



Laboratory Equipment Manufacturer
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OPERATION MANUAL

Applicable model:

HYC-260L-V2 / HYC-330L

PLEASE READ THIS MANUAL CAREFULLY BEFORE OPERATION

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MRC.9.20

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1. INTRODUCTION














- Thank you for choosing MRC's bio-medical products.
- Read this manual carefully before using the appliance and follow the instructions for the safety operation.
- Keep this manual in an adequate place to refer to it as necessary.
- MRC never guarantee any safety if the appliance is used for any objects other than intended use or used by any procedures other than those mentioned in this manual.
- The contents of the manual will be subjected to change without notice due to the improvement of performance or functions.
- Contact MRC sales representative or agent if any point in this manual is unclear or if there are any inaccuracies.
- No part of this manual may be reproduced in any form without the expressed written permission of MRC.




















- Please read the page4-page7 carefully as it contains the important safety notices.
- Only trained or authorized personnel could operate this medical freezer.
- Only qualified service personnel or authorized agent could install and maintenance this device.
- Use MRC spare parts as always. If users want to use other accessories, MRC bio-medical will not be responsible for the adverse consequences. However users could apply for verifying the eligibility of these accessories from MRC before use them.
- Should inspect and maintenance the device in a specified time interval.
- Due to the differences between each models and the improvements of products, actual product may differ from the diagram. Please refer to the final product.
- Everyone has an obligation to be responsible for his or her own safety.
- Put on dry gloves when you take out refrigerated articles from the freezer.
- Contents or the inside walls with naked hands may cause frostbit.

2. PRECAUTIONS FOR SAFE OPERATION

For the first time to use this device, users must read the meaning of the following warning labels very carefully. Items and procedures are described so that you can use this unit correctly and safely. If the precautions advised are followed, this will prevent possible injury to the user and any other person.

 WARNING: Failure to observe WARNING signs could result in a hazard to personnel possibly resulting in serious injury or death.	 CAUTION. Failure to observe WARNING signs could result in injury to personnel and damage to the unit and associated property.
 CAUTION HOT. The sign inform the users about the danger of burns for high temperature.	 DANGER OF EXPLOSION The sign inform the danger of the application of volatile, explosive chemical substances.
 NO TILTING .	 STAY OUT OF SUN.

 WARNING. Failure to observe WARNING signs could result in a hazard to personnel possibly resulting in serious injury or death.	
 As with any equipment that uses CO2 gas, there is a likelihood of oxygen depletion in the vicinity of the equipment. It is important that you assess the work site to ensure there is suitable and sufficient ventilation. If restricted ventilation is suspected, then other methods of ensuring a safe environment must be considered. These may include atmosphere monitoring and warning devices.	
 Do not touch any electrical parts such as the power supply plug or any switches with a wet hand. This may cause electric shock.	
 Only qualified engineers or service personnel should install the unit. The installation by unqualified personnel may cause electric shock or fire.	
 Be sure to 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	
 Carefully with the power cord to avoid short circuit or open circuit. 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. Don't make the power line pack and pressed by furnish or heavy goods. Also please don't close to the compressor and heat source.	
 Please insert the power plug firmly to avoid leakage.	
 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 by qualified engineers. Don't lengthen the line randomly. If you need, To use 2.5mm ² copper line, you should keep 4mm ² line to connect the electrical outlet. Or may cause fire.	
 Make sure a dedicated power source is used as indicated on the rating label attached to the unit. Out of the rate, should install a property transformer and a proper voltage stabilizer for secure operation. Or the freezer may be damaged, and may cause injury.	
 Be sure to install the unit on a sturdy floor, no shaking and tilting.	
 Never install the unit in a flammable or volatile location. This may cause explosion or fire.	
 Never install the unit in a humid place or outdoor or a place where it is likely to be basked straightly. Deterioration of the insulation may result which could cause current leakage or electric shock.	
 Do not place the device lateral tilt, do not impact the device; the device is equipped with refrigeration systems, roll or shock will easily damage the freezer.	

	Be sure to install the device in a dry dust-free environment to avoid overheating, short circuit and other dangers
	If there is an unexpected sound, smell, smoke when the power is turned on, unplug the power and contact the manufacturer or supplier. Continued abnormal operation may cause electric shock or fire.
	Make sure to put the freezer in a dry and ventilated environment, to ensure that equipment vents and wall surface of the instrument or other items have not been blocked; Do not use the device in a poorly ventilated environment, or the equipment may be damaged by the release of heat.
	Never disassemble, repair, or modify the unit yourself. Any such work carried out by an unauthorized person may result in fire or injury due to a malfunction. Meining will be no responsible for such work.
	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.
	Use this unit in safe area when treating the poison, harmful or radiate articles. Improper use may cause bad effect on your health or environment.
	Never ground the unit through a gas pipe, water main, telephone line or lightning rod. Such grounding may cause electric shock in the case of an incomplete circuit.
	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 by qualified engineers
	CAUTION: Failure to observe WARNING signs could result in injury to personnel and damage to the unit and associated property.
	The medical freezer is not available to store non-living things, flowers, or other critical articles which is not suitable for low temperature storage.
	The temperature inside the freezer is very low during the normal working. Do not touch the interior surface of the chamber or the object inside without wearing protective gear.
	Always disconnect the power plug when the unit is not used for long periods.
	Make sure to prepare a safety check sheet when you request any repair or maintenance for the safety of service personnel. Be sure to check set point of the controller prior to restart the freezer.
	The ultra-low temperature freezer is a storage device, not a production equipment!
	Always hold the handle when closing the door. This will reduce the likelihood of a trapped finger.
	Keep the key properly avoiding the children take it to open the back door which may result in unexpected injury.
	Select a level and sturdy floor for installation. This precaution will prevent the unit from tipping. Improper installation may result in water spillage or injury from the unit tipping over.
	Check the filter mentioned in this manual and clean it as necessary. A dusty filter may cause.
	Do not tilt the unit more than 45 degrees when moving the unit. All transportation should be carefully.

3. PRECAUTIONS FOR USE

- ◆ Before you put the items to the medical refrigerator, please make sure whether the temperature in the refrigerator has reached the set temperature and then put the items to the refrigerator in batches. No more than 1/3 of the refrigerator rating volume per time, in case the temperature rises too much.
- ◆ Medical refrigerator temperature display value shows the temperature around the temperature sensors. Sometimes, there is certain difference between the display temperature and the actual temperature in the center of the refrigerator, but it will gradually close to the real temperature.
- ◆ Clean the refrigerator with the diluted neutral detergent. Do not use brushes, acid, gasoline, soap powder, polish or hot water to clean the medical refrigerator, as the above material may damage the painted surface and plastic rubber parts. Be careful not to use volatile solvents such as gasoline to wipe plastic rubber parts.
- ◆ The power should be cut off while the medical refrigerator does not use for a long time.

4. Installation

4.1 Installation environment:

- Ambient temperature: 16°C ~ 32°C, optimal ambient temperature : 18°C ~ 25°C, Air conditioning system is required if necessary.
- Relative humidity: ≤80%RH.
- No strong vibration and no corrosive gases around.
- Without the presence of a lot of dust.
- No shaking or vibrating of the freezer.
- Altitude of the place where the freezer is located : ≤2000m
- Input voltage ≤220+10% (V).
- No direct sunlight or any other cooling or heating source, no electromagnetic interference, or the freezer will not run properly.

4.2 Installation site :

This unit is a precision machine. When select a location to install this unit, keep the following conditions for perfect performance

- Should not be installed in a small confined space, the door of the room should not be less than height of the present equipment.
- Install the unit on a sturdy floor to avoid excessive vibration and noise.
- Installing the unit in direct sunlight may cause malfunctioning and may shorten the life of the unit. Keep good ventilation is necessary.
- Socket inputs should be connected to circuit protection facilities,
- Checking the working voltage of the place before start the freezer. A voltage stabilizer is suggested to be used at the place where the voltage is not stable. Make sure the normal input voltage stable at or 220V± 10%, Power of voltage stabilizer should be more than 4KW.
- Be sure to ground the unit;
- If the power cord socket is equipped with grounding wire, check the connection before use.
- If the power supply outlet is not grounded, it will be necessary to install a ground by qualified engineers



Warning

- Dot through gas pipe, water pipe, line or lightning rod to medical grounding cooler, easy cause electric shock
- After installation, power plug must be within reach, convenient unplug the power cord in time in case of an emergency
- Any articles shall not cover medical air vents of the medical refrigerator

4.3 Cautions before use

- a. Remove all package components (include the protection foam inside the package)



Caution: Do not put the packing plastic bag within reach of children as suffocation may result

- b. Check the device, accessories and document with the device as per list of packing
- c. Clean: make a clean of the device before use it.
- d. Before use, make sure the temperature control probe is immersed in the test liquid.

4.4 Standing

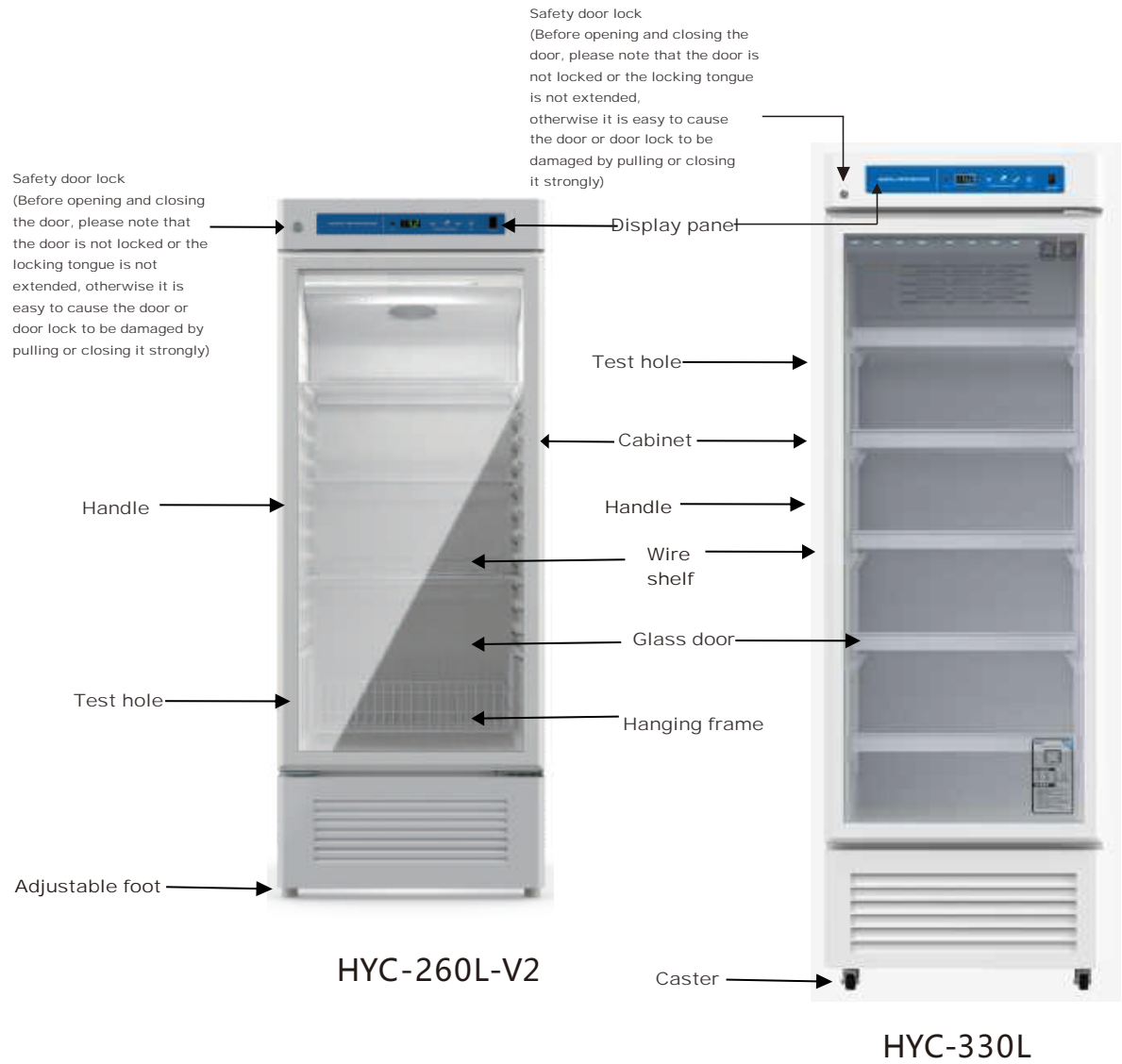
Do not turn on the freezer at once when the freezer is well located, must wait 2 hours for the first start.

4.5 First initial starting

Operate as follows for the first start:

1. Connect the power cord to the appropriate socket during no-loading.
2. Check the temperature to achieve the required temperature, medical refrigerator for normal open stopped more than 24 hours, after equipment performance is normal, can put a small amount of items placed in medical refrigerating box. (please store items in batches of no more than 1/3 box volume each time. Make sure the medical refrigerator is out of service, and have the normal opening and stopping for more than 12 hours before putting into the other no more than 1/3 of the box volume items.
3. Do not open the door during the cooling process, will cause the temperature rise.
4. There must be an authorized person responsible for the freezer in customer's office, to check the operation status and make daily record. The inside temperature of cabinet will rise up during the failure problem, if it is not available to be repaired in a short time, take out the stored items and transfer to other safe locations.
5. Prior to put the articles inside the freezer, should check if the temperature set range of this device is matching the requirement of the articles.
6. Due to the Inertia of refrigeration, there is a little difference between the actual temperature displayed on the controller and the set temperature. This is a normal phenomenon.
7. Medical Refrigerator are storage devices, do not put excess "hot" samples into the freezers at one time, or will cause compressor damage after long time working without stop. Attention to put in samples and set temperatures in batches.
8. Do not put electric devices in the freezers without permission.
9. Do not change the setting temperature frequently within a short time, or the current temperature may not reach the setting temperature as the inertance; Do not cover sensors in the freezer when you put in samples and keep some distances between the samples and the inner side of the freezer to make sure the cold air will circulate successfully in the freezer, or will cause the instability of the inner temperature and inaccuracy of the display temperature.
10. Operation after power failure.
11. The freezer controller has memory of the set point. The freezer will continue to follow the previous operations when restart the freezer after the power failure. The restart should be done after 5 minutes in case to damage the compressor.

5.Refrigerator Components

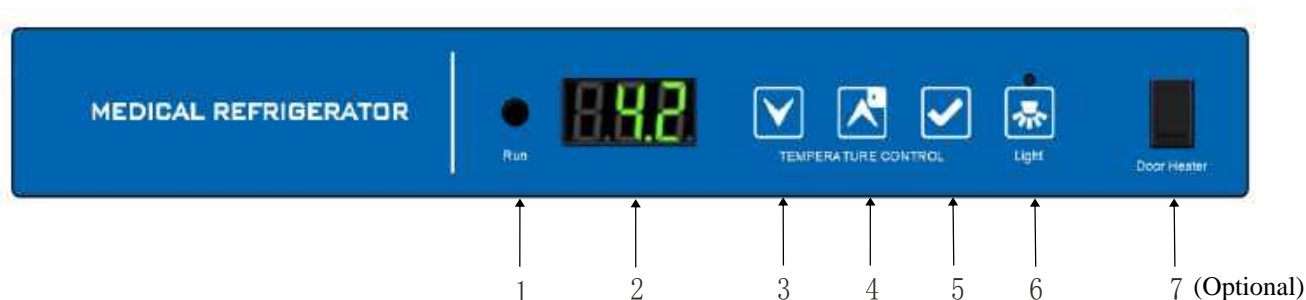


The actual product may be different from the schematic diagram due to the improvement of the product and the difference of the model.

Structure: the product consists of cabinet, glass door, refrigeration system and control system.

Application: this product is suitable for hospitals, pharmacies, epidemic prevention stations, research institutions, biopharmaceuticals and other units.

6. Display panel function description



1. “Run”: The light is on when the system is running (it flashes when the alarm is on).
2. 4.2 is a digital temperature display panel, it will show the real-time temperature inside the refrigerator cabinet in normal operation and the unit is °C.
3. “▼”: Reduce button. In parameter setting mode, the user can move to the previous parameter or reduce the parameter value. Different button combinations have different meanings.
4. “▲”: Add button. In parameter setting mode, the user can move to the next parameter or increase the parameter value. Different button combinations have different meanings. Under the normal operation state, when the system alarms (the digital tube displays the internal temperature of the refrigerator box and the alarm code flashes alternately), the button can be pressed to mute (temporarily turn off the buzzer). If the compressor is running under the silent operation state, then the LED flashing.
5. “√”: This product can adjust the operating parameters such as temperature setting value, high temperature alarm and low temperature alarm. After setting, it must press the “√” button again to take effect. Press the “▲” button in the alarm state, and the alarm buzzer is off, but the running indicator is flashing.
6. “Light”: The product has two functions: automatic lighting and manual lighting. Under the state of automatic lighting, the lamp will be lit immediately after the glass door is opened, and the lamp will be closed after a delay of 5 seconds after the door is closed. The user can also manually turn on the lamp, at this time the lamp is not under the control of the door opening and closing (the indicator Light above the button is on), and only after the “Light” button is pressed again to close the manual lighting and turn into automatic lighting can the lamp enter the automatic lighting state (the indicator Light above the button is off).

7. “Door Heater”(optional): When there is condensation on the surface of glass door, open the door heating switch to remove it.

(2) Functions Setting:

a. **The machine can work immediately when the power is switched on.**

b. **Settings of working temperature:**

Press the “√” button, then the digital tube will display the “√” . Press the “√” button again, then digital tube will display the setting value of the current temperature. At this time, the user can set the working temperature by using the “▼” and “▲” buttons. In the process of setting temperature, the digital tube flickers. Press the “√” button to start setting. It will stops flashing and returns to the normal display. If the user does not press the “√” button within 15 seconds to confirm, this operation is invalid, the system still works according to the last set value, and the digital tube will return to normal display.

c. **Settings of high temperature alarm upper limit:**

After setting the temperature, press the “√” button, the digital tube displays “H” and flashes, and then press the “√” button again, which displays the high-temperature alarm setting value at that time. The user can modify the number by using the “▼” and “▲” buttons. After the modification, press the “√” button and the setting will take effect. The digital tube will stop flashing and return to the normal display. If the user does not press the “√” button within 15 seconds to confirm, this operation is invalid, the system still works according to the last set value, and the digital tube will return to normal display.(recommended setting value is 15)

d. **Settings of low temperature alarm limit:**

After setting the upper limit of high-temperature alarm, press the “√” button, and the digital tube displays “L” and flashes. Then press the “√” button again, and the low temperature alarm setting value is displayed at that time. The user can modify the number by using the “▼” and “▲” buttons. If the user does not press the “√” button within 15 seconds to confirm, this operation is invalid, the system still works according to the last set value, and the digital tube will return to normal display.

(recommended setting value is 0)

e. **Settings of automatic lighting and manual lighting:**

The system defaults to automatic lighting mode. At this time, only the light is on after the door is opened, and the light is delayed for several seconds after the door is closed. Press the "Light" button, and the lighting indicator diode above the button will Light up, and the lamp will be in manual open mode. The lamp will keep on lighting until the user presses the "Light" button again. After that, the lighting indicator diode will be off, and the lamp will be in automatic lighting mode again.

- ✍ **Do not put the items in the medical refrigerator immediately after the power is switched on. Put the items in the refrigerator for storage after running the empty refrigerator for a period of time (about 24 hours).**
- ✍ **If the items are too wet or dry, it will affect the change of humidity in the refrigerator. So it's better to keep the items sealed. In the same way, the humidity in the working environment of medical refrigerator will also affect the change of humidity in the cabinet, especially the excessive opening times and the door is not closed well.**
- ✍ **The storage shall not exceed one-third of the container capacity, and put another one-third of the container capacity after reaching the actual temperature and normal operation for 24 hours.**
- ✍ **Please be careful not to block the air outlet and the air intake.**
- ✍ **Do not put the items directly at the bottom of the medical refrigerator container, they should be placed on the bottom shelf, otherwise it will affect the refrigeration effect of the medical refrigerator.**
- ✍ **Try not to open the door during cooling, otherwise the temperature will rise.**
- ✍ **Due to the inertia of refrigeration, there may be a certain difference between the display temperature and the set temperature when the product stops at the set value, which is a normal phenomenon.**

7. Defrost • Unused • Maintenance



Caution

- For personal safety, please cut the power supply before any maintenance!
- Don't inhale medications or aerosols around the device while maintaining a medical refrigerator, or it will endanger your health.

7.1 Defrost, Unused and Maintenance

The medical refrigerator will be automatically defrosted during the working process.

Unused: If the unit is not used for long time, please disconnect power supply and maintain as the following procedures.

Maintenance: Once in a while, the medical refrigerator should be cleaned and maintained. (For the sake of safety, remove the power plug firstly) and wipe the inner and outer surfaces of the refrigerator with a soft cloth.

Caution: DO NOT sprinkle water on the faces of cabinets, which may decrease insulating property of electric parts and rust metal parts. DO NOT use hot water, corrosive cleanser and organic solvent!

No violent vibration or collision during transportation. No rain drench.

Suitable conditions: temperature: $-40^{\circ}\text{C} \sim +55^{\circ}\text{C}$, relative humidity: 10% ~ 90%.

7.2 Disposal

Warning:

If the equipment is stored in unsupervised areas for a long period of time and leave unused, ensure that the child is not close to the medical refrigerator and the door cannot be closed completely. The disposal of refrigerator shall be carried out by corresponding personnel to prevent the occurrence of such accidents as suffocation.

8. After-sale Service

Any product has the possibility of failure. Please observe the operation of the medical refrigerator in the process of use. If there is any abnormality, please check and compare the errors with the following table. If you can't fix the issue, Please inform our service center in time. We will serve you wholeheartedly to avoid any losses.

Term of use: 10 years

Problem	Possible Cause
Refrigerator does not running	<ul style="list-style-type: none">● Power outage has occurred.● The plug is bad or not securely plugged-in.● Fuse is blown.● Voltage is too low or high.
Compressor does not running	<ul style="list-style-type: none">● Power in control panel is off.● Temperature setting is wrong.
Temperature is lower than setting	<ul style="list-style-type: none">● The door is not closed properly or is opened too frequently.● Overfull materials are put.● Ambient temperature is too high.
loud noise	<ul style="list-style-type: none">● Freezer is not leveled well.● Freezer leans upon the wall.
Surface condensation of glass door	<ul style="list-style-type: none">● Wet and moisture season, the door may be condensed. It belongs to normal phenomenon, just wipe it with dry cloth.
Alarm flashing, buzz warning	<ul style="list-style-type: none">● If you just put in the item, the temperature is stable and will be eliminated automatically after running for a period of time.● If the door is not closed tightly to cause the door open alarm.● If the battery is low, it will be eliminated automatically for a period of time.● Whether the temperature exceeds the standard

● **Below are normal operations:**

① There are some light clashes when the compressor starts up and stops.

② After opening the door and put in the hot subjects, the controlling system appears high temperature and high humidity alarm. solution: The hot subjects should be cooled by natural cooling and then put into the cooler. Do not put too many subjects at one time. After the system is stable, the high temperature and high humidity alarm will be relieved.

③ The slight flowing noise of running water in the refrigerant pipe.

④ Before call the service engineer, Please clean and disinfect the freezer.

Condition: Cannot shake heavily, strike, prevent to drenching.

Storing environment temperature: $-40^{\circ}\text{C} \sim +55^{\circ}\text{C}$, Relative humidity: 10% ~ 90%.

9.Specifications

Name	Medical Refrigerator	
Model	HYC-260L-V2	HYC-330L
Tank shell	PCM color plate	PCM color plate
Refrigerator liner	HIPS	Spray aluminum plate
Outer door	Glass door	Glass door
Condenser	Wire tube	Built - in
Evaporator	Built - in	Built - in
Insulation	Rigid polyurethane foam filling	Rigid polyurethane foam filling
Compressor	Fully enclosed	Fully enclosed
Temperature controller	Microcomputer control system	Microcomputer control system
Temperature sensor	NTC	NTC
Alarm system	High temperature alarm, low temperature alarm, door open alarm, sensor fault alarm	

10. Mainly use performance and indicators

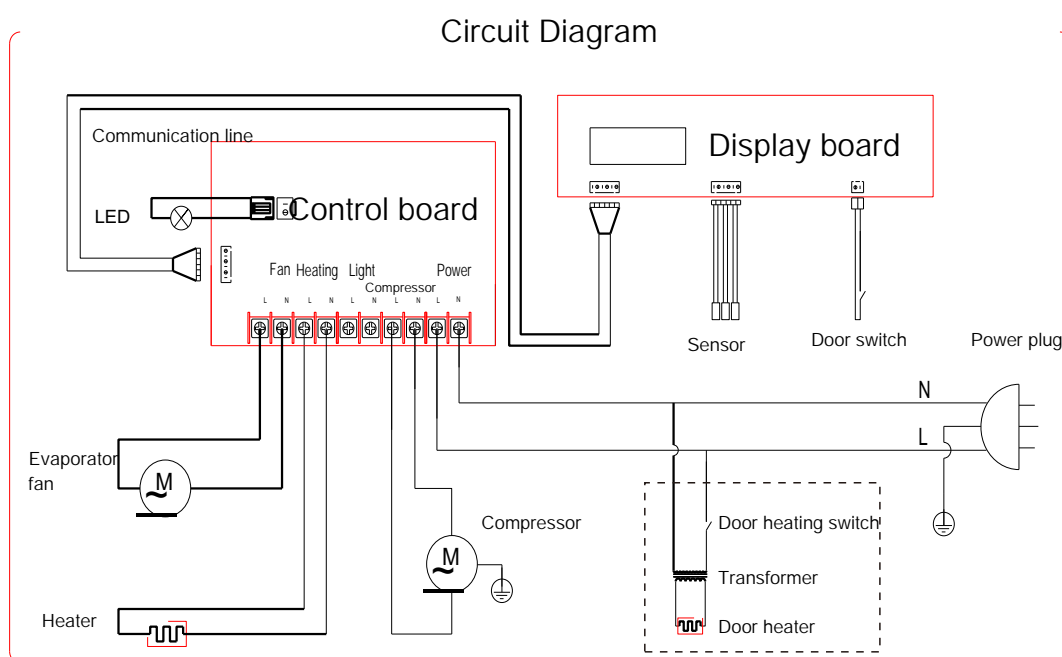
10.1 Main technical parameters

Model	Air TEMP	C-T	Refrigeration-Qty	RV(V~)	RP (Hz)	Temperature (°C)	VC (L)	RC (A)	Net Weight (Kg)	External Size (D×W×H) (mm)
HYC-260L-V2	16~32°C	N	R600a/47g	230	50	2~8°C	260	1.0	68	583×575×1690
HYC-330L	16~32°C	N	R600a/50g	230	50	2~8°C	330	1.1	76	592×620×1937

10.2 Packing list:

Name	Operation Manual	Keys
HYC-260L-V2	1	1×2
HYC-330L	1	1×2

10.3 Electrical schematic diagram:



Note: The inside of the dotted frame is divided into optional parts, which are only applicable to products with door heating.

If the product is improved, the technical data and circuit diagram shall be subject to the final product nameplate and cabinet circuit label.