

Service Manual

Deep Temperature Freezer

DW-60W138•DW-60W258•DW-60W388



Effective models

This service manual is effective for following models

Model name	Product code	Voltage(V)	Frequency(Hz)	Plug-type
DW-60W138(OSLYYK 220V50HZ)	BE0342EAW	220	50	European type
DW-60W258(OSLYYK 220V50HZ)	BE0353EAW	220	50	European type
DW-60W388(OSLYYK 220V50HZ)	BE0362EAW	220	50	European type

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1. Product Features

1. Temperature range inside the freezer is $-30\sim-60^{\circ}\text{C}$ (adjustable) (with the environmental temperature of $10\sim32^{\circ}\text{C}$);
2. Microprocessor control with digital display of the temperature;
3. High-density insulation layer & low power consumption;
4. High/low temperature alarm controller, with certain temperature alarm point to be set as needed;
5. With famous-brand Compressor, flouid-free & environmentally friendly refrigerating medium and two alarm modes (buzzer alarm & blinking indicator alarm);
6. Security door lock design to prevent arbitrary opening of the door;
7. Stepped anti-corrosion liner design for location of food baskets in different types
8. Wide voltage band, suitable to the 187~242V voltage.

2. Structure Drawing of Product Appearance



3. Technical Data & Circuit Diagram

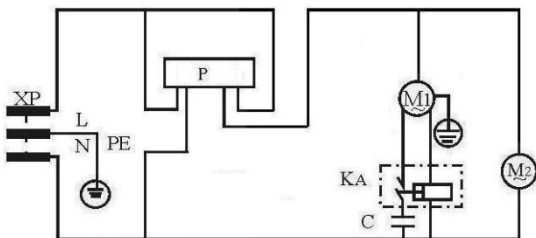
3.1 Technical Data

Model	DW-60W138	DW-60W138	DW-60W188		
Climate Type	4	4	4		
Protection type to prevent	I	I	I		

electric shock					
Usable Capacity (L)	138	258	388		
Rated Power Supply	AC220V/50Hz	AC220V/50Hz	AC220V/50Hz		
Rated Power (W)	370	410	420		
Power Consumption (kW·h/24h)	3.0	3.0	3.5		
Refrigerating medium R600a (g)	85 (600a) 30 (R1150)	90 (600a) 40 (R1150)	95 (600a) 45 (R1150)		
Boxed Dimension (WxDxH) (mm)	790*770*950	1210* 770*950	1655* 770*950		
Net Weight/Gross Weight (kg)	62/75	88/108	105/130		
Compressor	NLE12.6CNL	NLE12.6CNL	NLE12.6CNL		

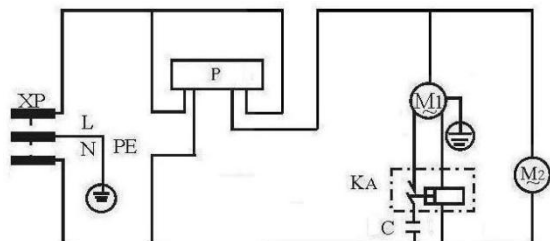
3.2 Circuit Diagram

1) Applied model: DW-60W138



M1-COMPRESSOR C-STARTING CAPACITOR
M2-COOLING FAN KA-STARTING RELAY
P -ELECTRONIC THERMOSTAT
XP-POWER PLUG

2) Applied model: DW-60W258/388



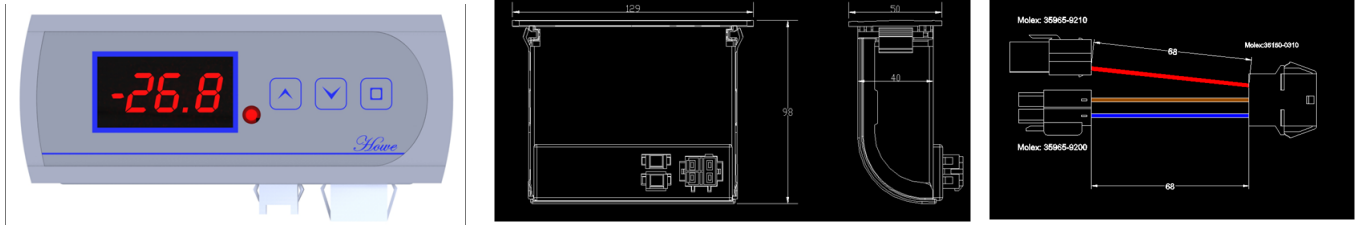
M1-COMPRESSOR KA-STARTING RELAY
M2-COOLING FAN XP-POWER PLUG
P -ELECTRONIC THERMOSTAT
C -STARTING CAPACITOR

4. Task Control Principle & Parameters

4.1 Control Principle & Functions:

This freezer adopts an electronically temperature control system controlled by the Carel temperature controller (old type)

Temperature controller panel & wiring diagram



Temperature Controller Panel

Temperature Controller Wiring Diagram

Debug Methods of the temperature controller:

Serial No.	Button Operation	Display
1	Press the button "Set" for about 2 seconds	To display the initially set temperature of -50
2	If "-50" is not displayed, press "Up▲" / "Down▼" for resetting.	To display: -50
3	Press the button "Set"	To display the current internal temperature
4	After check of the set temperature, it is still necessary to check the setting of other parameters.	
5		To display the current internal temperature
6	Press the button "Set" for at least 5 seconds	To display: a flashing "PS"
7	Press the button "Set"	To display: 0
8	"▼" By pressing the button "Down▼"	To display: 0
9	Press the button "Set"	To display: PS
10	By pressing the button "Up▲"	To display: C1
11	Press the button "Set"	To display: 0
12	If "0" is not displayed, press "Up▲" / "Down▼" for resetting.	To display: 0
13	Press the button "Set"	To display: C1
14	By pressing the button "Up▲"	To display: /1
15	Press the button "Set"	To display: 0
16	If "2" it is not displayed, press "Up▲" / "Down▼" for resetting.	To display: 0
17	Press the button "Set"	To display: /1

18	By pressing the button “Up▲”	To display: c0
19	Press the button “Set”	To display: 0
20	If “0” is not displayed, press “Up▲” / “Down▼”for resetting.	To display: 0
21	Press the button “Set”	To display: c0
22	By pressing the button “Up▲”	To display: c2
23	Press the button “Set”	To display: 40
24	If “1” is not displayed, press “Up▲” / “Down▼”for resetting.	To display: 40
25	Press the button “Set”	To display: c2
26	By pressing the button “Up▲”	To display: rd
27	Press the button “Set”	To display: 2
28	If “2” is not displayed, press “Up▲” / “Down▼”for resetting.	To display: 2
29	Press the button “Set”	To display: rd
30	By pressing the button “Up▲”	To display: r1
31	Set Press the button “Set”	To display: -60
32	If “-30” is not displayed, press “Up▲” / “Down▼”for resetting.	To display: -60
33	Press the button “Set”	To display: r1
34	By pressing the button “Up▲”	To display: r2
35	Press the button “Set”	To display: -30
36	If “-10” is not displayed, press “Up▲” / “Down▼”for resetting.	To display: -30
37	Press the button “Set”	To display: r2
38	By pressing the button “Up▲”	To display: c3
39	Press the button “Set”	To display: 15
40	If “100” is not displayed, press “Up▲” / “Down▼”for resetting.	To display: 15
41	Press the button “Set”	To display: c3
42	By pressing the button “Up▲”	To display: /0
43	按 Set Press the button “Set”	To display: 4
44	If “0” is not displayed, press “Up▲” / “Down▼”for resetting.	To display: 4
45	Press the button “Set”	To display: /0
46	By pressing the button “Up▲”	To display: AL
47	Press the button “Set”	To display: 5
48	If “5” is not displayed, press “Up▲” / “Down▼”for resetting.	To display: 5
49	Press the button “Set”	To display: AL
50	By pressing the button “Up▲”	To display: AH
51	SET Press the button “Set”	To display: 5
52	If “5” is not displayed, press “Up▲” / “Down▼”for resetting.	To display: 5
53	Press the button “Set”	To display: AH
54	By pressing the button “Up▲”	To display: Ad

55	Press the button "Set"	To display: 0
56	If "0" is not displayed, press "Up▲" / "Down▼" for resetting.	To display: 0
57	Press the button "Set"	To display: Ad
58	By pressing the button "Up▲"	To display: r3
59	Press the button "Set"	To display: 0
60	If "0" is not displayed, press "Up▲" / "Down▼" for resetting.	To display: 0
61	Press the button "Set"	To display: r3
62	By pressing the button "Up▲"	To display: Ae
63	Press the button "Set"	To display: 1
64	If "1" is not displayed, press "Up▲" / "Down▼" for resetting.	To display: 1
65	Press the button "Set"	To display: Ae
66	Press the button "Set" for over 5 seconds to save the set value	To display the current internal temperature value

Reference Table of Carrel Temperature Controller Parameters

Symbol	Symbol Name	Unit	Set Value
			DW-60W138/258/388
	Set Temperature	°C	-50
PS	Password	—	-15
/	Sensor Parameters		
/0	Stability Measurement	----	2
/1	Sensor Probe Setup	—	0
/p	Decimal Point Forbidden	—	1
r	Control Parameters		
r1	Permitted Minimum	°C	-60

	Temperature Set Value			
r2	Permitted Maximum Temperature Set Value	°C	-30	
rd	Control Thermal Difference	°C	2	
A	Alarm Parameters			
Ad	Lag Time of Temperature Alarm	Min.	0	
AL	Offset of Low Temperature Alarm Limit Value to the Set Value	°C	5	
AH	Offset of High Temperature Alarm Limit Value to the Set Value	°C	5	
c	Compressor Parameters			

c0	Compressor Lag Time at Startup While the Controller is Working	Min.	0	
C1	The Minimum Interval between the Adjacent Two Operations of the Compressor	Min.	3	
c2	Shortest Down Time of the Compressor	Min.	40	
c3	Shortest Up Time of the Compressor	Min.	15	

4.2 Compressor Parameters (Under Standard Situation)

Product Model	DW-60W138		
Compressor Model	NLE12.6CNL	Rated Frequency (Hz)	50
Refrigerating Output (W)	370	Motor Type	CSIR
Rated Voltage (V)	198~254	Refrigerating Mode	Wind Cooling
		Oil Filling (cc)	320

Product Model	DW-60W258		
Compressor Model	NLE12.6CNL	Rated Frequency (Hz)	50
Refrigerating Output (W)	410	Motor Type	CSIR
Rated Voltage (V)	198~254	Refrigerating Mode	Wind Cooling
		Oil Filling (cc)	320

Product Model	DW-60W388		
Compressor Model	NLE12.6CNL	Rated Frequency (Hz)	50
Refrigerating Output (W)	420	Motor Type	CSIR
Rated Voltage (V)	198~254	Refrigerating Mode	Wind Cooling
		Oil Filling (cc)	320

5. Major Replaceable Parts Details

Product Model	Serial No.	Parts Details	Specification or Model	Private Part No.
DW-60W138	1	Compressor	NLE12.6CNL	0274000380
	2	Temperature Controller	Electronic Temperature Controller	0274000314A
	3	Power Cord	European	0070400325D
		Power Cord	British three flat pin	0270400113
		Power Cord	British three column	0070401590A
	4	Condensate Fan	EBM220V/60HZ/25W	0075030020

	5	Condenser	Condenser	0270700544
	6	filter	filter	0074180001
	7	hinge	Hinge of door	0270804966
	8	handle	Handle assembly	0070814623H
	9	Wheel	Mecanum Wheel	0070107949C

Product Model	Serial No.	Parts Details	Specification or Model	Private Part No.
DW-60W258	1	Compressor	NLE12.6CNL	0274000380
	2	Temperature Controller	Electronic Temperature Controller	0274000314A
	3	Condensate Fan	EBM220V/60HZ/25W	0075030020
	4	Power Cord	European	0070400325D
		Power Cord	British three flat pin	0270400113
		Power Cord	British three column	0070401590A
	5	Condenser	Condenser	0270700544
	6	filter	filter	0074180001
	7	Hinge	Hinge of door	0270805002
	8	Handle	Handle assembly	0070814623H
	9	Wheel	Mecanum Wheel	0070107949C

Product Model	Serial No.	Parts Details	Specification or Model	Private Part No.
DW-60W388	1	Compressor	NLE12.6CNL	0274000380
	2	Temperature Controller	Electronic Temperature Controller	0274000314A
	3	Condensate Fan	EBM220V/60HZ/25W	0075030020
	4	Power Cord	European	0070400325D
		Power Cord	British three flat pin	0270400113
		Power Cord	British three column	0070401590A
	5	Condenser	Condenser	0270700544
	6	filter	filter	0074180001
	7	Hinge	Hinge of door	0270805008
	8	Handle	Handle assembly	0070814623H
	9	Wheel	Mecanum Wheel	0070107949C

6. Common Fault Analysis & Maintenance Measures

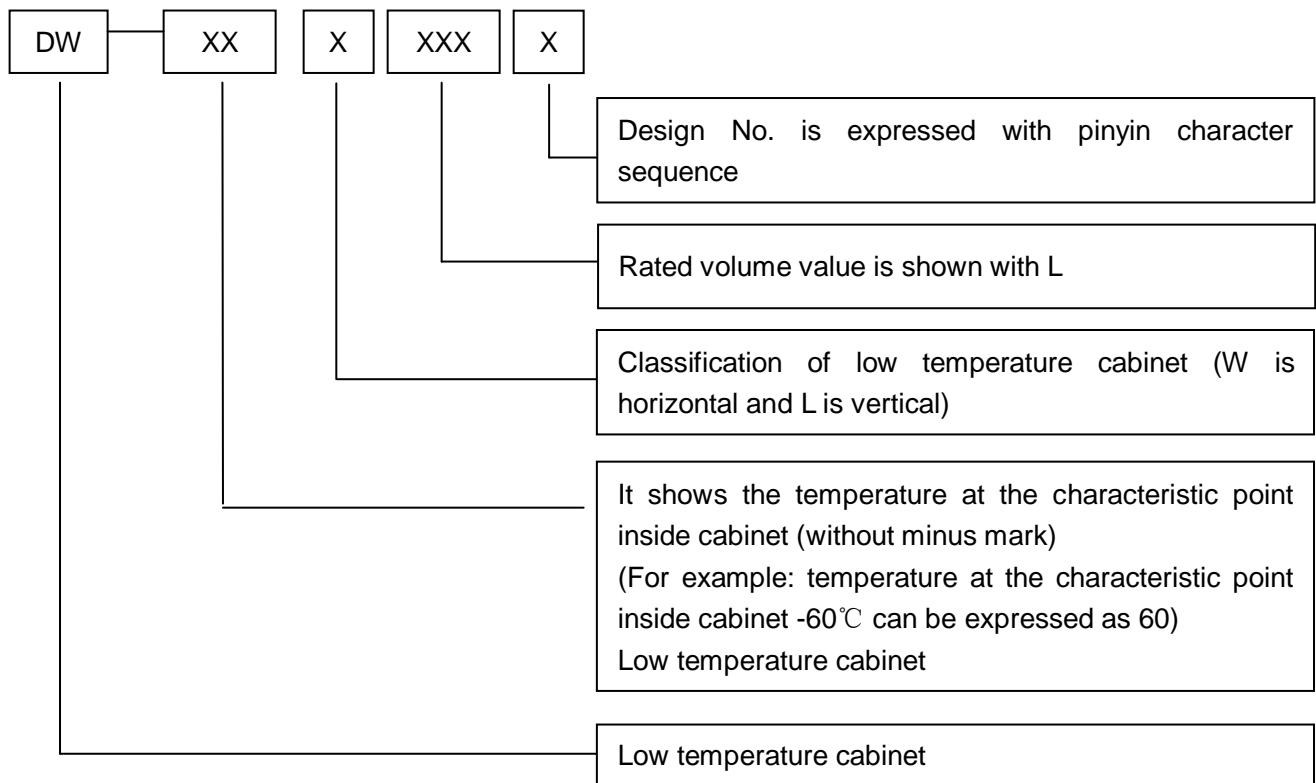
Main Problem	Cause Analysis	Maintenance Measures
The compressor cannot be started.	1. Fuse burn-out	Replace the fuse.
	2. Connection Damage of the socket connector(s) for the compartment wires	Replace the socket connector(s).
	3. Incorrect connection of wires	Check and make correct installation.
	4. Fault in the controller	Replace the temperature controller.
	5. Damaged starter or thermal protector	Replace the starter or the thermal protector.
	6. Fault in the compressor	Replace the compressor.
The temperature controller displays "EE".	Fault in the sensor. Replace the temperature controller or the temperature sensor.	
Big noise from the refrigerator	1. Uneven position.	Change the refrigerator's position.
	2. Resonance caused among the tubes or among the refrigerator cabinets during the compressor's operation.	Sort out the tubes to avoid resonance.
	3. Loosening of the compressor's connecting bolts	Tighten the connecting bolts
Refrigerating difference of the refrigerator	1. Serious leakage of refrigerating medium	Check the leakage and refill the refrigerating medium.
	2. Dirty block and oil block of capillary tubes or of the system	Clean the capillary tubes or replace the filter.
No alarm	1. Wrong setup of the parameters	Check parameter setup of the temperature controller.
	2. Fault in the temperature controller	Replace the temperature controller.

7. Question & Answer of Common Problems:

Main Problem	Answer to the problem
The internal temperature is too high or too low.	It is a bit relevant to the surrounding environmental temperature. When the internal temperature is too high or too low, we can solve this problem by adjusting the controlling temperature.
There is a sweeper phenomenon within the refrigerator after a certain duration of the its operation.	A little sweeper can be drained off periodically and be wiped off by a towel. If there is a lot more sweeper, we can check whether the drainpipe or other drainage are blocked and may get it though with a piece of fine wire.

Designation

Regulations for type naming:



Note: rated volume can be the gross volume or effective volume; the manufacturer can decide it by him according to the actual situation. The effective volume value must be marked on the nameplate whether effective volume or gross volume is marked in the product name.

Examples:

DW-60W388 means that the Ultra low temperature storage refrigerator with the temperature at characteristic temperature -60°C, horizontal and rated effective volume 388L.

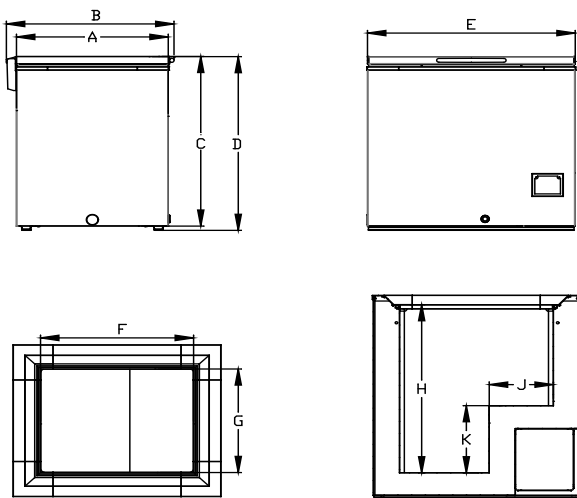
Products appearance

DW-60W138/258/388



Dimension

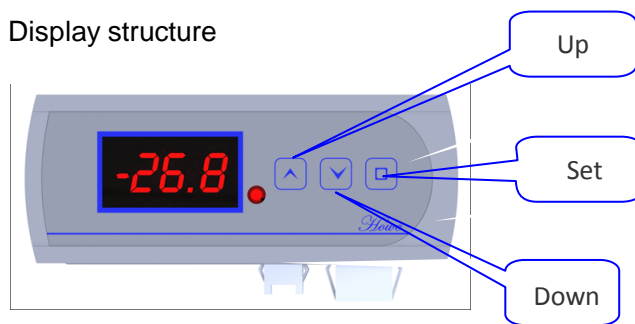
DW-60W138,DW-60W258,DW-60W388



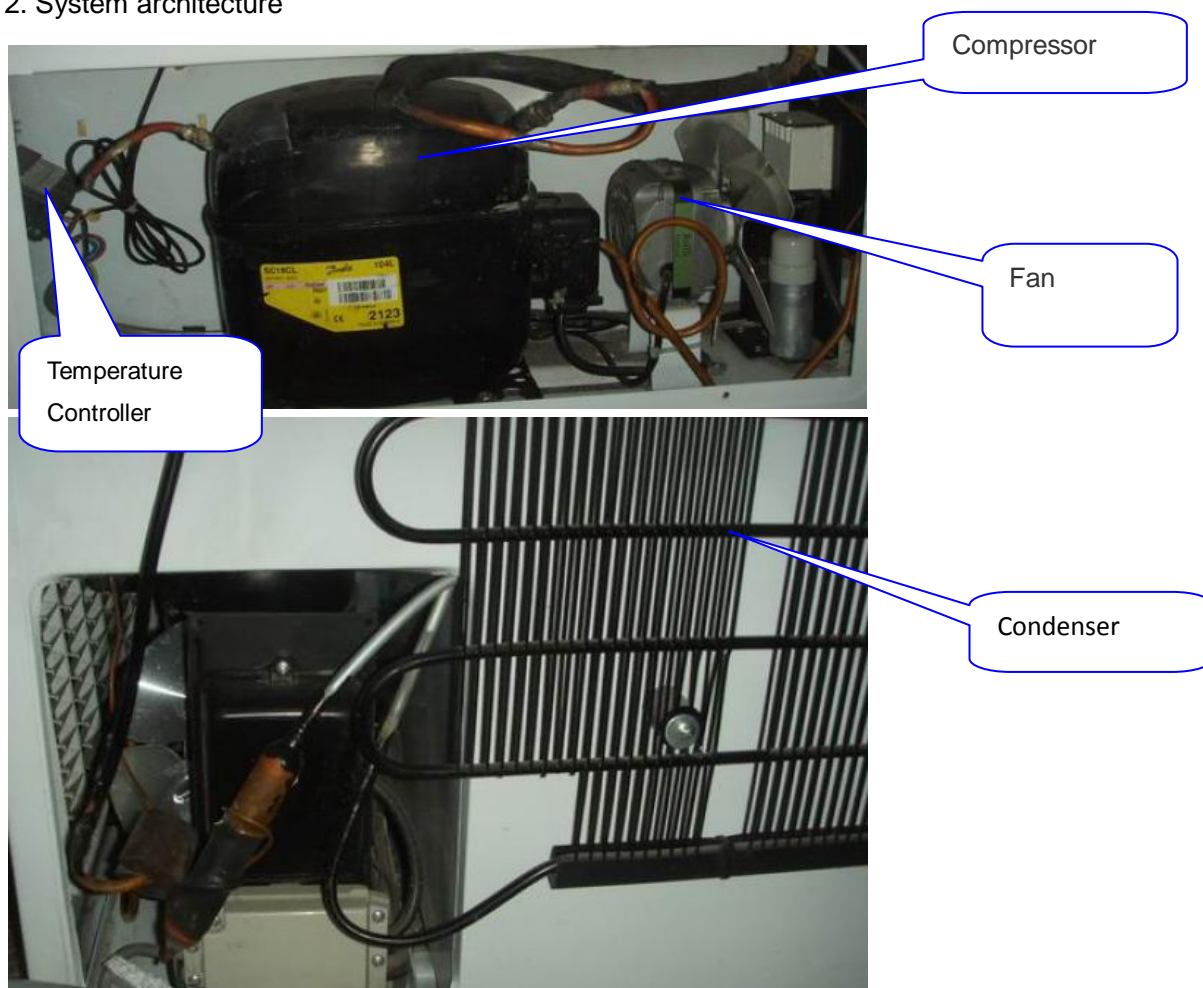
	A	B	C	D	E	F	G	H	J	K
DW-60W138	720	770	870	950	790	580	445	620	210	250
DW-60W258	720	770	870	950	1210	1000	445	620	210	250
DW-60W388	720	770	870	950	1655	1450	445	620	210	250

Parts layout

1. Display structure



2. System architecture

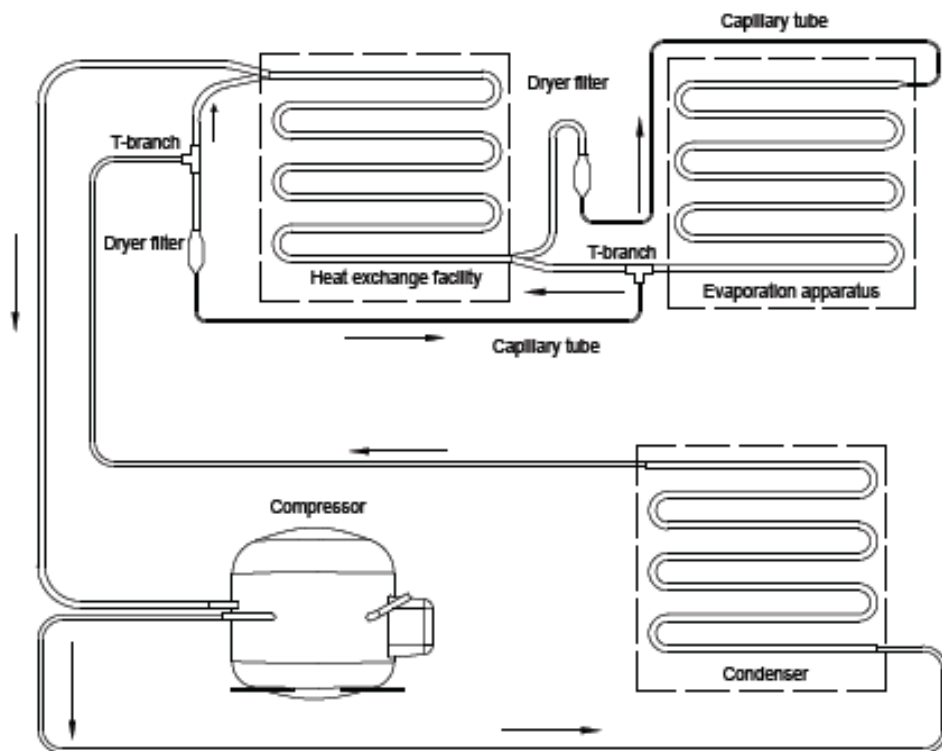


Cooling unit parts

Part description	DW60W138	DW60W258	DW60W388
Compressor	NLE12.6CNL	NLE12.6CNL	NLE12.6CNL
Drier filter	0074180001	0074180001	0074180001
Temperature Controller	0274000314A	0274000314A	0274000314A
Fan	EBM220V/50/60Hz/25W	EBM220V/50/60Hz/25W	EBM220V/50/60Hz/25W
Condenser	0270700544	0270700544	0270700544

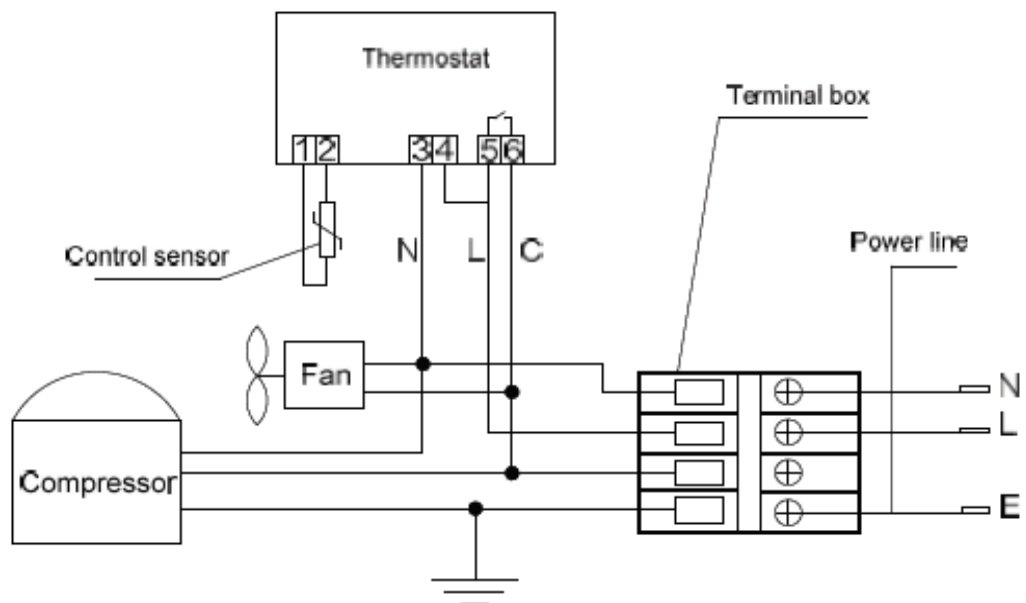
Refrigeration circuit

DW-60W138/258/380








Circuit diagram

DW 60W138/258/380








Product nameplate







DW-60W138

Haier		CE 0197			
Deep Freezer					
Model:	DW-60W138	Refrigerant:	High Stage:	R600a	85g
Inner Temperature:	-30°C~-60°C		Low Stage:	R1150	30g
Effective Volume:	138L	Foaming Agent: CP/IP			
Rated Voltage:	220-240V~	Manufacture Date and No.: in the Barcode			
Rated Frequency:	50Hz	  			
Rated Current:	3.0A				
Climate Type:	4				
Net Weight:	62Kg				
Anti-shock Safety Classification:	I				
 Haier Medical and Laboratory Products Co.,Ltd. Haier Industrial Park,Economic Technology Development Zone, Qingdao 266510,P.R.China  Haier Biomedical UK LTD. Mytogen House, 11 Browning Road, Heathfield, TN21 8DB, United Kingdom					

DW-60W258

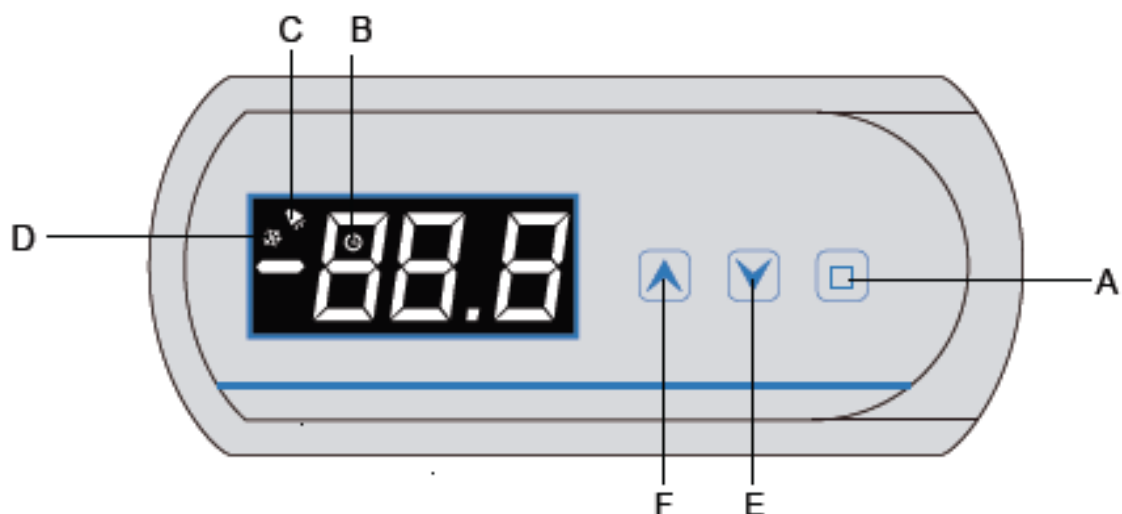
Haier		CE 0197			
Deep Freezer					
Model:	DW-60W258	Refrigerant:	High Stage:	R600a	90g
Inner Temperature:	-30°C~-60°C		Low Stage:	R1150	40g
Effective Volume:	258L	Foaming Agent: CP/IP			
Rated Voltage:	220-240V~	Manufacture Date and No.: in the Barcode			
Rated Frequency:	50Hz	  			
Rated Current:	3.0A				
Climate Type:	4				
Net Weight:	88Kg				
Anti-shock Safety Classification:	I				
 Haier Medical and Laboratory Products Co.,Ltd. Haier Industrial Park,Economic Technology Development Zone, Qingdao 266510,P.R.China  Haier Biomedical UK LTD. Mytogen House, 11 Browning Road, Heathfield, TN21 8DB, United Kingdom					

DW-60W388

Haier		CE 0197			
Deep Freezer					
Model:	DW-60W388	Refrigerant:	High Stage:	R600a	95g
Inner Temperature:	-30°C~-60°C		Low Stage:	R1150	45g
Effective Volume:	388L	Foaming Agent: CP/IP			
Rated Voltage:	220-240V~	Manufacture Date and No.: in the Barcode			
Rated Frequency:	50Hz	  			
Rated Current:	3.5A				
Climate Type:	4				
Net Weight:	 规格参数388_Model.JPG 类型: JPG 文件 大小: 406 KB 尺寸: 2173 x 1095 像素				
Anti-shock Safety Classification:	I				
 Haier Medical and Laboratory Products Co.,Ltd. Haier Industrial Park,Economic Technology Development Zone, Qingdao 266510,P.R.China  Haier Biomedical UK LTD. Mytogen House, 11 Browning Road, Heathfield, TN21 8DB, United Kingdom					

Specifications of new controller panel

1、 The display panel of the temperature controller



A	Setting button	C	Alarm indication	E	Decrease button
B	Power indication	D	Refrigeration status	F	Add button

2、 b& c Mode of the controller

Symbol	Symbol Name	Unit	Set Value
			DW-60W138/258/388
	Set Temperature	°C	-50
PS	Password	—	-15
/	Sensor Parameters		
/0	Stability Measurement	---	2
/1	Sensor Probe Setup	—	0
/p	Decimal Point Forbidden	—	1
r	Control Parameters		
r1	Permitted Minimum Temperature Set Value	°C	-60
r2	Permitted Maximum Temperature Set Value	°C	-30
rd	Control Thermal Difference	°C	2

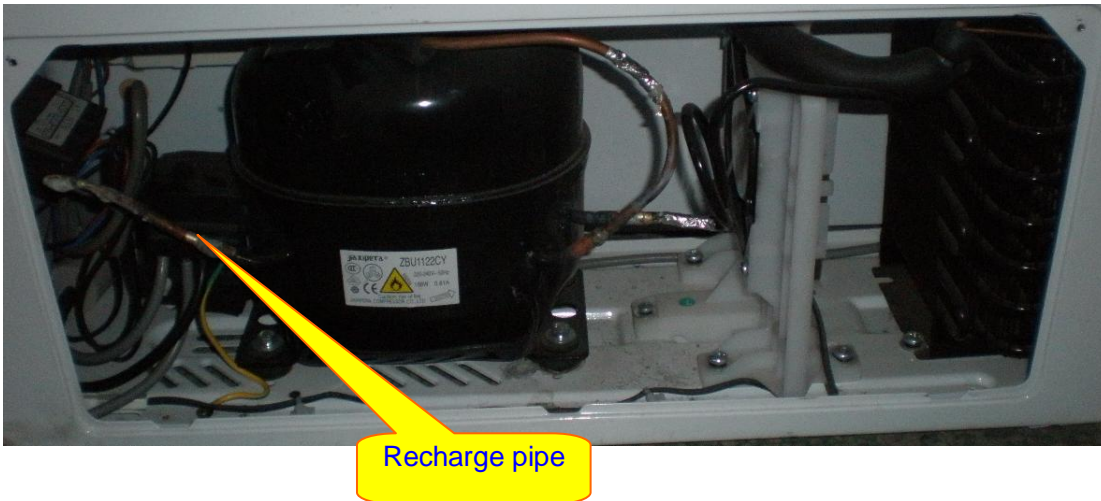
AL	Offset of Low Temperature Alarm Limit Value to the Set Value	°C	5	
AH	Offset of High Temperature Alarm Limit Value to the Set Value	°C	5	
c	Compressor Parameters			

The main fault codes as follows:

- E1/ERR :Temperature sensor failed.
- LO :low temperature alarm
- HI: high temperature alarm

Gas collection and charge

1. Diagram of refrigerating machine



1. If you want to recharge the cooling system, please cut the recharge pipe, release the refrigerant;
2. Welding a new recharge pipe;
3. Use a vacuum pump to absorb the air in the cooling pipe, the pressure should be less than 3pa;
4. Recharge new refrigerant, welding the recharge pipe, so that it is no leakage;

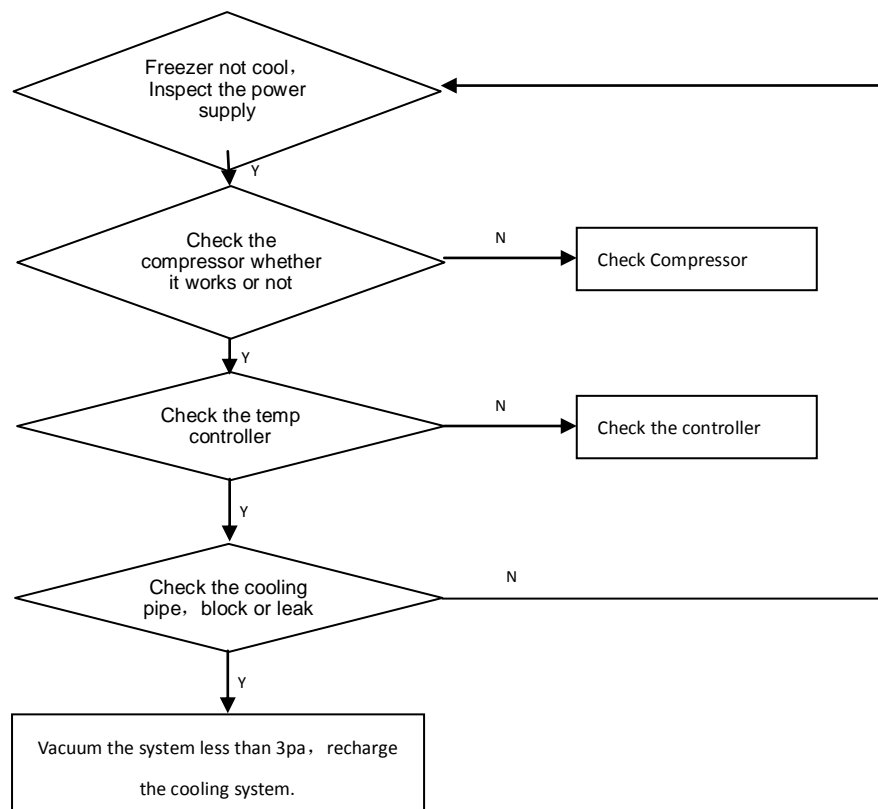
The refrigerant list of the freezer:

Model	Type	Qty
DW-60W138	R600a/R1150	85g/30g
DW-60W258	R600a/R1150	90g/40g
DW-60W388	R600a/R1150	95g/45g

Trouble shooting

Problems	Reason of failure	Repair measures
1. compressor not work	1. fuse is burned down	Replace fuse
	2. the connect pin failed	Replace connect pin
	3. the wire not connect well	Connect again
	4. temperature controller failed	Replace controller
	5. The starter relay or capacitor failed.	Replace the relay or capacitor
	6. compressor failed	Replace compressor
2. controller show E1 or ERR	Inspect the sensor and replace it.	
3. Show LO	Low temp alarm	Check the set value of low temp alarm
4. Show HI	High temp alarm	1. Check the set value of high temp alarm 2. the temperature did not reach the set value.
5. Big noise	1. the floor is not flat	Move it to flat place.
	2. resonance between compressor and pipe	Adjust the pipe.
	3. the screw of the compressor is loosen	Tight the screws
6. bad cooling	1. leakage	Inspect the leakage and recharge the cooling system
	2. block	Flush the pipe and replace the drier filter.
7. No alarm	1. parameter is wrong	Check and adjust it
	2. temp controller failed	Replace the controller

How to deal with the problems

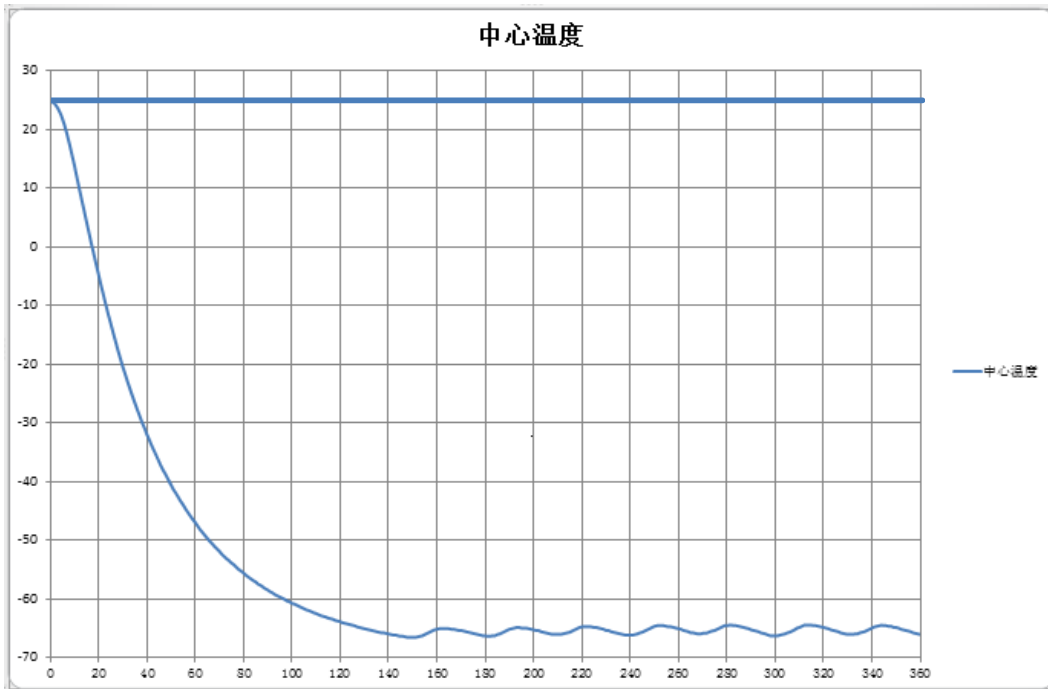


Questions & answers for the problems

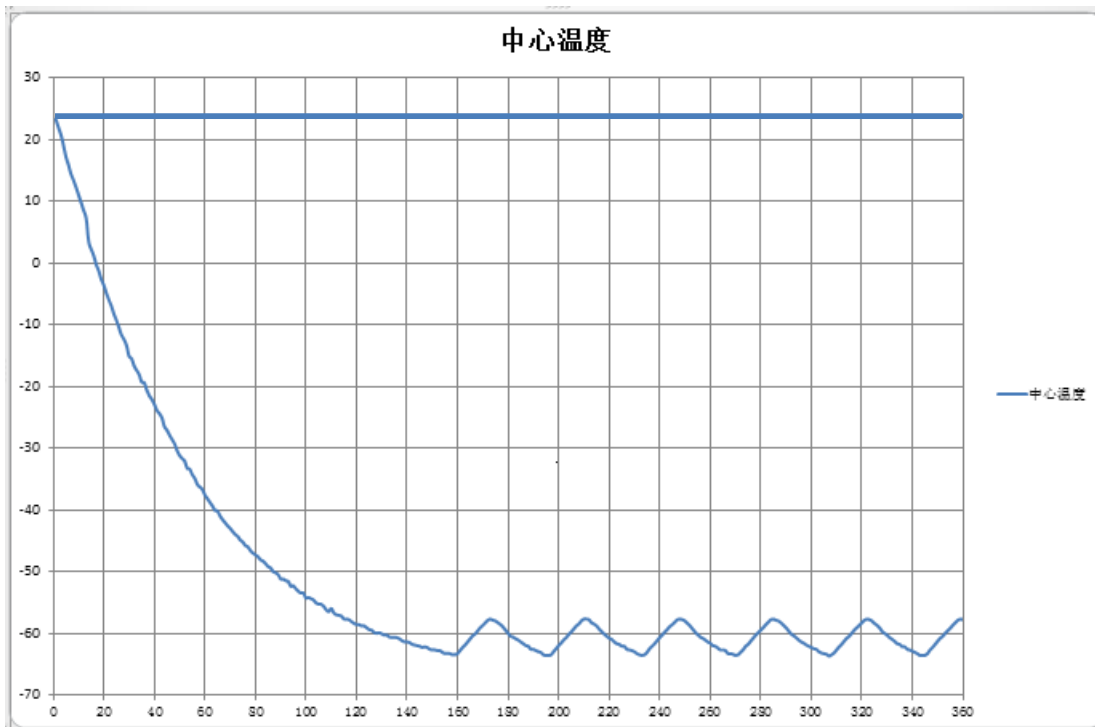
Questions	Answer	Solution
1、 The temperature of the cabinet is too high or low	It is related to the ambient temperature, please adjust the set value;	Follow the users manual to adjust the parameter
2、 Frost	1. open the door of the freezer very frequently	Don't open the door too often. Defrosting timely.
	2. The door seal is damaged.	Inspect the door seal
3、 Bicker	It is normal. The refrigerant flows in the cooling system	

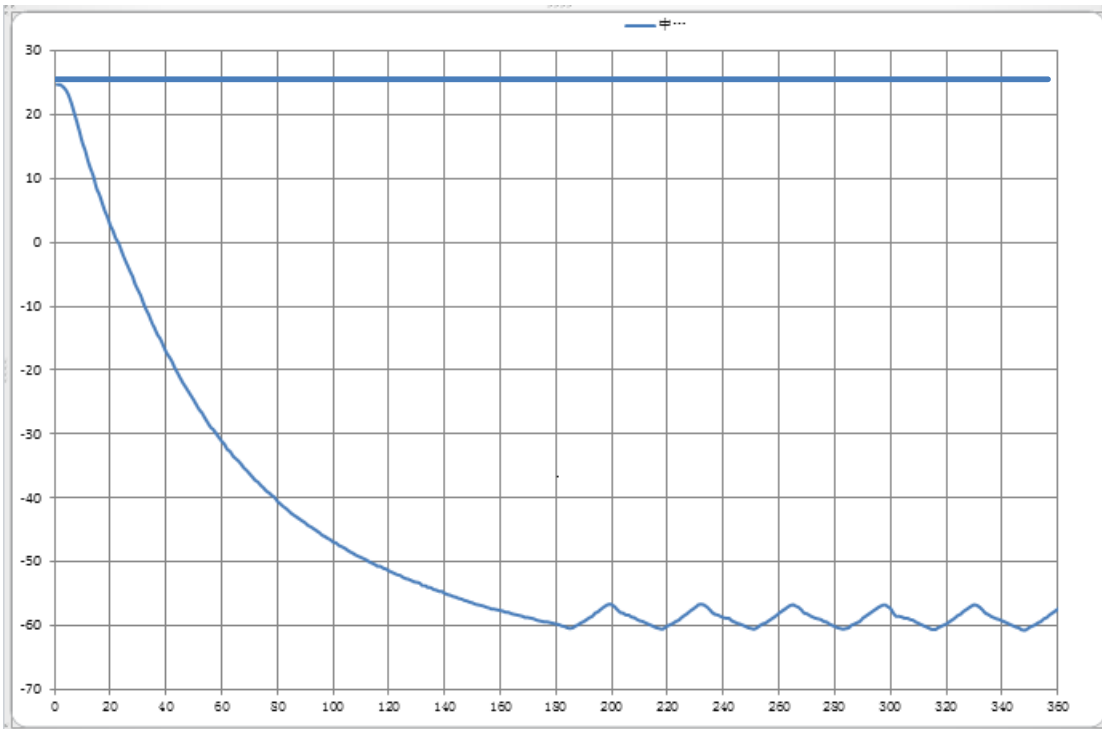
Test curve of deep freezer

DW-60W138



DW-60W258





Haier

Inspired living

Haier Medical & Laboratory Products Co., Ltd.

Room 403D, Brand Building, Haier Industrial Park, No.1 Haier Road

Qingdao China

Website: www.haierbiomedical.com