

Operation Manual



BBRC-104

Blood Bank Refrigerated Centrifuge

Thank you very much for Choosing Biolab products. Please read the "Operating Instructions" and "Warranty" before operating this unit to assure proper operation.

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Safety Notice

We appreciate your business with Biolab. To prevent any potential accident, please operate centrifuges according to the following safety protocol.

1. Unplug the main power cord, when performing maintenance or when centrifuge is expected not being used for a long period of time.
2. Load the rotor with samples arranged symmetrically. Opposing tubes must be of equal weight. If necessary, use "water blank" tubes to balance sample tubes of unequal weight. Do not conclude that tubes are balanced by sight over volume. Use the pan balance provided in the centrifuge room for balancing tubes in rotors for the centrifuge.
3. Never exceed the maximum speed posted for the rotor!
4. Never use the rotor that appears damaged (e.g. O-rings missing, scratched, corroded, cracked).

01 Introduction

BBRC-104 large capacity refrigerated centrifuge is an ideal centrifuge for blood bank, hospital and laboratory.

Main specification and technical parameters:

Max. Speed	6000 r/min
Max. Volume	4×1000ml
Max. RCF	6600×g
Temperature range	-20°C ~ 40°C
Timer	1-9h59min
Temperature Accuracy	±1°C
Speed Accuracy	±20 r/min
Noise	≤ 55dB(A)
Power supply	220V 50Hz 15A
Product Dimension	780mm×675mm×750mm
Package	Wooden box

Available rotors

No	Rotor Type	Max Speed (rpm)	Volume (ml)	Max RCF (xg)
No.33097	Swing rotor	4000	4×1000ml	4060
No.30221	Angle rotor	6000	4×300ml	5390
No.30222	Angle rotor	6000	6×300ml	5660
No.30223333	Angle rotor	6000	6×500ml	6600
No.30694	Bucket rotor	4000	4*4*96hole	2840
No.306911111	Bucket rotor	4000	2*4*96hole	2490

02 Unpacking

Please check whether there are serious damages on the package as soon as you received the centrifuge, if so, please take its photos and don't sign to show and contact us directly, if not, please unpacking the package, take out the instruction manual, checking the components and accessories according the packing list in the instruction manual. If you found something missing, please tell us.

03 Installation

The centrifuge should be installed on a stable concrete floor, there is no conductive dust in air and no corrodibility gas.

04 Operation

1. Checking whether the round nut in the rotor is loose, if so, fasten them.
2. Prepare the tubes; put the test liquids into the tubes, checking whether they are in the same level with your eyes.
3. Load tubes on the tube rack symmetrically; otherwise it will be resulted in severe vibration in the process of centrifugal.
4. Close the lid, make sure it is locked
5. Set parameters

The control panel can divide into two parts: display window and function window.

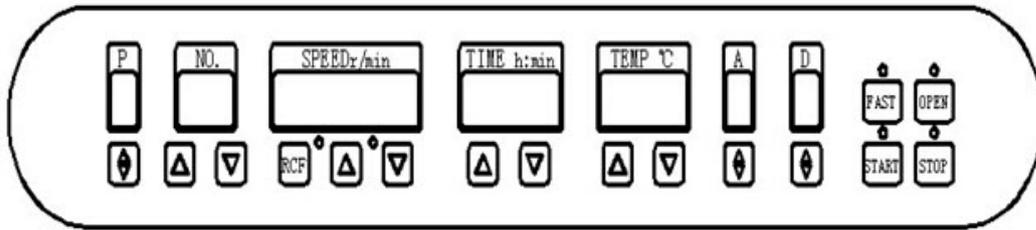


Figure 1

A) P window

The program no., 0-9 total 10 kinds of programs for your choice.

B) No.window

This window display the rotor no., it will just show the last 2 digits, such as the swing out rotor 4×1000ml, No.33097, so you should choose 97.Press the buttons "▲ & ▼" on the below of "No. window" to increase and decrease the numbers.

C) Speed window

This window can set up two kinds of content "speed and RCF×g by pressing the button "RCF" to switch each other. What is more, to press the buttons "▲ and ▼"to increase or reduce the figure. Do not exceed the Max.speed & RCF of the rotor.

D) Time window

Showing the time from 1~9h 59min

E) TEMP window

Showing the temperature and error codes

Error Code

Error Code	E-0	E-1	E-2	E-3	E-4
Fault	Inverter date-transmission failure	Lid unlocked	Imbalance	Over-speed	Over temperature
Error Code	E-5	E-6	E-7	E-9	
Fault	Temperature measurement incorrect	Inverter operation troubles	Speed transmission troubles	Setting mistake	

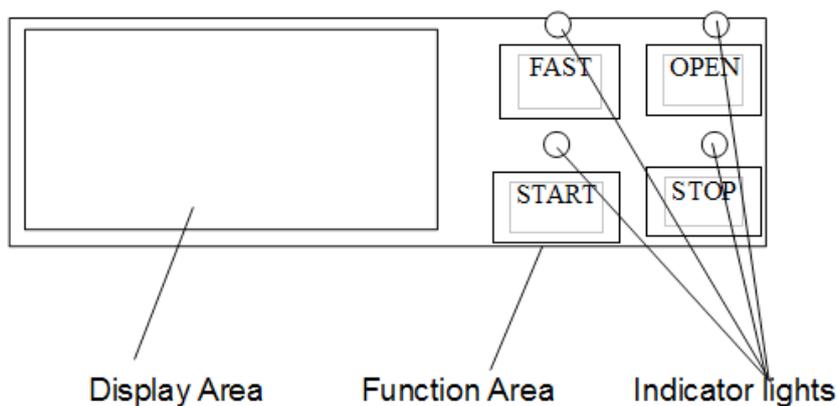
F) A window

Showing acceleration rate, 0~9 represents 10 kinds of rate to choose, 0 rate is the most slow, 9 most quick.

G) D window

Showing deceleration rate, 0~9 represents 10 kinds of rate to choose, 0 deceleration most quick, 9 most slow.

Figure 2.



1) ▲ button and ▼ button

Keep touching ▲ button, the number will continuously increase, Click ▲ button, the number will increase bit -by -bit;

Keep touching ▼ button, not stop, the number will continuously reduce, Click ▼ button, the number

will reduce bit-by-bit.

2) Function Area Buttons:

a) **START** button, if touch it, the indicator light will be brighten on it, the machine start working, and timer window counts down.

b) **FAST** button, currently it doesn't has any function !)

c) **STOP** button, if touch it, the indicator light will be brighten aside it, the speed is going to decrease until completely stop running.

d) **OPEN** button, if choose it, the indicator light will be brighten, the lock will loose, then lid can be opened.

Start the centrifuge

Press the start button, the start indicator will be brighten, the centrifuge starts to work, the speed window will show the speed; the time window begin to count down, the speed will be up to what you pre-selected within 1-2minutes. Press the RCF button in the process of operation, the speed window will show the current RCF., 10 seconds later, it will return to show the speed.

Stop the centrifuge

When the time window count down to 0 (or press the stop button), stop indicator will be brighten, the speed will be down to 0, then the centrifuge will stop running.

Open the lid

Take out the tubes, centrifugal finished.

Power off

Press the down side of the switch button, now the panel is cut off, but the whole machine is not power off, if you stop using the machine, you should take out the plug from the power supply socket.

Other functions

1. Over-speed protection: if the speed set by the operator exceed the max. speed of the rotor, it can't work when you press the " start" button, you will see "E-8" in the break down window; What is more, if the speed is out of control and exceeds the Max. speed of the rotor, the machine will stop automatically and the "E TEMP Window" will show E-8 code.

2. Memory function: When all the parameters are set, they will be memorized by the machine. And the centrifuge will run as per these parameters you set last time when you restart the machine.

05 Other safety precautions

1. Centrifuge tubes should be replaced periodically, never use tubes with cracking.
2. You should care for the overflowed harmful substance when open the rotor lid or clean the centrifugal chamber.
3. When the rotors damaged you can only move the centrifuge for 30(cm), make sure no dangerous subjects within 30 (cm) around the centrifuge.
4. The operator can't lean on the centrifuge when it is in operation, non-worker can't stay around the centrifuge.
5. When the centrifuge is broken down, forbid the non-professionals to repair it. You need to invite the professional maintenance person or send back to our factory. Before repairing, please unplug the main power cord, so the centrifuge can cut off all the power supply.
6. In order to protect the safety of operator, cannot allow to open the lid when the instrument running. Instrument itself is also with this kind of protection function, that is to say, when speed is over the max speed with 100rpm, the lid switch will cut off the power automatically. When operator press the OPEN key wrongly, the lid is no response, in order to protect centrifuge safety, lid cannot be opened, But strictly forbid following illegal operations:
 - (1) When the instrument running, or in the procedure of deceleration to shut down, the speed is not decelerated to 100rpm, strictly forbid to pull down the ring in the bottom of the instrument to open the lid. Strictly forbid to enforce rotors to stop running artificially, this will cause personal injury accident
 - (2) Strictly forbid to close the Power switch artificially, then connect the power. At this time, centrifuge program think the speed is 0, Press open key, the lid can be opened, this can be easily misleading to stop rotor running artificially.

06 Maintenance

1. You should take out the rotors from the centrifugal chamber when you don't use the machine for a long time, and then store them in the ventilation and dry place after cleaning.
2. Clean the centrifugal chamber when finished centrifugation, dismantle the central sleeve from the axle regularly, and lubricate the axle and central sleeve, in case of corrosion.
3. Keep the place which settle the centrifuge clean, make sure the freezer is not choked by dirty subjects.

07 Warranty Policy

1. We have one –year warranty on our all products
2. After the machine fixed, our professional technician will file it and keep track of the usage of the machine.
3. We will pay attention to the feedback of the customers on priority basis.
4. We won't charge customers any money for repairing the machine in one-year warranty time.
5. We only charge for the accessories on repairing the machine beyond the one-year warranty time.

Trouble-shooting service

Trouble	Cause	Removal
The display window is not working when power is connected	No 220V power supply	Check the power supply
	Fuse is broken	Check and replace fuse
The rotor doesn't run when Start key is pressed	The connector to circuit board is not properly connected.	connect it properly
	The power transformer is broken.	Replace the transformer
	The motor is powered on, but it doesn't work. The motor is damaged.	Replace the motor
Abnormal vibration of the centrifuge	The tube in the rotor is not arranged symmetrically.	Check and rearrange Properly.
	The test tube is broken.	Check and replace the broken tube
	The rotor is not turned tightly.	Check
	The shock absorber is damaged	Replace the damaged shocking absorber



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