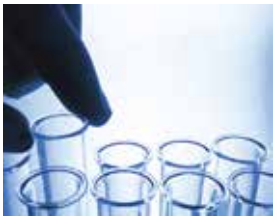
LW Scientific

MX12 Micro-Combo Centrifuge

Instruction Manual





Designed, Engineered & Assembled Proudly in America

Introduction

The LW Scientific MX12 Micro-Combo centrifuge spins microhematocrit (PCV) and/or microtubes in one small unit. The MX12 Micro-Combo is designed, engineered, and assembled in Atlanta, GA. This all-metal-construction unit is small, conserving valuable counter space in the lab, but also sturdy and heavy with suction-cupped feet for stability. The digital controls allow speed and time to be adjusted with the touch of a finger and will show real-time speed and time remaining. The powerful, maintenance-free, brushless motor spins at 12,000 rpm producing serum and PCV results in 3 minutes. The included reader disk allows tubes to be read while still on the rotor. The MX12 Micro-Combo centrifuge is the smart choice for any clinic or laboratory.

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Unpacking and Set-up

This symbol refers to hazards that may be encountered when using this product.

CAUTION means that damage to product or environment could occur.
WARNING means that injury or contamination could occur.

What's included:

- MX12 Micro-Combo
- Rotor(s)
- 3-prong AC Power Cord
- Two 5-amp 250v Fuses (Pre-installed)
- Manual Lid Release Tool

1. LW Scientific packs each MX12 Micro-Combo centrifuge with utmost care. All units undergo a QC check prior to shipping from LW Scientific headquarters in Lawrenceville, GA to ensure proper operation. Examine the outer and inner containers for any visible damage, and retain the packing material. If there is visible damage, please contact the shipper or your distributor, as our warranty does not cover shipping damage.

2. Please register your product online at: www.LWScientific.com/warranty_form. **Important:** Warranty information must be completed within 30 days of purchase.

3. Read the instruction manual in full before operating. Store the operation instructions in a safe place, easily accessible by the trained staff that will be operating the centrifuge.

4. Place the centrifuge on a sturdy, level surface. Plug the power cord into the appropriate power outlet.

5. **To open centrifuge lid,** press and hold the lid and, press the **STOP** button. Verify that there are no loose objects or packing material in the tube chamber. **DO NOT LOAD TUBES AT THIS TIME.**

6. The MX12 Micro-Combo has various rotor configurations.

WARNING: Ensure the rotor is securely fixed to the rotor shaft. Failure to properly secure rotor could lead to personal injury or damage to the centrifuge.

Selecting and Changing Rotors

1. Place the centrifuge on a sturdy, level surface. Verify that there are no loose objects or packing material in the tube chamber.

2. Select a rotor and slide it down over the motor shaft.

WARNING: Please use the provided thumbscrew / hex screw that comes with the rotor you are installing, DO NOT use screws for other rotors.

Microhematocrit Rotor:

A Place the cover plate onto the rotor.

B Next, tighten the thumbscrew down onto the rotor. **Do not over-tighten.**

12-Place Microtube Rotor:

A Properly tighten the provided rotor thumbscrew into the motor shaft.

24-Place Microtube Rotor:

A Properly tighten the provided rotor hex screw into the motor shaft.

B Use the provided allen/hex wrench to tighten the hex screw. **Do not over-tighten.**

C Securely screw the rotor cover lid onto the rotor. **Note**: The rotor will make a whistling sound if the rotor cover lid is not installed.

Testing the Unit

1 Set the time for 3 minutes and set the speed for 2,000 rpm. Press the **START** button. The unit should come up to speed with no vibration and a smooth and quiet sound.

To set the speed: Press the **SET** button once and the Speed will start flashing. Now use the **UP** and **DOWN** buttons to set your desired speed.

To set the time: Press the **SET** button again and the Time will start flashing. Use the **UP** and **DOWN** buttons to change and set the time setting to your desired time. Press ENTER to save setting.

2 Next, set the speed for 12,000 rpm and run again. If there are unusual vibrations or sounds, stop the unit and contact LW Scientific, Inc. or your distributor immediately.

WARNING: Ensure the rotor lid and/or rotor is securely fastened to the motor shaft.

Failure to properly secure rotor lid and/or rotor could lead to personal injury or damage to the centrifuge.

WARNING: DO NOT OPEN LID WHILE ROTOR IS SPINNING.

WARNING: Not intended to be used under water or near fire hazard.

Loading and Operation

1. Prior to each use, ensure rotor and/or rotor lid is secured onto the motor shaft by tightening the rotor thumbscrew or hex screw.

2. **Spin only balanced loads.** Ensure that tubes of equal size are always across from each other. Proper balancing will improve sample separation, reduce vibration, and extend the life of the centrifuge.

   For the 24-place microhematocrit rotor, use only 75 mm capillary tubes, ensuring that the sealant plug is aligned outward, towards the white, silicine rotor gasket. Use only quality 75 mm capillary tubes and fresh tube sealant. Lower-quality tubes may fracture and/or old sealant may cause blood to leak out of tubes.

3. Set the speed to 12,000 rpm and the time to 3 minutes.

4. Press the **START** button to run the cycle. The unit will stop on its own and beep upon completion.

WARNING: Failure to secure rotor or rotor lid could lead to personal injury or damage to the centrifuge.

WARNING: Use ONLY 24-place microhematocrit rotor or other rotors approved by LW Scientific for use in this centrifuge. Use of non-LW Scientific approved and tested rotors could lead to personal injury or damage to the centrifuge.

WARNING: DO NOT OPEN LID WHILE ROTOR IS SPINNING.

The **SHORT SPIN** button is for a manual run cycle. This allows you to spin the rotor for the time you are holding the **SHORT SPIN** button. Once you release the **SHORT SPIN** button the centrifuge will cycle down and come to a stop.

Press the **STOP** button during any cycle to stop a spin cycle.

The **RCF/RPM** button allows you to change the digital display from RPM to RCF (G-Force). **Note**: A period will appear to the right of the Speed / RCF display when the RCF is setting is selected. See Figure 1.

Figure 1

Reading Microhematocrit Tubes

After the rotor has stopped, turn the reader disk until the top of the fluid is aligned with the100% line.

Read the separation line in the middle for the PCV results.

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Rotor Configurations

24-place Microhematocrit Rotor
- *100 to 12,000rpm*
- *13,533g (max)*
- *Spins 24, 75mm capillary tubes*

12-place Microtube Rotor
- *100 to 12,000rpm*
- *9,177g (max)*
- *Spins 12, 1-2ml microtubes*

24-place Microtube Rotor
- *100 to 12,000rpm*
- *13,533g (max)*
- *Spins 24, 1-2ml microtubes*

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Care and Maintenance

The MX12 Micro-Combo is designed to be maintenance-free. With proper care, this centrifuge will provide years of service. However, if repairs should be needed, please contact LW Scientific, Inc.

1. Use only quality 75 mm capillary tubes and fresh tube sealant. Lower-quality tubes may fracture and/or old sealant may cause blood to leak out of tubes.

2. Never force a tube into the rotor holes or slots. These rotors were designed to hold the most common sized tubes.

3. Clean with common laboratory disinfectants regularly. Concentrated bleach may cause gaskets to crack, so avoid using harsh cleaners. The clear silicone microhematocrit gasket is replaceable. Do not allow moisture to seep into the centrifuge and do not contact the electrical components with any liquid during the cleaning process.

Because of safety issues with high g-forces in a centrifuge, it is recommended that rotors be inspected monthly for wear and fatigue. If there is any indication of wear, the rotor should be removed from service. Contact LW Scientific for return instructions so the rotor can be evaluated by a technician for repair or replacement. After 2 years of service, it is recommended that rotors be returned to LW Scientific for inspection or replacement. Following these procedures will ensure safety of lab personnel as well as extend the life of the centrifuge.

CAUTION: If corrosion, scratches, or other abnormalities are found on rotor or rotor lid, discontinue use and contact our service center.

Failure Code	Failure Mode	Possible Cause	Solution
E1	Imbalance	Imbalance detected	Balance the rotor load
E3	Lid Protection	Lid open	Close and latch lid
E5	Over Power	Input voltage is more than 240V	Check voltage at wall outlet
E7	No Speed	Motor is damaged	Contact LW Scientific
E8	Main Contact Failure	MCB or UIB is not working	Confirm all wires are connected at circuit boards
E11	Lack of Speed	Hall sensors of motor not working	Contact LW Scientific

G-Force Chart

24-place Microhematocrit Rotor
Rotor Radius: 84mm

Speed (rpm)	G-Force (RCF)
500	23g
1000	94g
2000	376g
3000	845g
4000	1503g
5000	2348g
6000	3381g
7000	4602g
8000	6010g
9000	7607g
10000	9391g
11000	11363g
12000	13533g

12-place Microtube Rotor
Rotor Radius: 57mm

Speed (rpm)	G-Force (RCF)
500	16g
1000	60g
2000	380g
3000	573g
4000	1019g
5000	1593g
6000	2294g
7000	3172g
8000	4078g
9000	5161g
10000	6372g
11000	7710g
12000	9177g

24-place Microtube Rotor
Rotor Radius: 84mm

Speed (rpm)	G-Force (RCF)
500	23g
1000	94g
2000	376g
3000	845g
4000	1503g
5000	2348g
6000	3381g
7000	4602g
8000	6010g
9000	7607g
10000	9391g
11000	11363g
12000	13533g

Specifications

Speed Range: 100-12000 rpm
Max RCF: 135330 g-force
Input Voltage: 110V AC/5A or 220V AC/5A
Timer: 1 sec - 99 min
Display: LED

Dimensions:
Height: 6.3" (160 mm)
Depth: 13" (330 mm)
Width: 9.6" (243 mm)
Weight: 13.1 lbs (6.53 kg)

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