

### Specifications

- Mechanical 15-minute timer
- 3400 rpms = 1800 g-force
- 6-place swing-out rotor for horizontal separation
- 6 large and 6 small tube sleeves
- Automatic electronic brake
- Locking lid with safety switch
- Brushless maintenance-free AC motor
- 3.15 amp / 250 volt fuse
- \*220V Unit has a brushed motor, and brushes should be changed on a regular basis.

### Dimensions & Weight

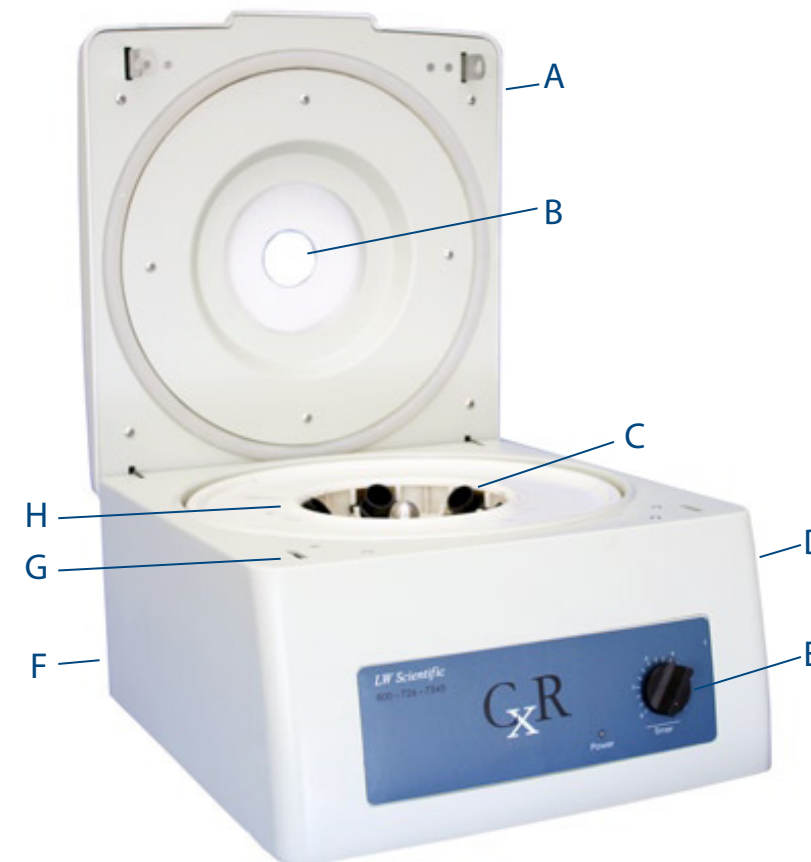
- Height: 8.75"
- Length: 15"
- Width: 13.5"
- Weight: 23.6 lbs
- Height with lid open: 19.75"



Model pictured:

CxR

See back page for model specifications.



- A Locking Lid
- B Small Window for Calibration
- C Tube Shield
- D Open Lid Button
- E Mechanical Timer
- F On / Off Switch (on rear)
- G Lid Safety Switch
- H 6-place Rotor



Recommended Upgrades:

Ask your authorized LWS dealer about additional accessories

## Introduction

The CxR is the economical swing-out centrifuge choice for routine blood separations. This unit features a mechanical 30-minute timer. Maximum tube size for the long tube sleeves is 120mm long by 17.5mm diameter (15ml size). The CxR can spin smaller tubes using the included set of short tube sleeves.

The swing-out rotor offers many advantages over fixed angle separation. Straight-line separations in gel tubes allow for more complete separations and more accurate processing. A tighter gel line will reduce re-mixing and re-spins. The CxR features a whisper-quiet brushless motor for years of maintenance-free service. The only recommended service will be annual calibration of the speeds.

## Unpacking and Setup

- 1 LW Scientific packs each C-Series centrifuge with utmost care. All units undergo a QC check prior to shipping from 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 Remove the centrifuge from the shipping container and inspect for possible shipping damage. **DO NOT OPERATE THE CENTRIFUGE AT THIS POINT.**
- 3 Read and complete the warranty card and return the address portion via mail or fax to LW Scientific. The warranty card documents your purchase. Failure to return the warranty card may void any warranty claims on the unit.
- 4 The lid on the CxR has a mechanical lock and an electrical safety switch to shut off power when opened. To release the lid push the green button on the right hand side and lift the lid from the front. **NEVER** open the lid while spinning - if the lid is opened while spinning, the safety shut-off switch will shut off electrical current to the motor.
- 5 Inspect the rotor chamber. Remove all packing material from the chamber, especially the 4 rubber shims that are holding the rotor against the side of the bowl. Ensure that the rotor center nut is tight, and that the 6 tube shields are in place. The 2 side pins on each of the black tube sleeves must be inserted into the left and right rotor slots, otherwise they will not swing out properly. Make sure that no tube shields or other pieces have fallen loose into the rotor or bowl. **DO NOT OPERATE THE CENTRIFUGE AT THIS POINT.**
- 6 Place the centrifuge on a sturdy, level surface. Plug the power cord into the appropriate power outlet.
- 7 Turn the power on with the on/off switch on the back of the unit. **DO NOT OPERATE THE CENTRIFUGE AT THIS POINT.**
- 8 6 "short" tubes sleeves are also included in the styrofoam, for use with smaller tubes. When using either short or long sleeves, make sure that all sleeves and tubes are balanced on the rotor at all times (most common mistake). Proceed to "Operation".

## Troubleshooting

No power:	Plug into another outlet. Check the fuse (fuse filament should be visible inside the glass).
Wobbles and shakes:	Remove all tube shields and clean them out. Check for cushions or dried fluids.
Makes excessive noise:	Tighten rotor nut. Ensure rubber gasket is in place between bowl and motor.
Breaking tubes:	Turn the speed down. Check your tube limits. Discard old tubes and try new ones.

## Operation

- 1 Do not insert test tubes at this time. Close the lid, making sure to press on the front right slightly to ensure that the latch clicks and locks.
- 2 Turn the timer on to 5 minutes, close the lid and the centrifuge will start. The unit should come up to speed with a smooth sound and little or no vibration. If there is excessive vibration or noise, shut off the unit immediately and contact LW Scientific. Note: The CxR unit can only be started within 6 seconds after the lid is closed. After 6 seconds of inactivity, the unit will become idle, after which you must re-open, inspect the load, and re-close the lid to activate. This is to ensure proper loading and balance before operation.
- 3 After unit begins to come up to speed, check for smooth sound and little vibration. If there is excessive vibration or noise, shut off the unit immediately and contact LW Scientific. The unit is now ready to be loaded.
- 4 **ALWAYS BALANCE THE LOAD.** Be certain to balance tubes of equal weight across from each other on the rotor. You can only balance 2, 3, 4 or 6 tubes at a time on a 6-place rotor. If you need to spin only one tube, you must use another tube filled with fluid to balance the rotor. Proper balancing will improve sample separation and will extend the life of the centrifuge. Spinning out-of-balance loads may break tubes, and can cause damage to the unit which will not be covered under warranty.
- 5 **ALWAYS MAKE SURE TUBES ARE SUPPORTED FROM THE BOTTOM.** Never allow a test tube to hang by its cap on the rim of the tube shield. When the unit reaches high speed, the stopper top will pop off and the tube will break as it hits the bottom of the shield. The cap may also cause damage inside the bowl. Damage due to improper loading will not be covered under warranty.
- 6 **KNOW THE G-FORCE LIMITS OF YOUR TUBES.** Be certain that you are not exceeding the recommended g-forces for the brand of tubes that you use.
- 7 **NEVER FORCE A TUBE INTO THE SHIELDS.** Tubes should fit easily into and out of the tube shield. Make sure the tubes do not exceed the length limits listed in the "Introduction", or the tubes may hit the top of the lid and break upon start-up.
- 8 Select the desired speed and time and start the centrifuge.
- 9 When time has expired, the mechanical timer will ring a bell. **DO NOT OPEN YET.** The CxR has an automatic electric brake (reverse current) that will slow the rotor to a stop in less than a minute. Once the unit has come to a complete stop, an electronic beep will sound. It is now safe to open the unit with the green release button on the side.

## Care and Maintenance

With proper care and maintenance, your CxR centrifuge will provide years of laboratory service. Please follow these guidelines:

- 1 Use only high quality test tubes. Lower quality or inexpensive glass or plastic tubes may fracture and release their contents into the tube chamber. Make sure you know the maximum force allowed for the tubes you are spinning.
- 2 Never force a tube into the tube shield. The tube shields and cushions were designed to accommodate most common sizes of tubes. Custom sizes of the tube cushions are available from LW Scientific for odd tube sizes.
- 3 Keep the tube shields clean. If a tube breaks inside a shield, clean all the debris from the shield and bowl and disinfect.
- 4 Motor and electrical maintenance: The CxR uses a maintenance-free brushless motor and its bearings are permanently lubricated. It should not need servicing for the life of the unit. Likewise, the electrical components were designed for high reliability and should not need regular service. However, if repairs are needed, please contact LW Scientific.

