MEDI©GUARD

Chest Freezer

MG-86W50

User Manual

Content

Preface	Error! Bookmark not defined.
Content	2
1. Scope of Application	3
2. Working Environment	3
3. Technical Parameters	3
4. Performance	3
5. Working Principle and Product Structure	4
5.1 Working principle	4
5.2 Product Structure	4
6. Installation and Operation Instructions	5
7. Maintenance	10
7.1 Cleaning and disinfection	10
7.2 Defrost	11
7.3 Maintenance advice	11
7.4 Storage and transportation conditions	11
8. Notes	
9. Label description	Error! Bookmark not defined.
10. The EMC	15
11. Common Fault Analysis	16
Attachment A Circuit Schematic Diagram	17
Attachment B Accessories List	Error! Bookmark not defined.
Appendix C Warranty	

1. Scope of Application

It is suitable for clinical, pharmaceutical, scientific research, quarantine and other departments to store items under low temperature conditions.

2. Working Environment

- a) Only applicable for indoor use;
- b) Ambient temperature: 10°C ~32°C;
- c) Relative humidity: not more than 90%;
- d) Power supply: single-phase voltage: (220 ± 22) V; frequency: 50Hz ± 1Hz.
- e) No strong vibration and corrosive gas exist around;
- f) No direct sunlight exposure and other cold and heat sources.

Model	MG-86W50
Volume (L)	50
Setting temperature range (°C)	-40∼-86°C
Net weight (kg)	83
Climate type	SN/N
Rated power (W)	540
Dimensions (W×L×H)(mm)	695×740×985
Software release version	V1.0.0.0

3. Technical Parameters

4. Performance

4.1 Characteristic point temperature

The characteristic point temperature of the freezer shall not be greater than-86°C.

4.2 Temperature display

A) The freezer shall have a device displaying the temperature in the chamber. The minimum separation value of the temperature display shall be 1°C or better, and the difference between the display temperature and the set temperature shall be less than 3°C.

B) The temperature in the freezer is above or below the set temperature shall have the alarm function, and the alarm temperature can be set manually. The alarm displayed with sound beep and flashing flashing. The alarm temperature is generally set to be 10°C above or below the set operating temperature.

4.3 Cooling time

The time required for the temperature to drop to the temperature specified in the table shall meet the requirements in the table.

No.	Temperature at the characteristic	Cooling time / h
	point(°C)	(upright type)
1	- 81	≤8

4.4 Power consumption

The measured power consumption value of the freezer shall not be greater than 115% of the rated value.

5. Working Principle and Product Structure

5.1 Working principle



A-Compressor B-Condenser C-Anti exposure tube D-Drying filter E-Disc heat exchanger F-Capillary G-Optical tube evaporator

5.2 Product Structure

The product is mainly composed of cabinet body, door body, refrigeration system, control system and accessories, which can be divided into top open type and upright type according to the form of door or cover.



Figure 1: Schematic structure diagram of BDF-86H50

- 1. Outer door body: Overall cyclopentane foam insulation, with good insulation effect.
- 2. Cabinet: Overall cyclopentane foam insulation, with good insulation effect.
- 3. Thermostat : control the temperature in the display chamber.
- 4. Air intake grille: This mouth cannot be blocked to maintain normal cooling performance.
- 5. Battery switch: used to display the temperature in the freezer for a certain time after power failure.
- 6. Power switch: You can turn the device on or off. On: |; off: 0.

Due to the improvement and different models, the actual product may be different from the diagram, please refer to the object!

6. Installation and Operation Instructions

6.1 Precautions for receiving ultra-low temperature freezers

a) After removing the packaging, carefully check whether the product information is in accordance with the order requirements, and refer to the accessories list in the instruction manual, and check whether the accessories and data are complete.

Please keep the box for reuse in case of unexpected situations.

6.2 Handling and moving

a) When transporting, it should be lifted from the bottom, the inclined surface should not be greater than 45 degrees, and it should be handled with care;

b) When carrying or moving the bare metal, do not grasp the non-load-bearing parts such as the door body;

c) Remove all packaging components, including the protective foam inside the case.

6.3 Installation and debugging

a) Remove the packaging material and the packaging tape

Remove all the packaging materials and packaging belts for transportation. Open the box door to

ventilate the equipment. If the equipment housing is dirty, clean with a neutral detergent.(Undiluted detergent may damage the plastic parts. For dilution method, refer to the instructions of detergent.) After washing with diluted detergent, wipe with a clean soaked cloth and then with a dry cloth.

b) Adjust the horizontal feet

Rotate the horizontal foot counterclockwise to extend the horizontal foot out to touch the ground. Ensure that the equipment is in a horizontal state.



d) Grounding

∕∕Warning

A power socket with a ground wire should be used to prevent electric shock. If the power socket is not grounded, it must be installed by qualified engineering personnel.

Do not ground the equipment through the gas pipe, water supply pipe, telephone line or lightning rod. The above grounding may cause electric shock in the case of incomplete pipe line.

e) Starting device

When starting commissioning or officially running equipment, follow the following steps.

1. In an empty state, connect the power cord to a suitable special socket and turn on the power switch.

- 2. If you hear the alarm sound, press the mute button to stop alarm.
- 3. Set the required temperature in the freezer.
- 4. Check whether the temperature in the freezer reaches the required temperature.

5. After confirming the above steps, a small amount of pre-cooled items (-40°C) can be put into the freezer in batches, with a time interval of at least two hours, to prevent the temperature from rising.

Temperature controller setting

The temperature controller has set the default parameters, please do not change.

<u>/!</u>Note: The default temperature of the device at the factory is set at-80°C

Compressor delay start time changes

In order to reduce the power load after power failure, the equipment can change the delayed start time of the high temperature compressor.

ANotes:

· There is no need to change the delayed start time when the entire power supply capacity is sufficient.

6.4 Operation Instructions

A) Key-press function

The temperature controller is installed on the upper mask of the freezer, and the digital display screen can display the actual temperature in the box. The temperature controller control panel is shown below:



(1) Set key (2) Up-key (3) Down key

Parameter setting method

(1) Set key: press this button for 1S, view and modify the setting temperature, press this button for 3S, enter the correct password, then enter the secondary parameters. When the parameter is set in mode, press this key to alternately display the parameter value and the parameter name. If the press time is more than 3 seconds, then save the setting. When setting the set temperature, press the key to save the set value.

(2) Up key: In the parameter setting mode, you can move to the next parameter, or increase the

parameter value. When setting the set temperature, increase the set temperature value.

③ Down key: in parameter setting mode, you can move to the previous parameter, or reduce the parameter value. When setting the set temperature, reduce the set temperature.

(4) In normal operating state, after pressing \blacktriangle and \triangledown for 10 seconds, you can unlock the locked controller (digital tube displays ON) or lock the unlocked controller (digital tube displays Loc). When the controller is locked, it cannot be operated and must be unlocked before operation on the controller. By default, it is not a locked in state.

B) Fault code

This device has the alarm and safety functions shown in the following table, and has the self-diagnosis function.

Alarm and security functions

1. When the temperature in the chamber exceeds the upper temperature limit alarm value or lower temperature limit alarm value, the buzzer will alarm. Over the upper limit, the digital tube will flash "AH", and when it exceeds the lower limit, flashing "AL".

2. Display "HHH" when the temperature in the chamber exceeds the upper limit of range, and display "LLL when it is below the lower limit of range.buzzer warning.

3. When the temperature probe in the chamber is short circuit or open, "EE" is displayed and the buzzer alarms.

4. When the temperature in the chamber exceeds the range or the probe fails, the compressor shall run alternately for every 45 minutes and run for 15 minutes.

5. In the alarm state, pressing any key can eliminate the alarm ASD time, but the alarm display state remains unchanged. If the alarm is still in after the ASD time, continue to beep and alarm.

When the controller displays the above alarm code, please check the corresponding equipment or components according to the corresponding code, or check whether the controller's parameter setting is appropriate.

Suggestion: When determining the temperature sensor is wrong, the power supply should be cut off, first check whether the connecting line of the temperature sensor is loose. Please contact our company's professional after-sales personnel or dealers for processing.

In case of power failure or other faults, the freezer will stop working, and the temperature in the freezer will rise. If the power supply cannot be restored in a short time, it should be considered to remove the stored items and put them into other normal freezer for storage, so as to avoid the damage caused by the stored items.

Before storing the item in the freezer, confirm in advance whether it is suitable for the temperature conditions you set, so as to avoid damage due to the item not suitable for the temperature of the equipment.

Due to refrigeration inertia, the freezer can not maintain constant temperature, the temperature in the chamber and the set temperature, which is different with the use environment and the setting temperature, which is a normal phenomenon.

6.5 Product contraindications

There are no absolute contraindications to this product.

Hazard types	potential hazard	Hazard impact	analysis of causes	service restrictions
Performance hazards	Transport goods damage	Cause machine damage	1. Improper transportation or handling operation	Sign for it carefully, and the freezer is verified by professional personnel before use
	Error in using the settings operation	Lead to the low- temperature box operation failure, performance imbalance	 1. Untrained personnel; 2. Mis operation 	This freezer is used by personnel trained in usage methods
	Mechanical hazard of the operators	Personal safety accident	 The door body squeezed and hurts the finger; Cabinet body dumping 	Personnel with safety knowledge of mechanical operation
Electrical hazards	Harm of electric shock	Personal safety accident	 1.The wires are damaged; 2.bad earth; 3.Water and gas are wet 	Personnel with electricity safety experience
	fire hazard	Personal safety accident	 1.Excessive socket load in the operation area; 2.Power line aging short circuit 	Personnel with electricity safety experience use, and have certain fire knowledge

6.6 Potential safety hazards and restrictions of use

6.7 Accidents in use and methods

Accident analysis	Hazard	Method
Sudden power-off during use	Rising temperature in the freezer causes damage to the stored items	Immediately transfer the freezer items to other suitable storage environments
Emergency situation of the working environment, such as fire, earthquake, etc	Operator injured and freezer damaged	Evacuate the personnel immediately. If the time allows to cut off the power

If the equipment is not used in the prescribed way, the protection provided by the equipment may be damaged.

Light Users should not replace the battery at will. Wearing the wrong model of the battery may cause the danger of explosion or fire. If there is a replacement need, please contact the after-sales service and distributor of BIOBASE.

7. Maintenance

Since the statistics of the use time will directly affect the judgment of maintenance needs, we suggest that when using the ultra-low temperature freezer, a record form of use time should be prepared for inquiry and reference.

In daily maintenance, in order to prevent electric shock or personal injury, be sure to cut off the power supply of the ultra-low temperature freezer before any repair or maintenance on the ultra-low temperature freezer, so as to ensure that the medicine or suspended particles around the ultra-low temperature freezer will not be inhaled when maintaining the ultra-low temperature freezer. Otherwise it will endanger your health. Be sure to wear dry gloves and a mask during maintenance to protect yourself.

7.1 Cleaning and disinfection

Refer to Part 2 of WS 310.2-2016 Hospital Disinfection Supply Center:

Cleaning and Disinfection and Sterilization Technical Operation Specifications and Technical Disinfection Specifications for Medical Institutions 6.2 Cleaning and Cleaning Methods and C.10 Chlorine-containing Disinfectants and C.11 Alcohol Disinfectants in Appendix C, determine the cleaning and disinfection methods of this product as follows :

a) Clean the working chamber and sealing strip

Clean the entire inner cavity and sealing strip with a cotton cloth or towel soaked in distilled water before use, and wipe the contaminated inner cavity and sealing strip surface with a cotton cloth soaked in medical alcohol (alcohol concentration: 75%), Wipe off all foreign matter, then use a clean dry cotton cloth or towel to wipe off the water on the inner cavity and the sealing strip, and let it stand for half an hour before it can be used normally;

Use protective gear (clothes, gloves, goggles, etc.) when cleaning with alcohol;

Please use designated reagents for cleaning, and do not use cleaning agents or disinfectants that may cause danger due to chemical reactions with equipment components or materials contained in the equipment. If in doubt about the compatibility of disinfectants or cleaning agents with equipment components or materials contained in equipment, please contact a technical engineer or agent dealer; If dangerous substances leak on the surface of the device or enter the interior of the device, use medical alcohol to clean it thoroughly, and then use a clean dry cotton cloth or towel to absorb the residual moisture before continuing to use it.

b) Cleaning of exterior surfaces and glass doors

After cleaning the contaminated surface with rubbing alcohol, wipe it with a soft cotton cloth or towel. If there is dirt that is not easy to remove, first wipe it with a cotton cloth soaked in neutral soap, then wipe off the soap foam with another piece of cotton cloth soaked in warm water, and then dry it with a dry cloth;

In the case of high ambient humidity in summer, there may be condensation on the mouth frame of the ultra-low temperature storage box. This is a normal phenomenon, and it can be wiped dry with a dry cotton cloth in time.

CDo not wash the inside and outside of the ultra-low temperature storage box directly with water or detergent, so as not to cause the insulation performance of electrical components to

decrease and the material to rust.

Never use hot water or aggressive organic cleaning solvents to clean the ULT freezer.

Do not clean surfaces with scrub brushes, wire brushes, etc. to avoid scratches, paint peeling, etc.

7.2 Defrost

Frost is usually on the upper part of the freezer and on the inner door. Frost may create a gap between the cabinet and the door seal, and then cause a poor cooling effect. Defrost the internal door with a defrosting shovel attached with the equipment. The following procedure is to defrost by removing the empty cabinet.

∠! Note: Please do not use knives or screwdrivers with sharp corner tools to defrost.

1. If there is an auxiliary cooling device, please turn it off.

2. Remove the contents of the box and transfer to another freezer, or into a container with frozen liquid carbon dioxide or dry ice.

3. Turn off the power switch.

4. Open the outer and inner doors. Lift the inner door up and take it down.

5. Let the outer door of the freezer be opened naturally for a period of time to defrost.

6. Use a dry cloth to wipe off the accumulated water at the bottom of the cabinet.

7. After cleaning the cabinet and the inner door, put the inner door back, and restart the device according to the "Start the device" procedure.

8. Put the item back into the fully cooled box.

9. If there is an auxiliary cooling unit, turn the unit back on.

7.3 Maintenance advice

a) It is recommended to clean the outer surface of the ultra-low temperature freezer every day;

b) It is recommended to clean the inner wall of the ultra-low temperature storage box and the surface of the shelf in the box every week;

c) It is recommended to remove dust and clean the cabin of the ultra-low temperature storage box every month;

d) It is recommended that professionals maintain the complete machine and core components of the ultra-low temperature freezer every year;

e) It is recommended to establish a maintenance file for the ultra-low temperature freezer, and record each maintenance.

7.4 Storage and transportation conditions

a) The well-packed low-temperature box should be stored in an environment where the relative humidity does not exceed 80%, the temperature is lower than 40°C, the environment is well ventilated, and there is no acid, alkali and other corrosive gases. Once the freezer is used, it is best to use it continuously;

b) The storage period of the freezer is six months, and the freezer beyond the storage period must be inspected and verified again, and can only be used after passing the test;

c) During the transportation of the freezer, corresponding measures should be taken in full accordance with the requirements of the outer surface of the box. Please carefully check the integrity of the box when receiving the product with the box sent by the logistics company. If the packing box is damaged or squeezed, please refuse to sign for it, or unpack it for inspection on the spot;

8. Notes

a) The cryogenic freezer can only be operated by trained and authorized personnel;

b) Before connecting the AC power supply, ensure that the voltage of the power supply is consistent with the input voltage of the equipment and the voltage is stable, and ensure that the rated load of the power socket is not less than the requirements of the ultra-low temperature freezer;

c) The ultra-low temperature freezer uses a grounding plug with a third pin, which can only be used with a grounding power socket, which is a safety device. If the plug does not fit into the outlet, have an electrician install a grounded outlet;

d) The power cord cannot be bundled, cannot be pressed under heavy objects, and cannot be placed close to heat sources;

e) Ensure that the power supply can be disconnected in time in case of emergency;

f) Do not place heavy objects on the door or top cover of the ultra-low temperature freezer, so as to avoid deformation of the door body or top cover under pressure;

h) It is strictly forbidden to put flammable and explosive dangerous goods and highly corrosive acids and alkalis into the ultra-low temperature freezer;

i) It is strictly forbidden to store live animals in this ultra-low temperature freezer;

j) Before storing the item in the ultra-low temperature freezer, you should first confirm whether it is suitable for storage under the temperature conditions you set, so as to avoid damage to the item and cause loss because the item is not suitable for the temperature of the ultra-low temperature freezer; k) When the ultra-low temperature freezer stops running in case of power failure or other failures, the temperature inside the ultra-low temperature freezer will rise, and the temperature inside the box may rise to above 15°C in about 30 minutes. If the power supply cannot be restored within a short period of time, the items should be taken out and stored in other suitable environments to avoid damage caused by items;

I) Please keep the key of this ultra-low temperature freezer properly to avoid accidents when children get it and open the door to play;

m) Please keep the instruction manual in its entirety, and ensure that the instruction manual is transferred or handed over as part of the ultra-low temperature freezer when the site or unit of use of the ultra-low temperature freezer is changed;

n) When the ultra-low temperature storage box is not used for a long time, please turn off the power switch and battery switch to avoid damage to the battery and other components;

o) The well-packed ultra-low temperature freezer should be stored in an environment with a relative humidity not exceeding 60%, a temperature below 40°C, good ventilation, and no corrosive gases such as acid and alkali. Once the ultra-low temperature freezer is used, it is best to use it continuously; p) The storage period of the ultra-low temperature preservation box is six months, and the ultra-low temperature preservation box is six months, and the ultra-low temperature preservation box beyond the storage period must be inspected and verified again, and can only be used after passing the test;

q) When the ultra-low temperature freezer is repaired or scrapped, the whole machine or parts

should not be discarded at will, and please dispose of it according to local regulations.

r) Monitoring method: The ultra-low temperature preservation box can use the method of temperature verification to monitor the freezing effect.

s) This product cannot be used beyond the scope of application of the product, not used in explosive environments, and not used to store flammable materials.

t) The type and amount of refrigerant should be used according to the instructions on the product label.

U) It is impossible for our company to cover all possible factors at the clinical level when verifying the freezing effect of the items included in the scope of application. Therefore, the freezing effect of the sample should be verified before the sample is stored, and its freezing effect should be monitored in real time.

V) Equipment service life: 8 years;

W) Production date: see product label

9. The EMC

a) This freezer meets the emission and immunity requirements specified in GB / T 18268.1-2010.

b) This freezer is designed and tested according to Class A equipment in GB 4824.

In the home environment, the device may cause wireless interference and requires protective measures.

c) It is recommended to evaluate the electromagnetic environment before device use.

This incubator requires special precautions regarding electromagnetic compatibility (EMC) and must be installed and used according to the EMC information provided in this specification.

\checkmark Portable and mobile RF communication equipment will affect the operation of this cold tank.

Except for converters and cables for replacement parts as internal parts permitted by the manufacturer, using accessories, converters and cables other than specified may cause the increased radiation increase or interference resistance of this cold box.

This cold box cannot be used near or stacked by other equipment.

Use the equipment near a strong radiation source (e. g. unshielded RF source), otherwise it may interfere with the normal operation of the equipment.

10. Common Fault Analysis

There are abnormalities in the ultra-low temperature freezer, some of which are caused by improper use. Before entrusting maintenance, please check and eliminate it by yourself according to the table below.

Fault	Analysis
The freezer does not work	Is the power plug live? Is the power plug plugged in or loose? Is the power fuse blown? Is the power supply voltage too low or too high? Is the switch on?
Compressor not running	Does it take less than 4 minutes to boot? Is the compressor hot?
The temperature continues to drop after reaching the expected value	Is the temperature setting correct? Is the compressor still on?
The temperature does not reach the set value	Is the evaporation fan stopped? Is the door left ajar or opened too many times? Are there too many items put in at one time, and is the air duct blocked? Is the ambient temperature higher than 32°C?
Big noise	Is the cabinet placed on a flat ground? Does the cabinet touch the wall? Does the noise cancel after opening the door?

The operation of the above electrical components must be carried out by an electrician under safe conditions (cut off the power supply). The other parts are not allowed to be disassembled, otherwise the consequences shall be borne by the user.

Light for the cause of the failure, or it is difficult to troubleshoot, please contact BIOBASE after-sales service, and professional engineers will serve you wholeheartedly.

 \bigtriangleup The maintenance work of this cryogenic freezer should only be undertaken by trained and approved technicians.

All you need to order parts, please contact the maintenance service department for confirmation, and please indicate the product model and product number you purchased.



FM= Condensate fan CM= Compressor SR = Start relay EC= Control Circuit Board

TS= Temperature probe

Attachment B Accessories List

No.	Name	Quantity
		BDF-86H50
1	Power cord	1
2	Fuse	2
3	Removal of frost shovel	1

Appendix C Warranty

- If the instrument and equipment during the warranty period fails or damages due to improper use by the user, our company shall not bear the warranty obligation.
- After the warranty period, our company is also responsible for the maintenance, but the corresponding maintenance fee will be charged.
- For the production date, please refer to the product label.
- We can provide the drawings and some necessary technical data for the maintenance units and maintenance personnel trained and approved by our company.

1. From the date of purchase, the user can enjoy one-year free warranty for the whole machine and three-years warranty for the compressor (man-made damage is not within the scope of warranty), and the purchase time is subject to the valid purchase documents.

2. The following situations are not within the scope of warranty, only maintenance services are provided, but corresponding cost are charged.

(1) All damages caused by human factors, including damages caused by using in abnormal working environment, not following the user manual and improper operation, etc.

(2) If the user disassembles, repairs or refits the machine without permission, or the device is not repaired by the authorized unit of our company, or there is no warranty card or valid document.

(3) Damage caused by improper transportation or other irresistible factors (such as flood, fire, lightning, earthquake, etc.) after purchase.

For technical support please call our friendly team on 1300 459 140 or email us sales@eurochill.com.au