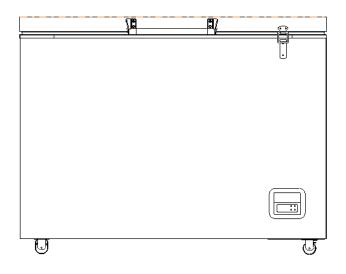


# OPERATION MANUAL Deep Freezer

ECF-10.8-C-40-E

**VERSION: 2020-3** 



(ECF-10.8-C-40-E)

The image shown here is indicative only.

If there is inconsistency between the image and the actual product, the actual product shall govern.



#### Statement:

Thank you for choosing and using the our medical 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 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.

#### **Cautions and warnings**

Important safety regulations have been listed in this manual, please read carefully before use and follow the items when operation. Our is not responsible for any damages of the device or hurts of the user due to improper operations mentioned in this manual.

Please follow the cautions and regulations listed in this manual to avoid possible injury of the operator. Precautions are illustrated in the following way:



Failure to observe CAUTION signs could result in injury to personnel and damage to the unit and associated property.



Failure to observe WARNING signs could result in a hazard to personnel possibly resulting in serious injury or death.

Symbol shows:



- This symbol means "CAUTIONS"
- This symbol means "WARNING", the operation is prohibited.
- This symbol means the operation must be followed.
- The cable is 3-wire with earthed plug(grounded). Do not cut or remove the earthed foot of the plug. After the placement of the device, please ensure the plug is well connected with the socket, otherwise it may cause fire.
- Use a power supply outlet with ground(earth) to prevent electric shock. If the power supply outlet is not grounded, it will be necessary to install a ground wire by qualified engineers.
- Make sure a dedicated power source is used as indicated on the rating label attached to the unit. Install a over-load and leak breaker on the power supply side.
- O Do not drill on the walls of the cabinet, otherwise it may cause problems of the cooling performance.
- Do not use the unit outdoors. Current leakage leakage or electric shock may result if the unit is exposed to rain water.
- Only qualified engineers or service personal should install the unit. The installation by unqualified personal may cause electric shock or fire.
- Install the unit on a sturdy floor. If the floor is not strong enough or the installation site is not adequate, this may result in injury from the unit falling or tipping over.
- Never install the unit in a humid place or a place where it is likely to be splashed by water. Deterioration of the insulation may result which could cause current leakage or electric shock.
- Never install the unit where acid or corrosive gases are present as current leakage or electric shock may result due to corrosion.
- Never install the unit in a flammable or volatile location. This may cause explosion or fire.
- Do not insert metal objects such as a pin or a wire into any vent, gap or any outlet for inner air circulation.
  This may cause electric shock or injury by accidental contact with moving parts.
- ●□Always disconnect the power supply when repair or maintenance of the device to prevent electric shock and injury.
- Ensure you do not inhale or consume medication and aerosols from around the unit when maintenance. These maybe harmful to your health.
- Never splash water directly onto the unit as this may cause electric shock or short circuit.
- Never disassemble, repair, or modify the unit by yourself. Any such works carried out by an unauthorized person may result in fire or injury due to a malfunction.
- Disconnect the power supply if there is something wrong with the device. Continued abnormal operation may cause electric shock or fire.
- When removing the plug from the power supply outlet, grip the power supply plug, not the cord. Pulling the cord may result in electric shock or fire by short circuit.
- Never damage or break the plug. Do not sure the plug if it is damaged. This may cause fire or electric shock.
- When power off, wait 5 minutes or above before connect the device to the power again to prevent



compressor damage.

- The disposal of the unit should be accomplished by appropriate personnel. Always remove doors to prevent accidents such as suffocation.
- On not touch any electrical parts such as the plug or any switches with a wet hand. This may cause electric shock.
- Make sure to check the setting temperature when starting up operation after the power failure or power off.
  A change of set temperature may cause damage to contents.
- Do not put a container with water or heavy articles on the unit. It may cause injury if the articles fall.
  Current leakage or electric shock may be resulted from the deterioration of insulation by spilled water.
- Do not climb onto the device or do not put articles on the device. This may cause injury by tipping or damage to the unit.
- Wear anti-freeze gloves when you take out articles from the device. Handing frozen contents or the inside walls with naked hands may cause frostbite.
- Wear gloves when repair and maintenance to prevent the operator from injured by sharp edge or corner.
- Always disconnect the plug before moving the device or when the unit is not used for long periods. This may cause fire or electric shock.
- If the device do not installed with SMS or remote alarm system, keep it monitored by workers. Or the contents may be damaged by high temperature because of non-founded device error.
- Adjust the setting temperature within the allowed setting temperature range if necessary. Attention to the required specified storage temperature of the contents when adjust the setting temperature, or it may cause damage to the contents.
- Lock the keyboard after operation if the thermostat of the device has keyboard lock function to prevent damage of the contents from wrong operation.
- Do not try to break the password to enter factory setting menu, any unauthorized operation in the factory setting may cause abnormal working of the device or damage.
- Increase the inspection and maintenance frequency when the service time of the device is above it's life time.
- Follow the cautions and warnings mentioned in this manual and the labels on the device when operation.
  Or it will be dangerous or cause performance degradation.
- The device do not discharge chemicals , wastes and liquid.
- The device do not related to the life time of the contents.
- The device is not a disposable product, disinfection and aseptic free.
- Patients do not control or affect the usage of the device.
- The device does not extract any substances from the patients; patients do not close to or touch the device in any way.
- The device do not direct contact with or store any biological materials.
- The device can not be used for inspection, measurement and analysis.
- The device can not be used for mixing and crushing.
- The device can not be used together with other materials, components, technologies, or medical



equipment. The device can not be used for treatment or auxiliary treatment.

- The device can not improve the storage state or activity of the contents.
- The device cannot be used for instant freezing, only can be used to store organs, materials and products without full life form, the temperature should be similar with the setting temperature and should be packaged or loaded in container.
- The device can not be used for disinfection or sterilization.
- The device is not sealed and vacuumed, can not be used for isolate radiation.
- The device cannot be used to store poisonous, radioactive and epidemic products.
- Do not put foreign matters into door interval, or it will cause cold air leakage, frost, condensation and cooling performance degradation.
- O Do not put your hand into the cooling and control system to avoid electric shock.
- Do not put products with high humidity in the device. This will cause frost in the cabinet and cooling performance degradation.
- Do not put products with high temperature in the device. This will cause inside temperature increase quickly and may cause damage to other stored products.
- Operators are not allowed to enter into the cabinet, especially child. This may cause serious injury or death to personnel. If the unit is to be stored unused in an unsupervised area for an extended period, ensure that children do not have access and that doors cannot be closed completely.
- Never store volatile or flammable substances in this unit. This may cause explosion or fire.
- Never store corrosive substances in this unit. This may lead to damage to the inner components or electric parts.
- On not put glass bottles or cans into the cabinet since they may be broken by frozen contents and cause injury.

#### Service life of the device: 8 years. Production date: see bar-code

#### Safe moving

- On not use block clamp forklift when moving the device. Use forklift to move the device before unpacking.
- The device is equipped with casters(some small models do not have), push the device when moving it after remove the package.
- Be careful not to tip over or incline the unit over 45° during movement to prevent damage or injury.

#### Safe using

- When the device is working, the round of the door may become hot. This is the normal working of the heater to avoid condensation, not failure.
- Before storing products, please ensure the inside temperature is reached the requirement temperature. Put few items at a time to avoid sudden temperature increase.
- The displayed temperature is the test current temperature of the sensor location inside the chamber. Although the freezing temperature is different at each position inside the chamber, it gradually approaches



the real temperature.

- The device is not a thermostatic equipment, the current inside temperature will keep fluctuating within a reasonable range.
- Do not clean the unit with scrubbing brushes, acid, thinner, solvents powdered soap, cleanser or hot water. These agents can scratch the paint or cause it to peel. Plastic and rubber parts can be easily damaged by these materials, especially solvents. When a neutral detergent is used to clean the unit, wipe off the neutral detergent with a wet cloth.
- Do not open and close the door too fast. This will cause problems when open the door again or the door can not be closed tightly.
- Do not open the door frequently, the interval is better more than half an hour. This will help to avoid frost on evaporator and the inside panel.
- It's better to close the door within 1 minutes after open the door. Clean the water on door seal before close the door to ensure good sealing performance.
- Keep the door opened for long period of time, the hot air will enter the cabinet and cause high temperature alarm, please try to reduce the time and frequency of door opening.

Do not touch freezing products directly with your hand when take them out. This will cause cold injury.

- If any electric leakage or electric shock happened, please cut off the power immediately.
- After first installation or moving the device, keep it stand for 6 hours at least before turn on.
- To increase the service life of the device, save the energy and ensure the safety of the storage products, please set the temperature within the recommended setting temperature range.
- If the device do not work after been turned on for 2 to 3 hours, please cut off the power and contact us or our authorized distributors immediately.
- Clean the condenser or condenser filter net every 3 months, to ensure the good performance of the device.
- When an alarm or other fault occurs, please refer to the operation manual and solve the problems according to the displayed alarm code. Do not repair the device by yourself if the fault remains, please contact the authorized service engineer immediately.
- Only authorized service engineers can open the electric cabinet, do not open it by yourself.
- The device have memory functions, it will keep working depending on the final setting mode before power failure.

\*

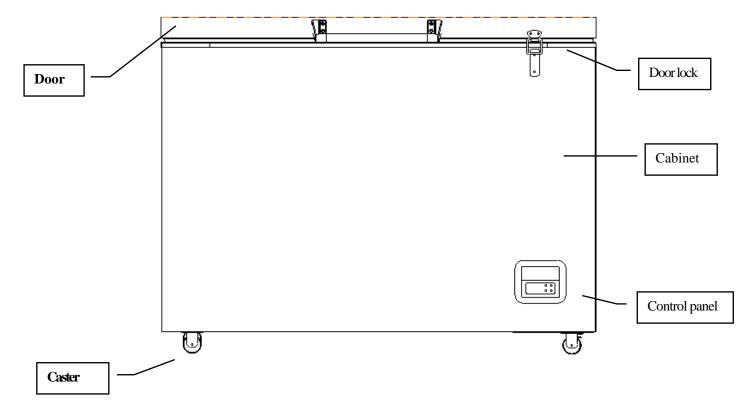


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# I. Diagram and Introduction of Product



**Structural Diagram** 

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

Medical 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.

# **II. 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 110V/60Hz alternating current power supply. If the service voltage is lower than 98V or higher than 126V, 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.

#### III. 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 -25°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-25°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, please use defrosting shovel or other thin slices from the door seal and box slot Insert, pressure balance inside and outside the box, and can be opened again. Note: multiple operations, and likely to damage the door seal, impact door seal.



#### 3.2 Temperature regulation

#### 3.2.1 Key function



A- Setting B-Function keys C-Increase D- Decrease

When the medical deep freezer is in normal service condition, it is advised not to regulate the set temperature randomly. If there is any special need for adjustment, please contact the after-sales service or adjust it by professional maintenance personnel. Adjusting the set temperature arbitrarily may cause high temperature (AH) or low temperature (AL) alarm of the product. If adjusting the set temperature, please adjust the high and low temperature alarm values (AJ, AL) at the same time. Note: the general high and low temperature alarm values are within the set temperature range of  $\pm 5^{\circ}$ C.

#### 3.2.2 Parameter setting method

When the power of the medical medical deep freezer is on, the display screen displays the inside current temperature value. If the set temperature has to be readjusted, for example, the original set temperature is -25°C which now has to be adjusted to -20°C, please operate according to the following steps:

Serial No.	Keys Operation	Display
1		Displays the inside temperature
2	Press the ▲ and ▼ keys for 10 seconds simultaneously	Controller unlock(display on) Controller lock(display on)
3	Press the SET key for 1 seconds	The set value - 40 is displayed and flashes
4	Press the ➤ key to set  (▲Up-regulation key)	Set temp changed to -35°C
5	Press the SET to confirm the parameters and store the set values	Stop flashing and display the temperature in the chamber

Notes: If there is indeed parameter change requirement, please contact the after-sale and distributors of us for setting.



#### 3.2.3 Alarm code

NO.	Alarm code Describe	
1	AL	Sensor low temperature alarm
2	AH	Sensor high temperature alarm
3	BAT	Power failure alarm

After the controller is powered off, the audible and visual power-off alarm signal will be generated, displaying "bat" and the buzzer will alarm. The power supply is switched to battery power. The duration of power failure alarm process can reach 24 hours (the battery is fully charged). During this process, the controller can be turned off by long time pressing the FN key. After the power is turned on again, the controller will run again. After the controller is powered on, the battery will be charged automatically. In order to ensure the maximum duration of power-off alarm, please turn on the power and use it for more than 8 hours

#### 3.2.4 Error display

- When faults of the medical deep freezer temperature display sensor including short circuit, open circuit, malfunction and incorrect connection appear, "Err" is displayed. At the same time, the buzzer of the temperature controller will give out alarm and the display screen displays corresponding alarm parameters (EE, HHH, LLL) and alarm indicator. After the power off, the screen becomes dark, but still display the temperature inside the box, please pay attention to, and take appropriate measures to avoid damage.
- > 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.

#### 3.2.5 Power failure alarm

After power-on, turn on the battery switch at the rear of the cabinet. When there is a power failure, the thermostat can send out a power failure alarm. The refrigerated display window flashes and displays the alarm code bat, and the power failure alarm can last for 24 hours with a buzzer.

• 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,. 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



# IV. 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 medical deep freezer

- 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.

#### 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.

# V.Clearing of Fault and Maintenance Service

Some abnormal conditions of the medical medical deep freezer are caused by improper operation. Before you commit maintenance, please compare with following table for self-inspection and exclusion.

Problems	Reasons and Solving Measures		
medical medical deep freezer does not work	<ul><li>If the power socket has electricity?</li><li>If the power socket is plugged or loosened?</li><li>If the power fuse is disconnected?</li><li>If the supply voltage is too low or too high?</li></ul>		
Compressor breaks down	·If the temperature setting is right?		
Temperature goes on decreasing after reaching to the set data	·If the temperature setting is right?		
Temperature can't reach the set data	<ul> <li>If the fan stops running?</li> <li>If the door is not closed tight or opened too frequently?</li> <li>If too many goods are put in at one time and if the air channel is blocked?</li> <li>If the environmental temperature is too high?</li> </ul>		
Too much noise	<ul> <li>If the medical deep freezer body is stayed on the flat ground?</li> <li>If the medical deep freezer body touches the wall?</li> <li>If the medical deep freezer immediately enters operating status after being started?</li> </ul>		

If you can't judge the fault cause or debug, please contact the local or nearby special maintenance station according to the instruction of the warranty certificate (standard accessory) and tell use your name, address, phone number, type of the medical medical deep freezer, purchasing time, fault phenomenon, etc. Professional engineer will offer warmhearted service to you.

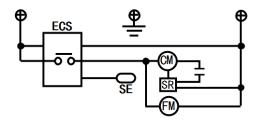


# **VI. Main Performance Index**

### 6.1 Main technical parameters

Model	Temp (°C)	Volume	Power supply	Refrigerant	Dimension
		(L)	( <b>V</b> )		
ECF-10. 8-C-40-E	-30~-40	305	110/60Hz	R290	1218*840*940

# 6.2 Electrical schematic diagram



SR=starter SE=probe FM=Condensing fan CM=compressor

**ECS=Thermostat** 

# VII. Packing List

Model	Operation instruction	Door handle	Snow shovel	Screwed	Screwdriver
ECF-10.8-C-40-E	1	1	1	4	1

1



Certificate of Quality