

MODEL: UF9010(4510) ~ UF9060(4560)  
UF8606(4006) ~ UF8660(4060)

## Ultra Low Temperature Freezer



Before operating this unit,  
please read and understand  
this manual completely  
and keep it for future  
reference.

# Introduction

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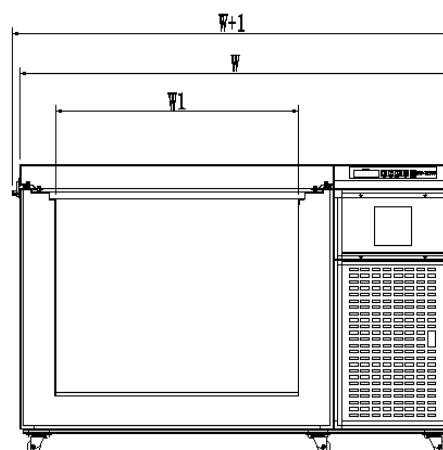
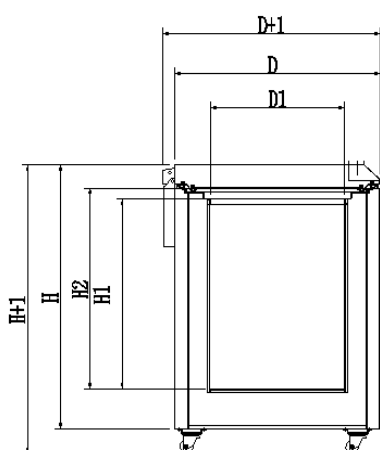
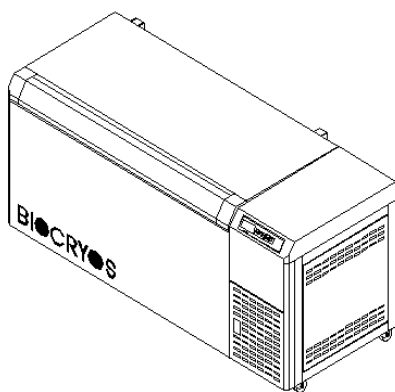
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## 6. Test Certificate

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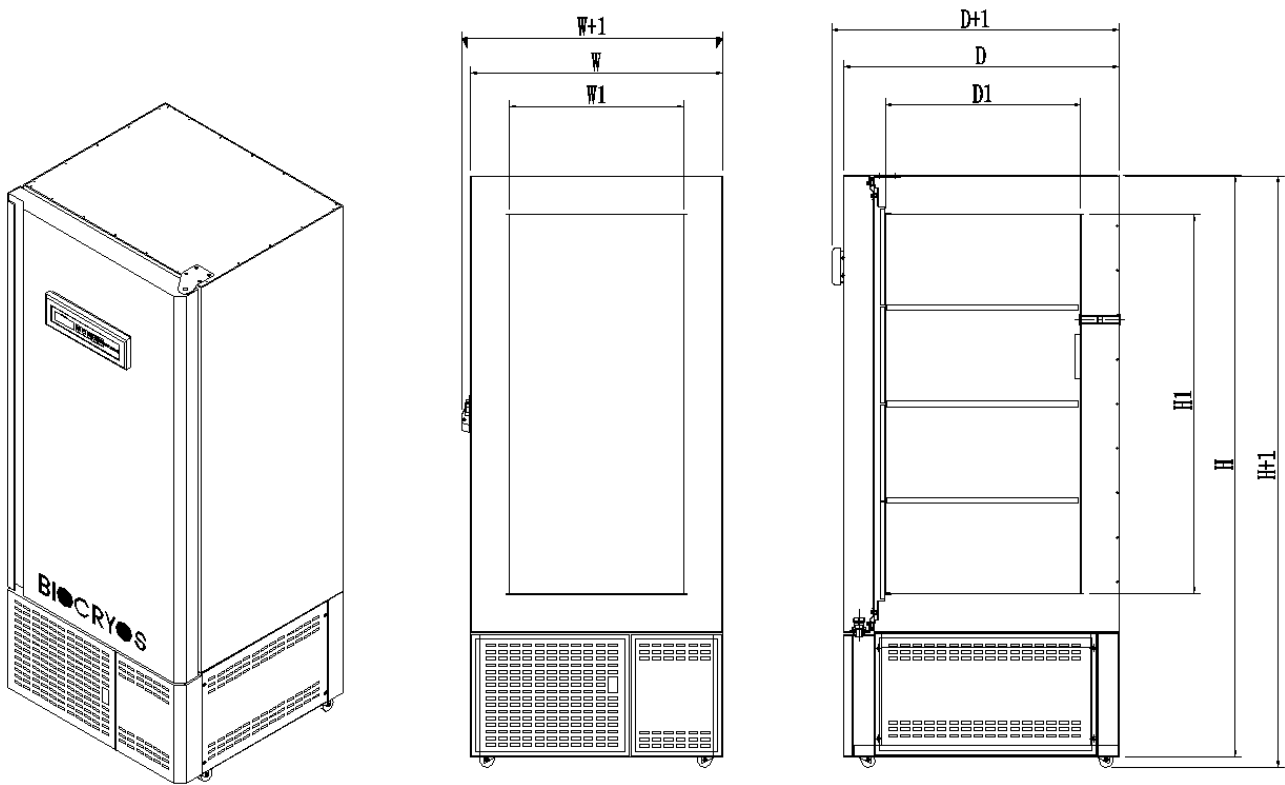
### 1. On Dimension of Each Model

- Chest Model



MODEL NO.	Exterior Dimension (mm)		Interior Dimension (mm)	Capa. (L)
	W × D × H (W+1 × D+1 × H+1)			
UF9010/UF4510	1000 × 760 × 935 (1030 × 805 × 1022)		300 × 500 × 675(712)	101
UF9020/UF4520	1300 × 760 × 935 (1330 × 805 × 1022)		600 × 500 × 675(712)	202
UF9030/UF4530	1600 × 760 × 935 (1630 × 805 × 1022)		900 × 500 × 675(712)	303
UF9040/UF4540	1900 × 760 × 935 (1930 × 805 × 1022)		1200 × 500 × 675(712)	405
UF9050/UF4550	2200 × 760 × 935 (2230 × 805 × 1022)		1500 × 500 × 675(712)	506
UF9060/UF4560	2500 × 760 × 935 (2530 × 805 × 1022)		1800 × 500 × 675(712)	607

■ Upright Model



MODEL NO.	Exterior Dimension (mm)		Interior Dimension (mm)	Capa. (L)
	W × D × H (W+1 × D+1 × H+1)			
UF8606/UF4006	760 × 700 × 885 (790 × 740 × 920)		500 × 430 × 300	64
UF8640/UF4040	850 × 780 × 1960 (880 × 820 × 1995)		590 × 510 × 1280	385
UF8650/UF4050	850 × 930 × 1960 (880 × 970 × 1995)		590 × 660 × 1280	498
UF8660/UF4060	985 × 930 × 1960 (1015 × 970 × 1995)		725 × 660 × 1280	612

## 2. On Installation Environment

## ■ Installation Location

- ① Place where the direct sun ray does not reach
  - ② When the ventilation is fine
  - ③ Where there is a little dust
  - ④ Where there is no vibration
  - ⑤ Where there is no humidity
  - ⑥ Where the floor is flat
  - ⑦ Where the surrounding temperature or the recommended product is 20 ~ 27 degree
- ※ For a use of product other than the above places, it may not operate normally.

## ■ Installation Method?

- ① Installation shall be made by maintaining the distance between the back of the product and the wall for 20 cm or more
- ② The floor has to be flat.
- ③ No product shall be placed in front of the ventilation

## 3. On Power

### ■ Power

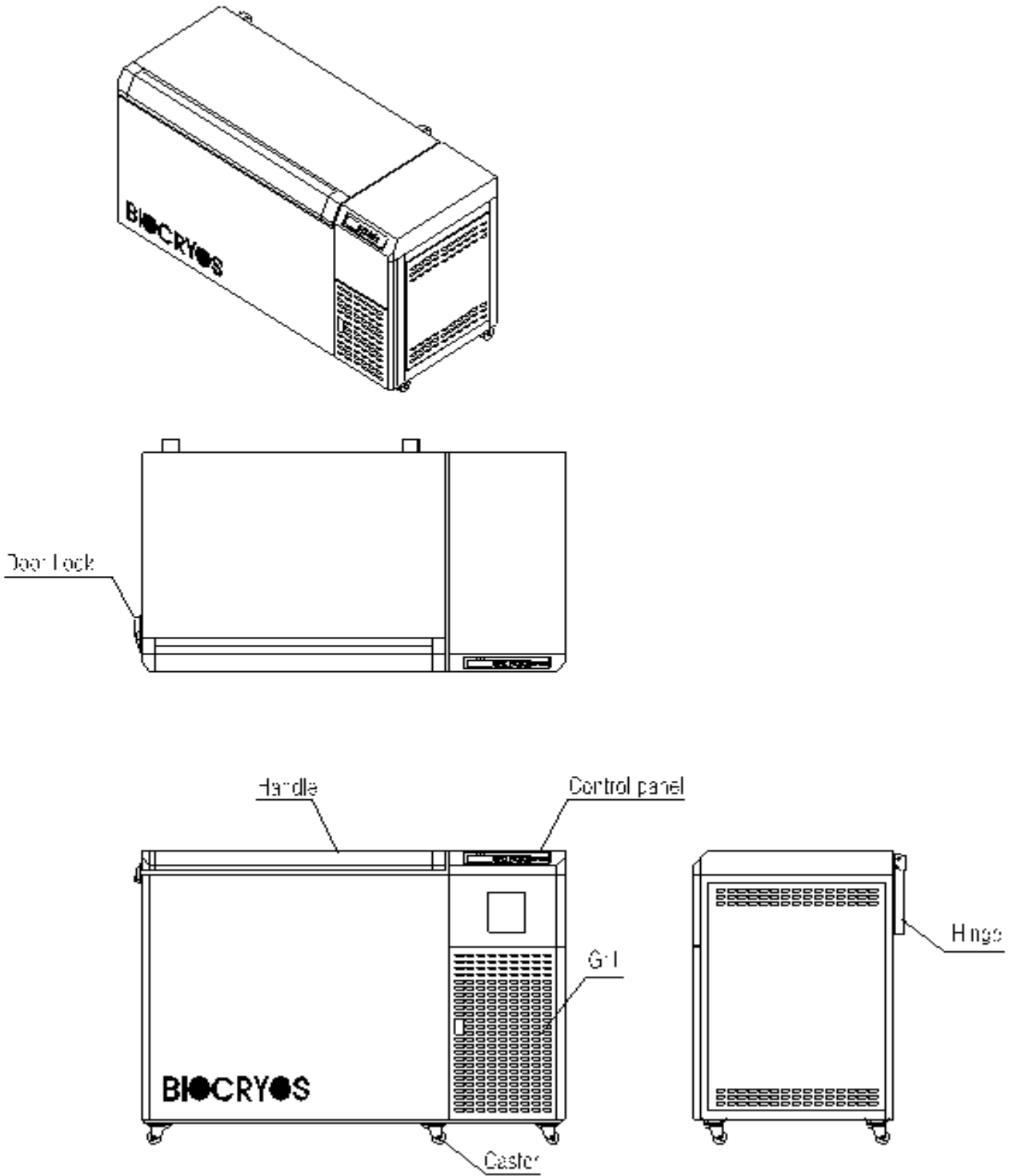
- ① The power plug has to be inserted securely on the outlet not to have the defective contact.
  - ② Do not have this product in connection with the same outlet with other products. ?
  - ③ Use the power outlet of 15A or more.
  - ④ Do not let the power cord pressed or bent.
  - ⑤ The extension cord shall be used for 250V and 15A or more and it shall be not longer than 3m.
  - ⑥ This product is for 220V and 60Hz that it shall be used after confirming the voltage.
- ※ When using the voltage of 110V, use the transformer (5Kw or more).
- ※ This product has built-in voltage booster, but use AVR in a place where the voltage is unstable.

### ■ Earth method

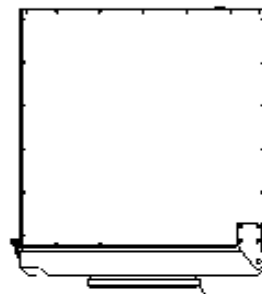
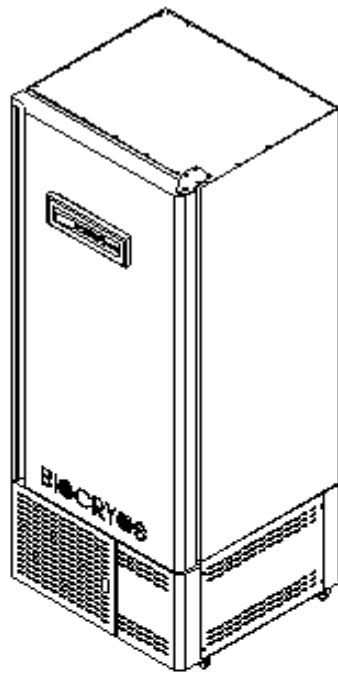
- ① Make sure the earth is placed to prevent the electric shock.
  - ② For the outlet exclusively for 220V with the earth, make sure to check the earth terminal and use.
  - ③ For the outlet with no earth terminal, connect the earth line with the main body and connect with the copper plate to bury under the humid ground of 25 cm or deeper.
- ※ Caution: Absolutely do not earth in the gas pipe, telephone line or lightning rod.

## 4. On the Name and Function of Each Part

■ Exterior name of chest model

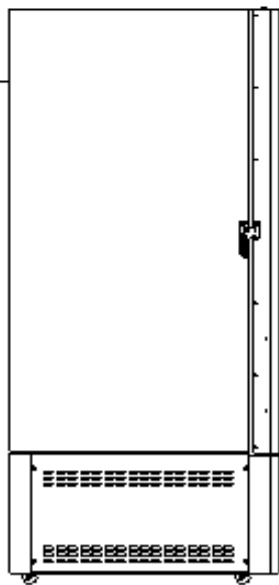


■ Exterior name of upright model



Control panel

CO<sub>2</sub> Back-o & Sensor port



Handle

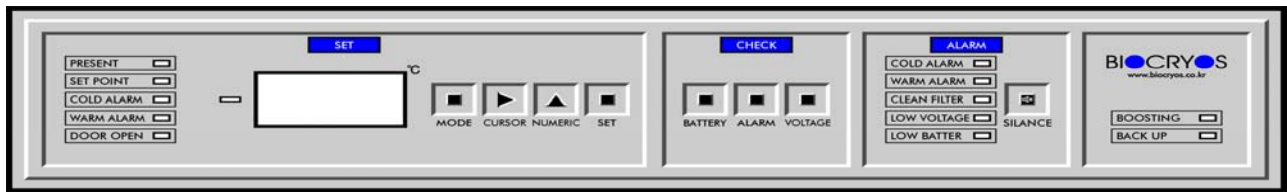
Door lock



Grill

Caster

■ Name and function of control board



MODE lamp	<p>■ Lamp that indicates the condition of equipment or when the temperature is indicated</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> PRESENT: Lamp ignition showing the current temperature</li> <li><input type="checkbox"/> SET POINT: Lamp ignition when setting or resetting the desired temperature</li> <li><input type="checkbox"/> COLD ALARM: Lamp ignition when setting or resetting the under temperature</li> <li><input type="checkbox"/> WARM ALARM: Lamp ignition when setting or resetting the over temperature</li> <li><input type="checkbox"/> DOOR OPEN: Lamp ignition to open the door</li> </ul>
DISPLAY	<p>■ Encrypt and temperature, various messages are indicated in number and character</p>
SET button	<p>■ Button for function selection, temperature setting, and setting completion</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> MODE: Select the desired function by mobilizing and igniting the PILOT LAMP</li> <li><input type="checkbox"/> CURSOR: Mobilize the figures when changing the setting value</li> <li><input type="checkbox"/> NUMERIC: The figure is increased when changing the setting value</li> <li><input type="checkbox"/> SET: Complete the change of setting value</li> </ul>
CHECK button	<p>■ Button for confirming the equipment condition</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> BATTERY: Check the rate of recharging the battery</li> <li><input type="checkbox"/> ALARM: Check the normal earning sound</li> <li><input type="checkbox"/> VOLTAGE: Check the input voltage BATTERY</li> </ul>
ALARM lamp	<p>■ Lamp that indicates the abnormal temperature and machine</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> COLD ALARM: Warning sound and Lamp ignition when the temperature is lower than the setting temperature</li> <li><input type="checkbox"/> WARM ALARM: Warning sound and Lamp ignition when the temperature is higher than the setting temperature</li> <li><input type="checkbox"/> CLEAN FILTER: Warning sound and Lamp ignition when the time is notified when removing the condensed dust</li> <li><input type="checkbox"/> LOW VOLTAGE: Warning sound and Lamp ignition when the input voltage is low</li> <li><input type="checkbox"/> LOW BATTERY: Warning sound and Lamp ignition when the batter recharge rate is low</li> </ul>
SILENCE button	<p>■ Button to stop the warning sound</p>
PILOT lamp	<p>■ Lamp that informs that the incidental equipment is in operation</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> BOOSTING: Lamp ignition when the input voltage is increasing</li> <li><input type="checkbox"/> BACK UP: Lamp ignition when the safety device for temperature maintaining is in operation</li> </ul>



※ This equipment maintains the indication of the control board by the battery when the power is failed with the warning sound of power failure while memorizing all setting information that it normally operates without separate setting work or button operation as before when power is back on. When the power failure takes a long period of time, the battery may completely be released that it may not be recharged, requiring the replacement with new battery. Therefore, when the power failure for long period is expected, the samples in the refrigerator shall be moved to a safe place and turn off the battery switch.

## ■ How to Operate

### 1. Finding the Lost Password

When the <MODE> button is pressed while the <VOLTAGE> button is pressed, the screen will display "PPP" for a brief moment with the encrypt showing, and if the hand is off from the button, it returns to the base screen.

### 2. Initial Screen

When the power is on, the <PRESENT> indicator light is turned on, and the indication window will indicate the current temperature with all conditions initializing. The figures already set are memorized and restored automatically

### 3. Change of Mode

Each time the <MODE> button is pressed, it is proceeded in the order of the password mode --> setting temperature indicator mode (SET POINT) --> lower limit warning temperature indicator mode (COLD ALARM) --> upper limit warning temperature indicator mode (WARM ALARM) --> and the initial screen (PRESENT).The indication light to inform each mode is on and the indication window is marked with the existing setting values.

### 4. Content of Password Mode Operation

- (1) If the password is not set on the password mode, the screen will have "P00", and pressing the <SET> button at this time to open the door.
- (2) If the password is set in the password mode, the screen is indicated with "P--", then the appropriate password is inputted and the <SET> button is pressed to open the door, then the temperature, cold alarm, warm alarm and others are set.
- (3) If the password is to be changed, press the <MODE> button for 3 seconds when entering into the password mode to get into the password change mode. After the "old" mark is displayed on the screen, input the previous password appropriately and the input the new password after the "nPd" mark is on the screen.
- (4) If the wrong password is inputted, the "Err" mark appears and the inputted is denied.

## 5. Content of Set Mode Operation

(1) How to use keys for various setting

This is the place to change the flickering part on the indication window, and when the <NUMERIC> button is pressed, the value of flickering window is changed.

The minus is indicated for minus temperature indicator, and it changes from 0 to 9 for number indicator.

To move the flickering position, use the <CURSOR> button. To finish the setting, press the <SET> button.

## 6. Content of Function Key Operation

(1) How to use the key indicating the recharge rate of battery. Press the <BATTERY> button to indicate the recharge rate on the current battery in percentage on the indicator. The recharge is automatically made under the condition that the battery in the machine room is connected while the power is on. With the recharging, complete recharging of around 120% is made, and the recharge of 80% or below would have the <LOW BATTERY> indicator.

(2) How to use the alarm test key. Press the <ALARM> button to check the abnormal function of the warning device.

(3) How to use the power voltage checking key. Press the <VOLTAGE> button to indicate the current power voltage on the indicator. In the event that the voltage is less than 210V, the increase is automatically made with the <BOOSTING> indication light turned on. If the voltage is 195V or lower, the <LOW VOLTAGE> indicating light is on with the warning sound goes off. The indication range is 175V ~ 250V, and the range other than that is marked with "000".

(4) How to use the key for releasing of alarm. If the <SILENCE> button is pressed, the alarm goes off for 240 seconds even under the warning situation. When 240 seconds is lapsed without the warning situation released, the alarm goes off again. If the warning factor is removed, the alarm automatically goes off even the alarm is in operation.

## 7. Reference Information

(1) If 6 seconds are passed without any input during the setting the current mode is automatically passed.

(2) When there is an abnormal function in the memory saving, the error message of "HL1" is indicated.

(3) Battery shut-off function: If "200" is inputted in the password input mode, the battery is shut-off. It is used when the battery connection is cancelled by device stored in the storage or in carriage.

(4) Input function of date and time: Input the password "001" in the password input mode, it enters into the mode to input the year, month, date, and time, minute. The setting mode is made after showing "yEr" for year, "ntH" for month, "dAt" for date, "ocL" for hour, and "int" for minute. If the setting range is deviated, it marks with "Err" and enters into the setting mode again. The maximum setting range is December 31, 99, 23:59.

(5) Initial freezing operation: On the condition that the power is injected on the machine for the first time, the <WARM ALARM> indicator light is turned on but the warning sound does not go off. ---> stand-by function

(6) Function to reset the initial password: Press the <BATTERY> button while the power is turned off to have the turn the power back. The existing password is deleted.

(7) Over Temperature LED. If the temperature reaches to the upper set temperature due to the abnormal freezing, the <WARM ALARM> indicator light is turned on and the warning sound goes off. The user may check if the upper set temperature is properly set or if the door is properly closed. If the temperature decreased to the below the upper set temperature, the <WARM ALARM> indicator light is turned off and the warning sound turned off as well.

(8) Under Temperature LED It the temperature reaches to the lower set temperature due to the abnormal freezing, the <COLD ALARM> indicator light is turned on and the warning sound goes off. The user may check if the lower set temperature is properly set. If the temperature increases above the lower set temperature, the <COLD ALARM> indication light is turned off and the warning sound is turned off as well.

**8. At the time of shipment, this product is set as the followings.**

UF9010 ~ 9060 UF8606 ~ 8660	▶ SET POINT	-70℃	UF4510 ~ 4560 UF4006 ~ 4060	▶ SET POINT	-30℃
	▶ WARM ALARM	-40℃		▶ COLD ALARM	-40℃
	▶ COLD ALARM	-80℃		▶ WARM ALARM	-10℃

## 5. On Service

### ■ Cause and Measure of Breakdown

Cause	Measure
<p>① If the power of the product has irregular voltage</p> <ul style="list-style-type: none"> <li>- This product has the built-in Voltage Booster, however, the recommended voltage is 215 ~ 225V. If this voltage is greatly deviated, the efficiency of the compressor is rapidly declined and sometimes it is not operated at all.</li> </ul>	<p>① - When you use it in a place where the voltage is irregular, make sure to use AVR (for 220V).</p>
<p>② If the temperature surrounding the product is 30 degree or higher</p> <ul style="list-style-type: none"> <li>- If the surrounding temperature of this product is 30 degree or higher, it exceeded the limit that the condenser cools it down that it may cause the breakdown of the compressor</li> </ul>	<p>② - If the surrounding temperature of this product is 28 degree of higher, open the ventilator and windows to make good ventilation with the outside.</p> <ul style="list-style-type: none"> <li>- Open all the covers of the machine room of this product to help better ventilation.</li> <li>- Turning on the air conditioner will be a great help.</li> </ul>
<p>③ If the temperature around the product is 0 degree or less</p> <ul style="list-style-type: none"> <li>- If the surrounding temperature of the product is 0 degree or below, the oil in the compressor may be solidified that it would influence on the operation of the compressor negatively.</li> <li>- If the surrounding temperature of the product is 0 degree or below, it may cause erroneous operation of various electronic parts.</li> </ul>	<p>③ - If the surrounding temperature of the product is 0 degree of below, various heating devices are operated to maintain the surrounding temperature to be minimum of 5 degree of higher.</p>
<p>④ In the event of having dust around the product</p> <ul style="list-style-type: none"> <li>- If there area lot of dusts around the product, this product may have a breakdown with the compilation of dust in the front of the condenser to drop the efficiency of the compressor since this product uses the air circulation method of condenser.</li> </ul>	<p>④ - In the event that there are a lot of dusts in the product area, remove the dust in the filter by opening up the cover in front of the machine room of the product and remove the dust in the condenser on the lower front side with the soft brush for once a month.</p>
<p>⑤ In the event that the humidity around the product is high</p> <ul style="list-style-type: none"> <li>- If the product area is high with humidity or moisture, it may cause the breakdown of various electronic products and may cause the circuit breakdown or short circuit.</li> </ul>	<p>⑤ - In the event that the surrounding humidity of the product is high, operate the ventilator or open the windows to ventilate around the product.</p> <ul style="list-style-type: none"> <li>- Turning on the dehumidifier will be of great help.</li> </ul>

## ■ Request for service

※ The consumers check the product before requesting for service.

### ① Not in operation or freezing at all.

- Check if the single-phase 220V power plug is inserted appropriately.
- Check if the temperature setting is appropriately made.
- Check if the heat is too close.
- Check if the backside of the freezer is too close to the wall.
- Check if the condenser is clogged with dust. (Action: Remove the dust with the soft brush.)
- Check if a large volume of sample is injected within a few hours. (Action: This is a temporary phenomenon that you may wait only a few moments.)

### ② There is a strange noise.

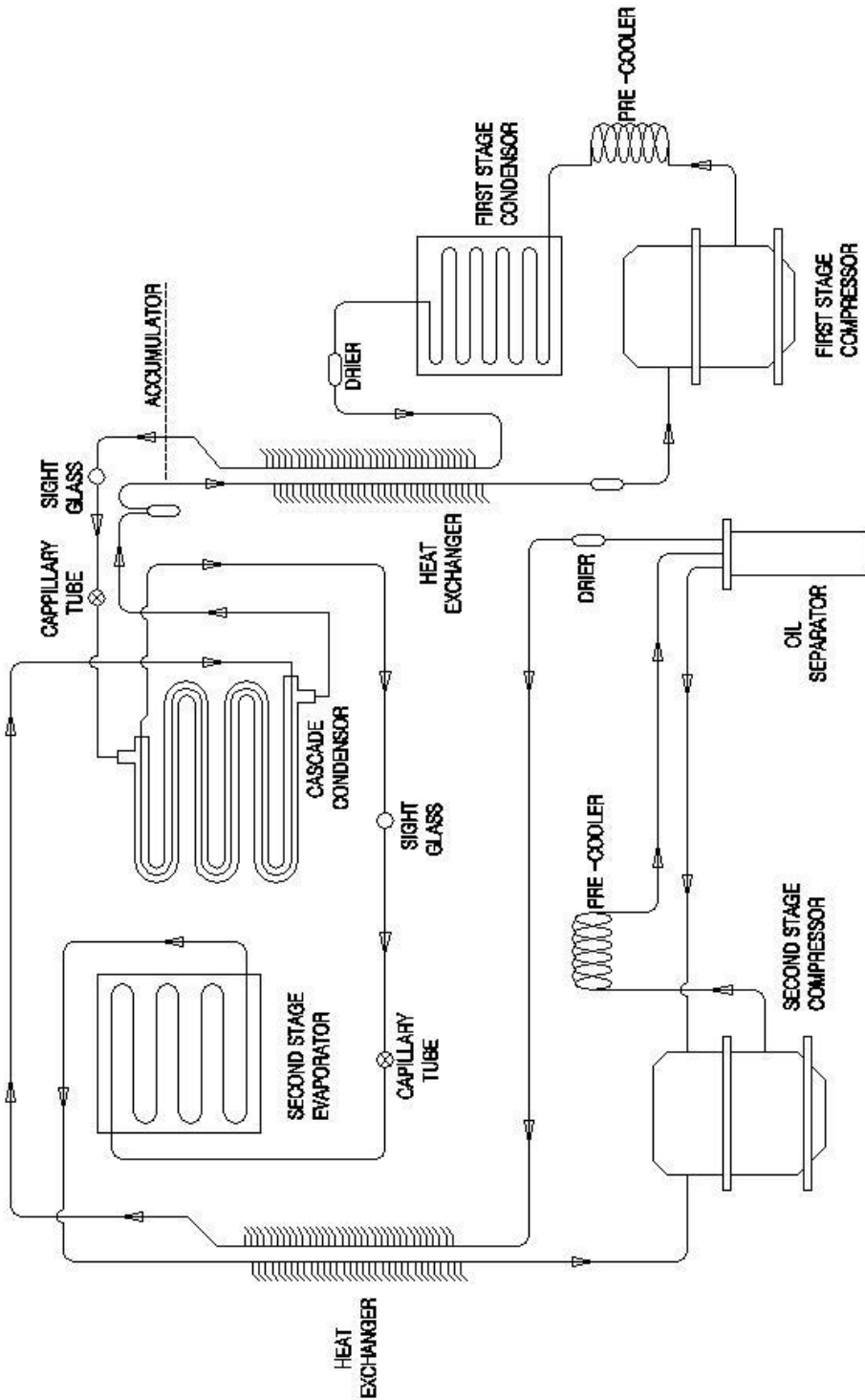
- Check if the installed floor is flat and even.
- Check if the noise comes from the operation of compressor in the product.
  - \* The noise from the operation of compressor for this product is slightly louder than the noise of compressor in the household refrigerator.
- Is there a "whiz" noise?
  - \* This product uses air coolant method by using the fan motor that there is a noise in operation of the fan motor.
- Is there a "knocking" sound?
  - \* This is a noise from the various parts contracting or expanding within the product that it is not a breakdown.
- Is there a water flowing noise inside?
  - \* This product is built-in with a lot of coolant pipelines that the noise is the sound of coolant flowing inside that it is not a breakdown.

### ③ The internal wall of the freezer generates frost.

- Place the sample with some distance to make better air circulation.
- Make sure to close the lid or tightly sealed for the sample with a lot of moisture.
- Make sure if the door is accurately closed.
- Reduce the number of door openings.

NOTE

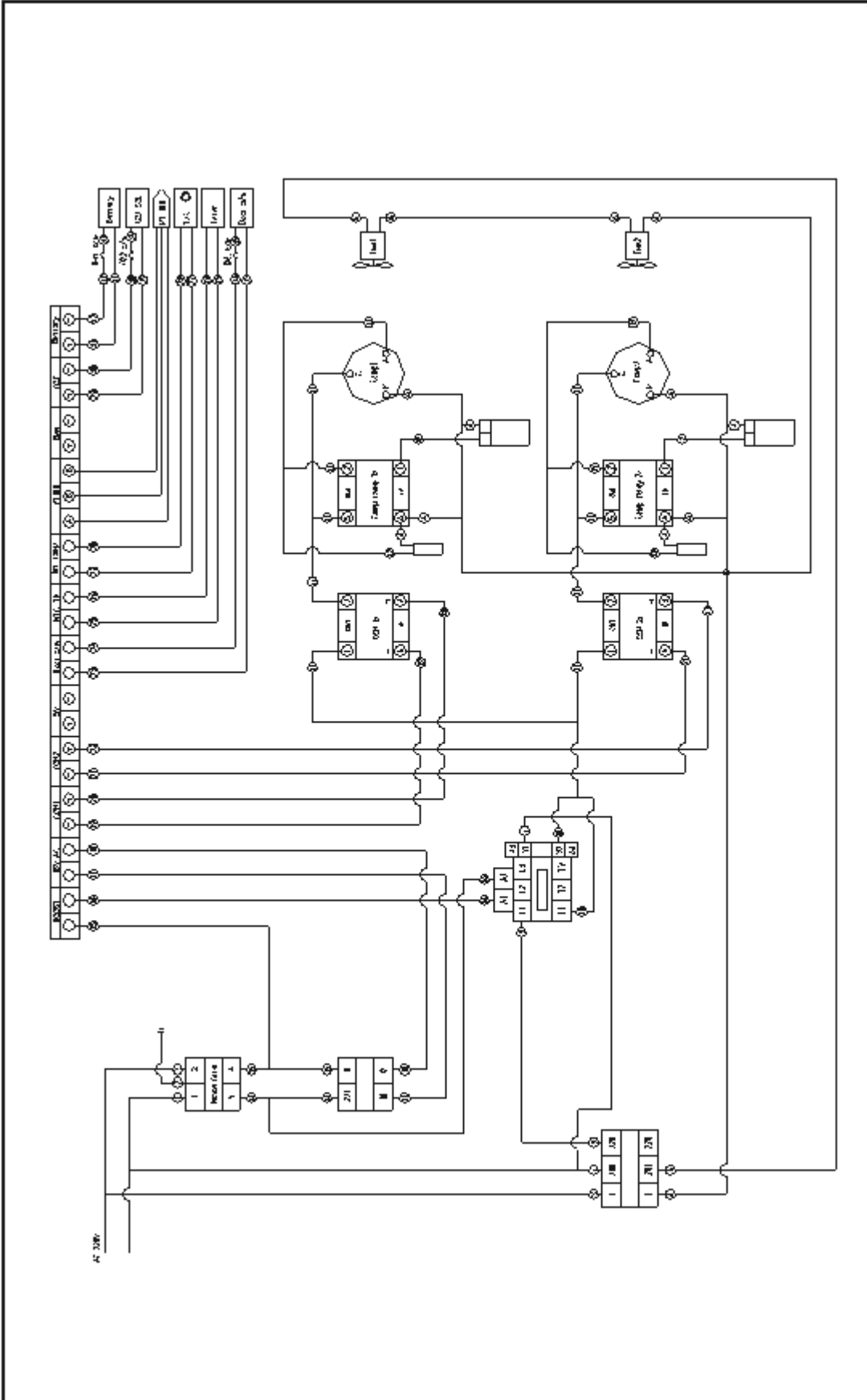
1. 모든 H/E는 1/4인치, 모든 H/E는 1/4인치로 함.
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F		10.0		15.0		20.0		30.0		45.0		5.0		3.0		A		
B	1.0	2.0	2.5	3.5	5.0	7.0	12.0	15.0					5.0	2.0	1.0			
D	0.5	0.8	1.0	1.2	2.0	3.0	5.0	6.0					5.0	2.0	1.0			
C	0.4	0.5	0.6	0.8	1.0	2.0	3.0	4.0					1.0	1.0	1.0			
B	0.2	0.3	0.4	0.5	0.7	1.0	2.0	3.0					1.0	1.0	1.0			
A	0.05	0.1	0.15	0.2	0.3	0.4	1.0	1.0					0.1	0.2	0.2			
												1/16"	1/8"	1/4"	3/8"	1/2"		

PROJECT		TITLE		SCALE		N/S		DRAWN		DESIGN		CHECK		APPR	
CASCADE REFRIGERATION SYSTEM		PROJECT TITLE		SCALE		N/S		DRAWN		DESIGN		CHECK		APPR	
UNIT		THIRD ANGLE PROJECTION		DATE		REASONABLE		DATE		DESIGN		CHECK		APPR	

3121 B000-00 (0) BIOCRYOS CO., LTD. A3 (4203237) mm



		TITLE	
SCALE	N/S	DRAWN	CHECK
UNIT	PROJ.	DESIGN	APPR.
THIRD ANGLE	PROJECTION		
DATE	RESPONSIBLE	DATE	DESIGNER
APPR.			
1	2	3	4
5	6	7	8
9	10	11	12
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BIOCRYOS CO., LTD

The life of a product is service.

We, at BIOCRYOS Co., Ltd., place all our efforts for the customer satisfaction. Should you encounter any difficulty or inconvenience, please contact the service team at BIOCRYOS Co., Ltd., and we will respond for your needs promptly and efficiently.

Please make sure to read this Manual once more before contacting us for the breakdown report.

We will be working as hard as to manufacture flawless products. Thank you.



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