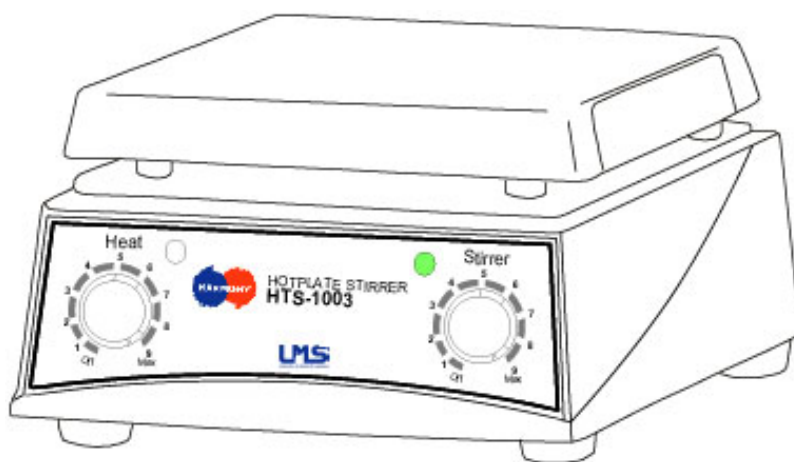


OPERATIONS MANUAL

Hotplate Stirrer/Hotplate/Magnetic Stirrer
Model HTS-1003/HTP-1002/MGS-1001



Contents

1. Safety.....	3
2. Introduction.....	7
3. Package Contents.....	7
4. Specifications.....	7
5. Features.....	8
6. Parts of the HTS-1003/HTP-1002	
MGS-1001.....	8
7. Operation.....	9
8. Maintenance.....	10
9. Trouble shooting.....	10
10. Circuit diagram.....	11
11. Warranty statement.....	12

1. Safety

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

 Warning	Improper handling may cause a serious hazard, resulting in personnel injury or death.
 Caution	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.

 Warning	
	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



Warning



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

 Warning	
	Do not operate the device before reading and fully understanding all instructions in this manual.
	Do not cover the plate with metal foil.
	Replace the top plate immediately if damaged by etching, scratching or chipping.
	Do not use metal containers, sand bath or other insulating material on the top plate.
	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.
	Use appropriate hand and eye protection when handling hazardous chemicals.
	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.
	Do not touch top plate of the instrument during operation. After operation, the plate will remain hot for some time even if power is turned off.
	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.
	Do not use the device to process samples with flammable contents. This unit is not designed to be explosion-proof.
	After operation, clean the device and unplug the power if will not be used for extended periods.

2. Introduction

Thank you very much for purchasing the HARMONY HTS-1003 Hotplate Stirrer.

Your HTS-1003 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

HTS-1003/HTP-1002/MGS-1001.....	1
Stand rod.....	1
User's Manual.....	1

4. Specifications

Model		MGS-1001	HTP-1002	HTS-1003
Type		Magnetic Stirrer	Hotplate	Hotplate Stirrer
Speed Range		60 to 1500 rpm	-	60 to 1500 rpm
Temperature Range		-	Ambient + 5 °C to 380 °C Max	
Controller		Electronic Solid State Controller		
Material		Ceramic Coated Stainless Steel Top Plate		
Dimensions	Plate	180 x 180 mm		
	Overall	200 (W) x 260(D) x 110(H) mm		
Power Consumption		-	Max. 500 watt, 5.0 amp	
Electric Supply		110V, 60 Hz or 220V, 50/60 Hz		

5. Features

The LMS Harmony Hotplate Stirrer is made with an excellent heat-resistant and anti-corrosion die-cast aluminum body finished with a high quality powder coating.

The high density Ceramic-coated stainless steel top plate combines good chemical resistance against strong acids and bases, with superior resistance against cracking from thermal and physical shocks.

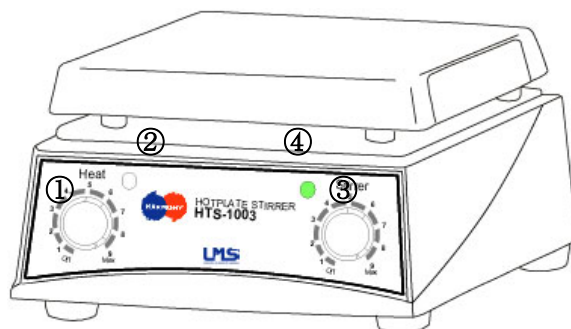
The LMS Harmony Hotplate Stirrer has excellent speed control from 60 to 1500 rpm, giving you gentle and precise control of the stirring speed.

The Hotplate stirrer comes with an in-built controller that regulates the electrical load to the motor and prevents damage due to incoming electrical spikes.

A bearing-type motor is used to provide trouble-free stirring over the long lifetime of the Hotplate Stirrer.

6. Parts of the HTS-1003/HTP-1002/MGS-1001

6-1. Main Controller



① Temperature Controller

(Model HTP-1002 and HTS-1003 have this controller)

On/Off and heating temperature control

② Heater Lamp

(Model HTP-1002 and HTS-1003 have this Lamp)

Red light will glow when heater on

③ Speed Controller

(Model MGS-1001 and HTS-1003 have this controller)

On/Off and revolution speed control

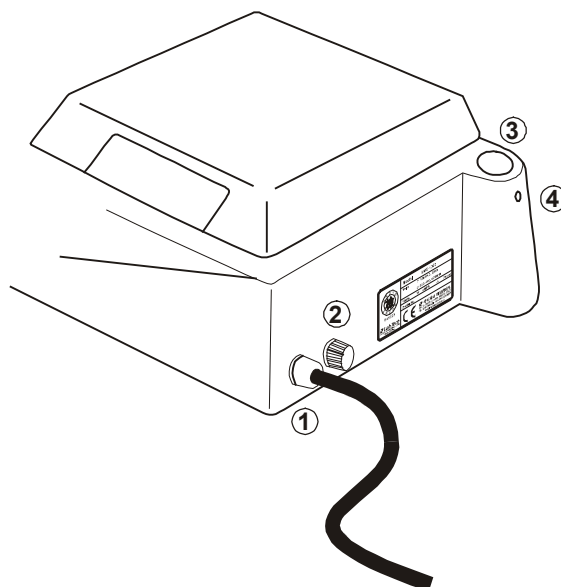
④ Stir Lamp

(Model MGS-1001 and HTS-1003 have this controller)

Green light will glow when stirring on

6-2. Main Body

- ① Power Cord
- ② Fuse
- ③ Standing Rod Hole
- ④ Screw Hole



7. Operation

7-1. Before Operation

- 1) Check that the electrical supply from your power socket corresponds to the voltage stated on the Hotplate Stirrer.
- 2) Place the Hotplate Stirrer on a flat and level surface



CAUTION : Hot Surface Avoid Contact

After operation, the plate will remain hot for some time, even if power is turned off.

7-2. Temperature Control(for Model HTP-1002 and HTS-1003)

- Turn the Heater Controller clockwise
- The Heater Indicator Lamp lights when heating is on
- Turn the controller clockwise to increase heating
- Turn the controller anti-clockwise to decrease heating
- Turn the controller fully anti-clockwise to switch heating off

7-3. Stirring Speed Control(for model MGS-1001 and HTS-1003)

- Turn the Stirrer Controller clockwise
- The Stirrer Lamp lights when stirring is on
- Turn the controller clockwise to increase stirring
- Turn the controller anti-clockwise to decrease stirring
- Turn the controller fully anti-clockwise to switch stirring off



Should breakage or spilling occur, turn the unit off immediately, and unplug the unit from the electrical socket.

8. Maintenance

Cleaning

- The outside of the Hotplate Stirrer should be cleaned regularly with a damp cloth.
- Do not use chemicals or solvents to clean the unit.
- When the top plate is cool enough to touch, wipe the entire unit and all spills 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.
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Mechanical or chemical damage

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

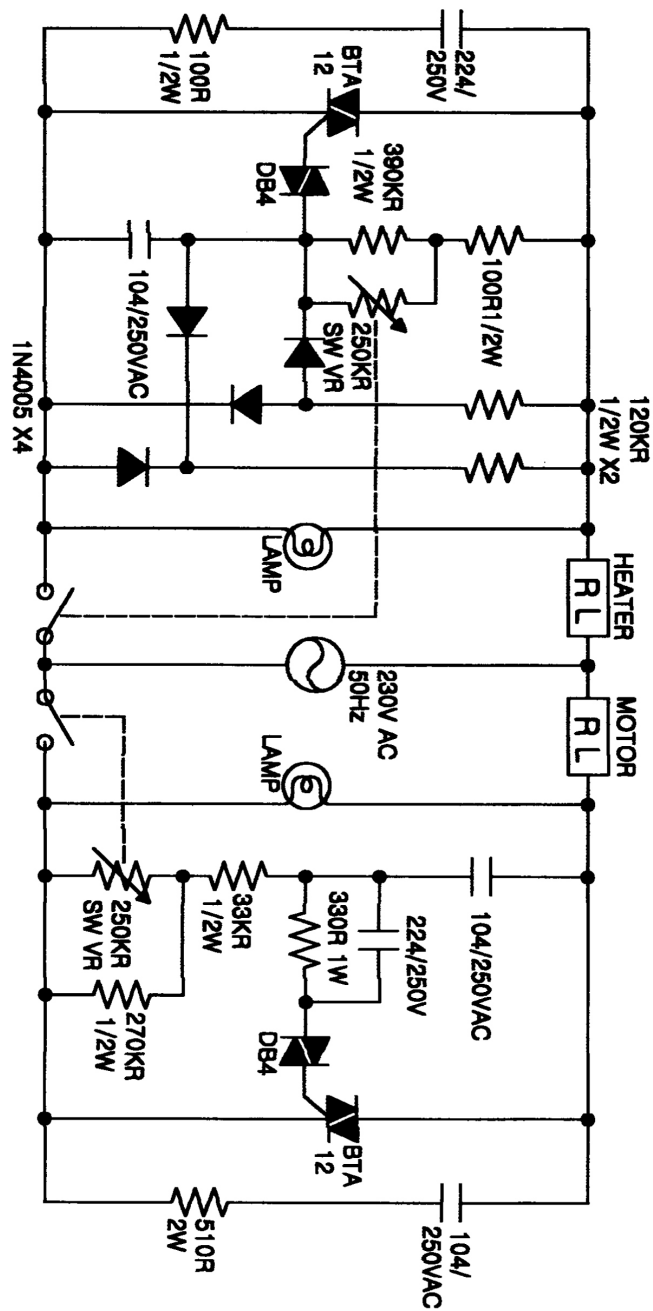
9. Trouble Shooting

If your Hotplate Stirrer is not working, perform the following trouble-shooting steps.

Trouble	Check	Trouble Shooting
Motor is not spinning	Check Electric Supply Check fuse Check Stirrer Indicator Light	Plug is firmly inserted into the electrical socket Electrical Power is turned on Replace fuse Replace Motor Replace PCB Assembly
Heater not heating	Check Electric Supply Check fuse Check Heater Indicator Light	Plug is firmly inserted into the electrical socket Electrical Power is turned on Replace fuse Replace Heater Replace PCB Assembly
Bouncing Magnetic Bar	Stirrer Control set too high	Reduce stirrer speed and

		increase gradually
	Container Position	Center the container on the plate surface

10. Circuit Diagram



11. 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	