

**PURCHASE ORDER**

**Order To :** MANGLAM SURGICAL & PHARMACEUTICALS  
**Mobile No:** 9414156645  
**Address :** 9-10, GANPATI PLAZA, UDAIPUR, ...  
**Created By:** Mr. Mahendra Kumar

**Order No :** HSO/21-22/00000528  
**Date :** 24-Dec-2021 12:00 AM  
**Delivery Date:** 31-Dec-2021  
**Approved By:** Mr. Mahendra Kumar

Page 1 of 1

S.No.	Product Name	Unit	Manufacturer	Qty	Discount	Rate	Vat	Amount
1	ELECTRA BL CENTRIFUGE MACHINE	NOS		1.00	0.00	35,555.55	18.00	35,555.55

Total : 35,555.55

Tax Amt : 6,400.05

Net Amt : 41,955.60

**Net Amount is RUPEES FORTY-ONE THOUSAND NINE HUNDRED FIFTY-FIVE AND SIXTY PAISA ONLY**
**Delivery Terms :** Delivery of the item shall be within 7 days after the placement of this purchase order.

**Terms & Conditions :**

- Goods should be accompanied by a Invoice/challan in duplicate with prior expiry confirmation and must bear our purchase order number.
- The goods are to be delivered within the time specified in the order, failing which the order may be cancelled (in part or full).
- No partial/indirect supplies would be accepted.
- The Quality of the supplies is to be approved by us and our approval or rejection will be final.
- Price accepted by the company are final and no deviations there from will be accepted without our specific agreement in writing.
- Delivery of Material should be F. O. R at our site, between 10:00 AM to 5:00 PM (except Sunday and Holidays) as per the supply schedule.
- The goods are to unload by the supplier and to put at the right place as directed by our personnel.
- It should be the supplier's responsibility to count the goods while effecting the delivery.
- Rejected goods are to be removed from the company premises with in 48 Hours on receipt of information, failing which the company will not be responsible for any loss or damage to the goods.
- Taxes, Octroi, Freight extra as applicable, if any as fixed with terms.
- As to the shelf life of the Reagent/Materials, the

We hope and trust that all the above is in line with the discussions we had with you from time to time and we look forward to a long lasting business relationship with you.

Thanking You,  
 Yours Faithfully

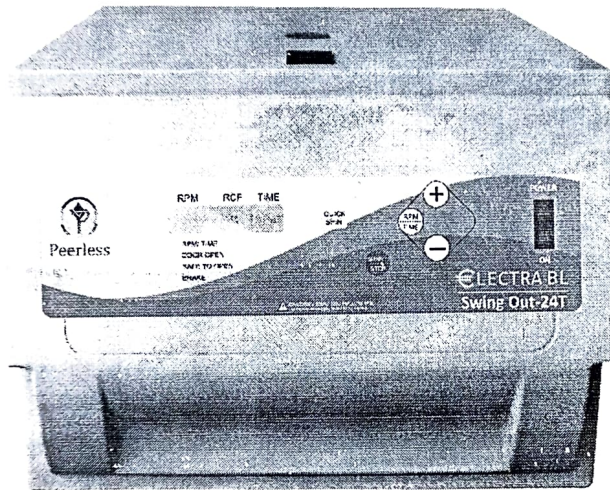
Purchase Dept .



Version: 01/2021

## Operator's Manual

# Digital Centrifuge with BRUSHLESS Motor



**MODEL: ELECTRA BL**


**SWING OUT 24T**

*Centrifuge with Microprocessor Control and LCD Digital Display.*

**Brushless Motor**

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❖  **WARNING:** This centrifuge not to be used with Flammable, explosive or toxic chemicals. It is intended to use for Blood & Urine samples only.

❖ **Special Care:** Special care to be taken when using this Centrifuge.

1. Bio-Hazard material: In case of breakage or leakage of tube containing bio-hazard material please follow – Bio-Hazard safety manual for decontamination process approved by your institution. Use only our suggested cleaning agents.
2. If power supply fails, Lid may get automatically unlock immediately but do not open Lid for 6 minutes.

❖ **Introduction of Brushless Centrifuge :**

Electra BL Swing Out 24T is brushless centrifuge designed for safe operation in clinical laboratory. Centrifuge is designed with electronic safety lid lock. Lid latch shall not open once centrifuge in motion. Lid can only be open when centrifuge is come to complete stop. The centrifuge will not start if top lid is open. It has AC Brushless motor and AC Drive with protection features. The user can preset required RPM and TIME, by programming of device. It will also display Actual RPM and remaining time. Centrifuge designed with front panel display showing status at all time.

❖ **Item Insert :**

- 1) Centrifuge Machine (Model – Electra BL Swing Out 24T)
- 2) Power Cord
- 3) The ROTOR – 24x5 (24 Tube Rotor each with capability of 5 ml tubes)
- 4) The carriage tubes.
- 5) Puller for Rotor.
- 6) Operator's Manual



### ❖ Features :

- Unique motor designed for overheat protection
- Brushless AC motor
- Microprocessor Control Programmable centrifuge. With AC Drive.
- Electronic Digital control panel
- The start button will operate only when Lid close.
- The Lid cannot unlock during process is "ON"
- The user can preset required RPM and Time.
- The Device is having automatic break built in.
- The device has – 2. Line LCD display with back light.
- The device has Auto lock when it starts spinning. It will open automatically when RPM become Zero.
- The rotation stops if rotor is imbalance and imbalance LED "ON" till restart of device.

### ❖ Specifications :

Capacity	:	24 T x 5ml Rotor
Main Input	:	220v, 50 Hz
Max. Speed	:	4000 RPM
Size	:	[W] 355 X [D] 410 X [H] 280 mm
Weight	:	14 Kg. Net
Motor	:	BRUSH LESS MOTOR
Speed Regulator	:	Programmable Preset RPM with $\pm 3\%$ Accuracy
Timer Indicator	:	LCD type preset & remaining time up to 60 Min.
RPM Indicator	:	LCD type preset & actual RPM

*We reserve our right to modify specification for technical upgrade.*

### ❖ Intended Use :

This Centrifuge is intended to use in clinical laboratory for separation of serum from blood sample and sediment from urine sample.

### ❖ General Safety Instruction: Must be followed by users

- 1) DANGER – Misuse of electrical equipment can cause electrocution, burns, fire and other hazards Basic safety precautions always should be taken, including all those listed below.
- 2) Close supervision is necessary when equipment is used by or near children, handicapped person, or invalid person.
- 3) Check that the voltage setting matches the supply voltage.
- 4) Plug the equipment into a supply outlet which has an earth connection.
- 5) Switch off the MAINS supply, immediately after use.
- 6) Do not place the equipment in liquid, nor put it where it could fall into liquid. If the equipment becomes wet, unplug it before touching it.

- 7) Use the equipment only for the purpose described in the instructions for use / intended use.
- 8) Do not use accessories which are not supplied or recommended by the manufacturer.
- 9) Do not use the equipment if it is not working properly or if it has suffered any damage. Note Examples of typical defects include.
  - a) Damage to the flexible supply cord or its plug.
  - b) Damage caused by dropping the equipment.
  - c) Damage caused by dropping the equipment into water or splashing water on to it.

**Send this device to service center without delay.**

- 10) Do not let the equipment or its flexible cord come into contact with surface which are too hot to touch.
- 11) Do not block air openings nor place equipment on a soft surface which might block them, and keep air openings free from lint, hair, fluff, etc
- 12) Do not place anything on top of the equipment.
- 13) Unless specifically instructed to do so by the instruction for use, do not drop or put anything into any opening in the equipment. Or into any hose or coupling or vessel.
- 14) Do not use the equipment where aerosol spray are being used: or where oxygen is being administered.
- 15) Do not use the equipment out of doors.
- 16) It is essential safety requirement that, electrical supply line must have ELCB / RCCB and proper earthing connection at socket.
- 17) It is recommended to have easy approach without any hurdle to main supply socket and switch.

#### ❖ **Installation Procedures :**

It is essential to follow the procedure for Installation, setup, and initial testing of device before use.

- a. Put device carton in upright position. Open from top to unpack the device. Verify that all item insert listed on page 1 are in the package
- b. Inspect visually the device to conform that it is not damage during transits.
- c. If damaged , Notify freight carrier and distributor immediately
- d. **Select the place to install the device by considering the following criteria.**
  1. Install on flat, leveled, strong stationary surface free of vibration.
  2. It is recommended to provide 30" x 30" x 30" [H x W x D] space for centrifuge on rigid platform.
  3. It is essential to have good cool ventilation to avoid over heating of samples and device. The overheating may lead to premature failure of device.
  4. Power source: 220v (+/- 10v)/50 Hz & 110v (+/- 10v)/60 Hz, Properly ground power outlet with easy access in case of emergency is desirable



e. **Set-Up Procedure**

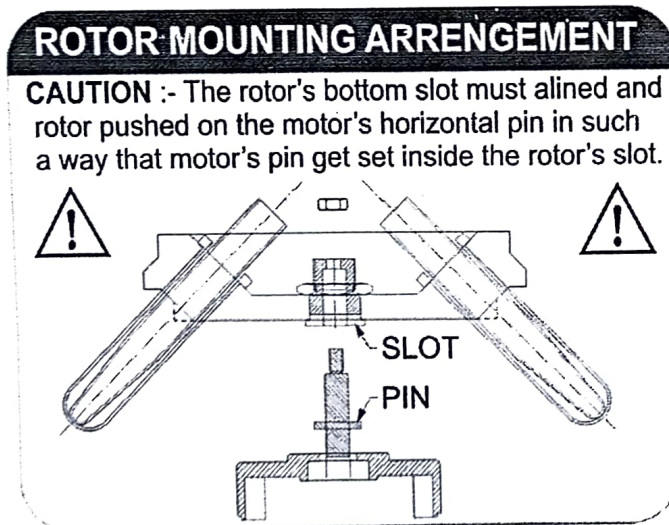
1. Please refer the rotor assembly drawing.
2. Fix rotor with motor shaft and tighten the nut with spanner. Hold the rotor firmly by another hand.
3. Place tube carriage in rotor.
4. Connect the device to power outlet.
5. Turn power switch "ON".
6. The display will glow. It will display set time. / Set RPM of Last run.

*The device is set-up and ready for use.*

## SKETCH FOR ROTOR ASSEMBLY

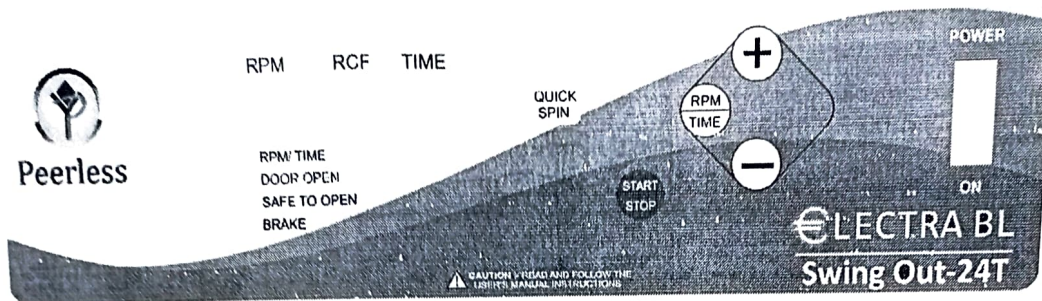
 **CAUTION :-**

- i. Tighten the nut properly by spanner.
- ii. For any SWING OUT type rotor : Check the free movement of all tube holder in rotor. It must move Horizontal & Vertical easily by little fingers pressure. If not moving freely, check for proper position and reset.
- iii. The rotor's bottom slot must be aligned and rotor pushed on the motor's horizontal pin in such a way that motor's pin get set inside the rotor's slot.



*This is essential to avoid damage to centrifuge.*

## ❖ Front Control Panel :



- Consists of the following operating and displaying consoles.

1. LED's console
2. Switches console
3. Display
4. Power ON-OFF switch

### 1. LED console:

Consist of the following Four different LED's

- I) **Program Mode** :- LED will turn "ON" and glow when user press "RPM / TIME" switch and enter in program mode. It will turn "OFF" and data saved when user press "RPM / TIME" or "START" switch.
- II) **Door Open** :- LED will turn "ON" and glow when top lid is in open condition.
- III) **Safe to Open** :- LED will turn "ON" when rotor in not spinning.
- IV) **BRAKE** :- LED will turn "ON" when Brake applied to rotor spinning. It will turn "OFF" when rotor stop and door unlocked.

### 2. Switches Console:

- I) **QUICK SPIN**: - When user wants to run device at rotor's maximum allowable RPM for 5 minutes without setting RPM and Time then press this "QUICK SPIN" switch.
- II) **RPM / TIME**: - To start the programming of RPM and TIME press this "RPM / TIME" switch. By pressing 1<sup>st</sup> time user can go to RPM setting mode. By pressing again user can go to time setting mode. Pressing 3<sup>rd</sup> time the data will save.



III) UP ARROW (+) : - When user in "SET RPM" mode by pressing this switch the set RPM will increase. And when user in "SET TIME" mode by pressing this switch the set time will increase.

IV) DOWN ARROW (-) : - When user in "SET RPM" mode by pressing this switch the set RPM will decrease. And when user in "SET TIME" mode by pressing this switch the set time will decrease.

V) START / STOP:- When device is not spinning by pressing this switch the run / process on will start, the top lid must be close. If door is open and "DOOR OPEN" LED glowing then this switch will not work.

If device is spinning / in process on mode then by pressing this switch it will give "STOP" command to device.

### 3. Display

It is 2 line LCD displays. In top line it will display set RPM / ACTUAL RPM & RCF and set time / remaining time. In bottom line it will display the status of device.

### 4. Power ON-OFF Switch

A switch for power supply ON-OFF function.

#### ❖ The testing before use :

The device is ready for testing. Please follow the Testing procedure:

- a. Remove power cord from source plug, if connected.
- b. Check the rotor chamber it must be clean and nothing should be left inside.
- c. All the tube holder must be there in rotor in proper position
- d. Rotate rotor by hand to check free movement. It must rotate freely
- e. Rotate rotor by hand and check that none of tube holder is striking with chamber vessel
- f. Connect power cord to source plug and switch "ON" device.
- g. Without putting any sample tubes perform and observe the functions of control panel and operating procedure as explained below. If any problem then contact distributor.

**If no problem notices device is ready for safe operation.**

#### ❖ Operating Procedure:

1. Device must be placed on flat, leveled and strong stationery surface.
2. Connect the power cord to electric supply plug. Ensure that device is connected to appropriate power source i.e. 220V/50Hz Then switch "ON"
3. After few seconds the device will display the set time and RPM on Display.
4. Read and understood front panel consoles to perform operating process.



5. The LED indicator of **"SAFE TO OPEN"** will glow as power **"ON"**, Check this before opening of top lid.
6. If want to change last setting of RPM or Time then follow below procedure or skip this.
  - a. Press **"RPM / TIME"** switch to get in program mode. It will be in **"SET RPM"** mode.
  - b. User can increase RPM by pressing **"UP"** switch OR decrease RPM by pressing **"DOWN"** switch.
  - c. Again by pressing **"PROG"** switch, the device will be in **"SET TIME MODE"**.
  - d. User can increase TIME by pressing **"UP"** switch OR decrease TIME by pressing **"DOWN"** switch.
  - e. Once desired RPM & TIME are set. Then press **"RPM / TIME"** to save set data and go to normal mode.
7. Open the top lid and load the samples in balance condition. The **"DOOR OPEN"** LED will glow.
8. Close the top lid and confirm that the mechanical latch is locked and the **"DOOR OPEN"** LED is shut down.
9. Press **"START"** switch, the spinning/Run will start. The **"SAFE TO OPEN"** LED will shut down.
10. Do not try to open top lid in run condition. It may stop the process.
11. After the run for set time the device will automatically stop the run mode and automatic break will apply.
12. When rotor RPM become zero the electric lock will open *and* **"SAFE TO OPEN"** LED will glow & Machine will give buzzer sound for 10 second.
13. Open top lid and replace the samples for next run.
14. **ROTOR IMBALANCE**: If the sample tubes are not placed in balanced condition beyond set limit then due to vibration the device will stop automatically and **"ROTOR IMBALANCE"** message will appear.
15. In this condition, when **"SAFE TO OPEN"** LED glow then only open top lid and arrange samples again in balance condition and close top lid and press **"START"** switch.
16. **EMERGENCY STOP**: In any emergency the user wants to stop run/spinning process then press **"STOP"** button. It will cancel the run command and device will stop and **"SAFE TO OPEN"** LED will glow.

❖  **Pre-cautions for Balancing :**

- Always load the opposite tubes in balance with equally weighted samples. The unbalanced load will be generating vibrations and may damage device.
- If samples are in odd number, please use water filled tube of the same size to balance the load in opposite tube.
- Always load similar tube either with or without inserts or empty to balance the load
- It is advisable to balance the load during spinning for better life and better result of centrifuge. Also essential precaution against accident.

❖ **Rotor removal and Installation :**

➤ **Removal Procedure :**

- a. Remove power cord to avoid electric shock.
- b. Open the top lid. Refer sketch of rotor assembly on page no.05.
- c. Pull out all outer carriage tubes [Bucket].
- d. Open the nut by unscrewing with spanner. Hold the rotor firmly by another hand.
- e. Now use puller device provided with centrifuge. Fix the puller with thread on rotor top side. Now rotate center screw of puller to pull out rotor from motor.

➤ **Installation procedure :**

- a. Remove power cord to avoid electric shock. Refer sketch of rotor assembly on page no.05
- b. Fix rotor with motor shaft and tighten the nut with spanner. Hold the rotor firmly by another hand.
- c. Place outer tubes carriage in rotor.

❖ **Lifting, shifting or carrying centrifuge after installation:**

If required to lift the device then lift it with both hand, holding in installed position from bottom side. You can put the device on any level surface, which must be free of vibration. If need re-installation, please refer installation procedure of manual

❖ **Intermittent Operation Limit :**



*It is advised to allow 5 minutes cooling time (Off Time) after every 30 Minutes use of centrifuge.*

### ❖ **Explanation of warning statement marked on Equipment :**



**CAUTION** :- READ AND FOLLOW THE USER'S MANUAL INSTRUCTIONS

It is not convenient to print all instruction on device. Hence it is essential for safety and utility purpose to read, understand and follow this user's manual.

### ❖ **Transport and storage Instruction :**

- a. Preferably, keep device straight (Top in up-right position) during transport and storage.
- b. It can be store in 5°C to 50°C temperature area.
- c. The device must be saved from water showers.

### ❖ **Procedure of cleaning and decontamination.**

**Also in case sample tube break during spinning:**

- 1) Press "STOP" button, if tube breakage is noticed.
- 2) Wait to get rotor stopped. Then open top lid.
- 3) Remove power supply cable from socket. Do not connect plug if device is wet.
- 4) Use safety gloves, to save your fingers from broken glass and contamination.
- 5) Remove sample tubes, outer bucket tubes for cleaning and decontamination.
- 6) Centrifuge, rotor, bucket tube and chamber can be cleaned with **soap and water, gentle bleach or Isopropyl Alcohol**. Use of any other disinfectant may damage the device and parts and hence not permitted.
- 7) Clean the device and parts by wiping with cleaning agents. The deeping in chemical for long time may damage the parts.
- 8) Inspect chamber, if required please clean and then remove rotor. Wipe the rotor and chamber by suggested cleaning agents.
- 9) Install the rotor and bucket tubes, as explained in rotor removal and installation process.

### ❖ **Necessary safe guards for personnel :**

- 1) Not to lean on a laboratory centrifuge.
- 2) Not to stay within the clearance envelope longer than necessary for operational reasons.

3) Not to deposit any potentially hazardous material within the clearance envelope.

❖ **Care and Preventive Maintenance :**

- a) **Spin balanced samples:** As explained in important precaution at Page 10, spin balanced samples to get best benefits from centrifuge.
- b) **Cleaning of Spillage:** It is essential to clean rotor chamber, rotor and tube holder when breakage of sample tube occurs. Remove and install rotor to clean rotor chamber as explained in Rotor removal and Installation. Refer '**Procedure of cleaning and decontamination**'. *ALWAYS USE PROPER BIO-HAZARD SAFETY PROCEDURE WHEN CLEANING OF THIS DEVICE.*
- c) **Routine cleaning:** It is recommended to clean rotor chamber, rotor and tube holder at every six months.

**⚠ Caution:** Always remove power cord from source plug before **PERFORMING** any type of service or cleaning to device.

- d) **Replacement of Outer bucket tube and Rotor:** It is recommended to replace Outer Bucket Tube after use of 24 months & rotor after 48 months of use.
- e) **Electrical components and motor:** Do not need any routine or preventive maintenance.
- f) **Rotor and Tube Holder :** It is recommended to do visual inspection by user of rotor and tube holder once in 3 months for any mechanical or other damages. On inspection or during routine use if any mechanical damage observed in rotor or tube holder, you need to refer to the distributor or contact company personnel.
- g) If device is required to be sent to service center, it must be cleaned and decontaminated for safety.
- h) It is advised to get check RPM Speed, earthing continuity after every 12 months.

❖ **⚠ Caution :**

- 1] "If the equipment is used in a manner not specified by the manufacturer, the protection provide by the equipment may be impaired"
- 2] It is recommended to enter in annual service contract after warranty, other wise The protection provided by equipment may be impaired.

**ROTOR'S RANGE AND MAXIMUM SPEED**

MODEL	SUITABLE ROTOR	MAX SPEED [RPM ]
Electra BL Swing Out 24T	24x5ml (SWING OUT)	4000