature and humidity ranges specified for operation. Use the original packaging or a suitable protective cover to prevent dust accumulation.

7. Individual Product Specifications

The following sections provide detailed specifications and feature descriptions for each model in the RDT Series Mixers.

Tray Type A – standard size with silicone mat for 10 positions

Tray Type B – extended size with silicone mat for 16 positions

RDT3510 | Fixed-Speed Mixer

Fixed-speed single-layer mixer, 10 positions, Tray Type A

The **RDT3510** is a fixed-speed, single-layer tube mixer designed for gentle, continuous mixing of biological and chemical samples. Featuring **10 tube positions**, it accommodates a variety of common tube sizes used in clinical, diagnostic, and research laboratories. Operating at a constant **24 rpm**, the RDT3510 provides consistent, reproducible mixing without the need for speed adjustment. Its compact, space-saving design makes it ideal for laboratory benches, incubators, and cold rooms.

Key Features

- Fixed-speed mixing for gentle, consistent sample mixing
- 10-position single-layer design for standard tube formats
- Non-slip double sided silicone mat
- Red Pause button for convenient stop-and-go operation
- Suitable for blood, reagent, and biological sample mixing in clinical and research labs

Technical Specifications

Model Number	RDT3510
Product Type	Tube Mixer — Fixed-Speed
Configuration	Tray Type A
Tube Positions	10
Number of Layers	1
Mixing Speed	24 rpm
Speed Range	Fixed
Power Supply	AC 110V, 60Hz, 8W
Warranty	1 Year

RDT3516 | Fixed-Speed Mixer

Fixed-speed single-layer mixer, 16 positions, Tray Type B

The **RDT3516** is a fixed-speed, single-layer tube mixer designed for gentle, continuous mixing of biological and chemical samples. Featuring an **extended tray with 16 tube positions**, it accommodates larger tubes or higher sample throughput than the RDT3510 while maintaining the same compact, single-layer design. Operating at a constant **24 rpm**, the RDT3516 provides consistent, reproducible mixing without the need for speed adjustment. Its increased capacity makes it an ideal choice for clinical, diagnostic, and research laboratories processing larger sample volumes.

Key Features

- Fixed-speed mixing for gentle, consistent sample mixing
- 16-position single-layer design for standard tube formats
- Non-slip double sided silicone mat
- Red Pause button for convenient stop-and-go operation
- Suitable for blood, reagent, and biological sample mixing in clinical and research labs

Technical Specifications

Model Number	RDT3516
Product Type	Tube Mixer — Fixed-Speed
Configuration	Tray Type B
Tube Positions	16
Number of Layers	1
Speed	24 rpm
Speed Range	Fixed
Power Supply	AC 110V, 60Hz, 16W
Warranty	1 Year

RDT3720 | Fixed-Speed Mixer

Fixed-speed double-layer mixer, 20 positions, Tray Type A

The **RDT3720** is a fixed-speed, double-layer tube mixer designed for gentle, continuous mixing of biological and chemical samples. Featuring **two stacked trays with a total of 20 tube positions**, it provides twice the sample capacity of the RDT3510 while maintaining the same compact instrument footprint. Operating at a constant **24 rpm**, the RDT3720 delivers consistent, reproducible mixing across all 20 positions without the need for speed adjustment. Its high-capacity design makes it an ideal solution for clinical, diagnostic, and research laboratories requiring increased sample throughput.

Key Features

- Fixed-speed mixing for gentle, consistent sample mixing
- 20-position double-layer design for standard tube formats
- Non-slip double sided silicone mat
- Red Pause button for convenient stop-and-go operation
- Suitable for blood, reagent, and biological sample mixing in clinical and research labs

Technical Specifications

Model Number	RDT3720
Product Type	Tube Mixer — Fixed-Speed
Configuration	Tray Type A
Tube Positions	20
Number of Layers	2
Speed	24 rpm
Speed Range	Fixed
Power Supply	AC 110V, 60Hz, 8W
Warranty	1 Year

RDT3732 | Fixed-Speed Mixer

Fixed-speed double-layer mixer, 32 positions, Tray Type B

The **RDT3732** is a fixed-speed, double-layer tube mixer designed for gentle, continuous mixing of biological and chemical samples. Featuring **two extended stacked trays with a total of 32 tube positions**, it offers the highest sample capacity in the RDT300 Series while maintaining a compact instrument footprint. Operating at a constant **24 rpm**, the RDT3732 delivers consistent, reproducible mixing across all 32 positions without the need for speed adjustment. Its high-capacity design makes it an ideal solution for blood banks, clinical, diagnostic, and research laboratories requiring maximum sample throughput.

Key Features

- Fixed-speed mixing for gentle, consistent sample mixing
- 32-position double-layer design for standard tube formats
- Non-slip double sided silicone mat
- Red Pause button for convenient stop-and-go operation
- Suitable for blood, reagent, and biological sample mixing in clinical and research labs

Technical Specifications

Model Number	RDT3732
Product Type	Tube Mixer — Fixed-Speed
Configuration	Tray Type B
Tube Positions	32
Number of Layers	2
Speed	24 rpm
Speed Range	Fixed
Power Supply	AC 110V, 60Hz, 8W
Warranty	1 Year

8. Troubleshooting

Symptom	Possible Cause	Corrective Action
Instrument does not start	No power supply / loose connection	Verify power connection and outlet functionality. Check that the power switch is in the ON position.
Excessive vibration during operation	Uneven tube loading or unbalanced sample distribution	Redistribute tubes symmetrically across the roller. Ensure tubes are of similar weight and volume.
Irregular or intermittent mixing	Mechanical obstruction or layer damage	Inspect layer for obstructions. If damage is observed, discontinue use and contact service.
Speed inconsistency (variable-speed models)	Speed control set incorrectly or dial malfunction	Verify speed control setting. If problem persists, contact authorized service.
Unusual noise during operation	Foreign object in layer mechanism	Power off the instrument, inspect the layer and tube positions, remove any foreign material.
Instrument stops unexpectedly	Thermal overload protection activated	Power off and allow the instrument to cool for 15 minutes before restarting. Ensure ventilation is not obstructed.

If the issue cannot be resolved using the guidance above, discontinue use of the instrument and contact your authorized service representative or distributor. Do not attempt to open the instrument housing or perform internal repairs.

9. Warranty and Regulatory Information

9.1 Warranty

All RDT Series instruments are warranted against defects in materials and workmanship for a period of one (1) year from the date of purchase. The warranty covers repair or replacement of defective components at the manufacturer's discretion. The warranty is void if the instrument has been misused, modified, damaged due to improper power supply, or serviced by unauthorized personnel.

9.2 Disposal

Dispose of this instrument in accordance with local and national regulations for electrical and electronic equipment (WEEE). Contact your local authorized dealer or recycling authority for guidance on compliant disposal.