D3024

User Manual

D3024 High Speed Micro Centrifuge

Model: D3024 | Brand: Generic

1. Introduction

This manual provides comprehensive instructions for the safe and efficient operation, installation, and maintenance of the D3024 High Speed Micro Centrifuge. Please read this manual thoroughly before operating the instrument to ensure proper usage and to prevent damage or injury.

The D3024 is designed for high-speed separation of samples in microtubes, featuring a brushless DC motor for maintenance-free operation, fast cooling of the rotor, and robust safety mechanisms.

2. Safety Information

Adherence to safety guidelines is paramount when operating the D3024 High Speed Micro Centrifuge. Failure to follow these instructions may result in personal injury or damage to the equipment.

- Always operate the centrifuge on a stable, level surface to prevent vibration and movement during operation.
- Ensure the power supply matches the instrument's requirements (AC100V-120V, 50Hz/60Hz).
- Do not open the centrifuge lid during operation. The instrument is equipped with a dual door interlock system for safety.
- Always balance samples correctly in the rotor. Imbalanced loads can cause excessive vibration and damage.
- Do not attempt to override safety features. The centrifuge includes over-speed detection and automatic internal diagnosis.
- Keep the area around the centrifuge clear to ensure proper ventilation and prevent overheating.
- In case of any unusual noise, vibration, or malfunction, immediately stop the centrifuge and disconnect it from the power supply.

3. Product Overview

The D3024 High Speed Micro Centrifuge is designed for efficient and reliable sample separation. Below is an image illustrating the main components of the unit.

Figure 1: D3024 High Speed Micro Centrifuge. This image displays the compact, white and blue laboratory instrument. It features a control panel on the front with an LCD display and various operational buttons. The top lid is closed, and the side panels include ventilation grilles.

Key Components:

- **Control Panel:** Features an LCD display for settings and status, and buttons for speed/RCF, time, program selection, and start/stop.
- **Rotor Chamber:** Houses the rotor for sample centrifugation.
- **Lid:** Provides a secure closure for the rotor chamber during operation. Equipped with a safety interlock.
- **Ventilation Grilles:** Located on the sides to ensure proper heat dissipation.
- **Power Inlet:** Connection point for the power cord.

4. Setup and Installation

1. **Unpacking:** Carefully remove the centrifuge from its packaging. Retain all packaging materials for future transport or storage. Inspect the unit for any signs of damage incurred during shipping.

2. **Placement:** Place the centrifuge on a sturdy, level, and vibration-free workbench. Ensure there is adequate clearance (at least 10 cm) around the unit for proper ventilation. Avoid placing it in direct sunlight or near heat sources.
3. **Rotor Installation:**
    - Open the centrifuge lid.
    - Carefully place the rotor onto the motor shaft, ensuring it is seated firmly and correctly.
    - Secure the rotor according to the specific rotor's instructions (e.g., tightening a central screw or nut).
4. **Power Connection:** Connect the power cord to the power inlet on the back of the centrifuge, then plug the other end into a grounded electrical outlet.

5. Operating Instructions

5.1. Basic Operation

1. **Power On:** Ensure the centrifuge is properly connected to power. The LCD display will illuminate.
2. **Loading Samples:**
    - Open the centrifuge lid.
    - Place up to 24 microtubes into the rotor. Always ensure samples are balanced by placing tubes of equal weight directly opposite each other. Imbalanced loads can cause severe vibration and damage.
    - Close the lid firmly until it latches securely.
3. **Setting Parameters:**
    - Use the control panel buttons to set the desired speed (RPM) or Relative Centrifugal Force (RCF). The display allows switching between RPM and RCF.
    - Set the run time from 30 seconds to 99 minutes, or select continuous operation.
4. **Starting a Run:** Press the **START/STOP** button to begin centrifugation. The display will show the current speed/RCF and remaining time.
5. **Stopping a Run:**
    - The centrifuge will automatically stop when the set time expires.
    - To stop a run prematurely, press the **START/STOP** button. The rotor will decelerate to a complete stop.
6. **Unloading Samples:** Once the rotor has come to a complete stop and the lid interlock disengages, open the lid and carefully remove your samples.

5.2. Special Functions

- **Speed/RCF Switch:** Toggle between displaying speed (RPM) and Relative Centrifugal Force (RCF) using the dedicated button on the control panel.
- **Short-time Run Function (Flash Spin):** For quick spins, press and hold the "Flash" or "Short" button. The centrifuge will run at maximum speed as long as the button is held, stopping immediately upon release.
- **Sound-Alert Function:** The centrifuge is equipped with an audible alert to signal the completion of a run or an error condition.

6. Maintenance

Regular maintenance ensures the longevity and optimal performance of your D3024 High Speed Micro Centrifuge.

- **Cleaning:**

- Disconnect the power cord before cleaning.
- Wipe the exterior surfaces with a soft cloth dampened with mild detergent or a laboratory-grade disinfectant. Avoid abrasive cleaners or solvents.
- Clean the rotor chamber regularly to remove any spills or debris.

- **Rotor Care:** The aluminum alloy rotors are fully autoclavable at 121°C temperature and high pressure for disinfection. Ensure the rotor is completely dry before reinstallation.
- **Inspection:** Periodically inspect the power cord for damage, and check the rotor and rotor chamber for any signs of wear or corrosion.
- **Motor:** The brushless DC motor is maintenance-free and does not require lubrication.

7. Troubleshooting

This section provides solutions to common issues you might encounter. For problems not listed here, contact technical support.

Problem	Possible Cause	Solution
Centrifuge does not power on.	No power supply; Power cord loose or damaged.	Check power connection; Ensure outlet is functional; Replace damaged cord.
Lid does not open after run.	Rotor still spinning; Lid interlock engaged.	Wait for rotor to stop completely; Check for error messages.
Excessive vibration during operation.	Unbalanced samples; Rotor not seated correctly.	Ensure samples are balanced; Re-seat rotor firmly.
Error message on display.	Internal diagnostic detected an issue (e.g., over-speed, temperature).	Refer to specific error code in a more detailed service manual (if available); Power cycle the unit; Contact support if persistent.

8. Specifications

Parameter	Value
Model	D3024
Speed Range	200-15000 rpm (increment: 10 rpm)
Speed Accuracy	±20 rpm
Max. RCF	21380 ×g (increment: 10 ×g)
Run Time	30 sec - 99 min / Continuous
Display	LCD
Power	200W
Voltage/Frequency	AC100V-120V, 50Hz/60Hz, 8A
Noise Level	≤64dB

Parameter	Value
Motor Type	Brushless DC motor
Safety Features	Dual door interlock, Over-speed detection, Automatic internal diagnosis
Dimensions (WxDxH)	364 × 280 × 266 mm
Weight	12 kg
Rotor Capacity	24 Microtubes
Rotor Autoclavability	121°C
What's in the Box	Mini Centrifuge, Rotor

9. Warranty and Support

For information regarding the product warranty, please refer to the documentation provided at the time of purchase or contact your authorized distributor. Warranty terms and conditions may vary.

For technical support, service, or inquiries not covered in this manual, please contact the manufacturer, Bioland Scientific LLC, or your product supplier. Provide your product model (D3024) and serial number (if applicable) when seeking support.
Manufacturer: Bioland Scientific LLC

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