Hematocrit Centrifuge 12000 rpm

AHN myLab HC-01

Instruction Manual

CONTENTS

1. INTRODUCTION

This manual provides important safety information for this centrifuge. It should be kept near the centrifuge for quick & easy reference. This Centrifuge is equipped with a maintenance free drive, a large display & a simple interface for silent & efficient operation in the lab. This Hematocrit centrifuge can be comes with a host of safety features including imbalance detection.

2. INTENDED USE

Hematocrit Centrifuge is used for determination of volume fractions of erythrocytes (Red blood cells) in blood and also for separation of micro blood and solutions.

NOTE: *Before using the instrument, please read this user manual carefully. This user manual is intended to assist with the operation and care of the unit only and not its repair. For repair please contact the supplier.*

3. PRODUCT FEATURES

- Brushless DC motor for maintenance free long life
- Precise RPM setting from 500 to 12000 RPM with least count of 100 RPM
- Lid lock safety : Lid releases automatically after run completion
- Timer setting upto 12 minutes
- RPM & RCF toggles alternatively on the display during operation
- Large LCD display for easy setting and reading multiple parameters
- Small footprint saves valuable bench space

4. STANDARD ACCESSORIES

- Power Adaptor: Input Voltage: 110-230 V, 50/60 Hz
- Output Voltage: 24 V ⎓ 6.25 A
- 24 slot Capillary rotor (Pre-installed)
- Blood reader
- T - Allen wrench
- Product user manual and warranty card

5. TECHNICAL SPECIFICATIONS

Motor Type	Brushless DC Motor
Maximum Volume	24 x 45 / 75 mm (capillary tubes)
Speed Setting	12000 RPM
	14118 x g (Max RCF)
Speed Accuracy	± 100 RPM
Run Time	1 to 12 mins
Acceleration Time	60 ± 5 seconds

5. TECHNICAL SPECIFICATIONS

Braking Time	70 ± 5 seconds
Ambient Temperature	5 - 40 °C
Permissible Relative Moisture	<80%
Weight	4.3 kg Approx (with rotor)
Size (W x D x H)	330 X 265 X 161 mm
Input Power	24 V ⎓ 5.6 A
Power Consumption	132 W

6. SAFETY PRECAUTIONS

- Never use the centrifuge in any manner not specified in this manual.
- Using equipment in any manner not specified in this manual or by the manufacturer, will void the warranty.
- Never move the centrifuge while the rotor is spinning.
- The rotor and the rotor lid must always be securely fastened. If the centrifuge makes unusual noise during operation, the rotor or rotor lid fit needs to be checked. Switch OFF the device immediately by pressing STOP, check rotor fit & fasten it well.
- The rotors must be loaded symmetrically. Each tube should be counter balanced by another tube of the same weight.
- Do not use the centrifuge or rotor that have not been correctly installed or damaged.
- Repairs must only be performed by authorized service technician.
- Using incorrect rotors & wrong spare parts will void the warranty.
- Centrifuge may be used for the specified applications only. It must not be operated in a hazardous or flammable environment and must not be used to centrifuge explosive or highly reactive substances.
- If liquids are spilled on the rotor or rotor chamber, the centrifuge must be cleaned carefully and properly before being used again.
- Prior to centrifugation, the tubes should be visually inspected for material damage. Damaged tubes may not be centrifuged. This is because broken tubes can, in addition to sample loss, create imbalance which can result in further damage to the centrifuge and accessories.
- The capacity of 24 capillary tubes must not be exceeded as it is the maximum capacity.
- Do not lean on the equipment. It may damage the equipment or the harm the operator.
- When moving the centrifuge from a cold room to a normal room, run the centrifuge for 30 minutes beforehand in the cold room to avoid condensation. Alternately, allow it to warm up in the lab for at least 3 hours before use, but do not plug in the centrifuge in order to prevent possible damage by condensation.

6. SAFETY PRECAUTIONS

- Be sure to close the tubes lid tightly prior to centrifugation. Open tubes lid can be torn off during centrifugation and can damage the rotor lid or centrifuge.
- Rotors and rotor lids are high-graded components which are subject to extreme mechanical strain. Even slight scratches and tears can lead to serious internal material damage. Ensure to check the rotor for any signs of damage before use. Rotor & rotor lid showing visible signs of corrosion or mechanical damage should not be used, contact your local supplier or mfg for replacement rotor & parts.
- Do not fill tubes while they are in the rotor. Liquid spillage may harm the device.
- In the event of contamination caused by aggressive agents, the rotor must be cleaned immediately using a natural cleaning liquid (like water). This is particularly important for the bores of the tubes. If any damage is seen, contact the service technician.
- Before using cleaning or decontamination methods, other than those stipulate by the manufacturer, contact the manufacturer to ensure that the intended method will not damage the centrifuge.
- The power adaptor given with centrifuge unit is designed to use for that particular centrifuge. Do not use any other power adaptor, using any other power adaptor may damage the centrifuge and will void the warranty.

7. INSTALLATION

Open the box, then remove the packaging and gently take the centrifuge out of the box. Before using this centrifuge open the centrifuge & remove all packaging from the rotor chamber & ensure rotor is firmly tightened. The user manual and accessories should be kept near the centrifuge. Please keep all packaging in safe storage for atleast 2 years for warranty purpose.

MOUNTING

Place the centrifuge on a flat and leveled surface; ensure that the four feet of this centrifuge stand on the surface firmly. Avoid installing on a slippery surface or surface prone to vibration

1. Ideal ambient temperature is 20°C ± 5°C; avoid placing the centrifuge in direct sunlight.
2. Keep clearance of at least 10 cm on both sides and at least 30 cm behind it to guarantee cooling efficiency.
3. Keep away from heat or water to avoid sample temperature issues or centrifuge failures.
4. Do not place the centrifuge in any area where operating the unit maybe difficult..

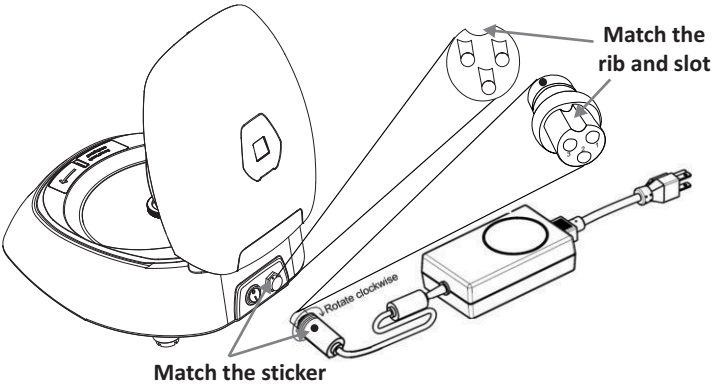
CONNECTING POWER ADAPTOR

1. Connect one side of power adaptor to rear side of centrifuge and other to supply as

7. INSTALLATION

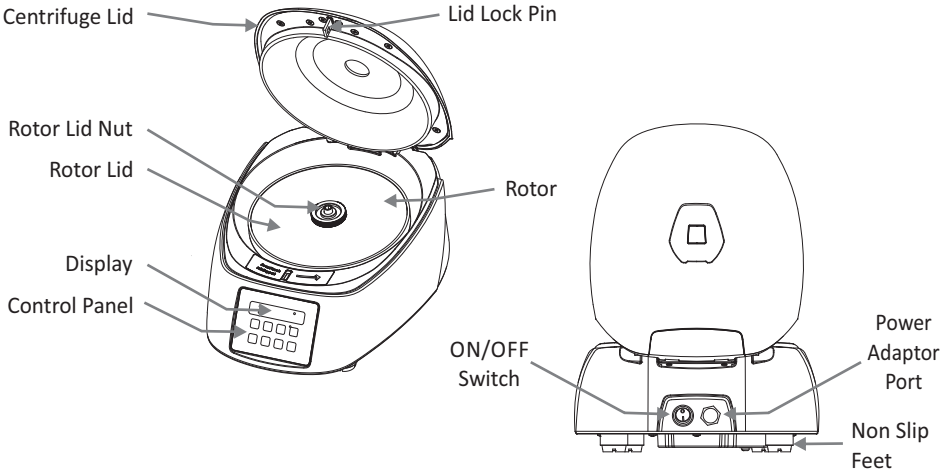
shown in the figure below.

2. Rotate clockwise the adaptor nut to tighten the adaptor with the centrifuge. Ensure the power switch is OFF while connecting the power adaptor.
3. The sticker on the body & jack are indicating the position of the rib on the jack. While fitting the adaptor to the unit-please match the sticker position as shown in the figure below & gently push it in.

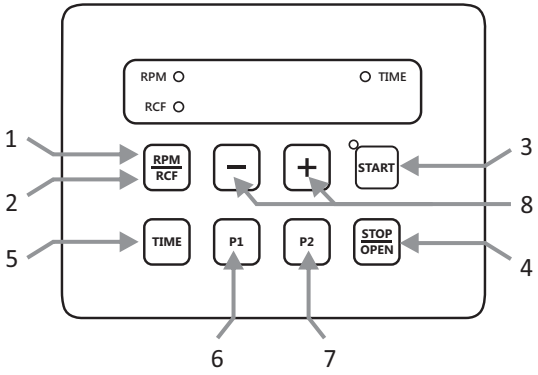


4. If matched correctly the plug will go in easily without much force (do not try to force the plug in if it is not matched properly). Once the plug is inserted into position, turn the loosened upper ring clockwise until it is tight to secure the fitment.

8. STANDARD PARTS LISTING



9. USER INTERFACE & DISPLAY



Item	Name	Function
1	RPM	Displays the RPM value during the operation
2	RCF	Displays the RCF value during operation
3	START BUTTON	Press button to START the centrifugation.
4	STOP/OPEN BUTTON	Press button to STOP the ongoing operation. Lid opens automatically, after rotor comes to a stop.
5	TIME BUTTON	Single press button to select TIME mode. Press “+” or “-” to increase or decrease the values
6	P1	To enter preset mode press “P1" long press to exit the mode
7	P2	To enter preset mode press “P2" long press to exit the mode
8	+/-	It is used to increase and decrease speed and time values

10. ROTOR INSTALLATION

ROTOR REMOVAL AND REPLACEMENT PROCESS

The rotor comes pre-installed with the centrifuge. If you want to remove or replace the rotor, follow the instructions below.

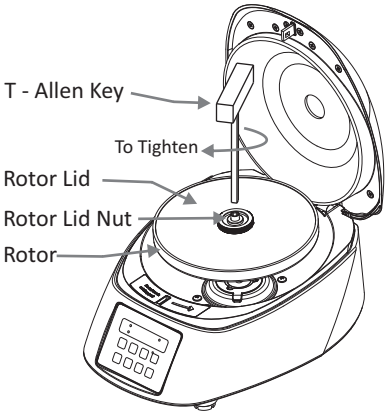
REMOVING THE ROTOR

1. Do not remove or loosen the rotor lid before attempting to remove the rotor.
2. Using the T - Allen Key, loosen the rotor nut by turning it counter clockwise. Do not try to pull the rotor, the rotor will come up automatically.
3. Once the rotor nut is loosen completely, pull up the rotor vertically.

10. ROTOR INSTALLATION

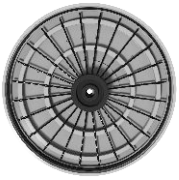
REPLACING THE ROTOR

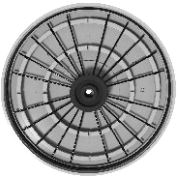
1. To replace or install the rotor, take the rotor and load vertically onto the motor shaft.
2. Place the rotor nut in the center hole of the rotor onto the motor shaft.
3. Put T -Allen Key into the rotor nut and turn clockwise to tighten and counter clockwise to loosen the rotor.
4. After properly fastening the rotor, place the rotor lid on the rotor lid nut by hand and rotate the rotor lid nut clockwise.



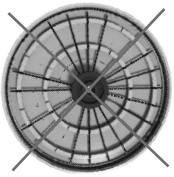
NOTE: *1) Check the rotor is firmly tightened before running the next program.*
2) Do not remove or loosen the rotor lid before removing the rotor.

BALANCING THE ROTOR



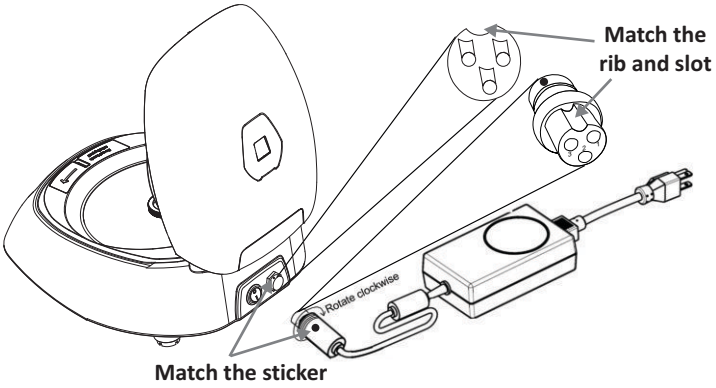


1. Always balance the rotor before centrifugation. Above are examples of properly balanced rotors.
2. The samples in the tubes should be of equal volume.
3. If the tubes are not loaded correctly - vibration or imbalance can occur which can cause serious damage to the centrifuge.
4. If the tubes are not loaded symmetrically then the imbalance detector will cut off the running centrifuge for device & user safety. This will stop the centrifuge and “Err 55" will be seen indicating tubes are not loaded symmetrically. To resume operation, load tubes symmetrically & restart the centrifuge.
5. Incorrect method of loading tubes in centrifuge rotor :



11. OPERATING THE CENTRIFUGE

After properly installing the centrifuge, switch ON the centrifuge from the rear side by pressing the power switch. The lid status will be seen in the display. If the lid is open, the display will show “Lid” and if it is closed, the set RPM will be displayed. Please ensure that the Tube Holders are inside the rotor.



10.1 SPEED SETTING

After closing the centrifuge lid, press “RPM/RCF” button to select speed setting in RPM/RCF mode. Speed display will blink for 5 seconds. Now press (+) button to increase the speed value and press (-) button to decrease the speed value. Minimum and Maximum RPM of the centrifuge is 500 rpm to 12000 rpm respectively. Blinking of RPM value will stop and the RPM value will be stored automatically if no button is pressed after around 1 seconds of the adjustment.

The speed can also be changed while the centrifuge is under operation. Press the “RPM/RCF” button & use setting (+) and (-) to change speed. Changing the speed between the ongoing centrifugation will run the centrifuge at updated speed for the rest of time as indicates by the timer. The speed can be selected in RCF value, too. Long Press “RPM/RCF” button to change the RCF setting. Press the (+) & (-) button to increase or decrease the value. Blinking of RCF value will stop and the RCF value will be stored automatically if no button is pressed after around 1 seconds of the adjustment. The value will blink 5 time to indicate acceptance.

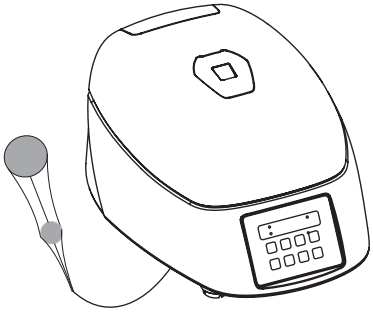
10.2 TIME SETTING

Operating time can be selected from 1 min to 12 min. Press “TIME” button to change the time setting. Press the (+) and (-) button to increase or decrease the value and after 5 time blink, the centrifuge timer set for run between 1min to 12 minutes. The timer in the centrifugeis displays time in “Min/Sec” mode.

The input will be accepted if we leave the setting for around 1 seconds. The value will blink 5 time to indicate acceptance.

11. OPERATING THE CENTRIFUGE

10.3 START & STOP OPERATION



Press “START” button to start operation and press “STOP” button to stop the ongoing operation. When the centrifuge is running LED light will be ON. Pressing the “STOP/OPEN” button will stop the operation. Once operation is over centrifuge lid will open automatically. If lid is not open press “STOP/OPEN” button to open the centrifuge lid.

NOTE: *In case of power failure once the rotor has stopped, pull out the emergency lid release as shown in the figure. This will open the centrifuge lid.*

10.4 PROGRAM MODE

Single press “P1” button to enter into program mode and press “RPM/RCF” Button to change in RPM/RCF in program mode and select to (+) and (-) button to change RPM/RCF value and press “TIME” button to change in time in program mode. Values for any parameter gets save after 5 blink. Once program is set, press “Start” button to start program.

Single press “P1” button to enter into only one program. and to use second program press “P2” button. On first time usage, all program will have zero (0) values and once the “P1” button is pressed display will appear indicating P1. To enter into normal mode long press “P1/P2” button.

12. MAINTENANCE & CLEANING

Before cleaning the centrifuge, be sure to switch off the device and disconnect the power cord.

OUTSIDE OF THE DEVICE

1. Clean the outside of the device with a soft and dry cloth.
2. Do not use aggressive chemicals on the device such as alcohol, benzene, acetone or phenol.
3. If the device is contaminated, use a 70% IPA to clean.
4. Make sure do not scratch the surface of equipment when cleaning it.
5. Do not use a metal sponge.

CHAMBER

1. If the rotor chamber is not dry, wipe moisture from the chamber with a dry cloth.
2. Clean the chamber, motor shaft at least once a week using a mild cleaning fluid.

12. MAINTENANCE & CLEANING

ROTOR

1. To prevent corrosion, take out the rotor from the rotor chamber.
2. If any sample is spilt inside the rotor, wash and dry the rotor well.
3. If it is a metal rotor you can autoclave it (121 °C for 15 min).
4. Do not autoclave non-metal rotor.
5. You can sterilise the T-Allen Key by wiping it with 70% IPA (isopropylaclohol).

13. TROUBLESHOOTING

This centrifuge has a self – diagnostic function. If a problem occurs, an error/warning code will be displayed on the display screen and the operator can determine the malfunction with the warning code below.

ERROR	PROBLEM	SOLUTION
No display	No main power connection	Power check & proper plug-in of main cable at both ends
	Power failure	Check the mains fuse of the lab
	Improper connection.	Connect adaptor properly.
Lid Open	Lid not closed correctly.	Close lid correctly.
	Error with lid closing and opening mechanism.	Contact service representative.
Err 55	Rotor not loaded symmetrically.	Load rotor symmetrically & restart centrifuge.
Centrifuge lid cannot be opened	Rotor is still spinning.	Wait for the rotor to come to a stop.
	Power failure	Press emergency lid release after rotor stops
Centrifuge shakes during acceleration & makes noise while	Rotor is not loaded symmetrically.	Load rotor symmetrically & restart operation
	Either a broken tube, damage to the rotor or motor is the cause for run noise.	Replace broken tubes. For damaged rotor/motor contact a service representative.
	Rotor is damaged.	Remove & change rotor

13. TROUBLESHOOTING

Err 1	Latch motor damaged, latch jammed or any limit switch of latch got damaged	Contact service representative
Err 52	Rotor is stuck	Turn OFF the centrifuge, Check the rotor for propare fit & turn ON centrifuge again.

IMPORTANT NOTE:

1. *Maintain a 3 second gap between restarting the centrifuge. Instant ON-OFF can lead to a reset, erasing last run memory.*
2. *If the motor gets hot due to which there will be a fluctuation in speed value then allow the centrifuge to cool for atleast 30 minutes. Do not do any operation for 30 minutes*
3. *Do not use liquids with density higher than 1.2g/ml for full load operation.*

14. WARRANTY STATEMENT

This product is warranted to be free from defects in material and workmanship for a period of two (2) years from date of purchase. Your product will be duly repaired upon prompt notification in compliance with the following conditions :

This warranty is valid only if the product is used for its intended purpose and within the guidelines specified in this instruction manual. This warranty does not cover damage caused by accident, neglect, misuse, improper service, natural forces or other causes not arising from defects in original material or workmanship. This warranty does not cover any incidental or consequential damages, commercial loss or any other damages from the use of this product.

The warranty is invalidated by any non-factory modification, which will immediately terminate all liabilities on us for the products or damages caused by its use. The customer shall be responsible for the product or use of products as well as any supervision required for safety. If requested the products must be returned to the distributor in well packed and insured manner and all shipping charges must be paid.

NOTE: *Some states do not allow limitation on the length of implied warranties or the exclusion or limitation of incidental or consequential damages. This warranty gives you specific legal rights. This warranty is given expressly in lieu of all other warranties, expressed or implied.*

The purchaser agrees that there is no warranty of merchantability or of fitness for any intended purpose and there are no other remedies or warranties, implied, which extend beyond the description on the face o the agreement. This warranty is only

14. WARRANTY STATEMENT

applicable to the original purchaser.

Products received without proper authorization will not be processed for warranty or service. All items returned for service should be sent with postage prepaid in the original packaging or other suitable packaging, padded to avoid damage. We will not be responsible for damage incurred by improper packaging.

NOTE: *This warranty is valid only if the warranty is registered with the supplier within 30 days from the date of purchase.*

For you reference, make a note of serial number, date of purchase and supplier here.	
Serial No.:	Purchase Date:
Supplier:	

15. PRODUCT DISPOSAL

In case the product is to be disposed of, the relevant legal regulations are to be observed.

Information on the disposal of electrical and electronic devices in the European Community

The disposal of electrical devices is regulated within the European Community by national regulations based on EU Directive 2012/19/EU on waste electrical and electronic equipment (WEEE). According to these regulations, any devices supplied after 13.06.05 in the business to business sphere, to which this product is assigned, may no longer be disposed off in municipal or domestic waste. They are marked with the following symbol to indicate this.

As disposal regulations within the EU may vary from country to country, please contact your supplier if necessary.

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