



LABORATORY VERTICAL AUTOCLAVE

BEO1D9













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1. Safety operation specifications

1. Before maintenance, anti-static work shall be done first. For example, wear anti-static work clothes, shoes and rubber gloves. Do not operate with wet hands to avoid electric shock and short circuit damage to parts;
2. Any electrical equipment and lines shall be deemed to be electrified before their own power inspection, and shall not be touched. The power supply shall be cut off when contact operation is required. After power and discharge (capacitive facilities) are experienced, the electrified equipment shall be used to test whether they are electrified. Inspection and repair can be carried out only after it is determined that they are not electrified. Special electrical equipment shall be used for power inspection, and the measuring gear shall be adjusted to the appropriate gear. Before power inspection, tests shall be carried out on the electrified equipment Determine whether the electrical inspection equipment is in good condition. During high-voltage electrical inspection, wear insulating gloves and do not use hands to test;
3. When you need to contact strong electricity, you must pay attention to personal safety and take anti electricity measures;
4. It is not allowed to disassemble and repair the instrument during its operation. After the instrument stops operation, cut off the main power supply of the instrument. When the chamber is free of pressure, disassemble and repair according to the safe operation procedures;
5. All wires and power terminals of electrical equipment that are temporarily removed must be wrapped with insulating tape, and there shall be no exposed parts. Power lines and pipes that are no longer used shall be removed;
6. The connectors of various electrical wiring shall be ensured to be conductive, the wiring shall not be loose, the wire ends shall not protrude, the insulation binding shall meet the requirements, and shall be clean and beautiful;
7. Without the permission and approval of the electrical technical director of the headquarters, the testing personnel shall not change the original structure and wiring mode of the instrument without authorization;
8. After each maintenance, check whether the lines are connected incorrectly and whether there are left materials, spare parts, tools and other items in the electrical lines and electrical equipment to prevent accidents caused by loss in the equipment. Power on can be conducted after confirmation;
9. After power on, pay attention to observe whether there is abnormal sound, peculiar smell and abnormal action. If any abnormal phenomenon is found, turn off the power supply and stop the operation of the instrument immediately to avoid more serious accidents;
10. In case of fire of electrical equipment, the power supply shall be cut off immediately, and carbon dioxide dry powder fire extinguisher or carbon dioxide dry powder fire extinguisher shall be used. It is strictly prohibited to put out the fire with water;

2. Main maintenance tools

			
Screwdriver,	vice, pointed nose pliers,	electric soldering iron wrench	spanner
			
test pencil	inner hexagon spanner	Hexagon socket	24V DC power supply
			
A multimeter	Adjustable wrench	Washing ear ball	Electric screw




			
PTFE TAPE	Electrical tape	Strip rolling	wire connector

Table 1

3. Maintenance method of alarm fault code of control panel

1. Fault code directory

E0 1	E0 2	E0 3	E0 4	E0 6	E0 7
E1 0	E1 1	E1 2	E1 3	E1 4	E1 5
E1 6	E1 7	E1 8	E1 9	E2 5	E2 6
E2 7	E3 0	E3 1	E3 2	E3 5	E3 6
E37	E38	n02	n03	n04	n05
n09	n10	n11	-	-	-

Table 2

2. Maintenance method of fault code displayed on control pane

Fault code	Fault description	Possible causes	Exclusion method:	remarks
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code E01	After starting the program, the microswitch on the electromagnet is not turned on	The user's switch is not in place and the upper cover is not closed tightly; The microswitch is not actually clamped in place. Press the microswitch manually to see if it is normal or damaged; The electromagnet does not actually act, which may be stuck or the control circuit is abnormal The input point of the micro switch corresponding to the main board is damaged. Replace the main board or repair the main board	Check the use condition; Check whether the action mechanism of the microswitch is normal; Check whether the electromagnet works normally; Check whether the input and output points of the corresponding terminals of the main board are normal;	real- time detectio n
code E02	After starting the program, there is no change of 0.2 ° C within a certain 20 min of heating	If the temperature stays at the boiling point and does not rise, E02 is reported and the altitude setting is wrong; The temperature can be raised, and the temperature stays at a fixed point. Report	Enter the user management interface and set the altitude parameter of P010 as the local altitude (the factory default is 300m); Check the sealing ring, solenoid valve, exhaust valve, drain valve and	real-time detection
		E02, and there is gas leakage; If the temperature cannot be raised, start the alarm E02. Generally, the main board and main circuit of power supply fail; Heating pipe fault (resistance value 17 Ω, 10.7 Ω);	other positions for dirt and leakage; Check whether the voltage at both ends of the solid-state relay, protection relay and heating tube is normal and whether the output control signal of the main board is normal; Measure whether the resistance value is correct, or replace the heating pipe;	

codeE03	<p>After starting the program, it is detected that the normally closed signals of the temperature control switch and the pressure switch become normally open;</p>	<p>E03 fault is reported upon startup and can be canceled. It is usually caused by leakage of sealing ring, drain solenoid valve, exhaust solenoid valve, drain valve, etc; The startup alarm E03 fails and cannot be canceled; Usually the main board, temperature control switch and pressure switch are faulty; If the temperature rises to E03 fault, first confirm whether the water in the chamber is sufficient, and confirm that it is sufficient. It may be that the temperature of the temperature control switch is not adjusted to 185 ° ;</p>	<p>Check whether there is leakage at the corresponding position, clean and replace the solenoid valve, and check and close the drain valve; Check whether the voltage at both ends of temperature control and pressure switch is normal and whether there is normal voltage; Adjust the set value of the temperature control switch, the gas leaks, or the temperature control switch is broken;</p>	real-time detection
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code E04	<p>① : the temperature during standby is greater than the maximum working temperature set in the background; ② : the chamber temperature is 3 °C higher or lower than the sterilization temperature during sterilization; ③ : in agar mode, the melting temperature is 10 °C higher or lower than the melting temperature; ④ : the temperature during insulation is greater than or less than the set value of insulation temperature by 10 °C</p>	<p>Upon startup, E04 fault is reported. Enter the user administrator setting to confirm whether p009 is set to 148 °C, and reset it; The temperature sensor or the corresponding terminal of the main board is in poor contact; Report the sterilization process to E04, mainly to confirm whether the cold air is normal;</p>	<p>Reset the temperature parameter p009; Check whether the plug-in terminal can be replaced by 120 Ω resistor to confirm whether it can be removed normally; Check whether the water in the cooling water tank blocks the silica gel pipe orifice for cooling, whether the sterilization materials are stacked properly, whether the bag is opened, and whether the solid-state relay is directly connected;</p>	real-time detection
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code E06/07	E06: if the judgment condition is yes, the temperature sensor is open E07: the judgment condition is that the temperature sensor is short circuited	The sensor is broken or has poor contact; The temperature port corresponding to the motherboard is broken. Replace or repair the motherboard;	Check whether the plug-in terminal can be replaced by 120 Ω resistor to confirm whether it can be removed normally; If it is eliminated normally, the sensor is broken; Replace the original position sensor with 120 Ω. If the fault cannot be eliminated, replace the main board or repair the main board;	real-time detection
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code E10	Abnormal interruption of sterilization process	The sterilization is not completed and the interrupt trips; The sterilization is not completed, and the human power is cut off;	Check whether the current is overloaded and restart the sterilization; Briefly press stop to eliminate the code and restart the sterilization;	real-time detection
code E11	No water is detected in the high water level of the inner container after continuous water inflow for a certain time (10min)	The inlet filter screen is blocked; The water is too pure to be detected by the water level electrode; The water inlet solenoid valve is not actually opened and no water is actually supplied; The water level electrode is broken or the water level transformer is broken, and the water level electrode has no DC5V voltage;	Clean the filter screen; Add 300ml of tap water and restart the machine; Check whether the water inlet solenoid valve works normally and whether the main board normally outputs the solenoid valve opening signal; Whether the measured voltage of water level electrode transformer and DC5V at both ends of water level electrode are normal; Determine the problems of transformer or main board and water level electrode	real-time detection
code E12	① : when the sterilization process is over and the temperature is lower than the opening temperature, the diaphragm switch is not closed (the top rod of the diaphragm switch is not dropped);	If E12 fault is reported during the charging process, confirm whether the pressure indicated by the pressure gauge has reached 0.015MPa at 110 °C, if not, it indicates that the temperature and pressure are not corresponding;	Use standard resistance to measure whether the main chamber thermometer is damaged or the main board is damaged; Usually replace the diaphragm switch;	real-time detection

	<p>② : during the heating process, when the main control temperature is greater than 110 °C, the micro pressure switch is still in the closed state (the top rod of the diaphragm switch is not pushed up)</p>	<p>If E12 fault occurs after sterilization; E12 is reported upon startup, and cannot be canceled; When the temperature drops to the point that the cover cannot be opened, report E12;</p>	<p>Power on E12, and use a multimeter to detect the main board jk11. If there is 24V output, the connecting wire or diaphragm switch is usually broken. If there is no output, the main board is broken; Pull the safety valve to see if there is pressure in the chamber. If there is, continue to pull the safety valve to relieve the pressure. Otherwise, replace the diaphragm switch</p>	
codeE13	<p>When drying, the drying temperature of the chamber is detected to be greater than 130 °C</p>	<p>GR_CPU v2.1 and below: the temperature parameter of the temperature control switch that normally controls the heating belt is not adjusted correctly, or the main board is damaged.; GF_CPU 2.1 and above: the drying thermometer can accurately display the temperature, usually the temperature sensor is inaccurate or the main board is damaged;</p>	<p>Use standard resistance 120 Ω (equivalent to 50 °C) to measure whether the main chamber thermometer is damaged or the main board is damaged; Use standard resistance 120 Ω (equivalent to 50 °C) to measure whether the main chamber thermometer is damaged or the main board is damaged; Press the up and down buttons on the display panel at the same time. After restarting, confirm whether the display temperature is 50 ± 5 °C, and replace the drying temperature sensor</p>	real-time detection

code E14	After the drying starts, the chamber temperature is lower than 60 °C after 20min (only judge once after the drying temperature is just 20min)	GR_ CPU v2.1 and below: the fuse of the heating belt is broken, the temperature control switch of the heating belt is broken, and the temperature of the heating belt itself has no resistance value or open circuit; GF_ CPU 2.1 and above: usually the heating belt or the fuse of the heating belt is broken; The main circuit relay or main board of the control heating belt is broken;	Use standard resistance 120 Ω (equivalent to 50 °C) to measure whether the main chamber thermometer is damaged or the main board is damaged; Measure and ensure (gr60dr is (28.74 ~ 31.76) Ω, gr85dr is (17.69 ~ 19.55) Ω, and gr110dr heating belt is (14.37 ~ 15.88) Ω 3. Use a multimeter to measure whether the input voltage of the heating end is normal. If it is abnormal, measure and confirm it to the relay at the front end of the power supply and the output point of the main board;	real-time detection
code E15	During the heating process, it is detected that there is no water in the low water level of the container (water level electrode signal)	After the cover is opened, confirm whether the water level is actually short of water. If it is short of water, add enough water again, and start the machine to confirm whether the water is enough next time the cover is opened; If enough water is added, but the actual water level is still lower than the low water	Add enough water to the water level plate; Check the sealing ring, drain ball valve, filter screen, exhaust valve and chamber one by one for leakage; After adding 300-500ml tap water for neutralization, press stop to cancel the code, and then restart the machine; Check the water level indicator on	real-time detection

		<p>level after the cover is opened, the leakage causes such as sealing ring, drain valve, filter screen, exhaust valve and chamber shall be inspected;</p> <p>The pure water is too pure, so that the water level electrode cannot detect the presence of water; (conductivity 2-10 μ)</p> <p>The water level electrode detection part corresponding to the main board is broken;</p> <p>Corrosion of water level electrode and damage reason;</p> <p>Water level electrode transformer is broken;</p>	<p>the main board. If the liquid level is not reached, but the actual indicator is on, the main board is damaged; On the contrary, the water level electrode is damaged;</p> <p>5. Use a multimeter to check whether the water level electrode transformer is the output port and whether the output voltage of the transformer is normal ac5v</p>	
code E16/17	<p>E06 judgment condition: open circuit of article temperature sensor</p> <p>E07 judgment condition: the article temperature sensor is short circuited</p>	<p>The temperature sensor of the article is broken or has poor contact;</p> <p>The temperature port corresponding to the motherboard is broken.</p> <p>Replace or repair the motherboard;</p>	<p>Check whether the plug-in terminal can be replaced by 120 Ω(equivalent to 50 °C) resistor to confirm whether it can be removed normally; If it is eliminated normally, the sensor is broken;</p> <p>Replace the original position sensor with 120 Ω. If the fault cannot be eliminated, replace the main board or repair the main board;</p>	real-time detection
code E18	<p>① : when the safety valve or pressure switch is tested, the pressure is greater than 350kPa;</p> <p>② : when testing the safety valve or pressure switch of non DP model, the pressure is greater than 330kpa (ABS)</p>	<p>This is usually caused by poor pressure valve or pressure switch;</p> <p>The pressure value does not correspond to the temperature;</p>	<p>Check whether the plug-in terminal can be replaced by 120 Ω(equivalent to 50 °C) resistor to confirm whether it can be removed normally; If it is eliminated normally, the sensor is broken;</p> <p>Replace the original position sensor (50 \pm 5 °C) with 120 Ω. If the temperature display is not within the range, re calibrate the temperature; If the temperature is within the range, recalibrate the pressure treatment;</p>	real-time detection

code E19	The judgment condition is that there is water in the high water level of the container and there is no water in the low water level of the container	If the high water level electrode or main board fails, replace the high water level electrode or main board; If the low water level electrode or main board is damaged, replace the low water level electrode or main board; High and low water level electrode dirt, clean or change water for treatment	Check whether the output voltage DC5V of the corresponding terminal of the main board exists. If it does not exist, replace the main board. If it exists, replace the high water level electrode; Check whether the output voltage DC5V of the corresponding terminal of the main board exists. If it does not exist, replace the main board. If it exists, replace the low water level electrode; Add enough water to the chamber, clean and add water again, and check whether the startup operation is normal; otherwise, check according to	real-time detection
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			the method in 1.2	
code E25	Due to open circuit of drying thermometer or short circuit of drying thermometer	The sensor is broken or has poor contact; The temperature port corresponding to the motherboard is broken. Replace or repair the motherboard;	Check whether the plug-in terminal can be replaced by 120 Ω (equivalent to 50 °C)resistor to confirm whether it can be removed normally; If it is eliminated normally, the drying sensor is broken; Replace the original position sensor with 120 Ω. If the fault cannot be eliminated, replace the main board or repair the main board;	real-time detection
code E26/27	E26 judgment condition: the pressure sensor is open circuit E27 judgment condition: pressure sensor short circuit	The pressure sensor is broken or has poor contact; The pressure port corresponding to the main board is broken, replace or repair the main board;	Check the jk3 terminal of the main board and use a multimeter to measure whether there is DC12V. If yes, the pressure sensor is broken; Check the jk3 terminal of the main board and measure whether there is DC12V with a multimeter. If not, replace the main board or repair the main board;	real-time detection

code E30	<p>When equipped with online sterilization function;</p> <p>① : the ad value collected by the filter element temperature sensor is higher than 32000, almost 270 °C;</p> <p>② : the ad value collected by the filter element temperature sensor is less than 10000, almost - 90 °C;</p>	<p>The sensor is broken or has poor contact;</p> <p>The temperature port corresponding to the motherboard is broken.</p> <p>Replace or repair the motherboard;</p>	<p>Check whether the plug-in terminal can be replaced by 120 Ω (equivalent to 50 °C) resistor to confirm whether it can be removed normally; If it is eliminated normally, the drying sensor is broken;</p> <p>Replace the original position sensor with 120 Ω. If the fault cannot be eliminated, replace the main board or repair the main board;</p>	real-time detection
code E31	<p>When equipped with online sterilization function;</p> <p>① : the ad value collected by the filter element temperature sensor is higher than 32000, almost 270 °C;</p> <p>② : the ad value collected by the filter element temperature sensor is less than 10000, almost - 90 °C;</p> <p>Machine number with N;</p> <p>When the pump pumps water, no water is detected in the low water level of the water tank for a certain period of time (12min);</p>	<p>The water is too pure, and the conductivity does not meet 10-15 μ;</p> <p>The float switch level gauge of the back water tank is abnormal;</p> <p>The water pump does not actually work, and the water pump circuit is abnormal;</p> <p>If the water pump control point or float switch control point corresponding to the main board is damaged, replace the main board or repair the main board;</p>	<p>Add 300ml of tap water to replace it and restart the machine for test;</p> <p>Use a multimeter to measure and confirm whether pin 1 black wire, pin 2 white wire and yellow green wire are connected at JK2 position as shown in the right figure? If it is not connected, it is necessary to confirm whether the one connecting the water tank position to this position is disconnected. If it is also conductive, replace the float switch;</p> <p>Press the water inlet key to confirm whether the jk18 voltage corresponding to the main board is + 24V. If there is no voltage, the main board is broken, or replace the water</p>	real-time detection

	<p>2. When the pump pumps water, the low water level starts to count after there is water. No water is detected in the high water level of the water tank for a certain period of time (12min)</p>		<p>pump;</p> <p>4. Measure the water pump and liquid level cover opening control point. If the liquid level is normal and the water pump is normal, replace the main board;</p>	
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code E32	Fault judgment condition: when the machine with automatic water inlet is in standby, there is water in the high water level of the water tank and no water in the low water level of the water tank	If the float switch or main board fails, replace the float switch or main board; If the low water level electrode or main board is damaged, replace the low water level electrode or main board; High and low water level electrode dirt, clean or change water for treatment	Check whether the output voltage DC5V of the corresponding terminal of the main board exists. If it does not exist, replace the main board. If it exists, replace the high water level electrode; Check whether the output voltage DC5V of the corresponding terminal of the main board exists. If it does not exist, replace the main board. If it exists, replace the low water level electrode; Add enough water to the chamber, clean and add water again, and check whether the startup operation is normal; otherwise, check according to the method in 1.2	real-time detection
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code E35	Fault judgment condition: the online sterilization function is selected, and the filter element temperature has not reached the sterilization temperature within 5min after the chamber temperature reaches the sterilization temperature.	The temperature sensor of the filter element is blocked and accumulated water, and the filter element is used for a long time when it touches the container wall; The shut-off valve is blocked and dirty and needs to be cleaned; Software version reason, upgrade the software version	Clean and maintain the thermometer, adjust the angle of the filter element thermometer, confirm that there is no abnormality, and replace the filter element; Clean and dredge the shut-off valve; Upgrade software version	real-time detection
code E36	① : the ad value collected by the anti dry burning temperature sensor is higher than 32000, almost 270 °C; ② : the ad value collected by the anti dry burning temperature sensor is less than 10000, almost -90 °C	The self-made temperature control switch against dry burning is broken or has poor contact; The temperature port corresponding to the motherboard is broken. Replace or repair the motherboard;	Check whether the plug-in terminal can be replaced by 120 Ω(equivalent to 50 °C) resistor to confirm whether it can be removed normally; If it is eliminated normally, the drying sensor is broken; Replace the original position sensor with 120 Ω. If the fault cannot be eliminated, replace the main board or repair the main board;	real-time detection

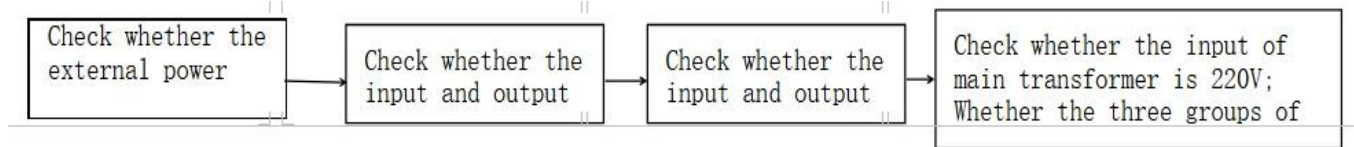
code E37	<p>① When heating, prevent dry burning temperature from exceeding 150 °C;</p> <p>② When the anti dry burning temperature is higher than the chamber temperature + 10 °C and higher than 110 °C during</p>	<p>Fault of self-made temperature control switch;</p> <p>The input point of the main board corresponding to the self-made temperature control switch is damaged or the main board is damaged;</p>	<p>Replace the original self-made temperature control switch with standard resistance 120 Ω (equivalent to 50 °C). If the fault is eliminated, replace the self-made temperature control switch;</p> <p>If the standard resistance is</p>	real-time detection
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	<p>heating, it is detected once in 2S, and the temperature rise exceeds 0.1 °C, and it is detected three times continuously</p>	<p>3. Program upgrade;</p>	<p>connected and the fault persists, replace the main board;</p>	
code E38	<p>Fault judgment conditions: when the chamber door is closed and standby, the electromagnet main board is powered on, but the lifting of the electromagnet microswitch is not detected;</p>	<p>The electromagnet core is stuck</p> <p>The main board does not actually provide 24V power;</p> <p>The microswitch of the electromagnet is deformed;</p>	<p>Adjust the position of the electromagnet, add lubricating oil or replace the electromagnet;</p> <p>Detect and measure that there is no voltage to the electromagnet, and replace the main board;</p> <p>Replace the microswitch or adjust the position of the microswitch;</p>	real-time detection
Reminder Code:n02~11	<p>A. N02 indicates that the temperature in the chamber is higher than the boiling point when the sterilization is started. When the temperature is lower than the boiling point, restart the program.</p> <p>B. N03 indicates that the system time is invalid. Please reset the timing start time.</p>	<p>C. N04 indicates that the timing start time setting is ahead of the clock. Please reset the timing start time.</p> <p>D. N05 indicates that the safety valve test is not conducted after the safety valve test cycle, and the safety valve test is conducted.</p>	<p>N09 indicates that the filter element has been used for more than 152 times. Replace the filter element and clear the use times of the filter element.</p> <p>N10 indicates that there is micro pressure in the chamber, please wait for the release of micro pressure in the chamber.</p> <p>N11 indicates that the water level electrode in the chamber is dirty, please clean the chamber.</p>	real-time detection

4. Common fault maintenance

1. No power on

The display panel of the instrument does not display, and the buzzer is not heard when powered on: the host power is not connected, or the power is not connected to the main board port, and the main board is not powered on and starts normally;



The display panel of the host does not display, and there is a buzzer sound when it is powered on: the host power is not connected, or the power is not connected to the main board port, and the main board is not powered on and starts normally;

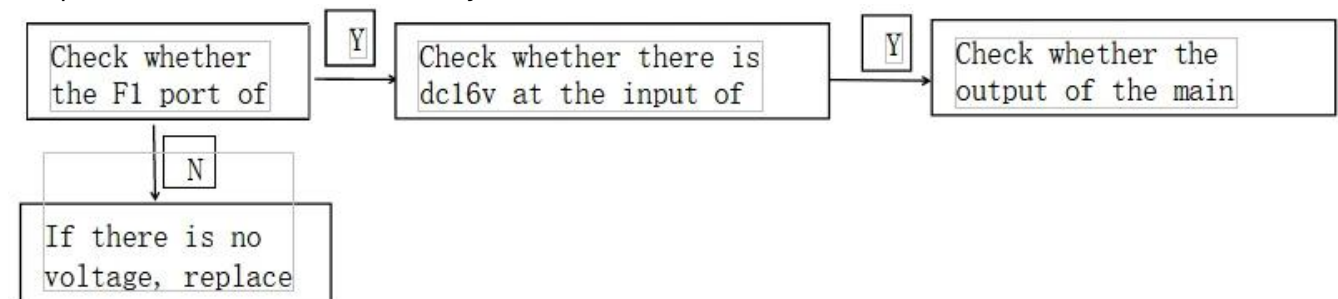


Figure 1

Step 1: Open the outer cover of the side plate (unscrew the 2pcs screws fixed at the bottom) Step 2:

adjust the multimeter to DC voltage

Step 3: measure the voltage at point U2 \ F1 as shown in the figure

2. LD1 is still displayed after the cover is closed

The cause of this fault is that the machine is normally closed and the motherboard does not detect the signal of closing the cover in place;

At this time, it is usually: the interlock solenoid valve is not closed, the cover closing microswitch is not touched in place, the input point of the main board corresponding to the microswitch and the input point corresponding to the interlock switch are damaged, and the main board is replaced or repaired;

5. Description of instrument components



Figure 2
Front view rear view

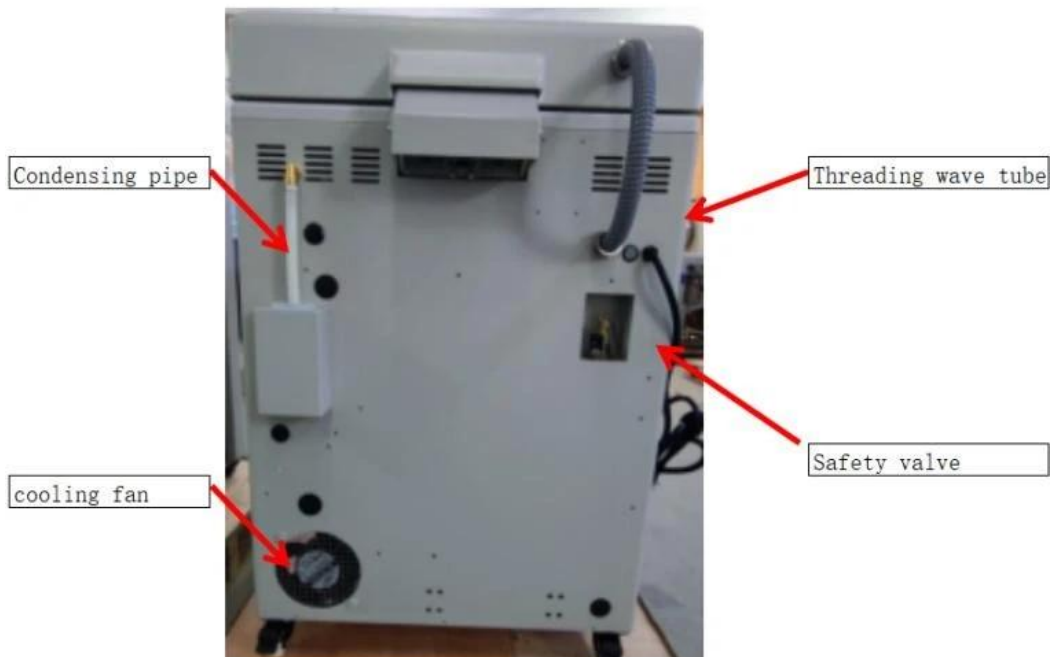


Figure 3
Rear view

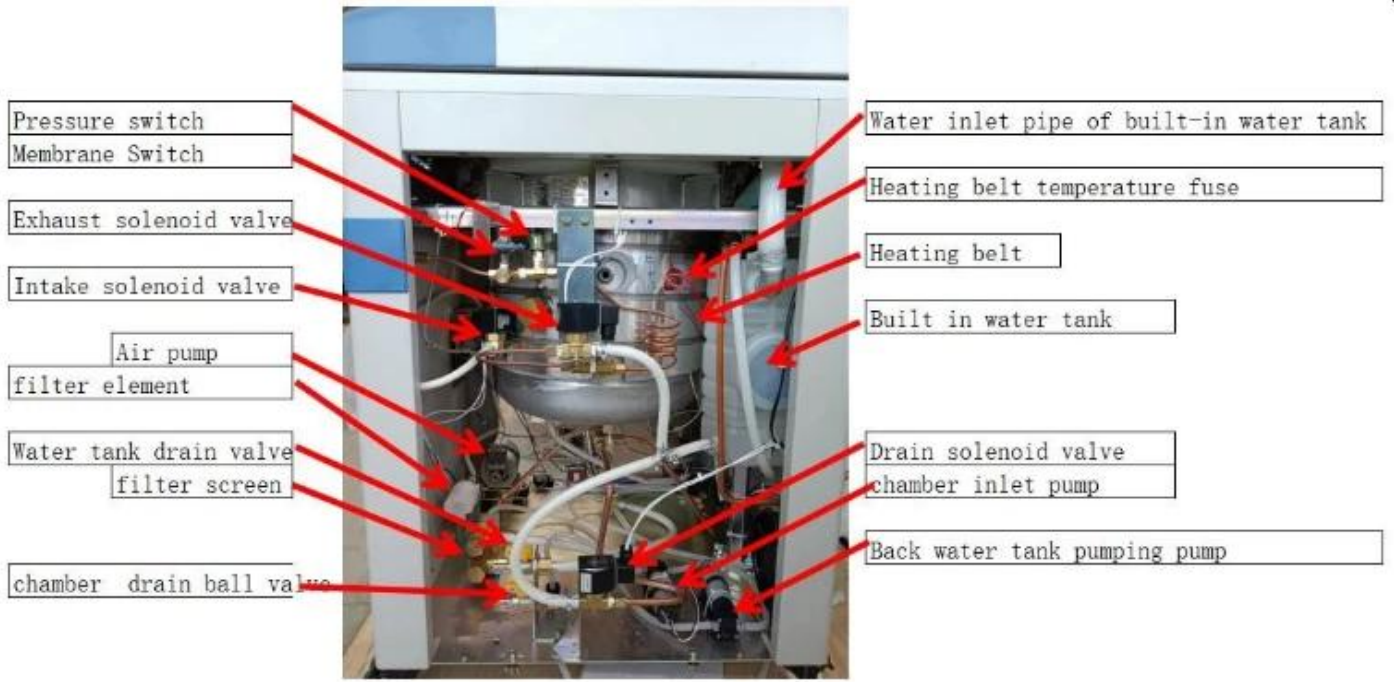


Figure 4
Right view

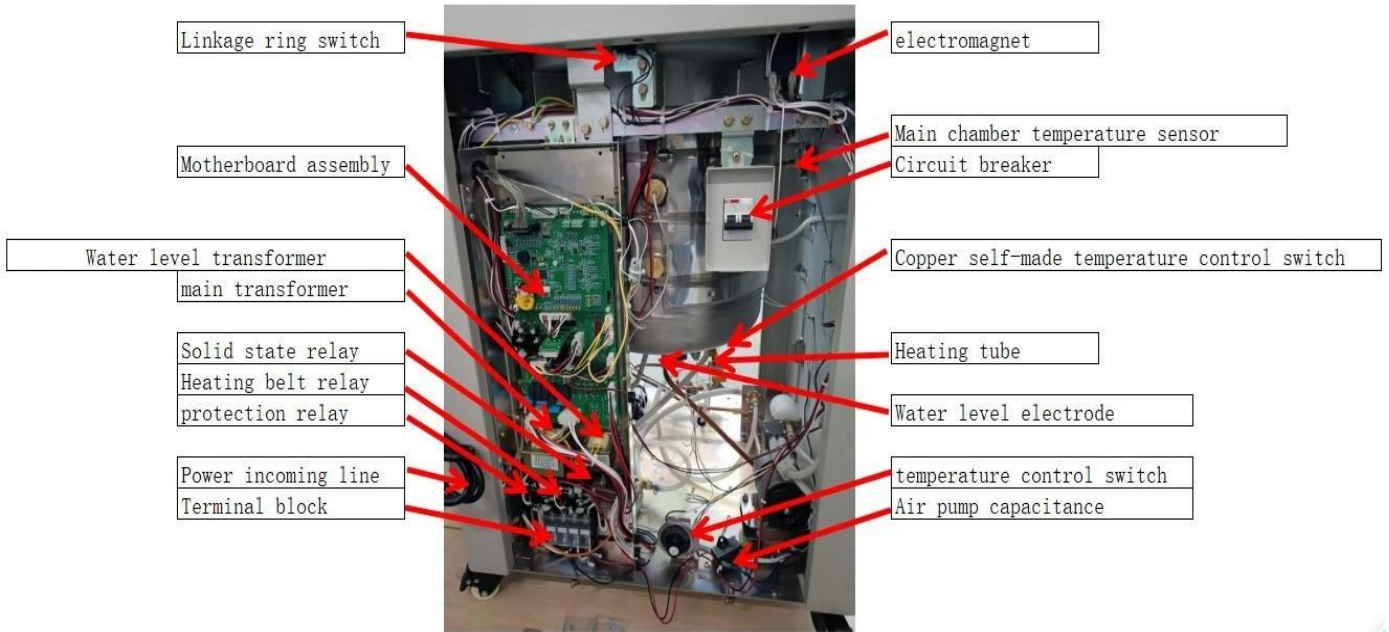


Figure 5
Left view

6. Replacement methods of main components

Before replacing the parts, the power shall be cut off to drain the water in the chamber:

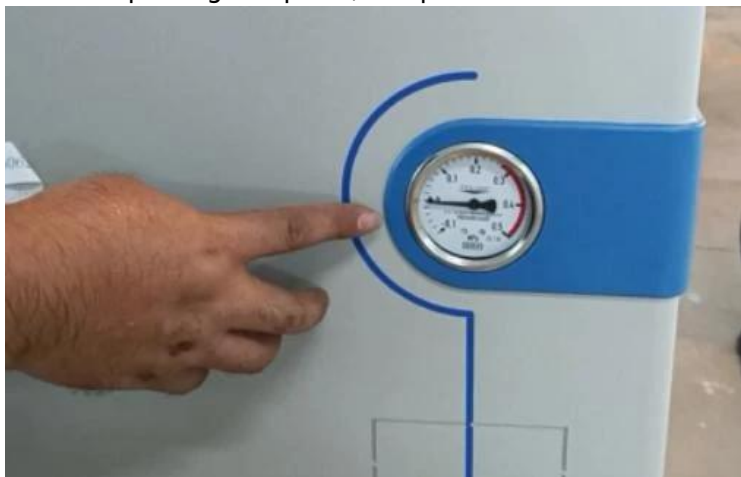


Figure 6

Step 1: confirm that there is no pressure in the chamber



Figure 7

step 2: open the upper cover and confirm that the water temperature in the chamber is lower than 30 °C



Figure 8

Step 3: open the chamber drain ball valve and connect it to the bucket drain



Figure 9
step 4: disconnect the instrument circuit breaker

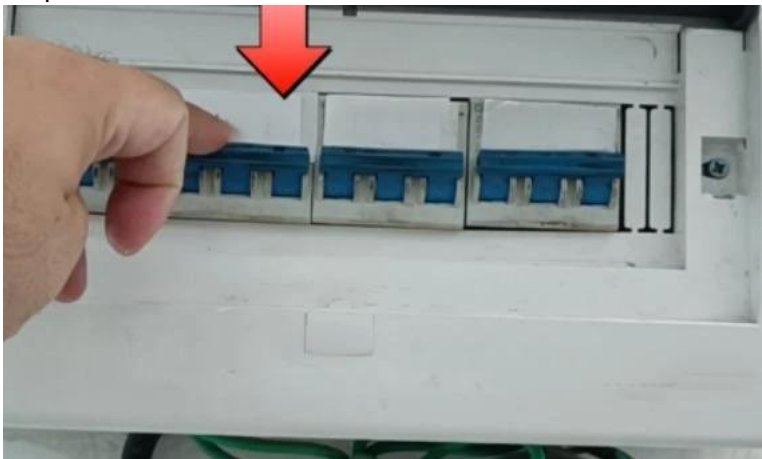


Figure 10
Step 5: disconnect the power incoming circuit breaker on the wall



Figure 11
step 6: unscrew the lower screws and open the left and right side plates

1. Replacement of sealing ring



Figure 12
Step 1: take out the sealing ring (Use a slotted screwdriver)



Figure 13
step 2: put on a new sealing



Figure 14
Step 3: press the seal ring edge flush



Figure 15
step 4: check whether the whole seal ring is flush with the chamber edge

2. Replacement of pressure gauge



Figure 16

Step 1: disassemble the copper pipe joint and unscrew the buckle



Figure 17

step 2: remove the buckle and the pressure gauge (25 # wrench fixed end seat and 18 # wrench nut)



Figure 18

Step 3: install a new pressure gauge and connect the connector



Figure 19

step 4: adjust the pressure gauge to be horizontal and vertical (25 # wrench fixed end seat and 18 # wrench nut)

3. Replacement of safety valve



Figure 20

Step 1: loosen the safety valve nut with a wrench



Figure 21

step 2: remove the safety valve (22 # wrench fixed end seat and 17 # wrench nut)



Figure 22

Step 3: screw on the new safety valve (25 # wrench fixed end seat and 18 # wrench nut)



Figure 23

step 4: tighten the fixing screws of the safety (25 # wrench fixed end seat and 18 # wrench nut)

4. Replacement of exhaust solenoid valve



Figure 24

Step 1: unscrew the terminal of the exhaust solenoid valve (with a cross screwdriver)

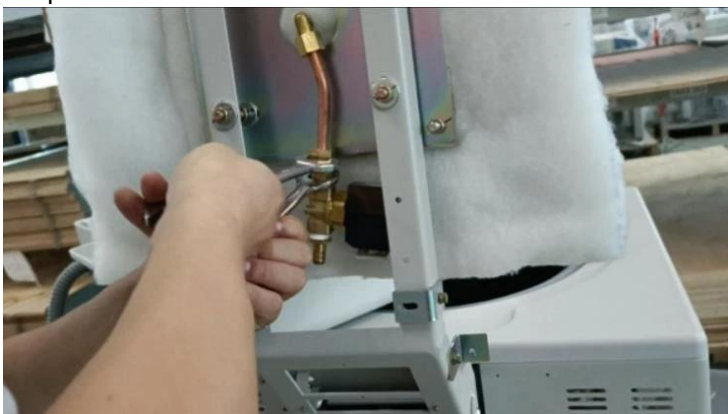


Figure 25

step 2: unscrew the copper pipe connector and remove the exhaust solenoid (rotate the nut with No. 18 wrench and fix it with No. 25 wrench)



Figure 26

Step 3: connect the new solenoid valve with the copper pipe connector



Figure 27

step 4: reinstall the solenoid valve and the terminal (rotate the nut with No. 18 wrench and fix it with No. 25 wrench)(with a cross screwdriver)

5. Replacement of heating pipe



Figure 28

Step 1: remove the two terminal wires (Orange) of the heating pipe



Figure 29

step 2: screw out the fixing nuts of the heating pipe at the bottom of the container



Figure 30

Step 3: unscrew the circlip inside the chamber and take out the heating pipe



Figure 31

step 4: put the sealing ring on the left and right sides of the new heating pipe and then install it

6. Replacement of main board

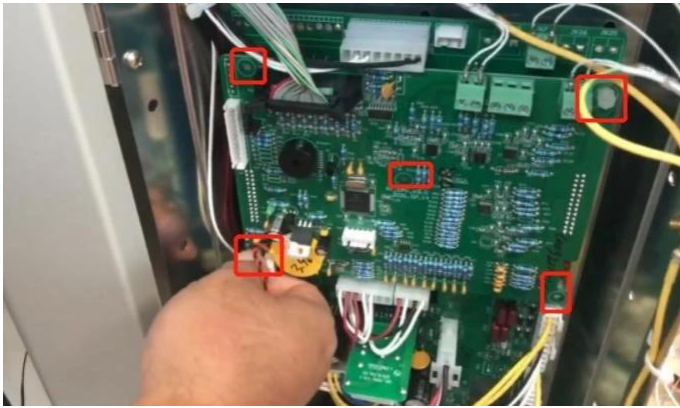


Figure 32

Step 1: unscrew the five plastic screws of the motherboard on the motherboard

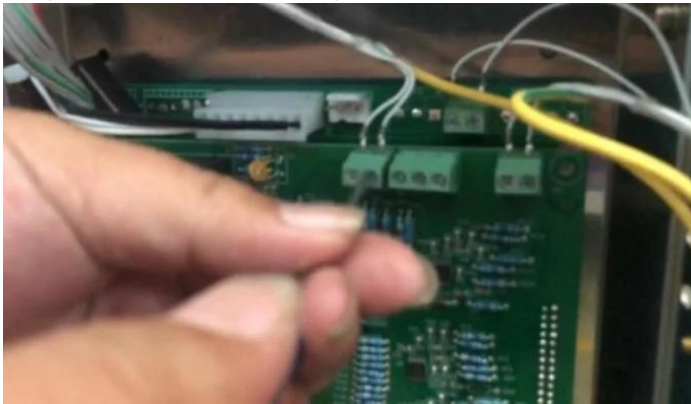


Figure 33

step 2: unscrew the terminal wire of the temperature sensor and remove the motherboard



Figure 34

Step 3: pull out other terminals in turn and remove the main board



Figure 35

step 4: install a new main board and motherboard and plug back the wiring terminals in turn

7. Mainboard port wiring instructions

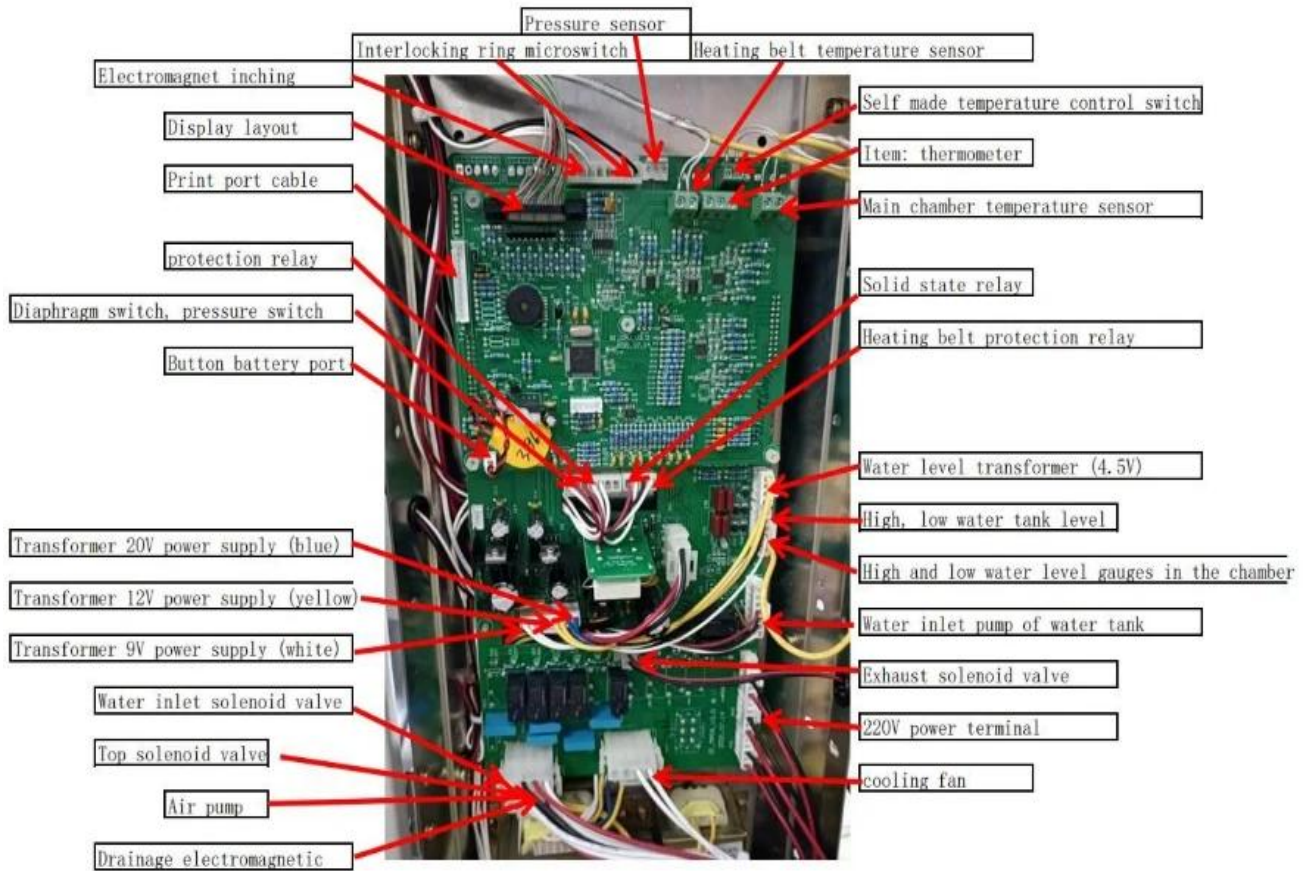









Figure 36



8. List of common accessories



Serial number	name	picture
1	Motherboard assembly	



2	Circuit breaker	
3	Pressure switch	

	4 Self made temperature control switch	
5	Terminal block	

6	Solid state relay	
7	protection relay	


8	main transformer	
9	Water level transformer	

10	electromagnet	
11	Membrane Switch	

12	Solenoid valve	
13	Switching Mode Power Supply	

14	Air pump	
15	Front water tank	





16	Built in water tank	
17	Rear hanging water tank	



	18 Air filter element	
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	19 seal ring	
--	--------------	--

	20 Pressure gauge	
--	-------------------	---

	21 Safety valve	
--	-----------------	---

22	Heating tube	
23	temperature control switch	
24	Water level electrode	
25	Small sealing ring	

26	Check valve	
27	Linkage ring microswitch	

28	Cover opening microswitch	
29	Interlocking components	



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