Runyes®

FOCUS ON DENTAL.

Small steam sterilizers
Operation Manual
(Technical Manual)



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FOCUS ON DENTAL.

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Dear End User:

Welcome to use the high quality autoclave created by Runyes!
Please fill in the "User Registration" form before using the machine.
With your record in our files, we will be able to trace the file of the machine you bought and provide you with fast and effective services.

User Registration

On the inscription plate at back of the machine, you can find the unit's model number, serial and reference number. Please double check the number and fill in the form with them, you should quote the reference number when you are in contact with you distributors.

Product name:

Product model:

Serial number:

date of manufacture:

Voltage:

* Before operating the autoclave, please read carefully all safety cautions and instructions of operation. This operator's manual will help you understand all functions of Runyes Autoclaves as far as possible.
* Please follow the instructions carefully in this operator's manual while servicing and maintaining the units.
* Please keep this manual safe for your future references.
* When error occurs during operation of the machine, please get in touch with your local distributor or us for our best qualified services and assistance.

Important information on Safety



1. Please plug the power in a correct voltage (according to nameplate) electrical socket. Don't use electrical outlets unless in the correct voltage; otherwise it might cause fire or electric shock.
2. Don't wet your hand before plugging or unplugging the power cord.
3. Don't place your autoclave on an unstable table top, moving desk, tilted or shaking surface
4. Don't cover or block the door, ventilation or radiation openings on the autoclave.
5. Don't put heavy stuff or liquid containers that might spill on the top of the machine
6. Please unplug the power cord when the machine will not be used for a long time.

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1. Description & Usage

Runyes design and make pressurized steam autoclaves especially to meet the needs for sterilization of instruments and devices in clinics, departments in hospitals and laboratories.

Operators include doctors and his/her assistance under doctors supervisions. The autoclave is computerized, user friendly and easy to operate. Its real time display shows all data during the sterilization cycle. The software program provides auto diagnose, protection against over heating or over pressurizing, and thus ensures reliability of the sterilization results. Built-in condenser water collecting system prevents discharge of waste steam and keeps the machine clean and safe.

Three Times Pre-vacuum Pressurized Small Steam autoclaves

It uses the advanced technology of 3 times pre-vacuum and vacuum drying. It enables the hot steam to penetrate in thin tube and porous material. This product is suitable for dentistry, ophthalmology, surgical instruments, dressing theatres and laboratories to sterilize dental and other 135□ autoclavable stuffs.

It is equipped with the following safety devices: Safety Device Description:

01. Over temperature automatic protection device: Double over-temperature automatic protection is set in the steam generator and chamber wall.
02. Door safety interlock: automatic door lock is adopted. Only when the door is closed in place can the autoclave start the working procedure. When there is pressure in the chamber, the door cannot be opened.
03. Automatic pressure relief safety valve, opening pressure 270kpa R 1kPa: if it exceeds the set pressure, the safety valve opens to release pressure;
04. Electronic circuit safety device: DC control circuit overvoltage and overload protection, AC circuit short circuit protection.

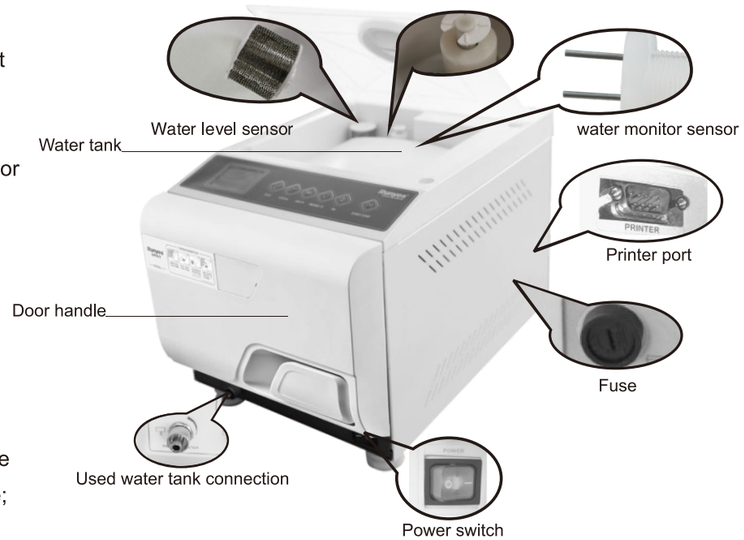


figure 1-1

2. Technical parameters

S. N.	Item	Parameters
		5L
1	Overall dimensions (L * w * h)	510*310*330
2	Sterilization chamber dimensions(mm)	192*96*300
3	Sterilization chamber volume (L)	5L
4	Sterilization chamber type	B
5	Power supply	AC220V/50Hz
6	Input power (VA)	1800VA
7	Design pressure (Mpa)	-0.1/0.3Mpa
8	Design temperature (℃)	140°C
9	Temperature selection range	121/134°C
10	Temperature display accuracy (℃)	0.1°C
11	Pressure display accuracy (KPa)	1KPa
12	Fuse tube specification	F20AL250V
13	Water tank volume (L)	1L
14	Water consumption for primary sterilization (mL)	200mL
15	Minimum water supply	250mL
16	Environment temperature (℃)	+5°C~40°C
17	Relative Humidity Range	⩽85%
18	N.W. (Kg)	26Kg
19	G.W. (Kg)	30Kg
20	The residual humidity after instrument drying is ⩽0.2%, and the residual humidity after dressing drying is less than ⩽1%	
21	Maximum vacuum ⩽ –92Kpa	

Figures

Package Key Test Cycle Key Select Key Start/Stop key

Cycle Step Key Quick Sterilization Key Used Water Outlet High temperature

Grounding Please refer to the instructions Distilled water please

The maximum weight of the instrument placed in the chamber of the autoclave in one cycle

Medical apparatus		Textile/Package	
Without package121℃	Without package134℃	With package121℃	With package134℃
2Kgs	2Kgs	1Kg	1Kg

Tips

Standard Atmospheric Pressure: It is the atmospheric pressure at sea level. Which means 1 standard atmospheric pressure. The value is 0.1Mpa = 1000Hpa = 100Kpa. Atmospheric pressure decreases by higher altitude. An increase of altitude of 1000 meters will result in a decrease of atmospheric pressure of 10Kpa if under 3 Km.

The standard configuration of the model is built-in clean water tank, external printer interface and LCD display.
Optional configuration: 1. external water supply 2. external printer.
(for more requirements, please contact our company for customization)

3 Installation

The Autoclave should be installed in a drafty place allowing minimum of 10cm space at all side sand 50cm at the top. The ventilation openings at the side of the machine should not be blocked. The Autoclave should be placed on a leveled counter top. The correct placement of autoclave is shown in the following figure 3-1:

The worktable can bear at least 35kg

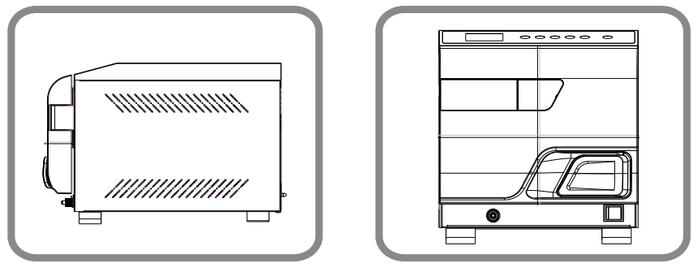
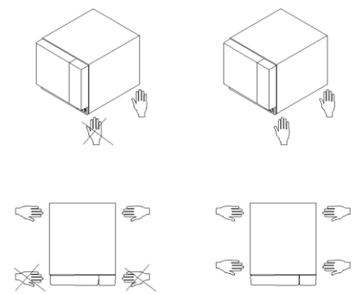


figure 3-1

Precautions when handling products:

Do not lift the door when handling the autoclave!
Do not lift the feet when handling the autoclave!
It is forbidden to put on the side or upside down when handling the autoclave!
When handling the equipment, the handling position is shown in the figure below:



⚠ Attention

If the front end of the autoclave is lower than the rear end when it is placed, incomplete vacuum drying may occur in the sterilization process. Therefore, adjust the foot pad at the front end of the autoclave (turning clockwise to increase), so that when the autoclave body is placed, the left and right are balanced, and the front end is a little higher than the rear end, so as to meet the placement requirements.

Preparation before use

We settled the draining filter before the device leaving factory.(See fig 3-3). Water Draining filter needs to be cleaned once per month. For cleaning details, please see page 18:9.3 Water Draining filter cleaning.

Before using the device, you should make electrical connections by using the power cord that comes with the unit. Insert the hollowed end of the power cord in to the inlet of the machine and plug the other end on a power outlet.(See fig 3-4).

If you choose the effluent type steam sterilizer, you need to follow the steps shown below before starting up:

1. Put steam sterilizer in place, connect drain pipe to drain outlet. Use steel pipe clamp to fix drain pipe and drain outlet.(see fig 3-5)
2. Connect the attached external waste water tank to the drain pipe. Use steel pipe clamp to fix drain pipe.(See fig3-6)
3. Put external waste water tank on the floor or hang in place, like wall.
4. Installation: fig 3-7.



figure 3-3



figure 3-4

Power requirements: your power supply must be able to withstand 1800VA load, and the grounding must be reliable.

Placement requirements: place in a well ventilated place, don't dump the sterilizer after filling the water storage tank.

If you choose a waste water discharge sterilizer, pay attention to the water level of the external waste water tank during daily use. If it exceeds t he water level line, it must be emptied in time.

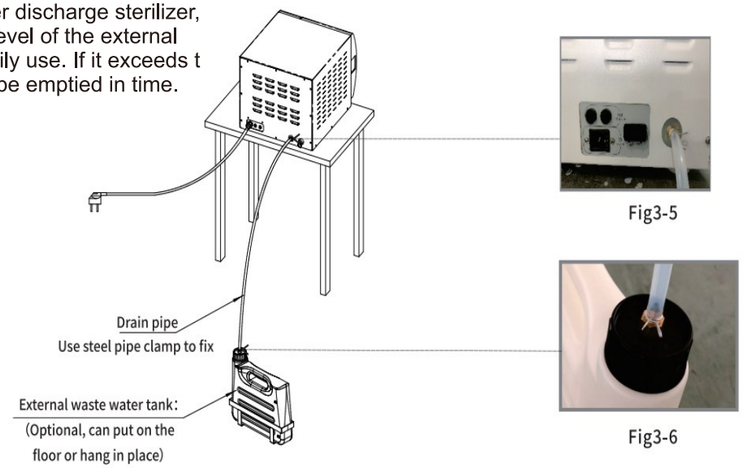


Fig3-5

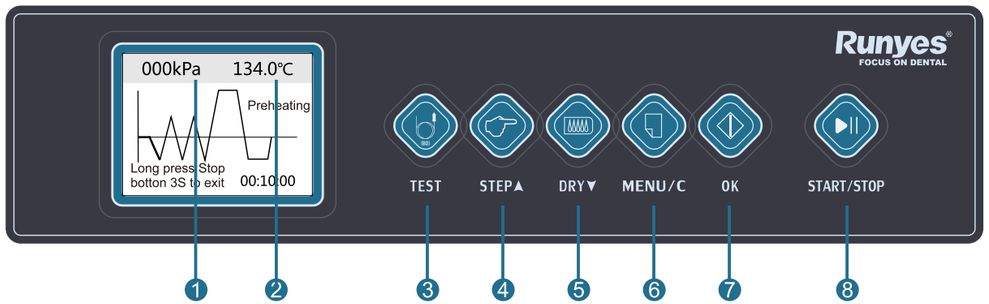
Fig3-6

⚠ Caution:

Before starting the Autoclave, please check on the local atmospheric pressure. If the pressure is lower than 0.095 Mpa or the Altitude is higher than 500 meters, you will need to contact your distributor who should reconfigure the controller in the device.

During the daily use of the sterilizer, pay attention to the water level of the external waste water tank. If it exceeds the water level line, it must be emptied in time.

4.Control panel



1.Pressure

It displays actual pressure of chamber, the unit is Kpa

2.Temperature

It displays actual temperature of chamber.

3. "Test" key

Adjust the drying time of the program vacuum due to the constant temperature of the switch and the last cycle.

4."Step" key

Program selection key.

5."Dry" key

Program selection key.

6."Menu / C" key

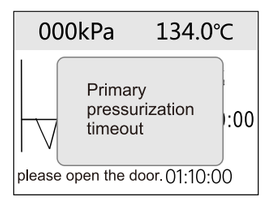
The main menu selection key.

7. "OK" key

Program confirmation key.

8."Start / stop" key

9.Error code interfa



⚠ Caution

In case of faults, please contact your distributor or the manufacture immediately.

5. Operation

Please connect the power cord before you start the operation. Please press the main power switch to turn on, and if the screen turns on, the sterilizer has been powered on, and the self-checking process is performed. If there is an error in the self-checking, an error code and an alarm will be displayed; if the self-checking is passed, the "Program Selection Interface" will be displayed in the working status.

Cleaning of sterilized items:
Surgical instruments, etc., should be thoroughly cleaned immediately after use, and the residue should be disposed of. It is recommended to use ultrasonic cleaners, detergents or mineral-free water to clean the instruments. After cleaning, the instruments shall be rinsed and packaged or placed directly on the instrument tray or tray holder.

Packaging of items:
Select different packaging materials to package the instruments according to the requirements of the load and the storage time of the items after sterilization.

Notice:
The sterilized packaging materials must meet the requirements of GB/T19633, and the textile packaging materials are required to be non-bleached fabrics, which should be washed at high temperature, degreased, and decolorized before initial use, and there should be using records.
When packing, the dressings and instruments should be packaged separately. It is better to buckle the trays, basins and other items to prevent water storage. If they are stacked together, they should be separated by adding absorbent paper and gauze in the middle. For other packing precautions, please refer to the relevant national standards.
Please make sure all the parallel holes in the package are facing the same and make sure they cannot move in the package. The maximum weight of a single instrument tray is the maximum weight of a single bag, and the maximum weight of the instrument tray bracket is the maximum load of the instruments.

5.1 Fill water

If the water level is lower than the lowest water level, WATER light will glint with alarm beeps after turning on the power switch and selecting the sterilize program. Then, you need to add water.Please open the water tank and pour water into it by container. Please pay attention to the water level during filling water, you should stop filling when the surface is close to the red water level mark.

⚠ This machine is equipped with a water quality sensor, please be sure to use distilled water (conductivity < 20 μ s/cm>, if the water quality does not meet the requirements, a water quality alarm will be displayed, accompanied by a "drip-drip-" alarm sound, prompting the user to replace the sterilized water.



figure 5-1

Water quality requirements table

	Water supply
Evaporation residue	≤10mg/l
Sio2	≤1mg/l
Iron	≤0.2mg/l
Cadmium	≤0.005mg/l
Lead	≤0.1mg/l
Other heavy metals	≤0.1mg/l
Chloride	≤2mg/l
Nitrate	≤0.5mg/l
Conductivity	≤15us/cm
PH	5-7.5
Exterior	Colorless and clean without precipitation
Hardness	≤0.02mmol/l

⚠ Notice:

1.Use distilled water to prolong the sterilizer's life.
2.Using distilled water that meets the requirements can greatly improve the stability of the sterilizer and prolong its service life.

5.2 Start a cycle



When water indication light is off, the machine can be started.

5.2.1 Press MENU/C after power on, the sterilization program interface (5-2) will appear. Press "STEP▲" and "DRY" to select the program and then press "0K" to select the program. It indicates that you have selected the corresponding sterilization program, close the door, and press "START/STOP" to select the start program.

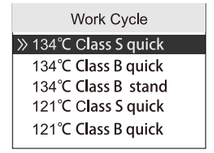


figure 5-2

5.2.2 You also need to choose the corresponding program according to the type of package. If you are in a hurry to use the equipment, you can clean the equipment and dry it without wrapping the equipment. Select the "Quick without package" program to sterilize the equipment, which can speed up the turnover efficiency of the instrument.



⚠ Caution

The door knob must be turned to its lock position,otherwise, there might be steam leak during a cycle and the alarm goes on. If the chamber is in keep warm mode, it is sometimes difficult to close the chamber door because there is still steam inside. You can keep the door open for a while until steam and moisture is vaporized, and the door is easy to close. You may also push the door inwards with some force while turning the door knob to its locking position. If there is still steam leak after you did the above, you may try to read just the door mechanism by a spanner as per item 6. Door adjustments.

5.2.3 Now you can press the "START/STOP" key to enter the program operation as shown in Figure 5-3. The sterilizer starts the automatic sterilization program. You can fully enjoy the fun that Runyes sterilizer brings. The sterilizer will automatically heat up, sterilize, and dried. The whole working process takes 10-30min. The length of working hours is mainly determined by the initial temperature of the sterilizer and the sterilization program you choose.

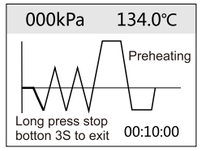


figure 3-3

5.2.4. After the sterilization is over, the status will be displayed as shown in Figure 5-4, and there will be three beeps. Then you can open the door and remove the sterilized instruments.

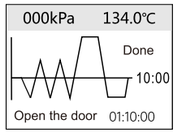


figure 3-4

5.2.5 The sterilizer has a self-protection design for unexpected shutdown under abnormal conditions. In the case of abnormal power failure, the pressure will be automatically unloaded. If the power supply cannot be restored, the user is not able to open the equipment to avoid danger. After the power supply is restored, the internal pressure of the sterilizer will be displayed. If it is not 0, the device cannot be opened.

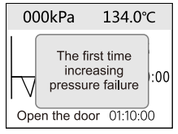


figure 3-5

5.2.6 If there is an unexpected situation in the sterilizer, the product will alarm, as shown in Figure 5-5, please keep the wrong photo and contact the after-sales service or the dealer to deal with the related problems. Sometimes the sterilizer may generate false alarms due to improper operation. The methods of eliminating alarms are as follows:
Long press "MENU/C" and "STAT/STOPT" to cancel the alarm.



5.2.7 When you will not use the sterilizer for a while, please turn off the main power switch (the power switch light is off). If the sterilizer is not used for a long time, please unplug the power cord.

5.2.8 Noise ⩽70dB when the equipment is running

⚠ Caution

When low water level alarms, please add some water and don' t forget to let condenser water out at the same time.
Use tray holder to load or unload the tray with instruments in it to avoid burning injuries.
Please turn the main power switch off or unplug the power cord if you don' t use the machine for a while.
Never try to open the chamber door if and when the pressure display doesn't show “0” .It is suggested that chemical indicator or bio-indicator be used for each and every cycle to ensure the reliability of each sterilization cycle run.

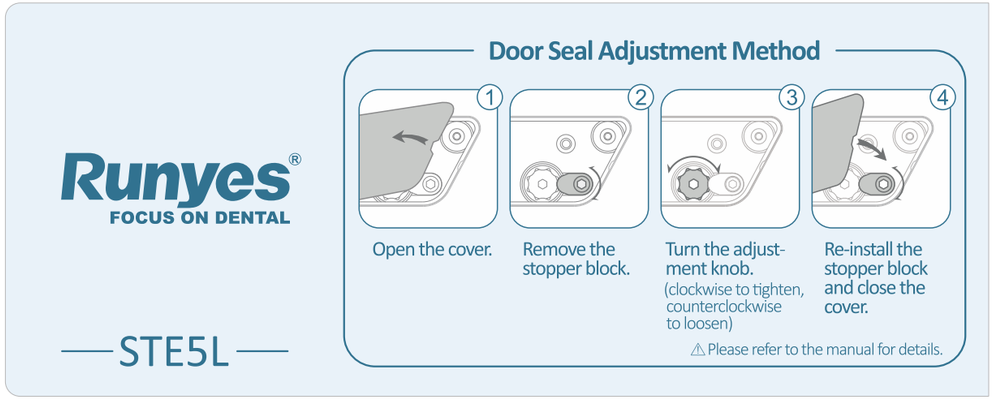
The instrument rack should be put inside the boiler as the following diagrammatic sketch shows:

The equipment is equipped with one instrument tray bracket and two instrument trays. Please use the instrument trays correctly. To ensure effective sterilization and good drying, please do not stack them. They should be laid flat on the instrument trays and placed at intervals. The instruments or packages should not be attached to the pot wall .
When sterilizing the planting box, the instrument tray holder can be removed and the planting box can be placed on the instrument tray for sterilization.



figure 3-6

6.Door Adjustment



⚠ Caution

The sealing ring needs to be replaced at room temperature. When the equipment is just running, do not touch the door and be careful of burns.

7 Printer Installation and Use(Optional)

Runyes sterilizer can be equipped with an external printer or built-in printer according to customer needs.
Connect the external printer to the lower left side of the sterilizer with the matching printer cable, as shown in Figure 7-1.Turn on the power switch and the two lights on the front panel of the printer are on, indicating that the printer has been installed.
After the sterilization cycle is completed,you can set to decide whether it needs to be printed or not.For details, see page 14. 8.Function setting. The built-in printer and the external printer operate in the same way.

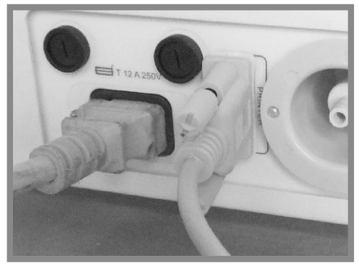
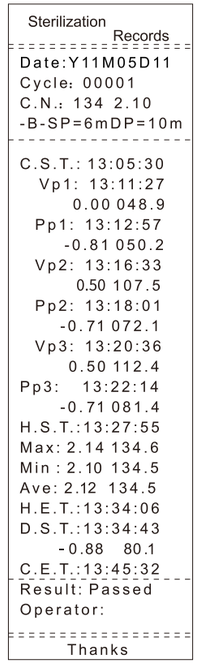


figure 7-1

7.1Print Information

Date:Date
C.N:Cycle name
C.S.T:Cycle start time
Vp1、Vp2、Vp31: Pressure strengthen
Pp1、Pp2、Pp31: Vacuum
H.S.T-Sterilization start time
Max、Min、Ave: Max. Min and average pressure or temperature of chamber
H.E.T:Sterilization end time
D.S.T:Drying cycle start time
C.E.T:Cycle end time
Result:Result
Operator:Operator, you can sign your name if needed.



```
Sterilization Records
Date:Y11M05D11
Cycle: 00001
C.N.: 134 2.10
-B-SP=6mDP=10m
C.S.T.: 13:05:30
  Vp1: 13:11:27
     0.00 048.9
  Pp1: 13:12:57
    -0.81 050.2
  Vp2: 13:16:33
     0.50 107.5
  Pp2: 13:18:01
    -0.71 072.1
  Vp3: 13:20:36
     0.50 112.4
Pp3:   13:22:14
    -0.71 081.4
H.S.T.:13:27:55
Max: 2.14 134.6
Min : 2.10 134.5
Ave: 2.12  134.5
H.E.T.:13:34:06
D.S.T.:13:34:43
    -0.88   80.1
C.E.T.:13:45:32
Result: Passed
Operator:
Thanks
```

figure 7-3

⚠ Caution

Runyes sterilizer can only be selected with external or built-in printers provided by our company.
From the end of the sterilization process to the start of the next sterilization, and the power of the sterilizer has not been turned off, press the "START" button for 3 seconds to reprint the previous sterilization receipt. (Please note: If the sterilization is complete and the power is turned off or restarted for the next cycle, it will not be possible to reprint)

8.System Setup

8.1 Enter function setup mode

Press“STEP”key for 5s when on non-work state(time dis8.2Function mode setuppaly“Ld”) pressure display“1”, enter function setup mode.

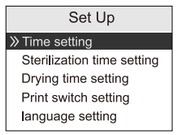


figure 8-1

8.2Function mode setup

With 7options, press SELECT key, you can select 1-7-Icycledispaly. The definition and display of 7 options are as following:

Option 1: year，display “yer”, press“STEP”or“↑”key increase、 press“DRY"or“↓”Key decrease，setup numerical value。
Option 2: month，display “nth”; press“STEP”or “↑”key increase、press“DRY"or“↓” Key decrease，setup numerical value.
Option 3: day , display“day” press“STEP”or“↑”key increase、press“DRY"or“↓”Key decrease,setup numerical value.
option 4: hour，display “hor”,press“STEP”or“↑”key increase. press“DRY"or“↓”Key decrease，setup numerical value.
Option 5: minute，display“nin”, press“STEP”or“↑” key increase、press“DRY"or“↓”Key decrease，setup numerical value。
Option 6: Printing,it display“Pvt”,press“STEP”key then you can choose the cycle between“on”and“of”. “on”stands for “print”, “of”stands for “no printing”.
Option 7: Exit ,when“Eit”displays,please press“START/STOP”to save and exit setup mode.
Option 8: Sterilization time adjustment, you can choose the sterilization cycle that needs to be adjusted. The maximum sterilization time range that can be set for each cycle is 60min. The minimum is the default time for each cycle.
Option 9:Temperature adjustment setup. D-P is displayed. You can adjust temperature ranging from 2℃ to 3℃ by pressing "START"".You are suggested to follow the guidance of technician in this step.
Option 10: Temperature display deviation setting, display "DP", press the START button to make the setting value flash, the setting range is -2, -1, 0, 1, 2 five gears, when the displayed temperature has a deviation, you can set it accordingly . (It is recommended that users, when they really need to set up, please contact our company personnel for assistance. Generally speaking, this option does not require user settings).
Option 11: Pressure display mode, display "PRS", this option is prepared for users in plateau areas, which can change the pressure display during standby from absolute pressure display to relative pressure display, when the user's altitude is higher than 1500 meters, and the Set when the pressure is less than 0 when the door is open. When setting, the door body must be fully opened, then press STEP 5S to set from absolute pressure to relative pressure. To set from relative pressure to absolute pressure, press the DRY key. Displaying "AP" means that the current is absolute pressure display, and "DP" is relative pressure display.

Item 12: This item is prohibited for users from setting by themselves.

Item 13: Vacuum mode option, prohibited for users from setting by themselves.

⚠ Caution

If this option is set due to mis-pressing or other reasons, it can be exited after turning off the power of the sterilizer and turning it on again. In this case, it has no effect on other settings.
In normal mode, please do not adjust the sterilization time arbitrarily to avoid harm to the devices. If it is really required to adjust the sterilization time, please set an appropriate value to ensure the sterilizer works stably and efficiently.

8.3 Other functions
(No)

9.Repair&Maintenance

Before maintenance, it is necessary to turn off the power switch, unplug the power cord, and carry out under sufficient light conditions.

9.1 Watcr Tank Cleaning
9.1.1 Please clean the sterilizer water tank and wastewater tank regularly. The process is following:
1) Drain the water from the storage tank. See Figure 9-2 for the drainage method, insert the drain pipe to the drain connector shown in the circle, turn it counterclockwise to open the drain connector, and empty the water tank.
2) Open the tank cover board, you can use screw driver to loosen the four screws just as fig9-1 indication。
3) Gently pull the water tank cover to lift the entire water tank cover. After picking up, quickly hold the water tank cover with one hand and pull the water tank cover upwards to remove the water tank cover.
4) In this way, you can start to clean the water tank, regularly wipe the inner wall of the water tank with a lint-free cotton cloth dipped in alcohol every week, then rinse with clean water, then empty the water tank through the drain port, wipe the water tank dry, and then pull out the water storage tank Clean the filter inside (please replace it in time if it is clogged for a long time or the mesh surface is damaged), please be sure to insert the filter back into the original place after cleaning.
5) After cleaning the water tank, put back the water tank cover and screw on the screws.



figure 9-1



figure 9-2

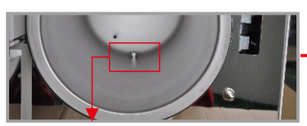
The frequency and content of equipment cleaning and maintenance are as follows:

No.	Part name	Maintenance cycle	Maintenance requirements	Remark
1	Sterilizer	Once a day	Keep it clean and free of dirt	
2	Drain filter	Once a week	Keep it clean and free of dirt	
3	Water tank	Once a week	Keep it clean and free of dirt	
4	Door sealing ring	Once a week	Keep it clean and free of dirt	
5	Tank filter	Once a week	Keep it clean and free of dirt	
6	Instrument tray holder	Once a month	Keep it clean and free of dirt	

The above maintenance cycle table should be flexibly adjusted according to the user's use of the product, so as to ensure that the product has excellent performance during use and better meet your needs.

9.2 Cleaning Chamber Water Filter

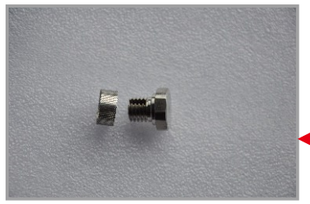
After the machine used for a while, there may be some tiny impurity blocking the chamber water filter, which will affect sterilizer performance. To prolong the lifetime of chamber water filter, back-out the water filter, take out the filter net, and clean it by soft brush every month.



1.Chamber water filter



2.Back-out the water filter



3.Take out the filter net, clean it by soft brush or replace a new one.

⚠ Caution

*Use only distilled water for sterilizing and cleaning.
*The instruments being sterilized must be cleaned. Instruments with oil or impurities must be packed in a sterilization bag.

9.3 Fuse replacement (as shown in Figure 9-5)



Figure 9-3

(1)Cut off power supply;
(2)Use a flat-blade screwdriver to turn the fuse holder counterclockwise;
(3)After unscrewing the core holder, pull out by hand;
(4)Pull out the fuse and replace it. When replacing, be sure to check whether the parameters of the new fuse are consistent with the original specifications;
(5)After replacing the fuse core, insert the fuse core holder back into the fuse holder. When inserting, pay attention to align the guide groove of the fuse holder and insert it gently;
(6)Push the fuse holder inwards, and then turn it clockwise slightly until the fuse holder is stuck and does not spring back.

9.4 Clean the sealing ring regularly

After the sterilizer has been used for a period of time, scale and impurities may remain on the sealing surface of the sterilizer, which will affect the sealing performance of the sterilizer. You need to clean the sealing surface of the sterilizer regularly, use a burr-free cloth dipped in distilled water, and gently wipe the sealing surface of the sealing ring and sealing cover. (As shown in Figures 9-6 and 9-7) If there is still air leakage after the business bundle, you need to remove the sealing ring and clean the sealing ring. If the sealing ring is damaged, it must be replaced. If the sterilizer has run 2000 cycles, it is recommended that the user replace the seal.

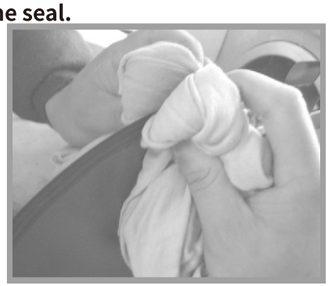


Figure 9-4



Figure 9-5

9.5 Steam generator cleaning function

1) Purpose: To clarify the steam generator and the steam generation pipeline, to prevent the scale from clogging the pipeline;
2) Description: 20min cleaning + 10min drying
3) Effect: It can clear the scale of the steam generator and discharge it to the waste water tank by means of vacuuming;
4) Operation: In the standby state, press the "MENU/C" key, and then press "DRY" to select the steam generator cleaning program, as shown in Figure 9-6. Close the door and press the START key to start the wash cycle. After the clear end, it will resume the standby state, and there will be 3 beeps.
5) Cleaning reminder function: After each cleaning, use the normal cycle more than 100 times to remind the user to clean the steam generator on time.
6) Please keep the steam generator cleaned regularly to prolong the life of the steam generator.
7) It is recommended to place a wet towel on the bottom of the pot before performing the steam generator cleaning procedure to prevent excessive impurities from being adsorbed on the drain filter, thereby affecting the pre-vacuum and drying effect.

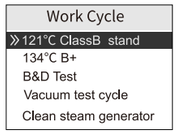
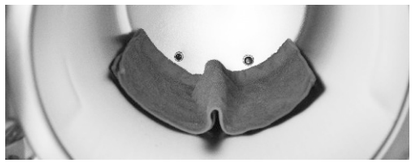


figure 9-6

As shown below



Reminder: The cleaning prompt function does not affect the normal use of the sterilizer, it is only a prompt message. If the machine has not been used for a long time, it is normal for white powder to appear in the pot when it is reused. Please start the steam generator cleaning program to clean the steam generator to remove scale.

9.6 Safety valve check:

To prevent the safety valve from being blocked, let the steam pressure release through it once a month under normal use.
1. Run the sterilization program;
2. When the pressure in the sterilizer reaches 100KPa, pull the pull ring on the safety valve to keep it open for about 2 minutes. If steam is ejected, it means that the safety method is working properly

Notice:
After pulling the pull ring on the safety valve, steam will be ejected. When pulling the pull ring, it is best to use a screwdriver and other tools. Do not use your fingers to pull it directly. The operator should also stay away from it as much as possible to prevent burns.

10. Transportation & Storage

Prepare for shipping and storage: Turn off the power switch, unplug and allow the container to cool down.

10.1 This sterilizer should be transported and stored under the following conditions:
Ambient temperature: -40°C~+55°C
Relative humidity: ≤85%
Atmospheric pressure: 50Kpa~106Kpa

When the equipment needs to be transported, put a buffer pad into the packing box to avoid damage to the equipment. After packing, the goods should be stored in a dry, ventilated and non-corrosive gas indoor or sheltered place for a long time without timing.
The net weight of the equipment is 35kg, and more than two people are required to carry it. The outer packaging of the equipment can be reused by customers.

11.Warranty

⚠ Caution

The sterilizer shall not be dragged during moving

12.Accessories

Accessories are shown in Figure 12-1

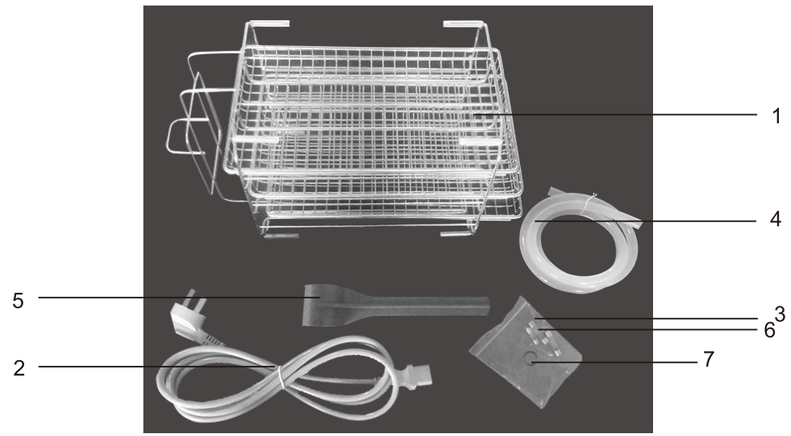


figure 12-1

1.Instrument tray rack, instrument tray (2 pieces) ·····1 set
2.Power cable····· 1 Piece
3.Motherboard Fuse(F3AL 250V)····· 1 Piece
4.Drain pipe····· 2 Pieces
5.Instrument tray holder·····1 Piece
6.Fuse(F12AL 250V)····· 2 Pieces
7.Wire Clamp·····2 Pieces

Note: Due to continuous research and improvement, this product has the right to change without prior notice. Please understand.

⚠ Caution

Note: Due to continuous research and improvement, this product has the right to change without prior notice. Please understand.

13.Appendix

Appendix 1 Work Mode Form

Program type	Sterilization temperature /pressure	Warm-up time (min)	Vacuum times	Drying time (min)	Total time (min)
134℃ Class S fast	134℃/210Kpa	1	1	1	10
134℃ Class S standard	134℃/210Kpa	1	1	5	15
134℃ Class B fast	134℃/210Kpa	1	3	1	15
134℃ Class B standard	134℃/210Kpa	1	3	10	25
134℃ B+ Cydle	134℃/210Kpa	1	3	10	34
121℃ Class S fast	121℃/110Kpa	1	1	1	25
121℃ Class S standard	121℃/110Kpa	1	1	5	30
121℃ Class B fast	121℃/110Kpa	1	3	1	26
121℃ Class B standard	121℃/110Kpa	1	3	10	37
liquid program	121℃/110Kpa	1	/	/	40
B&D Test	134℃/210Kpa	1	3	1	12
Vacuum test	**Vacuum + Equilibration: 6min Test: 10min**			/	16
steam generator clear program	**Cleaning Time: 20min**			10	30

Note: The above warm-up time is obtained when the equipment is warmed up. The equipment preheating method is: select any program before running (press the OK key) without starting, and preheat the equipment first (please preheat the equipment before running)

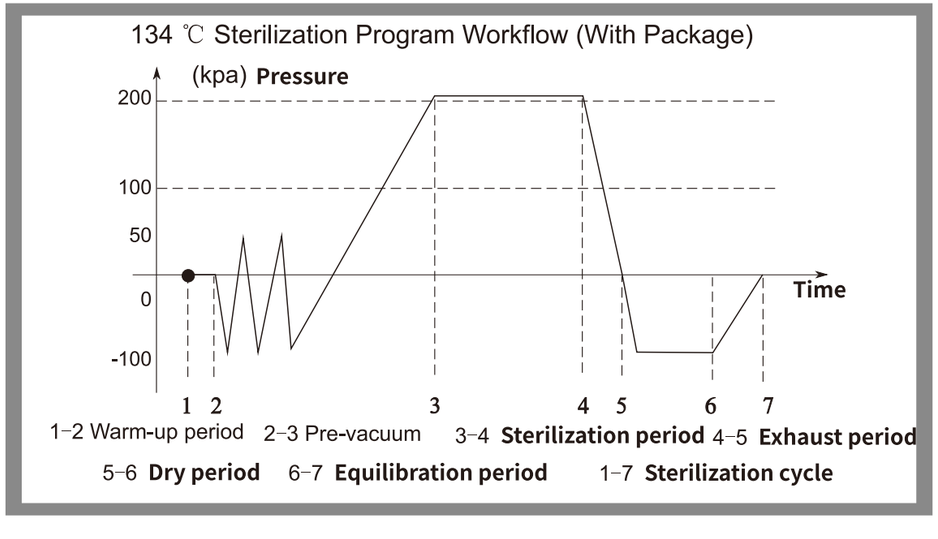
Appendix 1-1: Error Code(In case of failure, please contact the dealer or manufacturer in time)

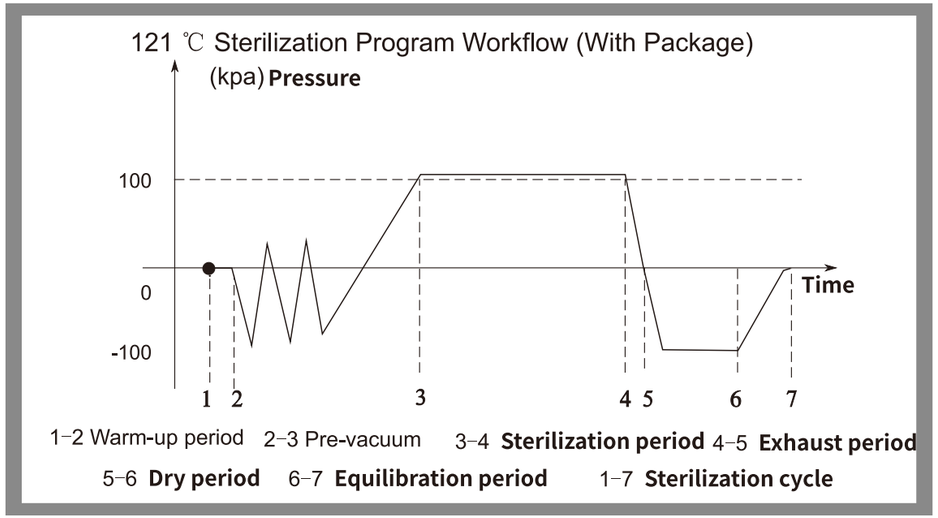
Error Code	Error Type	Cause	Solution
E00	Quit midway	Manually opt out during operation	Reselect the program to run
E10	Pressure sensor failure	Detected abnormal pressure in the sterilization chamber, ⩾300KPa	Check pressure sensor or motherboard
E11	Internal temperature sensor failure	Detected abnormal temperature in the sterilization chamber, ⩾200℃	Check the temperature sensor in the sterilization chamber or motherboard
E12	Steam generator sensor failure	Detected abnormal temperature of steam generator, ⩾250℃	Check steam generator temperature sensor or motherboard
E13	Pot sensor failure	Detected abnormal temperature of Pot, ⩾200℃	Check the pot body temperature sensor or motherboard
E41	Constant temperature and pressure failure	During the sterilization process, the temperature exceeds the sterilization temperature by 4°C	Check the temperature sensor or motherboard, or if the lines are blocked
E42	Constant temperature and pressure failure	The temperature during the sterilization process is lower than the sterilization temperature	Check the temperature sensor or motherboard, or the door seal, solenoid valve and other places for air leakage
E02	Overpressure in the pot	The pressure in the sterilization chamber exceeds the preset value	Check the pressure sensor or main board, or whether the exhaust valve, drain valve and related pipelines are blocked
E03	Overheating inside the pot	The temperature of the pot exceeds the preset value	Check the pot temperature sensor or motherboard
E05	Exhaust failure	The pressure discharge rate in the sterilization chamber is lower than the preset value	Check whether the exhaust valve, drain valve and related pipelines are blocked
E06	Door failure	door switch released	Check whether the door switch, door switch wire or door body is properly adjusted
E07	Steam generator overtemperature	Steam generator temperature exceeds 210°C	Check temperature sensor or motherboard, water inlet valve and water pump
E08	Overtime heating	Sterilization preheat time exceeds preset value	Check whether the temperature sensor, motherboard, temperature protector and connecting wires are disconnected
E91	First vacuum failure	When vacuuming for the first time, the vacuum degree in the sterilization chamber cannot be pumped to the preset value within the specified time.	Check whether the vacuum pump, main board, 2/2-way valve, drain valve, steam exhaust valve, and filter in the sterilization room are blocked
E92	Second vacuum failure	When vacuuming for the second time, the vacuum degree in the sterilization chamber cannot be pumped to the preset value within the specified time.	Check whether the vacuum pump, main board, 2/2-way valve, drain valve, steam exhaust valve, and filter in the sterilization room are blocked
E93	Third vacuum failure	When vacuuming for the third time, the vacuum degree i in the sterilization chamber cannot be pumped to the preset value within the specified time.	Check whether the vacuum pump, main board, 2/2-way valve, drain valve, steam exhaust valve, and filter in the sterilization room are blocked

Error Code	Error Type	Cause	Solution
E94	LEAK procedure vacuum failed	The vacuum level in the sterilization chamber cannot be pumped to the preset value within the specified time	Check whether the vacuum pump, main board, 2/2-way valve, drain valve, steam exhaust valve, and filter in the sterilization room are blocked
E95	First Boost Timeout	During the first pressurization, the pressure cannot reach 100KPa within 30 minutes	Check whether the water pump, water inlet valve, steam generator, water inlet pipeline or water tank is short of water
E96	Second Boost Timeout	During the second pressurization, the pressure cannot reach 100KPa within 30 minutes	Check whether the water pump, water inlet valve, steam generator, water inlet pipeline or water tank is short of water
E97	Third Boost Timeout	During the third pressurization, the pressure cannot reach the sterilization pressure within 30 minutes	Check whether the water pump, water inlet valve, steam generator, water inlet pipeline or water tank is short of water
A01	Water quality alarm	The water quality of the storage tank is unqualified	Please use distilled water, if the fault persists, please check the motherboard
A02	Water tank shortage	Water tank shortage	Please add water, if the fault persists, please check the water level switch or the motherboard
A03	Waste water tank is full	Waste water tank is full	Drain the waste water, if the fault persists, please check the water level switch or the motherboard

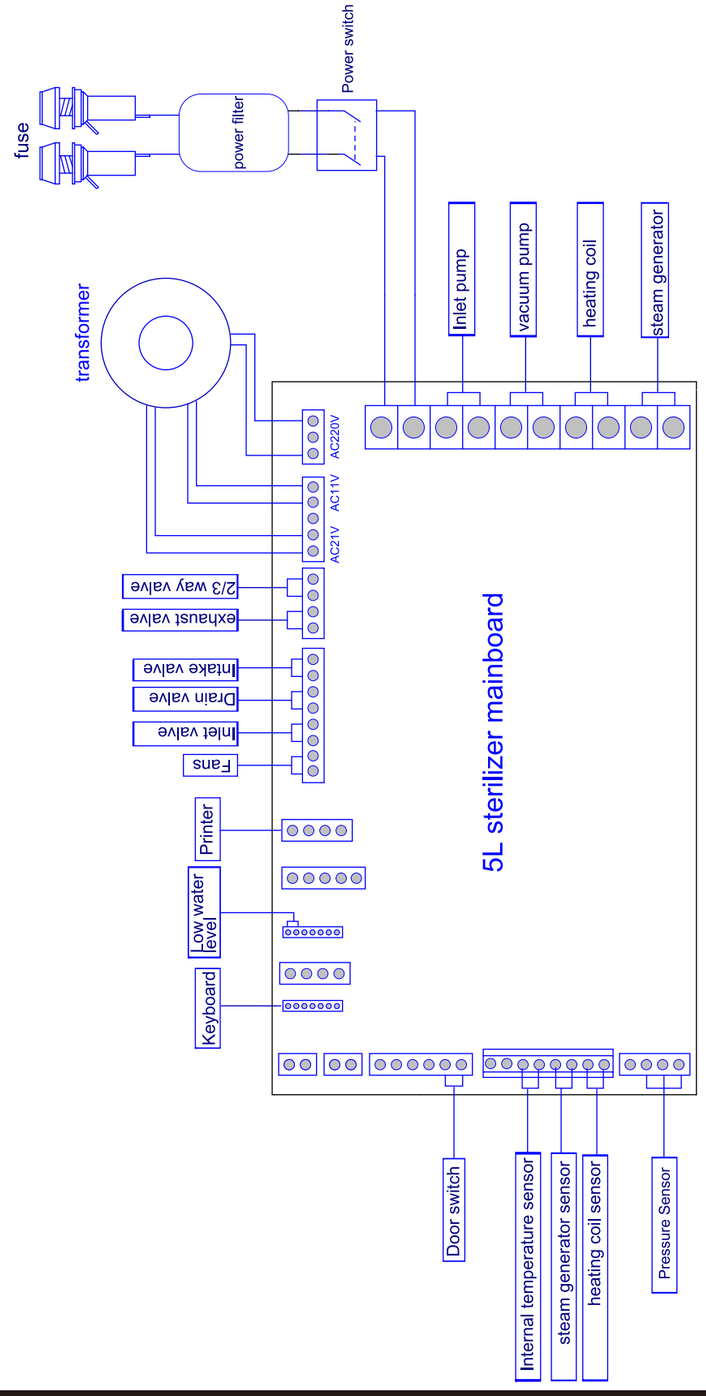
If other faults occur, please contact the after-sales maintenance personnel or dealers in time, do not disassemble and assemble by yourself, our company will provide you with maintenance services by professional technicians. A corresponding maintenance record shall be registered for each maintenance.

Appendix 2 Working Diagram

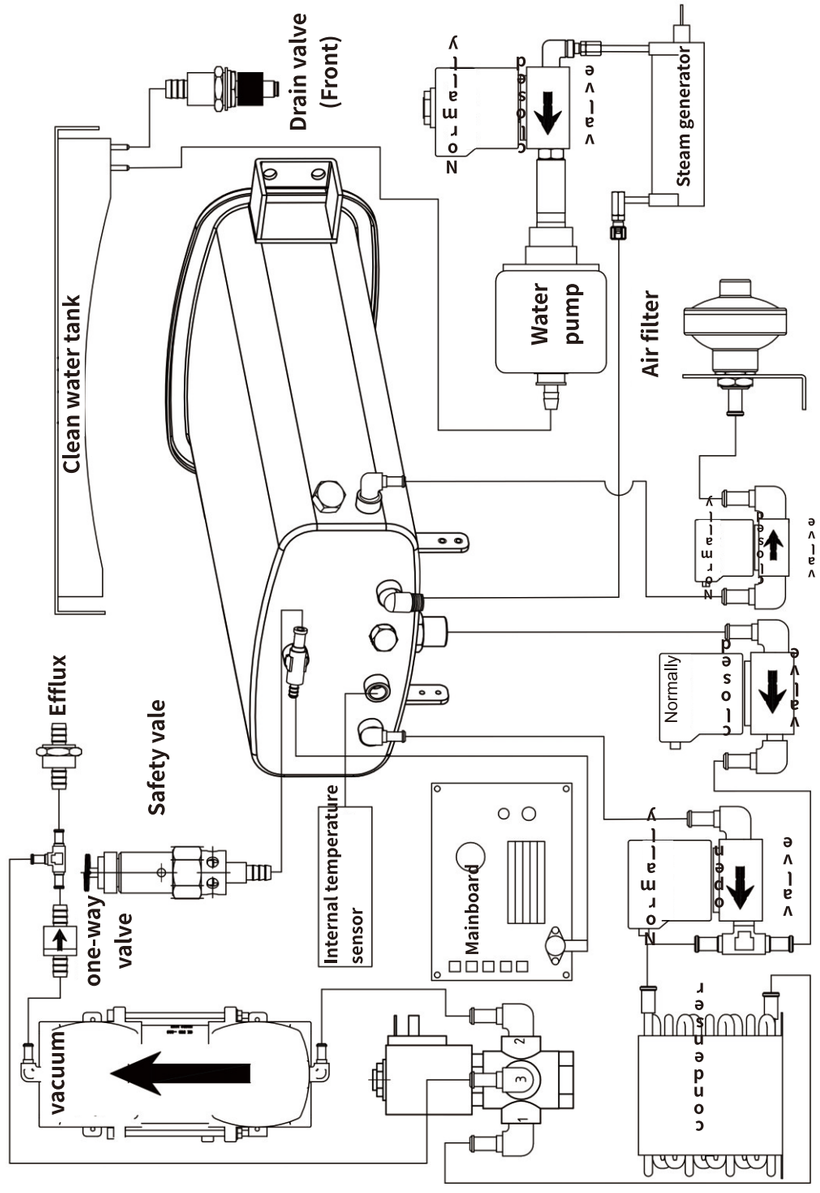




Appendix 3 Circuit Diagram



Appendix 4 Piping Diagram



14. Precautions

1.The sterilizer should be placed on a level table (by adjusting the working height);

2.Be sure to use distilled water to prolong the service life of the sterilizer;

3.The heat dissipation port of the sterilizer shell should not be blocked by foreign objects;

4.The sterilized instruments should be placed in the instrument tray, and there should be a gap between the instruments, so that the air in the sterilization room can be unblocked;

5.The water tank should be emptied and cleaned frequently;

6.During working, the door handle must be fastened;

7.Do not open the door of the sterilizer when the pressure indicator does not show "0 ";

8.All kinds of maintenance and maintenance must first cut off the power supply, and then operate after sufficient cooling;

9.The sterilizer shall not be dragged during the moving process;

10.Must be grounded reliably;

11.Must have adequate power supply;

12.**When the external temperature is low, select any program when starting the machine, and the preheating function can be turned on (it is recommended to perform lateral operation before sterilization every day to shorten the sterilization time of the equipment);**

13.During normal use, please do not directly turn off the power to force quit. If you need to force quit, you should keep pressing the "START/STOP" button for 3 seconds, and the quit program will run automatically;

14.The pictures in this manual are for reference only, and the actual product shall prevail;

15.If the alarm occurs for the first time, it is normal; if the alarm occurs again, please contact the local dealer or us;

16.The product has no contraindications;

17.Please do not operate this device unsupervised.

15. Electromagnetic Compatibility

EMC declaration for the product

1. Immunity requirements: Should comply with GB18268, 1-2010

Port	Item	Basic Standard	Test Value	Performance Judgment
Outer Shell	Electrostatic Discharge (ESD)	GB/T 17626.2	**Contact discharge 4kV;** Air discharge 4kV	B
	RF electromagnetic fields	GB/T 17626.3	3V/m(80MHz -1GHz) 3V/m(1.4GHz -2GHz) 1V/m(2.0GHz -2.7GHz)	A
AC power supply (including protective ground wire)	voltage Sag	GB/T 17626.11	0% **Half Circle**	B
			0%1 **Circle**	B
			70%25[e] **Circle**	C
	Short Interruption	GB/T 17626.11	0%25[e] **Circle**	C
	Burst	GB/T 17626.4	1kV(5/50 ns,5kHz)	B
	Surge	GB/T 17626.5	0.5kV[a]/1kV[b]	B
	Conducted disturbances induced by radio frequency fields	GB/T 17626.6	3V(150kHz -80MHz)	A
DC power supply (including protective ground wire)	Burst	GB/T 17626.4	1kV(5/50 ns,5kHz)	**Not applicable**
	Surge	GB/T 17626.5	0.5kV[a]/1kV[b]	**Not applicable**
	Conducted disturbances induced by radio frequency fields	GB/T 17626.6	3V(150kHz -80MHz)	**Not applicable**
I/O signal/ control (including connection to functional ground port)	Burst	GB/T 17626.4	0.5kV[d](5/50 ns,5kHz)	**Not applicable**
	Surge	GB/T 17626.5	1kV[b,c]	**Not applicable**
	Conducted disturbances induced by radio frequency fields	GB/T 17626.6	3V[d](150kHz -80MHz)	**Not applicable**
	Burst	GB/T 17626.4	1kV(5/50 ns,5kHz)	**Not applicable**
	Surge	GB/T 17626.5	0.5kV[a]/1kV[b]	**Not applicable**
	Conducted disturbances induced by radio frequency fields	GB/T 17626.6	3V(150kHz -80MHz)	**Not applicable**

a. Line to line;
b. Line to ground;
c. Applies only in the case of long-distance lines (see 3.6);
d.Only applicable to the case where the line length exceeds 3m;
e."25/30" indicates 25 circles are applicable to rated frequency of 50Hz, 30 cycles are applied to tests with a nominal frequency of 60 Hz.

2. Radiation Requirements: Should comply with GB18268, 1-2010

Radiation Test	Compliance
Radiation Test GB 4824	**1 Group**
RF Emission GB 4824	**B Type**
Harmonic Radiation GB 17625.1	A Type
Voltage Fluctuating Flickering Emission GB 17625.2	**Standards compliant**