

## Superdental TD4C

# Superdental TD4C Automatic Benchtop Centrifuge Instruction Manual

Model: TD4C

## 1. INTRODUCTION AND OVERVIEW

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This manual provides essential information for the safe and efficient operation of the Superdental TD4C Automatic Benchtop Centrifuge. The TD4C is a low-speed centrifuge designed for various applications in research and production, including laboratory work, bioengineering, genetic engineering, biochemistry, plant extraction, blood preparation, food processing, petrochemical, and cream separation.

Please read this manual thoroughly before operating the device to ensure proper usage and to prevent damage or injury.



Figure 1: Front view of the TD4C Centrifuge, showing the control panel.

## 2. SAFETY INSTRUCTIONS

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Adherence to these safety guidelines is crucial for safe operation and to prolong the life of the centrifuge.

- **Placement:** Always place the centrifuge on a stable, level, and vibration-free surface. Ensure adequate ventilation around the unit.

- **Power Supply:** Connect the centrifuge only to a grounded power outlet with the specified voltage (110V). Use only the provided power cord.
- **Rotor and Tubes:** Ensure the rotor is correctly installed and secured. Always balance test tubes with equal volumes of liquid directly opposite each other in the rotor. Unbalanced loads can cause severe vibration and damage.
- **Sample Volume:** The amount of sample added to the centrifuge tube should not exceed 80% of the tube's capacity to prevent overflow during operation.
- **Lid Closure:** Always ensure the centrifuge lid is securely closed before starting operation. The unit features an automatic protection function for the door cover.
- **During Operation:** Do not open the lid or attempt to touch the rotor while the centrifuge is running. Wait until the rotor has come to a complete stop.
- **Overspeed Protection:** The centrifuge is equipped with automatic overspeed protection to ensure safety.
- **Maintenance:** Disconnect the power cord before performing any cleaning or maintenance.
- **Supervision:** Do not leave the centrifuge unattended during operation, especially during the initial cycles.

### 3. PRODUCT COMPONENTS AND PACKAGE CONTENTS

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The Superdental TD4C centrifuge package includes the following items:

- 1 x TD4C Centrifuge Unit
- 8 x Centrifuge Tubes (20ml capacity)
- 1 x Power Cord
- 1 x Instruction Manual

Key components of the centrifuge include the main body, control panel, rotor chamber, 8-place rotor, and lid with safety lock mechanism.



Figure 2: Top view of the TD4C Centrifuge with the lid open, revealing the 8-place rotor.



Figure 3: Detailed view of the 8-place rotor, designed for 20ml tubes.



Figure 4: Close-up details of the centrifuge's construction, including the lid hinge, lid lock mechanism, and stable suction feet.

## 4. SPECIFICATIONS

Parameter	Value
Power Supply	110V
Noise Level	Less than 60 dBA
Rotor Capacity	8 x 20 ml (compatible with 5, 8, 10, 15 ml centrifuge tubes and 5, 8, 10 ml vacuum tubes)
Speed Range	0 - 4000 R/min (Revolutions per minute)
Relative Centrifugal Force (RCF)	2150 XG
Motor Type	Brushless Motor
Item Weight	14.08 pounds

## 5. SETUP

1. **Unpacking:** Carefully remove the centrifuge and all accessories from the packaging. Inspect for any signs of damage during transit.
2. **Placement:** Position the centrifuge on a sturdy, level, and non-slip workbench. Ensure there is at least 10 cm (4 inches) of clear space around the unit for proper ventilation.
3. **Rotor Installation:** Ensure the 8-place rotor is securely seated on the motor shaft. The rotor is typically pre-installed.

4. **Power Connection:** Connect the provided power cord to the power inlet on the back of the centrifuge and then to a grounded 110V AC power outlet.



Figure 5: Detailed views of the control panel, power input, rotor, and lid sensor mechanism.

## 6. OPERATING INSTRUCTIONS

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The TD4C centrifuge features a microcomputer control system with a touch panel and intuitive digital display for easy operation.

### 1. Loading Samples:

- Open the centrifuge lid.
- Place the test tubes containing your samples into the rotor holes. Always ensure that tubes are balanced by placing tubes of equal weight and volume directly opposite each other. An unbalanced load can cause excessive vibration and potential damage.
- Ensure the sample volume does not exceed 80% of the tube's capacity.

2. **Closing the Lid:** Close the centrifuge lid firmly until it clicks into place. The safety interlock prevents operation if the lid is not properly closed.

### 3. Setting Parameters:

- Use the touch panel and digital display to set the desired speed (RPM) and time (minutes).
- Press the '+' or '-' buttons next to 'RPM r/min' to adjust the speed.
- Press the '+' or '-' buttons next to 'Time min' to adjust the centrifugation duration.
- The 'Speed RCF' button allows toggling between displaying speed in RPM and Relative Centrifugal Force (RCF).

4. **Starting Operation:** Press the **Start** button to begin the centrifugation cycle. The centrifuge will gradually accelerate to the set speed.
5. **Monitoring:** The digital display will show the current speed and remaining time. Parameters can be modified during operation if necessary to achieve satisfactory centrifugal effect.
6. **Stopping Operation:** The centrifuge will automatically stop and decelerate when the set time expires. To stop operation manually before the set time, press the **Stop** button.
7. **Unloading Samples:** Once the rotor has come to a complete stop, the lid can be opened. Carefully remove the centrifuged samples.

## 7. MAINTENANCE

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Regular maintenance ensures the longevity and optimal performance of your centrifuge.

- **Cleaning:** Regularly clean the exterior of the centrifuge and the rotor chamber with a soft, damp cloth and a mild detergent. Avoid abrasive cleaners or solvents. Ensure no liquid enters the motor or electrical components.
- **Rotor Care:** Clean the rotor and tube holes after each use, especially if there are spills. Ensure the rotor is dry before re-installing or storing.
- **Motor:** The TD4C is equipped with a brushless motor and high-speed bearings, designed for smooth operation and requiring minimal maintenance.
- **Inspection:** Periodically inspect the power cord for any damage. Check the lid seal for wear and tear.
- **Storage:** When not in use for extended periods, store the centrifuge in a clean, dry environment.

## 8. TROUBLESHOOTING

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This section addresses common issues you might encounter with your centrifuge.

Problem	Possible Cause	Solution
Centrifuge does not start	No power; Lid not closed properly; Power switch off	Check power cord connection; Ensure lid is securely closed; Turn on power switch
Excessive vibration or noise during operation	Unbalanced load; Centrifuge not on a level surface; Damaged rotor or tubes	Ensure tubes are balanced with equal weights; Place centrifuge on a level surface; Inspect rotor and tubes for damage and replace if necessary
Lid cannot be opened after operation	Rotor still spinning; Safety interlock engaged	Wait for the rotor to come to a complete stop; If still locked, ensure power is on and try again after a few moments. Do not force open.

Problem	Possible Cause	Solution
Centrifuge stops unexpectedly	Power interruption; Overspeed protection activated; Unbalanced load detected	Check power supply; Rebalance tubes and restart; If problem persists, contact support.

If you encounter a problem not listed here or if the suggested solutions do not resolve the issue, please contact customer support.

## 9. WARRANTY AND SUPPORT

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For warranty information, please refer to the documentation provided at the time of purchase or contact your vendor. In case of technical issues, questions, or to obtain replacement parts, please contact Superdental customer support or your authorized distributor. Please have your model number (TD4C) and purchase details ready when contacting support.