Clinical Centrifuge 4500 rpm

AHN myLab CLC-02

Instruction Manual

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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 maintenance free brushless DC motor drive and a safety feature of imbalance detection. The centrifuge can be used for multiple application diagnostics & will work with varity of blood collection tubes.

2. INTENDED USE

This is a bench top centrifuge which is designed to separate, sediment, spin down aqueous solutions & solvent suspensions of differing densities in compatible sample containers.

NOTE: *Before using the centrifuge, please read this user manual carefully. This usermanual is intended to assist with the operation and care of the unit & is not a document which aids in repair. For repair please contact the supplier.*

3. SYMBOL

⚠ Warning	Waste electrical

4. FEATURES

- Maximum volume of 4 x 50 ml
- Imbalance detector with auto cutoff for safe operation
- Brushless DC motor for maintenance free performance
- Lid lock safety-the lid opens automatically on run completion
- Digital display with speed and time indicator
- RPM setting from 500-4500 RPM with a count of 100
- Long press changeover from RPM to RCF functionality
- Digital countdown Timer
- Reduction adaptors for tubes with volume less than 15 ml
- Emergency lid release during power failure
- Automatic internal diagnosis & error display
- Silent operation programing option

5. TECHNICAL SPECIFICATION

Option to choose 8 tube rotor that comes with Autoclavable and Tube holders.

Motor Type	Brushless Motor
Maximum Volume	4 x 50 ml
Speed Setting	500 to 4500 RPM
Maximum RCF	2109 x g

5. TECHNICAL SPECIFICATION

Speed Accuracy	± 100 RPM
Speed Steps	± 100 RPM
Run time	1 to 99 mins & infinite mode
Noise Level	≤62 dB (A)
Ambient Temperature	5-40 °C
Permissible Relative Humidity	≤ 80%
Acceleration Time	≤ 40 seconds
Deceleration Time	≤ 40 seconds
Size (L x W x H)	330 x 265 x 161 mm
Weight	5.7 Kg (with rotor)
Altitude	Use upto an altitude of 2000 m above MSL
Pollution Degree	2
Environment	For indoor use only
Power Adapter Details	Input: 100-240 VAC, 50/60 Hz Output: 24V ⎓ 4A
Power Consumption	40 W

6. STANDARD ACCESSORIES

- Power adaptor
- 8 - slots rotor (Pre-installed)
- T-Allen Key
- 15 ml Reduction adaptors (set of 4)
- Product user manual & warranty card
- Reduction adaptor and spacer (set of 8)

7. INSTALLATION

Gently remove the upper packaging and take out the centrifuge by holding it from the bottom. When the centrifuge is used for the first time, ensure that all the packaging and accessories are removed from the rotor chamber. The rotor is pre-installed. Please make sure that rotor is firmly tightened. Accessories and user manual are kept inside the box with the centrifuge. Please keep all the packaging in safe storage for at least 2 years for warranty purpose.

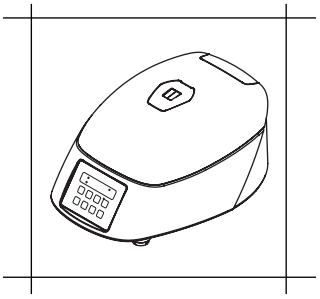
PRECAUTIONS

1. Make sure to install the centrifuge on flat stable surfaces, devoid of vibration.
2. Not to lean on or insert outside weight on centrifuge to be strictly followed.
3. Keep the installation area uncrowded, specially with potentially hazardous materials.

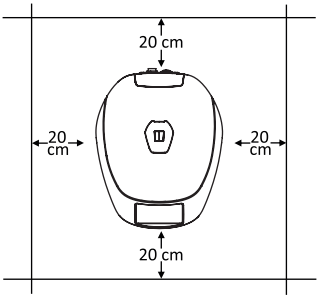
7. INSTALLATION

4. A single technician / lab personal should only be allowed near the centrifuge while its running.

The following points are important for proper installation:



Must be used on Flat
& Non - Slippery Surface



Must have Clearance of
20 cm from all 4 sides

7.1 MOUNTING

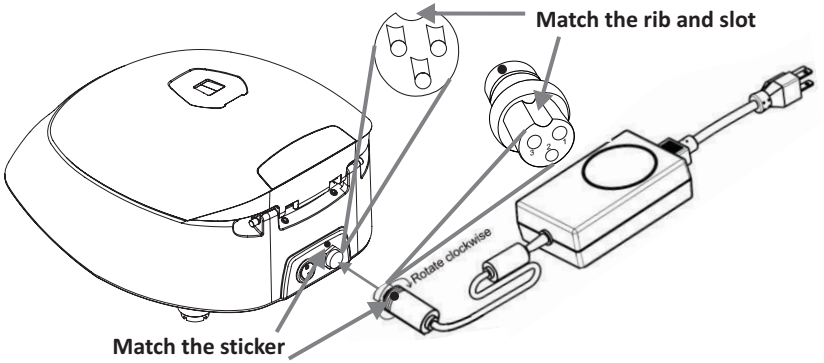
Place the centrifuge on a flat and leveled surface, ensure that the four feet of this centrifuge stand on the surface firmly. Avoid installing on a slippery surface or surface prone to vibration.

1. Ideal ambient temperature is 20°C ± 5°C, avoid placing the centrifuge in direct sunlight.
2. Keep clearance of at least 30-35 cm on both sides and at least 20 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.

7. INSTALLATION

7.2 CONNECTING POWER ADAPTOR

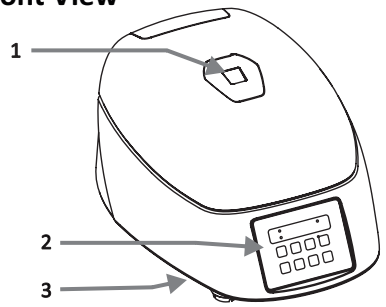
1. Connect one side of power adaptor to rear side of centrifuge and other to supply as shown in the figure below.
2. Rotate clockwise the adaptor nut to tighten the adaptor with the centrifuge. Ensure the power switch is OFF while connecting the power adaptor.
3. The sticker on the body & jack are indicating 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.



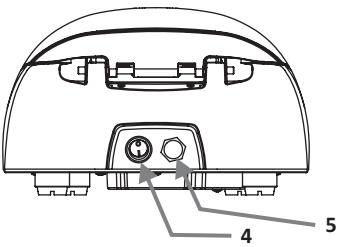
4. If matched correctly the plug will go in easily without much force (do not try to force the plug in if it is not matched properly). Once the plug is inserted into position, turn the loose upper ring clockwise to tighten & to secure the fitment.

8. STANDARD PARTS LISTING

Front View



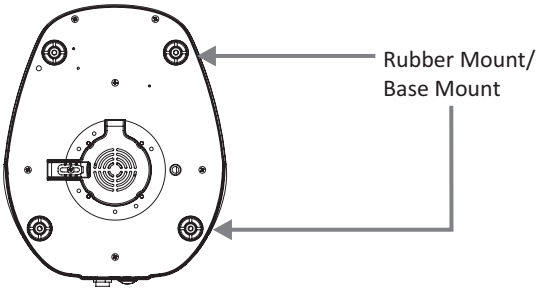
Rear View



8. STANDARD PARTS LISTING

1. View window
2. Operation and setting buttons & Display
3. Emergency lid release
4. Power switch
5. Adaptor port

Bottom View

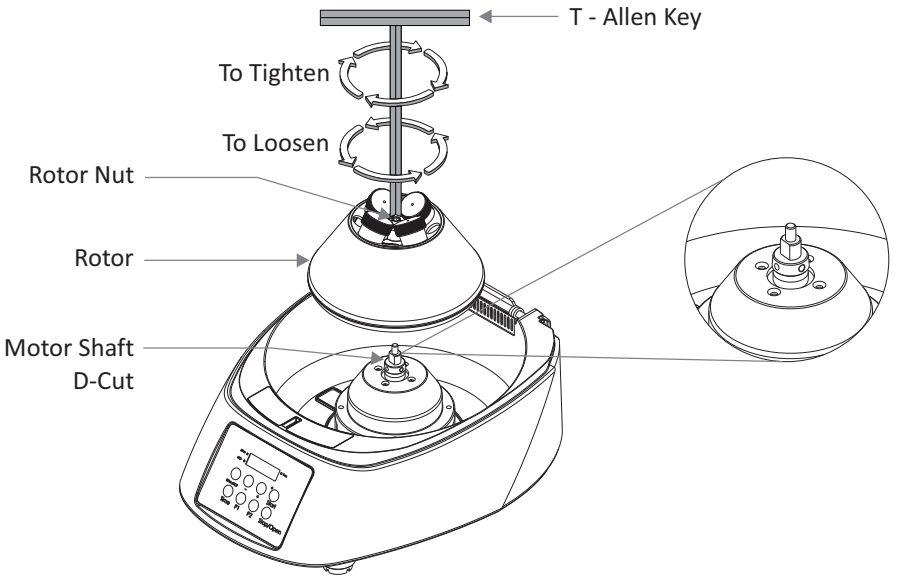


9. REDUCTION ADAPTORS

This centrifuge features centrifugation for wide range of volumes from 5ml to 50ml with the combination of its adaptors. The accessories included are:

Rotor Options						
			Standard Blood Collection Tubes			
Tube Capacity	**50 ml**	**15 ml**	**10 ml**	**7 ml**	**5 ml**	**2 ml**
Dimension (mm)	Ø29 x 115	Ø17 x 120	Ø16 x 100	Ø13 x 100	Ø12 x 75	Ø13 x 55
Rotor Radius (mm)	87.5	93	89	86.7	73	64
Speed (RPM)	4500	4500	4500	4500	4500	4500
Max. RCF	1985 x g	2109 x g	2019 x g	1966xg	1656 x g	1452 x g
Total no. of tube	4	8	8	8	8	8
Adaptor Required	No	No	Yes	Yes	Yes	Yes
D08SP1	No	No	No	No	Yes	Yes
D08SP2	No	No	No	Yes	No	No
D08SP3	No	No	No	No	No	Yes

10. ROTOR INSTALLATION



The rotor of the centrifuge is pre-installed. In case of any spillage, remove the rotor as shown in the above figure to clean the rotor and its chamber thoroughly.

10.1 REMOVING ROTOR

1. To remove rotor, first remove the Tube Holders.
2. Using T-Allen key, loosen the rotor nut by rotating rotor nut counter clockwise and take the out rotor vertically.

10.2 INSTALLING THE ROTOR

1. Make sure the rotor shaft and the rotor mounting hole are clean. Load the rotor vertically into the motor shaft.
2. Align the D-Cut motor shaft & rotor.
3. Put the T-Allen key in the rotor nut & turn clockwise to tighten the rotor.
4. After properly fastening the rotor, place the Tube Holders into the rotor.

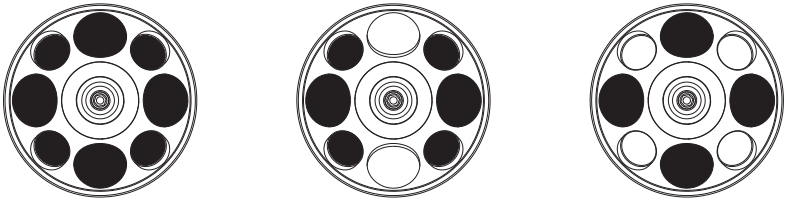
NOTE: *Care should be taken to open lid of centrifuge via the function button only, do not use external pressure to pull it open. In case of lid getting jammed please use emergency lid release.*

11. BALANCING THE ROTOR

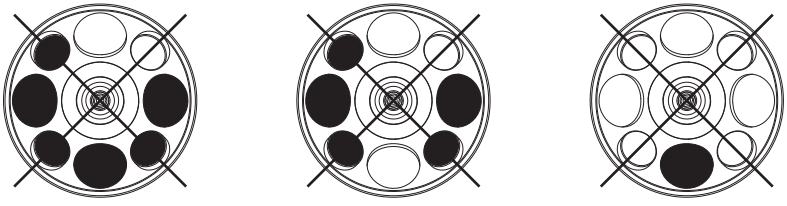
1. Always balance the rotor before centrifugation Symmetrical loading of tubes in the rotor is necessary. Otherwise vibration or imbalance can occur which can

11. BALANCING THE ROTOR

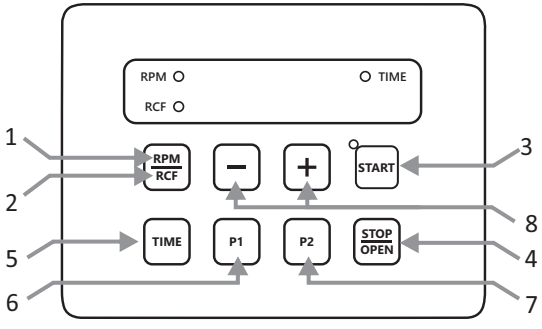
cause serious damage to the centrifuge. The following are process of symmetrical loading of centrifuge tubes inside the rotor.



2. The samples in the tubes should be of equal volume. To achieve a balanced condition of the 8 reduction adaptor are mandatory to place inside the rotor whether 2, 3, 4 or 6 / 8 tubes are being used.
3. If the tubes are not loaded symmetrically then the imbalance detector will cut off the running centrifuge for safety reasons. This will stop the centrifuge and Err 55 will be seen indicating the tubes are not loaded symmetrically. To resume operation, load the tubes symmetrically & restart the centrifuge.
4. Below are examples of incorrect method of loading tubes into the centrifuge rotor.



12. USER INTERFACE & DISPLAY

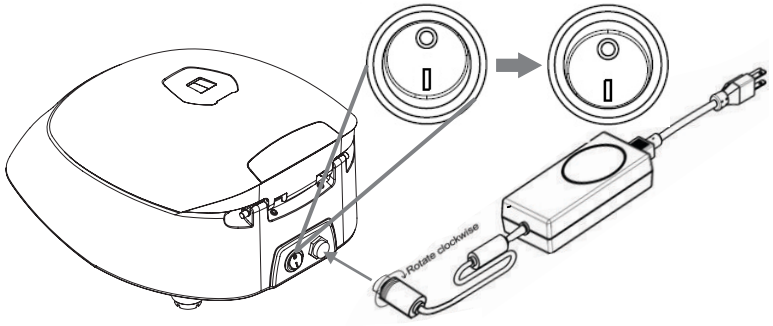


12. USER INTERFACE & DISPLAY

Item	Name	Function
1	RPM	Press this button to select RPM value. Then Press “+/-” to set RPM value.
2	RCF	Long press “RPM/RCF” to toggle between RPM/RCF value. Select the RCF value to be set for centrifugation.
3	START	Single press “START” button centrifuge will start as per set RPM and TIME. START button works only if lid is closed.
4	STOP/OPEN	Single press “STOP/OPEN” button will stop centrifuge. Centrifuge lid will open automatically after end of centrifugation.
5	TIME	Press this button to select Time value. Then Press “+/-” to set Time value.
6	P1	Single press “P1" button to set program mode.
7	P2	Single press “P2" button to set program mode.
8	+/-	“+” is used to increase and “-” is used to decrease values.

13. OPERATION

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.



13. OPERATION

13.1 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 4500 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.

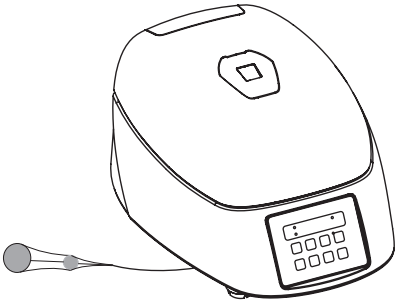
The speed can also be changed while the centrifuge is under operation. Press the “RPM/RCF” button & use setting (+) and (-) to change speed. Changing the speed between the ongoing centrifugation will run the centrifuge at updated speed for the rest of time as indicates by the timer. The speed can be 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.

13.2 TIME SETTING

Operating time can be selected from 1 min to 99 min or “continuous”. Press “TIME” button to change the time setting. Press the (+) and (-) button to increase or decrease the value. and after 5 time blink of the set value. The centrifuge timer set for run between 1min to 99 minutes or operated in infinite time mode or roll over mode. Infinite timer will be indicated by][:][in display. The timer in the centrifugeis countdown timer in the display will be in “Min/Sec” mode. Time will showed on after 5 sec. Time indicate on Time LED light.

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

13.3 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.

13. OPERATION

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.*

13.4 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.

14. SAFETY PRECAUTION

Read all safety & usage information provided in this manual carefully before using the device.

1. Never use the centrifuge in any manner not specified in the manual.
2. Never move the centrifuge while it's operating.
3. The rotor must always be securely fastened. If the centrifuge makes an unusual noise during the operation, the rotor fit needs to be checked.
4. The rotor must be loaded symmetrically.
5. Do not use the centrifuge or rotor, if it is not installed correctly or it is damaged.
6. Do not use the centrifuge or rotor if it shows any sign of external mechanical or electrical damages.
7. The centrifuge must be used only for the specified application. It must not be operated in hazardous or flammable environment & no hazardous or flammable content should be centrifuged.
8. Do not fill tubes while they are in the rotor. Liquid spillage may harm the device.
9. If liquid is spilled on the rotor or rotor chamber, the centrifuge must be cleaned immediately.

15. MAINTENANCE & CLEANING

Before cleaning the centrifuge, turn it off device and disconnect the power cord.

OUTSIDE OF THE DEVICE

1. Clean the outside of the centrifuge with a soft and dry cloth.
2. Do not use aggressive chemicals such as alcohol, benzene, acetone or phenol.

15. MAINTENANCE & CLEANING

3. If the device is contaminated, use a 70% IPA solution to decontaminate it.
4. Be careful to not scratch the surface of equipment when cleaning it.
5. Do not use a metal sponge.
6. The brushless motor in the centrifuge requires no routine maintenance. Any required service should be performed by authorized, qualified personnel only. Repairs performed by unauthorized personnel may void the warranty. Protective bonding continuity would be checked by authorised service person only.

INTERIOR OF THE DEVICE (CHAMBER)

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

SAFE GUARDS FOR THE OPERATOR

1. The operator has to wear standard PPE during the cleaning process.
2. Ensure proper seal proof gloves are worn while cleaning the interior surface of centrifuge.

16. 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	Check power & properly plugin power adaptor at both ends
	Power failure	Check the main fuse
	Improper connection	Connect adaptor properly
Error 1	Latch jammed or any limit switch of latch got damaged	Contact service representative
Error 52	Rotor stuck or incorrect operating voltage	Turn off the centrifuge, check rotor fitment or apply correct 230 VAC ± 10VAC operating voltage. Restart unit
Error 55	Rotor not loaded symmetrically	Load rotor symmetrically & restart centrifuge. restart unit

16. TROUBLESHOOTING

Centrifuge lid cannot be opened	Rotor is still spinning	Wait for the rotor to come to a stop
	Power Failure	Emergency lid release after rotor stop
Centrifuge shakes during acceleration & exceptional running noise	Rotor not loaded symmetrically	Load rotor symmetrically & restart operation
	Either a broken tube, damage to the rotor or motor is cause for run noise	Replace broken tube. For damaged rotor/motor contact service representative
	Rotor damaged	Remove & change rotor
Display Error	Loose connection of display	Contact service representative
Power tripping	Cable not fit properly	Remove cable and connect properly

IMPORTANT NOTE:

1. *If the centrifuge is working slow or hot due to overdraw current, restart the centrifuge and check it again.*
2. *Do not use liquid with density higher than 1.2g/ml for full load operation.*

17. 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 buyer and its 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

17. WARRANTY STATEMENT

distributor in well packed and insured manner and all shipping charges must be paid.

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 that there are no other remedies or warranties, expressed or implied, which extend beyond the description on the face of the agreement. This warranty is only applicable to the original purchaser.

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

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:	

18. 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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0148-97-0000-02-003-R1