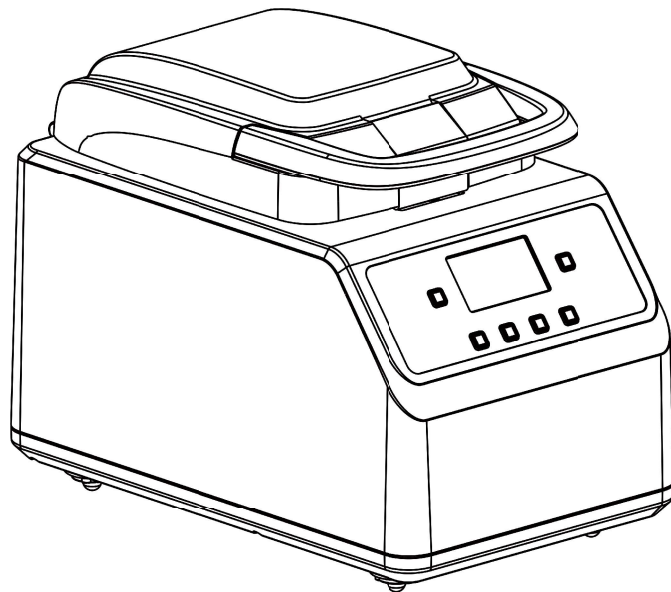


Operation Manual

Version1.0

Bioprep-24R Homogenizer



Safety Warnings and Guidelines

1. Important operation information of the security:

Before the users' operation, they should have a perfect conception of how to use the Instrument. Therefore, read this Manual carefully before using it.



Operation before reading the Manual is forbidden, otherwise instrument may cause injured or electric shock. Read the guidelines and directions below and carry out the countermeasure according to them.

2. Security:

The operation, maintenance and repair of the Instrument should comply with the basic guidelines and the remarked warning below. If you don't comply with them, it will have effect on the scheduled using life of the Instrument and the protection provided.



This product is a normal and an indoor Instrument which conforms to Standard B style-I type-GB9706.1.



Please read this manual carefully before operate the instrument, otherwise instrument may cause injured. The device must be used by skilled personnel with the appropriate training.



The operator should not open or repair the Instrument by himself, which will result in losing the qualification of repair guarantee or occur accident. We will provide repairing service when instrument need to be repaired.

Before power on, guarantee the voltage used should be accordant to the voltage needed, and the rated load of electrical outlet should not lower than the demand.



If the electric line is damaged, you should replace it with the same type. You should assure there's nothing on the electric line and you should not put the electric line in the ambulatory place.

Insert and pull the power line with hand gently and make sure the plug completely insert to the jack.

The Instrument should be put in the place of low temperature, little dust, no water and no sun or strong lamp. What's more, the place should be good aeration, no corrosively gas or strong disturbing magnetic field, far away from central heating, camp stove and other hot resource. Don't put the Instrument in wet and dusty place.



The vent on the Instrument is designed for ventilation. Don't wall up or cover the vent in order to keep from high temperature. If you use the more than one Instrument the same time, the distance between them should be more than 100cm.



Power off when you finish your work. Pull off the connector plug when there's long time no use of the Instrument and cover it with a cloth or plastic paper to prevent from dust.

Pull the connector plug from the jack at once in the following cases, and contact the vendor:



- There is some liquid flowing into the Instrument.
- Drenched or fire burned.
- Abnormal operation: such as abnormal sound or smell.
- Instrument dropping or outer shell damaged.
- The function has obviously changed.

3. The maintenance of Instrument

The rotor should be cleaned by the cloth stained with a little alcohol. If there are smutches on the Instrument, clean them by soft cloth stained with cleaning cream.

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Chapter 1 Introduction

Bioprep-24R is a homogenizer for biological samples, three-dimensional vibration with high speed, can handle 24 samples at the same time.

Features:

- Can brake; crack most of biological samples (animals;plants;human tissue; soils; yeast; spore; microorganism and etc).
- Handle 24 sample within several dozens seconds.
- 50 adjustable programs, choose different programs for different samples.
- Run will be stop automatically when the high strength PC cover open, making operation safe.
- The low temperature grinding environment, avoiding degradation of nucleic acid and denaturation of protein to the greatest extent.It can ensure the integrity of nucleic acid or protein extraction.

Chapter 2 Specifications

1. Normal operation conditions

Ambient temperature: 10°C~ 30°C

The relative humidity: ≤70%

Power: AC 100V-120V/200V-240V 50-60Hz

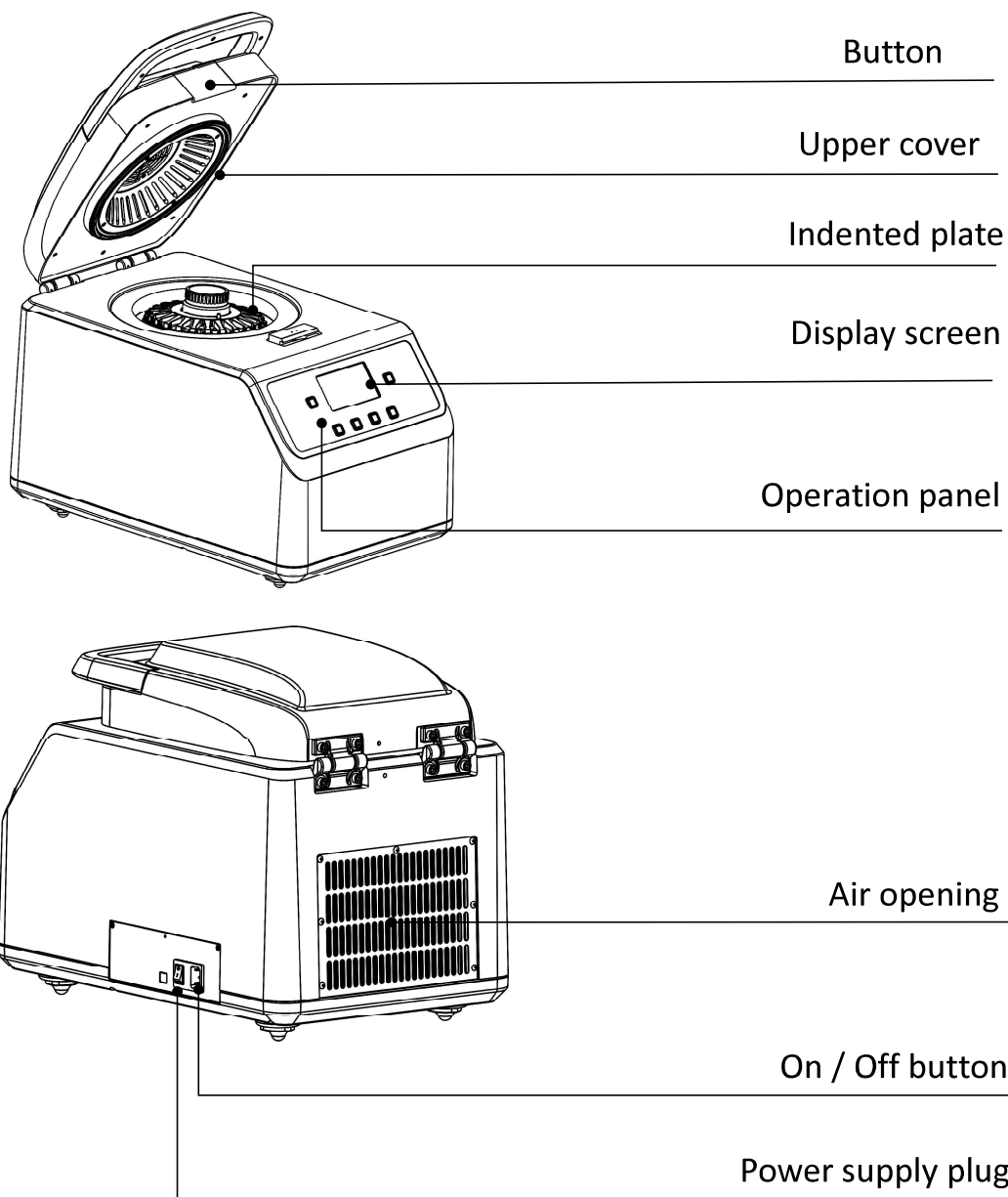
2. The basic parameters and characteristics

Parameter \ Type	Bioprep-24R
Power Supply	100V-120V/200V-240V 50-60Hz
Environment temperature	10°C-30°C
Temperature range	-10°C-40°C
From RT. to 0°C	≤30 min
Temperature uniformity	≤±2°C
Sample Size	24 * 2ml tubes/12 * 5ml tubes
Speed	4.00m/s~7.00m/s, Increased by step 0.05m/s.
Cycle duration	1s~ 1min30s, Increased by step 1s.
Pause	1s~ 2min, Increased by step 1s.
Number of Cycles	10
Programs	50
Acceleration time	<4s
Deceleration time	<4s
Data Output	USB
Noise	<65 db
Power	1000W
Weight (kg)	40.0kg
Dimension(WXDXH)	330mm×252mm×410mm

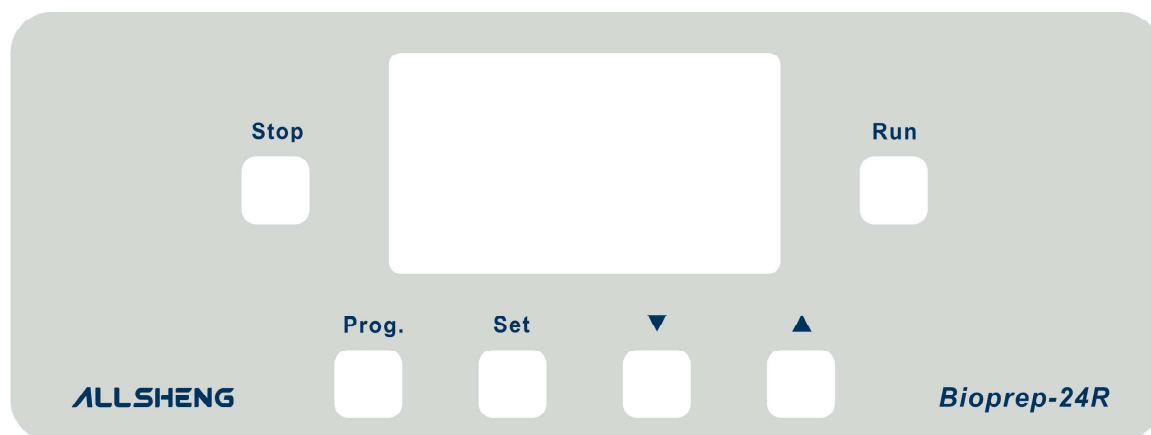
Chapter 3 Basic Instructions

This chapter mainly introduces the structure, operation keys, and displays of the instrument, as well as preparatory work before starting. Please read this chapter before starting when use this instrument in the first time.

1. Structure overview



2. Operation panel



Prog. Works with ▲ / ▼ to select the desired program.

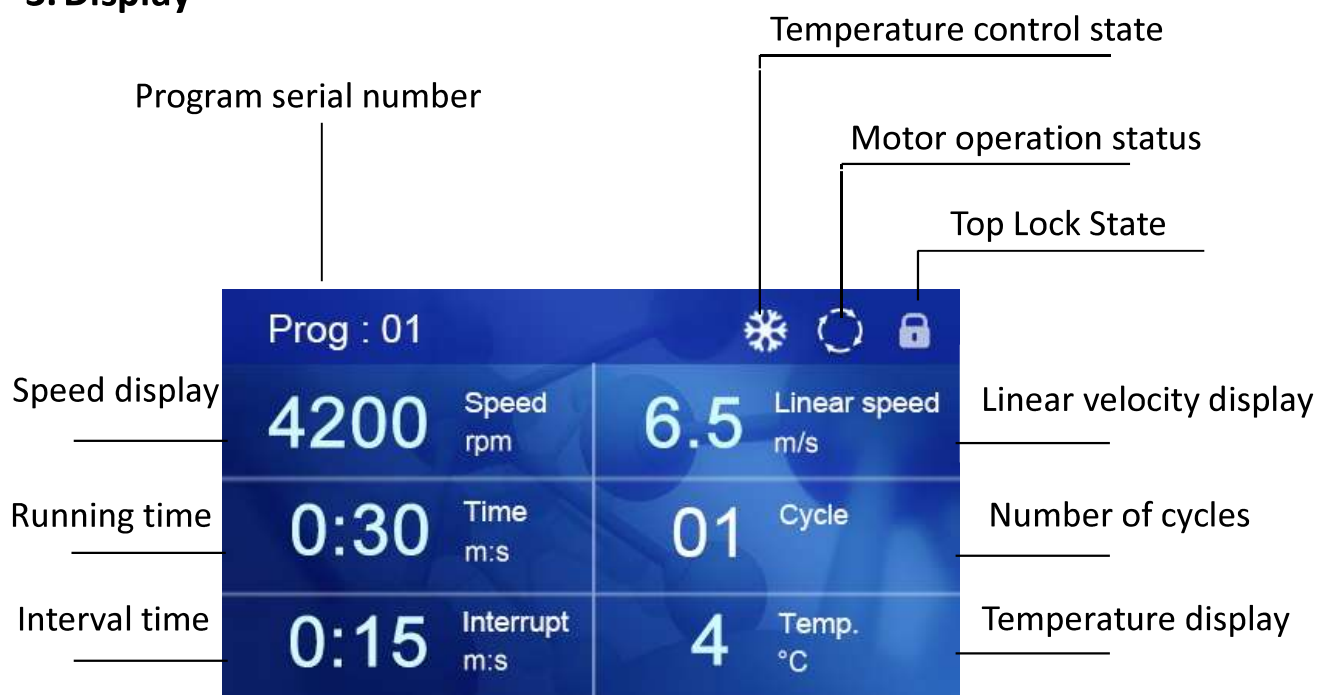
Set Set Speed, Run time, Interval time, and Pause time for current program.

▲ / ▼ Modify Parameters.

Run Run program

Stop Stop program

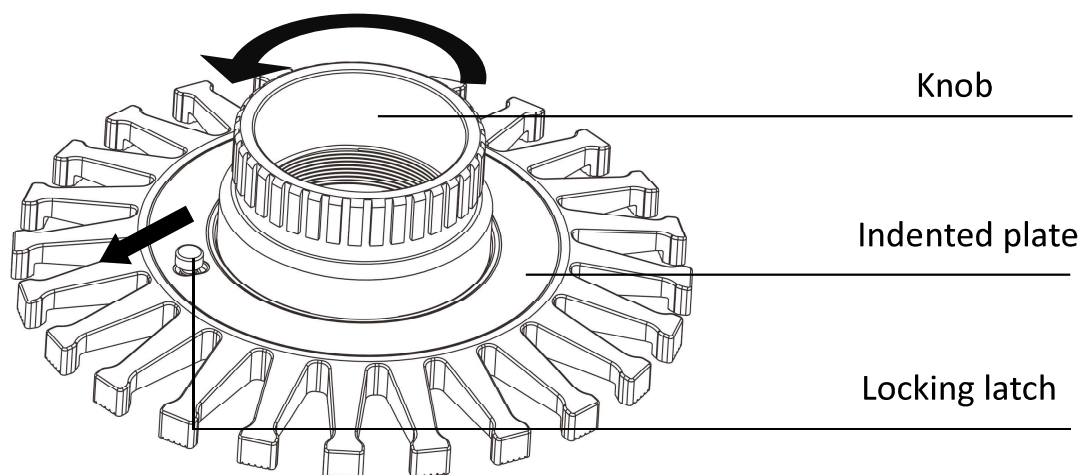
3. Display



Chapter 4 Operation Guide

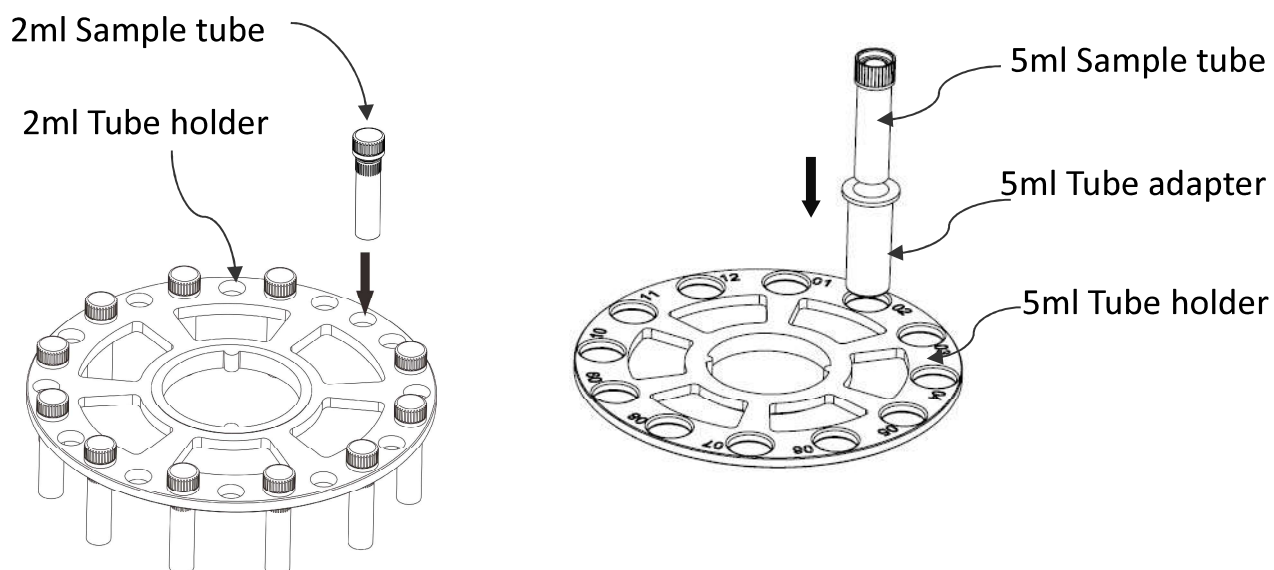
1. Lysing kits

1.1 Pull out the locking latch, turn the knob anticlockwise and take out the indented plate.



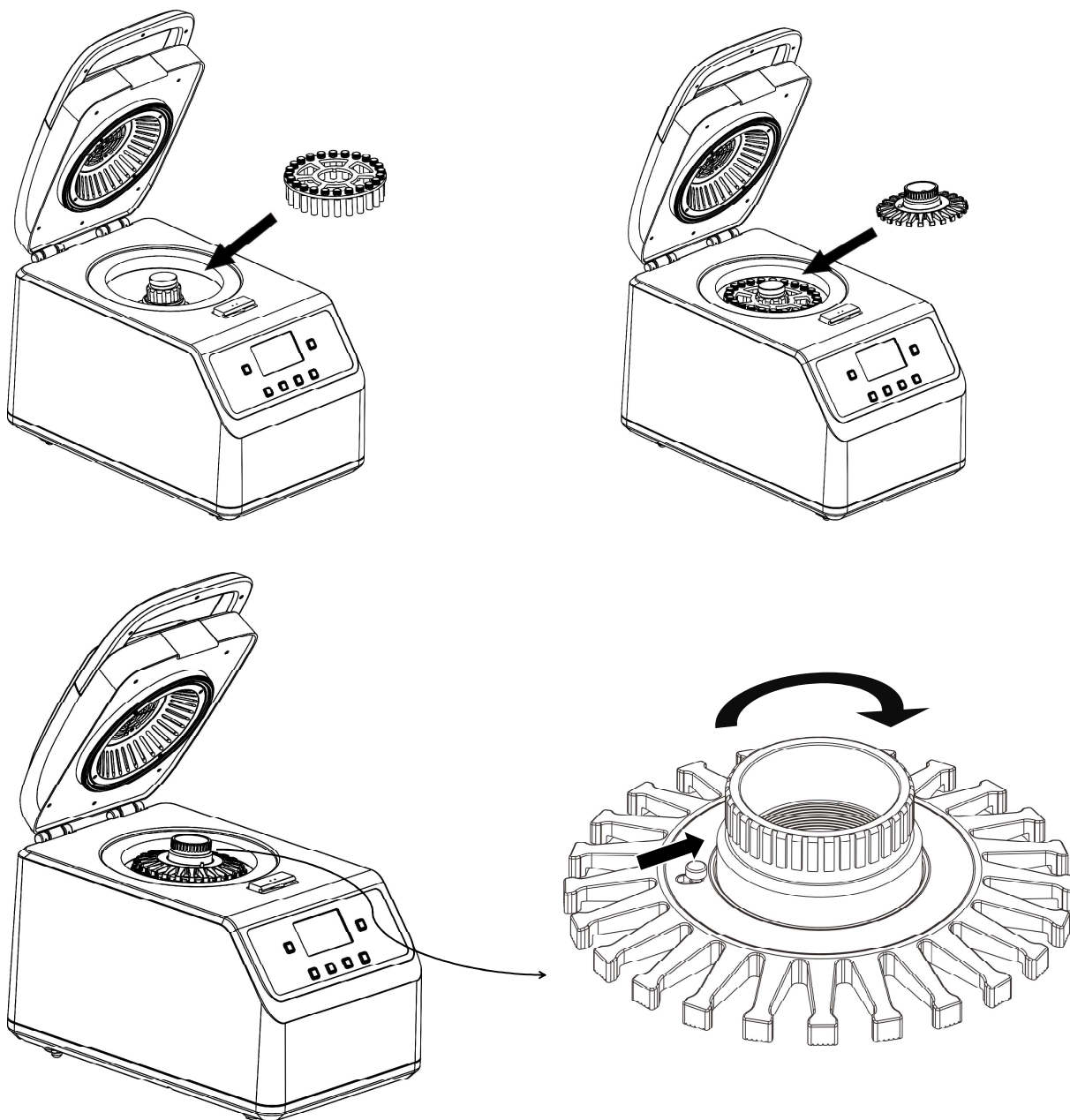
1.2 Take out the tubes holder, completely pressed the sample tube into tubes holder, the sample tube should be evenly distributed in each experiment.

Note: 5ml tube holder should be used with 5ml tube adapter together.



1.3 Take turns in putting Tubes holder & indented plate, clockwise tighten the knob, and push the locking latch inwards, “Da...” sound indicating that the locking latch is in place. If the locking latch cannot be pushed inwards, please turn the knob for 2 degrees and push again.

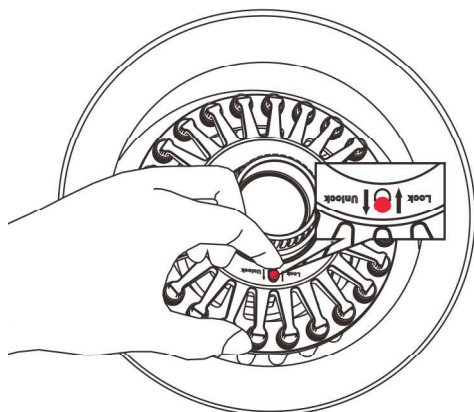
Note:The locking latch must be pushed in “LOCK” place.



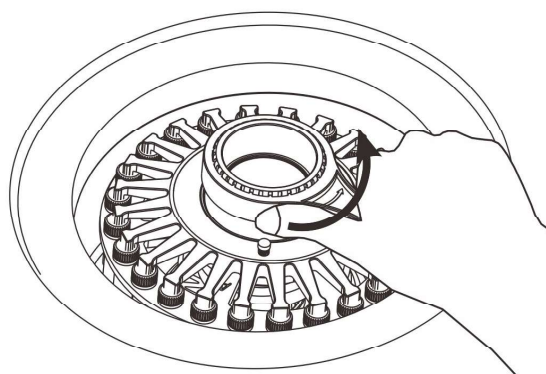
Tighten the knob clockwise, and pull the locking latch inwards to lock the indented plate.

1.4 After the sample tube installed well, close the protection cover, and switch the cover latch, then run program.

1.5 In the process of use, if the tube pressure plate is too tight to unscrew, you can use the pressure plate wrench



Move the lock lever outwardly to unlock the tube press plate. If the lock lever cannot be moved outwardly, please turn the knob for 2 degrees and turn the lock lever again.



Insert the wrench into the knob and loosen the knob counterclockwise.

2. Program selection

Prog : 01		❄️ 🔄 🔒	
4200	Speed rpm	6.5	Linear speed m/s
0:30	Time m:s	01	Cycle
0:15	Interrupt m:s	4	Temp. °C

Users can use 50 programs, hold down the Prog. key, and then press "▲" or "▼" to select pre-defined 1-50 programs.

3. Program setting

Press “Set” key once, SPEED in display flashes, then press “▲” or “▼”, to set the motor speed.

Continuously press “Set” key once, LINEAR SPEED in display flashes, then press “▲” or “▼”, to set the line Speed.

Continuously press “Set” key once, TIME in display flashes, then press “▲” or “▼”, to set the run time.

Continuously press “Set” key once, CYCLE in display flashes, then press “▲” or “▼”, to set the cycle.

Continuously press “Set” key once, INTERRUPT in display flashes, then press “▲” or “▼”, to set the pause time.

Continuously press “Set” key once, TEMPM in display flashes, then press “▲” or “▼”, to set the temperature time.

3s later, the set up values will be automatically confirmed.

Operating Ranges for Parameter Adjustments

Speed	Run number	Run Time(S)	Pause (S)	Rest time between 2 consecutive runs
4.0m/s-4.5m/s	1 to 10	5 to 90	5 to 120	2 to 5min
4.6m/s-4.9m/s	1 to 3	5 to 90	5 to 120	2 to 5min
5.0m/s-5.9m/s	1 to 3	5 to 60	5 to 120	5 min
6.0m/s-7.0m/s	1 to 3	5 to 30	30 to 120	5 min

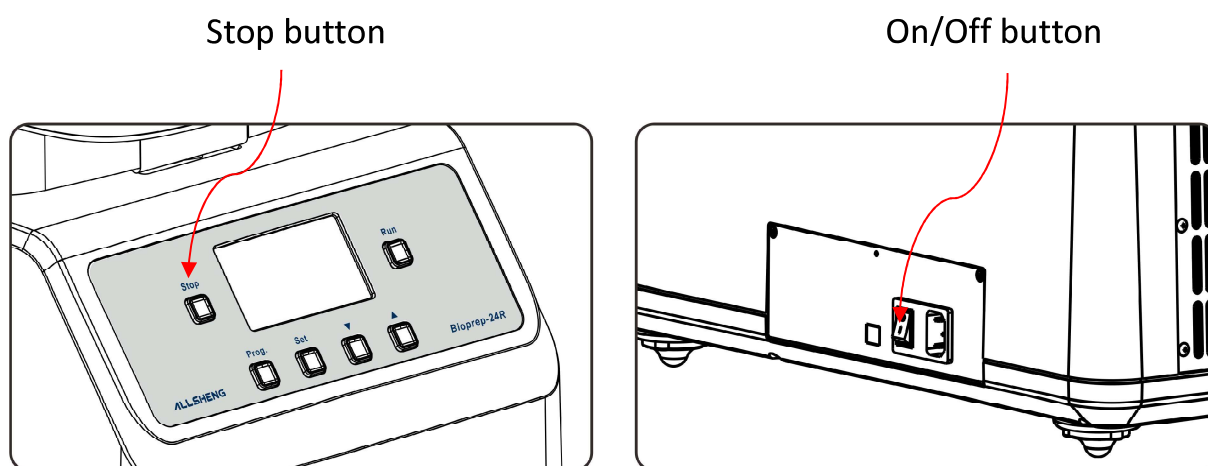
4. Running and ending program

Press “Run”, program running.

Press “Stop”, program ending.

Tips: If there is abnormal noise during the operation, please press

“Stop” at once to stop running, or turn off the On/Off button on the back of the instrument directly.



5. Grinding beads selection

Application		Lysis		RNA	Homogenize			Grinding
Bead materials		Glass beads	Glass beads	Carbonized beads	Ceramic beads	Ceramic beads	Garnet beads	Metal beads
Beads diameter		0.1mm	0.5mm	0.25mm	1.4mm	2.8mm	0.70mm	2.38mm
Sample volume		2mL	2mL	2mL	2mL	2mL	2mL	2mL
Microorganism	Bacteria	√	√	√				
	Yeast		√	√	√			
	Fungus	√	√	√				
	Spore	√	√	√				
Animal	Skin				√	√	√	√
	Nerve				√	√		
	Artery					√	√	
	Intestinal					√	√	
	Tumour					√	√	
	Muscular				√	√	√	√
	Brain				√	√	√	
	Liver				√	√	√	
	Kidney				√	√	√	
	Lung				√	√	√	
Heart				√	√		√	

	Bone					√		√
	Hair					√	√	√
	Cartilage					√		√
	Cornea				√	√		
Fish、 Insect	Insect				√	√		√
	Zebra fish		√		√		√	
Plant	Leaf					√	√	√
	Seed					√		√
	Paddy					√		√
	Wheat					√		√
	Stem					√		√
	Root					√		√
	Mousses				√	√		√
Soil	Soil			√	√	√	√	√
	Sediment			√	√		√	√

- ◆ General rules for Grinding beads selection: The higher of the sample's hardness and toughness, the greater density and diameter of the beads should be selected.
- ◆ No absolute selection for beads, a sample can also apply to a variety of beads.
- ◆ Glass beads are usually selected most as grinding beads for its reasonable price and can meet the general experimental needs.
- ◆ Researchers tend to choose beads closed to sample particle size, and those with greater density will be the first choice.
- ◆ Beads of same material but with different diameter can be matched to use by volume.
- ◆ Beads can be used repeatedly in a limited range. When cleaning, don't use acid, only need to soak overnight, then washed repeatedly with tap water, and finally rinsed by pure water.

6. Sample preparations

As heat generated by grinding process will make part of sample tissue damaged, we recommend:

After putting the sample into the sample tube, set the low temperature value. After the chamber temperature reaches the set temperature value, it should be frozen for about 5 minutes and then grinded, the effects will achieve the best.

7. Restore factory settings

Press the button “prog ”and turn it on as the same time , The buzzer sounds once to indicate completion.

Default parameters of factory program .

- ① Speed : 3650 rpm
- ② Linear speed : 6.00m/s
- ③ Time: 0:30 m:s
- ④ Cycle: 3
- ⑤ Interrupt: 0:30 m:s
- ⑥ Temp: 4℃

Chapter 5 Troubleshooting Guide

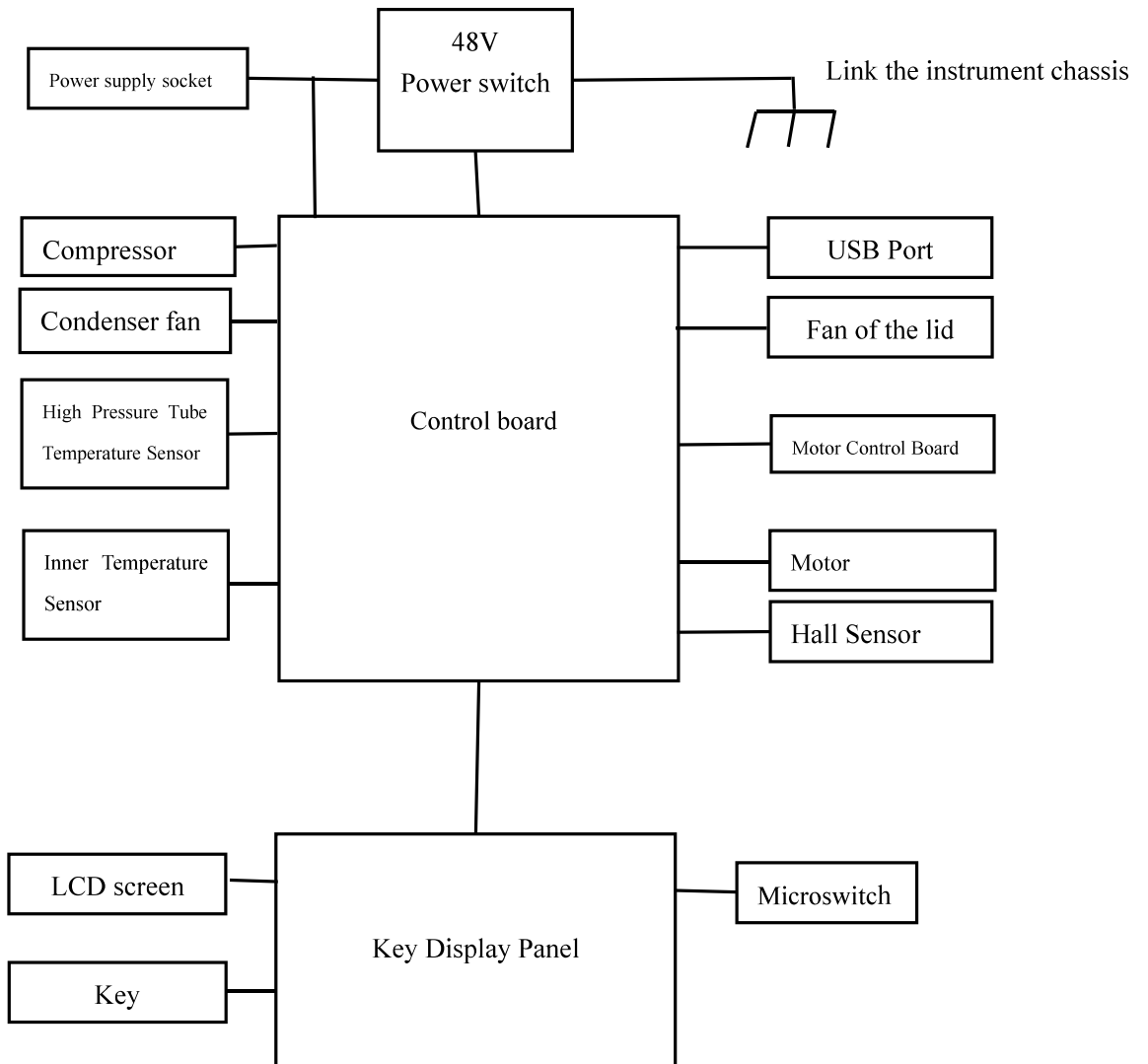
Problems and actions

No	Common problem	Possible cause	Action(s)
1	No display on the screen	No power on the main power plug	Check power supply and plugged properly
		On/Off button broken	Change button
		Faulty fuse	Change fuse(5X20 250V 10A)
		Others	Contact suppliers
2	Instrument can not run	Motor temp above 65°C	Running recovered till temp drops to below 60°C
		Faulty Control board	Contact suppliers
		Faulty Motor	
3	Abnormal running noise	Faulty Bearing	Contact suppliers
4	Keys don't work	Plug connector loose	Contact suppliers
		Faulty key board	Contact suppliers
5	Display screen displays "E104" and alarms	Motor rotation blockage	Contact suppliers
6	Display screen displays "E501" and alarms	During operation , the cover was opened accidentally	Close the cover
7	Display screen displays "E503" and alarms	Press the button "run" without close the cover	Close the cover and press the "run"
8	Display screen displays "E101" and alarms	Motor over speed	Contact suppliers
9	Display screen displays "E109" and alarms	Motor over temperature	Wait motor temperature falls below 60°C , resume operation
			High ambient temperature , transfer the site to 10C~30C environment for use

10	Display screen displays "E502" and alarms	Damage of Micro Switch	Contact suppliers
11	Display screen displays "E011" and alarms	Chamber overheating	Wait chamber temperature falls below 45°C, resume operation
			High ambient temperature, transfer to 10C~30C ambient temperature to use
12	Display screen displays "E015" and alarms	Chamber open circuit	Contact suppliers
13	Display screen displays "E016" and alarms	Chamber short circuit	Contact suppliers
14	Display screen displays "E021" and alarms	High pressure tube overheating	Wait high pressure tube temperature falls below 80°C, resume operation
			High ambient temperature, transfer the site to 10C~30C environment for use
15	Display screen displays "E025" and alarms	High pressure tube open circuit	Contact suppliers
16	Display screen displays "E026" and alarms	High pressure tube short circuit	Contact suppliers
17	Display screen displays "E027" and alarms	Motor Sensor open circuit	Contact suppliers
18	Display screen displays "E028" and alarms	Motor Sensor short circuit	Contact suppliers

Appendix: Wiring diagram

(This drawing is for reference only and is subject to change without notice)



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