



Laboratory Equipment Manufacturer  
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# DW-86HW50

Ultra Low Temperature Freezer  
Operation Manual



**PLEASE READ THIS MANUAL CAREFULLY BEFORE  
OPERATION**

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**MRC.VER.01-12.13**

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For your personal safety and better performance of this unit, please read this Operation Manual thoroughly and save it properly for future reference.

Failure to read, understand and follow the instructions in this manual may result in damage to the unit, injury to operating personnel and poor equipment performance.

The material in this manual is for information purposes only. The contents and the product it describes are subject to change without notice. MRC Company makes no representations or warranties with respect to this manual.

## Safety Notice

- Power supply: This freezer is designed operating under 220~240VAC 、 50Hz power supply.
- Must provide one single exclusive plug receptacle with credible grounding to unit. Don't lengthen the line randomly. If you need to use 2.5 mm<sup>2</sup> copper line,you should keep 4 mm<sup>2</sup> line to connect the electrical outlet.
- Flammable and explosive materials, as well as high corrosive acid and alkali must be strictly prohibited in cabinet.
- Keep the key properly avoiding the children take it to open the back door which may result in unexpected injury.
- 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.
- Should wear safe glove to deposit goods, Prevent frostbite.
- If the power shut off, Please wait 5minutes.Can to connect again, to prevent the compressor damage.
- Ultra Low temperature Freezer through condenser to reach refrigeration. To ensure the freezer run regularly, The body back and both sides away from the wall at least 30cm.,and not be blocked by barrier.

**Always use the proper protective equipment (clothing, gloves, goggles etc.), Avoid hurt from low temperature.**

**Always follow good hygiene practices.**

**Each individual is responsible for his or her own safety.**

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**If the supply cord is damaged, it must be replaced by the manufacturer or its service agent or a similarly qualified person in order to avoid a hazard.**

**This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety.**

**WARNING – Keep ventilation openings, in the appliance enclosure or in the built-in structure, clear of obstruction**

**WARNING – Do not use mechanical devices or other means to accelerate the defrosting process, other than those recommended by the manufacturer**

**WARNING – Do not damage the refrigerant circuit**

**WARNING – Do not use electrical appliances inside the food storage compartments of the appliance, unless they are of the type recommended by the manufacturer**


**Young children should be supervised to ensure that they do not play with the appliance. The appliance must be positioned so that the plug is accessible.**

**Please accord to local regulations regarding disposal of the appliance for its nonflammable refrigerant and blowing gas. Before you scrap the appliance, please take off the doors to prevent children trapped.**

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## 1.Schematic Picture and Description



 Because the freezer amelioration and the model different, The actual product may not the same as the photo, Please follow the actual freezer.

Series of Ultra-low temperature freezer is designed to store materials under very low temperature condition for hospital, epidemic station, blood bank, research institute, university, biological pharmaceutical industry and gene engineering, etc. The internal temperature in cabinet can be easily adjusted through the keys in control panel. All operations are convenient and reliable.

## 2.Pre-Installation

- How to transport: Pick up the unit from the bottom of tank and a slant plane within 45° is

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acceptable. All transportation should be carefully.

- Remove all wrappers.
- Check accessories and documents according to package list.
- Clean the unit thoroughly before any operation.
- Installing location: Do not position the unit in direct sunlight or near heating diffusers, radiators, or other sources of heat. The ambient temperature should not exceed 32°C. A minimum 20cm space on the sides, rear and top should be provided for better air circulation and heat discharge. Location where is too cold and place with high humidity or can be easily splashed by water are forbidden.



On the flat floor, Can directly impulse the freezer moving at stone's throw.



Notice: When moving the freezer, Please notice the wheel not to damage the line.



Notice: Should take away the packing base before run the freezer.



Notice: When connect the power supply, Don't put the goods in the freezer immediately. Please waiting for 12 hours

#### **The freezer working condition:**

**A . The environment temperature : 10°C ~ 30°C**

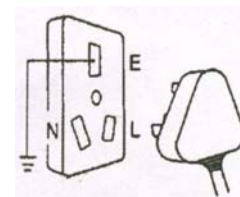
**B . The relative humidity : ≤80%**

**C . No strong shake and causticity gas around.**

**D . No sunshine and other cold/hot power effect.**



**Ultra Low temperature Freezer working rule: Running intermission**



P3: N and E port can't connect

#### ● Safety Introduction

- ① Power supply: This ULT freezer is designed operating under 220V/50HZ AC power

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supply. The unit can normally start under the voltage varying from 198V to 242V.

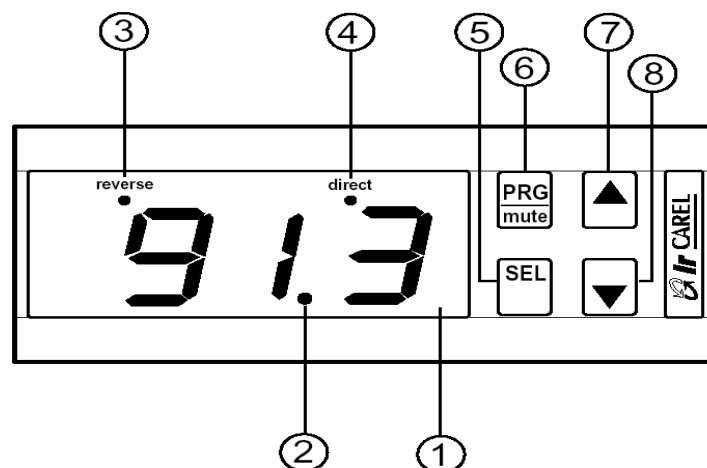
- ② Must provide one single exclusive plug receptacle with credible grounding to unit.
- ③ Inflammable and explosive materials, as well as high corrosive acid and alkali must be strictly prohibited in cabinet.
- ④ Keep the key properly avoiding the children take it to open the back door which may result in unexpected injury.
- ⑤ To avoid cold injury, please place and remove goods with protective gloves.

## 3 Operation Direction

### 3.1 Use at the first time

- Advise to use the warm water and little scour to clean the freezer, and use the water to clean, then dry it.
- To adjust the freezer at  $-40^{\circ}\text{C}$ , To connect the power, The compressor startup after 3 minutes. 30 minutes later, The freezer temperature drop obviously, it means the refrigeration system is normal. We advise to adjust the temperature at  $-35^{\circ}\text{C}$  at first, After stop the machine, Then set as  $-40^{\circ}\text{C}$
- To put the goods in the freezer after the temperature drop.
- To save the power, Please don't often open and close the door

### 3.2 Adjust the temperature



#### **LCD keyboard:**

- 1-display screen: display the sensor figure. When alarm, the alarm will display with sensor figure alternately.
- 2-decimal LED: when show controlled parameter, will light.
- 3- reverse LED: when at least one relay connect with power on “reverse” mode, will LED

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glittering. The time is equal to the relay quantity. This model no this function.

4- direct LED: when at least one relay connect with power on “direct” mode, will LED glittering. The time is equal to the relay quantity. This model no this function.

5-“SEL”: Display or select setting figure.

6-“PRG/MUTE”: when alarm, press it can close buzzer. Other time press it, can save all changed parameter.

7-▲: add the figure

8-▼: reduce the figure

### How to display the setting figure:

5seconds after turn on the power, the screen display the current temperature, if you want to check the setting figure. Please follow the step: Press “set”2seconds, Will show the temperature setting figure, press again will show the current temperature. If the figure alarm, the screen will display temperature and Er4 (high alarm) or Er5(low alarm), the buzzer will sound, now press “Prg/mute” to close.

### How to set the temperature

A: Press “set”2seconds, Will show the current temperature and glittering.

B: Through the▲or▼ to add or minish the temperature,Then press the “set” to confirm.If 30 seconds not confirm, The temperature set is invalid,will show the original temperature.

### High/low temperature alarm:

The factory original figure is 0C and -86, it mean the alarm will alarm if the temperature higher or lower range 0 and -86C, (Press “Prg/mute” can stop the alarm).It is normal to alarm when first use the freezer, till the temperature down ,The alarm will cancel automatically.

When freezer work steady, the inside temperature temperature higher then setting figure, the freezer start; when come to setting figure, the freezer will close.



First use please set temperature on -80C, wait the freezer normal working 3-4hours, then can set temperature below -80C



If input the other parameter not carefully,Please don't change randomly. (not use “set” key ),One minute to show the normal working state.Also you can to connect the power again



Please don't input the good in the freezer when connect with power, should wait freezer running after 12 hours.



Input the goods not more than 1/3 each time, wait the freezer running after 24hours.

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Then input another 1/3 goods inside/



When freezer is cooling, don't open the door, or else will cause the freezer temperature up.



Because of cooling inertia, the display temperature will be different with setting temperature (especially when temperature set higher), which is normal.

## **4 Defrost .Unused .Maintenance**

- ① There will be some frost on the surfaces of chamber for a long time running which may decrease the performance of freezer. If the thickness of frost is more than 10mm, some defrost operations are recommended.
- ② Disconnect the power supply before defrosting. Wear special protective gloves for any interior operation! Open the door and remove all materials from freezer. There are two ways to defrost: (I) softly spud the frost on the surfaces with defrost shovel; (II) let the internal temperature rise naturally to thaw all frost accretion. Then clean up the water thoroughly with dry rag.
- ③ Connect the power supply after defrost is completed to run your freezer.
- ④ Note: Any electric heater, metal tool or edge tool CAN NOT be used during defrost operation.
- ⑤ Leave Unused: If the unit is not used for long time, please disconnect power supply and maintain as the following procedures. For next time operation, ensure there is no any water around the liners to avoid the seal of door is frozen.
- ⑥ Clean: Regularly clean the filter for better performance of freezer. (Procedure: Loose the two bolts in the ventilating panel and lay the panel flatly. Then loose the sit bolts in the filter and remove the dust with soft brush or wash it. Dry the filter before installing again.
- ⑦ Maintenance: The freezer should be cleaned regularly. For personal safety, please cut the power supply for any maintenance! **Wear special** protective gloves and wipe the inward and outward walls with wet and soft rag.
- ⑧ Note: 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!





**Note: Prohibit the children to playing games around the freezer.**

## 5. Service after sale

Some unexpected failures may arise during running. Please pay attention to the running status of your ULT freezer. If any exceptional case arises, please check and solve it according to the following introductions. If the problem is not solved well, please contact our service center for details.

Problem	Possible Cause
ULT freezer does not operate	<ul style="list-style-type: none"><li>● Power outage has occurred.</li><li>● The plug is bad or not securely plugged-in.</li><li>● Fuse is blown.</li><li>● Voltage is too low or too high.</li></ul>
Compressor does not work	<ul style="list-style-type: none"><li>● Power in control panel is off.</li><li>● Temperature setting is wrong.</li></ul>
Temperature is higher than setting	<ul style="list-style-type: none"><li>● Frost in inner wall is too thick</li><li>● The door is not closed properly or is opened too frequently.</li><li>● Overfull materials are put into chamber.</li><li>● Ambient temperature is too high.</li></ul>
Too great noise	<ul style="list-style-type: none"><li>● Freezer is not leveled well.</li><li>● Freezer leans upon the wall.</li></ul>

### ◇ Below are normal operation:

- There are some light clashes when the compressor starts up and stops.
- During rainy and watery season some frost may accumulate on the surfaces of cabinets. Please clean it with dry rag.
- DO NOT open the door twice within 5 minutes. This may lead the hot air into the interior of freezer and the door may be difficult to open because of a negative pressure due to a sharp decrease of temperature of this part air.

- If the freezer has liquid flowing sound, the reason is the refrigerant flowing in the pipeline.

**Notice:** Before call the service engineer, Please clean and disinfect the freezer.

Condition: Can not shake heavily, strike, preventing drench.

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

## 6 The mainly function

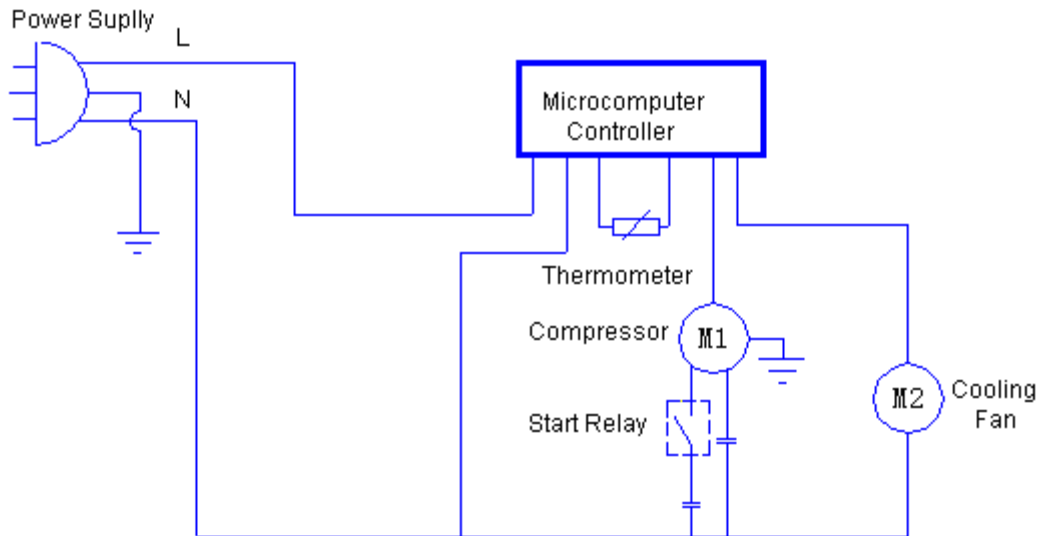
### 6.1 The mainly technical parameter

Model	DW-86HW50	The facility safe types	I Kind B Type
Climatic type	N	Input power (W)	300
Storing temperature	$-10 \sim -86^{\circ}\text{C}$	Refrigeration	Mixture/240g
Valid capacity (L)	50	Size (depth × width × height) (mm)	600x560x910
Rating vlotage (V~)	220	Rating frequency (HZ)	50

### 6.2 The encasement list

Item	Operation Manual	Key	Defrost shovel
Qty	1	2	1

### 6.3 The circuit diagram



All technical parameters and circuit diagram in nameplate are final ones for your units.