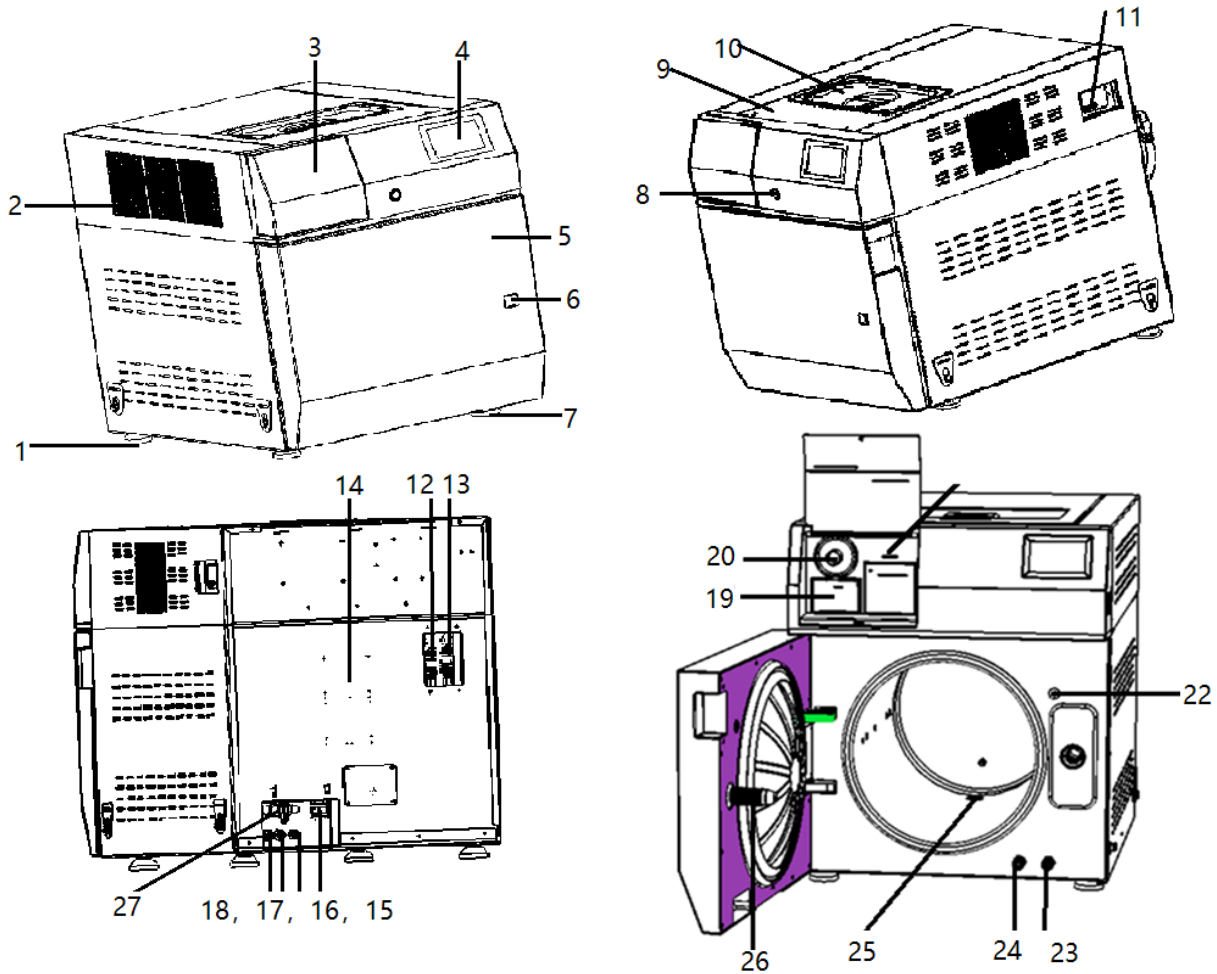


Pressure Steam Sterilizer MANUAL



Introduction for visual part of sterilizer

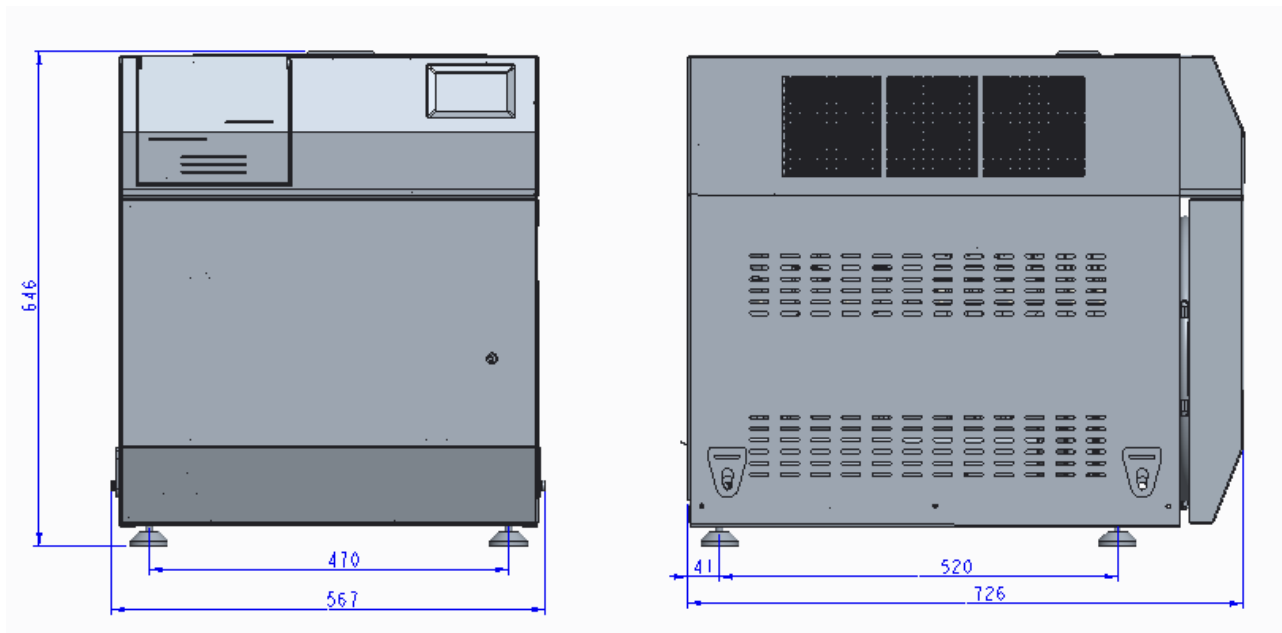


1	Rear support foot	7	Front support foot	13	Safety valve for steam generator	19	Printer	26	Door threaded rod
2	Cooling air outlet	8	Power switch	14	Name plate	20	Bacteria filter	27	Switch to empty waste water tank
3	Printer cover	9	Locker to open top panel	15	Power cord	22	Door switch sensor		
4	Touch screen	10	Fresh water tank	16	Automatic filling port	23	Draining port for fresh water tank		
5	Door	11	Leakage protection switch	17	Air inlet port	24	Draining port for waste water tank		
6	Emergency door opening port	12	Safety valve for chamber	18	Automatic draining port	25	Water filter		

Installation

Product dimensions and weight

The external dimensions of EC-45L equipment are as follows (unit: mm)



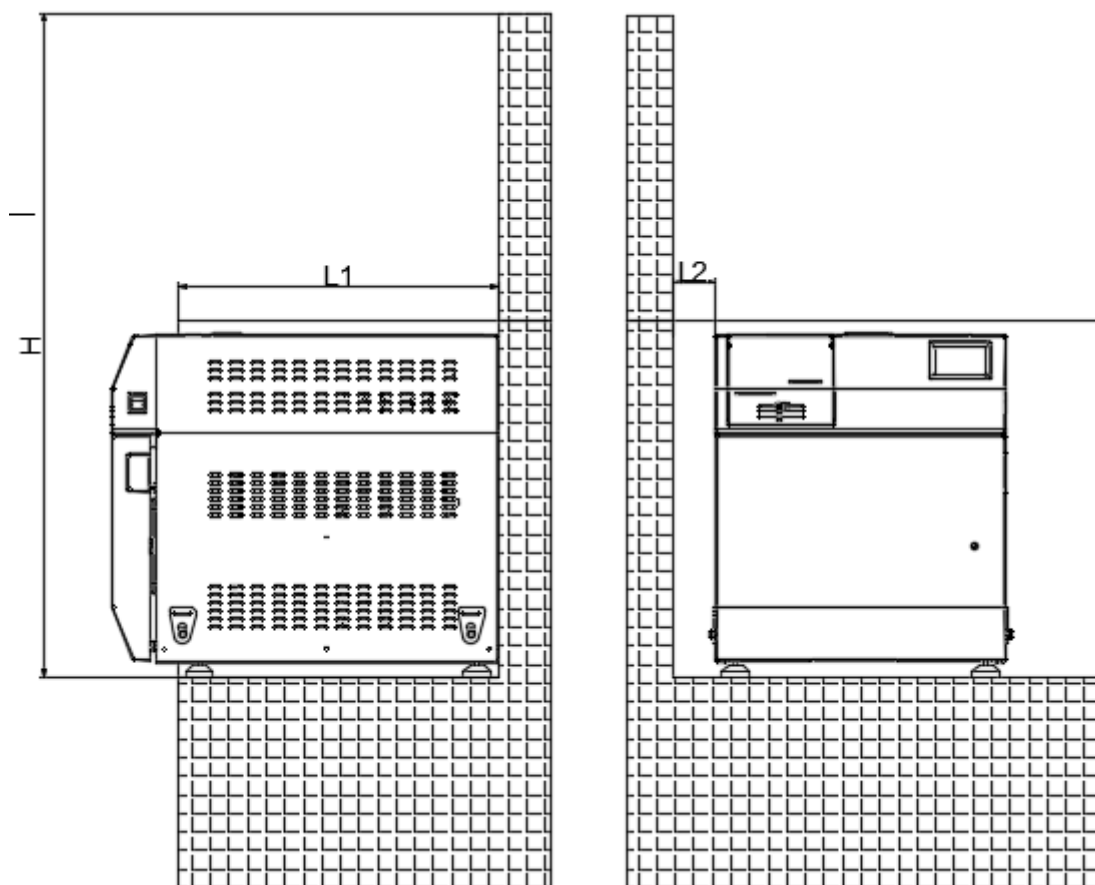
Equipment weight:

Model	Gross weight (kg)	Net weight (kg)
EC-45L	111	104

Installation requirement

To ensure the safe and reliable work of the equipment, please check whether it meets the requirements according to the following clauses.


- Power requirements: AC220V 50Hz unidirectional power supply, voltage fluctuation does not exceed $\pm 10\%$, power $\geq 3.5\text{kVA}$; **(A Separate 20amp GPO is Required to operate this device).**
- Environmental requirements: This equipment is required to be installed in a clean, dry, well-ventilated indoor environment with small temperature difference.
- Installation space requirements: at least meet the minimum size requirements of the following figure, see below.
- The installation table is strong enough to bear the weight of the device and the sterilized object. **The table can withstand at least 112kg.**



Minimum width of table L1	Left side to wall L2	Minimum Height
600mm	200mm	1.3m

Handling of packaged products

To ensure safe handling, please use a cart and similar tools to move the device. If there are no carts or similar tools, at least four people are required to carry them in the front and back of the packing box.

 Danger	When handling by people, please pay special attention to avoid danger.
---	--


Unbox


After disconnecting the packing tape on the package with scissors, use a flat-blade screwdriver to open the lock at the bottom of the box, remove the packaging cover, and finally remove the plastic bag.




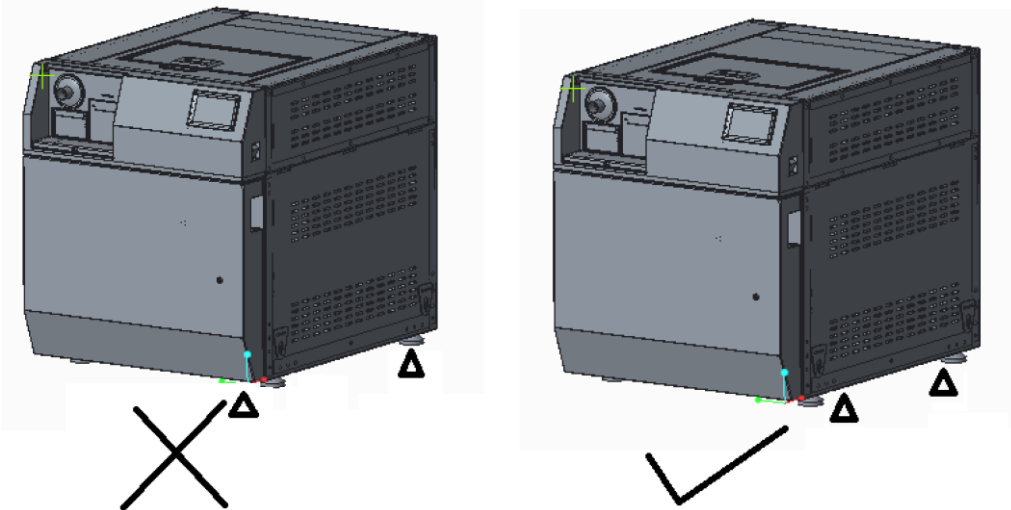
Lift the device onto the installation surface

To ensure safety, there must be at least four people during transportation. Please pay attention to the following matters when handling:

 Attention	It is strictly forbidden to lift the door during transportation to avoid damage to the device;
--	--

 Warn	Do not lift the foot pads of the device during handling to avoid personal injury;
---	---


 Attention	Do not roll-proof when transporting, put the device on its side or upside down;
--	---



Feet adjustment

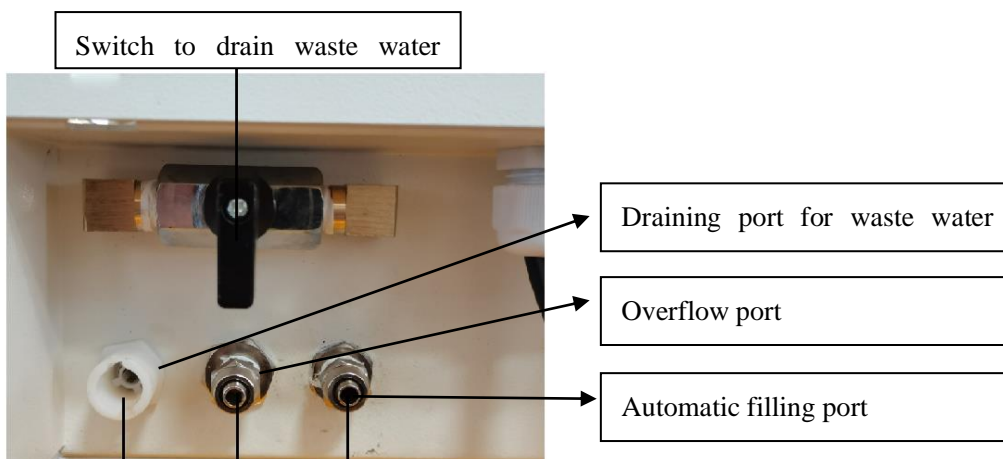
The height of the feet has been adjusted when the equipment leaves the factory. If the installation surface is flat, no adjustment is needed; if the surface is uneven, the feet of the sterilizer should be adjusted to make the sterilizer **level**.

Insert the power plug into the socket.

 Warn	<p>Make sure that the equipment is reliably grounded.</p>
---	---

If using External Water (Reverse Osmosis System)

- Connect the automatic water supply source (Only if using Reverse Osmosis System)
- Connect the pressurized water source to the automatic water filling port of the equipment. Then set "Automatic Water Addition" to "On" in the setting interface.





Please confirm that the water source pressure is at least 50kpa!

- Connect drainpipe and overflow pipe
- Connect one end of the drainpipe and overflow pipe of the wastewater tank to the corresponding port of the equipment and insert the other end into the sewer.
- Turn the wastewater tank emptying switch to the position as shown in the photo above. At this time, the wastewater tank will not be emptied. Ensure that the water demand for vacuuming is met. The extra water will automatically be discharged to the sewer through the wastewater tank drain
- If NOT connecting to Reverse Osmosis System, the steps above can be bypassed & the Tank is filled manually & the Wastewater is also drained manually. (See Page 19)

4. Adjusting

To ensure the normal use of the sterilizer, please follow the steps below:

Atmospheric pressure resetting

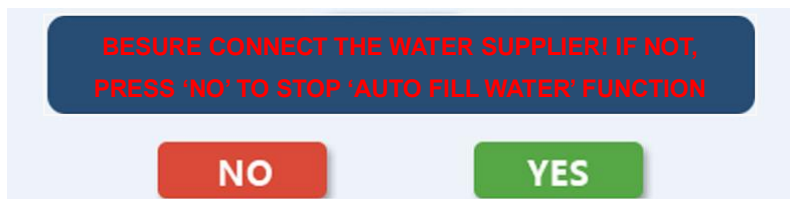
- After the device is installed for the first time or moved, the atmospheric pressure needs to be reset. Otherwise, the door may not open.
- Open the door, turn off the power, wait for 20s, turn on the power, wait for 1 minute.

Date and time setting

- Check the date and time are correct, if not correct, make adjustments as required, see Page
- The date and time have been set when the device leaves the factory, usually no adjustment is required.

Water filling

- If the automatic water filling is not connected, you need to set "Automatic water filling" to "OFF" in the setting interface.
- At this time, you need to open the water tank cover on the top of the equipment to manually fill water. Fill the tank until it reaches the Full Mark in the tank.
- If the automatic water refilling source is connected and the automatic water refilling function is turned on, the following prompt will appear after the device is powered on:



After pressing "yes", the device will automatically fill water.

Leak test

- The leak test is done to ensure the tightness of the sterilization chamber and its pipelines to ensure that the cold air in the sterilization chamber is eliminated. This device comes with a leak test program, the program is called "**vacuum test**". Run this program in the cold state. After the test, the device will display the test results.

Sterilization parameter confirmation

- Use chemical indicator test for preliminary sterilization parameter confirmation
- This test requires a B-D test package or PCD test device
- Put the B-D test package or PCD test device in the sterilization chamber and place it on the lower rack near the door.
- Run the B-D test program. After the program is completed, remove the test package and observe the indicator paper. The indicator paper changes color evenly to the required color to be qualified.

5. Introduction of preset programs

Parameters of preset programs

Program	Sterilization temperature (°C)	Temperature range (°C)	Pressure range (kPa)	Holding time (Min)	Pre-vacuum times	Drying time (Min)	Remarks
134°C universal	134	134~138	204~242	4	3	15	Preset
134°C universal quick	134	134~138	204~242	4	3	7	Preset
121°C universal	121	121~125	112~134	20	3	15	Preset
B-D/Helix test	134	134~138	204~242	3.5	3	7	Test program
Vacuum test	Vacuum to -80kPa, holding 15min						Test program
134°C Prion	134	134	204~242	19	3	15	Preset

Load type corresponding to each program

Universal	Non-wrapped load or wrapped solid, fabric and cavity load
B-D/Helix test	B-D test device or PCD test device
Vacuum test	Without any loading
134°C Prion	It may contain a load of bacteria or viruses that are difficult to kill. This procedure has not been validated, and the sterilization effect of the corresponding microorganism must be confirmed before use.
134°C universal quick	Non-wrapped load or wrapped solid, fabric and cavity load, Paper-plastic packaging or double-layer packaging (may not dry, should be used immediately after sterilization)

Applicable maximum load table

Model	Maximum weight of instruments	Maximum weight of fabric loads	Maximum weight of instruments per bag or tray
EC-45L	15kg	6kg	3kg

Maximum working time and maximum water consumption when each program is at maximum load

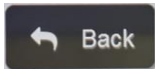
Loading kg	134°C Universal quick		134°C Universal		121°C Universal		134°C Prion	
	Time	Water Use	Time	Water Use	Time	Water Use	Time	Water Use
15kg	62	1300	75	1300	70	1300	80	1500

6. User interface description

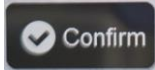
This device uses a 5-inch touch screen as its Interface

Menu page introduction

Introduction of general keys:

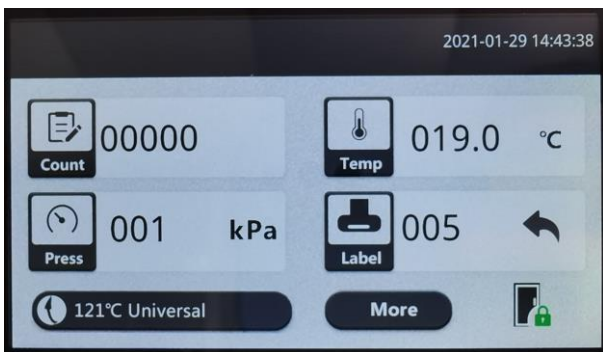


: Back to the previous interface;



: Save Settings;

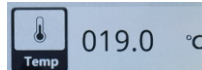
Home Page



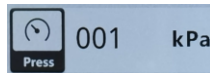
: Display the current date and time.



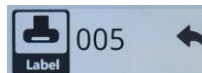
: Show the current number of cycles;




: Display the current temperature in the sterilization chamber;



: Display the current pressure in the sterilization chamber;

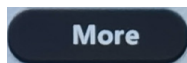


: 002 Means to print two labels,

click the icon  to go to the label printer setting interface;



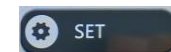
: Shortcut key, the default is the last run program, the user can directly click here to start this program;



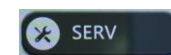
: Click here to have more options: including program menu, setting menu, service menu and recording menu.



: Programs for user to select;



: Settings for user to choose;

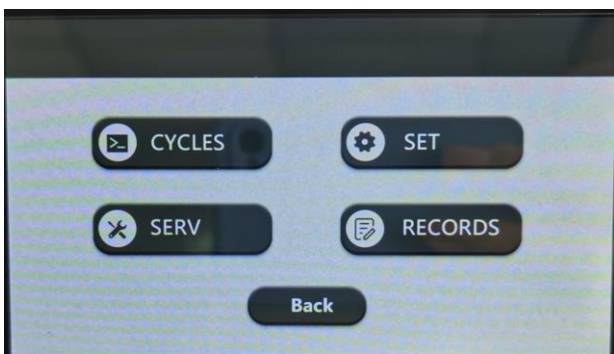


: Service Menu, for manufacturer or dealer(need password to enter);



: for user, the check the latest 20 cycles, also available to print.

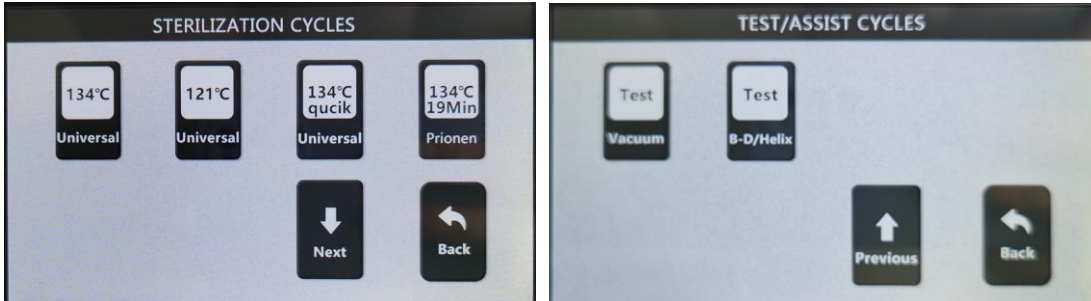
More Options



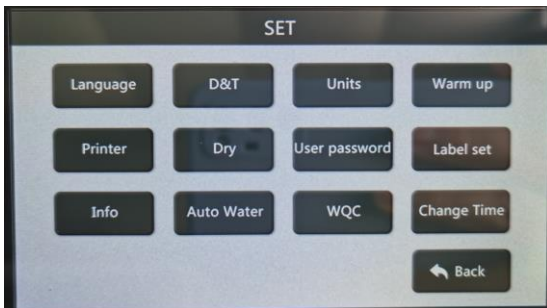
Programs (Total 6)

4 x sterilization programs: 134°C universal, 121°C universal, 134°C universal quick & Prion.

2 x test programs: Vacuum test, to check the leakage of machine & B-D/helix test, to check the effectiveness of program.



6.1.4 Settings



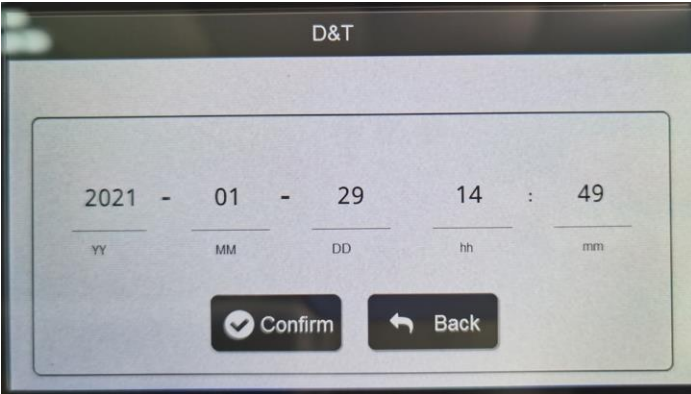
6.1.4.1 **Language**: to select languages:



Press the corresponding button to select the desired language.

D&T

: Used to set the date and time, after entering the page is as below:



The left picture shows that the current time

13:11, March 30th, 2020

YY: year

MM: month

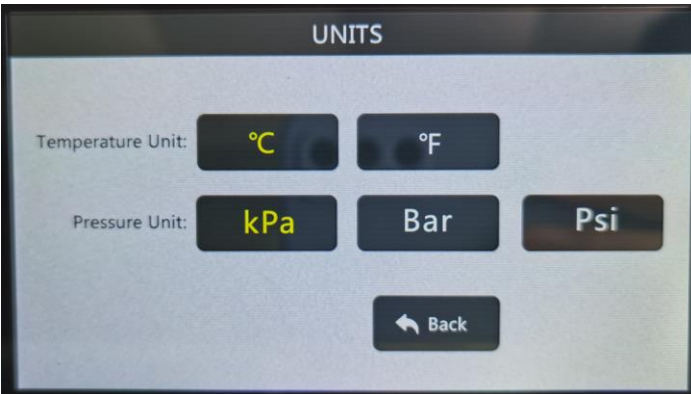
DD: day

hh: hour

mm: min

Units

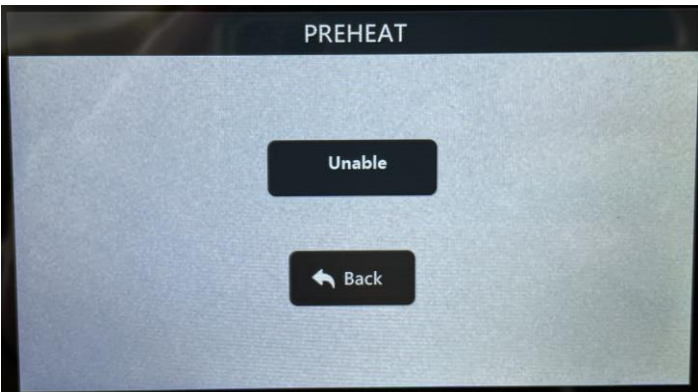
: Setting units for temperature and pressure, the page after entering is like below:



The current unit is indicated in yellow font. Select the corresponding unit and press OK to change the unit accordingly.

Warm up

: The user sets whether the power-on preheating function is turned on or off. After entering, the page is like this:



When set to "On": The equipment will start to warm up and keep warm after being powered on, in order to shorten the sterilization cycle time;

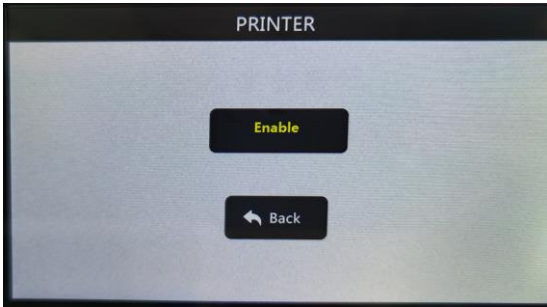
When set to "off": the device will not preheat after power on, the device will only start to preheat after the program is running, the entire sterilization cycle time will be 5-7 minutes longer than the "on"



When this setting is turned on, special care should be taken not to touch the sterilization chamber when the door is open to avoid burns.

Printer

: The user sets whether to print records or not, and the page after entering is like this



On: printer prints records, SD card stores records.

Off: printer does not print records, SD card stores records.

Dry

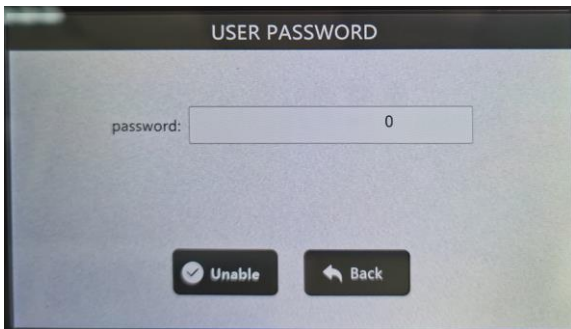
: The user can change or set the drying time of 4 programs:



If you click "Smart Drying" to turn on Smart Drying, the set drying time will be invalid. The drying time is automatically judged by the device. The maximum drying time is 30 minutes.

User password

: The user can set whether to enter with a password when starting up, and set the entry password:



Press the "Enable" button to set whether this function is enabled:

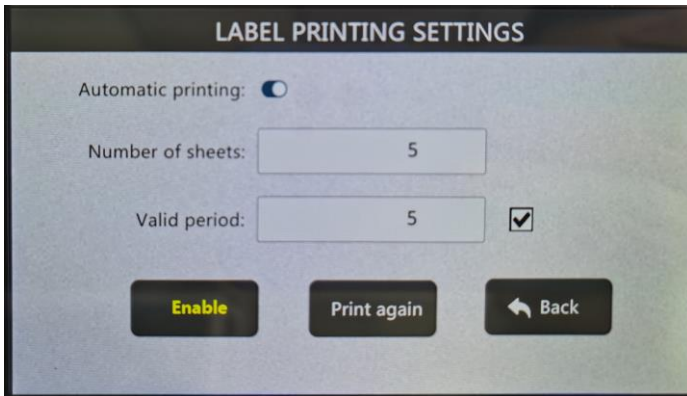
Enable: This function is turned on, and you need to enter the password when you turn on the computer to enter.

Not enabled: This function is not turned on, and it is directly entered when starting up.

Press the password display to change the password.

Label set

: Set the status and printing information of the label printer.



Automatic printing is turned on, and the set number of labels will be printed after the program ends.

Enable: This function is turned on, click to turn into "off", the label printer will not print then.

Number of labels: Set how many sheets to print

Validity period: Set the validity period of several days after sterilization, and the validity period will be printed only if you tick on the left.

Info

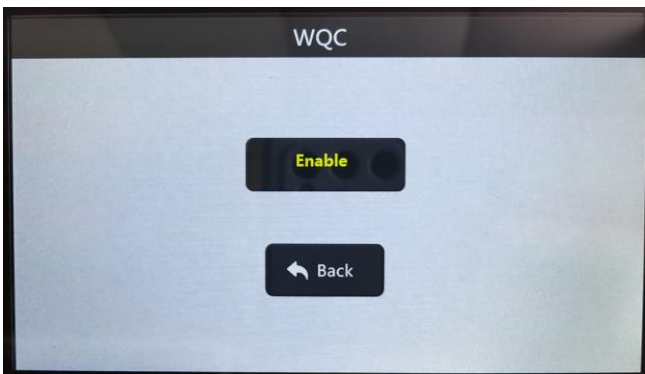
: Enter here to view the information of this device.

Auto Water

: Set the on and off of the "automatic water refill" function. When the water source is connected and this function is turned on, it will automatically refill until the water is insufficient.

WQC

: Set the water quality detection function, the page after entering is as follows:



This equipment can only use distilled or deionized water. When this function is turned on, when the conductivity of the water in the water storage tank exceeds 30uS/cm, there will be a warning that the water quality is not up to standard. At this time, the water storage tank should be drained, and then qualified water should be added.

Change Time

no need to set.

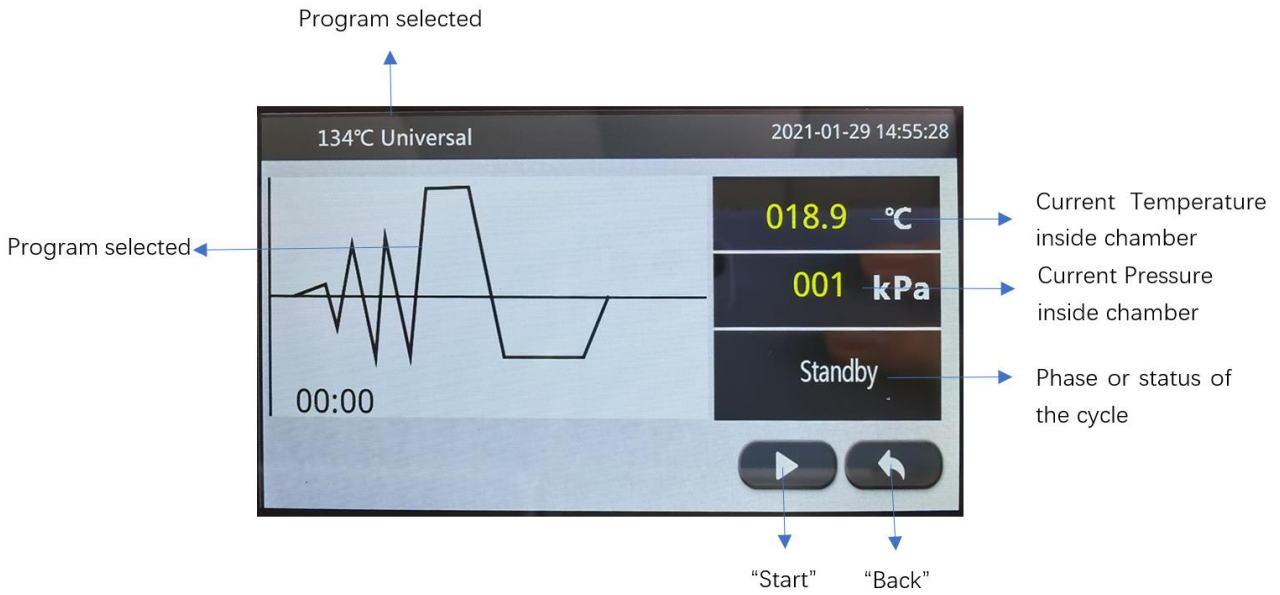
SERV

Users cannot enter, only the manufacturer or the manufacturer's representative. Password required.

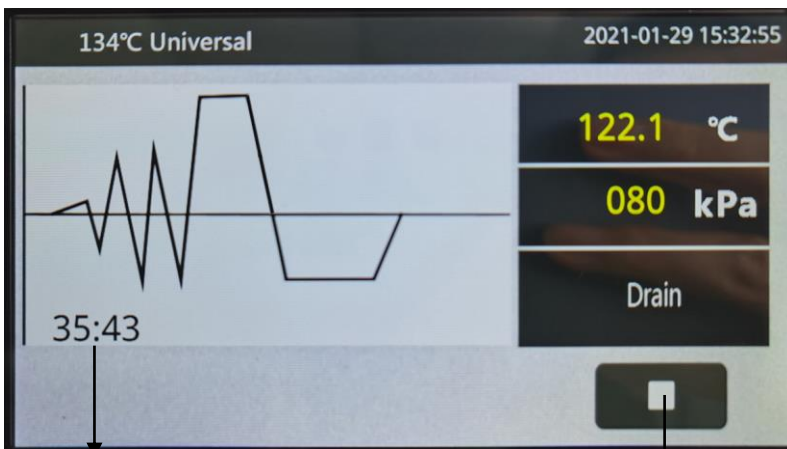


The user can enter to view and make up the sterilization record for nearly 20 times,.

After the program is selected, enter the interface to be run, the interface is as follows



6.1.7.2 The program runs after pressing the "Start" button, the interface is as follows:













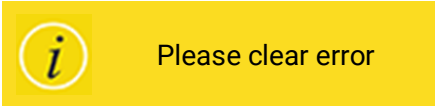
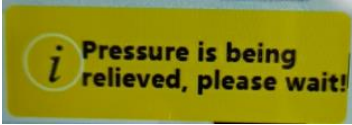
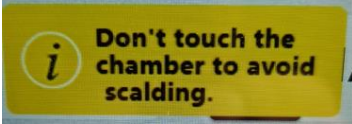
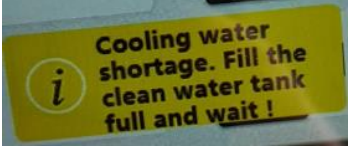
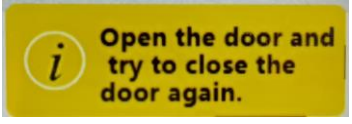
Total cycle time

"Stop" button

The line on the process curve diagram will flash to indicate the running stage.

Explanation of each prompt message

No.	Prompt messages	Description
1	 Please fill water	The water in the water storage tank is not enough to run the program once, and water needs to be refilled
2	 Empty waste water tank	The wastewater tank is full and needs to be emptied
3	 Door open	Need to close the door before running the program
4	 Bad water quality	The water in the water storage tank is unqualified: it needs to be replaced with distilled or deionized water
5	 Door locked	The door is locked to ensure that the door cannot be opened during operation
6	 Door locker open	The program ends and the door lock has been opened
8	 Please replace bacterial filter	The life of the bacteria filter has expired and needs to be replaced
9	 Please replace door seal	The door seal has reached the end of its life and needs to be replaced
10	 Need maintenance	The periodic maintenance time has expired, and the manufacturer or manufacturer's representative is required to maintain the equipment
11	 Last cycle ended improperly	Since the last sterilization cycle was stopped by the user, the power failure or failure did not end normally, the load needs to be re-sterilized

12		Equipment failure equipment cannot be used. Qualified personnel are required to confirm whether the equipment is intact. If there is a problem, it needs to be repaired before it can be used after clearing the fault.
13		Wait until the pressure relief is complete and the door will automatically open.
14		The temperature of the chamber wall is high, do not touch it.
15		The waste water tank has insufficient cooling water, add water to the water storage tank until the water is full, and the equipment will automatically draw water from the fresh water tank to the waste water tank.
16		Automatic door closing fails, close the door again.

Operation Instruction

Preparation before operation

Check the following items before operation:

- Check whether the printer has paper, if not, replace it
- Check whether there is impurity adsorption on the sealing surface of the door sealing ring and the sealing surface of the chamber. Clean it if there are impurities. Power on and start the pressure steam sterilizer after checking.

Filling water

- If the automatic water supply is connected and the "automatic water supply" option is turned on, the device will automatically fill water until the water is sufficient.
- If the automatic water supply is not connected, the "automatic water supply" function shall be turned off. When the water storage tank is short of water, the equipment cannot run the program, so it is necessary to fill water to the water storage tank:
- When there is no water in the water storage tank or there is a water shortage prompt, it is necessary to fill water to the water storage tank. To ensure that there is enough water to run a sterilization program, the amount of water filled once should not be less than 2L.

Discharge the wastewater tank

- If the drainpipe of wastewater tank is not connected to the sewer, and when the wastewater tank is full, it is necessary to drain the water from the wastewater tank. The program cannot run when the wastewater tank is full.
- There are two drainage outlets in front of the pressure steam sterilizer, as shown in the figure below. Insert the drainage pipe into the corresponding outlet to drain.



Outlet of wastewater tank



Outlet of water storage tank

Put the loads into the chamber

Use the tray tool to load the loads, so as not to touch the chamber wall and cause scald.

When loading the load, pay attention to:


- The load is not allowed to contact the chamber wall. There should be a gap between the sterilization packages to facilitate the penetration of steam.
- For open load, (Kidney Dishes, Bowls), the opening should face down to prevent nondrying caused by water storage
- The instruments should be placed evenly and arranged at intervals, and no stacking is allowed, otherwise it may cause insufficient sterilization and drying.
- It is better to sterilize the instruments, appliances, or articles of the same material in the same batch. In the case of different materials, the upper layer of textiles and the lower layer of metal instruments.
- It is suggested that the paper plastic package should be placed on the upper layer to facilitate the drying of the paper plastic package.
- It is forbidden to put the tray which is used to hold items, directly on the textiles or soft articles, so as to avoid the condensation water wetting the articles below.
- Note that the load should not exceed the Specifications lister and the volume of the loaded load shall not exceed 70% of the chamber volume.

Close the door

- Push the door inward by hand to a certain distance, and the door will be automatically tightened after the door switch action.

Choose the program

- Select the appropriate sterilization program according to the type of load.
- There is no difference in sterilization effect between 134 °C sterilization program and 121 °C sterilization program. 134 °C sterilization program should be used if you want to shorten the sterilization time.
- After the fast sterilization program is finished, the sterilized articles should be used immediately or stored and transported in sterile condition to prevent cross infection.
- If there may be microorganisms on the load whose microbial resistance is greater than that of hydrothermal fat sensitive bacteria (such as prion), the sterilization parameters (sterilization time, sterilization temperature, etc.) should be adjusted according to the specific characteristics of microorganisms, and the sterilization process should be confirmed before use.

 <p>Danger</p>	<p>The sterilizer cannot be used for sterilization of liquid or liquid sealed with closed container (especially glassware), which may cause container burst and endanger the safety of person and equipment.</p>
--	--

Run the program

- After the user selects the program in the user menu or directly selects the program by pressing the shortcut bar in the home page, a prompt dialog box will appear. After pressing OK, the device will automatically run the program.

Stop the program-running manually

- If the user needs to stop running the program during the sterilization process, press the "user cancel" key and then press "OK" in the interface, the equipment will automatically release pressure to the safety pressure and open the door.


Open the door and unload


- At the end of the program, the door -opening dialog box will pop up on the screen. Select "yes" to open the door automatically.
- When the program is not running and the front door is closed, while you need to open the door, press the program on the shortcut bar to enter the operation interface. There is a door - opening button in the lower right corner of the interface. Press this button to open the door.

Unloading

- After the sterilization, press the door -opening key to open the door. Wait 5 minutes until most of the heat in the chamber is removed. The user should use the tray tool or wear insulating gloves or other tools to take out the sterilized articles.



	Users should use the tray tool or wear insulating gloves or other tools to take out the sterilized articles to avoid scalding.
---	--

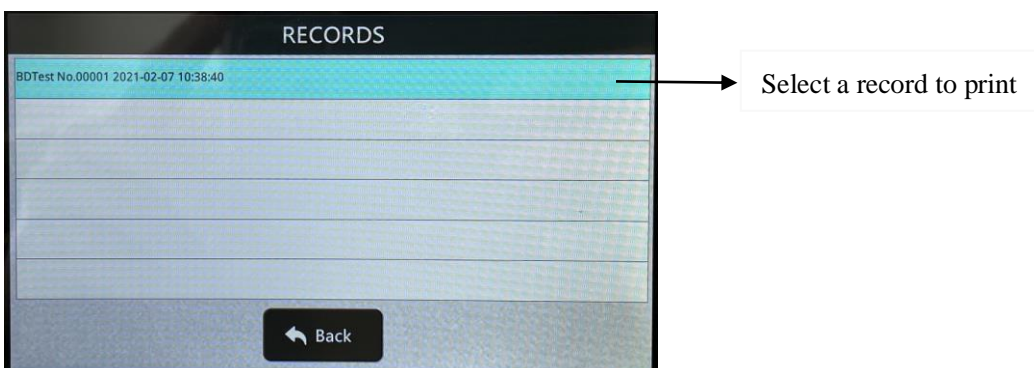
	If the sterilized articles are unloaded immediately after the program, there may be a small amount of condensate on the sterilized articles. The right way is to open the door and wait for five minutes before unloading.
---	--

Reading the print record and the storage of print record

- The medium of printing record is thermal paper, which should be stored in a dry, normal temperature environment and avoid direct sunlight. The longest storage life of this record is 2 years.

Make up the printing record

- The equipment can store 20 times of the latest operation records and can be printed again. When the printing paper is out of paper, you don't need to worry about missing the sterilization record. Just replace the printing paper and make up the sterilization record according to the following steps:
- Press the "record" button on "more" page to enter: :



The record name consists of three parts: program name + count + start time. The user can select the record to view or punch according to the record name. The user can select the record to be viewed or printed according to the record name.

- Press the desired record name to enter the interface of record details:



Press the "print" button to print the record.

Drain the water storage tank and wastewater tank

- When the equipment needs to be moved or transported, the water storage tank and waste water tank shall be emptied.

Turn the drain switch to the open position



There are two drainage outlets in front of the pressure steam sterilizer. Insert the drainage pipe into the corresponding outlet to drain.

Door opening under special situation

- If the door cannot be opened due to equipment failure or power failure, while the load in the equipment needs to be taken out, follow the following steps:
- To ensure the safety, the power supply must be cut off first, and the pressure in the sterilization chamber must be fully released.
- Remove the plastic cover from the door panel with scissors or a flat blade screwdriver.
- Insert the hexagon wrench (as below) which is in the accessory pack, into the hole and insert it all the way



- 1) Turn the hexagon wrench clockwise until all threads are unscrewed.
- 2) Pull out the hexagon wrench and open the door.
- 3) Restoring: insert the removed plastic cover.



When opening the door under special situations, please ensure that the steam sterilizer has been powered off and the pressure inside the sterilization chamber has been completely released.

Treatment when the steam sterilizer is going to be not in use for a long time.

- If the user does not use the equipment for a long time (more than or equal to 4 days), please handle the equipment according to the following steps:
- Empty the water from the storage tank and wastewater tank.
- Power off.
- The equipment should be stored in indoor environment and avoid high temperature and humidity.

Validation of sterilization effect

- Biological monitoring is used to verify the sterilization effect of the steam sterilizer and should be carried out once a week. The biological indicator shall meet the standard requirements of GB18281.3 For specific testing methods, please refer to the manufacturer's instructions of the biological indicator.
- For specific information, please refer to WS310.3-2009 *Test standard for cleaning, disinfection and sterilization effect at medical disinfection and supply center* for specific regulations.



If the biological test failed, all the unused sterilized articles should be recalled as soon as possible, and be sterilized again. The reason of disqualification should be analyzed, and the steam sterilizer should be improved. The steam sterilizer can be used again after passing three consecutive biological tests.


Disposal of the steam sterilizer

- This equipment contains electronic components and should not be disposed of together with household waste. It should be treated in accordance with *the administrative measures for the prevention and control of environmental pollution on electronic waste*.

Abnormal Situation

In case of abnormal situations during operation, the sterilizer will give an alarm automatically, interrupt the program operation and release the pressure which absolutely ensures the safety of the user. The error code will be displayed on the screen (the specific error code is as follows).

When an alarm occurs, the user should record the error code and disconnect the power supply immediately. According to the solutions listed in the table below, if the fault cannot be eliminated, please contact the local dealer or our after-sales service department in time and provide the maintenance personnel with the situation in detail as far as possible, and we will provide help to you in the shortest possible time.

 Attention	When an alarm occurs, it is recommended to run the alarm program again to see if the fault still exists.
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No.	Error code	Fault condition	Possible causes	Solution
1	E002	During the program-running, the pressure is higher than the preset pressure of 30KPa.	Leakage	Contact the manufacturer or manufacturer's representative
2	E031	Failure of Internal temperature sensor: $T1 > 150^{\circ}\text{C}$	Internal temperature sensor is broken.	Check the internal temperature sensor inside the chamber.
3	E032	Failure of external temperature sensor: $T2 > 280$	External temperature sensor is broken.	Check the external temperature sensor.
3	E033	Heating tube of Steam generator is disconnected : $T3 > 230$	The temperature sensor of steam generator heating tube is damaged.	Check the Steam generator heating tube temperature sensor
4	E034	The temperature of steam generator is over temperature: $T4 > 150$	There is no water in the steam generator. Poor contact of steam generator temperature sensor.	Check whether there is water in the water storage tank. Re-install the temperature sensor of steam generator.
5	E035	Temperature sensor in wastewater tank is disconnected: $T5 > 150$	Temperature sensor in wastewater tank is disconnected.	Check the temperature sensor in wastewater tank.
6	E041	After preheating for 20 minutes, the temperature of chamber wall is less than the preset temperature.	Heating circuit of heating coil is open.	Check the heating coil and its temperature controller.

7	E042	After the steam generator is heated for 4 minutes, the steam temperature of the steam generator is less than 100 °C.	Heating circuit of heating tube is disconnected.	Check the heating pipe and temperature control switch of steam generator.
8	E005	It can't reach 20KPa after 10 minutes' drainage.	The drain filter in the chamber is blocked. Drain solenoid valve doesn't work.	Clean the drainage filter in the chamber. Check the drain solenoid valve.
9	E051	Internal temperature sensor short circuit: T1<=0	Internal temperature sensor is broken.	Check the internal temperature sensor.
10	E052	Short circuit of chamber wall temperature sensor: T2<=0	temperature sensor of chamber wall is broken.	Check the temperature sensor of chamber wall.
11	E053	Short circuit of Steam generator heating tube: T3<=0	Temperature sensor of steam generator's heating tube is broken.	Check the temperature sensor of steam generator's heating tube.
12	E054	Short circuit of steam generator's steam temperature sensor: T4<=0	steam generator's steam temperature sensor is broken.	Check the temperature sensor of steam generator
13	E055	Short circuit of temperature sensor in wastewater tank: T5<=0	Temperature sensor in wastewater tank is broken.	Check the temperature sensor in wastewater tank.
14	E061	Temperature inside the chamber is over high: 134°Cprogram 140>T1>150°C 121°Cprograms 127°C>T1>150°C	Poor contact of the wiring of internal temperature sensor	Re- install the internal temperature sensor.
15	E062	The temperature of chamber wall is over high: 220°C>T2>280°C	Circuit board is broken.	Contact the manufacturer or manufacturer's representative.
17	E064	Steam temperature of Steam generator is too high: 134°C programs 143>T1>150°C 121°Cprograms 130°C>T1>150°C	Poor contact of steam generator's temperature sensor.	Re-install the temperature sensor of steam generator.
18	E007	atmospheric pressure recorded is less than 70kpa or higher than	the local atmospheric pressure is too low.	Do the atmospheric pressure test again.

		110kpa		
19	E008	In the heating stage, the temperature does not increase by 3 °C within 5 min; The pressure does not increase 3kpa within 1min.	The heating pipe is damaged.	Check the heating pipe.
20	E009	In the sterilization stage, the pressure is less than 20 kPa.	The drain solenoid valve is leaking.	Check the drain solenoid valve.
21	E012	In the vacuum stage, the set pressure could not be reached in 15 minutes.	The wastewater tank is short of water; the water-heating pump or vacuum generator is damaged.	Check whether the wastewater tank is short of water, check the water-heating pump and vacuum generator.
22	E013	The water tank is still short of water after adding water automatically for 10 minutes.	The water supply is not connected or there is no pressure in the water supply end.	Check the water supply
23	E014	The water storage tank is short of water and full of water.	The liquid level sensor of water storage tank is damaged.	Check the two-level sensors of the water storage tank.
24	E066	The door is locked in place while the door is detected being open.	Door switch is loose.	Check the door switch.
25	E067	The door is locked in place while the door is detected being open	Door switch is loose.	Check the door switch
26	E068	The door is unlocked but still stay closed	The door locking switch is damaged.	Check the door locking switch.
27	E069	The door opened, but it was detected that the opening switch of door was not released.	The opening switch of door is damaged.	Check the opening switch of door.
28	E070	Door closing / opening timeout	Engine of the door is damaged	Check the engine of door.
20	E099	Communication error	Failure of data transmission	Check the communication line.

Maintenance

To ensure the safe and reliable operation of the steam sterilizer within its service life, periodic inspection, cleaning and maintenance shall be carried out.

Safety precautions in equipment maintenance:

- Equipment maintenance should be carried out when the power line has been disconnected and the equipment has been fully cooled.
- The consumables and accessories to be replaced should be provided by the manufacturer, otherwise it may cause unexpected problems.
- The maintenance of the equipment should not be completed by the user. It must be carried out by the manufacturer, or the personnel designated by the manufacturer.
- The consumables or accessories that may be replaced by users are:

1. Bacteria filter; 2. Door sealing ring.

Maintenance plan

Cleaning plan

No.	Cleaning items	Frequency	Requirement on cleaning
1	Cleaning of sterilization chamber	Once a week	Keep clean and free from sewage
2	Water storage tank	Once a month	There is no dirt on the wall of the water tank.
3	Water drainage filter	Once a month	The filter net is no clogging.
4	Door sealing ring	Once a week	There is no dirt on its surface.
5	Water storage tank filter	Once a month	The filter net is no clogging.
6	Water exchange of wastewater tank	every two months	Empty first, then add clean water

Inspection plan


No.	Inspection items	Frequency	Requirement
1	Inspection of safety valve in sterilization chamber	Once every six months	It can be opened and keep unopened during the sterilization stage.
2	Leakage protection switch	Once a month	The air switch can be disconnected.
3	Water tank level sensor	Once every six months	There are water shortage prompt.
4	Cable	Once every six months	The external insulation is not damaged.


Maintenance plan

No.	Inspection items	Frequency	Requirement
1	Adjustment on door's tightness	Once every year	The sealing ring can fit to the sealing surface.
2	Replacement of bacterial filter	Every 150 times	be inserted firmly
3	Replacement of sealing ring	Every two years	Its wide side is outward, and the sealing ring is flat.
4	Replacement of thermal print paper.	When the printer is out of paper or about to be out of paper.	Make sure the paper thermal side is up and no paper jam.

Detailed methods


- Cleaning of sterilization chamber: Wipe the wall and sealing surface of sterilization chamber with clean and wet towel.

 Attention	Do not use acid or alkaline cleaner to clean the sterilization chamber.
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 Warn	Before cleaning the sterilization chamber, please make sure that it is cooled to avoid scalding.
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Clean the water storage tank


- First, drain the water in the water storage tank, then wipe the inner wall of the water storage tank with a clean towel, and remove the dirt in the water storage tank at the same time.

 Attention	When cleaning the water tank, do not remove the water tank filter, so as to avoid the dirt falling into the pipeline, resulting in pump failure and alarm.
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Cleaning of drain filter

- Rotate counterclockwise to remove the drainage filter in the sterilization chamber, which is located in the lower part of the sterilization chamber.
- Rotate and loosen the internal pressure ring of the drain filter.
- Clean the 2 nets of the filter.
- Reassemble the filter: Put in the coarse mesh first, then put in the fine mesh, and then screw in the pressure ring.
- Screw the drain filter into the sterilization chamber.



 Warn	Before removing the filter net, please make sure that the sterilization chamber is cooled to avoid scalding.
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Cleaning of door sealing ring:

- Check whether there are impurities or dirt on the sealing surface of the door sealing ring and remove them if any. Then wipe the sealing surface of the sealing ring with a towel dipped in clean water.

Clean the water tank filter

- The structure of the water storage tank filter is the same as that of the drainage filter, which is located in the water storage tank. Empty the water from the storage tank before cleaning
- In order to keep the wastewater tank clean, it is recommended that users empty the waste water tank once a month.

Inspecting the safety valve of sterilization chamber

- To prevent the failure of the safety valve, every six months check whether the safety valve can be opened and let the steam release once:
- Run 134°C solid program.
- Wait until the pressure reaches about 100KPA, pull the pull ring on the safety valve to keep it open. About 2 seconds later, air and steam will be discharged, which indicates that the secondary safety valve can be opened. If it cannot be opened, wait until the program is finished and contact the supplier to replace the safety valve.
- Release the pull ring and wait for the program to continue to run.
- Observe whether there is steam discharged from the safety valve in following process, if so, contact the supplier to replace the safety valve. If not, the safety valve is functioning properly.



After pulling the pull ring of the safety valve, there will be steam ejecting. It can't be pulled directly by hand. Operator should use tools such as a screwdriver and wear gloves. The operator should also keep away from it as far as possible to avoid scalding.

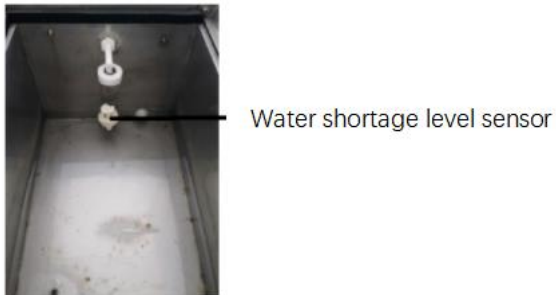
Check the electric leakage protection switch

- When the power is on, press the test button. If the air switch next to the test button jumps off, it means that the function of the leakage switch is normal. If not, contact the supplier to replace the leakage switch.
- After the test, press the switch on button and push on the air switch to connect the line.



Check the water level sensor of water storage tank

- When the power is on, press the shortcut key to enter the operation interface. Drain all the water in the water storage tank. If there is a water shortage prompt on the interface, it means that the water shortage level sensor function is normal. If there is no such prompt, contact the supplier to inform the fault.

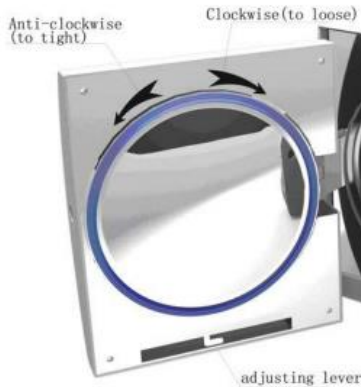


Check whether the external surface of the power cord is damaged. If so, contact the supplier for replacement.

Adjustment of door's tightness

Door adjustment:

- Pull the adjusting lever down a little bit, at the same time, rotate the door to adjust the door's tightness. According to the direction indicated in the figure below, turn the door anticlockwise to tighten the door and reduce the gap between the door and the sterilization chamber. Turn clockwise to loosen the door and increase the gap between the door and the sterilization chamber.



Adjustment steps::

- Pull down the adjusting lever a little bit; 2) Rotate the door to a certain angle; 3) Release the adjusting lever; 4) Keep turning the door to a position where the door cannot move anymore.

<p>Attention</p>	After the door adjustment, it is necessary to run the sterilizer to check leakage. If there is leakage, the user shall adjust the door again until there is no leakage.
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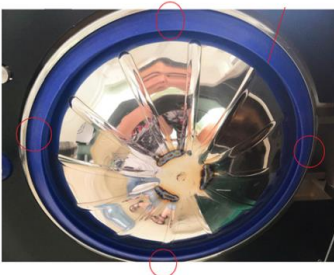
Replace the bacterial filter

- Pull out the bacterial filter by hand and insert the new one.

Replace door sealing ring

- Pull the lip of the sealing ring by hand and pull out the sealing ring.
- Take a new sealing ring. First, insert the sealing ring into the groove at four positions as shown in the figure below; Then press the remaining part of the sealing ring into the sealing groove. And make sure the whole sealing ring is smoothly and evenly pressed into the position.

lip of the sealing ring





When replacing the sealing ring, make sure that the door cover is cooled to avoid scalding.



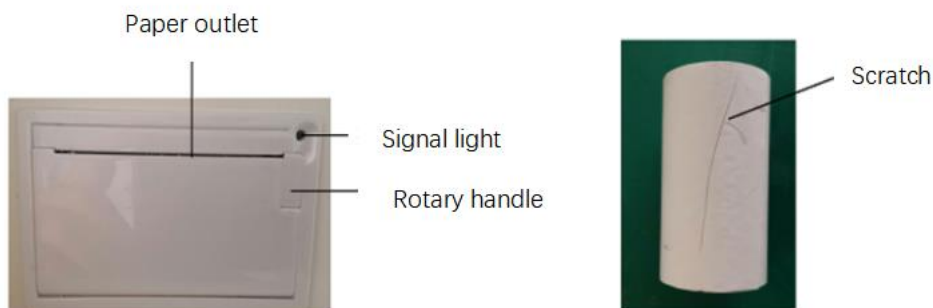
The sealing ring must be installed with the wide side facing outward, and can not be installed reversely, otherwise there may be air leakage, water leakage, seal ring pop-up and other problems.

Replace printer paper

- When a red mark appears on the printed record, it means that the printed paper is about to run out and needs to be replaced.
- When the red signal light of the printer is on, it means that the printing paper has been used up and needs to be replaced.

Steps to change the printing paper:

- Pull the "rotary handle" outward to open the paper compartment cover of the printer.
- Take a roll of printing paper and mark on both sides of the paper with your fingernail. The side with scratches is the printing side.
- Put the printing paper into the paper compartment and pull out a section of the printing paper through the paper outlet. Be aware the side with the scratch should face out.
- Close the paper compartment cover and reset the "rotary handle".
- Press the indicator light to see if the paper runs smoothly. In case of paper jam or paper feeding distortion, adjust the position of printing paper until the paper feeding is vertical and smooth.



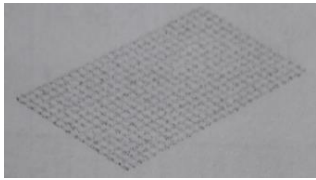
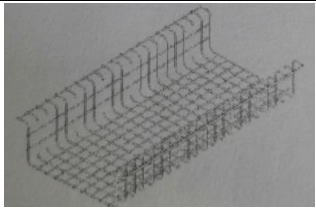


Guarantee

- 1. The lifespan of the steam sterilizer is 5 years. The steam sterilizer is guaranteed upon invoice for two years. Within two years from the date of purchase, the company will provide free maintenance service for any failure or damage caused by the correct installation and use according to the user's Guide. Consumables are not covered by warranty.**

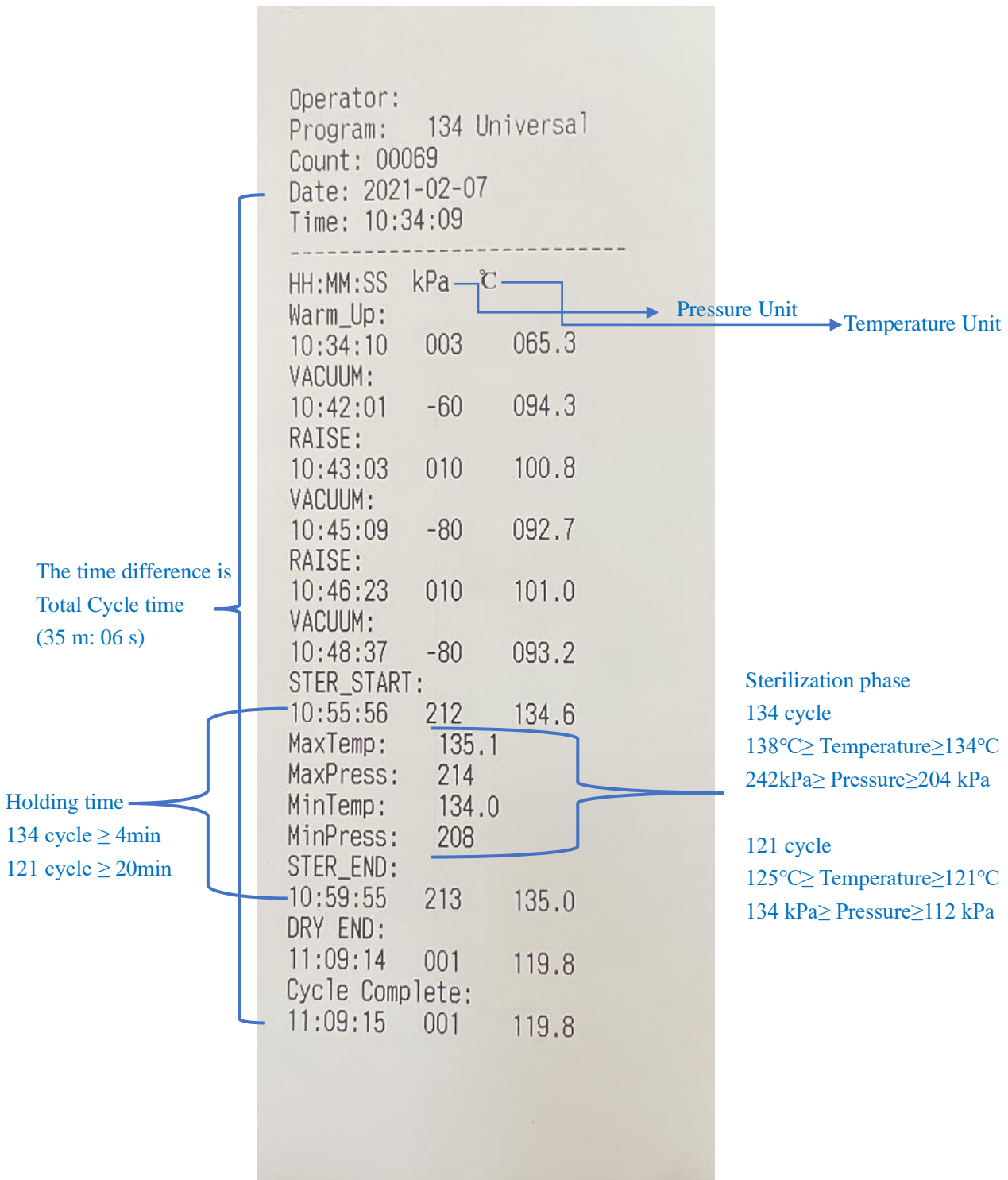
The following situations are not included in the free warranty even within the warranty period:

- (1) Failure or damage caused by improper installation and use;
 - (2) Failure or damage caused by accidental fall or collision;
 - (3) Failure or damage caused by self -installation or repair;
 - (4) not showing purchase invoice;
 - (5) Be damaged due to abnormal voltage, fire and other external reasons;
 - (6) Consumables and accessories installed on the steam sterilizer are not provided by the manufacturer.
- 2. For steam sterilizers with above mentioned situations or the steam sterilizer exceeding the warranty period, our company will still wholeheartedly provide you with maintenance service, but with charge on repair.**

Accessories

No.	Accessory name	Photo or description	Remark
1	Tray		loading sterilization articles Put on the tray frame 上
2	Tray frame		The lower layer is used to load sterilization articles. The tray is placed on the upper layer.
3	Tray handle		Be used to take and place the instrument tray to prevent scalding
4	inner hexagon spanner		It is used for emergency door opening when power is off or other reasons.

Sample of printed records and Explanation



Description of sterilization packaging materials

The selection and use of sterilization packaging materials should follow the following rules:

- 1) Sterilization packaging materials include hard containers, disposable medical wrinkled paper, paper plastic bags, paper bags, textiles, non-woven fabrics, etc. These sterilization materials should meet the requirements of GB / T 19663.
- 2) Open storage tanks or containers should not be used for the packaging of sterilized articles.
- 3) The packing material of textile should be easy to clean, no stain, no damage by light inspection. The textile should be non-bleached fabric, the edge should not be sewn except four sides. Before the first use, it should be washed at high temperature, degreased to remove pulp and color. There should be a record of times of use.
- 4) The use and operation of hard containers should follow the manufacturer's instructions or instruction manual.