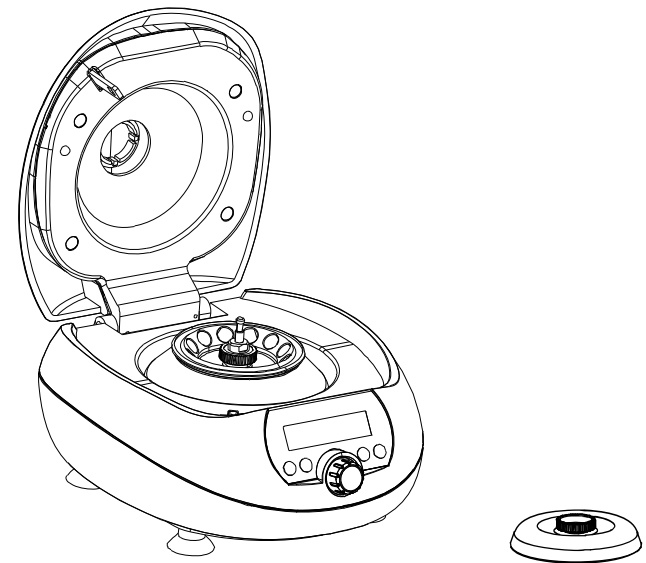


Mini-15K

High Speed Centrifuge Operations Manual

Version 1.0



Packing List

No	Item	Type	QTY
1	High speed Centrifuge	Mini-15K	1
2	Rotor		1
3	Rotor nut		1
4	Rotor lid		1
5	Power line		1
6	Operations manual		1

Foreword

Thank you for purchasing our Products: Super Mini Centrifuge, This Manual for users contains function and operation of the Instrument. In order to use the instrument properly, please read this manual carefully before using the Instrument.

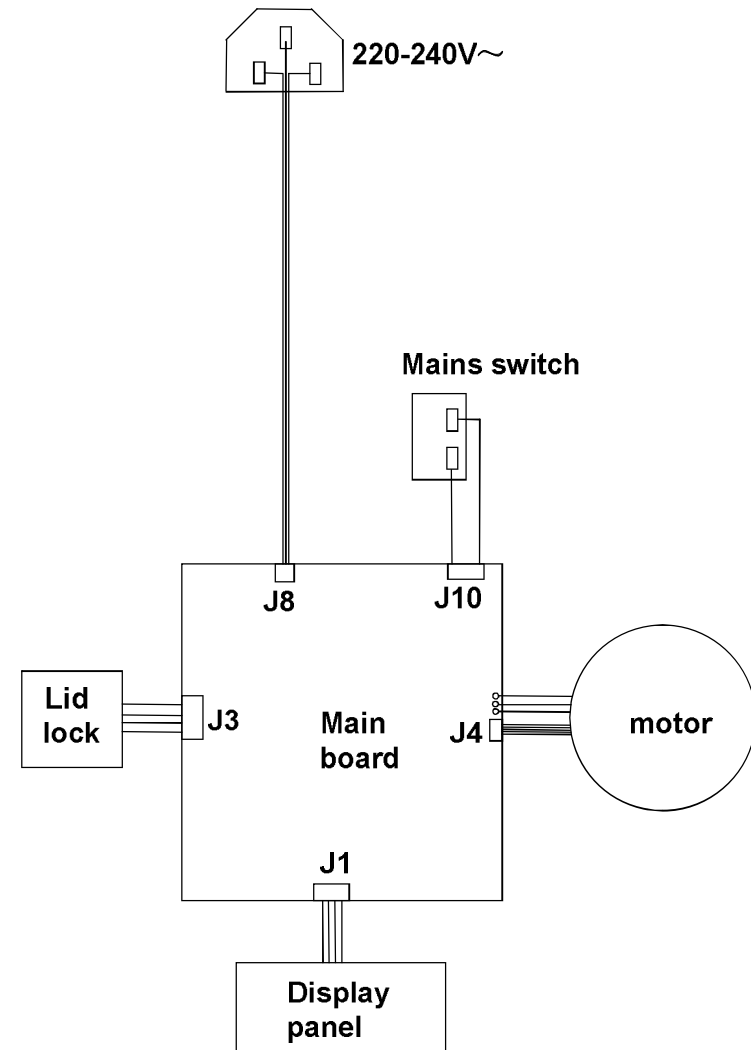
Opening Check

Please check the Instrument and Appendix with the packing list when you first open the instrument packing case. If you find there is something wrong with the Instrument and the Appendix, do contact the vendor or the producer.

Contents

1. Introduction.....	1
1.1 Included components.....	1
1.2 Structure description.....	2
1.3 Installing the device.....	3
2. Technical data.....	4
3. Safety precautions.....	5
4. Operation	6
4.1 Control panel.	6
4.2 Rotor insertion and removal.....	6
4.3 Loading the rotor.....	6
4.4 Centrifugation with a preset time.....	6
4.5 Quick-spin centrifugation.....	7
4.6 Toggling between rpm and rcf.	7
4.7 Emergency lid release.....	7
5. Maintenance and cleaning.....	8
6. Troubleshooting.....	8
Annex1 Wiring diagram for centrifuge.....	9
Packing list.....	10

Annex 1 Wiring Diagram for Centrifuge



5 Maintenance and cleaning



The rotor and the outside of centrifuge should be cleaned regularly with a moist cloth. Disconnect the centrifuge from the power inlet, remove the rotor and clean it separately. Only neutral agents (such as 70% isopropyl alcohol) may be used for cleaning.



Please check the rotor and especially the rotor bores regularly for deposits or damage, then reinsert the rotor and tighten the rotor nut.

6 Troubleshooting

Error	Cause	Solution
No display	No power connection. Power failure.	Plug in power cable on both ends. Check the fuse
Lid won't open	Power failure. Rotor is still spinning. Lid lock failure.	Open the power Stop centrifuge run. Contact service.
Centrifuge shakes during acceleration	Rotor not loaded symmetrically.	Stop centrifuge run and load centrifuge symmetrically.
Display E104	lock failure	Contact service.
Display E501	Lid open when running	Contact service.
Display E503	Switch off or failure	Contact service.
Display E101	Speed instability (≥ 16500 rpm)	Contact service.
Display E201	Vibration value is too large	Contact service.

1 Introduction

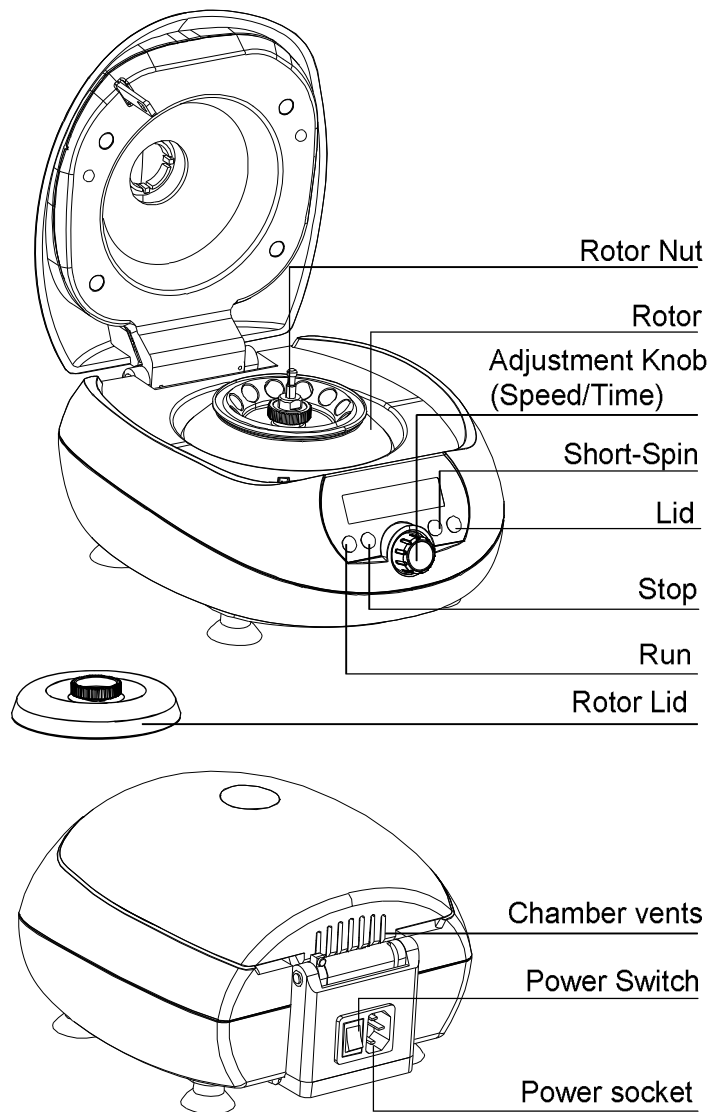
This high speed centrifuge is designed for the centrifugation of microcentrifuge tubes (1.5 to 2.0ml). Widely apply to laboratory of life science, medical and chemical use.

Please read this manual carefully before operating the centrifuge for the first time.

1.1 Included Components

NO.	Item	QTY
1	Mini-15K Centrifuge	1
2	Rotor (Installed)	1
3	Rotor nut (Installed)	1
4	Rotor lid (Installed)	1
5	Power cord	1
6	Operations manual	1

1.2 Structure Description



4.4.3 Press “Run” to begin the cycle . Press “Stop” to end the run prematurely. (The remaining run time appears in the display.)

After the cycle, the lid lock of centrifuge opens automatically.

NOTE: Both the time setting and the rotational speed can be set during the run.

4.5 Quick-spin centrifugation

4.5.1 Turn on the mains switch, pressing “Lid” to open the lid, load the rotor symmetrically. Fasten the rotor lid and close the centrifuge lid.

4.5.2 Press and hold “Short-Spin”. The centrifuge will run at 14,500rpm as long as this key is held down.

4.6 Toggling between the rpm and g force (rcf) speed settings

Press and hold the adjustment knob for 3s to switch “rpm” to “g”, press and hold the knob for 3s again to switch “g” to “rpm” on the screen.

You can calculate with the following formula :

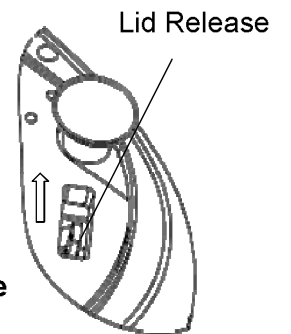
$$\text{g force (rcf)} = 1118 \times 10^{-5} \times n^2 \times r_{\max}$$

n: rotational speed in 1/min

r_{\max} = 6 cm, max. centrifuging radius in cm

4.7 Emergency Lid Release

Unplug the power cord. Wait until the rotor has come to a complete stop, Then lift up the device and place on its side. Locate the emergency release and press to open the lid.



4. Operation

4.1 Control Panel

Run	To begin centrifugation
Stop	To end centrifugation
Short-Spin	For momentary or pulse operation
Lid	To open the centrifuge lid
Knob	To adjust the time and rpm values. (Press the knob to toggle between speed and time)

4.2 Rotor insertion and removal

Place the rotor onto the motor shaft. When properly attached, the motor shaft should stick out approximately 0.8mm above the rotor. Tighten the rotor nut by turning clockwise. To release the rotor, turn the rotor nut counterclockwise.

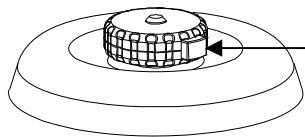
Prior to every start, ensure that the rotor nut is firmly tightened!

4.3 Loading the rotor

Rotor must always be loaded symmetrically. ALWAYS minimize any differences in weight/volume between the sample tubes.

4.4 Centrifugation with a preset time

4.4.1 Turn on the mains switch, pressing "Lid" to open the lid, load the rotor symmetrically. Attach the rotor lid and close the centrifuge lid.



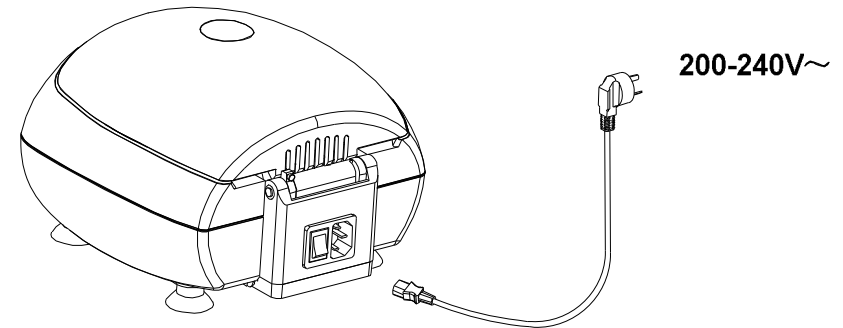
push here to
remove the rotor lid

4.4.2 Press the control knob and rotate it to select the desired run time, the time can be pre-selected between 20 seconds and 99 minutes. (The time can also be set to continuous by selecting 0 sec.) Press knob again and rotate it to select the desired run speed, the max. speed is 14,500 rpm.

1.3 Installing the device

1.3.1 Place the centrifuge onto a horizontal surface. Make sure that the chamber vents clear from any obstructions.

1.3.2 Insert the power cord into the device, and plug into a wall outlet of the proper voltage.



1.3.3 Always install the centrifuge with 30cm of air space on all sides and don't cover anything on the ventilation hole at the back.

1.3.4 Power on the centrifuge. The display will illuminate and the device is ready for use. Ensure that the rotor is placed onto motor shaft and tighten the rotor nut.

Before starting up the centrifuge for the first time, ALWAYS ensure that the rotor nut is securely fastened and that rotor lid is properly secured.

2 Technical data

Model	Mini-15K
Power supply	200-240V~ 50/60Hz
Power	100W
Max. speed	14,500 rpm
Max. centrifugal force	14,000g
rpm/rcf switchable	yes
Timer	20 sec ~ 99 min
Max. load	12×1.5/2.0ml tubes
Max. permitted density	1.2g/ml
Acceleration time to max. speed	17 seconds
Braking time from max. speed	15 seconds
Ambient temperature	5°C ~ 35°C
Dimensions (W×D×H)	230mm×270mm×155mm
Weight (with rotor)	4.8 kg

3 Safety precautions



ALWAYS ensure that the rotor and the rotor lid are securely fastened and that the rotor nut has been fully tightened. If an abnormal sound exits during acceleration, **STOP** the device immediately and reattach the rotor and rotor lid.



Do not use a rotor with any signs of damage.



Do not move or pick up the centrifuge during centrifugation.

3.1 Insertion of sample tubes

3.1.1 Don not exceed a liquid density of 1.2g/ml when running at the maximum speed.

3.1.2 NEVER run the centrifuge with cracked or damaged sample tubes.

3.1.3 ALWAYS fully close the test tube lids/caps before centrifugation.

3.1.4 ALWAYS load the test tubes symmetrically and balanced.

3.2 Maintain of rotor

3.2.1 NEVER operate the centrifuge with a damaged rotor. Even slight scratches and tears of the rotor can lead to internal material damage.

3.2.2 Avoid use with aggressive chemicals, such as strong alkali and strong acids. In the event of a spillage, clean the centrifuge and rotor immediately.