



## Catalog

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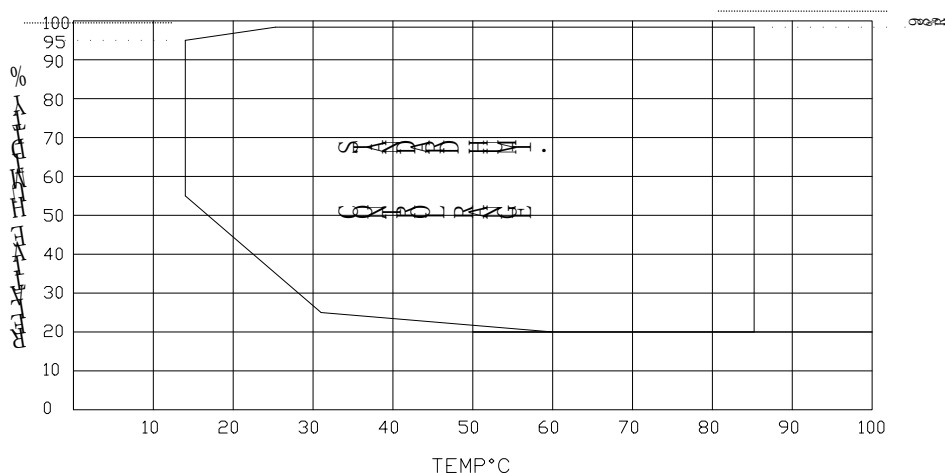
## PROGRAMMABLE TEMPERATURE AND HUMIDITY CHAMBER

### 1.Specification

1. Model: LY-2150
2. Temperature range: -40 °C ~ 150 °C.
3. Humidity range: 20 %RH ~ 98 %RH

\*REMARK: Please refer to the temperature humidity range chart !

#### HUMIDITY CONTROLLABLE RANGE (AT ROOM TEMP. 20°C)



4. Temp&humi controlling accuracy:  $\pm 1^{\circ}\text{C}$  ;  $\pm 3\%\text{RH}$ .

\* REMARK: Above #2~4 specifications test should be tested 30min after temperature stable !

5. Temp&humi uniformity:  $\pm 2^{\circ}\text{C}$  ;  $\pm 5\%\text{RH}$ .

\*REMARK: Below #5 specifications test should be tested at 1/6 distance to each chamber wall and 30min after temperature stable !

6. Heating speed: From room temperature to 100 °C , about 45 min (no load condition).
7. Cooling speed: From room temperature to -40 °C , about 65 min (no load condition).
8. Inner chamber dimension: 50×60×50 cm.

\*REMARK: Test sample dimension should not be beyond 2/3 of the chamber dimension.

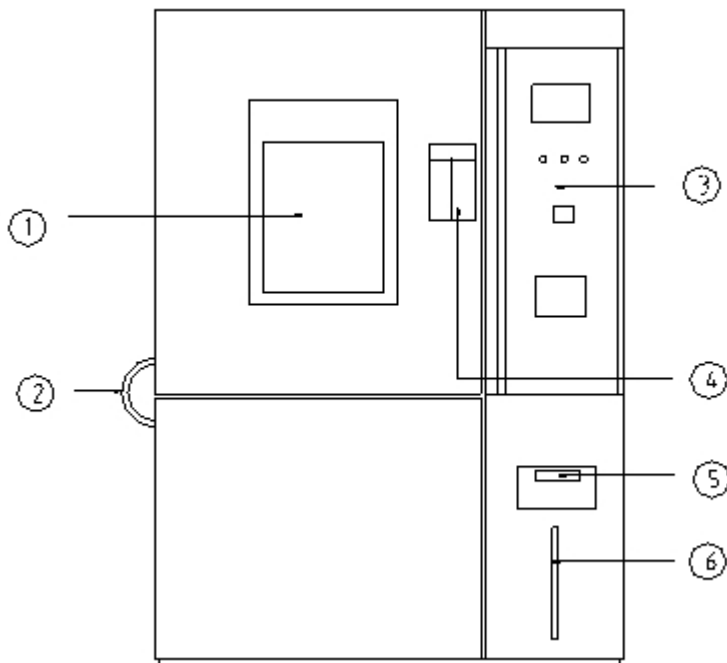
9. Equipment installation space: At least 227×245×245cm(W×H×D).
10. Door dimension: About 70 × 80 cm, 1 door in total.
11. Power: AC 3  $\phi$  380 V 50/60 HZ MAX 32 A





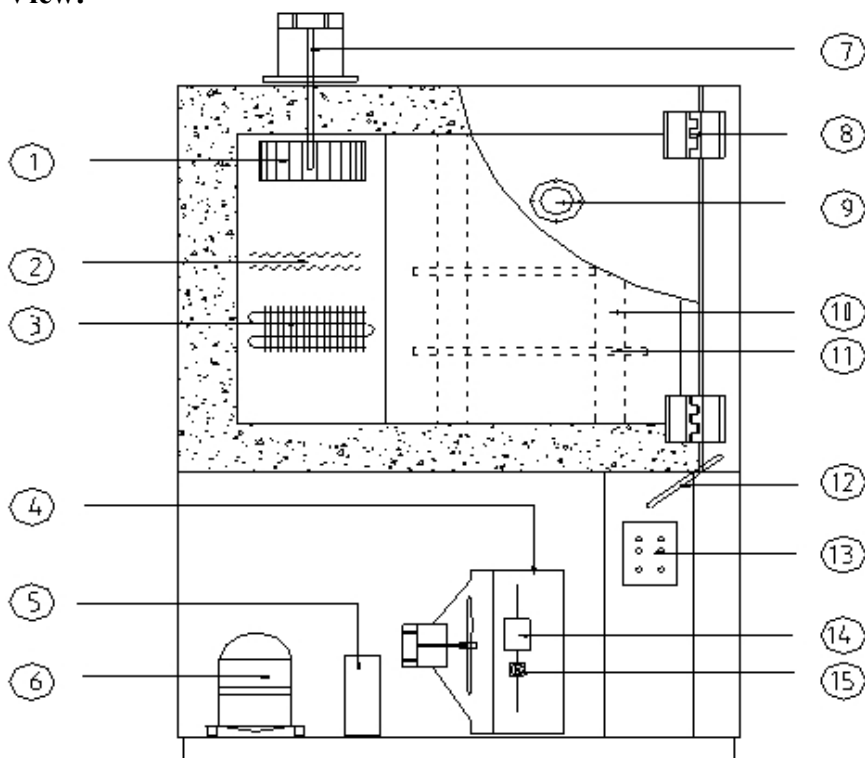
## 2. Chamber structure:

### 2.1 FV (front view):



- 1、Toughened glass window
- 2、Indoor light outlet
- 3、Control panel
- 4、Chamber door handle
- 5、Water box handle
- 6、Water level meter

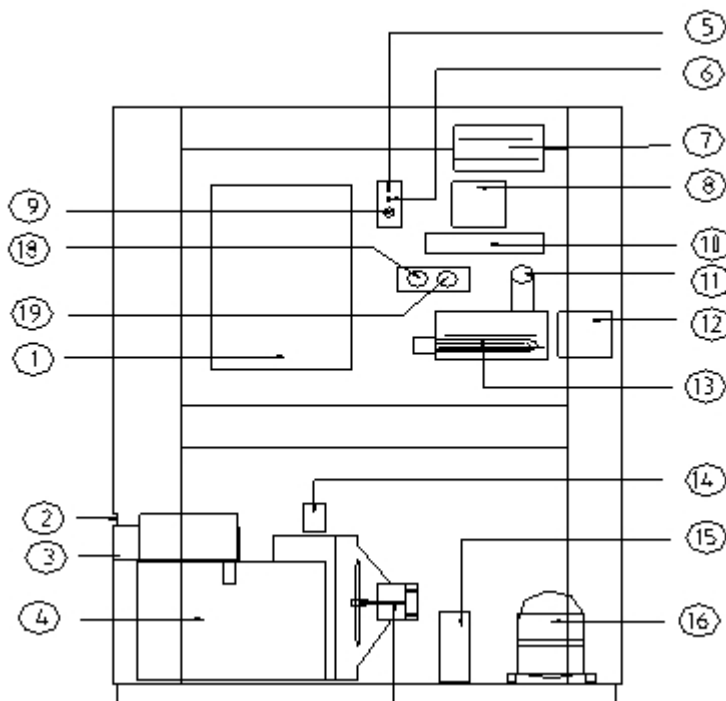
### 2.2 Left View:





- |                   |                                   |
|-------------------|-----------------------------------|
| 1、 Multi-wing fan | 9. Test Hole                      |
| 2、 Heater         | 10. Stowage plate turnable holder |
| 3、 Evaporimeter   | 11. Clapboard                     |
| 4、 Condenser      | 12. Indoor light outlet           |
| 5、 Oil separator  | 13. TSsignal case                 |
| 6、 Compressor     | 14. Dryer                         |
| 7、 Wind motor     | 15. Refrigerant window            |
| 8、 Gate lock      |                                   |

### 2.3 Right View

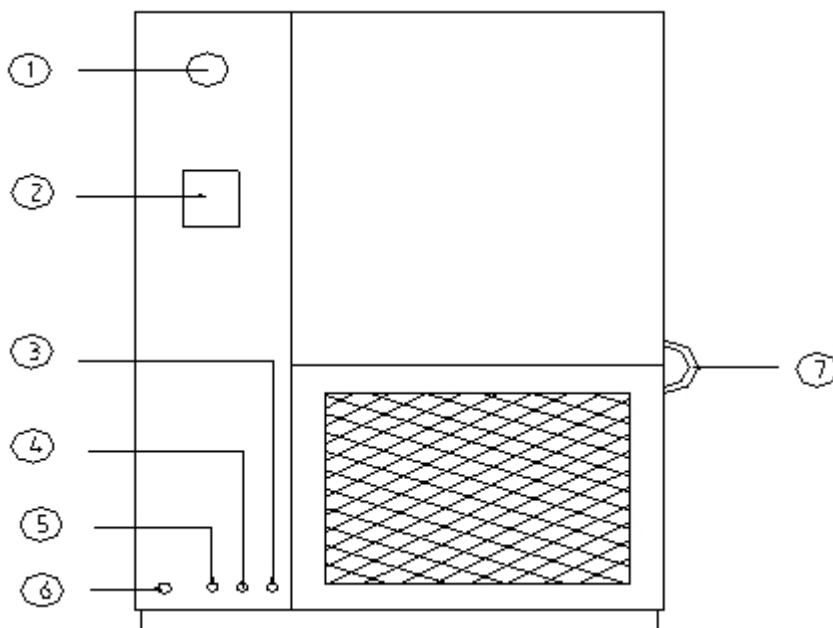


- |                                       |  |
|---------------------------------------|--|
| 1、 Switchboard                        | 10. Heater protecting cover                |
| 2、 Water box handle                   | 11. Humidity air inlet                     |
| 3、 Water box                          | 12. Humidification water lever control box |
| 4、 Water chamber                      | 13. Humidifier                             |
| 5、 Dry bulb temperature sensor        | 14. High pressure protection switch        |
| 6、 Wet bulb humidity sensor           | 15. Oil separator                          |
| 7、 Add water box                      | 16. Compressor                             |
| 8、 Wet water level control box        | 17. Condenser heat dissipation motor       |
| 9、 Wet bulb water level water channel |  |





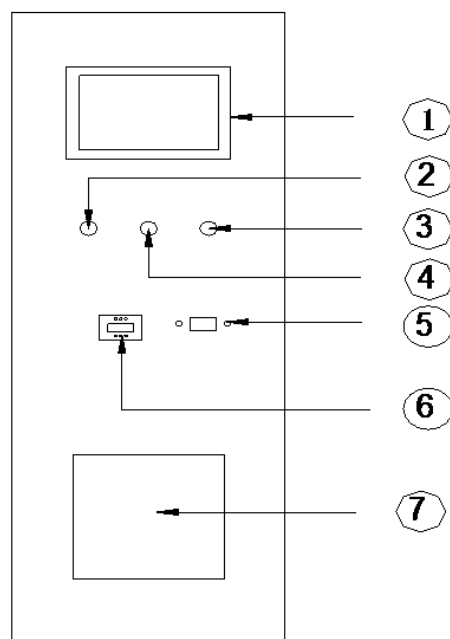
## 2.4 Back view



- 1、Buzzer
- 2、No-fuse switch
- 3、Overflow water outlet
- 4、Waterspout
- 5、Dewatering switch
- 6、Power outlet
- 7、Indoor light outlet

## 2.5 Control panel picture

- 1、Programmable temperature & humidity controller
- 2、Indoor lamp switch
- 3、Power switch
- 4、Lack water indicate
- 5、Computer connector
- 6、Over-temperature protection
- 7、Reserve-recorder





### 3.Equipment requirement

This part is arranged by the buyer and prepare all things well.

Power:

- AC 220V 1  $\phi$  3W50/60HZ    MAX    15 A
- AC 220V 3  $\phi$  4W50/60HZ    MAX    20A
- AC 380V 3  $\phi$  5W50/60HZ    MAX    25 A

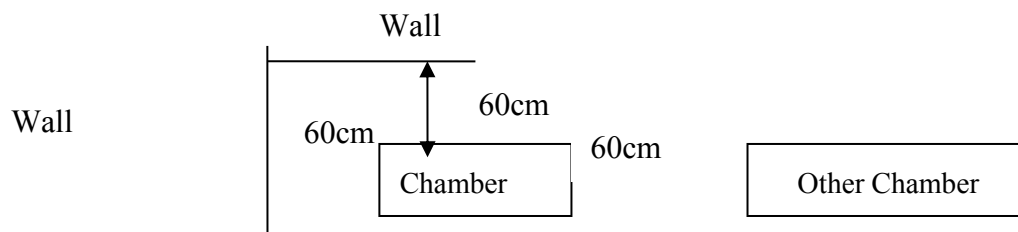
\*Notice: The fluctuation of the voltage and frequency: Voltage $\pm$ 5%; frequency  $\pm$ 1%!

Humidification water:must use pure water or distilled water(the first time,water amount is more than 20L) or the water electric conductivity is less than 10 $\mu$ s/cm.

\*Notice: Make sure that the water is more pure,more better.Prohibit using underground water!

### 4.Chamber installation site and install methods

1. For the install site,must consider this machine heat dissipation efficiency and the site should easy to check or maintain.
2. The cooling system is under of the machine,quantity of heat is big,so when installing,the machine apart from the wall or other machine at least 60 cm,so that Ventilated smooth.Look the below chart:



3. Put it in flat and no-vibration ground,please adjust the four leveling legs under the machine when installing,keep the machine balance,so that it is easy for inner box water draining and avoid noise.(use gradienter to check)
4. This machine is not exposure to direct sunlight and keeps indoor air circulation.
5. Please put it in a individual room and don't put it in public place where has inflammable,explosive, perishable chemical goods,avoid breaking out of fire or cause personal injury.
6. It's best to shorten the power supply and drain line.
- 7.Please avoid putting it in dirty or dust place,the room temperature and humidity should be kept in





10°C~30°C;70±10%RH,machine can keep in best stable operating condition.

8. Please don't put any sundry and weight goods,in case it drops down and cases personal inquiry.

9. Please don't held the electrical cabinet,wire,motor as impetus point,in case the electrical cabinet damaged,loose or failure.

10.The machine max gradient is less than 30°, at the same time,must fix the machine in case it falls down or do harm to human.

11.If you need to move the machine,please take back the four leveling legs and then move it.Adjust the balance,in case damage the machine.

## 5. Chamber power configuration or installment methods

1. Please choose the power as you need,pay attention to switching and power capacity.Several machines don't connect the same power,affect machine performance,or even halts.Please use professional return circuit.

2. The power supply is below:

	1 $\phi$ 2W220VAC	$\sqrt$	50HZ
	1 $\phi$ 3W200VAC		60HZ
$\sqrt$	3 $\phi$ 3W380VAC		
	3 $\phi$ 4W380VAC		

3. Suitable line is:( cable length within 10m)

	2.0~2.5m m <sup>2</sup>		8.0~10.0m m <sup>2</sup>
$\sqrt$	3.5~4.0 m m <sup>2</sup>		14~16 m m <sup>2</sup>
	5.5~6.0m m <sup>2</sup>		22~25m m <sup>2</sup>

4. If it is three-phase supply,please pay attention to lack phase protection.(if confirms it is three-phase supply,but machine can't work,it maybe anti-phase,need to change the neighbouring two-phase power line. ).

5. If you connect the ground line on the water pipe,water pipe must be ground-connected metal pipe.(if not metal pipe,all can be effective to connet the ground.)

6. If the sample need to connect power,please use another power,prohibit using the same power!

7. Be careful to install,don't damage the wire!Don't connect the ground line to the mashgas pupe.

8. Please check the machine if has any damage ,deformation,when in transportation,keep the inside





chamber clean.

9. The machine power line configuration:Black one is null line,yellow-green one is ground line,others are firing line.

10. The input power mains fluctuations should not exceed allowed range,ground line must be connected well,or will affect machine performance.

Please collocate suitable insurance according to machine power rate,in case when going wrong,it can cut off the power,in case of personal inquiry,fire accidents. Please collocate wiring after choosing safe space for machine,at the same time.

11. Pay attention to wiring,if connect the wire wrong or input wrong power,the machine will be damaged,module will be burnt out.When decorating the wire,please check the input power if switch off, in case of geting an electric shock.If the machine has three-phase motor,when connecting the power,please check if the swerve is right.If the single-phase motor is adjusted well,when renewal,please if the swerve is right,in case that will affect machine performance.

12. After decorating the wire,please make sure the electrical box covering plate is installed well,or it will have electric shock or firing damage.

13.Only professional worker can check and maintain this machine,please cut off the power before checking if you need to dismantle this machine in case of electric shock or fire damage.

14.Please don't operate this machine when the electrical cabinet ,electrical cabinet door,chamber side plate or other satety devices is dismantled.When machine is halting,only need to close the temperature switch or power switch.

## 6. Attention item before using:

※When the first time opening the machine or washing the humidification water box,please set the temperature is lower 5℃ than normal temperature,humidity is 1%RH,and the open the machine for about 30 minutes,and then set other temperature and humidity.

**Please attention below:**

Confirming the power line or ground lind:

- Check power line if connect well as requirement,and confirm to connect ground

Confirming the overtemperature protector of dry,wet bulb.

- Over-temperature protector temperature set point=temperature setting point + (20~30℃)

Confirming water supply:

- Check the water in water box if enough







- Check the water box if covered well
- Drainage switch if returning well

Confirming drainage tube:

- Drainage tube if connecting well

Confirming wet test cloth:

- Check if clean 【one time every month,renewal a new test cloth every 3 months】
- Check the place if correct 【Put it in the front of humidity sensor!】
- Check the water channel and level if normal
- Check if it wetting 【if has water in water channel,and water level is normal,the test cloth is not wet,please renewal a test cloth】

Confirming humidifier level:

Check the water level if normal 【After humidifier supplying water about 3-5 mintues,check the water level of water control box if normal】

Humidifier water if clean 【Water tray of humidifier dewatering at regular intervals,clean it with brush,and keep clean】

Check the temperature bulb switch if correct well

Confirming drainage tube:

- Check the drainage if connect well

\*Notice:Take down the test cloth if only do the temperature test.After test in the 85 degree or higher condition,please renewal test cloth before do the next test.Or it can't absorb water.Please wash your hand before renewaling test cloth,or the test cloth will lose efficacy.

After confirming the above items,please fix the fastened legs.

## 7.Operation program:

1. Open the power switch,and open the insurance fuse switch of main power 【NFB】,and then press temperature-humidity chart switch.
2. After the temperature-humidity chart working well,so can set the graph,so can set all things well.
3. The temperature,humidity and time should coincide with the user requirement.
4. After setting all menus,close chamber door well,and then operate the machine.
5. Press controller switch,then you can set temperature and humidity.
6. When the temperature and humidity reach to the users requirement,please close down the controller swtich then take out the product.





7. About the methods of setting procedure or constant value controlling, please refer to the controller manual.
8. This chamber has window observing light, please press **【LIGHT】** to open the light to observe product testing status. If have stoppage happened, the screen will show the stoppage place, buzzer will be sound. After solving the stoppage, please press **【REST】** to reset the controller.

## 8. Operation attention item:

1. Prohibit heating or testing explosive, flammable and corrosive material. Or it will cause serious damage.
2. The place where test sample putted can't affect the air circulating, or it will affect the machine performance.
3. Please close the door well when operation, or the temperature and humidity will escape, can't reach the max or min temperature-humidity you need.
4. Please appoint someone to operate the machine, or the machine will be damaged early.
5. There is test hole in the left of the machine, you can connect the sample to another power. (If has TS signal power connector, max current is 5A)  
Open the chamber light **【LIGHT】** to observe samples changing status.
7. If this machine operating below 0°C, please avoid opening the chamber door. Because when doing low temperature test, opening the door will cause evaporimeter or other parts freezing phenomenon. Temperature is lower, the phenomenon is more serious. If must need to open, please try to shorten the time. After finishing low temperature operating, please setting 60°C to dry the chamber for about half an hour in case evaporimeter freezing phenomenon or damaging the sample. (If not dealing in 60°C, we will not be responsible for the stoppage.)
8. If you open the chamber door, it will lead to below bad effects:  
    High temperature fly out to the outdoor.....very dangerous !  
    Still keep high temperature inside chamber.....Will hurt yourself !  
High temperature will cause fire alarm, lead to fault action !
9. Opening door methods: Worker should move along the door direction when opening door, in case the hot steam hurt people.
10. Please connect this chamber to ground line, in case producing static induction!
11. Please check the short circuiter, high temperature protector regularly.
12. Set the wet bulb cloth correctly, then can reach correctly relative humidity.





13 .When in operation,please don't touch the machien to check,in case get electric shock.

## 9.Maintain item and methods:

- 1 · Maintain the condenser freezing machine regularly,and keep clean.
- 2 · When taking the sample out,prohibit contacting the door sealant,in case the sealant is damaged and shorten the life time.
- 3 · The chamber around and bottom should keep clean,in case the dust enter in it,and degrade performance.
- 4 · Freezing system is the centre of the machien,please check the copper pipe if leakage snow.
- 5 · Check and clean the voltage switchhouse and large current connection of switchboard once a year.Connection looseness will make the machine in dangerous working situation,the same damager is burning out the module,serious damage is breaking out of fire,alarm,or hurting worker.Please use cleaner to eliminate the dust.
- 6 · Wash the humidifier and water box constantly,in case of dirt and affecting the steam giving out.Generally,after doing one tester,wash the humidifier and water box to extend the life.Using copper brush to wash the humidifier,and then use water to swill the dirt.
- 7 · Dry-wet bulb cloth should be checked regularly,if the test cloth is dirty or hardening,After you do above 85℃ test,and then need to do temperature-humidity controlling test,if you found the cloth don't absorb water,please renewal it.It's related to humidity accuracy,the test cloth usually renewed 3months once.
- 8 · Check and adjust the wet bulb water  
The water level of ponding can't be too high.If too high,it will overflow the ponding,too low will make wet bulb test cloth can't absorb well,this will affect the wet bulb accuracy.The water level 60% full is ok.It can adjust ponding height to Adjust the water level of ponding. 【Adjust two-side screw】
- 9 · Please don't adjust freely the setting value of two high-temperature protector in voltage switchhouse.It is adjusted well before production factory.This protecting switch is used to protect the heating tube and humidification tube.Setting point = temperature setting point + 20℃ ~ 30℃
- 10 · When operation, the temperature setting point of high-temperature protector in panel = temperature setting point + 15℃ ~ 20℃ ° When the temperature reaches to the high-temperature protector setting point,the heater will halt. 【OVER HEAT】 high temperature caution light will





- 11 · lighting but fan will still work.If it working long,but noone to look after it,Please check the high-temperature protector if setting well before operation.
- 11 . Check and maintain the waterway.
- 12 .The water pipe is easy to block and leakage.Please check if it has blocking and leakage phenomenon.If have,please remove it on time.Storage water in humidifier should renewal one month one time.Make sure the water is clean and smooth.
- 13.When the test time has arrived and need to take out the sample,please wear drying,insulating,and high-temperature resistance gloves to take the sample out.
14. Clean and maintain the chamber.
15. Please clear away the dirt before operation.
16. Voltage switchhouse should be cleaned at least one year one time,please use cleaner clean the dirt.The outside of chamber should be cleaned at least one year one time and use suds wipe it.
17. Please read the manual first before operation.

## 10. Accessories

1. Height-adjustable track in chamber,2 pcs.
2. Stainless steel shelf,2pcs.
3. Test cloth,10 pcs.
4. drainage tube, 1pcs.
5. Spare insurance fuse,1 pcs
6. Manual, survey report, temperature controller manual,1pcs.

## 11. Stoppage example

Stoppage status	Cause	Dealing method
failure to actuate when open the power	Lack phase;pow Power supply is not normal	Check power transmission again
	Controller no output	Check controller PCpanel if work well
	Control power insurance burn out	Renewal insurance
	Safety protection device malfunction	Check safety precautions and hand-reset





Can't cool down or cool down slowly	Refrigeration compressor break down	Renewal or maintain
	Snow leakage	Maintain
	Wind motor can't work or reversal	Check reason or update
	Compressor electromagnetic switch break down	Check reason or update
	Condenser has dust	Blow clean the high-pressure gas mouth
	Chamber defective cooling	installation site not good,install again
Temperature can't reach or out of control	Overtemperature protection	Set again
	Temperature SSR break down	Check and renewal
	Temperature electrical heated tube break down	Check and renewal
	Temperature contactor break down	Check and renewal
	Cooling system fault	Maintain it
Humidity can't reach or out of control	Humidity SSR break down	Check and renewal
	Humidity heating tube break down	Check and renewal
	Wet cloth can't absorb water well	Renewal
	water pond water level overtop or overflow	Adjust water level
	Humidity contactor break down	Check and renewal
	Temperature over-humidity protect action	Set again
Controller can't control	Button don't work	Notify my company
	No power input	Check and power transmission again
	I/O panel can't work	line bank loose and insert it again
	Control panel don't show	Check power or notify my company





# Main Parts List

Item	Part	Model and specification	Brand	Orign
1	Controller	TEMI880	Samwontech	Korea
2	Circulating fan	120*120	Shangyi	Taiwan
3	Electromagnetic switch	H502 AC220V 7161	SAGINOMIYA	Japan
4	Intermediate relay	MY4N-J 220/240VAC	OMRON	Japan
5	Wet bulb sensor	PT100	JUNWEI	Taiwan
6	Compressor	CAJ2464Z	Tecumseh	France
7	Dry filter	EK-083S	Emerson	America
8	Cooling fan	220V $\phi$ 350	Mahr	Germany
9	Solenoid valve	SEV-603BXF	SAGINOMIYA	Japan
10	Heater	2KW 220V	Longxing	Taiwan
11	Solid-state relay (SSR)	SSR-25DA	FOTEK	Taiwan
12	Water pump	WP-105	SUN YEH	Taiwan
13	Evaporator	150L 6*10*250	Zhongli	Taiwan
14	Refrigerant	R404A	DUPONT	America
15	Centrifugal rotor	6 inches aluminum wheel	Shangyi	Taiwan
16	Thermorelay	5.5-8A	TAIAN	Taiwan
17	AC contactor	CU-11	TAIAN	Taiwan
18	ELCB	2P 32A DZ12-63	Mitsubishi	Japan
19	Hand expansion valve	AEL-222211	Honeywell	Germany
20	Automatic expansion valve	TS2 R404A/R507	Danfoss	Danmark
21	Oil separator	A-W55824STD	Emerson	Mexico
22	Heat exchanger	K070*24C 1.5RT	RTOOLS	Taiwan
23	Heat insulating material	Black and white foaming materials	Bayer	Germany
24	Stainless steel	304#		Dongguan
25	Transformer	BK-150VA	DELIXI	France

