Centrifuge

R-5D

Operation and Maintenance Manual

Translations of the original instructions



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1. Safety informations

Definitions of warning words and symbols

The safety information in this manual is very important to avoid personal injury, damage to the machine, accessories, malfunctions or incorrect results due to non-compliance. Please read this manual carefully in its entirety and make sure you familiarize yourself with the centrifuge before you start working with it.
This manual must be kept near the device in an easily accessible place, so that the operator can refer to it if necessary.
Always enclose the instruction manual when transferring the device to a third party.
Safety instructions are indicated by warning terms or symbols.

- **Signal terms:**

ATTENTION For a medium-risk hazardous situation, which could lead to serious injury or death if not avoided.

ATTENTION For a hazardous situation with reduced risk which, if not avoided, may result in material damage, loss of data or minor or moderate injury.

WARNING For important product information.

NOTE **F**or useful product information.

- **Warning symbols:**



ATTENTION
This symbol indicates a potential risk and warns you to proceed with caution.



ATTENTION
This symbol draws attention to a possible danger **from electric current.**



ATTENTION
This symbol draws attention to a possible danger of **explosion**.



ATTENTION
This symbol draws attention to possible damage to health due to **infectious liquids and pathogenic germs.**



ATTENTION
The instrument must be used according to the instructions in the reference manual. Read the instructions carefully.



WARNING
This symbol draws attention to possible damage to instruments or instrument parts.



NOTE
This symbol highlights additional information and suggestions.



ATTENTION
This symbol highlights a general prohibition.



- **Fundamental requirements for safe use**

The proper functioning of the centrifuge and the safety of the operator are only guaranteed if all the following points are respected:

- The centrifuge may only be used for the purposes for which it was built and only in accordance with the specifications mentioned in this manual. Any other use may lead to damage, contamination and injury with serious consequences.
- The centrifuge must only operate under the environmental conditions described in this manual.
- Normal use of the centrifuge may require handling of biological and hazardous materials. Use aerosol-tight closure systems and wear personal protective equipment when centrifuging such substances. Users and maintenance personnel must have specific professional requirements for each substance they use; they must be trained to operate safely.
- Maintain a space of at least 30 cm around the centrifuge.
- The mains plug must always be freely accessible. Pull out the power plug or disconnect the power supply in an emergency.
- The centrifuge may only be connected to properly earthed sockets using the power cable supplied.
- Check that the mains and power frequency match the values indicated on the instrument's identification label.
- The centrifuge may only be used with the rotors and accessories supplied. If you need to replace them or purchase any, please contact your local distributor.
- The load must always be balanced and symmetrically distributed in the rotor housings.
- The machine must not be dismantled and opened by the user for any reason. Only perform this operation if explicitly authorized by the manufacturer.



- **Unauthorized use**

The centrifuge must not be operated if:

- It is visibly damaged (e.g. due to transport).
- It has been stored for a long period of time under adverse conditions (exposure to direct light, heat sources or places saturated with gas or vapours) or in environments with different conditions from those mentioned in this manual.
- For structural reasons and because of the environmental conditions, this centrifuge is not suitable for use in a potentially explosive atmosphere or in an environment where explosive substances are handled.
- Do not handle explosive, highly reactive substances or substances that may contribute to a potentially explosive atmosphere with this centrifuge.
- The centrifuge must therefore only be used in a safe environment, such as, for example, the open environment of a properly ventilated laboratory or an extractor hood. The final risk assessment of the use of such substances is the responsibility of the user of the device.



- **Responsibility of the instrument owner**

The person who owns and uses the centrifuge or authorizes its use by others is the owner of the machine and as such is responsible for the safety of all users of the machine and third parties. The owner of the machine must inform users of its safe use at their place of work and manage potential risks and provide the required protective equipment.
When using chemicals or solvents, follow the manufacturer's safety data sheets.

In the following cases, the protection provided for the centrifuge may be impaired. Liability for personal injury and damage to property falls on the user if:

- The centrifuge is not used in accordance with the operating instructions.
- The centrifuge is used outside the field of application described in this manual.
- The centrifuge is used with accessories or consumables not recommended by the supplier.
- The centrifuge was serviced and repaired by a person not authorized by the supplier.
- The user makes unauthorized modifications to the device.

2. General Warnings

	Only authorized personnel may operate this centrifuge. The user must read and understand the instructions before using this machine. In the event of a malfunction, contact the supplier.
	This centrifuge must not be placed inside another unit or connected electrically or mechanically to another unit. Only the rotors and accessories supplied with this centrifuge and by this manufacturer may be used with this machine. Check these for damage before each use. The rotors and accessories of this centrifuge must not be used on centrifuges of other brands and vice versa.
	Do not place flammable samples, chemicals with exothermic properties, explosive or highly reactive substances for centrifugation inside this centrifuge.
	No person other than those authorized by the manufacturer is permitted to make changes to the centrifuge after it has been shipped from the factory.
	In the event of any damage to the unit or if there are strange noises or anomalies, stop using this centrifuge and immediately report the fault to your supplier.
	In the event of liquid spills, disconnect the device from the power supply and thoroughly clean the centrifuge and accessories according to the cleaning and disinfection instructions in the operating instructions.
	Never attempt to override safety systems and/or work with the centrifuge lid open.
	Take special care when using double-tube tubes with a filter inside, when the porosity of the filter is not similar in the tubes: this could create an imbalance in the rotor at high speeds and subsequently cause damage to the machine.
	When opening and closing the centrifuge lid, do not grasp the part between the lid and the centrifuge, do not insert your fingers into the centrifuge latch and do not grasp the lid locking mechanism, this could cause physical damage.
	Ensure that the centrifuge lid can be opened fully and remains in the fully open-end position.
	In the event of an emergency lid release, the rotor can continue to turn for a few more minutes. Check through the lid peephole that the rotor has stopped before working on the 'emergency release'.
	When changing the rotor, the power supply must be disconnected. This must be done by qualified personnel.
	Test tubes must always be weighed with the cap on and complete with contents.
	Place test tubes symmetrically before starting centrifugation. Only use metal buckets suitable for the type of rotor used and tubes suitable for the adapters used. Only use tubes that have been approved by the manufacturer with the desired g-values (rcf). Do not use fragile or deformed tubes.
	The centrifuge is designed for centrifuging substances with a maximum density of 1.2 g/ml, at maximum speed and maximum filling volume/load. Do not exceed the maximum rotor load.
	Never use cleaning chemicals or detergents that may be corrosive in nature. This could cause damage to the centrifuge. Use a dry cloth to clean the inside of the chamber.

	The interior of the chamber must be cleaned and checked regularly for contamination.

- **Biological safety**

During operation, the centrifuge can generate particles suspended in the air. Since the R-5D model is not refrigerated centrifuge therefore they do not have a completely sealed chamber. This type of ventilated centrifuge helps to reduce the excess heat created by the friction of the rotor with air in the internal chamber. To minimize the risks of aerosols coming into direct contact with the person, always use tubes with biosafe lids. Glass tubes, if used, should not be filled to the top to avoid spilling of liquid. Also, since the lid on the top has a gasket, you must make sure that this gasket is not damaged. As it prevents direct exposure of the user with the sample. It is also advisable to open the centrifuge lid 3 minutes after the centrifuge has stopped. This will give the particles time to disperse into air. Bioseals (biological seal) is a part of biological safety systems, which are unable to guarantee the safety of people and the environment when handling pathogenic microorganisms or infectious liquids. When working with pathogenic organisms or infectious liquids of a high-risk group, more than one aerosol-tight seal must be provided. If liquids are spilled into the chamber or into the rotor housing, the centrifuge must be thoroughly and entirely cleaned by specialized personnel. In case of contact with infectious liquids and pathogenic germs, comply with national regulations, the biological safety level of your laboratory, the safety data sheets and the manufacturers' instructions for use. Wear personal protective equipment's



- **Safety and/or protection devices**
  - Safety lid interlock to prevent the lid from being opened during centrifugation.
  - Unbalance detection and centrifugation stop with error display.
  - Emergency unlocking of the lid.

See descriptions in rest of the manual.



- **Intended use**

Centrifuges are widely used in auxiliary laboratories, hospitals, industry, research institutes, medical and pharmaceutical laboratories. They are also suitable for determining the settling of paints, cosmetics and food products. This centrifuge is exclusively designed to accelerate the separation between substances having different densities by using centrifugal force or, more precisely, centrifugal acceleration.

ATTENTION:
Only qualified technical personnel in the above-mentioned areas of destination can use the product described in this manual. Any use not expressly described above and within this manual, such as for products other than those specified, in environmental conditions other than those specified, with accessories other than those specified, is to be considered prohibited use.

3. CE marking data

REMI
Estd : 1960

DECLARATION OF CONFORMITY UE

In accordance with Annex II A - Directive 2006/42/CE
Annex IV - EMC Directive
and Annex VI - Directive 2011/65/UE (RoHS)

CE

DECLARATION OF CONFORMITY

Manufacturer's Name : **REMI ELEKTROTECHNIK LTD,**
Manufacturer's Address : Building "B", Survey No 65/1, Village – Valiv ,
Vasai (East), Dist. Palghar – 401208, India
Tel +91 8446013183
Email: sales@remilabworld.com

Authorised Representative: Giorgio Bormac S.r.l – Via della Meccanica, 25 41012 Carpi (MO)-ITALY
Product Description : Bench Top Centrifuges

This declaration of conformity is issued under the sole responsibility of the manufacturer.

OBJECT OF THE DECLARATION

Product description	BENCH TOP CENTRIFUGES
Model:	R5D
Serial Number:	ZKGN-26755 to ZKGN-26784
Product options:	This declaration covers all options of the above products

THE OBJECT OF THE DECLARATION DESCRIBED ABOVE IS IN CONFORMITY WITH THE RELEVANT UNION HARMONIZATION LEGISLATION:

2014/35/EU
2014/30/EU
2015/863
2006/42/EC

REFERENCES TO THE RELEVANT HARMONISED STANDARDS USED, INCLUDING THE DATE OF THE STANDARD, OR REFERENCES TO THE OTHER TECHNICAL SPECIFICATIONS, INCLUDING THE DATE OF THE SPECIFICATION, IN RELATION TO WHICH CONFORMITY IS DECLARED:

IEC 61010-1:2010+A1:2016
IEC 61010-2-020:2016
IEC 61326-1:2012
IEC 61010-2-120:2016

NAME AND ADDRESS OF THE PERSON AUTHORISED TO COMPILE THE TECHNICAL FILE
Giorgio Bormac S.r.l. - Via della Meccanica, 25 41012 Carpi (MO) - ITALY

Signed for and on behalf of: Mr. Bhavin Das, Head QA of REMI ELEKTROTECHNIK LTD

Place: Vasai,India **17.08.2024**

SIGNATURE_____

REMI ELEKTROTECHNIK LTD	Building "B", Survey No 65/1,Village –Valiv, Vasai (East),Dist.Palghar – 401208, India	Pag. 1 di 1

4. Guarantee

Thank you for purchasing a centrifuge NEYA. In normal use conditions, the instrument is guaranteed for a period of 24 months from the date of purchase. The warranty is valid only if the product is original. It does not apply to any product or parts of it that have been damaged due to incorrect installation, improper connections, improper use, accident or abnormal conditions of operation. The manufacturer declines all responsibility for damage caused by failure to follow instructions, lack of maintenance and any unauthorized modification.

5. Unpacking the centrifuge



Open the outer packaging of the centrifuge and remove all contents.
Lift the centrifuge out of the package by holding it from the bottom and taking care not to handle it by the plastic front, but by picking it up by the metal part.
Place the centrifuge on the workbench as described at paragraph "First installation".
Place all internal parts of the packaging inside the outer box and carefully store the entire centrifuge packaging.



Note: *If the centrifuge is to be sent for service, the user is obliged to pack it in its original packaging to send it to the repair service. In case is not present, pack it adequately to avoid damages and cope with transport.*
Any damage caused by inappropriate packaging will not be covered by warranty.

- **Package contents**

The centrifuge will be delivered complete with the following parts:

- N°. 1 wrench for fixing the rotor
- An Allen key for emergency opening
- N°. 1 power cable
- N°. 1 user manual

- **First use**



- ***Preliminary Operations***

The instrument must be installed under the following conditions:

- Dry, clean and stable worktable with a flat horizontal surface.
- Minimum space of at least 30 cm around the instrument in relation to other devices, to walls and well-ventilated location.
- Ambient temperature between 20 °C and 30 °C and relative humidity not exceeding 80 %.
- Grounded power socket.
- Power supply 220-240 V - 50 Hz with a current carrying capacity of at least 5 A.
- The location of the device is not exposed to direct sunlight.
- Do not place the centrifuge near sources of strong electromagnetic radiation.

- ***Instrument parts***



6. Technical Specifications

Table 1

Features	**R-5D**
Maximum capacity	12 x 15 ml
Maximum RPM	5250 rpm
Maximum RCF	4280 x g
RPM setting	Yes
Timer	From 1 to 99 minutes or continuously
Display	LED
Control	Microprocessor-based
Noise	53 db
External dimensions W x D x H (mm)/ Weight (kg)	320 x 440 x 290
Room access height	25 cm
Power Supply / Consumption	220-240 Volt, 50 Hz, 250 W

- **Special Features**
    - Brushless induction motor
    - Speed control via VFD
    - Microprocessor controller
    - Soft and smooth start
    - LED display
    - Lid lock
    - Dynamic brake
    - Unbalance detection
    - Emergency lid opening
    - Timer up to 99 minutes
    - Calling up the last parameter
    - Calibration window

7. Dis



The picture above shows the front panel of the R-5D display. It consists of two 7-segment displays, 2 LEDs and 5 buttons.

- **RPM display:**
  This is a 4-digit display showing the actual number of rpm in Run mode (spinning) and the set number of rpm in normal mode.

- **Timer:**
  This is a 2-digit display showing the set time in normal mode and the timer countdown in Run mode.

- **LED:**
    - **Motor LED:** This is a double LED that is RED in normal mode and turns GREEN when the motor starts (START / STOP).

- **DC brake** LED: This is a double LED that lights up GREEN when the DC brake function is used, otherwise it remains RED.

- **Modes of operation:**
  - When switched on, the device is in normal mode, the motor is stopped and the user can change the settings for a given operation.
  - The setting procedure is quite simple and consists of setting only 2 parameters for the centrifugation process.
  - The different operating modes are: NORMAL mode, SET-UP mode and CENTRIFUGATION mode.

- **Normal mode:**
  - In this mode, all the parameters listed below are displayed simultaneously and the device is ready to enter one of the other two modes.
  - The SET button switches the device to SET-UP mode.
  - The START button starts the CENTRIFUGATION process.
  - The BRAKE button is used to activate/deactivate the status of the brake function.

Normal mode is identified by the continuous flashing of both double LEDs.

- **Setting modes:**
  - By pressing the SET button, the device switches to setting mode. The RPM display starts flashing and the user can set the RPM value with the INC or DEC button. After bringing the RPM to the desired value, press the SET button to set the value.
  - As soon as the SET button is pressed, the RPM field stops flashing and the timer starts flashing. The user can now set the desired TIME as above.
  - Pressing the SET button now switches the device to NORMAL mode.

- **Configuration modes:**
  - In NORMAL mode, pressing the START button starts centrifugation.
  - The STOP button can be used to interrupt the process and return to normal mode.
  - The braking function can be activated with the help of the respective button.
  - The decimal point on the TIMER display flashes to indicate that the countdown is in progress.

***Note*:** No parameters (except brake) may be set during the Centrifugation mode.

Parameters:
The following list of parameters is available for display and setting in 'Normal Mode'.

- **RPM:**
  - Set the 'speed' at which the centrifugation process is to be performed.
  - Adjustable between 50 and 5300 in steps of 10.

- **Time:**
  - Sets the time for which the process is to be executed.
  - Adjustable between 0 and 99 minutes
  - A '0' indicates infinite time. It means that the process can only be interrupted with a stop command.

Key functions:
The keys for operating the instrument are as follows:

- **Start/Stop button** 
  - In 'normal mode', pressing the button switches the device to 'CENTRIFUGATION mode'.
  - In 'Centrifugation' mode, the button is used to stop the process and return to normal mode.
  - The button has no function in 'Set-up' mode.

- **SETUP button** 

- Pressing the button in 'Normal Mode' switches the device to 'Setting Mode' and sets the parameter values in 'Setting Mode'.
- The key plays no role during the process (centrifugation).
- It is used to recognise the device when a fault condition occurs.

- **BRAKE button**
  - The button is used to switch the DC brake function to 'normal' or 'centrifugal' mode.
  - It plays no role when the device is in 'Setting' mode.

- **Increment key**
  - The key is used to increase the value of the parameter to be set in 'Setting Mode'.
  - It plays no role when the device is in 'Normal' or 'Centrifugation' mode.

- **Decrease button**
  - The key is used to decrease the value of the parameter to be set in 'Set-up' mode.
  - It plays no role when the device is in 'Normal' or 'Centrifugation' mode.

8. Operation

• Preparing the initial centrifugation

- Once removed from the packaging box, the R-5D must be placed on a suitable surface.
- Connect the power adapter pin to the unit before connecting it to the power source. Once the power adapter is connected to both sides, turn on the main switch and the switch.
- Open the door.
- Place the rotor to be used on the shaft, turn it by hand and check that rotation is free and smooth.
- If the rotor does not turn freely, contact technical support.
- Tighten the rotor.
- Place the accessories and the tubes on the rotor and check that they are correctly seated and balanced.
- Close the door properly. The spin cycle will not start if the door is not closed.

• Opening the lid

In order to open the lid of the centrifuge, it must be powered and no operating cycle is in progress. Operate the lid-opening lever located above the door and lift.

ATTENTION:

The centrifuge has a safety-opening system even in the event of a power failure. For safety reasons, it is strongly recommended to open the machine in these conditions only if strictly necessary.

In this case, the instructions on the safety label covering the emergency opening hole must absolutely be observed (see Figure 1.)

In case of emergency opening, wait at least 15 minutes before opening the lid. Warranty and safety regulations are not guaranteed if this label is broken.	

Figure 1 - Security label

After waiting at least 15 minutes from the time when the power failed, visually check that the rotor is stopped through the peephole on the centrifuge lid.

Using the supplied small Allen key or alternatively a small screwdriver, pierce the safety label and pry to the right. Simultaneously operate the opening handle and lift the lid.

Warning:

As specified on the safety label, the centrifuge warranty and safety regulations are not guaranteed if the label itself is not intact. The label is of the non-removable and non-modifiable type so, if the operator must open the lid in the absence of electrical power, please contact the technical service department to specify what has happened and restore the safety label.

- **Loading and balancing the rotor**

Check the integrity of the rotor and accessories before using them. If not maintained and cleaned for long periods, the rotor can corrode due to contact with chemicals. Improper actions, such as dropping it, can cause damage and create an imbalance in the rotor. Each metal bucket is supplied with a rubber cushion that keeps the tubes aligned and prevents the tubes from breaking due to high speed. Damage to or dislocation of these rubber cushion can create an imbalance in the rotor during operation. Clean the rotor and tubes before use.

The R-5D centrifuge is supplied complete with an R-83A 12x15 ml fixed-angle rotor, 12 steel stainless bucket complete with rubber cushion and 15 ml round-bottomed plastic tube (see figure below).

Place the rotor on the motor shaft and secure the rotor with the supplied nut by screwing it clockwise. Use the wrench key to tighten the nut.



The material to be centrifuged must not exceed a density of 1.2 g/ml at maximum speed. The tubes must be of a high-quality material. Test tubes tend to heat up during centrifugation, so check the temperature limits of the tubes before using them. Seal test tube caps well before centrifugation to avoid spillage of samples. The use of flammable materials, explosive materials or materials with a violent chemical reaction is strictly prohibited.

- **Rotor balancing**

Warning:

Before starting a spin cycle, it is essential to balance the rotor load correctly.

Balancing should always be carried out respecting the rule of symmetry of loads, which should always be considered in terms of weight and not volume.

Generally, the rotors are used at full load, i.e. all housings are filled with test tubes. If the quantity of samples to be centrifuged does not reach the maximum possible number of housings, it would still be advisable to use them all by filling them with tubes containing water.

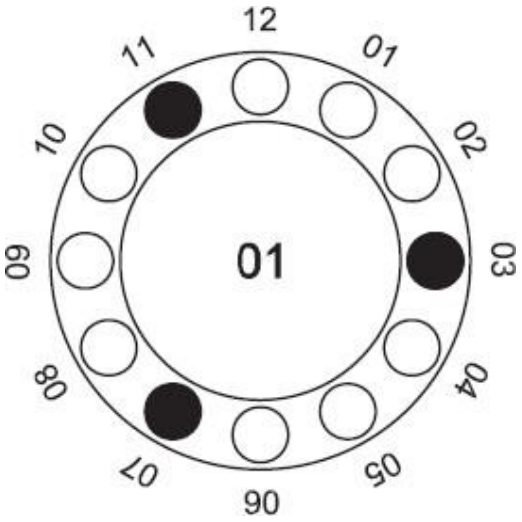
This will provide the necessary balance symmetry and more linear acceleration and deceleration phases.

Warning:

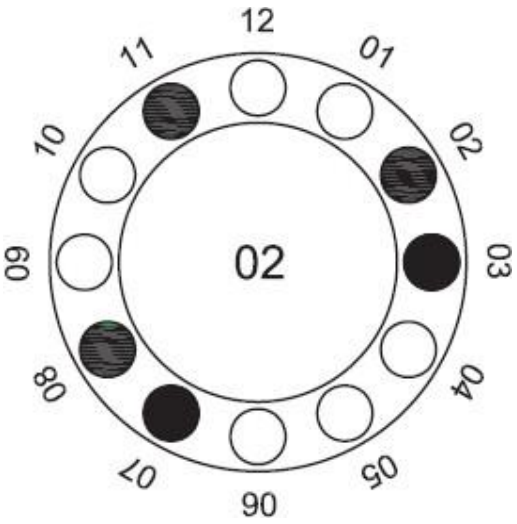
<u>In any case, whether all or partially filled, it is necessary to distribute the loads symmetrically around the rotor axis.</u>

If the loads were not well balanced and the centrifuge went out of balance, the centrifuge would immediately stop and go into an unbalance error '**IMBL**'.

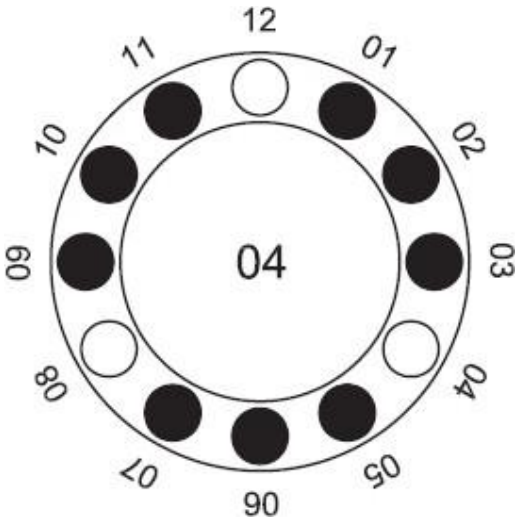
Here are some examples of correct and incorrect balancing:



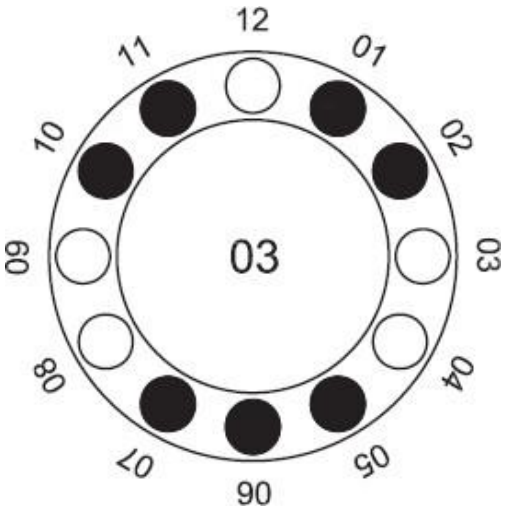
CORRECT



INCORRECT



CORRECT



INCORRECT

- **Fault Indications:**

If any kind of fault occurs during centrifugation, the motor is stopped and a message is displayed on the screen according to the type of fault.

The conditions giving rise to these error messages are as follows:

- Overvoltage - **Hv**
- Undervoltage - **Lv**
- Overcurrent - **ovr.C**
- Communication Error - **C.Err**

- Tacho fault - **taco FLT**
- **LID OPEN**
- Imbalance - **IMBL**

ACK Fault:
If an error occurs (other than LID OPEN and IMBALANCE), confirmation is required. To do so, press the SET button once.
During IMBALANCE, the error can be removed by opening the cover once.
The LID OPEN condition does not require an ACK, the message disappears automatically as soon as the LID is closed.

9. Cleaning and Maintenance

ATTENTION:

	**All maintenance work must be carried out by qualified and authorized personnel, equipped with gloves and protective clothing.**
	**It is forbidden to repair or clean moving parts.**
	**In any case, if the equipment does not appear to SUITABLE for proper and safe operation, it should be taken out of service until the damaged parts are repaired or replaced.**

Proper maintenance and cleaning of the instrument ensures its good condition.
Before proceeding with cleaning, disinfection or maintenance, switch off the centrifuge and disconnect it from the power supply. Before proceeding with cleaning or decontamination, the user must ensure that the method used does not damage the instrument. The internal chamber of the instrument is made of stainless steel, so it can be cleaned with any detergent if it is not aggressive and/or corrosive.
It is recommended to regularly clean the inner and outer surfaces with a normal all-purpose cleaner sprayed on a soft dampened cloth so that it is not concentrated. Clean the rotor and accessories outside the centrifuge chamber regularly and separately to ensure thorough cleaning. Clean the rotors and all accessories with a neutral detergent suitable for use with materials, sprayed onto a soft damp cloth. If in doubt, contact the detergent manufacturer. If there are any sample leaks in the rotor or accessories, rinse them with distilled water and neutral detergent and dry them properly and immediately after cleaning with a dry cloth and place them on a plastic grid with the cavities facing downwards to allow complete drainage and drying. If necessary, place them in a hot air dryer at a temperature not exceeding 50°C. Use a soft brush without metal bristles to remove stubborn residue.
Grease the motor shaft after cleaning.

ATTENTION:
If the instrument is to be sent for service, it must be properly cleaned and possibly decontaminated from pathogens.

Note: *It is also recommended to return the instrument in its original packaging to the repair service and if this is not available, to pack it appropriately for transport. Any damage caused by incorrect shipment will not be covered by warranty.*



- ### Greasing the motor shaft



To facilitate insertion of the rotor, the drive shaft should be greased regularly.
The frequency of these maintenances depends on the frequency of use, working temperature, centrifugal loads etc., so it is recommended to check these parts weekly.
Before greasing, it is essential to remove the old grease.

10. Troubleshooting Guide



The following table lists the main problems and possible solutions.

Defect	Solution
Fuse blows immediately on 'ON'.	Replace the defective fuse and restart. If the fault persists, contact the supplier's technical support.
The centrifuge causes mild electric shocks.	Check the power socket and ensure that the earth is present. Check that the current rating of the 230 V AC power supply line is sufficient and not less than 5 A.
The centrifuge starts and stops immediately, indicating an error message on the display.	Switch the centrifuge off and on again after a period > 30 s. Dismantle and mount the rotor. If the error persists, contact the supplier's technical service department.
- The centrifuge vibrates during start-up or operation. - The display shows the error 'Imbalance'.	Place the centrifuge on a fixed, stable surface. Load the rotor in a balanced and symmetrical manner. If the anomaly persists, contact the supplier's technical service.
Burnt smell.	Stop the centrifuge immediately. Contact the supplier's technical service immediately.
Display showing anomalies.	Contact the supplier's technical service.
The engine does not start.	
The display does not light up when switched on.	
The lid does not open.	Wait for the rotor to stop and use the emergency opening to open the lid. Contact the supplier's technical service.

Note: *If the problem is not listed in this table or in the manual, please contact GIORGIO BORMAC S.r.l. technical support.*

11. Spare parts

Contact the service department. Use only original spare parts.

12. Disposal of electronic equipment



This equipment is subject to regulations for electronic devices.
Dispose of in accordance with existing local regulations. The illegal disposal of electrical and electronic equipment is punished with an administrative fine.