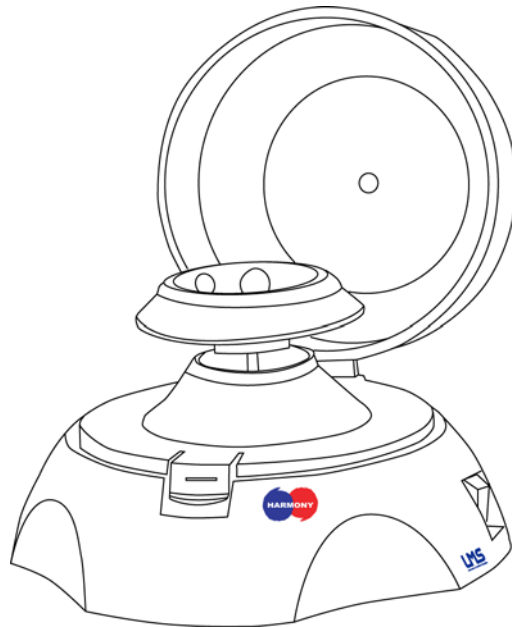


# OPERATIONS MANUAL

Mini Centrifuge

Model MCF-2360

**CE** Certified





**LMS** 株式会社 エル・エム・エス  
Laboratory & Medical Supplies

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# 1. Safety

 **Read the manual before using the Mini Centrifuge.**









 <b>Warning</b>	Improper handling may cause a serious hazard, resulting in personnel injury or death.
 <b>Caution</b>	Improper handling may cause a serious hazard resulting in personnel injury or damage to equipment or buildings.

 **Meanings of symbols.**










 Caution / Warning.	 Refrain from doing this.
 Follow all Instructions.	 Do Not Touch.

 <b>Warning</b>	
	Do not use a power source other than which the unit is designed to operate on. Use of an inappropriate power supply may result in damage to the equipment. Adhere to all electrical codes.
	This device must be connected to an earthed power supply.
	Insert the plug securely into a wall socket. Loose connections result in excessive heat generation to the device and may cause arcing to occur at the connection.
	Before operation, ensure that the power cord is fully extended. Keep the cord away from heat sources and do not place any objects on any part of the cord.
	Avoid using multi-point extension power cords.
	Disconnect the power supply plug if the unit is not going to be used for an extended period of time.

 **Installing the device**

 <b>Warning</b>	
	Place the centrifuge on a level, horizontal surface. Ensure that the device sits completely on a worktop.
	Do not install the device where it can get damp or wet.
	Do not use the device in a dusty environment.
	Do not use the device near a heat source or where temperatures are elevated. Do not operate the device when temperatures fall below 4°C and rise above 45°C.
	Do not use this device where there are flammable or corrosive vapors.
	Install the device in a well ventilated place. Insufficient ventilation may result in breakdown should there be overheating.
	Do not use the device outdoors. Avoid prolonged exposure to direct sunlight.

 **Operating the device**

 <b>Warning</b>	
	Do not operate the device before reading and fully understanding all instructions in this manual.
	Before using the device for the first time, make sure the rotor is securely fastened to the spindle.
	The rotor must be loaded symmetrically. Asymmetrical loading causes excessive vibrations and may result in accidents.
	Close all microcentrifuge tube lids before operation. Open lids can be ripped off during operation and damage the centrifuge.
	When moving the device from a cold to warm location, operate the device for 30 minutes prior to the move to avoid excessive condensation. Alternatively, allow it to warm to room temperature for at least three hours before plugging the socket into a power source.
	Do not attempt to stop the rotor when it is moving. Always operate the device in an upright position, and avoid moving it during operation.
	This device is not designed to be user serviceable. Do not attempt to open or modify the device. Should the device be opened by unauthorized personnel, all warranties are void.
	Should there be any abnormal smell, or noise during operation, switch off the device immediately and contact your dealer for service.

## **Caution**



Do not operate with uneven loads. Uneven loads causes abnormal wear to the bearings and damages the motor.



When the device is used to process biohazards, proper disinfection procedures must be carried out after each use.



Use caps on your microcentrifuge tubes. Tubes without caps will cause samples to leak during operation.



Do not use the device to process samples with flammable contents. This unit is not designed to be explosion-proof.



Do not expose the device to Ultra Violet (UV) light. The lid may craze and crack under such exposure.



After operation, clean the device and unplug the power if will not be used for extended periods.



Do not operate the device if you wear excessively loose clothing, wrist chains, long necklaces or have uncovered long hair that can get caught in the device.

## 2. Introduction

Thank you very much for purchasing the HARMONY mini centrifuge.

Your Mini Centrifuge is CE Certified and designed with function, reliability, and safety in mind. For safe operation, please pay attention to the alert symbols throughout the manual.

## 3. Package Contents

Mini Centrifuge..... 1 unit

Cat Number: 05-090-100

Angle rotor for 1.5/2.0ml micro tubes..... 1 ea

Cat Number: 05-090-101

Adapters for 0.5 ml micro tubes..... 6 ea

Cat Number: 05-090-103

Rotor for 8-Strip 0.2ml PCR tubes..... 1 ea

Cat Number: 05-090-102

Allen wrench..... 1 ea

Power cable..... 1 ea

Operations Manual..... 1 ea

## 4. Specifications

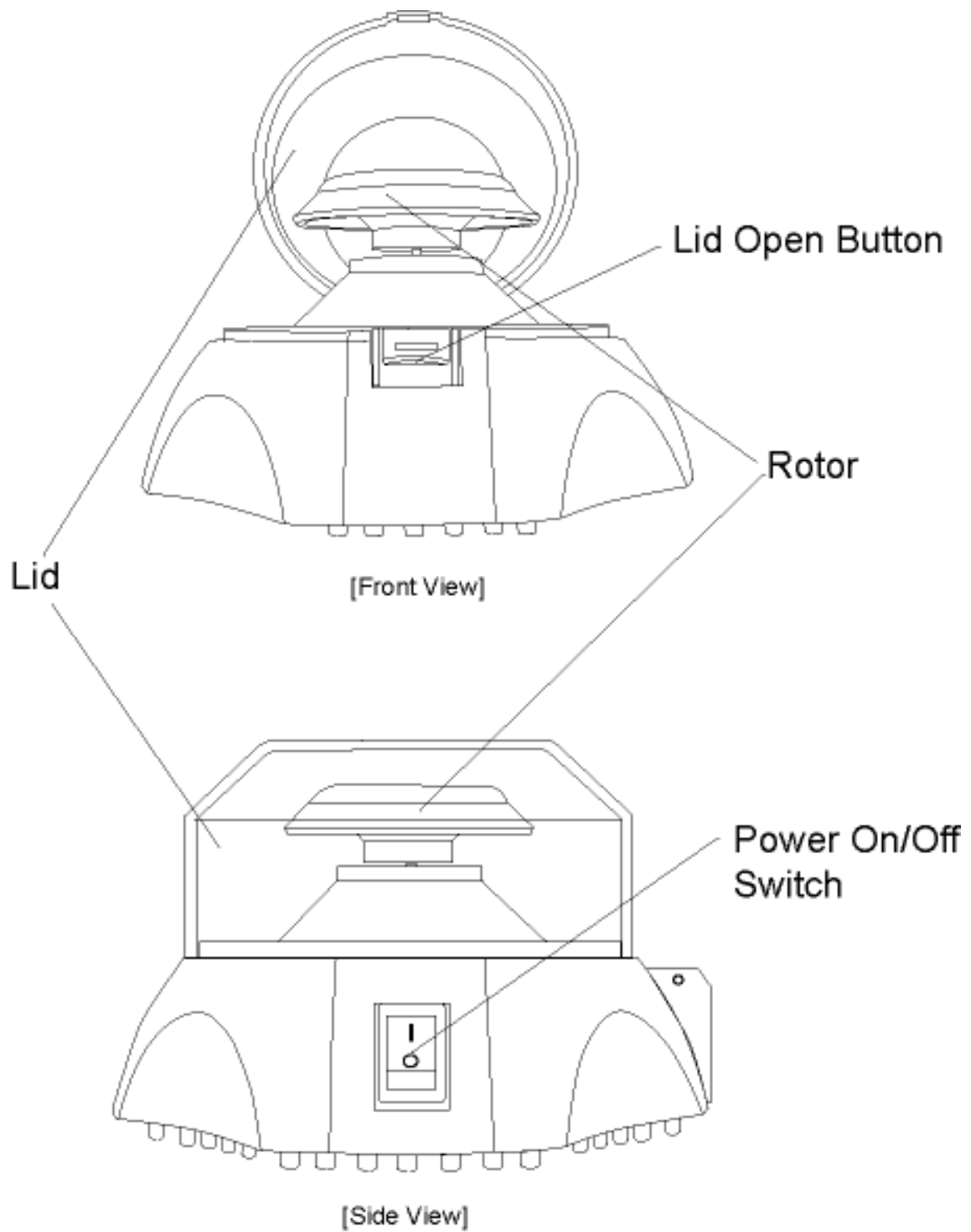
Model Number	05-090-100	
Max. Speed	6600 rpm (1.5/2.0ml angle rotor)/6300 rpm (rotor for 8-Strip PCR tubes)	
Max. RCF	2000 x g (1.5/2.0ml angle rotor) 2200 x g (rotor for 8-Strip PCR tubes)	
Standard Accessories	Rotor for 6-place 1.5/2.0 ml micro tubes	
	Adapters for 0.5ml micro tubes x 6	
	Rotor for 8-Strip PCR tubes	
Material	Lid	Polycarbonate
	Body and Rotor	Body and Rotor: ABS Resin
	Bottom	Anti-Slip Natural Rubber
Power	90-240 VAC Free Voltage, 50/60Hz	
Dimensions (mm)	Body	W160 x D161.5 x H100
	Packing	W220 x D160 x H160
Shipping weight	1.1 Kg	

## 5. Features

- Modern design
- This compact sized mini centrifuge is ideal for quick spin downs of various types of micro centrifuge tubes.
- Compact design takes up minimum laboratory bench space.
- Supplied with rotors and adapters to accommodate 2.0 ml / 1.5 ml, 0.5 ml tubes as well as 0.2 ml strips and individual tubes.
- The standard and strip tubes rotors are easily inter-changed and locked with allen wrench.
- Transparent polycarbonate lid with stainless steel hinge pin.
- On/Off switch located at side to start and stop. When switched on, start and stop by open and closing lid.
- Free Voltage from 90 to 250VAC 50/60Hz.

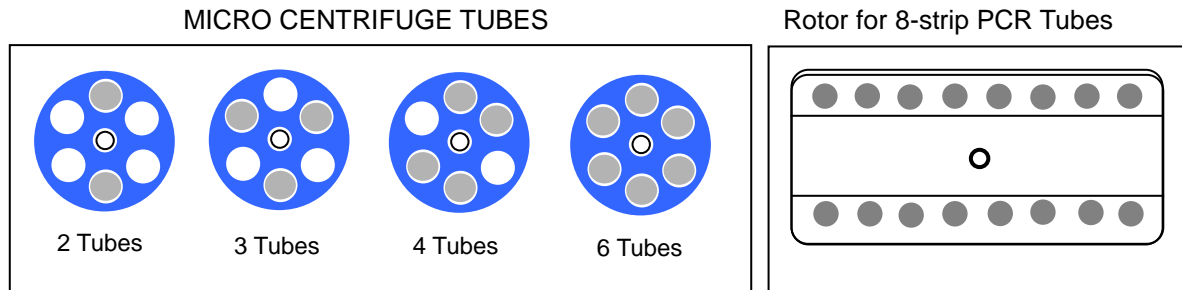


## 6. Parts of the Mini Centrifuge



## 7. Installation and Operation

- 1) Install your Mini Centrifuge on a clear, flat and level surface.
- 2) Open lid by pushing the Lid Open Button
- 3) Place tubes symmetrically into the rotor



Unbalanced loading will significantly reduce the life of your centrifuge.

Load your tubes symmetrically to ensure safe and quiet operation.

To spin 1 or 5 tubes, load an additional water filled tube in the opposite slot.

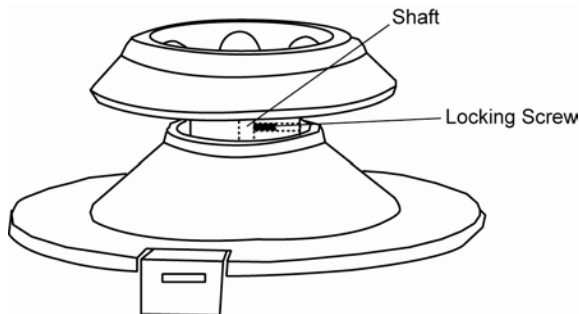
- 4) Close the lid and activate the unit with the Power on/off switch.

\* If the unit is left in the "ON" position, the opening and closing of the lid will activate/deactivate your unit.

- 5) Turn your unit "off" and wait for the rotor to stop before removing samples.

- 6) When using individual 0.2ml PCR tubes, be sure to load the tubes in diagonally opposite positions to balance the rotor.

## 8. Changing Rotors



- 1) Place centrifuge on the flat surface. Using one hand, firmly grasp the centrifuge base. Using the other hand, gently, but firmly, pull up on the rotor until it is totally removed.
- 2) Insert the desired rotor, and press firmly downward until the rotor sits firmly on the spindle. You should feel a constant pressure when inserting or removing the rotors.
- 3) The device is supplied with an Allen wrench and Allen screw. Under normal operations, it is not necessary to use the supplied Allen screw to tighten the rotor to the spindle. Just ensure that the rotor sits completely and securely on the spindle.
- 4) In the unlikely event that the rotor is too loose to sit securely on the spindle (usually caused by excessive swapping of rotors), use the Allen screw to secure the rotor.
- 5) Remove the Allen wrench from the plastic bag. Fit the socket of the Allen screw into the wrench and insert the screw into the hole at the base of the rotor. Tighten until you feel a slight resistance. Do not over-tighten.
- 6) Store the Allen wrench in the bottom of the unit by wedging it between rubber supports.

## 9. Maintenance

### Cleaning

- The rotor and outside of the centrifuge should be cleaned regularly with a damp cloth.
- Disconnect the centrifuge from the main supply before the cleaning.
- Only neutral agents or a mild soap liquid may be used for cleaning purpose.
- Do not use chemical cleaning agents or strong solvents.
- 

### Mechanical or chemical damage

- Do not operate the centrifuge when there is mechanical or chemical damage.
- Change faulty parts immediately.

## 10. Trouble Shooting

Error	Cause	Solution
The unit does not seem to work	Power cable not connected	Check that the power cable is plugged into both the wall socket and the device.
	Power supply	Check that there is power to the wall socket.
	Lid not closed correctly	Press lid closed
	Power switch	Is the power switch at the ON position?
Excessive Noise or Vibration	Rotor is not loaded symmetrically	Stop the unit and load the tubes symmetrically. Ensure that the tubes on the opposite sides are equally filled.
	Rotor is slanted	Remove the rotor and reinsert straight and firmly downwards.

## 11. Technical Report

Power Supply	90-240 VAC 50-60Hz (see identification plate on bottom of centrifuge)
Power requirement	7W , 30mA
Max. Speed	6,600 rpm (Rotor for 1.5/2.0 ml micro tubes)
	6,300 rpm (Rotor for 8-strip PCR tubes)
Max. Centrifugal force	2,000 rcf (Rotor for 1.5/2.0 ml micro tubes)
	2,200 rcf (Rotor for 8-strip PCR tubes)
Ambient temperature	4-40 °C
Max. relative humidity	75%, no condensing moisture
Degree of pollution	N/A
Overvoltage category	N/A
Dimension	Height: 100 mm
	Depth: 161.5 mm
	Width: 160 mm
Weight	0.76 kg(without rotor)
Fuse	250 V: 1 A

## 12. Warranty Statement

The warranty for the device is 12 months from the date of purchase.

During this period the device will be repaired or exchanged without charge.

Warranty is void on devices with damaged manufacture's number, damaged seal, or damage due to improper use, storage or transport of device or service by unauthorized persons.

### CERTIFICATED OF SALE OF EQUIPMENT

Name of company	
Address	
Model Number	
Description	
Serial Number	
Date of Sale	