

Operation Manual



BFRZ-86-201

-86°C ULT Freezer Chest

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

Statement:

Thank you for choosing and using the our Medical deep freezer. For your safe and convenient use and reasonable maintenance of the product, please read the operation instruction carefully and keep it properly for reference.

For damage of any instrument due to the fact that the user does not use the product according to the instrument operating environment declared in the handbook or injuries due to the fact that individual does not operate the product according to safety instructions, we has no obligations and responsibilities to be in charge of them.

The user must accomplish the following three points when using the product:

1. Always use protective devices correctly (including clothes, gloves, goggles, etc.);
2. Always adopt good health habits and operate strictly according to the product instruction;
3. Everyone is obliged to be in charge of one' own safety.
4. Not Allowed direct contact with patients, use or affect the product and in the product storage items.
5. Products without sterilization.
6. The product is used only for storage, not during use with other materials, Organization and Technology in combination.
7. Products can not be used to measure or analysis.
8. Life and storage life of the products is irrelevant.
9. Some models need to regularly add supplies, such as printer paper, test tubes, etc.
10. This product is non-explosion-proof products.
11. Non flash freeze equipment, is limited to keeping the temperature used.

Due to the fast product update, there may be differences between function of the product you bought and the function mentioned in the instruction, please in kind prevail.

Safety Instruction:

- Please read the handbook carefully when using the machine for the first time.
- The medical Medical deep freezer can only be operated by trained and authorized personnel.
- The maintenance of the equipment can only be accomplished by us or agents authorized by us.
- If operator runs into conditions not mentioned in the instruction, please contact us or agents authorized by us for inquiring correct processing method.
- Please use accessories provided by us, if user uses other accessories, we will not take charge of generated negative effects. however, the user can apply to us to test and verify that whether the accessories accord with the requirements.
- It is necessary to inspect and maintain the medical Medical deep freezer at specified time intervals.
- The medical Medical deep freezer is strictly prohibited to store living things or other goods which have strict temperature Requirement and are unsuited for storage at constant temperature.
- The medical Medical deep freezer realizes refrigeration through the heat dissipation of the back surface (condenser). In order to ensure normal operation and ventilation and heat dissipation, the back and the left and right sides of the Medical deep freezer body should be at least 30cm away from the wall and no barriers are allowed to block the air inlet and the air outlet.
- In case of machine fault or power failure, the temperature in the medical Medical deep freezer will rise. If the machine cannot be repaired in short period, please take out the stored goods and transfer them to other place where accords with the storing temperature to avoid damage.

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01 Diagram and Introduction of Product



Structural Diagram

Due to the improvement and various models of products, the actual product may be different from the diagram, please in kind prevail!

Deep Freezer series products are applied to places needing storage at constant temperature, such as hospitals, epidemic prevention stations, blood banks, scientific research institutions, colleges and universities, biological pharmacies, genetic engineering, entrepreneurs, etc. The storing temperature in the body can be set by the temperature button on the control panel. The application is convenient and the performance is reliable.

02 Preparation and Attention before Use

- Transport: the Medical deep freezer should be uplifted from the bottom when carried and put down lightly. The inclined plane should be no larger than 45 degrees.
- After installation, keep the device standing for 12 hours at least to return the compressor oil.
- After installation and first use testing, please adjust the castors to fix the device.
- Do not hold the door or the frame as stressed point
- Dismantle all package components (including protection foam in the Medical deep freezer body).
- Please check accessories and data according to the packing list.
- Please clean the product before use.
- Operating environment requirements:

- a. For indoor use only;
- b. The mounting surface must be fixed, horizontal and incombustible and be able to bear weight during the operation of the medical Medical deep freezer;
- c. To be placed away from direct glare of sunshine and heat and the environmental temperature should be not more than 32°C;
- d. Space of above 30cm is required to be left around the medical Medical deep freezer for ventilation and heat dissipation;
- e. Not allowed to be placed in the environment under 10°C;
- f. Not allowed to be placed at places with heavy moisture or easy-splashing water.
- g. Ambient non corrosive, flammable, explosive gas, liquid or dust.
- h. The surrounding environment must be kept well ventilated.

- On flat ground, the medical Medical deep freezer can be directly pushed to move.

❗ Notes: please note that do not let the power line be damaged by trundles when pushing the medical Medical deep freezer.

❗ Notes: be sure to take off the packaging pedestal on the bottom of the medical Medical deep freezer.

❗ Notes: Do not put goods into the medical Medical deep freezer which is just plugged in. Let the empty body run for a while (about 12 hours) and then put the goods to be

refrigerated into the Medical deep freezer.

➤ Normal operating condition of the equipment:

- a. Environmental temperature: 10°C—32°C;
- b. Relative humidity: ≤80%;
- c. There is no strong sharp pounding and corrosive gas around;
- d. There are no effects of direct radiation of sunshine and other cold and heat sources.

Working system of the medical Medical deep freezer: intermittent running

Safety precautions

- Supply voltage: the equipment needs 220V/50Hz alternating current power supply. If the service voltage is lower than 187V or higher than 242V, it is necessary to add a proper automatic voltage regulator to be used cooperatively;
- When the medical Medical deep freezer is used, the power supply is required to be equipped with a lower voltage air circuit breaker and a leakage protection device;
- It is necessary to use a dedicated independent socket which is grounded reliably. The length of the power line cannot be lengthened at randomly. If it really needs to be lengthened, be sure to use a cooper core conductor which is larger than 2.5mm². And the cross area of the copper core conductor which is in the wall and connected with the power socket must be above 4mm² ;
- Inflammable and explosive dangerous goods and goods of acid and alkali etc. with strong corrosiveness are not allowed to be put into the medical Medical deep freezer;
- Keys should be kept properly to avoid accidents that will happen if children get the key to open the door;
- The zero line (N end) of the socket cannot be connected with the ground lead (E end). Otherwise, the housing of the medical Medical deep freezer may be electrified and electric shock accidents may be caused;
- The power line cannot be bundled up, pressed under weight and next to heat sources of compressor, etc.

03 Instructions

3.1 First use

- After being unpacked, the medical Medical deep freezer should be placed well to according to the service environment requirement;
- Although the Medical deep freezer has been cleaned inside when leaving factory, it is advised to scrub the medical Medical deep freezer with warm water added with a little neutral detergent and then scrub it with clean water and wipe it up (electrical system cannot be cleaned but scrubbed with dry cloth);
- Set the temperature controller of the medical Medical deep freezer at -60°C and turn on the power. After 3 minutes, the compressor is started. After 30 minutes, the temperature inside the medical Medical deep freezer decreases obviously. It means the refrigerating system is operating smoothly and the machine test is finished;
- For first use, it is advised to put the goods to be stored in the Medical deep freezer after the inside temperature falls to the operating temperature. If there are too much goods to be stored, it is advised to store separately for three times. When the inside temperature of the Medical deep freezer falls to the set temperature after the storage of the last time, store the goods for the second time. Storing too much goods at one time may cause that the Medical deep freezer cannot fall to the set temperature for a long time, thereby causing damages of goods;
- In order to save electrical energy, please try to reduce door-opening frequency and open time.
- Marking in the technical data power consumption power consumption is rated, it is according to the standard, At 25 °C ambient temperature, inside temperature is -60°C, do not open the door, stable operation of the data measured by 24-hour. When more storage, when the ambient temperature is high or frequent door, the actual power consumption is higher than the electricity consumption of mark is normal
- After a period of low temperature Medical deep freezer work, opening and closing doors can cause cold air spills inside the box, resulting in low air pressure inside the box, I can't open the door again in 2-5 minutes, this is a normal scene. If you need an emergency door, open the pressure relief hole after about 10 seconds to balance internal and external pressure, again open the door.

3.2 Temperature regulation

3.2.1 Key function



3.2.2 Parameter setting method

A. Set temperature

When the power of the Deep Freezer is on, the display screen shows the inside current temperature value. If the set temperature has to be readjusted, for example, the original set temperature is -60°C which now has to be adjusted to -50°C, please operate according to the following steps:

- Press ▲ + ▼ for 3 seconds to unlock the display, displays PON
- Press Set for 1 second, displays the current setting temperature -60
- Press the Set key for 5 seconds, press ▲ and ▼ to adjust the setting temperature to -50
- Press SET to save the setting
- Press ▲ + ▼ for 3 seconds to lock the display, displays POF

B. Factory Setting(must be operated by authorized service man.

Press ▼+ SET for 5 seconds to enter FUNCTIONS MENU:

ALU	ALL	ALH	ALd	OPb	rES
Temp. Alarm up limit	Temp. Alarm lower limit	Alarm temperature difference	Alarm delay	Sensor correction	Resolution ratio

3.2.3 Alarm code

NO.	Alarm Code	Description
1	LA	Low Temperature Alarm
2	HA	High Temperature Alarm
3	PHC	Sensor error Alarm, open circuit
4	PFO	Sensor error Alarm, short circuit

After the power is switched off, the control function of the controller fails and the back-up source is used for displaying. If the back-up source is charged for more than 10 hours, the power failure symbol "Pd", the current inside temperature and the alarm display alternatively for one time and then display again after 30 seconds' stop for cycle operation. After 8 hours, the nixie tube stops displaying. The high temperature alarm mark light will twinkle continuously until the electric quantity of the back-up source is used up. The inside temperature can be continuously displayed during the power failure. Please pay attention to this and take relevant measures to avoid damage.

3.2.4 Error display

- When faults of the Medical deep freezer temperature display sensor including short circuit, open circuit "PHC" is display ,malfunction and incorrect connection appear, "PFO" is displayed. At the same time, the buzzer of the temperature controller will give out alarm and the display screen displays corresponding alarm parameters (PHC,PFO).
- Suggest: If you judge that the temperature sensor goes wrong, you should cut off the power and first check whether the connecting wire of the sensor is loose. Please contact professional after-sales service or distributor of us for processing.

❗ Tips: if internal code appears when user regulates the temperature controller, the user should wait for 1 minute and then operate it till the inside temperature is displayed to avoid fault of the medical Medical deep freezer caused by the changing of the control parameter.

- When the medical Medical deep freezer stops temporarily due to power failure or other faults, the inside temperature of the medical Medical deep freezer will rise from -60°C to -20°C within 8 hour. If power cannot be supplied in short time, the user should consider taking out the stored goods and putting them into other normal medical Medical deep freezers for storing to avoid losses caused by the damage of the stored goods.
- Before putting goods into the medical Medical deep freezer to be stored, the user

should confirm in advance that whether inside temperature of the medical Medical deep freezer is in accordance with the set temperature for storing to avoid losses caused by goods damage due to the improper temperature.

- Due to the refrigeration inertia, the medical Medical deep freezer cannot be kept at constant temperature. And there is certain up and down difference between the inside temperature and the set temperature. The inside temperature varies with the changing of the environmental conditions and the temperature set . It belongs to normal phenomenon.

04 Routine Maintenance

In routine maintenance, in order to prevent electric shock or personnel injuries, be sure to cut off the power before repairing or maintaining the equipment and do not inhale drugs or particulate matters surrounding the equipment when maintaining the equipment. It is necessary to have dry gloves to protect your hands. Otherwise, your hands may be cut by edges or corners of the Medical deep freezer body.

4.1 Clean of incubator

- The medical Medical deep freezer should be cleaned for once every month. Regular cleaning may keep the appearance of the Medical deep freezer new;
- Use dry cloth to wipe off a small amount of dust on the surface, the interior and all accessories of the medical Medical deep freezer. If the medical Medical deep freezer is very dirty, it is advised to use neutral detergent for cleaning;
- After cleaning, use cloth which has been soaked in clean water to wipe off the detergent;
- Do not pour water on the surface or inside of the medical Medical deep freezer. Otherwise, the electrical insulation may be damaged, thereby causing malfunction.
- During the rainy season, vapors may be easily condensed on the surface of the glass door of the Medical deep freezer, water may drip in bad condition. Please use dry cloth to wipe it at the proper time. Normal use will not be affected.

4.2 Defrost

Frost may be appeared on the internal wall and may possibly cause gap between the cabinet and door seal. It will lead to a bad performance. Please remove frost after cutting off the power supply. It is advised to wipe it dry with dry cloth.

- Turn off power switch of the freezer. Open the door, Take out and transfer all the objects to another cabinets;
- Eradication of surface gently with a defrosting scoop cream(Also allows the temperature inside the box will certainly rebound, the melting Frost);
- Remove saved room outlet cover plate, rack up to accumulate water;
- Wipe clean indoor residual water saved, and then reattach the outlet cover plate
- Turn on power switch of the appliance, Power cooling
- After you save the indoor temperature drops to the desired temperature, to save the original items back into cold storage box

! Notes: Defrosting shall not use a sharp metal utensils to prevent damage to low temperature Medical deep freezer

4.3 Care and Maintenance

- Don't put heavy stuff on the door or top cap in order to avoid deformation of stress
- The medical Medical deep freezer should be cleaned and maintained at set intervals.
- Use warm wet soft cloth to wipe the inner and outer surfaces of the medical Medical deep freezer.
- If especially dirty, use neutral detergent for washing tableware to wipe and then use cleaned soft cloth to wipe out the water spots.
- Once starting the medical Medical deep freezer, you'd better keep it running continuously.

! Notes: Never splash water directly onto the storage Medical deep freezer as this may cause electric shock or short circuit. Never use hot water and corrosive detergent or organic solvent to clean. Never clean the medical Medical deep freezer with scrubbing brush and wire brush. Keep children away from the equipment.

05 Clearing of Fault and Maintenance Service

Some abnormal conditions of the Deep Freezer are caused by misuse. Before you commit maintenance, please compare with the following table for self inspection and exclusion.

Problems	Reasons and Solving Measures
Deep Freezer does not work	<ul style="list-style-type: none">·If the power socket has electricity?·If the power socket is plugged or loosened?·If the power fuse is disconnected?·If the supply voltage is too low or too high?
Compressor breaks down	<ul style="list-style-type: none">·If the temperature setting is right?
Temperature goes on decreasing after reaching to the set value	<ul style="list-style-type: none">·If the temperature setting is right?
Temperature cannot reach the set value	<ul style="list-style-type: none">·If the fan stops running?·If the door is not closed tight or opened too frequently?·If too many goods are put in at one time and if the air channel is blocked off?·If the environment temperature is too high?
Too much noise	<ul style="list-style-type: none">·If the Medical deep freezer body is placed at the flat ground?·If the Medical deep freezer body touches the wall?·If the incubator immediately enters operating state after being started?

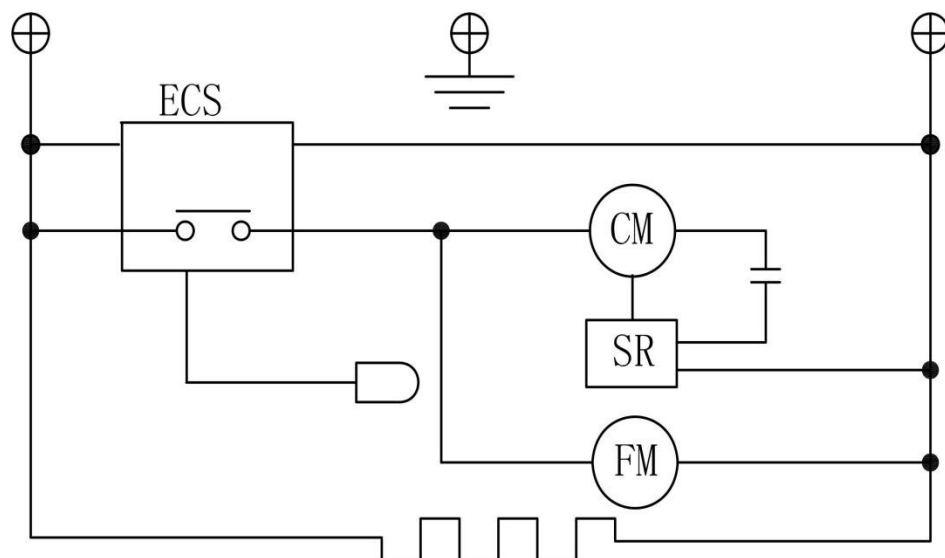
If you cannot judge the fault cause or debug, please contact the local distributor or us directly and tell use your name, address, phone number, type of the Deep Freezer, purchase time, fault phenomenon, etc. Professional engineer will offer warmhearted service to you.

06 Main Performance Index

6.1 Main technical parameters

Model	Temp (°C)	Volume (L)	Power supply (V~)	Refrigerant	Dimension
BFRZ-86-201	-40~-86	485	220V/50Hz	CFC-Free	1655x755x915

6.2 Electrical schematic diagram



ECS=Thermostat CM=Compressor
 FM=Evaporation fan SR=Medical deep freezer start

07 Packing List

Model	Operation instruction	Door handle	Snow shovel	Screw	Screwdriver
BFRZ-86-201	1	1	1	4	1



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