#26-015-10050/51-483

GUSTO™

High-Speed Mini-Centrifuge Instruction Manual

Instruction Manual x
Manuel d'instructions x
Manual de Instrucciones x
Bedienungsanleitung x

Heathrow Scientific® LLC

Safety Precautions

Your mini-centrifuge is designed for laboratories in the bioscience, medical, and chemistry fields. It may be involved with biohazardous and/or hazardous materials. This instruction manual cannot address all safety hazards. It is the responsibility of the user to consult and observe all health and safety precautions and to assess the instrument's suitability to the task.

Caution!
Before starting the mini-centrifuge for the first time, please read this instruction manual carefully. This manual contains important information, safeguards, and operating instructions.

1. Never use this product in any manner inconsistent with these instructions.
2. This product is intended to be used indoors only.
3. This product is intended for separating aqueous solutions in approved test tubes compatible to the RCF of this unit.
4. The product is not intended to centrifuge very dense materials. Do not use materials with a density greater than 1.2g/cm.
5. Observe general laboratory safety precautions and regulations when using this product.
6. Do not attempt to operate with the cover removed or open.
7. The rotor and lid must always be securely fastened when in operation.
8. Always seat the rotor completely onto the shaft, then tighten the rotor nut.
9. Do not use damaged rotors.
10. Do not put hands onto the rotor unless the rotor is completely stopped.
11. Do not move unit while the rotor is spinning.
12. Do not immerse the product in water. Injury due to shock or fire may result.
13. The rotor must be loaded symmetrically. Operating this unit with an unbalanced rotor will cause severe vibration and damage, which is not covered by warranty.
14. Do not fill tubes while inserted in rotor. Spilled liquid may harm unit.
15. Close tube lids before starting centrifuge. Open lids can be torn off during centrifugation and damage the unit. Open lids can cause fluid to be dispersed inside the centrifuge.
16. Do not insert non-standard tubes or other foreign articles into the rotor.
17. Follow all precautions from the Material Safety Data Sheet (MSDS) for any reagent you use with this instrument.
18. Do not use solvent or flammable liquids near this or other electrical equipment.
19. Do not centrifuge flammable, explosive, or corrosive materials.
20. Do not operate in a hazardous or flammable environment.
21. Do not use any solvent on the unit that may attack plastic or cause cracks in the rotor.
22. Ensure the rotor is protected from corrosion and mechanical damage. The rotor must be cleaned with a pH-neutral cleaning liquid.
23. Always work in a manner which endangers neither the user nor any other person.
24. Should the instrument fail to work to specification, immediately stop centrifuging. Clean and troubleshoot the instrument according to the instructions under "Trouble Shooting" before any further use of the instrument. Contact an authorized dealer or the manufacturer if trouble persists.
25. Do not attempt to stop rotor while unit is running. Doing so may cause the unit to fail and will void the warranty.
26. Only use original manufacturer's rotors, AC adapters, tube adapters and any other spare parts.
27. Repairs are to be performed by trained and authorized service personnel only. Contact Heathrow Scientific® LLC.
28. Opening the instrument housing or improper use of the instrument voids the warranty. If there is a failure during the warranty period, contact Heathrow Scientific® LLC for warranty service.
29. Do not attempt to use units that have not been correctly installed or repaired.
30. Do not attempt to disassemble or modify this product.
31. Store at room temperature in a dry area. Do not expose to sunlight, moisture, or extreme temperatures for prolonged periods of time.

Warning!
If the unit is not used as recommended by the manufacturer, the overall safety will be impared.

Warning!
Check MSDS, wear required Personal Protective Equipment, and observe all applicable local and national regulations before dispensing and disposing of hasardous sample.

Technical Data

Supplied Equipment:

- 1 ea. Centrifuge
- 1 ea. Universal AC power adapter with 4 mains cables
- 1 ea. Standard Tube rotor (1.5mL & 2.0mL tubes) (12,500 rpm)
- 1 ea. Strip tube rotor (8 place 0.2ml Strip Tubes or 32 individual 0.2ml tubes) (12,500 rpm)
- 12 ea. 0.2mL tube adapters (for use in the standard rotor only)
- 12 ea. 0.5mL tube adapters (for use in the standard rotor only)

Operating Conditions:

Maximum speed: 500rpm - 12,500 rpm
Maximum RCF: 9,800 RCF
Electrical: 100 – 240VAC, 50/60Hz
Ambient temperature: 2°C to 40°C
Relative humidity: ≤80% noncondensing

Power Requirements:

12VDC 8.33A

Storage Conditions:

Storage temperature: 20°C - 55°C
Relative humidity: ≤90% noncondensing

This mark is the confirmation that the unit conforms to the EU guidelines and has been tested according to the following EU Declaration of Conformity.

Conforms to UL Std. 61010-1.
Certified to CAN/CSA C22.2 No. 1010.2.020-94.

EC Declaration of Conformity

Manufacturer: Heathrow Scientific®

This unit has been constructed and conforms to the following:
Safety Standards:

EN61010-1:2010
EN61010-2-020:2006
IEC61010-1
IEC61010-2-020
UL Std. 61010A-1, 61010A-02-20
CAN/CSA C22.2 No. 61010-1-04 (R2009)
CAN/CSA C22.2 No. 61010-2-020-09
2006/95/EC (Low Voltage Directive)

EMC Standards:

EN61326-1:2006

2002/96/EC (WEEE)
2002/95/EC (RoHS)

Signed:

Jamie Devin, Managing Director

Note:

— Changes or modifications to the product not expressly approved by the manufacturer could void the user's authority to operate the equipment.

Note:

— This product has been tested and found to comply with the limits of a Class A digital device pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the product is operating in a commercial environment. The product generates, uses, and can radiate radio frequency energy and if not installed and used in accordance with the user's manual may cause harmful interference to radio communications. Operation of the product in a residential area is likely to caused interference in which case the user will be required to correct the interference.

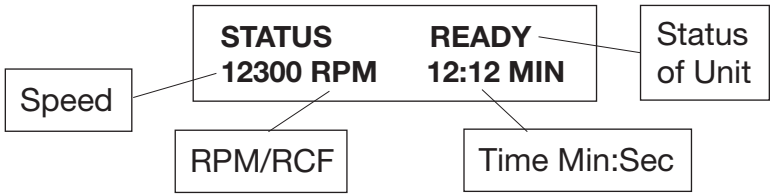
Disposal Responsibilities:

The equipment you purchased may contain hazardous substances that could impact the environment. Per regulations on electronic devices in the European Community, you must use the appropriate disposal systems to avoid exposure of these substances to the environment. The disposal systems will reuse or recycle hazardous materials from your equipment responsibly.

The crossed-out wheeled bin symbol invites you to use those systems.

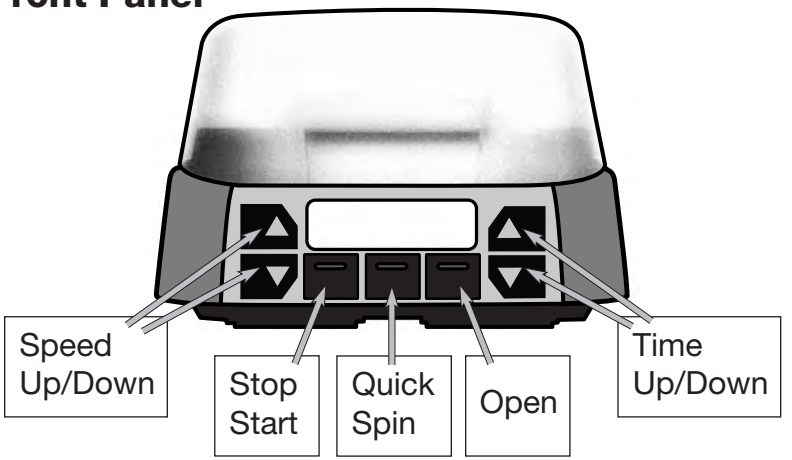
If you need more information on the collection, reuse and recycling systems, please contact your local or regional waste administration. You can also contact us for more information on the environmental performance of our products.

Display

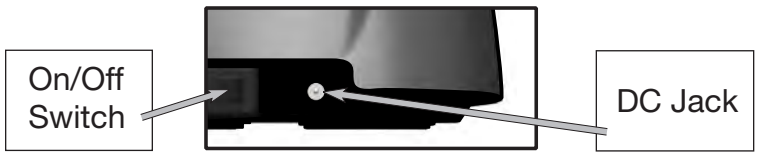


Display Status	
LID OPEN	- Lid is open
READY	- Unit ready to centrifuge
SPIN UP	- Cycle is starting and is increasing speed
SPINNING	- Running in Standard mode
SPIN DOWN	- Cycle is slowing down
STOPPED	- Cycle has stopped
COMPLETED	- Centrifuge cycle is finished
QUICK SPIN (flashes)	- Running in Quick Spin mode
ERROR	- An error has occurred (See error section)

Front Panel



Rear Panel



Operation

- Remove the contents from the package examining them carefully for breakage, defects or missing parts.
- Place the product on a sturdy, level surface away from the edge of the counter and other moving equipment. Make sure the AC power adapter and cords are clear of hot surfaces and other hazards.
- Make sure the product has ventilation and is not encased in any material that will limit airflow. An overheating situation could occur.
- Verify that the power switch in the back of the unit is in the OFF position. Plug the DC cord into the rear of the unit and the AC cord an approved outlet.

Prior to using:

- Turn power switch in the rear ON. The unit will initialize.
- Press the OPEN button. The lid should pop up slightly. Lift the front of the lid gently up and backward until approximately 90 degrees vertical.
- Remove any remaining packaging materials.
- Verify that the rotor is installed correctly. (see section Rotor Installation and Removal) Do not run without the rotor installed.
- Close the lid.
- Press the Start/Stop button (rotor should spin up to the preset speed). If there is a smooth whirring sound and the unit accelerates with little or no vibration, the mini-centrifuge is ready to use. If there are loud or unusual sounds, or excessive vibration, DO NOT OPERATE. Contact Heathrow Scientific® LLC Technical Support.
- At the set time, the rotor will spin down, stop and the unit will emit a beep when the cycle is complete.

General Operation:

1. Turn power switch in the back of the unit ON. The unit will initialize.
2. To open lid, press the OPEN button. The lid should pop up slightly. Lift the front of the lid gently up and backward until approximately 90 degrees vertical.
3. On benchtop, prepare samples tubes in a rack so that tubes are filled to equal levels. Close tube lids.
4. Install tubes in the rotor in a balanced manner (see section - Balancing the Rotor).
5. Set the appropriate time by pressing the time up/down button.
6. Set the appropriate RPM by pressing the speed up/down button.
7. Place the standard rotor cover on the rotor to limit noise and aspiration of liquids that may escape from tubes.
8. Close Lid and press down until locked (Display status should read “READY”).
9. Press Start/Stop (rotor should spin up to the user set speed).
10. At a determined time the rotor will spin down and stop at the preset time.
11. The unit will then emit a beep when the cycle is complete.
12. To open lid, press the OPEN button.

Quick Spin Operation:

1. Prepare the unit for centrifugation as in the General Operation (section above Steps 1-8).
2. Press Quick Spin button (rotor should spin up to the set speed).
3. The timer will begin counting.
4. Once enough time has elapsed for your needs, release the Quick Spin button. The rotor will spin down, stop and the unit will emit a beep when the cycle is complete.
5. To open lid, press the OPEN button.

Other:

Change Between RPM and RCF

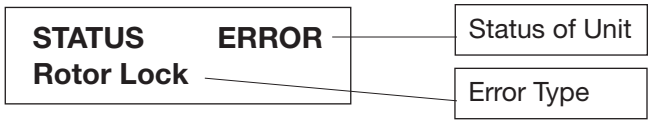
- Prior to a spin cycle, press both the Speed Up & Down buttons simultaneously.
- The speed setting will then convert to the other.

Quick Stop

- If for any reason you need to stop the cycle quickly, **press and hold** the Start/Stop button. The cycle will stop more rapidly than normal. **Caution:** The tube contents may be disturbed during the quick stop process.

Error:

- If an error happens, the unit will beep and the display will indicate the error.
- Press Start/Stop to clear the error from the display.



Error Status	Resolution
Motor Overload	— Something is interfering with the rotor. Clear the rotor and reset.
User Stop	— The operator has held down the Start/Stop and implemented a quick stop.
Balance	— Inspect the tubes for equal tube fill or improper placement. Once corrected, rerun. — If the balance error continues to happen, remove the tubes and determine if the balance error still persists with an empty rotor. — Inspect the rotor for improper installation.
Temperature	— The unit has exceeded the normal operating temperature. — Turn off the unit and allow to cool.
Excessive Tilt	— The unit has experienced a non-normal tilt event. — Make sure the unit is placed on a level surface. Once corrected, rerun
Lid Fail	— The lid has opened during the cycle. Check for proper operation of the lid lock mechanism. The lid should stay locked during the entire cycle.
Rotor Lock	— The unit has experienced a problem with the rotor. — Correct the rotor interference. Once corrected, rerun.

Trouble Shooting

Trouble	Resolution
No power present	— Verify that the AC adapter is fully plugged into the wall and rear of unit — Verify that the power switch is turned on
Unit or display is not operating normally	— Turn off the unit, wait 2 minutes, and turn power on
Excessive vibration Excessive noise	— Inspect the tubes for equal fill or improper placement — Inspect the rotor for improper installation — Remove the tubes and determine if the noise persists with an empty rotor
Lid will not close	— Verify that nothing is blocking the lid from fully closing — Verify that nothing has fallen into the lock mechanism opening
Lid will not open	— If for any reason you need to manually open the lid to access tubes due to an error or power loss, please perform the below — Turn off the unit, remove power cord — Make sure the rotor has stopped completely — Use a thin rod and insert it into the opening on the bottom — Press gently but firmly. You will feel a — mechanical movement within the unit and the lid will release. — Remove the rod, set the unit on the feet — Remove your tubes and reclose the lid

Warning!

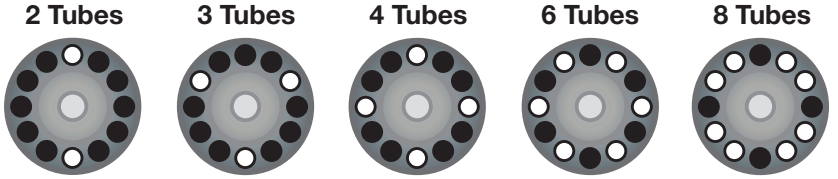
Spin balanced loads only!

Do not place the tubes asymmetrically nor load unequal volume tubes. Improper placement of tubes will lead to insufficient centrifugation and may cause serious injury or an accident.

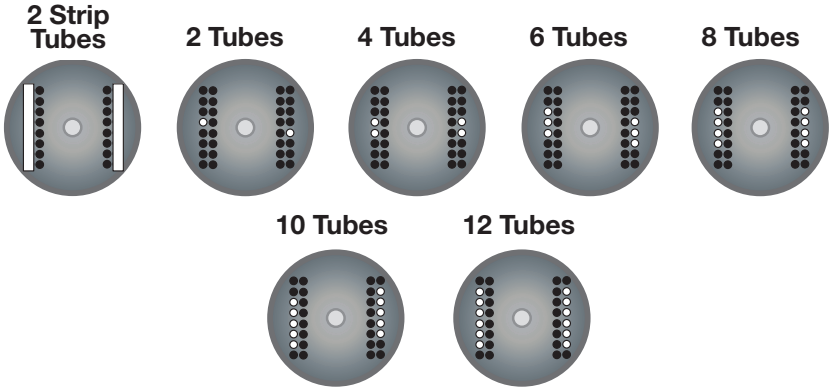
Balancing the Rotor

Tubes of equal weight and size should be placed opposite each other. Use additional sample or water in other tubes to provide a balanced rotor. Examples of proper sample balancing are illustrated next.

1.5mL / 2.0 mL Circular Rotor



0.2mL Tube Rotor



Warning!
Do not attempt to open lid until rotor has completely stopped!
Avoid severe personal injury or property damage from moving parts.
Only use rotor compatible with the centrifuge.

Rotor installation and removal

To remove rotor:

— With one hand, grasp the rotor. With the other hand, unscrew center knob counter clockwise until it disengages from the motor shaft.
— Pull up on the center knob firmly. The rotor should easily lift off of the motor drive.

To install the rotor:

— Check to make sure the bands on the rotor are in the slots.
— Set rotor onto the motor drive and push down until seated.
— With one hand, grasp the rotor. With the other hand, screw the center knob clockwise until it engages the motor shaft. Keep turning the knob until it tightens.
— Do not over tighten the knob.

Warning!
Do not use damaged or cracked rotors!

Maintenance

Your mini-centrifuge is normally maintenance-free. Clean unit only when it is not plugged into an electrical outlet. When necessary, the housing and rotor can be wiped using a damp cloth and a mild, non-corrosive detergent.

Warning!
Do not use any solvent on the unit that may attack plastic or cause cracks in the rotor. Ensure the rotor is protected from corrosion and mechanical damage. The rotor must be cleaned with a neutral cleaning liquid.
If hasardous sample is spilled on the unit and or leaked into the unit, do not run the centrifuge unless it is safe to do so.

Dissassembly of Rotors for Cleaning

1. Remove rotor from unit
2. Remove screws from the bottom of the rotor
3. Clean as needed
4. Reasssemble rotor, making sure that the alignment tab is engaged into the slot.
5. Test run reassembled EMPTY rotor to ensure it is still balanced

Notes

—Ensure all parts are throughly dry prior to operation.

Ordering Information

Mini-centrifuge with AC adapter, 2 rotors, rotor cover, and tube adapters.....HS10050
Standard Rotor.....HS100503
Strip Tube Rotor.....HS100504
Rotor Knob.....HS100505
Standard Rotor Cover.....HS100506

Return for Repair

Important:
Transporting hazardous materials without a permit is a violation of federal law.

Heathrow Scientific® LLC will not accept any product return that is not appropriately cleaned and decontaminated. In the unlikely event of repair, or when damage to the unit necessitates return, contact Heathrow Scientific® LLC and obtain return authorization **before** sending your product for service.

Warranty

IN NO EVENT WILL HEATHROW SCIENTIFIC® LLC'S OBLIGATION UNDER THIS WARRANTY EXCEED THE PRICE OF THE PRODUCT.

Limited Warranty
Heathrow Scientific® LLC warrants that your mini-centrifuge will be free from defects in workmanship and material for two years from the date of purchase.

If you believe that there is a defect in the product, you must, during the warranty period, notify Heathrow Scientific® LLC, provide proof of purchase, and return the product to Heathrow Scientific® LLC with a Return Authorization form. To obtain a Return Authorization form, please call 1-847-816-5070.
If Heathrow Scientific® LLC is properly notified and, after inspection, confirms that there is a defect and the warranty period has not expired, Heathrow Scientific® LLC will repair, modify, or replace the product, at its sole option, at no charge.

OTHER THAN THIS LIMITED WARRANTY, HEATHROW SCIENTIFIC® LLC MAKES NO WARRANTIES, EXPRESS OR IMPLIED, WITH RESPECT TO THE QUALITY OR PERFORMANCE OF THE PRODUCT, INCLUDING BUT NOT LIMITED TO THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR PARTICULAR PURPOSE WHICH ARE HEREBY DISCLAIMED AND EXCLUDED. HEATHROW SCIENTIFIC® LLC WILL IN NO EVENT BE LIABLE FOR ANY LOSS OF USE, LOSS OF PROFITS, CONSEQUENTIAL, SPECIAL, EXEMPLARY OR PUNITIVE DAMAGES.

THIS WARRANTY DOES NOT COVER:

- ANY DEFECT OR DAMAGE CAUSED BY IMPROPER OR UNREASONABLE USE OF THE PRODUCT. (THE MINI-CENTRIFUGE IS DESIGNED FOR USE ONLY BY TRAINED LABORATORY TECHNICIANS. USE BY ANYONE ELSE WILL VOID THIS WARRANTY.)

- ANY PRODUCT THAT HAS BEEN, IN HEATHROW SCIENTIFIC® LLC'S SOLE JUDGEMENT, TAMPERED WITH, ALTERED, OR REPAIRED BY ANYONE OTHER THAN HEATHROW SCIENTIFIC® LLC.

- ANY PRODUCT THAT IS INOPERATIVE BECAUSE OF: (a) WEAR OCCASIONED BY USE, (b) NEGLIGENCE, (c) ACCIDENT, (d) INCORRECT MAINTENANCE, OR (e) USE UNDER ABNORMAL CONDITIONS OF TEMPERATURE, DIRT OR CORROSION, OR USE WITH ABRASIVE OR CORROSIVE MATERIALS.

- ACCESSORY PARTS, SUCH AS RUBBER AND PLASTIC PARTS THAT ARE DAMAGED BY LIQUIDS OR MISUSE.