GETIDY®

CE 1128 CE 0197

CLASS B and S English

Steam Sterilizer Instruction Manual

MODEL: JQ-A-18/23 JQ-18/23 JY-A-18/23 JY-12/16/18/23 SJY-8

ZHEJIANG GETIDY MEDICAL INSTRUMENT CO.,LTD.

Contents

Contents

To buyers:

Thank you very much for your choice of using our Desktop Pressure steam sterilizer!
Before you use steam sterilizer,please fill in “User Report” firstly. Had it,we can check your using file promptly,so we can service you more quickly and effective!

User Report

Products Name:	KD Series of Desktop Pressure Steam Sterilizer
Item No:	
Series No:	

User Notice

1、Please read the instruction manual carefully especially the safety and operation indication before your operation. The manual will help you to know all functions of the machine.
2、Follow the instruction manual strictly while operating, be sure to use and maintain it properly.
3、Please keep the manual safely for future use.
4、Please contact us or our agent in case of any possible problems while using, we will offer you help and excellent service.

Manual Guide

There is one book named Instruction Manual after wrapping the products, it introduce all the specification about technical data and operations instruction.
Please pay much attention to the following symbols in this manual which indicating some important information.

Warning: Ignoring warning and wrong operation will lead to some serious injury or death; please do pay much attention to warning for your security.

Attention: Ignoring attention and wrong operation will lead to destroy of machine or personal damage, please pay much attention to the attention for your security.

Important: It means some operation are prohibited, Ignoring attention and wrong operation will make the machine destroyed or influence the machine quality. In order to proper use the machine; be sure to avoid such wrong operation.

Warning, attention and some other importance

Signal	Description	Signal	Description
	High temperature, avoid scalding		Warning, attention and some other importance
	High pressure valve encounter danger to discharge steam		Earthing protection
	Must add distiller water, or will lead obstructions		Waiting power switch

Device class:according directive 93/42/EEC Annex II,excluding section 4.the device is II class B.

Security Notice

In order to proper use the sterilizer, please be sure to read the warning and attention carefully for safety.

Warning: Ignoring the security notices will lead to electrode shock, fire or sterilizer damage.

1、Please use the absolute earth-protection three-hole 220VAC/10A Power supply plug, be sure that the side of earthing protection has been contacted safely.

2、Be sure to completely insert the power supply plug in the electrical jack, Do not use other voltage except the rated one.

3、Do not plug in or out the jack if your hand is wet.

4、Do not destroy, change, drag, bend or control the power cord, please do not place anything heavy on the cord.

5、Do not place sterilizer on the unsteady worktable, such as wobbling table or chair or bevel.

6、Do not jam or cover the sterilizer's lid, intake or radiator.

7、Do not put anything on sterilizer.

8、Please cut off the power supply immediately if you find peculiar smell and abnormal noise during operation(except the noise produced by water pump),then contact the seller or after service.

9、Please turn off the power if you won't use the sterilizer for a long time.

HOW TO OBTAIN A NEW COPY OF THE MANUAL

If the manual is lost or destroyed,ask our company for a new copy.
Provide the following information:

- name and model of the unit;
- name and address where the manual should be sent.

Send your request to the following address:

SAFETY DEVICES

Electrical safety

Description	Effect
Double-pole thermal safety switch for protecting the device against short-circuits.	Disconnects main electrical power supply.
Protection of the electronic board against short-circuits: both the transformer and the entire low- voltage circuit are self-protected.	Disconnects one or more low-voltage circuits.

Thermal protection

Description	Effect
The electronic board, the vacuum pump and the vibration pump are all protected by a thermostat.	Temporary cut-off to permit cooling.
Thermal protection of the unit: the device is blocked if made to work under conditions that do not fall within the ambient temperature range.	Alarm message and use of the machine is prevented due to unsuitable environmental parameters.
Resettable safety thermostat, complying with PED 97/23/CE standards, for protecting the steam generator from over-heating	Disconnection of power supply to the steam generator.
Resettable safety thermostat, for protecting the heating resistance of the chamber	Disconnection of power supply to the resistances.
Safety valve, complying with the PED 97/23/CE standards, for protecting the unit from over-pressure.	Discharge of steam and re-balancing of pressure to safety values.

Mechanical safety devices

Description	Effect
Door safety micro-switch: ensures that the door closes correctly.	Message indicating wrong door position.
Door lock micro-switch: shows the correct position of the locking system.	Indication that the door is not locked.
Door lock: electro-mechanical device that prevents the door from being opened accidentally.	Prevents the door from being opened while the unit is in operation.
Extractor tool. Used to avoid touching the inner parts of the unit. 	Prevents burns while removing the trays containing the sterilized instruments.

Control devices

Description	Effect
Pressure levelling: restores the system to its normal pressure values, in the event of manual stops or alarms and/or arnings during the cycle.	Automatic pressure re-balancing inside the sterilization chamber.
System for evaluating process parameters, managed entirely by the microprocessor.	In the event of faults during the cycle, the program in progress is stopped immediately and alarms are generated.
Constant monitoring of the device: the components of the autoclave are constantly monitored during operation.	Generation of alarm messages and/or warnings in the event of faults.

1、Summary &Suitable using range

KD series of Desktop Pressure Steam Sterilizer applies for dental clinic laboratory, operation room, emergency room, ophthalmology, gynecology and steam, cosmetic hospital and so on, which are used especially by doctors and professionals. This equipment is automatically controlled by computer, it has fine workmanship, simply operation,and safety system. This equipment is excellent, economic, space-saving, large capacity, high frequency and safety.The situation and specification is directly displayed by LCD screen or LED display. The equipment has following advantages: Automatic system of checking and repair, automatic system of protecting exceed temperature and pressure, insure the sterilizer's steadiness. No used steam discharging with an installed used water collecting tank, it is clean and safe.

KD series of Desktop Pressure Steam Sterilizer adopts pulse pre-vacuum(3 times or 1 times decided by user), which makes the heated steam deeply reaches every corner of the objects, make sterilizer completely. It is suitable for the sterilizing whether solid or hollow instrument in medical treatment institution, dressing, injector and other heat-resistant or moist-resistant medical instrument and articles.

2、Technical parameter

JQ-A-18 AND JQ-A-23

JY-A-18 AND JY-A-23

JQ-18 AND JQ-23

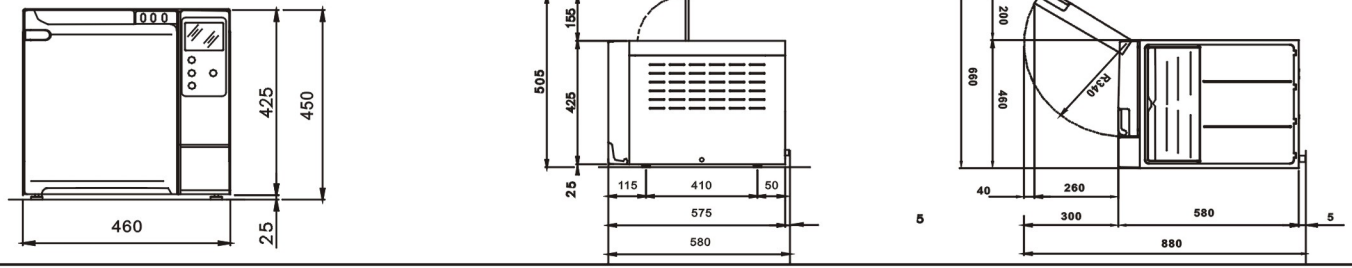
JY-18 AND JY-23

JY-12 AND JY-16

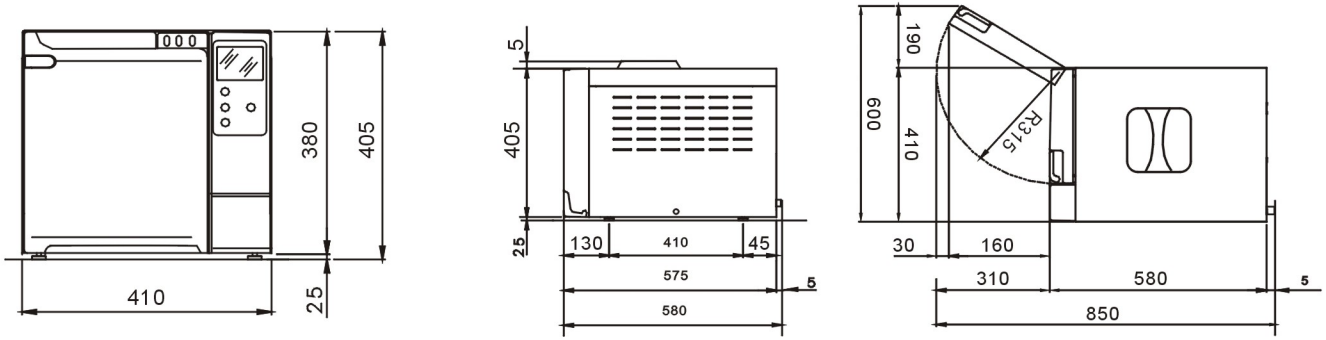
SJY-8

Model	JQ-A-23	JQ-A-18	JQ-23	JQ-18	JY-A-23	JY-A-18	JY-23	JY-18	JY-16	JY-12	SJY-8
Class	B and S	B and S	B and S	B and S	B and S	B and S	B and S	B and S	B and S	B and S	B and S
Power supply voltage	230±10%	230±10%	230±10%	230±10%	230±10%	230±10%	230±10%	230±10%	230±10%	230±10%	230±10%
Mains frequency	50~60Hz	50~60Hz	50~60Hz	50~60Hz	50~60Hz	50~60Hz	50~60Hz	50~60Hz	50~60Hz	50~60Hz	50~60Hz
Power output	1600W	1600W	1600W	1600W	1600W	1600W	1600W	1600W	1600W	1600W	1600W
Chamber	23L	18L	23L	18L	23L	18L	23L	18L	16L	12L	8L
Diameter X Depth	ϕ 250X450	ϕ 250X355	ϕ 250X450	ϕ 250X355	ϕ 250X450	ϕ 250X355	ϕ 250X450	ϕ 250X355	ϕ 230X360	ϕ 200X368	ϕ 170X320
Absorbed current	10A	10A	10A	10A	10A	10A	10A	10A	10A	10A	10A
Sterilization cycles	6	6	12	12	5	5	4	4	4	4	4
Test cycles	Vacuum Test	Vacuum Test	Vacuum Test	Vacuum Test	Vacuum Test	Vacuum Test	Vacuum Test	Vacuum Test	Vacuum Test	Vacuum Test	Vacuum Test
	B&D Test	B&D Test	B&D Test	B&D Test	B&D Test	B&D Test	B&D Test	B&D Test	B&D Test	B&D Test	B&D Test
	Heliex Test	Heliex Test	Heliex Test	Heliex Test	Heliex Test	Heliex Test	Heliex Test	Heliex Test	Heliex Test	Heliex Test	Heliex Test
Capacity of Clean-water tank	4.0L	4.0L	4.0L	4.0L	4.0L	4.0L	4.0L	4.0L	4.0L	4.0L	3.5L
Capacity of Used-water tank	3.5L	3.5L	3.5L	3.5L	3.5L	3.5L	3.5L	3.5L	3.5L	3.5L	2.5L
Net weight	50Kg	47Kg	50Kg	47Kg	50Kg	47Kg	50Kg	47Kg	45Kg	43Kg	37Kg
Packing Size(LxWxH)	670x570x530	670x570x530	670x570x530	670x570x530	670x570x530	670x570x530	670x570x530	670x570x530	670x515x485	670x515x485	560x490x460

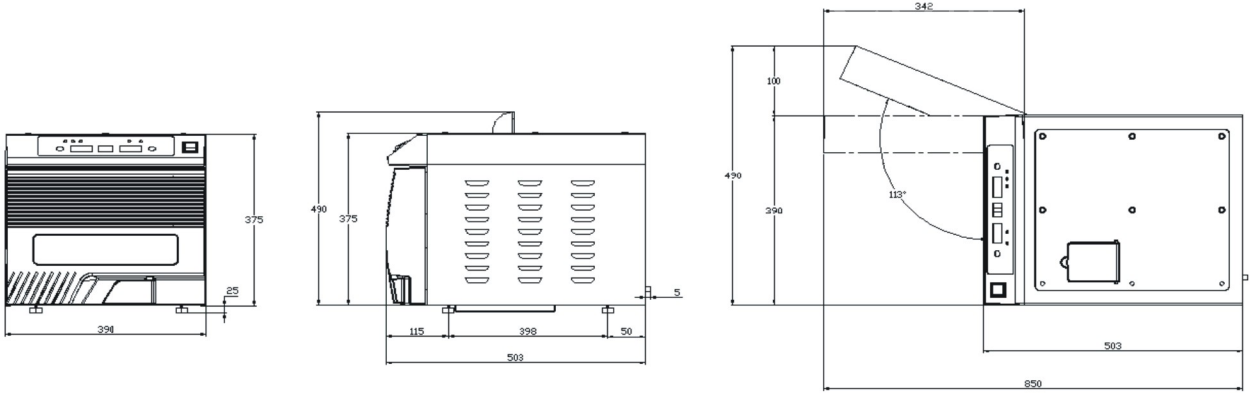
JQ-A-18/23 JQ-18/23 JY-A-18/23 JY-18/23 steam sterilizer overall space required



JY-12/16steam sterilizer overall space required

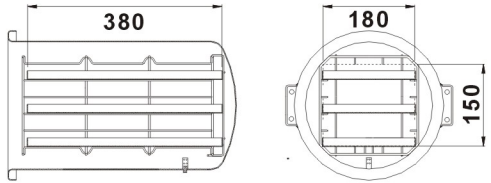


SJY-8 steam sterilizer overall space required

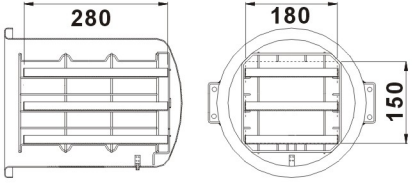


Usable Space:

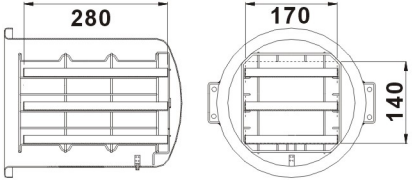
Usable space 23 litres=10.60litres



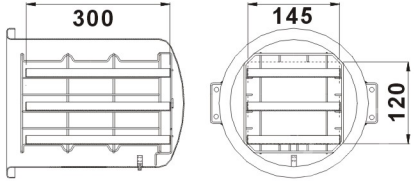
Usable space 18 litres=7.85litres



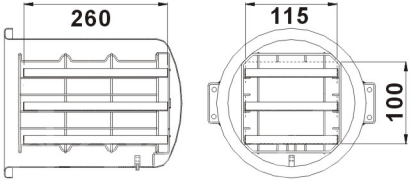
Usable space 16 litres=6.66litres



Usable space 12 litres=5.22litres



Usable space 8 litres=3.00 litres



2.1 Rating plate

The rating plate**(Fig 2.1-1)** lists the main data and characteristics of the unit, the information required to identify it when ordering spare parts and/or when requesting information.

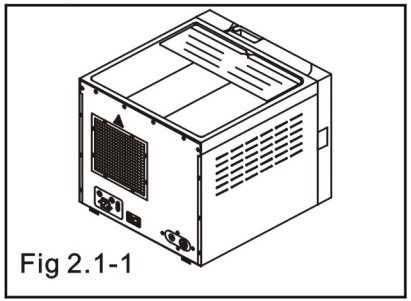
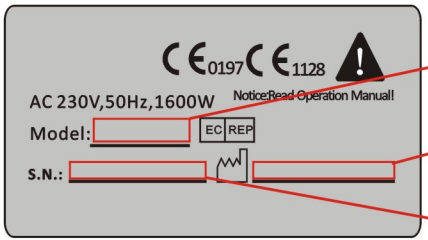


Fig 2.1-1



Model:JQ-A-23 JQ-A-18
JQ-23 JQ-18 JY-A-23 JY-A-18
JY-23 JY-18 JY-16 JY-12 SJY-8

Date of Manufacture

Serial Number

The label of the unit contains symbols the meaning of which is shown below.

Symbol	Description
SN	**"SERIAL NUMBER"** The symbol must be accompanied by the manufacturer's serial number.The serial number must be adjacent to the symbol.
	**"PRODUCTION DATE** The symbol must be accompanied by the year. The year must be composed of 4 digits.
	**"WARNING, READ THE INSTRUCTIONS MANUAL"**

2.2 Noise level

The unit has been designed and built to reduce noise to less than 50 dB(A).

2.3 EXTERNAL PRINTER

The unit is set in such a way that the data regarding the sterilization cycle in progress is always printed, as well as the type of cycle selected, the phase of the cycle, the temperature and pressure values, and the split and total work times in minutes. When each cycle is completed, the printer also produces a summary report of the result of the cycle and the total time taken, regardless of whether the cycle was successful or not and regardless of whether it was stopped manually or an alarm was generated. The function of printing the summary report can be excluded if desired.

--The printer only works if paper is inserted.
--If no roll of paper is inserted, the printer does not work.
--The red POW LED is always on while the printer is working.
--The green SEL LED flash indicates a problem, e.g.: the paper has finished, the cover is incorrectly closed, etc..
--Press the OPEN button open the cover, feeds the paper.
--Press the LF button the paper out automatically,press again stop.

External printer

Use rolls of thermal printer paper with the following characteristics:
width: 55 - 56 mm
maximum diameter: 40 mm .

Do not expose thermal printer paper, both before and after use, to direct sunlight, heat or humidity.
Avoid direct contact with materials in polyvinyl, as well as solvents and various derivatives (filing envelopes in PVC, acrylics and paper treated with ammonia vapours).

Rolls should be kept in a dry place with humidity of no more than 70% and direct temperature lower than 35° centigrade.

3.Installation

3.1 WORK ENVIRONMENT: POSITIONING

The unit is packed as follows: covered with a hood in polyethylene with blisters, protected by totally recyclable mouldings in foamed polyethylene, and placed inside a corrugated cardboard box, certified for transportation by sea.

Lift the unit with care and do not turn it upside down.

The packaging and the equipment are fragile, handle with care. Transport as fragile. THE HANDLES ON THE PACKAGING (1 of Fig. 3.1-1) MUST ONLY BE USED FOR VERTICAL LIFTING. Keep in a dry and protected place. **The packaging must be kept for the whole guarantee period.**

NOTE: **keep the original packaging** and use it to transport the unit.The use of different packaging may damage the product during transport.

The unit must be removed from its packaging using the straps provided for the purpose: this operation must be carried out by **two people at the same time** (Fig.3.1-2):
--Remove the upper protecting piece(s);
--Two people must then lift the unit out, keeping it in a horizontal position all the time;
--Place the unit on the work surface and then remove the straps by lifting it up slightly.

ATTENTION: follow the indications shown in figure 3.1-2.

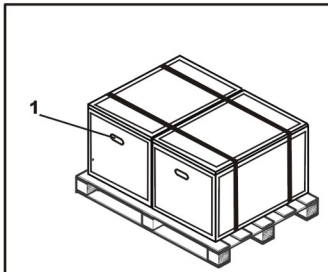


Fig. 3.1-1

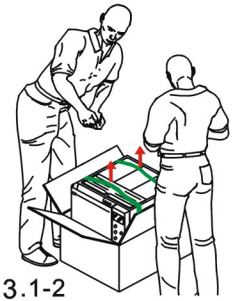
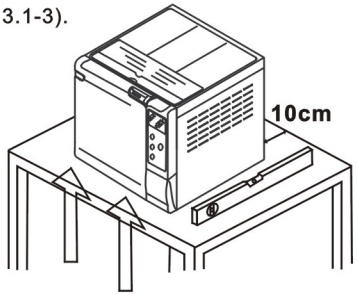


Fig. 3.1-2

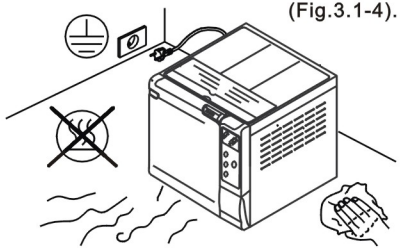
--The unit should be installed inside a laboratory, which is accessible only to authorised personnel.

--Position the unit on a flat and horizontal surface (Fig. 3.1-3).
--It is recommended to assemble the distance - screws (supplied) as described in the pictures (a , b) in order to assure the correct distance between the back wall (Fig.3.1-3).
--Do not place the unit near sources of steam or where it could be splashed by water, which could damage the internal electronic circuitry.
--Do not install the unit where there is poor air circulation (Fig.3.1-4).
--Do not place the unit near sources of heat (Fig.3.1-4).
--The area where the unit is placed must be lit in accordance with standard UNI 12464-1.
--Acceptable environmental conditions:
temperature from 5 to 40°C --- max.humidity 85% without condensation ---- max.altitude 2000 m.

(Fig.3.1-3).



(Fig.3.1-4).



4、JQ-A-18 JQ-A-23 steam sterilizer operation

4.1 JQ-A-18 JQ-A-23 steam sterilizer the first installation

4.1.1.1 Sterilizer should be in good ventilation and radiation windows not be covered.

4.1.1.2 Sterilizer should be putted on horizontal working platform. And adjust the height of four feet to make them touch the platform. Or it will make noise during working.

4.1.1.3 Adjust the two front feet to make front of the sterilizer higher than the back. It will make the chamber more dryer.(Water inside chamber goes to the back).

Attention:1.Ensure that front is higher than back, because some clinic do not have horizontal working platform. 2. Four feet must touch the platform. Or it will make noise during working.

4.1.2 preparation before power on

4.1.2.1 Open the door and take out all the accessories(tray,power cable, etc.). Unpack and clean the tray rack and trays.

4.1.2.2 Connect the power cable to socket on the back of sterilizer. Please confirm the power supply must be firmly grounded before connecting the cable and power socket.

4.1.2.3 Open the flip cover and switch on the power button(will be lighted). After that, you need to press the power resume button(Fig.4.1-1)to light the screen.

4.1.2.4 Now, you will find the screen showing with Fig.4.6 and hear “DI Di” sound. It is clean water tank lacks of distilled water warning. Just open the tank cover and add distilled water but do not more than the red line.

Attention:1.LCD Screen showing Fig.4.2-7 is lack of distilled water warning. Warning will be released after adding enough distilled water.
2.Distilled water must be qualified, or it will cause the steam generator and solenoid valve block by scale.

4.1.2.5 After lacking of water warning released, please put in the instruments need sterilization, close the door and confirm the door handle is pushed in place. Select the program according to the instruments. Warning operation icons area of LCD will show the icon “▶II” (Fig.4.2-5), Click “STRAT/STOP” button to start sterilization.

Attention:1.Door handle can't be operated before sterilization finished. It will broken the head of electric lock. 2. For the electrical safety, please make sure the power supply is firmly grounded.

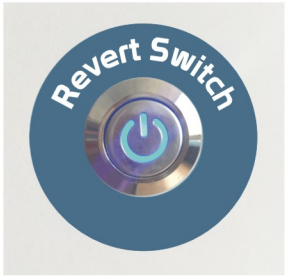


Fig.4.1-1

4.2 JQ-A-18 JQ-A-23 steam sterilizer function and operation instruction

4.2.1JQ-A series steam sterilizer contains 1-time and 3-times vacuum programs. With bigger color LCD screen for showing pressure, temperature, time, running state and error warning. Temperature precision: 0.1℃ ;Pressure precision: 0.001bar.

4.2.2 Operator interface introduction

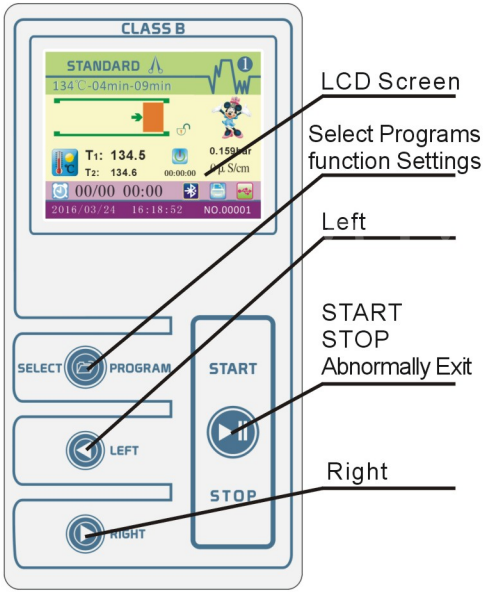


Fig. 4.2-1

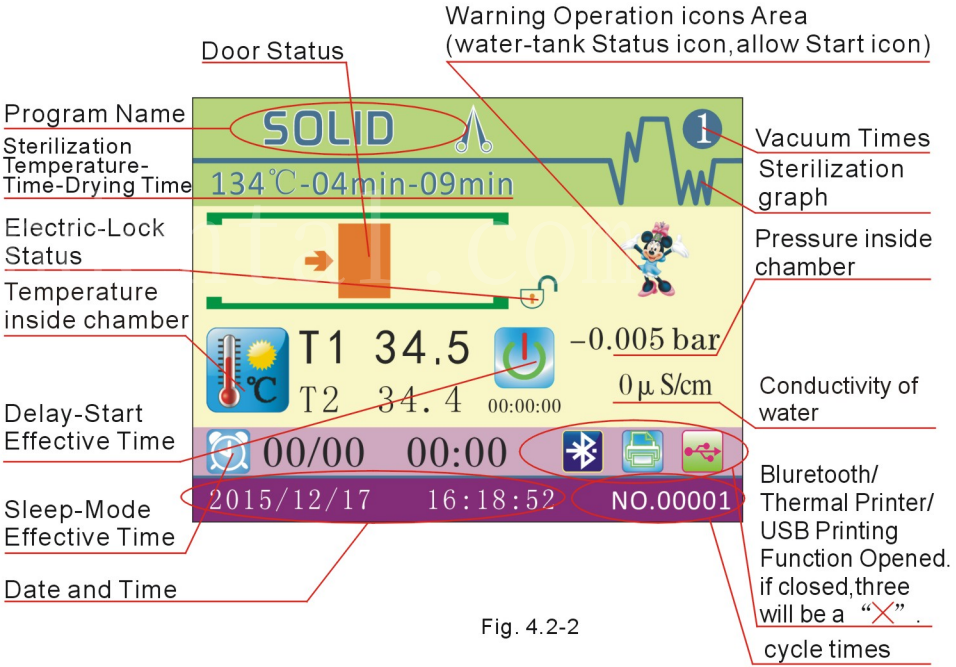
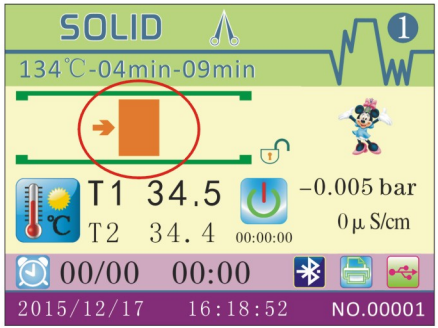


Fig. 4.2-2

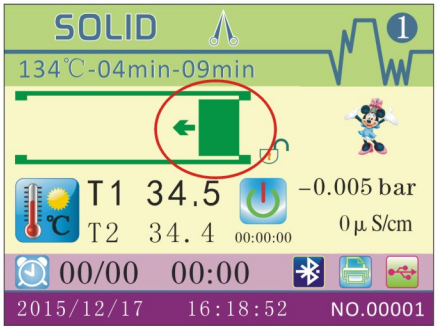
4.2.3 Warning icon introduction

4.2.3.1 Door status



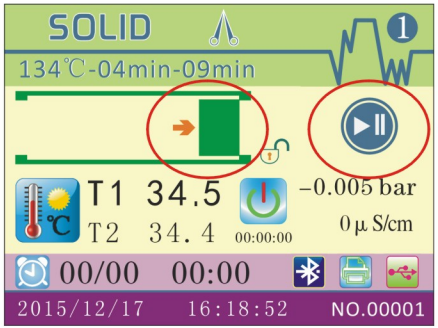
When it shows orange door/arrow and move from left to right, means "Please close the door! "

Fig. 4.2-3



When it shows green door/arrow and move from right to left , means "Please open the door! "

Fig. 4.2-4



When it shows green door/orange arrow and with "START/STOP" at right, means sterilizer is ready. Press "START/STOP" to work.

Fig. 4.2-5

4.2.3.2Water tank status

If you see this icon (Fig.4.2-6) on the screen,that means "WATER NOT QUALIFY" reminds you to empty the qualify water, and pour qualified distilled water.Generally conductivity of qualified distilled water is less than 100 μ s/cm.

If you see this icon (Fig.4.2-7) on the screen,that means " lack of distilled water". You need to add distilled water but can't more than red line.

If you see this icon (Fig.4.2-8) on the screen,that means "Used-Water tank is full!" reminds you to empty the waste water. Open the flip cover,connect the tube to drain valve and screw to drain.

Fig. 4.2-6

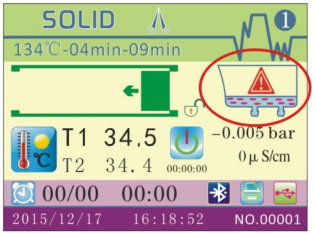


Fig. 4.2-7

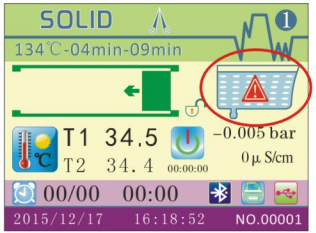


Fig. 4.2-8

4.3 Sterilization Program Menu and Setting

4.3.1 Select Sterilization Program

Click the “PROGRAM&SELECT” button twice, into the menu Fig. 4.3-1. Use “LEFT” & “RIGHT” button to turn the Fig. 4.3-1~4.3-8 and click “START /STOP” button to confirm the program need.

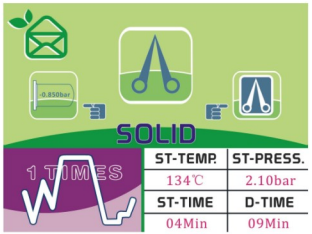


Fig. 4.3-1

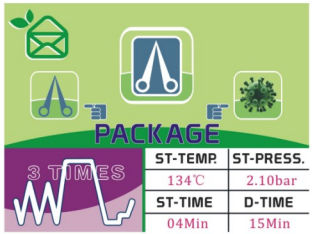


Fig. 4.3-2

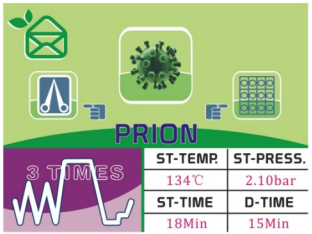


Fig. 4.3-3

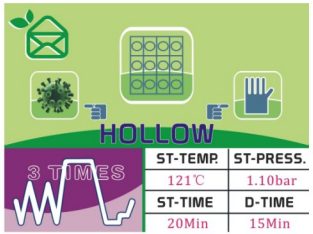


Fig. 5.4

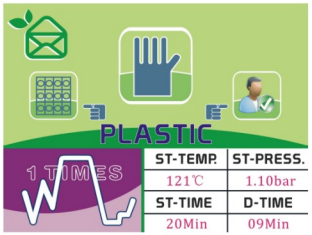


Fig. 4.3-5

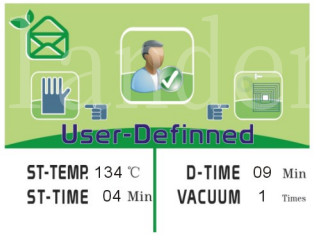


Fig. 4.3-6

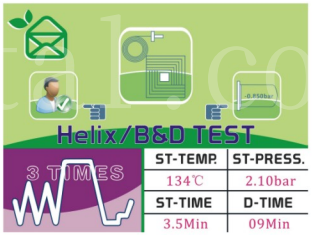


Fig. 4.3-7

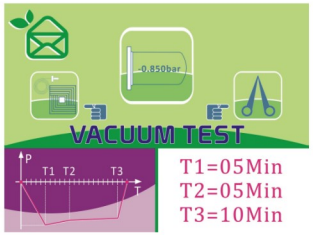


Fig. 4.3-8

4.3.2 Setting operation

Hold on pressing “PROGRAM&SELECT” button for 3 seconds into “SYSTEM SETTING” (Fig. 4.3-9).Use “LEFT” or “RIGHT” button to turn the Fig. 4.3-10~4.3-13(“PRINT RECORD” / “MAINTENANCE” / “MACHINE INFORMATION” / “SETTING RETURN”)and click “START /STOP” button into the setting page.

4.3.2.1 “SYSTEM SETTING” :Select interface Fig.4.3-9, click “START/ STOP” button into the setting page.

4.3.2.1.1 “LANGUAGE SETTING” :Change the language of interface.

Operation Steps:When the LCD screen display “SYSTEM SETTING” (Fig. 4.3-9), you click the “START / STOP” button to enter the interface “LANGUAGE SETTING” (Fig.4.3-14).Then click the “START / STOP” button into

setting page and in front of the display “▶” mark，use “PROGRAM&SELECT” button move “▶” to language you wanted.click “START / STOP” button to save and make arrow disappearand display “✓” in the rear. then click “PROGRAM&SELECT” button to exit.

Setting for:
Printer/Standard Time/Sleepmode/Delay Start/User Information/Bluetooth ID.

Fig.4.3-9

STERILIZATION Records for Display and Copy and Print.

Fig.4.3-10

Regular cleaning and maintenance for the pipeline and vulnerable parts.

Fig.4.3-11

INQUIRE the machine S.N:/Model/ Manufacturing Date/Cycle times/ Bluetooth ID.

Fig.4.3-12

Back to Set Homepage

Fig.4.3-13

Fig.4.3-14

Fig.4.3-15

Fig.4.3-16

Fig.4.3-17

Fig.4.3-18

Fig.4.3-19

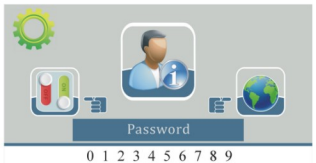


Fig.4.3-20

4.3.2.1.2 “STANDARD TIME SETTING”：Adjust time/date that showing on the machine screen.
Operation Steps:When the LCD screen display “SYSTEM SETTING”(Fig.4.3-9), you click the “START / STOP” button to enter the interface Fig.4.3-14.Then you click “RIGHT” button to the interface “STANDARD TIME SETTING” (Fig.4.3-15).then click “START/STOP” button into setting page and in front of the display “▶” mark，use “PROGRAM &SELECT” button move “▶” to item you wanted.use “LEFT” or “RIGHT” button to choose the numbers you wanted. Then click “START / STOP” to save and make arrow disappear.then click “PROGRAM&SELECT” button to exit.
“Y”：year；“M”：month；“D”：day；“H”：hour；“M”：minute；“S”：second.

4.3.2.1.3 “PRINTER SETTING”：Active the function of mini-printer,USB data transfer, Blue-tooth label printer.
Operation Steps:When the LCD screen display “SYSTEM SETTING”(Fig.4.3-9), you click the “START / STOP” button to enter the interface Fig.4.3-14.Then you click “RIGHT” button twice to the interface “PRINTER SETTING” (Fig.4.3-16).then click “START/STOP” button into setting page and in front of the display “▶” mark，use “PROGRAM &SELECTLEFT” button move “▶” to item you wanted.use “RIGHT” button to choose ON(✓) or OFF(✗) you wanted. Then click “START/STOP” button to make arrow disappear and “PROGRAM&SELECT” button to exit.

4.3.2.1.4 “SLEEP-MODE SETTING”： If the power was on, and you didn't operate the sterilizer in several minutes (default 30 minutes), the sterilizer will go into sleep mode (Steam generator and chamber stop working). When you touched the button, sterilizer will be wake-up.
Operation Steps:When the LCD screen display “SYSTEM SETTING”(Fig.4.3-9), you click the “START / STOP” button to enter the interface Fig.4.3-14.Then you click “RIGHT” button three times to the interface “SLEEP-MODE SETTING”(Fig.4.3-17).then click “START/STOP” button into setting page and in front of the display “▶” mark，Use “PROGRAM&SELECTLEFT” button move “▶” to item you wanted.Then click “START/STOP” button to save and make arrow disappear and display “✓” in the rear.then click “PROGRAM&SELECT” button to exit.
4.3.2.1.5 “DELAY-START SETTING”：Order the time you want. To make the sterilizer working at appointed.

Notice: The power must be kept on before the time of DELAY START.

Operation Steps:When the LCD screen display “SYSTEM SETTING”(Fig.4.3-9), you click the “START / STOP” button to enter the interface Fig.4.3-14.Then you click “RIGHT” button four times to the interface “DELAY-START SETTING” (Fig.4.3-18).then click “START/STOP” button into setting page and in front of the display “▶” mark，use “PROGRAM &SELECT” button move “▶” to item you wanted.use “LEFT” or “RIGHT” button to choose the numbers you wanted. Then click “START / STOP” to save and make arrow disappear.then click “PROGRAM&SELECT” button to exit.
“M”：month；“D”：day；“H”：hour；“M”：minute.

4.3.2.1.6 “After sterilization,trun off?” ： Active the function of automatic turn-off. Sterilizer will be turn-off the power after program finished. Energy saving and more safe.
Operation Steps:When the LCD screen display “SYSTEM SETTING” (Fig.4.3-9), you click the “START / STOP” button to enter the interface Fig.4.3-14.Then you click “RIGHT” button five times to the interface “After sterilization,trun off?” (Fig.4.3-19).then click “START/STOP” button into setting page and in front of the display “ ▶” mark，use “PROGRAM &SELECT” button move “ ▶” to item you wanted.Then click “START/STOP” button to save and make arrow disappear and and display “✓” in the rear. Then click “PROGRAM&SELECT” button to exit.

“NO” ： Power will not be turn after each sterilization cycle finished；
“Single” ： Only this sterilization cycles,power will be turn off after finished；
“ALL” ： Turn off the power after every sterilization cycle.

Notice:
1. Please press the power resume button to lighten the screen, because screenis black after automatic turn-off.
2. Packages will get wet because steam generator and heating coil will stop heating and condensation. We suggest you to bring out the packages in 10 minutes after finished.

4.3.2.1.7 “user name” enter and “label printer bluetooth ID” enter：
This user name is shown on the sterilization report. Or it will show blank if not input.
Generally label priner has made Bluetooth pairing when purchased together with the sterilizer, no need to import Bluetooth ID of printer. In which situation need to make setting? Is that sterilizer and printer was purchased separately.

Operation Steps:When the LCD screen display “SYSTEM SETTING” (Fig.4.3-9), you click the “START / STOP” button to enter the interface Fig.4.3-14.Then you click “RIGHT” button sixtimes to the interface “Password” (Fig.4.3-20).

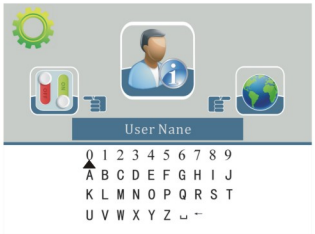


Fig.4.3-21

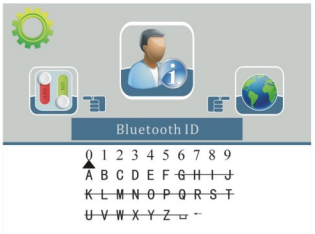


Fig.4.3-22

4.3.2.1.7.1 “user name” enter:
Operation Steps:When the LCD screen display “Password” (Fig.4.3-20), you click “START / STOP” button to enter. Click “LEFT” or “RIGHT” button to move the arrow，use “PROGRAM&SELECT” button to confirm the number. After enter password “3334” ,the LCD screen display “User Name” (Fig.4.3-21).

Then Click “LEFT” or “RIGHT” button to move the arrow，use “PROGRAM&SELECT” button to confirm composed of alphabets user name. When finished, click “START/STOP” button to save and exit.

4.3.2.1.7.2 “label printer bluetooth ID” enter:

Operation Steps:When the LCD screen display “Password” (Fig.4.3-20), you click “START / STOP” button to enter. Click “LEFT” or “RIGHT” button to move the arrow，use “PROGRAM&SELECT” button to confirm the number. After enter password “3335”,the LCD screen display “label printer bluetooth ID” (Fig.4.3-22).

Then Click “LEFT” or “RIGHT” button to move the arrow，use “PROGRAM&SELECT” button to confirm ID code of printer. When finished, click “START/STOP” button to save and exit.

Attention: label printer bluetooth ID should be in 0~9 and A~F.
Please find the 12 words Bluetooth address at the bottom of the printer.

4.3.2.2 “PRINT RECORD” :Select interface Fig.4.3-9, click “RIGHT” button into interface “PRINT RECORD” Fig.4.3-10. Then click “START/STOP” button into interface Fig.4.3-23.

See sterilization records: When LCD display Fig.4.3-23,click “PROGRAM&SELECT” button to round the page, checking the whole report. click “LEFT” or “RIGHT” button to change the number of cycle.

EXIT:If you want to back to interface Fig.4.3-23,click “PROGRAM&SELECT” button,triangular arrow will mark the return icon( ).then click “START/STOP” button to exit.

Export sterilization records:when triangular arrow mark the return icon,use “LEFT ” or “RIGHT” to move the arrow to item you wanted.

Print this cycle history only; Transfer all the cycles history to U disk; Transfer this cycle history to U disk.

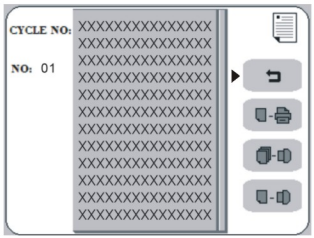


Fig.4.3-23

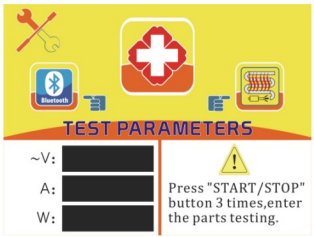


Fig.4.3-24

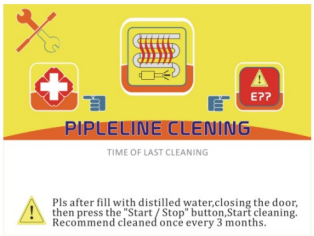


Fig.4.3-25

Fig.4.3-26

Attention: Machine memory can store 128 sterilization cycles records. When it is full-filled, old records will be covered by new. For example, NO. 129 will cover the NO.1 history.
So we suggest you transfer the sterilization records to U disk regularly.

4.3.2.3 “MAINTENANCE”:Select interface Fig.4.3-9, click “RIGHT” button tiwce into interface “MAINTENANCE” Fig.5.11. Then click “START/STOP” button enter interface “TEST PARAMETERS” (Fig.4.3-24) .
Then click “RIGHT” button,successively appear interface “PIPLELINE CLENING” (Fig.4.3-25) \interface “ALARM CODE” (Fig.4.3-26) /interface “Maintenance information” (Fig.4.3-27) /interface “Bluetooth label Printer” (Fig.4.3-28) .

Fig.4.3-27

Fig.4.3-28

4.3.2.3.1 “TEST PARAMETERS”： Test all the working parts. Engineer will easy to find the problem.
Operation Steps:when LCD display interface Fig.4.3-24，click on the “START/STOP” button 3 times, system starts to test the power of every parts to determine it working or not. Screen will show interface Fig.4.3-29 and Fig.4.3-30 after finished. use “LEFT” or “RIGHT” button round the page. Click “PROGRAM&SELECT” button to back to upper interface.
4.3.2.3.2 “PIPLELINE CLENING”： Give steam generator regular cleaning, prolong surface life.
Operation Steps:when LCD display interface Fig.4.3-24，click “RIGHT” button, show interface “PIPLELINE CLENING” Fig.4.3-25. Then click “START/STOP” button enter interface Fig.4.3-31.Then click “START/ STOP” button to start

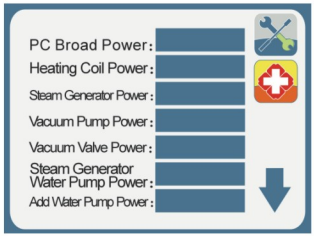


Fig.4.3-29

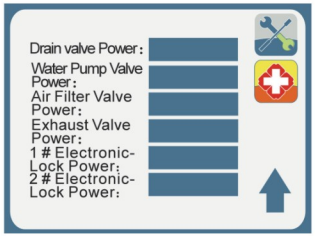


Fig.4.3-30

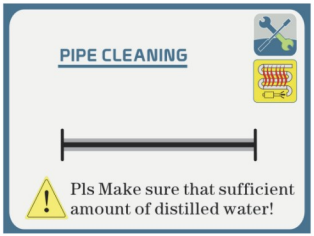


Fig.4.3-31

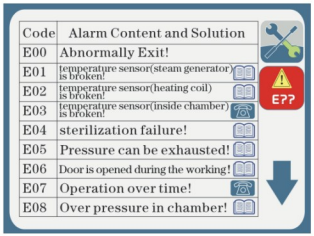


Fig.4.3-32

Cleaning. Click “PROGRAM&SELECT” back to upper interface after finished.

Attention: Before cleaning, need to check the door closed, distilled water is it enough. After cleaning,you must pull out the drain filter inside chamber and cleaning .

4.3.2.3.3 “ALARM CODE INQUIRY”： Find the reason why the error warning!
Operation Steps:when LCD display interface Fig.4.3-24，click “RIGHT” button tiwce, show interface “ALARM CODE” Fig.4.3-26. Then click “START/STOP” button enter interface Fig.4.3-32.Use “PROGRAM&SELECT” button round interface Fig.4.3-33. Click “START/STOP” button to back to upper interface after finished.

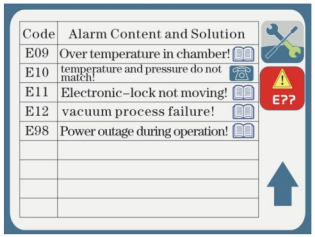


Fig.4.3-33

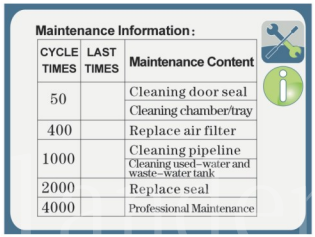


Fig.4.3-34

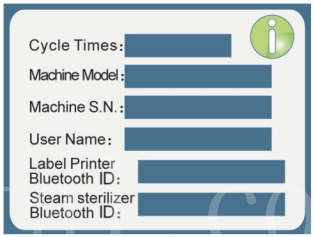


Fig.4.3-35

Fig.4.3-36

4.3.2.3.4 “Maintenance information INQUIRY”： For prolong sterilizer lifetime, need to do some maintenance regularly.
Operation Steps:when LCD display interface Fig.4.3-24，click “RIGHT” button three times, show interface “Maintenance Information” Fig.4.3-27. Then click “START/STOP” button enter interface Fig.4.3-34.Triangular arrow icon pointing to the item will showing the maintenance needed. Click “PROGRAM&SELECT” button to back to upper interface after finished.

4.3.2.3.5 “Bluetooth label Printer ID Connection”： Pair sterilizer and Bluetooth printer here, after input the printer ID at “SYSTEM SETTING”.
Operation Steps:when LCD display interface Fig.4.3-24，click “RIGHT” button four times, show interface “Bluetooth label Printer” Fig.4.3-28. “XXXXXXXXXXXX” (12 words) is the printer ID that you typed in “SYSTEM SETTING”. Click “START/STOP” button to start the association. When the circle turns into black, Pair finished. Click “PROGRAM &SELECT” button to back.

Bluetooth label Printer Introduction

This printer (Fig.4.3-37) transfer the data by Bluetooth wireless. Just connected with power supply.

Print Operation Steps:
Click “PROGRAM&SELECT” button 1 time, when you in the main interface Fig.4.2-2. You will find the page Fig4.3-36.
Click “LEFT” or “RIGHT” button to change the number according to the packages that you put into chamber.

Fig.4.3-37

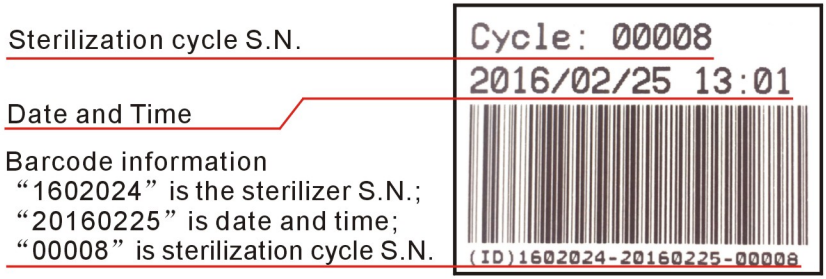


Fig.4.3-38

Attention:
The barcode labels is near a sterilization cycle information.so,we recommend that you do print immediately after sterilization finished.

4.3.2.4 “Machine Information” :Select interface Fig.4.3-9, click “RIGHT” button three times into interface “Machine Information” Fig.4.3-12. Then click “START/STOP” button enter interface Fig.4.3-35 .You can find the cycle times/ model/user name/ID....etc.

4.3.2.5 “SETTING RETURN” :After finished all the setting(SYSTEM SETTING/PRINT RECODE/MAINTENANCE/ Machine Information), click “RIGHT” button round the page to find interface fig.4.3-13. Click “START/STOP” to back to main interfaceFig.4.2-2.

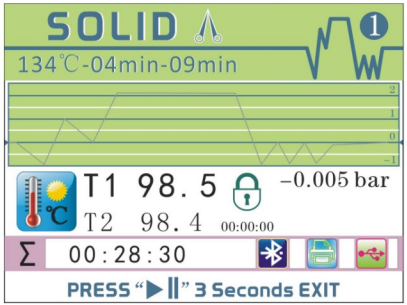
4.4.JQ-A-18 JQ-A-23 sterilizer sterilization cycle process diagram

4.4.1 The right step to start the sterilization is :1.put in instruments, 2. select the program, 3.close the door, 4.when warning operation icons area display “▶II” ,you clcik “START/STOP” buutton to start.

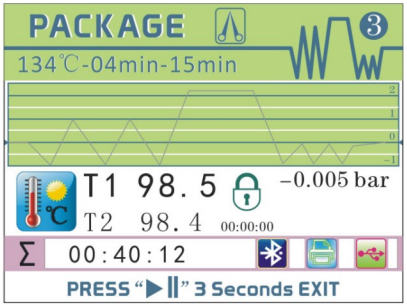
4.4.2 Sterilization cycles program list

Program Name	sterilization temperature	sterilization time	drying time	vacuum times
1.SOLID 134℃-04min-09min	134℃	04min	09min	1 times
2.PACKAGE 134℃-04min-15min	134℃	04min	15min	3 times
3.PRION 134℃-18min-15min	134℃	18min	15min	3 times
4.HOLLOW 121℃-20min-15min	121℃	20min	15min	3 times
5.PLASTIC 121℃-20min-09min	121℃	20min	09min	1 times
6.User-Definned	134℃ or 121℃	03~60min	01~60min	1 or 3 times
7.Helix/B&D TEST 134℃-3.5min-09min	134℃	3.5min	09min	3 times
8.VACUUM TEST	-----	-----	-----	-----

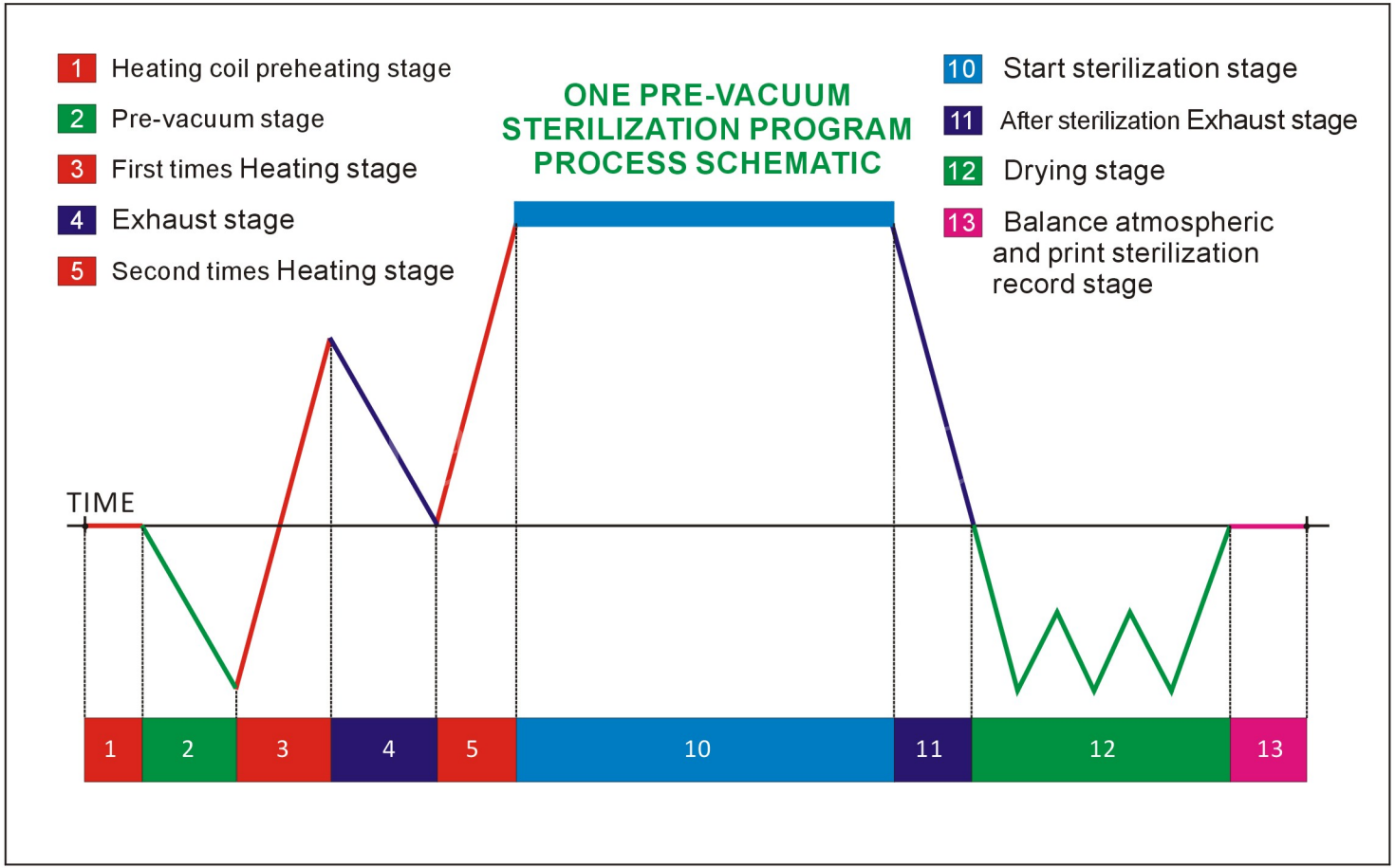
4.4.3 Interface Icon description during sterilization
three times pre-vacuum program and one times pre-vacuum program referring to Fig.4.4-1 and Fig.4.4-2



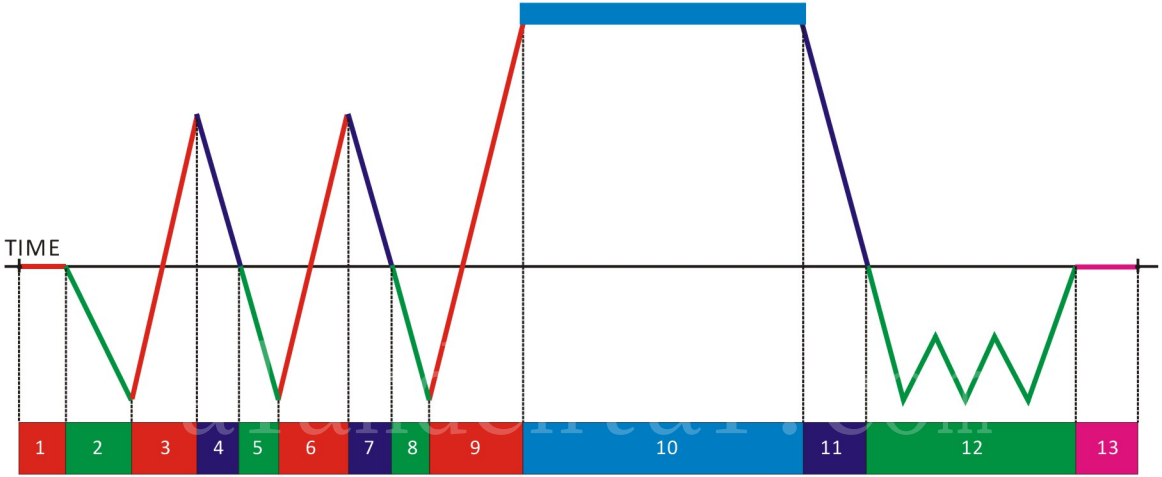
three times pre-vacuum program
Fig.4.4-1



one times pre-vacuum program
Fig.4.4-2


1 Heating coil preheating stage
2 Pre-vacuum stage
3 First times Heating stage
4 Exhaust stage
5 Second times Heating stage
ONE PRE-VACUUM STERILIZATION PROGRAM PROCESS SCHEMATIC
10 Start sterilization stage
11 After sterilization Exhaust stage
12 Drying stage
13 Balance atmospheric and print sterilization record stage
TIME
1
2
3
4
5
10
11
12
13

THREE PRE-VACUUM STERILIZATION PROGRAM PROCESS SCHEMATIC



1 Heating coil preheating stage

2 The First times pre-vacuum stage

3 The First times Heating stage

4 The First times Exhaust stage

5 The Second times pre-vacuum stage

6 The Second times Heating stage

7 The Second times Exhaust stage

8 The third times pre-vacuum stage

9 The third times Heating stage

10 Start sterilization stage

11 After sterilizationExhaust stage

12 Drying stage

13 Balance atmospheric and print sterilization record stage

TIMER. Counting the running time totally. It will start after program running. “00:00:00” correspond to “Hour:Minute:second”.

LOCKED STATUS OF ELECTRIC-LOCK. The door has been secured by electric lock. You can't open it.

BLUETOOTH INACTIVE: Bluetooth printer and mobile phone will can not be connected with sterilizer.

FUNCTION OF USB DATA TRANSFER INACTIVE: Sterilization data will not be transferred to U disk After sterilization.

FUNCTION OF MINI-PRINTER INACTIVE: Printer will not print the data after sterilization.

UNQUALIFIED STERILIZATION: Control system will determine the sterilization and give the result. If this icon appears, the instruments can't be used. And need to find the reason.

DELAY START EFFECTIVE TIME: Following the “00/00” correspond to “Month/Date”, “00:00” correspond to “Hour：Minute”.

3 times pre-vacuum sterilization graph means now you selected program is 3 times pre-vacuum sterilization program.

SLEEP-MODE COUNTDOWN: “00:00:00” under icon correspond to “Hour:Minute:second”. Default 30 minutes.

OPENED STATUS OF ELECTRIC-LOCK. The door is unlocked. You can open if want.

BLUETOOTH ACTIVE: Bluetooth printer and mobile phone will can be connected with sterilizer. Mobile APP operation still under developing.

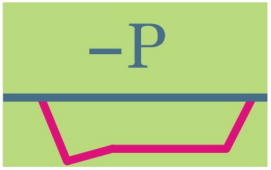
FUNCTION OF USB DATA TRANSFER ACTIVE: Sterilization data will be transferred to U disk after Sterilization.

FUNCTION OF MINI-PRINTER ACTIVE: Printer will print the data after sterilization.

QUALIFIED STERILIZATION: Control system will determine the sterilization and give the result. If this icon appears, the instruments can be used friendly.

TEMPERATURE INSIDE CHAMBER: T1 is the temperature that measured by control system. T2 is the standard temperature for comparison. T1 is that one you need to check.

1 times pre-vacuum sterilization graph means now you selected program is 1 time pre-vacuum sterilization program.



Vacuum test program graph means now you selected program is vacuum test program.

134℃-04min-15min Means this program has 134℃ sterilization temperature, 4 minutes sterilization time,15 minutes drying time.

121℃-20min-09min Means this program has 121℃ sterilization temperature, 20 minutes sterilization Time,9 minutes drying time.

Located in the middle of the interface, showing with XX:XX:XX under. It will show countdown during Pre-vacuum, Exhausting, Sterilizing, Drying. For example, Pre-vacuum 4minutes countdown 00:03:59. Exhausting 1.5 minutes countdown 00:01:29. Sterilizing is according to the program that you selected. Drying is 15 minutes countdown 00:14:59(3 times pre-vacuum program), 9 minutes countdown 00:08:59(1 times pre-vacuum program).

4.4.3 Waring Interface During sterilization

4.4.3.1 “E00” Abnormal Exit

If user want to stop the program during working, do following operations. Click “START/STOP” button for three seconds. Program will be interrupt and “E00 Abnormal Exit” (Fig.4.4-3)showing on the screen. Then clcik “START/STOP” again to make the vacuum pump working. Screen will show Fig.4.4-4 five minutes vacuum countdown. After that, electric lock will be released with sound of “Ka”！LCD Screen display the main interface. Now you can open the door.

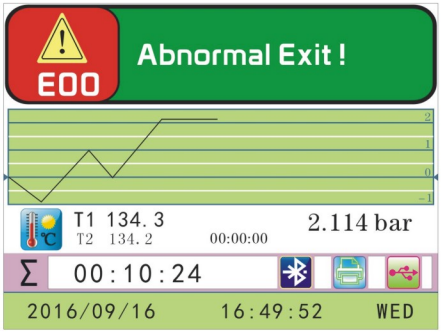


Fig.4.4-3

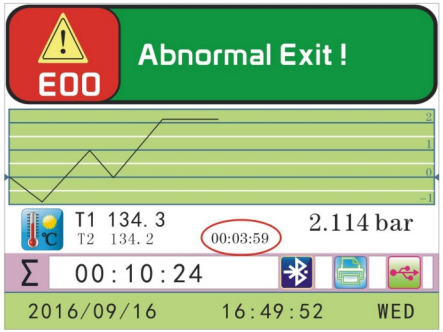


Fig.4.4-4

4.4.3.2 Error alarm

There has error alarm during sterilization sometimes. You need to click “START/STOP” button to bypass the alarm (Start to vacuum like “E00 abnormal exit”). Find the solution in the trouble shooting. The Sterilizer only can be used after fix the error. Or you can ask local dealer/distributor for help. “ALARM codes” See “APPENDIX 20”.

4.4.4 the tank full warnning and emptying method

4.4.4.1 Used-water tank

4.4.4.1.1 steam sterilizer warnning when the interface Fig.4.2-8 on the LCD screen is on,it means that the Used-water tank is full.you should empty Used-water in time.

6.4.1.2 steam sterilizer emptying Used-water method:you open the bottom right of the small cover,put the silicone tube inserting into the switch of “Used-water out” mark,rotating this switch by counter-clock wise and after emptying, closed the switch.(Fig.4.4-5)

4.4.4.2 clean-water tank

4.4.4.2.1steam sterilizer warnning when the interface Fig.4.2-7 on the LCD screen is on,it means that the storage water tank is lack of water,you should add distiller water in time.But you can not exceed the red mark level cordon.

4.4.4.2.2 steam sterilizer emptying cleaed-water method:you open the bottom right of the small cover,put the silicone tube inserting into the switch of “cleaned-water out” mark,rotating this switch by counter-clock wise and after emptying,closed the switch.(Fig.4.4-6)

Fig.4.4-5

Fig.4.4-6

5、JY-A-18 JY-A-23 steam sterilizer operation

5.1 JY-A-18 JY-A-23 the first installation

5.1.1 open the sterilizer door and take out all the instrument plates and other accessories inside,unpack and clean them.

5.1.2 connect sterilizer to power source with plugging into the power tie-in with the accessory wire.

5.1.3 Open the flip cover and switch on the power button(will be lighted)Fig.5.1-1. After that, you need to press the power resume button(Fig.5.5-27)to light the screen.

5.1.4 you will hear "didi", it remind you for there is no distiller water in the cleaned-water tank.in operation panel "IN" the red caution light is bright(Fig.5.1-2).

5.1.5 appearing this clue,you must input distiller water to the cleaned-water tank,until reach the red level.(Fig.5.1-3)

5.1.6 When you use unqualified water, there will be "σ" alarm and light, you must replace qualified distilled water before they can clear the alarm.(Fig.5.1-4)

Fig.5.1-1

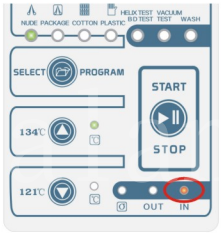


Fig.5.1-2

Fig.5.1-3

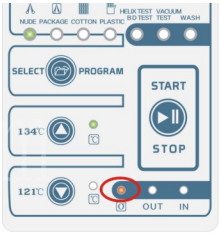


Fig.5.1-4

WARNING:Please do not turn on power before you take out instruments.Otherwise,the package in chamber is a risk of being burned!

WARNING:The sterilizer must use distiller water.Otherwise,the solenoid valves and steam generator and pipeline will be blocked!

5.1.7 you will put the instruments into chamber,close the sterilizer door,according to instruments type to select corresponding sterilization program,press "START/STOP" button,you will hear "Ka" to inform you that the electricity controlled lock point reaches knob,then you can operate program automatically.

Attention: 1、only when the operation display window show stationary "Ld",befor press "START/STOP" button can start working. Fig.5.1-4.

2、when the operation display window show flashing "Ld" or "do",you need open the door, then close the door! If this step has been operated, the door is in a closed state, appeared in "Ld" or "do" flashing also.Please you check the door signal structure.Fig.5.1-5.

5.2 JY-A-18 JY-A-23 sterilization program list

Program	Temperature	Sterilization Time	Vacuum Times	Drying Time
Nude	134℃	4min	1times	9min
Package	134℃	4min	3times	15min
Cotton	134℃	18min	3times	15min
Plastic	121℃	15min	1times	9min
Helix test B&D test	134℃	3.5min	3times	9min
vacuum test	See Chap 5.4 “Vacuum Test” program steps			
wash	See Chap 5.5.1 “wash program” steps			

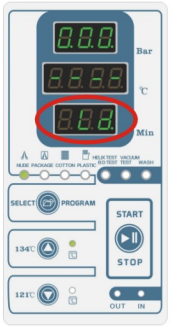


Fig.5.1-4

Fig.5.1-5

5.3 JY-A-18 JY-A-23 operation panel and function(Fig.5.3-1)

(1)Pressure display(bar):display the pressure in the chamber.unit:bar.
(2)Temperature display(℃):display the temperature in the chamber.unit:℃
(3)Operation display/Alarm code/time(Min).
Display the various processes during the sterilizing codes of alarming being displayed, please consult “alarm code and solutions”
tofind where the problem is.Being sterilization、Drying process、Shows time remaining.
(4)Sterilization program “Select Program” button
Select program button.Press “Select program” button to select the type of instruments being sterilization(Nude、Cotton、Package、Plastic) and three function program(B &D test\Helix test、Vacuum test、wash)
(5)“121℃” and “134℃” temperature select button.
“℃” select button.there are two choice:121℃、134℃,the light of the selected one will be on.
(6)“START/STOP” button
START、STOP、Abnormallt Exit button.start sterilization process as you press this Button.as for abnormally exit during sterilization,you have to press “START/STOP” button 5 seconds,there will appear “E00” alarm code and flash on.Repress “START/STOP” button to relieve alarm,then enter vacuuming-drying process,after four

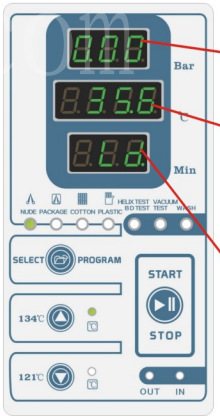


Fig.5.3-1

minute vacuuming,the Sterilizer automatically work to the end.this cycle is over,the operation display window show flashing “do”， the door of sterilizer can be opened.(Fig.5.3-2)

(7) “OUT” indictor

Used-water full indictor.if this indictor is on,please drain the water from used-water tank.

(8) “IN” indictor

Water shortage indictor.if this indictor is on,please add distilled water to clean-water tank.

5.4 JY-A-18 JY-A-23 sterilizer operation

After turn on the power,if the operation display shows flashing “Ld” or “do”,it means you need open the door,then close it again.Until the display window shows stationary "Ld".

When the operation display window show flashing “Ld” because you turn on power in the opened door state.

When the operation display window show flashing “do” because you turn on power in the closed door state.

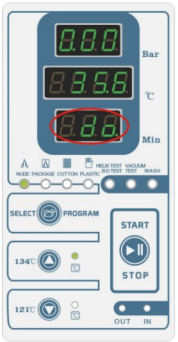


Fig.5.3-2

(1)***Heating coil preheating stage:***press the button “Select program” select the program the instruments which need be sterilization.then press the button “START/STOP”， the “operation display window” show “HE”， the “pressure display window” show “-.0”,the “temperature display window” show “temperature in chamber”.(Fig.5.4-1)

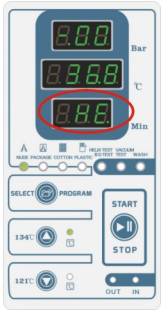


Fig.5.4-1

Attention:when the sterilizer turn on,the heating coil of sterilizer will heating automatically (even though the sterilizer not start sterilization working),after the sterilizer temperature have already over 40℃,then press “START/STOP” button, the “operation display window” not show “HE”,show “Po” and vacuum pump start working.

(2)***First times Pre-vacuum stage:*** when the temperature over than 40℃,the sterilizer will start to do vacuum and the control system will open the vacuum pump solenoid valve(Ev4).time display window show “4”， the “pressure display window” show “-.00”,the “temperature display window” show “temperature in chamber”. “Time display window show 4,3,2,1” means vacuum working time countdown,if within 4 minutes, the vacuum value of less than Pv (factory default setting Pv=-0.80bar) value, there will be alarm E12 or the vacuum value reaches Pv value in advance, sterilization program into heating stage in advance.(Fig.5.4-2)

(3)***First times Heating stage:*** when the vacuum value reach Pv value,the steam generator start inject the steam into chamber, temperature display window show high temperature and up.pressure the steam into chamber,temperature display window show high temperature and up.pressure display window show high pressure and up.operation display window show “Po”.(Fig.5.4-3)

(4)***First times Exhaust stage:***when the pressure up to about 1.05bar(134℃ sterilization program) or about 1.00bar(121℃ sterilization program),the control system will open the exhaust-solenoid valve(Ev1) for exhausting till pressure down to P=0.0bar. the time display window show "PL" .(Fig.5.4-4-1、Fig.5.4-4-2)

the one pre-vacuum program(Nude/Plastic) and three pre-vacuum program (Package/Cotton/B&D test/Helix test) are same in above running step(1)~(4).

the three pre-vacuum program following steps: (Package/Cotton/B&D test/Helix test)

(5)***Second times Pre-vacuum stage:***when the pressure down to 0.0bar,the sterilizer will start to do vacuum and the control system will open the vacuum pump solenoid valve(Ev4).time display window show "4", the "pressure display window" show "-.00" bar,the "temperature display window" show "temperature in chamber". "Time display window show 4,3,2,1" means vacuum working time countdown,if within 4 minutes, the vacuum value reaches -0.7bar value in advance, sterilization program into heating stage in advance.(Fig.5.4-2)

(6)***Second times Heating stage:*** When the vacuum value reaches -0.70bar value,the control system will open water pump solenoid valve(Ev2) and steam generator start inject the steam into chamber,temperature display window show high temperature and up.pressure display window show high pressure and up.operation display window show "Po" .(Fig.5.4-3)

(7) ***Second times Exhaust stage:***when the pressure up to about 1.05bar(134℃ sterilization program) or about 1.00bar(121℃ sterilization program),the control system will open the exhaust-solenoid valve(Ev1) for exhausting till pressure down to P=0.0bar. the time display window show "PL" . (Fig.5.4-4-1、Fig.5.4-4-2)

(8)***third times Pre-vacuum stage:***when the pressure down to 0.00bar,the sterilizer will start to do vacuum and the control system will open the vacuum pump solenoid valve(Ev4).time display window show "4", the "pressure display window" show "-.00",the "temperature display window" show "temperature in chamber". "Time display window show 4,3,2,1" means vacuum working time countdown,if within 4 minutes, the vacuum value reaches -0.70bar value in advance, sterilization program into heating stage in advance.(Fig.5.4-2)

(9)***third times Heating stage:*** When the vacuum value reaches -0.70bar value,the control system will open water pump solenoid valve(Ev2) and steam generator start inject the steam into chamber,temperature display window show high temperature and up.pressure display window show high pressure and up.operation display window show "Po" .when temperature in chamber up to 134℃(134℃ sterilization program) or 121℃(121℃ sterilization program),start sterilization.(Fig.5.4-3)

the one pre-vacuum program following steps: (Nude/Plastic)

(5)***Second times Heating stage:*** When the pressure down to P=0.00bar,the control system will open water pump solenoid

valve(Ev2) and steam generator start inject the steam into chamber,temperature display window show high temperature and up. pressure display window show high pressure and up.operation display window show “Po” .when temperature in chamber up to 134℃(134℃ sterilization program) or 121℃(121℃ sterilization program),start sterilization.the next step to (10).

the one pre-vacuum program(Nude/Plastic) and three pre-vacuum program (Package/Cotton/B&D test/Helix test) are same in below running step(10)~(13).

(10) ***Start sterilization stage:***when temperature reach 134℃ or 121℃,when pressure reach 2.1bar or 1.1bar, the sterilization start working.(Fig.5.4-5-1、Fig.5.4-5-2)
the pressure display window show “2.00~2.20” bar or “1.00~1.20” bar.
the temperature display window show “134.0~135.9” ℃ or “121.0~122.9” ℃.
the time display window show “sterilization time” Min. “sterilization time” based your selected sterilization program, you can check the Chap 6.2.
Last minute, the time display will appear second countdown,e.g: “59,58,57.....1” .(Fig.5.4-6)

(11)***Exhaust stage:***when the sterilization time over,the control system will open the opened-solenoid valve(Ev1) for exhausting till pressure down to P=0.00bar.the time display window show “PL” .(Fig.5.4-7-1、Fig.5.4-7-2)

(12)***Drying stage:***when the pressure in chamber down to 0.0bar,the vacuum pump start working.time display window show “15” (Drying time of three times pre-vacuum program is 15Min)or “9” (Drying time of one times pre-vacuum program is 9Min).(Fig.5.4-8-1、Fig.5.4-8-2)

(13)***Balance atmospheric and print sterilization record stage:***When the drying work into the last minute, the vacuum pump be stopped.the control system will open the air solenoid valve(Ev3) for balance between the pressure in chamber and atmospheric,so that after the end of sterilization,you can easily open the door.when the “operation display window” show “Pt” ,it means the control system has transport sterilization data to external mini-printer and Print.(Fig.5.4-9)
Last minute, the time display will appear second countdown,e.g: “59,58,57.....1” .(Fig.5.4-10)
Until the time display window appear “End” ,at this time you hear “Ka” ,it means electromagnetic lock has been release. You can open the door and take out the instruments.(Fig.5.4-11)

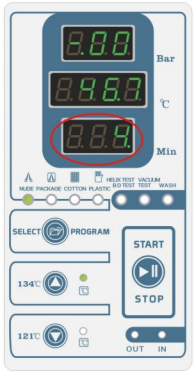


Fig.5.4-2

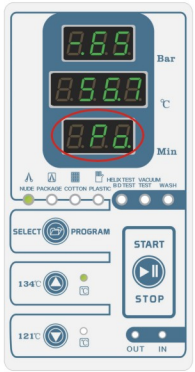


Fig.5.4-3

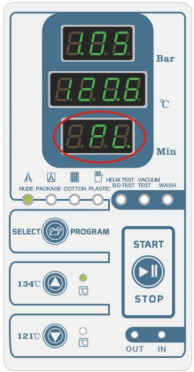


Fig.5.4-4-1

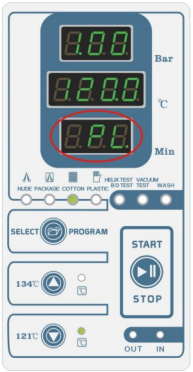


Fig.5.4-4-2

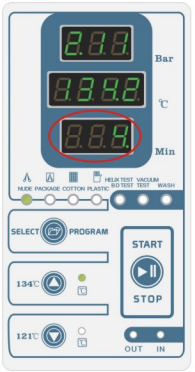


Fig.5.4-5-1

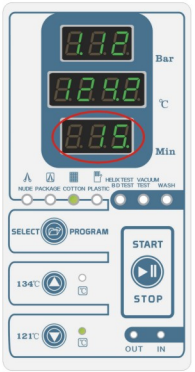


Fig.5.4-5-2

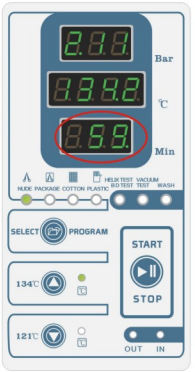


Fig.5.4-6

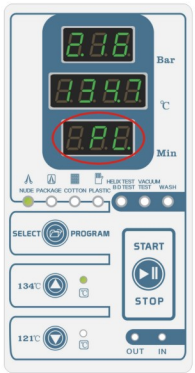


Fig.5.4-7-1

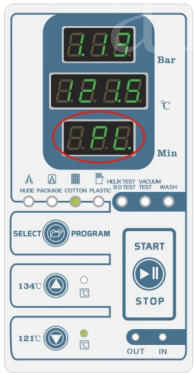


Fig.5.4-7-2

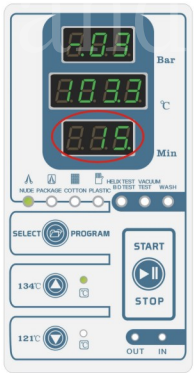


Fig.5.4-8-1

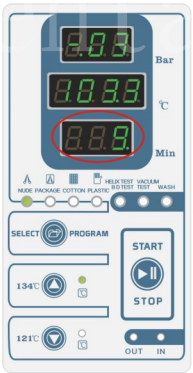


Fig.6.4-8-2

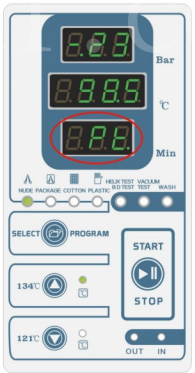


Fig.5.4-9

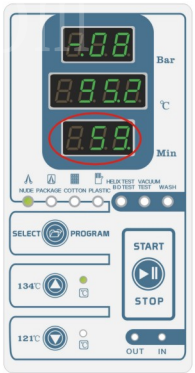


Fig.5.4-10

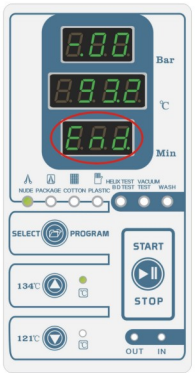
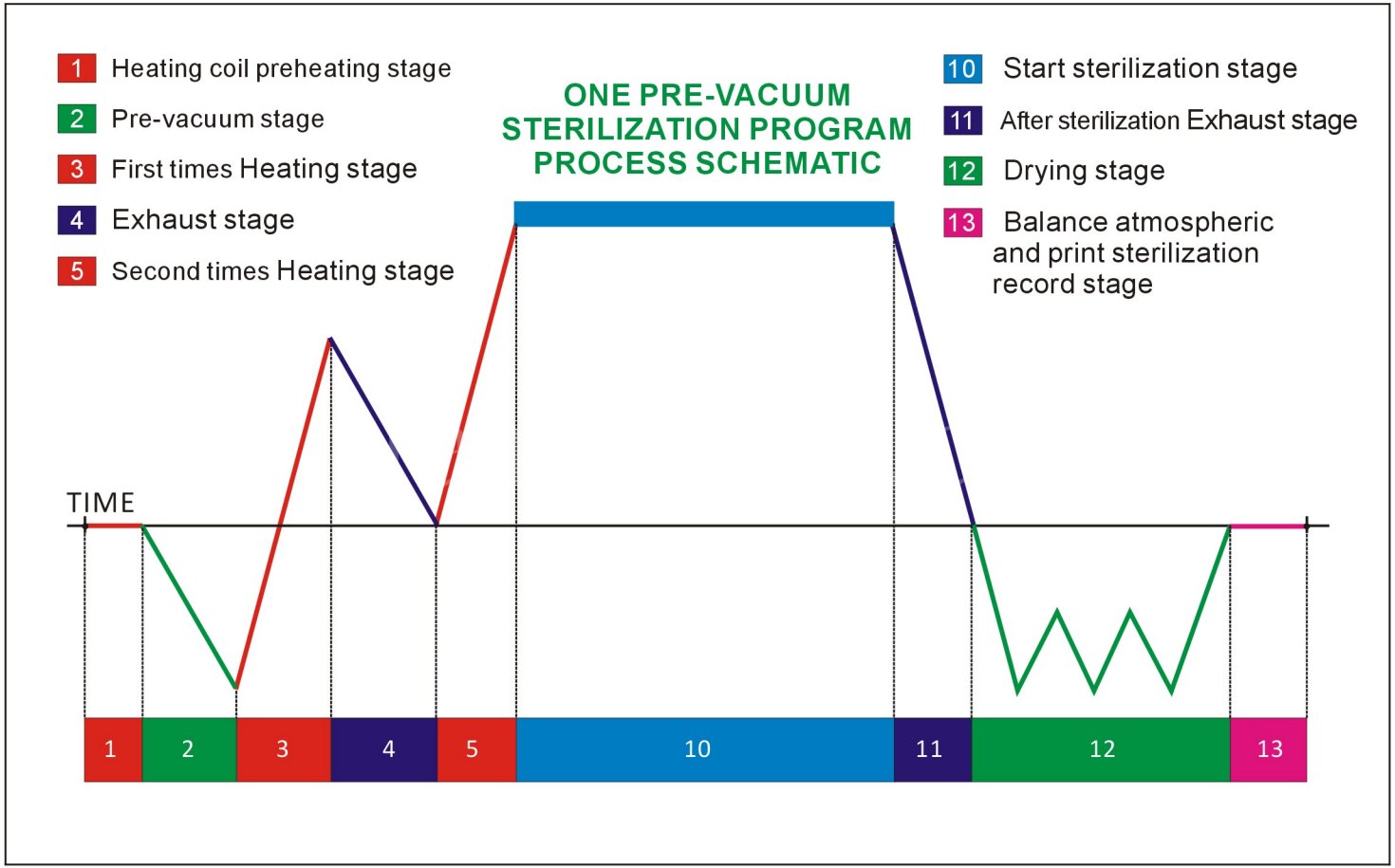
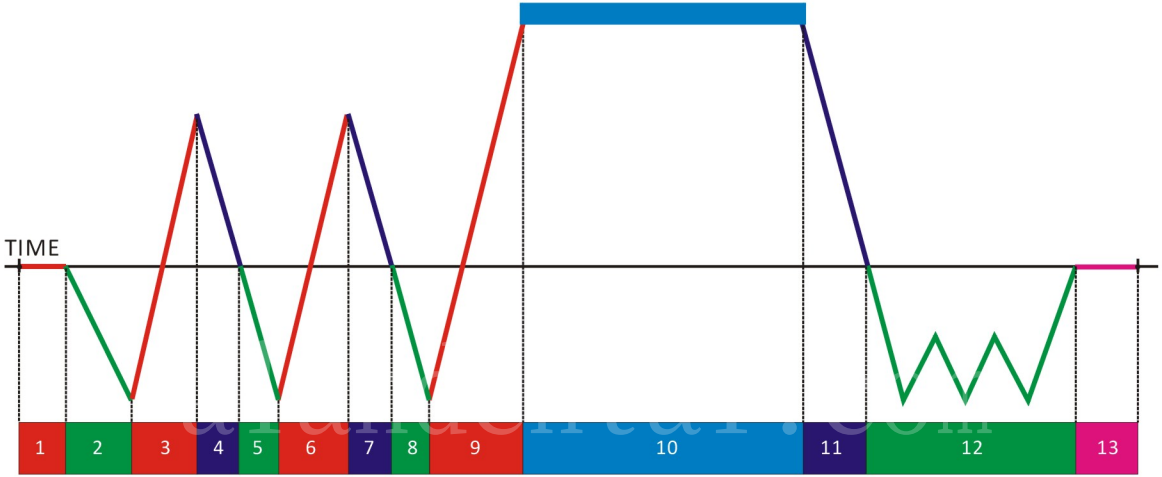


Fig.5.4-11


1 Heating coil preheating stage
2 Pre-vacuum stage
3 First times Heating stage
4 Exhaust stage
5 Second times Heating stage
ONE PRE-VACUUM STERILIZATION PROGRAM PROCESS SCHEMATIC
10 Start sterilization stage
11 After sterilization Exhaust stage
12 Drying stage
13 Balance atmospheric and print sterilization record stage
TIME
1
2
3
4
5
10
11
12
13

THREE PRE-VACUUM STERILIZATION PROGRAM PROCESS SCHEMATIC



1 Heating coil preheating stage

2 The First times pre-vacuum stage

3 The First times Heating stage

4 The First times Exhaust stage

5 The Second times pre-vacuum stage

6 The Second times Heating stage

7 The Second times Exhaust stage

8 The third times pre-vacuum stage

9 The third times Heating stage

10 Start sterilization stage

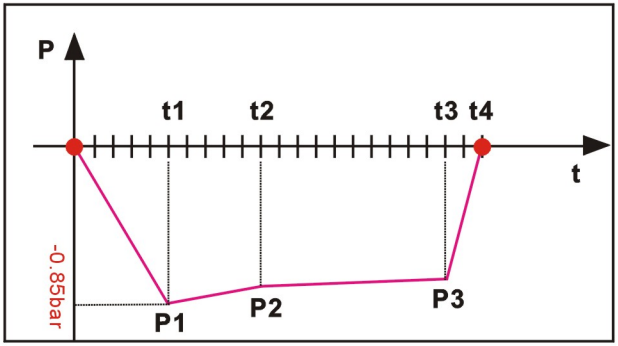
11 After sterilizationExhaust stage

12 Drying stage

13 Balance atmospheric and print sterilization record stage

the "vacuum test" program following steps:

This test is performed in order to check the performance of the unit, in particular:
-the efficiency of the vacuum pump;
-the seal of the pneumatic circuit.



The cycle is operated as follows:

(1)press "SELECT PROGRAM" button,indicator beating to "vacuum test" program.
(2)the vacuum pump start vacuuming,the operation display window appear 5 minutes countdown.if the pressure in chamber reach -0.85 bar(P1) in advance,go to the next step in advance.(Fig.5.4-12)
(3)when the pressure reach -0.85bar,the vacuum pump stop work. this pressure is maintained for 5 minutes and then measured P2.(Fig.5.4-13)
(4)this pressure is maintained for 10 minutes and then measured P3.(Fig.5.4-14)
(5)time countdown is over,operation display window show evaluation results "ok ok" or "Er Er" ,this pressure in chamber balance with the air pressure, after 2 minutes,you press "start/stop" button,after you hear "ka" ,you open the door.(Fig.5.4-15).
If evaluation results is "Er" ,please you check the seal leakage and pipeline leakage.

In compliance with EN 13060:2004,the test requires a tightness test of less than or equal to 13mbar during the 10 minutes of test;if the leakage is greater than this value,the outcome of the test is negative; the seal of the pneumatic circuit of the device must be chceked.

WARNNING:

1、Temperature requirements of vacuum test: the temperature in chamber must be tested under the normal state.Otherwise, the result of a vacuum test are inaccurate.

2、We recommend: if you need to do vacuum test, turn on the power, it should be subjected to vacuum testing now! Because the power is turned on, the heating ring had slowly begins to warm up, the temperature of chamber will gradually rise.

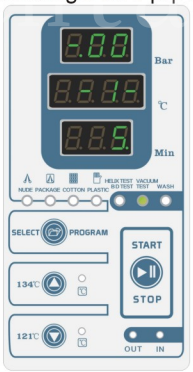


Fig.5.4-12

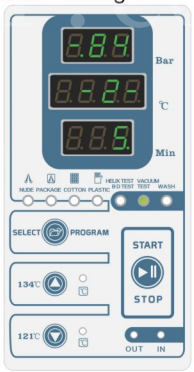


Fig.5.4-13

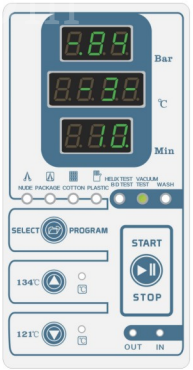


Fig.5.4-14

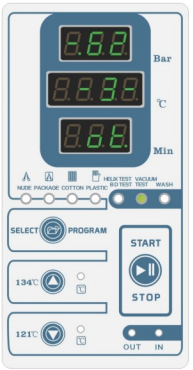


Fig.5.4-15

5.5 JY-A-18 JY-A-23 functional features and setting instruction

5.5.1 “WASH” function of steam generator

Dirt will block the pipe inside the steam generator. So we design this program. Give steam generator regular cleaning, prolong service life. Suggestion: clean after each 1000 cycles.

Attention:
1.Before cleaning, Confirm that has enough water in the clean-tank.
2.Empty the chamber before cleaning. For avoid of pollution.
3.Please clean the exhaust filter inside the chamber: using ultrasonic to clean dirt first. Then using air gun blows it.

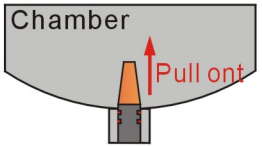


Fig.5.5-0

Operation Steps:

(1)Click the “PROGRAM&SELECT” button to move the light on the wash program.
(2)Click “STRAT/STOP” button to start. Vacuum pump will start to working.Distilled water is pumped intermittently into the steam generator. “Pressure and temperature display windows” flash with seven bars. “Time display window” is showing 51 seconds countdown.(Fig.5.5-1)
(3)After that, vacuum pump still working and distilled water is pumped continuity into the steam generator. “Pressure and temperature display windows” flash with seven bars. “Time display window” is showing 40 seconds countdown.(Fig.5.5-2)
(4)Water pump stops working. But vacuum pump still working. “Pressure and temperature display windows” flash with seven bars. “Time display window” is showing 60 seconds countdown.(Fig.5.5-3)
(5)Vacuum pump stops. “Time display window” is showing flash “do” after finished. The door can be opened now.
(6)After the water filter of inside chamber be pulled out,go into to ultrasonic cleaning.Put on the alcohol lamp burning and use 3-way syringe puff it. (Fig.5.5-0)

Fig.5.5-1

Fig.5.5-2

Fig.5.5-3

5.5.2 User-Defined Setting Instruction

This program can be customized according your daily work and need. To set the temperature, sterilization time, drying time ,vacuum times.

Operation Steps:

(1)Hold on pressing “UP” button for 3 seconds. “Pressure display window” shows “USt” means of User-Defined. “Time display window” shows “-1-” means of NO.1 setting. (Fig.5.5-4)
(2)Then click “START/STOP” button, screen enters into Fig.5.5-5. “Temperature display window” shows “tE”

means temperature setting. Now you can click “UP” or “DOWN” button to choose 134 or 121 temperature.

Fig.5.5-4

Fig.5.5-5

Fig.5.5-6

Fig.5.5-7

Fig.5.5-8

Fig.5.5-9

Fig.5.5-10

(3)After temperature setting, click “PROGRAM&SELECT” button,screen enters into Fig.5.5-6. “Temperature display window” shows “st” means sterilization time setting. Click “UP” or “DOWN” button to change the number in “Time display window” (3-60minutes,means sterilization time).

(4)After sterilization time setting, click “PROGRAM&SELECT” button,screen enters into Fig.5.5-7. “Temperature display window” shows “dr” means drying time setting. Click “UP” or “DOWN” button to change the number in “Time display window” (1-60minutes,means drying time).

(5)After drying time setting, click “PROGRAM&SELECT” button,screen enters into Fig.5.5-8. “Temperature display window” shows “UA” means vacuum times setting. Click “UP” or “DOWN” button to change the number in “Time display window” (1,3,5,means vacuum working times).

(6)After setting “sterilization temperature”、“sterilization time”、“drying time”、“vacuum times”,click “PROGRAM&SELECT” button, screen enters into Fig.5.5-9. “Temperature display window” shows “out”. “Time display window” shows three bars. That is a saving and exit interface. Then click “START/STOP” button exit to main interface(the interface when the power is turned on.).

(7)Click the “PROGRAM&SELECT” button to move the light until all the program is lighted(Fig.5.5-10).That is the

User-Defined program just set. When “Ld” in “Time display window” is not flash,you click “START/STOP” to start “User-Defined Program” sterilization working.

5.5.3 Time setting: year/month/date/hour/minute/second

Fig.5.5-11

Fig.5.5-12

Fig.5.5-13

Fig.5.5-14

Fig.5.5-15

Fig.5.5-16

Fig.5.5-17

If you find the time has mistake in the sterilization record reports, please do following operation.

Operation Steps:

(1)Hold on pressing “UP” button for 3 seconds, you will see the interface Fig.5.5-4. Click “PROGRAM&SELECT” button to enter into Fig.5.5-11. “Pressure display window” shows “tSt” means time setting. “Time display window shows “-2-” means of NO.2 setting.

(2)Click “START/STOP” button to enter into interface Fig.5.5-12. “Temperature display window” shows “-1-” means first setting-YEAR. Click “UP” or “DOWN” button to change the number in “Time display window”. Example: “-16” means year “2016”.

(3)After finish setting “YEAR”,Click “PROGRAM&SELECT” button to change the number of “Temperature display window” from “2~6” stand for month, date, hour, minute, second. (Fig.5.5-12~17). Same operation with YEAR setting. Click “UP” or “DOWN” button to change the number in “Time display window”.

(4)After finished all setting working, click “PROGRAM&SELECT” button back to interface Fig.5.5-18. “Time display window shows “out”, “Temperature display window” shows “-7-”. Then you click “START/STOP” button to

save and exit.

Attention:
Only when the screen shows “out”, you click “START/STOP” button will saving the setting.

Fig.5.5-18

5.5.4 “T1/T2/P1/Pv/CO/ALt” parameter adjustment

T1: Temperature that collect by sensor, for system control.(Right side, close to fan)
T2: Temperature that collect by sensor, for caparison(Left side, close to chamber and bellow).
P1: Pressure that collect by sensor, for system control.
Pv: Vacuum parameter that need to reach on first pre-vacuum.
CO: conductivity of distilled water by monitoring.
Alt: Altitude parameter.
When you need adjust the parameter, please do following operation:
(1)Hold on pressing “UP” button for 3 seconds, will see interface Fig.5.5-4. Then click “PROGRAM&SELECT” twice to enter into interface Fig.5.5-19. “Pressure display window” shows “PAr” means parameter adjustment. “Time display window” shows “-3-” means of NO.3 setting.

Fig.5.5-19

Fig.5.5-20

Fig.5.5-21

Fig.5.5-22

Fig.5.5-23

Fig.5.5-24

Fig.5.5-25

(2)then click “START/STOP” to go to interface Fig.5.5-20. “Pressure display window” shows “-t1”. “Time display window” shows “0.0”. This is “T1” temperature adjustment. Click “UP” or “DOWN” button to change the number in “Time display window”.
(3)click “PROGRAM&SELECT” button to round the interface Fig.5.5-21(t2), Fig.5.5-22(P1), Fig.5.5-23(Pv), Fig.5.5-24(CO), Fig.5.5-25(ALt).Same operation with “T1” setting.Click “UP” or “DOWN” button to change the numbers.
(3)After finished all the setting, click “PROGRAM&SELECT” button will find the interface Fig.5.5-26. “Pressure display window” shows “out”, “Temperature display window” show four bars. Then you click “START/STOP” button to save and exit.

Attention:
Only when the screen shows “out”, you click “START/STOP” button will saving the setting.

Fig.5.5-26

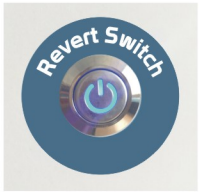


Fig.5.5-27

5.5.5 “PHt/PoE/Prt/USb/BLU/CO/PnP” seven function setting

PHt: Sleep mode.If the power was on, and you didn't operate the sterilizer in several minutes (default 30 minutes,also set “60,120,240” when you need.), the sterilizer will go into sleep mode (heating bar of steam generator and heating coil outside chamber stop working). When you touched any button, sterilizer will be wake-up.
PoE: function of automatic turn-off after sterilization finished. Steam sterilizer will be turned off the power after program finished automatically. Energy saving and more safe. When you set parameter value(“0” means always not trun-off; “1” means after the current cycle finished,it Turned off automatically; “2” meas after each the cycle,it turned off automatically. After sterilizer be turned off,you need click the power resume button Fig.5.5-27, sterilizer will be wake up.
Prt: Mini printer function setting. “Temperature display window” shows “ON” means active. “Of” means off.
Usb: Function setting of USB data transfer. “Temperature display window” shows “ON” means active. “Of” means off.
BLU: Function setting of Bluetooth connection. “Temperature display window” shows “ON” means active. “Of” means off.
CO: Function setting of water monitoring. “Temperature display window” shows “ON” means active. “Of” means off.
PnP: Function setting of water loading automatically. “Temperature display window” shows “ON” means active. “Of” means off.(Optional)

When you need to set these functions, please do following operations:

Fig.5.5-28

Fig.5.5-29

Fig.5.5-30

Fig.5.5-31

Fig.5.5-32

Fig.5.5-33

Fig.5.5-34

(1)Hold on pressing “UP” button for 3 seconds, find interface Fig.5.5-4. Then click “PROGRAM&SELECT” button 3 times to enter into interface Fig.5.5-28. “Press display window” shows “FUN”, “Temperature display window” shows “-4-” means NO.4 setting.

(2)then click “START/STOP” button, come to interface Fig.5.5-29. “Pressure display window” shows “PHt”, “Time display window” shows “FU1”, means sleep mode. Click “UP” or “DOWN” buttons to change the numbers(options have 30,60,120,240) of “Temperature display window”.Default is 30 minutes.

(3)when screen shows interface Fig.5.5-29,click “PROGRAM&SELECT” button enter to interface Fig.5.5-30. “Pressure display window” shows “PoE”, “Time display window” shows “FU2”, means automatic turn-off after sterilization finished. Click “UP” or “DOWN” buttons to change the numbers(options have 0,1,2) of “Temperature display window”.Default is “0”.

(4)Make the same operations to “Prt” (Fig.5.5-30), “UsB” (Fig.5.5-31), “BLU” (Fig.5.5-32), “CO” (Fig.5.5-33), “PnP” (Fig.5.5-34).Under each states, respectively click “UP” or “DOWN” buttons to change “ON” and “OFF” of “Temperature display window”.

(5)Click “PROGRAM&SELECT” button after finished setting. You Will find interface Fig.5.5-35, “pressure display window” showing “out”, “Temperature display window” showing four bars, “Time display window” showing “FUC”. Then click “START/STOP” button to save and exit.

Attention:

1)Only when pressure display window of the screen shows “out”, you click “START/STOP” button will saving the setting.

2) After all setting finshed back,return to the previous function setting home interface(Fig.5.5-4). First click “PROGRAM&SELECT” button four times,will find interface Fig.5.5-37.Then click “START/STOP” button to exit.

3)When you use the power off function,please remove packages inside chabmer immediately after sterilization is over.otherwise,packages will get wet because heating coil will stop heating.

Fig.5.5-35

Fig.5.5-36

Fig.5.5-37

5.5.6 “Bluetooth label printer” function and setting instruction

Some times you need a bar-code sticking on package for tracing. Bluetooth label printer will be a good solution. It's a wireless transfer printer by Bluetooth printer Fig.5.5-38. We had made the Bluetooth pairing if purchase printer with sterilizer. If separated buying, please make the pairing before using.

Fig.5.5-38

Sterilization cycle S.N.

Date and Time

Barcode information
“1602024” is the sterilizer S.N.;
“20160225” is date and time;
“00008” is sterilization cycle S.N.

Fig.5.5-39

Bluetooth Pairing operation steps:

(1)First turn off sterilizer. Press both the “UP” and “DOWN” buttons, then switch on the power button. Click power resume button(Fig.5.5-27), “Temperature display window” will show loading numbers 1~80(Fig.5.5-40). After Release the pressing,will enter interface Fig.5.5-41. “Pressure display window” shows “INP”, “Temperature display window” shows “USEr”, “Time display window” three bars. That was the user ID setting interface.

Fig.5.5-40

Fig.5.5-41

Fig.5.5-42

Fig.5.5-43

Fig.5.5-44

Fig.5.5-45

Attention:

Please do not try to revise the user ID. I will be used for mobile phone connection(optional).

(2)Press “PROGRAM&SELECT” button to enter interface printer ID setting interface Fig.5.5-42. “Pressure display window” shows “INP”, “Temperature display window” shows “BLUE”, “Time display window” three bars.

(3)then Press “START/STOP” button to enter interface Fig.5.5-43. “Pressure display window” shows “01” means the first ID code, “Temperature display window” shows “BLUE” means Bluetooth setting, “Time display window” shows “00” means ID numbers. Press “UP” or “DOWN” button to change the numbers in “Time

display window.
(4)Press “PROGRAM&SELECT” button to change the number of “Pressure display window” from 02~12 of ID codes. Same operation of step (3).After finished all the 12 codes, press “PROGRAM&SELECT” button,you Will find interface Fig.5.5-44. “Pressure display window” shows “oUt”, “Temperature display window” shows “BLUE”, “Time display window” three bars. Then press “START/STOP” button to save and exit.
Sterilizer will be paired and connected with Bluetooth label printer.

Attention:
1.Only when the screen shows “out” (Fig.5.5-44), pressing START/STOP will saving the setting.
2.All the ID codes must only be in number 0-9, word A-F.

(5)***Numbers of printed label setting:***Hold on pressing “PROGRAM&SELECT” button for 5 seconds, find interface Fig.5.5-45. “Pressure display window” shows “BLU”, “Temperature display window” shows “Prt”, “Time display window” shows “P00”. This is the label number which will be printed after sterilization.
For example, you need 10pcs(maxim) label. Press “UP” or “DOWN” change the number to “P10”. And press “PROGRAM&SELECT” to save and exit.

Attention:
Label recording information is records the informating of the last sterilization cycle. It will be easy to check the sterilization history and not be mixed.

6、JQ-18 JQ-23 sterilizer operation

6.1 JQ-18 JQ-23 the first installation

6.1.1 open the sterilizer door and take out all the instrument plates and other accessories inside,unpack and clean them.
6.1.2 connect sterilizer to power source with plugging into the power tic-in with the accessory wire.
6.1.3 open the cover look down right sterilizer,turn on the power switch,switching indicator light.(Fig.6.1-1)
6.1.4 you will hear “didi”,it remind you for there is no distiller water in the cleaned-water tank.and on theLCD show “INPUT WATER”.(Fig.6.1-2)
6.1.5 appearing this clue, you must input distiller water to the cleaned-water tank,until reach the red level.(Fig.6.1-3)

Fig.6.1-1

Fig.6.1-2

Fig.6.1-3

Fig.6.1-4

6.1.6 when the door is closed,you turn on power,LCD show “open the door!”. (Fig.6.1-4).Now,you open the door,then you close the door,it is ok.when the door is opend,you turn on power,LCD show “close the door!”.(Fig.6.1-5). Now,you close the door,it is ok.

WARNING:The sterilizer must use distiller water.Otherwise, the solenoid valves and steam generator and pipeline will be blocked!

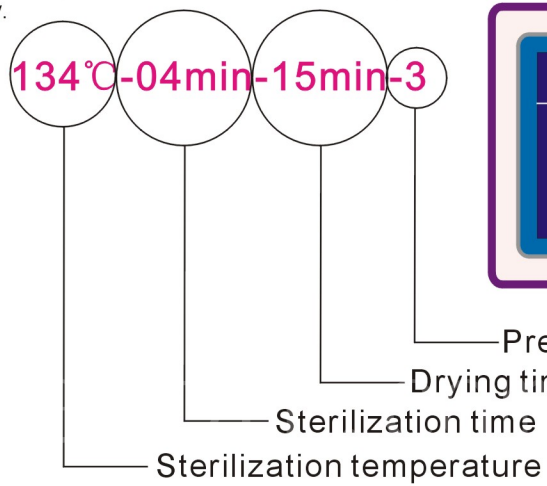
WARNING:Please do not turn on power before you take out the instruments.otherwise, the package in chamber is a risk of being burned!

Fig.6.1-5

6.1.7 put the instruments in,close the door to right position,according to requirement program,when LCD show “Press '◈' start!” (Fig.6.1-6),you press “START/STOP” button,you will hear “ka” to inform you that the electricity lock point reaches knob,then you can operate program automatically.

6.2 sterilization program list

1. EMERGENCY	134℃-03min-9min-1
2.SOLD	134℃-04min-9min-1
3.HOLLOW	134℃-04min-15min-3
4.Prion	134℃-20min-15min-3
5.SOLD	121℃-20min-9min-1
6.HOLLOW	121℃-20min-15min-3
7.GLASS	121℃-20min-9min-1
8.TAMPON	121℃-30min-15min-3
9.TEST B&D	134℃-3.5min-15min-3
10.TEST HELIX	134℃-3.5min-15min-3
11.User-definned	see chap 6.4
12.TEST VACUUM	see chap 6.4



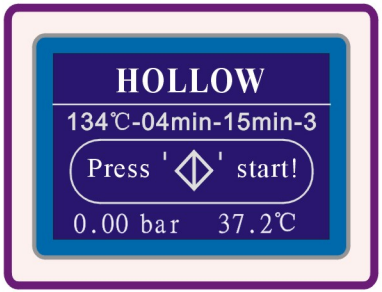


Fig.6.1-6

6.3 the operation panel and function (Fig.6.3-1、Fig.6.3-2)

134℃ / 2.1bar
Alternately show

7.3.1 LCD show information:

“HOLLOW” is program name,134℃/2.1bar is temp and pressure;

“134℃-3.5min-15min-3”,check chapter 6.2;

“00002” is the sterilizer total sterilization cycles;

“PRINTER ON” is USB function on, “PRINTER OFF” is USB function off.

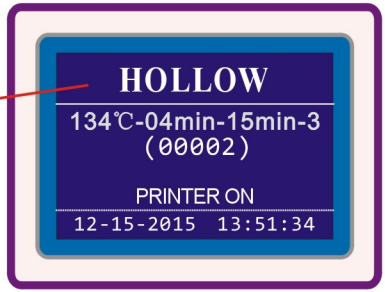


Fig.6.3-1

Fig.7.6-2

“12-15-2015” is month-day-year. “13:51:34” is hour-Minute-second.

6.3.2 “SELECT PROGRAM” button:
Continued Press button 3 second,LCD appear “PROGRAM AND SET UP”.(Fig.6.3-3)
6.3.2.1 then press operation panel “up” button,enter “program list”,press “UP”、“DOWN” button,select you need sterilization program,when finished,press “START/STOP” button to EXIT.(Fig.6.3-4)
6.3.2.2 then press operation panel “down” button,enter “TIME SET、PRINTER SET、LANGUAGE SET ”.(Fig.6.3-5)
6.3.3 “TIME SET” function:
when appear Fig.6.3-5,press “SELECT PROGRAM”,enter Fig.6.3-6.
Press “UP”、“DOWN” button,addition or reduction number.
Press “SELECT PROGRAM” button,the cursor to the corresponding position.
When finished, press “START/STOP” button to save.

Fig.6.3-3

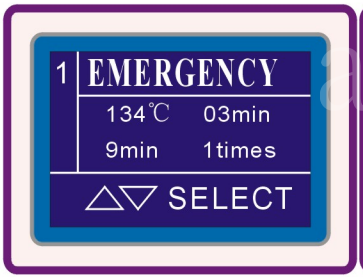


Fig.6.3-4

Fig.6.3-5

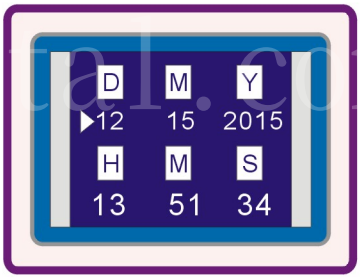


Fig.6.3-6

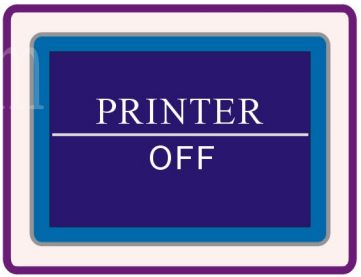


Fig.6.3-7

6.3.4 “USB Printer set” function:
When appear Fig.6.3.5,press “DOWN” button,move the cursor on “PRINTER”,then press “SELECT PROGRAM” button, enter Fig.6.3-7.if you not need turn on USB function, press “UP” button,select “OFF”.Otherwise,slect “ON”.
When finished, press “START/STOP” button to save and EXIT.

WARNING: The printer set function is USB date transmission function OFF and ON.
External printer function has been turned on.

6.3.5 “LANGUAGE SET” function:
This function settings can only be setted by the manufacturer.The factory settings are for the local national language.
6.3.6 “Abnormally Exit” function:
when the sterilization process at working,it can be stoped by pressing “START/STOP” 5 seconds contiounaly if you need to suspend work cycles.LCD appear Fig.6.3-8 interface.
Then press “START/STOP” button to relieve alarm,the control system will open the vacuum pump solenoid valve(Ev4),start vacuuming,LCD appear 03:59 countdown,it is vacuuming time.(Fig.6.3-9).
when the cycle is over, LCD show Fig.6.1-4.you open the door,

Fig.6.3-8

Fig.6.3-9

WARNING:
when you operate “Abnormalay Exit” and the pressure in chamber islarger than 0.2bar,first the control system exhaust ,until the pressure below 0.2bar before it can start vacuum - drying-over.
Then you can open the door!

6.4 operation

After you turn on power and add distilled water,LCD show “Press'⏻'start!” ,the sterilization cycle is working!

the three pre-vacuum program following steps:
(Program Number 3,4,6,8,9,10)

(1)***Heating coil preheating stage:***when temperature heating coil less than 40℃,the Control system stops vacuuming. Heating coil temperature must be raised above 40℃ before they start vacuuming.(Fig.6.4-1)
(2)***First times Pre-vacuum stage:*** when the temperature over than 40℃,the sterilizer will start to do vacuum and the control system will open the vacuum pump solenoid valve(Ev4) . LCD show 03:59 countdown.if within 4 minutes, the vacuum value of less than Pv (factory default setting 23L:Pv=-0.75bar;18L:Pv=-0.80bar) value,there will be alarm E12 or the vacuum value reaches Pv value in advance, sterilization program into heating stage in advance.(Fig.6.4-2)

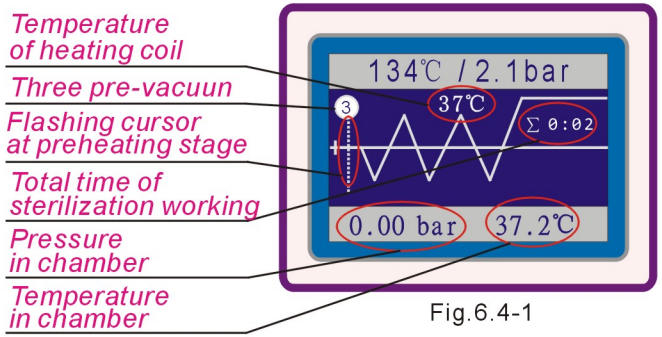


Fig.6.4-1

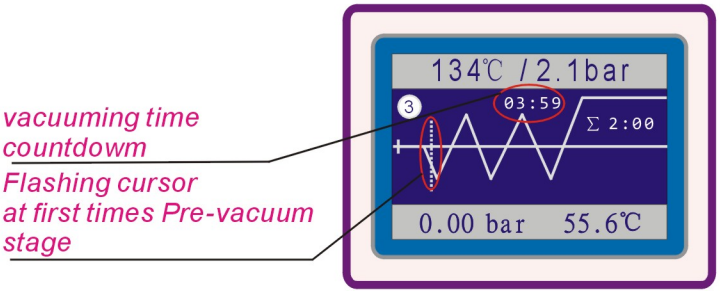


Fig.6.4-2

(3)***First times Heating stage:***

After the vacuum value reach Pv value,the vacuum pumpwill stop working,flashing cursor at first times heating stage.the steam generator start inject the steam into chamber, temperature and pressure is up progressively. (Fig.6.4-3)

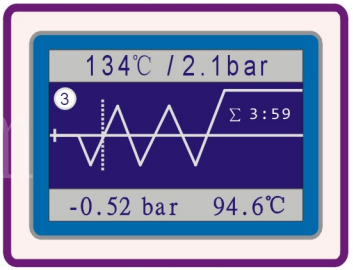


Fig.6.4-3

(4)***First times Exhaust stage:***when the pressure up to about 1.1bar(134℃ sterilization program) or about 0.9bar(121℃ sterilization program),the control system will open the exhaust-solenoid valve(Ev1) and drain water-solenoid valve(Ev5)for exhausting till pressure down to P=0.0bar.LCD show “01:15”,it is exhaust time countdown. If within 01:15,the pressure in chamber reaches in advance, sterilization program into the second pre-vacuum times stage in advance. (Fig.6.4-4)

Fig.6.4-4

(5)***second times pre-vacuum stage:***

when the pressure in chamber down to P=0.0bar, the sterilizer will start to do vacuum and the control system will open the vacuum pump solenoid valve (Ev4) . LCD show 03:59 countdown.if within 4 minutes, the vacuum value reaches -0.7bar in advance, sterilization programinto the second times heating stage in advance. (Fig.6.4-5)

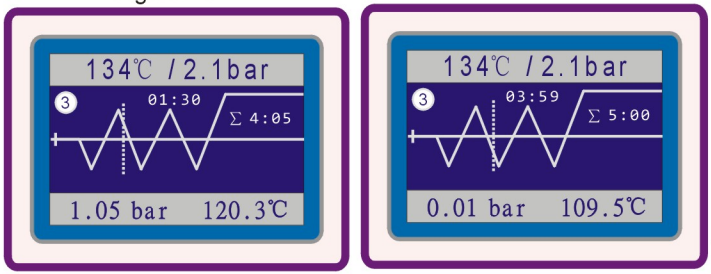


Fig.6.4-5

(6)***Second times Heating stage:***

After the vacuum value reachs -0.7bar,the vacuum pump will stop working,flashing cursor at second times heating stage.the steam generator start inject the steam into chamber, temperature and pressure is up progressively. (Fig.6.4-6)

(7)***Second times Exhaust stage:***

when the pressure up to about 1.1bar(134℃sterilization program) or about 0.9bar(121℃ sterilization program),the control system will open the exhaust-solenoid valve(Ev1) and drain water-solenoid valve(Ev5)for exhausting till pressure down to P=0.0bar.LCD show "01:30",it is exhaust time countdown and flashing cursor at second times exhaust stage. If within 01:30,the pressure in chamber reaches in advance, sterilization program into the second pre-vacuum times stage in advance. (Fig.6.4-7)

(8)***Third times pre-vacuum stage:***

when the pressure in chamber down to P=0.0bar,the sterilizer will start to do vacuum and the control system will open the vacuum pump solenoid valve (Ev4) . LCD show 03:59 countdown and flashing cursor at third times pre-vacuum stage.if within 4 minutes, the vacuum value reaches -0.7bar in advance, sterilization programinto the second times heating stage in advance. (Fig.6.4-8)

(9)***Third times Heating stage:***

After the vacuum value reachs -0.7bar,the vacuum pump will stop working,flashing cursor at third times heating stage.The steam generator start inject the steam into chamber, temperature and pressure is up progressively.when temperature in chamber up to 134℃ (134℃ sterilization program) or 121℃(121℃ sterilization program), start sterilization.(Fig.6.4-9)

(10)***Start sterilization stage:***

when temperature reach 134℃ or 121℃,when pressure reach 2.1bar or 1.1bar,the sterilization start working. the pressure show "2.0~2.2" bar or "1.0~1.2" bar.the temperature show "134~135" ℃ or "121~122" ℃.

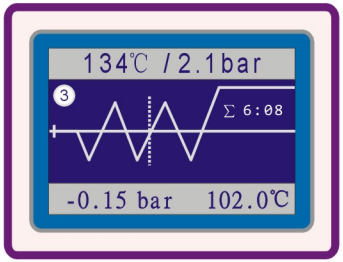


Fig.6.4-6

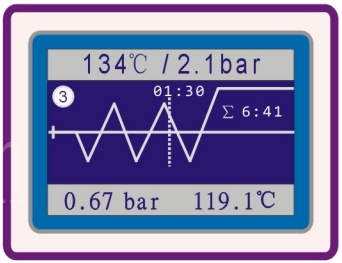


Fig.6.4-7

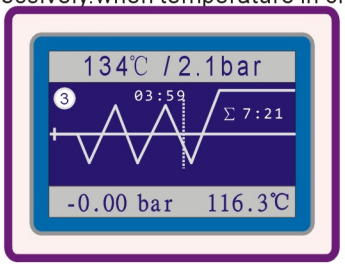


Fig.6.4-8

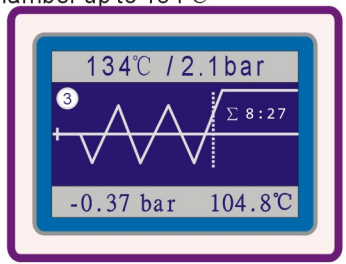


Fig.6.4-9

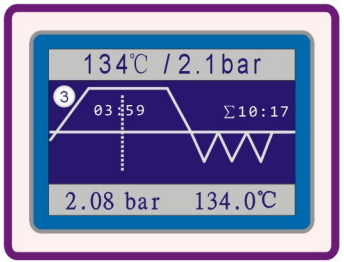


Fig.6.4-10

LCD show sterilization time of 03:59 countdown(according to different your choice of sterilization program, there will be different.) and flashing cursor at sterilization stage.(Fig.6.4-10)

(11)***Exhaust stage:***

when the sterilization time over,the control system will open the opened-solenoid valve(Ev1) and the drain water-solenoid valve(Ev5)for exhausting till pressure down to P=0.0bar.LCD show “02:00”,it is exhaust time countdown and flashing cursor at exhaust stage.If within 02:00,the pressure in chamber reaches in advance, sterilization program into the drying stage in advance.(Fig.6.4-11)

(12)***Drying stage:***

when the pressure in chamber down to 0.0bar,the vacuum pump start working and flashing cursor at drying stage. LCD show 14:59 drying time countdown. (Fig.6.4-12)

(13)***Balance atmospheric and print sterilization record stage:***

When the drying work into the last minute the vacuum pump be stopped and LCD show 00:59 balance time countdown the control system will open the air solenoid valve(Ev3) for balance between the pressure in chamber and atmospheric, so that after the end of sterilization,you can easily open the door.(Fig.6.4-13)

Until LCD appear Fig.6.4-14 interface,at this time you hear “Ka”,it means electromagnetic lock has been release. You can open the door and take out the instruments. “END” is means the sterilization cycle is over.

(14)***Sterilization Evaluation:*** the sterilization cycles is over,the control system will do Sterilization evaluation. Evaluation concluded that two kinds:1、“✓”is qualification;2、“✗”is failure.(Fig.6.4-14)

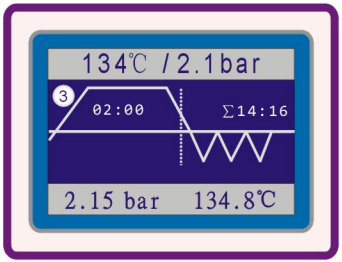


Fig.6.4-11

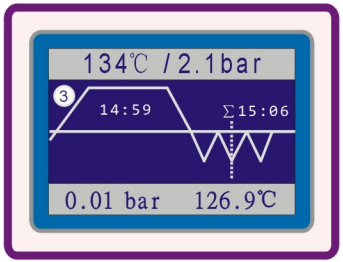


Fig.6.4-12

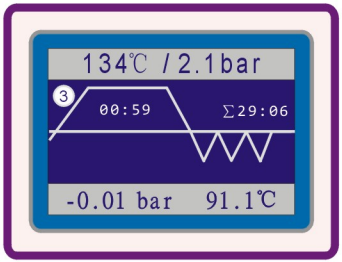


Fig.6.4-13

Fig.6.4-14

WARNING: ***If sterilization failure, it must prohibit the use of these medical devices.it must be re-sterilized, until qualified so far,or contact your local dealer to check faults sterilizer.***

(15)***Save Electricity Function:***when this interface(Fig.6.4-14) stationary on the LCD,it appear 59:59 countdown, after one hour, if no one to open the door and remove this interface.the control system judged as operator have left. To reduce the risk and save electricity, it will stop to the heating coil and the steam generator power. Until you get back to open the sterilizer door can only be to the heating coil and the steam generator to restore power.

the one pre-vacuum program following steps:
(Program Number 1,2,5,7)

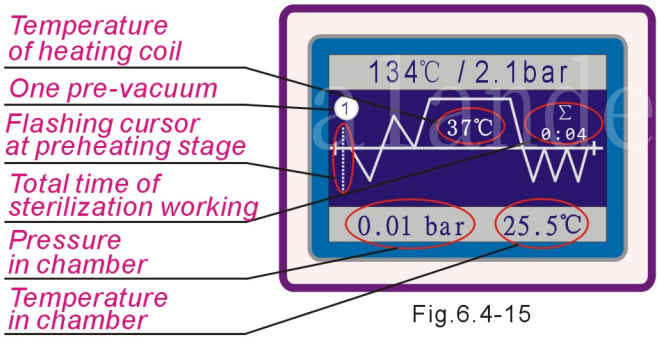


Fig.6.4-15

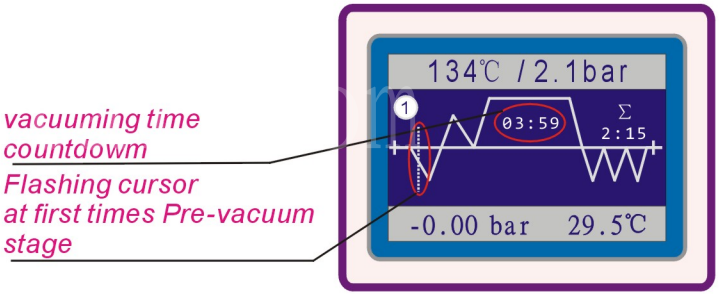


Fig.6.4-16

(1)***Heating coil preheating stage:***when temperature heating coil less than 40℃,the Control system stops vacuuming. Heating coil temperature must be raised above 40℃ before they start vacuuming.(Fig.6.4-15)

(2)***First times Pre-vacuum stage:*** when the temperature over than 40℃,the sterilizer will start to do vacuum and the control system will open the vacuum pump solenoid valve(Ev4) . LCD show 03:59 countdown.if within 4 minutes, the vacuum value of less than Pv (factory default setting 23L:Pv=-0.75bar;18L:Pv=-0.80bar) value,there will be alarm E12 or the vacuum value reaches Pv value in advance, sterilization program into heating stage in advance.(Fig.6.4-16)

(3)***First times Heating stage:***

After the vacuum value reach Pv value,the vacuum pumpwill stop working,flashing cursor at first times heating stage.the steam generator start inject the steam into chamber,temperature and pressure is up progressively. (Fig.6.4-17)

(4)***First times Exhaust stage:***when the pressure up to about 1.1bar(134℃ sterilization program) or about 0.9bar(121℃ sterilization program),the control system will open the exhaust-solenoid valve (Ev1) and drain water-solenoid valve(Ev5)for exhausting till pressure down to P=0.0bar.LCD show “01:15”,it is exhaust time countdown. If within 01:30,the pressure in chamber reaches in advance, sterilization program into the second pre-vacuum times stage in advance. (Fig.6.4-18)

(5)***second times Heating stage:***

After when the pressure down to 0.00bar,flashing cursor at second times heating stage.the steam generator start inject the steam into chamber,temperature and pressure is up progressively. when temperature in chamber up to 134℃(134℃ sterilization program) or 121℃(121℃ sterilization program),start sterilization.(Fig.6.4-19)

(6)***Start sterilization stage:***

when temperature reach 134℃ or 121℃,when pressure reach 2.10 bar or 1.10bar,the sterilization start working.the pressure show “2.00~2.25” bar or “1.00~1.25” bar.the temperature show “134.0~135.9” ℃ or “121.0~122.9” ℃.(Fig.6.4-20)

(7)***Exhaust stage:***

when the sterilization time over,the control system will open the opened-solenoid valve(Ev1) and the drain water-solenoid valve (Ev5)for exhausting till pressure down to P=0.0bar.LCD show “02:00”,it is exhaust time countdown and flashing cursor at exhaust stage.If within 02:00,the pressure in chamber reaches in advance, sterilization program into the drying stage in advance. (Fig.6.4-21)

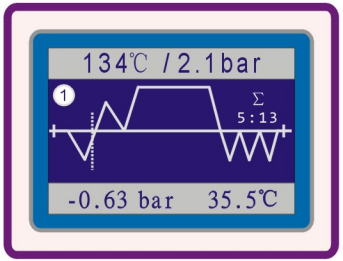


Fig.6.4-17

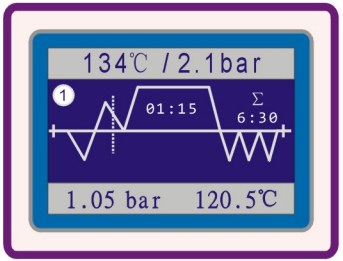


Fig.6.4-18

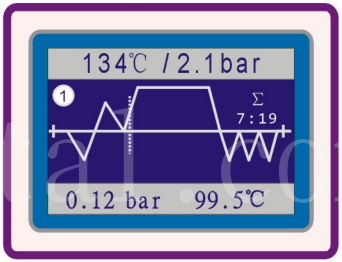


Fig.6.4-19

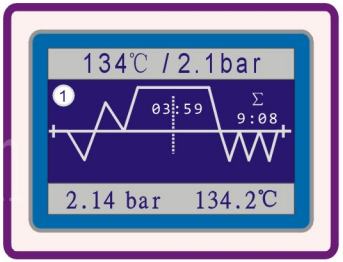


Fig.6.4-20

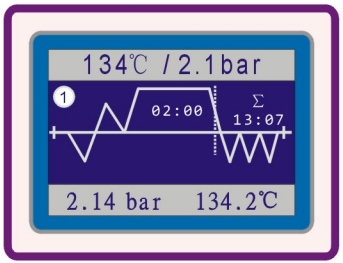


Fig.6.4-21

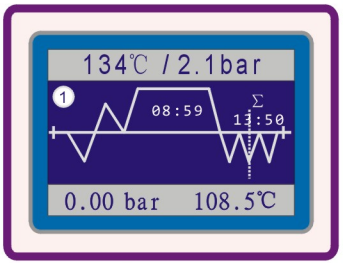


Fig.6.4-22

(8)***Drying stage:***

when the pressure in chamber down to 0.0bar,the vacuum pump start working and flashing cursor at drying stage. LCD show 08:59 drying time countdown. (Fig.6.4-22)

(9)***Balance atmospheric and print sterilization record stage:***

When the drying work into the last minute the vacuum pump be stopped and LCD show 00:59 balance time countdown the control system will open the air solenoid valve(Ev3) for balance between the pressure in chamber and atmospheric, so that after the end of sterilization,you can easily open the door.(Fig.6.4-23)

Until LCD appear Fig.6.4-24 interface,at this time you hear "Ka",it means electromagnetic lock has been release. You can open the door and take out the instruments. "END" is means the sterilization cycle is over.

(10)***Sterilization Evaluation:*** the sterilization cycles is over,the control system will do Sterilization evaluation. Evaluation concluded that two kinds:1、"✓" is qualification;2、"✗" is failure.(Fig.6.4-24)

WARNING:*If sterilization failure, it must prohibit the use of these medical devices.it must be re-sterilized, until qualified so far,or contact your local dealer to check faults sterilizer.*

(11)***Save Electricity Function:***when this interface(Fig.6.4-24) stationary on the LCD,it appear 59:59 countdown,after one hour, if no one to open the door and remove this interface.the control system judged as operator have left. To reduce the risk and save electricity, it will stop to the heating coil and the steam generator power. Until you get back to open the sterilizer door can only be to the heating coil and the steam generator to restore power.

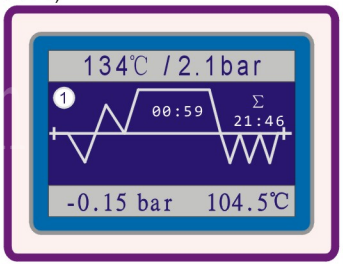


Fig.6.4-23

Fig.6.4-24

The "User-definned" program following steps: (Program Number 11)

(1)Continued Press button 3 second,LCD appear "PROGRAM",then press "UP" button,appear program list,then press "UP" or "DOWN" button,have found "User-definned" program.show Fig.6.4-25.

(2) In interface Fig.6.4-25 basis,press "SELECT PROGRAM" button,LCD appear interface Fig.6.4-26,triangle cursor is located 134℃.Continue to press "SELECT PROGRAM" button,riangle cursor skip to turn 134℃、04min、15min、3tiems position.

Press "UP" or "DOWN" button select:
Temperature----134℃ or 121℃.
Sterilization time---03~60min.
Drying time---15min or 9min.
Pre-vacuum times---3times or 1times.

After selecting the above is completed,press "START/STOP" button save and Exit.

Then you press "START/STOP" start sterilization cycle,schematic reference to ***"the one pre-vacuum program" and "the three pre-vacuum program" steps***.

Fig.6.4-25

Fig.6.4-26

The "TEST VACUUM" program following steps: (Program Number 12)

This test is performed in order to check the performance of the unit,in particular:
-the efficiency of the vacuum pump;
-the seal of the pneumatic circuit.

The cycle is operated as follows:

(1)Continued Press button 3 second,LCD appear "PROGRAM" then press "UP" button, appear program list,then press "UP" or "DOWN" button,have found "TEST VACUUM" program.Show Fig.6.4-27.

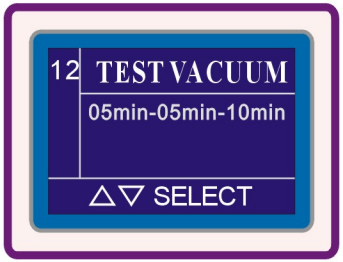


Fig.6.4-27

(2)after press "START/STOP" buuton,the vacuum pump start vacuuming,LCD appear 5 minutes countdown.if the pressure in chamber reach -0.85bar(P1) in advance,go to the next step in advance.(Fig.6.4-28)

(3)when the pressure reach -0.85bar,the vacuum pump stop work.this pressure is maintained for 5 minutes and then measured P2.(Fig.6.4-29)
(4)this pressure is maintained for 10 minutes and then measured P3 and evaluation results. "✓" is qualified, "✗" is failure. if the vacuum test is failure,you will check the seal leakageand pipeline leakage.(Fig.6.4-30)
(5)this pressure in chamber balance with the air pressure,after 2 minutes,you press "START/STOP" button,after you hear "Ka",you open the door.

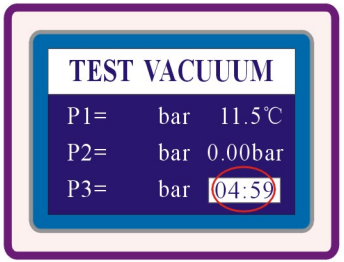


Fig.6.4-28

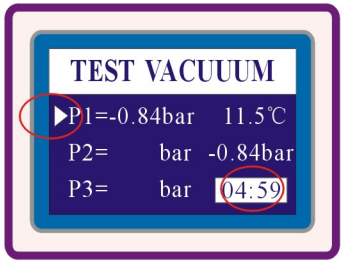


Fig.6.4-29

In compliance with EN 13060:2004,the test requires a tightness test of less than or equal to 13mbar during the 10 minutes of test;if the leakage is greater than this value,the outcome of the test is negative;the seal of the pneumatic circuit of the device must be chceked.

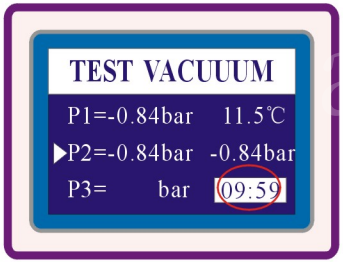


Fig.6.4-31

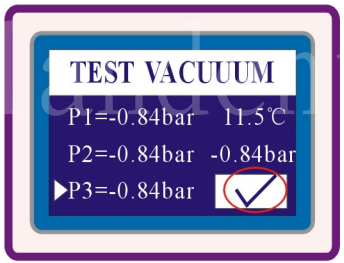
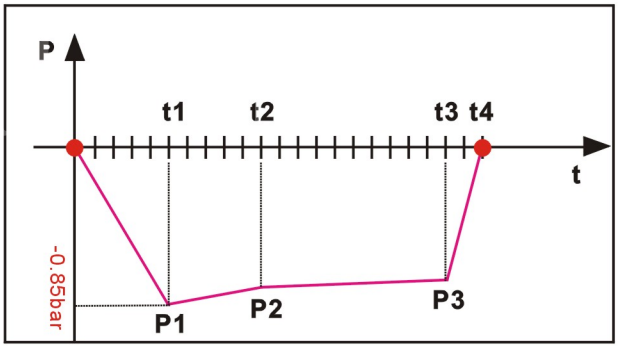


Fig.6.4-30



WARNNING:

1、Temperature requirements of vacuum test:
the temperature in chamber must be tested under the normal state.Otherwise, the result of a vacuum test are inaccurate.
2、We recommend: if you need to do vacuum test, turn on the power, it should be subjected to vacuum testing now! Because the power is turned on, the heating ring had slowly begins to warm up, the temperature of chamber will gradually rise.

7、JY-18 JY-23 steam sterilizer operation

7.1 JY-28 JY-23 The first installation

7.1.1 open the sterilizer door and take out all the instrument plates and other accessories inside,unpack and clean them.

7.1.2 connect sterilizer to power source with plugging into the power tie-in with the accessory wire.

7.1.3 open the cover look down right sterilizer,turn on the power switch,switching the indicator light.(Fig.7.1-1)

7.1.4 you will hear “didi”， it remind you for there is no distiller water in the cleaned-water tank.in opera -tion panel “IN” the red caution light is bright(Fig.7.1-2).

7.1.5 appearing this clue,you must input distiller water to the cleaned-water tank,until reach the red level.(Fig.7.1-3)

Fig.7.1-1

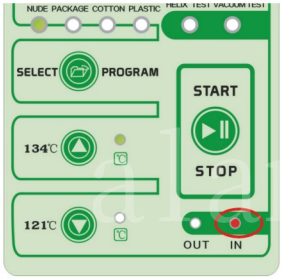


Fig.7.1-2

Fig.7.1-3

WARNING:
Please do not turn on power before you take out instruments.Otherwise, the package in chamber is a risk of being burned!

WARNING:The sterilizer must use distiller water.Otherwise,the solenoid valves and steam generator and pipeline will be blocked!

7.1.6 you will put the instruments into chamber,close the sterilizer door,according to instruments type to select corresponding sterilization program,press “START/STOP” button,you will hear “Ka” to inform you that the electricity controlled lock point reaches knob,then you can operate program automatically.

Attention:

1、only when the operation display window show stationary “Ld”,befor press “START/STOP” button can start working. Fig.7.1-4.

2、when the operation display window show flashing “Ld” or “do”,you need open the door, then close the door! If this step has been operated, the door is in a closed state, appeared in “Ld” or “do” flashing also.Please you check the door signal structure.Fig.7.1-5.

7.2 JY-18 JY-23 sterilization program list

Program	Temperature	Sterilization Time	Vacuum Times	Drying Time
Nude	134℃	4min	1times	9min
Package	134℃	4min	3times	15min
Cotton	134℃	18min	3times	15min
Plastic	121℃	15min	1times	9min
Helix test B&D test	134℃	3.5min	3times	9min
vacuum test	See Chap 7.4 “Vacuum Test” program steps			

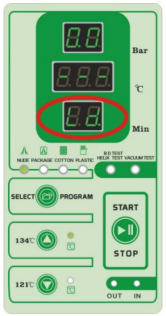


Fig.7.1-4

Fig.7.1-5

7.3 JY-18 JY-23 operation panel and function(Fig.7.3-1)

(1)Pressure display(bar):display the pressure in the chamber.unit:bar.
(2)Temperature display(℃):display the temperature in the chamber.unit:℃
(3)Operation display/Alarm code/time(Min).
Display the various processes during the sterilizing codes of alarming being displayed, please consult “alarm code and solutions”
tofind where the problem is.Being sterilization、Drying process、Shows time remaining.
(4)Sterilization program “Select Program” button
Select program button.Press “Select program” button to select the type of instruments being sterilization(Nude、Cotton、Package、Plastic) and two function program(B &D test\Helix test、Vacuum test)
(5)“121℃” and “134℃” temperature select button.
“℃” select button.there are two choice:121℃、134℃,the light of the selected one will be on.
(6)“START/STOP” button
START、STOP、Abnormally Exit button.start sterilization process as you press this Button.as for abnormally exit during sterilization,you have to press “START/STOP” button 5 seconds,there will appear “E0” alarm code and flash on.Repress “START/STOP” button to relieve alarm,then enter vacuuming-drying process,after four

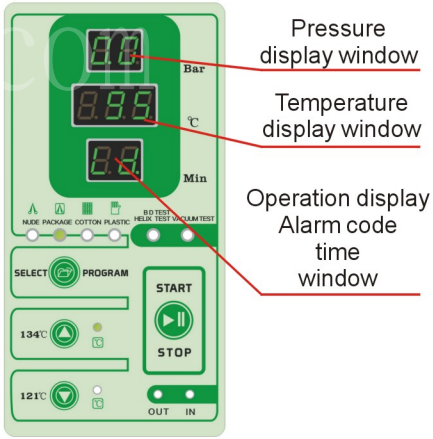


Fig.7.3-1

minute vacuuming,the Sterilizer automatically work to the end.this cycle is over,the operation display window show flashing “do”， the door of sterilizer can be opened.the door of sterilizer can be opened.(Fig.7.3-2)

(7) “OUT” indictor

Used-water full indictor.if this indictor is on,please drain the water from used-water tank.

(8) “IN” indictor

Water shortage indictor.if this indictor is on,please add distilled water to clean-water tank.

7.4 JY-18 JY-23 sterilizer operation

After turn on the power,if the operation display shows flashing “Ld” or “do”,it means you need open the door,then close it again.Until the display window shows stationary "Ld".

When the operation display window show flashing “Ld” because you turn on power in the opened door state.

When the operation display window show flashing “do” because you turn on power in the closed door state.

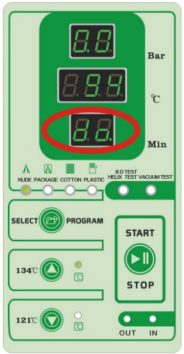


Fig.7.3-2

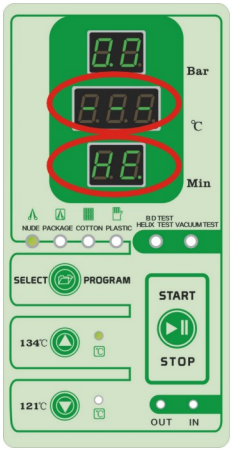


Fig.7.4-1

(1)***Heating coil preheating stage:***press the button “Select program” select the program the instruments which need be sterilization.then press the button “START/STOP”,the “operation display window” show “HE”， the “pressure display window” show “-P”,the “temperature display window” show scrolling “---” .(Fig.7.4-1)

Attention:when the sterilizer turn on,the heating coil of sterilizer will heating automatically(even though the sterilizer not start sterilization working),after the sterilizer temperature have already over 40℃,then press “START/STOP” button, the “operation display window” not show “HE”,show “Po” and vacuum pump start working.

(2)***First times Pre-vacuum stage:*** when the temperature over than 40℃,the sterilizerwill start to do vacuum and the control system will open the vacuum pump solenoid valve(Ev4) ,time display window show “Po”， the “pressure display window” show “-P” .the “temperature display window” Show “temperature in chamber”,if the temperature in chamber less than 40℃,temperature display window show scrolling “---” . (Fig.7.4-2-1 Fig.7.4-2-2)

the one pre-vacuum program(Nude/Plastic) and three pre-vacuum program (Package/Cotton/B&D test/Helix test) are same in above running step(1)~(2).

the three pre-vacuum program following steps: (Package/Cotton/B&D test/Helix test)

(3)***First times Heating stage:*** When the end of the vacuum pump to work 4 minutes,the control system will open water pump solenoid valve(Ev2) and steam generator start inject the steam into chamber,temperature display window show high temperature and up.pressure display window show high pressure and up.operation display window show “Po” .(Fig.7.4-3)

(4)***First times Exhaust stage:***when the pressure up to about 1.1bar,the control system will open the exhaust-solenoid valve(Ev1) and drain water-solenoid valve(Ev5) for exhausting till pressure down to P=0.0bar.the time display window show “Po” .(Fig.7.4-4)

(5)***Second times Pre-vacuum stage:***when the pressure down to 0.0bar,the control system will open the vacuum pump solenoid valve(Ev4).the time display window show “Po”，the “pressure display window” show “-P”,the “temperature display window” show “temperature in chamber”. (Fig.7.4-5)

(6)***Second times Heating stage:*** When the end of the vacuum pump to work 3 minutes,the control system will open water pump solenoid valve(Ev2) and steam generator start inject the steam into chamber,temperature display window show high temperature and up.pressure display window show high pressure and up.operation display window show “Po” .(Fig.7.4-3)

(7) ***Second times Exhaust stage:***when the pressure up to about 1.1bar,the control system will open the exhaust-solenoid valve(Ev1) and drain water-solenoid valve(Ev5) for exhausting till pressure down to P=0.0bar.the time display window show “Po”. (Fig.7.4-4)

(8)***third times Pre-vacuum stage:***when the pressure down to 0.0bar,the control system will open the vacuum pump solenoid valve(Ev4).the time display window show “Po”，the “pressure display window” show “-P”,the “temperature display window” show “temperature in chamber”. (Fig.7.4-5)

(9)***third times Heating stage:*** When the end of the vacuum pump to work 3 minutes,the control system will open water pump solenoid valve(Ev2) and steam generator start inject the steam into chamber,temperature display window show high temperature and up.pressure display window show high pressure and up.operation display window show “HE” .when temperature in chamber up to 134℃,start sterilization.(Fig.7.4-6)

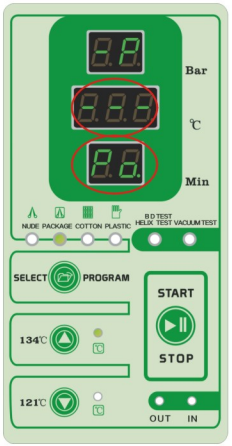


Fig.7.4-2-1

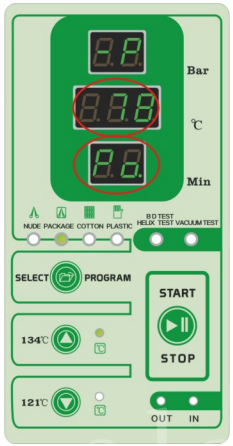


Fig.7.4-2-2

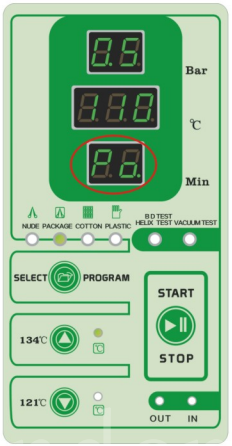


Fig.7.4-3

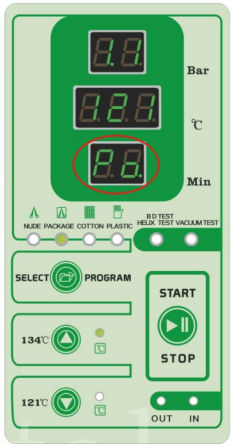


Fig.7.4-4

Fig.7.4-5

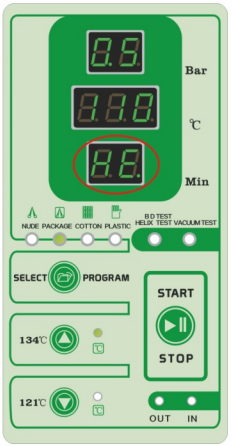


Fig.7.4-6

the one pre-vacuum program following steps: (Nude/Plastic)

(3)***First times Heating stage:*** When the end of the vacuum pump to work 4 minutes,the control system will open water pump solenoid valve(Ev2) and steam generator start inject the steam into chamber,temperature display window show high temperature and up.pressure display window show high pressure and up.operation display window show “HE”.(Fig.7.4-6)

(4)***First times Exhaust stage:***when the pressure up to about 1.1bar(134℃ sterilization program) or about 1.0bar(121℃ sterilization program),the control system will open the exhaust-solenoid valve(Ev1) and drain water-solenoid valve(Ev5) for exhausting till pressure down to P=0.0bar.the time display window show “HE”.(Fig.7.4-7-1、Fig.7.4-7-2)

(5)***Second times Heating stage:***when the pressure down to 0.0bar,the control system will open water pump solenoid valve(Ev2) and steam generator start inject the steam into chamber,temperature display window show high temperature and up.pressure display window show high pressure and up.operation display window show “HE”.when temperature in chamber up to 134℃(134℃ sterilization program) or 121℃(121℃ sterilization program),start sterilization.the next step to (10).(Fig.7.4-6)

the one pre-vacuum program(Nude/Plastic) and three pre-vacuum program (Package/Cotton/B&D test/Helix test) are same in below running step(10)~(13).

(10) ***Start sterilization stage:***when temperature reach 134℃ or 121℃,when pressure reach 2.1bar or 1.1bar,the sterilization start working.(Fig.7.4-8-1、Fig.7.4-8-2)
the pressure display window show “2.0~2.2” bar or “1.0~1.2” bar.
the temperature display window show “134~135” ℃ or “121~122” ℃.
the time display window show “sterilization time” Min. “sterilization time” based your selected sterilization program,you can check the Chap 7.2.

(11)***Exhaust stage:***when the sterilization time over,the control system will open the exhaust solenoid valve(Ev1)and drain water-solenoid valve(Ev5) for exhausting till pressure down to P=0.0bar.the time display window show “PL” .(Fig.7.4-9-1、Fig.7.4-9-2)

(12)***Drying stage:***when the pressure in chamber down to 0.0bar,the vacuum pump start working.time display window show “15” (Drying time of three times pre-vacuum program is 15Min)or “9” (Drying time of one times pre-vacuum program is 9Min).(Fig.7.4-10-1、Fig.7.4-10-2)

(13)***Balance atmospheric and print sterilization record stage:***When the drying work into the last minute,the vacuum pump be stopped.the control system will open the air solenoid valve(Ev3) for balance between the pressure in chamber and atmospheric,so that after the end of sterilization, you can easily open the door.the control system automatic transport sterilization data to external mini-printer printing and U disk.Therefore, until the last minute, you must insert U disk.
Until the time display window appear “Ed” ,at this time you hear “Ka” ,it means electromagnetic lock has been release.
You can open the door and take out the instruments.(Fig.7.4-11)

Fig.7.4-7-1

Fig.7.4-7-2

Fig.7.4-8-1

Fig.7.4-8-2

Fig.7.4-9-1

Fig.7.4-9-2

Fig.7.4-10-1

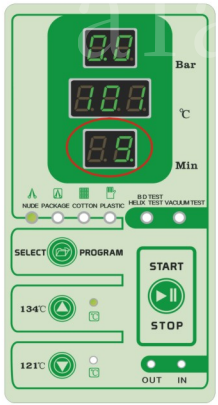


Fig.7.4-10-2

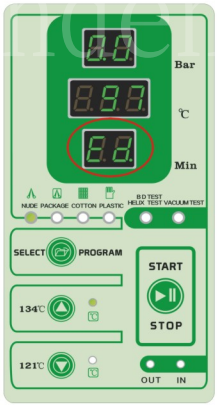
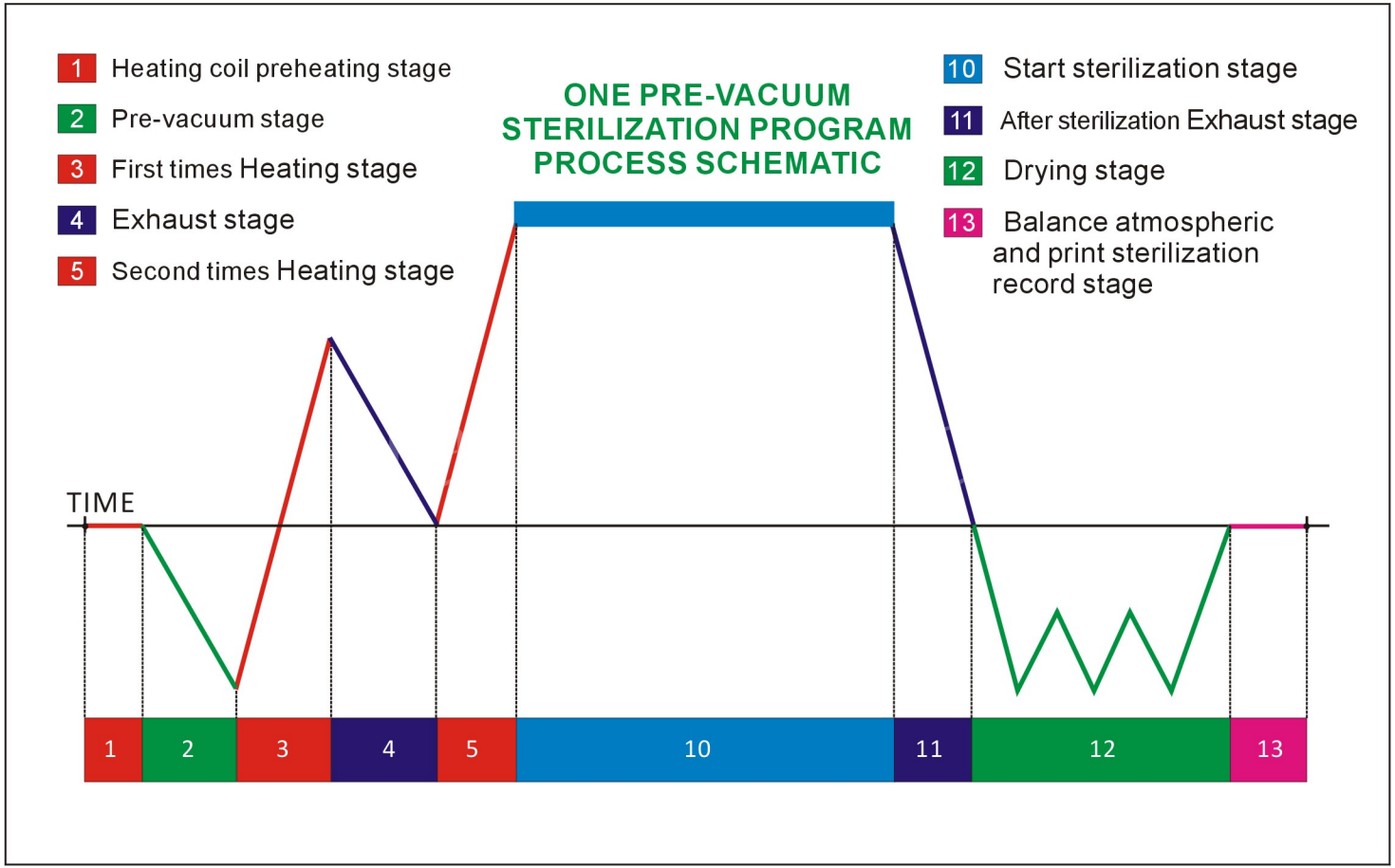
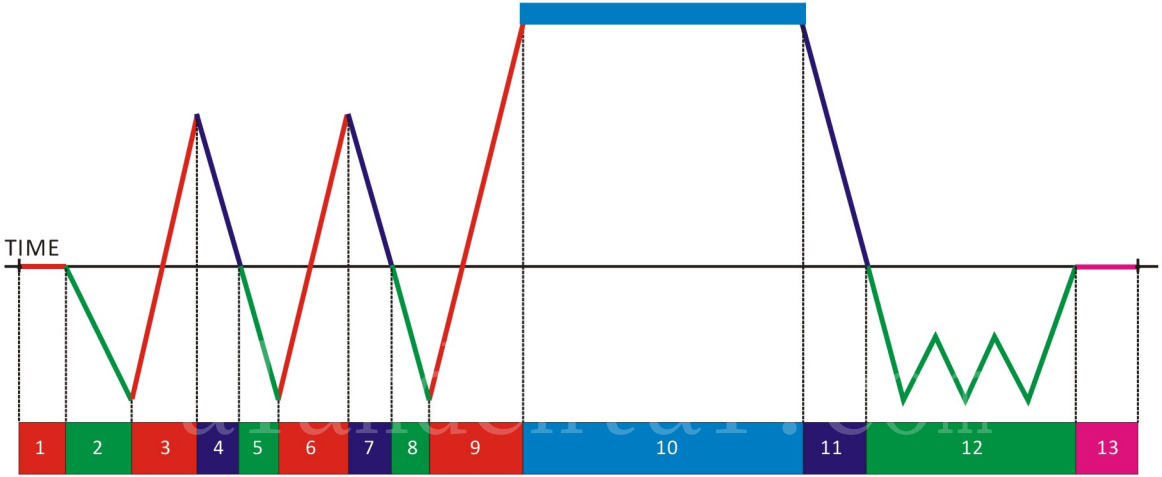


Fig.7.4-11


1 Heating coil preheating stage
2 Pre-vacuum stage
3 First times Heating stage
4 Exhaust stage
5 Second times Heating stage
ONE PRE-VACUUM STERILIZATION PROGRAM PROCESS SCHEMATIC
10 Start sterilization stage
11 After sterilization Exhaust stage
12 Drying stage
13 Balance atmospheric and print sterilization record stage
TIME
1
2
3
4
5
10
11
12
13

THREE PRE-VACUUM STERILIZATION PROGRAM PROCESS SCHEMATIC



1 Heating coil preheating stage

2 The First times pre-vacuum stage

3 The First times Heating stage

4 The First times Exhaust stage

5 The Second times pre-vacuum stage

6 The Second times Heating stage

7 The Second times Exhaust stage

8 The third times pre-vacuum stage

9 The third times Heating stage

10 Start sterilization stage

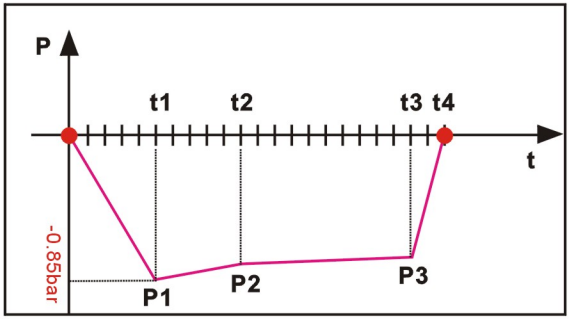
11 After sterilizationExhaust stage

12 Drying stage

13 Balance atmospheric and print sterilization record stage

Attention:Except for the above steps,which is related with vacuum pump vacuumize,that is JF-23 JF-18 sterilizer operating step!

the "vacuum test" program following steps:



This test is performed in order to check the performance of the unit, in particular:
-the efficiency of the vacuum pump;
-the seal of the pneumatic circuit.

The cycle is operated as follows:

(1)press "SELECT PROGRAM" button,indicator beating to "vacuum test" program.
(2)the vacuum pump start vacuuming,the operation display window appear 5 minutes countdown,vacuuming to the limit.(Fig.7.4-12)
(3)when the pressure reach limit value,the vacuum pump stop work. this pressure is maintained for 5 minutes and then measured P2.(Fig.7.4-12)
(4)this pressure is maintained for 10 minutes and then measured P3.(Fig.7.4-13)
(5)when the operation display window appear "2",start balance with the air pressure, after 2 minutes,you press "start/stop" button,after you hear "ka",you open the door.(Fig.7.4-14).If evaluation results is failure,please you check the seal leakage and pipeline leakage.

In compliance with EN 13060:2004,the test requires a tightness test of less than or equal to 13mbar during the 10 minutes of test;if the leakage is greater than this value,the outcome of the test is negative; the seal of the pneumatic circuit of the device must be chceked.

Vacuum test mark

Time

Indicator

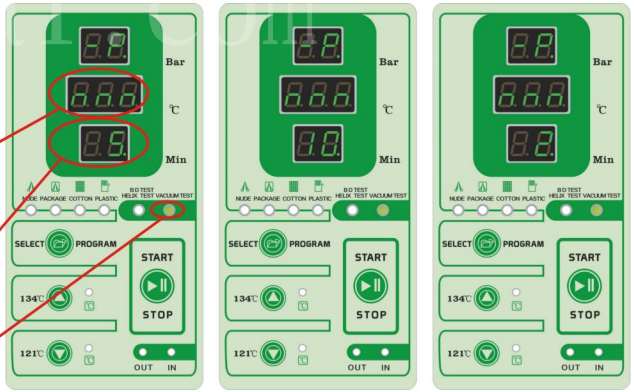


Fig.7.4-12 Fig.7.4-13 Fig.7.4-14

WARNNING:

1、Temperature requirements of vacuum test: the temperature in chamber must be tested under the normal state.Otherwise, the result of a vacuum test are inaccurate.
2、We recommend: if you need to do vacuum test, turn on the power, it should be subjected to vacuum testing now! Because the power is turned on, the heating ring had slowly begins to warm up, the temperature of chamber will gradually rise.

8、JY-12 JY-16 steam sterilizer operation

8.1 JY-12 JY-16 the first installation

8.1.1 open the sterilizer door and take out all the instrument plates and other accessories inside,unpack and clean them.

8.1.2 connect sterilizer to power source with plugging into the power tie-in with the accessory wire.

8.1.3 open the cover look down right sterilizer,turn on the power switch,switching the indicator light.(Fig.8.1-1)

8.1.4 you will hear "didi" , it remind you for there is no distiller water in the cleaned-water tank.in opera -tion panel "IN" the red caution light is bright(Fig.8.1-2).

8.1.5 appearing this clue,you must input distiller water to the cleaned-water tank,until reach the red level.(Fig.8.1-3)

Fig.8.1-1

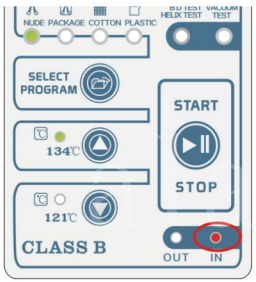


Fig.8.1-2

Fig.8.1-3

WARNING:
Please do not turn on power before you take out instruments.Otherwise, the package in chamber is a risk of being burned!

WARNING:The sterilizer must use distiller water.Otherwise,the solenoid valves and steam generator and pipeline will be blocked!

8.1.6 you will put the instruments into chamber,close the sterilizer door,according to instruments type to select corresponding sterilization program,press "START/STOP" button,you will hear "Ka" to inform you that the electricity controlled lock point reaches knob,then you can operate program automatically.

Attention:

1、only when the operation display window show stationary "Ld" ,befor press "START/STOP" button can start working. Fig.8.1-4.

2、when the operation display window show flashing "Ld" or "do" ,you need open the door, then close the door! If this step has been operated, the door is in a closed state, appeared in "Ld" or "do" flashing also.Please you check the door signal structure.Fig.8.1-5.

8.2 JY-12 JY-16 sterilization program list

Program	Temperature	Sterilization Time	Vacuum Times	Drying Time
Nude	134℃	4min	1times	9min
Package	134℃	4min	3times	15min
Cotton	134℃	18min	3times	15min
Plastic	121℃	15min	1times	9min
Helix test B&D test	134℃	3.5min	3times	9min
vacuum test	See Chap 8.4 “Vacuum Test” program steps			

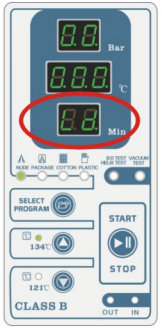


Fig.8.1-4

Fig.8.1-5

8.3 JY-12 JY-16 operation panel and function(Fig.8.3-1)

(1)Pressure display(bar):display the pressure in the chamber.unit:bar.
(2)Temperature display(℃):display the temperature in the chamber.unit:℃
(3)Operation display/Alarm code/time(Min).
Display the various processes during the sterilizing codes of alarming being displayed, please consult “alarm code and solutions”
tofind where the problem is.Being sterilization、Drying process、Shows time remaining.
(4)Sterilization program “Select Program” button
Select program button.Press “Select program” button to select the type of instruments being sterilization(Nude、Cotton、Package、Plastic) and two function program(B &D test\Helix test、Vacuum test)
(5)“121℃” and “134℃” temperature select button.
“℃” select button.there are two choice:121℃、134℃,the light of the selected one will be on.
(6)“START/STOP” button
START、STOP、Abnormallt Exit button.start sterilization process as you press this Button.as for abnormally exit during sterilization,you have to press “START/STOP” button 5 seconds,there will appear “E00” alarm code and flash on.Repress “START/STOP” button to relieve alarm,then enter vacuuming-drying process,after four

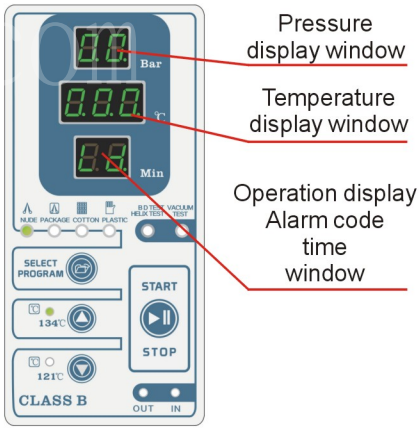


Fig.8.3-1

minute vacuuming,the Sterilizer automatically work to the end.this cycle is over,the operation display window show flashing “do”， the door of sterilizer can be opened.(Fig.8.3-2)

(7) “OUT” indictor

Used-water full indictor.if this indictor is on,please drain the water from used-water tank.

(8) “IN” indictor

Water shortage indictor.if this indictor is on,please add distilled water to clean-water tank.

8.4 JY-12 JY-16 sterilizer operation

After turn on the power,if the operation display shows flashing “Ld” or “do”,it means you need open the door,then close it again.Until the display window shows stationary "Ld".

When the operation display window show flashing “Ld” because you turn on power in the opened door state.

When the operation display window show flashing “do” because you turn on power in the closed door state.

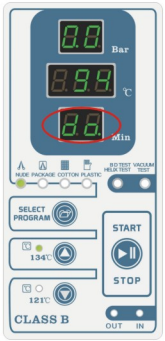


Fig.8.3-2

(1)***Heating coil preheating stage:***press the button “Select program” select the program the instruments which need be sterilization.then press the button “START/STOP”， the “operation display window” show “HE”， the “pressure display window” show “-.0”,the “temperature display window” show “temperature in chamber”.(Fig.8.4-1)

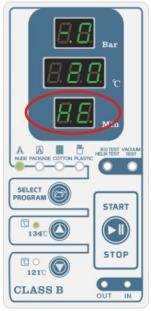


Fig.8.4-1

Attention:when the sterilizer turn on,the heating coil of sterilizer will heating automatically (even though the sterilizer not start sterilization working),after the sterilizer temperature have already over 40℃,then press “START/STOP” button, the “operation display window” not show “HE”,show “Po” and vacuum pump start working.

(2)***First times Pre-vacuum stage:*** when the temperature over than 40℃,the sterilizer will start to do vacuum and the control system will open the vacuum pump solenoid valve(Ev4).time display window show “4”， the “pressure display window” show “-.0”,the “temperature display window” show “temperature in chamber”. “Time display window show 4,3,2,1” means vacuum working time countdown,if within 4 minutes, the vacuum value of less than Pv (factory default setting Pv=-0.80bar) value, there will be alarm E12 or the vacuum value reaches Pv value in advance, sterilization program into heating stage in advance.(Fig.8.4-2)

(3)***First times Heating stage:*** when the vacuum value reach Pv value,the steam generator start inject the steam into chamber, temperature display window show high temperature and up.pressure the steam into chamber,temperature display window show high temperature and up.pressure display window show high pressure and up.operation display window show “Po”.(Fig.8.4-3)

(4)***First times Exhaust stage:***when the pressure up to about 1.0bar(134℃ sterilization program) or about 0.9bar(121℃ sterilization program),the control system will open the exhaust-solenoid valve(Ev1) for exhausting till pressure down to P=0.0bar. the time display window show “PL” .(Fig.8.4-4-1、Fig.8.4-4-2)

the one pre-vacuum program(Nude/Plastic) and three pre-vacuum program (Package/Cotton/B&D test/Helix test) are same in above running step(1)~(4).

the three pre-vacuum program following steps: (Package/Cotton/B&D test/Helix test)

(5)***Second times Pre-vacuum stage:***when the pressure down to 0.0bar,the sterilizer will start to do vacuum and the control system will open the vacuum pump solenoid valve(Ev4).time display window show “4”，the “pressure display window” show “-.0”,the “temperature display window” show “temperature in chamber”. “Time display window show 4,3,2,1” means vacuum working time countdown,if within 4 minutes, the vacuum value reaches -0.7bar value in advance, sterilization program into heating stage in advance.(Fig.8.4-2)

(6)***Second times Heating stage:*** When the vacuum value reaches -0.7bar value,the control system will open water pump solenoid valve(Ev2) and steam generator start inject the steam into chamber,temperature display window show high temperature and up.pressure display window show high pressure and up.operation display window show “Po” .(Fig.8.4-3)

(7) ***Second times Exhaust stage:***when the pressure up to about 1.0bar(134℃ sterilization program) or about 0.9bar(121℃ sterilization program),the control system will open the exhaust-solenoid valve(Ev1) for exhausting till pressure down to P=0.0bar. the time display window show “PL” . (Fig.8.4-4-1、Fig.8.4-4-2)

(8)***third times Pre-vacuum stage:***when the pressure down to 0.0bar,the sterilizer will start to do vacuum and the control system will open the vacuum pump solenoid valve(Ev4).time display window show “4”，the “pressure display window” show “-.0”,the “temperature display window” show “temperature in chamber”. “Time display window show 4,3,2,1” means vacuum working time countdown,if within 4 minutes, the vacuum value reaches -0.7bar value in advance, sterilization program into heating stage in advance.(Fig.8.4-2)

(9)***third times Heating stage:*** When the vacuum value reaches -0.7bar value,the control system will open water pump solenoid valve(Ev2) and steam generator start inject the steam into chamber,temperature display window show high temperature and up.pressure display window show high pressure and up.operation display window show “Po” .when temperature in chamber up to 134℃(134℃ sterilization program) or 121℃(121℃ sterilization program),start sterilization.(Fig.8.4-3)

the one pre-vacuum program following steps: (Nude/Plastic)

(5)***Second times Heating stage:*** When the pressure down to P=0.0bar,the control system will open water pump solenoid

valve(Ev2) and steam generator start inject the steam into chamber,temperature display window show high temperature and up. pressure display window show high pressure and up.operation display window show “Po” .when temperature in chamber up to 134℃(134℃ sterilization program) or 121℃(121℃ sterilization program),start sterilization.the next step to (10).

the one pre-vacuum program(Nude/Plastic) and three pre-vacuum program (Package/Cotton/B&D test/Helix test) are same in below running step(10)~(13).

(10) ***Start sterilization stage:***when temperature reach 134℃ or 121℃,when pressure reach 2.1bar or 1.1bar, the sterilization start working.(Fig.8.4-5-1、Fig.8.4-5-2)
the pressure display window show “2.0~2.2” bar or “1.0~1.2” bar.
the temperature display window show “134~135” ℃ or “121~122” ℃.
the time display window show “sterilization time” Min. “sterilization time” based your selected sterilization program, you can check the Chap 8.2.
Last minute, the time display will appear second countdown,e.g: “59,58,57.....1” .(Fig.8.4-6)

(11)***Exhaust stage:***when the sterilization time over,the control system will open the opened-solenoid valve(Ev1) for exhausting till pressure down to P=0.0bar.the time display window show “PL” .(Fig.8.4-7-1、Fig.8.4-7-2)

(12)***Drying stage:***when the pressure in chamber down to 0.0bar,the vacuum pump start working.time display window show “15” (Drying time of three times pre-vacuum program is 15Min)or “9” (Drying time of one times pre-vacuum program is 9Min).(Fig.8.4-8-1、Fig.8.4-8-2)

(13)***Balance atmospheric and print sterilization record stage:***When the drying work into the last minute, the vacuum pump be stopped.the control system will open the air solenoid valve(Ev3) for balance between the pressure in chamber and atmospheric,so that after the end of sterilization,you can easily open the door.when the “operation display window” show “Pt” ,it means the control system has transport sterilization data to external mini-printer and Print.(Fig.8.4-9)
Last minute, the time display will appear second countdown,e.g: “59,58,57.....1” .(Fig.8.4-10)
Until the time display window appear “Ed” ,at this time you hear “Ka” ,it means electromagnetic lock has been release. You can open the door and take out the instruments.(Fig.8.4-11)

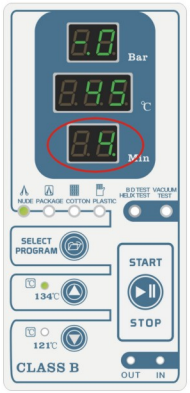


Fig.8.4-2

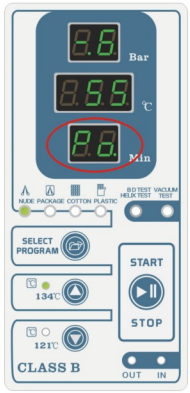


Fig.8.4-3

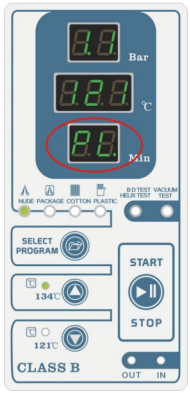


Fig.8.4-4-1

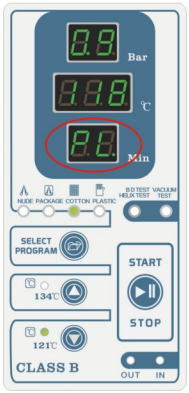


Fig.8.4-4-2

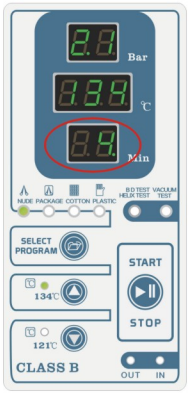


Fig.8.4-5-1

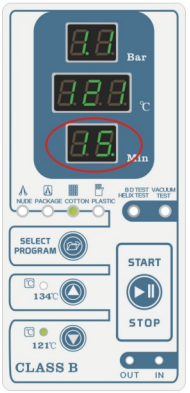


Fig.8.4-5-2

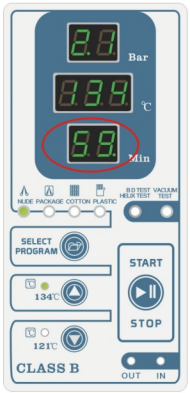


Fig.8.4-6

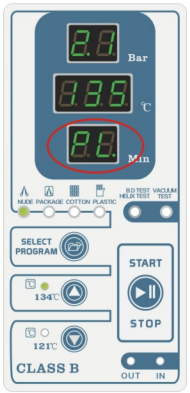


Fig.8.4-7-1

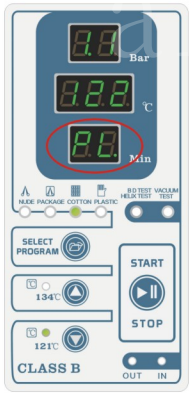


Fig.8.4-7-2

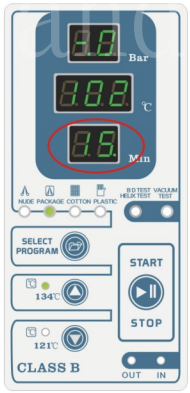


Fig.8.4-8-1

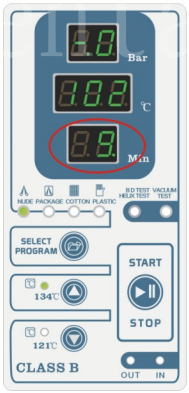


Fig.8.4-8-2

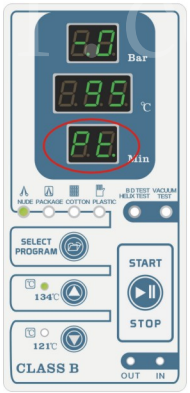


Fig.8.4-9

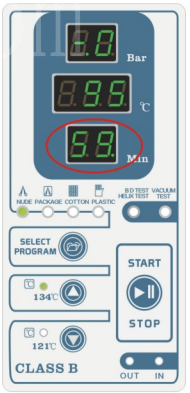


Fig.8.4-10

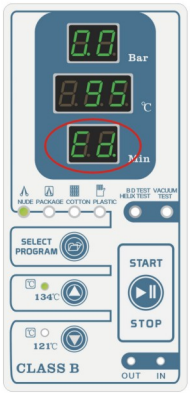
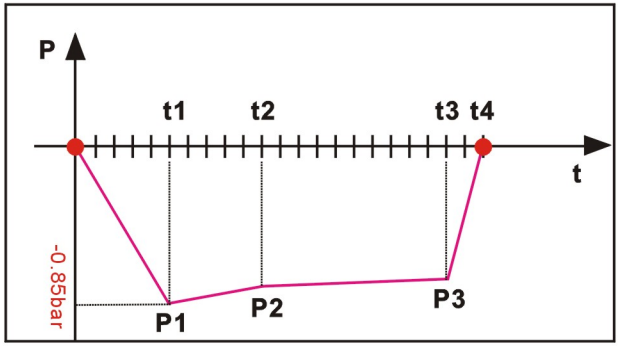


Fig.8.4-11

the "vacuum test" program following steps:



This test is performed in order to check the performance of the unit, in particular:
-the efficiency of the vacuum pump;
-the seal of the pneumatic circuit.

The cycle is operated as follows:

(1)press "SELECT PROGRAM" button,indicator beating to "vacuum test" program.
(2)the vacuum pump start vacuuming,the operation display window appear 5 minutes countdown.if the pressure in chamber reach -0.85 bar(P1) in advance,go to the next step in advance.(Fig.8.4-12)
(3)when the pressure reach -0.85bar,the vacuum pump stop work. this pressure is maintained for 5 minutes and then measured P2.(Fig.8.4-13)
(4)this pressure is maintained for 10 minutes and then measured P3.(Fig.8.4-14)
(5)time countdown is over,operation display window show evaluation results "ok ok" or "Er Er" ,this pressure in chamber balance with the air pressure, after 2 minutes,you press "start/stop" button,after you hear "ka" ,you open the door.(fig.8.4-15).
If evaluation results is "Er" ,please you check the seal leakage and pipeline leakage.

In compliance with EN 13060:2004,the test requires a tightness test of less than or equal to 13mbar during the 10 minutes of test;if the leakage is greater than this value,the outcome of the test is negative; the seal of the pneumatic circuit of the device must be chceked.

WARNNING:

1、Temperature requirements of vacuum test: the temperature in chamber must be tested under the normal state.Otherwise, the result of a vacuum test are inaccurate.
2、We recommend: if you need to do vacuum test, turn on the power, it should be subjected to vacuum testing now! Because the power is turned on, the heating ring had slowly begins to warm up, the temperature of chamber will gradually rise.

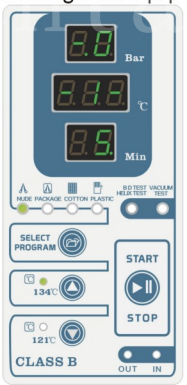


Fig.8.4-12

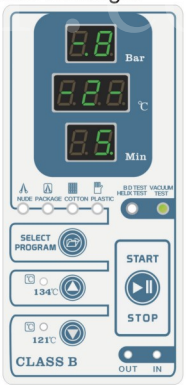


Fig.8.4-13

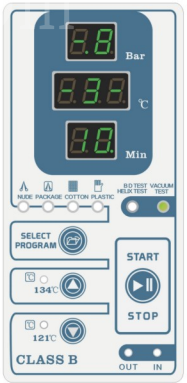


Fig.8.4-14

Fig.8.4-15

9、SJY-8 steam sterilizer operation

9.1 SJY-8 The first installation

9.1.1 open the sterilizer door and take out all the instrument plates and other accessories inside,unpack and clean them.

9.1.2 connect sterilizer to power source with plugging into the power tie-in with the accessory wire.

9.1.3 open the cover look down right sterilizer,turn on the power switch,switching the indicator light.(Fig.9.1-1)

9.1.4 you will hear “didi”， it remind you for there is no distiller water in the cleaned-water tank.in opera -tion panel “IN” the red caution light is bright(Fig.9.1-2).

9.1.5 appearing this clue,you must input distiller water to the cleaned-water tank,until reach the red level.(Fig.9.1-3)

Fig.9.1-1

Fig.9.1-2

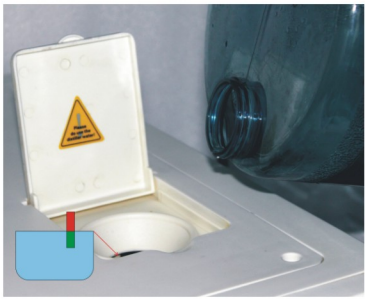


Fig.9.1-3

WARNING:
Please do not turn on power before you take out instruments.Otherwise, the package in chamber is a risk of being burned!

WARNING:The sterilizer must use distiller water.Otherwise,the solenoid valves and steam generator and pipeline will be blocked!

9.1.6 you will put the instruments into chamber,close the sterilizer door,according to instruments type to select corresponding sterilization program,press “START/STOP” button,you will hear “Ka” to inform you that the electricity controlled lock point reaches knob,then you can operate program automatically.

Attention:

1、only when the operation display window show stationary “Ld”,befor press “START/STOP” button can start working. Fig.9.1-4.

2、when the operation display window show flashing “Ld” or “do”,you need open the door, then close the door! If this step has been operated, the door is in a closed state, appeared in “Ld” or “do” flashing also.Please you check the door signal structure.Fig.9.1-5.

9.2 SJY-8 sterilization program list

Program	Temperature	Sterilization Time	Vacuum Times	Drying Time
Nude	134℃	4min	1times	9min
Package	134℃	4min	3times	15min
Plastic	121℃	15min	1times	9min

Fig.9.1-4

Door signal switch

Fig.9.1-5

9.3 SJY-8 operation panel and function(Fig.9.3-1)

(1)Pressure display(bar):display the pressure in the chamber.unit:bar.

(2)Temperature display(℃):display the temperature in the chamber.unit:℃

(3)Operation display/Alarm code/time(Min).

Display the various processes during the sterilizing codes of alarming being Displayed,please consult “alarm code and solutions” tofind where the problem is.Being sterilization、Drying process、Shows time remaining.

(4)Sterilization program “Select Program” button

Select program button.Press “Select program” button to select the type of instruments being sterilization(Nude、Cotton、Plastic).

(5)“121℃” and “134℃” temperature select button.

“℃” select button.there are two choice:121℃、134℃,the light of the selected one will be on.

(6)“START/STOP” button

START、STOP、Abnormallt Exit button.start sterilization process as you press this button.as for abnormally exit during sterilization,you have to press “START/STOP” button 5 seconds,there will appear “E00” alarm code and flash on.Repress “START/STOP” button to relieve alarm,then enter vacuuming-drying process,after four minute vacuuming,the Sterilizer

Fig.9.3-1

automatically work to the end.this cycle is over,the operation display window show flashing “do”， the door of sterilizer can be opened.(Fig.9.3-2)

(7) “OUT” indictor

Used-water full indictor.if this indictor is on,please drain the water from used-water tank.

(8) “IN” indictor

Water shortage indictor.if this indictor is on,please add distilled water to clean-water tank.

Fig.9.3-2

9.4 SJY-8 sterilizer operation

Operation steps refer to Chapter .8. JY-12 JY-16 steam sterilizer.

10、the tank full warnning and emptying method

10.1 Used-water tank

10.1.1 JY-A-18 JY-A-23 JY-18 JY-23 steam sterilizer warnning

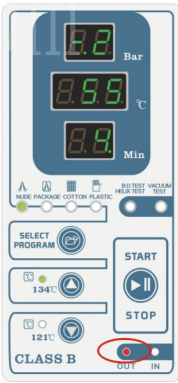
when the “OUT” red light on the operation panel is on,it means that the Used-water tank is full.you should empty Used-water in time.(Fig.10.1-1)

10.1.2 JQ-18 JQ-23 steam sterilizer warnning

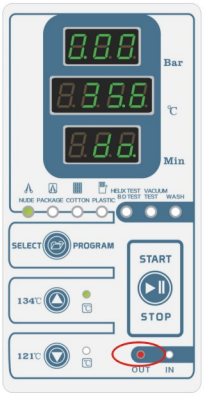
when LCD appear “Please discharge waste water!”, It means that the Used-water tank is full.you should empty Used-water in time.(Fig.10.1-2)

SJY-8

JY-18 JY-23



JY-12 JY-16



JY-A-18 JY-A-23

Fig.10.1-1

Fig.10.1-2

Attention:During the sterilization process show “Please discharge waste water!” Or “OUT”,this work can finish completely. because the design of the Used-water tank has some margin space to meet displacement, which is required by a max sterilization cycle; but before starting the next cycle,used-water should be drained.otherwise,it can not start next cycle!

10.1.3 JQ-18 JQ-23 JY-A-18 JY-A-23 JY-18 JY-23 JY-12 JY-16 steam sterilizer emptying
Emptying Used-water method:you open the bottom right of the small cover,put the silicone tube inserting into the switch of "Used-water out" mark,rotating this switch by counter-clock wise and after emptying,closed the switch.(Fig.10.1-3)
10.1.4 SJY-8 steam sterilizer emptying
Emptying Used-water method:at the bottom of the back of the sterilizer,put the silicone tube inserting into the switch of "Used-water out" mark,rotating this switch by counter-clock wise and after emptying,closed the switch. (Fig.10.1-4)

10.2 clean-water tank

10.2.1 JY-A-18 JY-A-23 JY-18 JY-23 JY-12 JY-16 SJY-8 steam sterilizer
sterilizer warnning when the "IN" red light on the operation panel is on,it means that the storage water tank is lack of water, you should add distiller water in time.But you can not exceed the red mark level cordon.
10.2.2 JQ-18 JQ-23 steam sterilizer warnning
when LCD appear "Please add distilled water!",you should add distiller water in time.But you can not exceed the red mark level cordon.

Attention:During the sterilization process show "Please add distlled water!" Or "IN",this work can finish completely. because the design of the cleaned-water tank has some margin space to meet displacement,which is required by a max sterilization cycle;but before starting the next cycle,cleaned-water should be drained.otherwise,it can not start next cycle!

10.2.3 JQ-18 JQ-23 JY-A-18 JY-A-23 JY-18 JY-23 JY-12 JY-16 steam sterilizer emptying
Emptying cleaed-water method:you open the bottom right of the small cover,put the silicone tube inserting into the switch of "cleaned-water out" mark,rotating this switch by counter-clock wise and after emptying,closed the switch.(Fig.10.2-1)
10.2.4 SJY-8 steam sterilizer emptying
Emptying cleaned-water method:at the bottom of the back of the sterilizer,put the silicone tube inserting into the switch of "cleaned-water out" mark,rotating this switch by counter-clock wise and after emptying,closed the switch. (Fig.10.2-2)

Fig.10.1-3

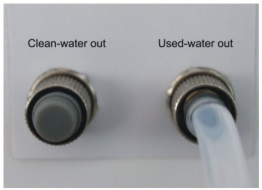


Fig.10.1-4

Fig.10.2-1

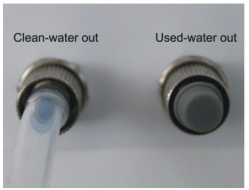


Fig.10.2-2

11.Maintenance

11.1 Safety warnnings

Before performing any maintenance operations,carefully read the following safety instructions and, especially ,
WARNING: when replacing components that directly or indirectly affect **safety**,it is essential to only use **ORIGINAL SPARE PARTS.**

DANGER: HIGH INTERNAL VOLTAGE.
WARNING:DISCONNECT THE POWER SUPPLY BEFORE STARTING WORK. Non-observance may cause serious injury to people and seriously damage the unit.

ALL MAINTENANCE OPERATIONS MAY ONLY BE PERFORMED BY THE RESPONSIBLE AUTHORITY OR BY THE TECHNICIANS AUTHORISED BY THE ASSISTANCE SERVICE OF OUR COMPANY.

--Observe the intervals prescribed or shown in this manual.Activates memorandum messages to assist the user in performing both the ordinary and the extraordinary maintenance operations.
-- It is forbidden to eliminate the safety devices installed on the machine
-- Check them at regular intervals.
-- If an effective danger situation arises, press the ON-OFF button immediately.
-- Unauthorised people must stay at a safe distance from the machine during maintenance operations.

After maintenance and before starting the unit, the responsible authority must make sure that work has been done correctly, that the safety devices are active and that no-one is already working the unit.

11.2 Routine Maintenance

Just like all electric units, this unit must be correctly used,serviced and checked at regular intervals.These precautions will ensure the unit works continuously, safely and effectively.
To prevent operator hazards, the unit must be subject to regular checks and servicing by the technical assistance service.
--To maintain the unit in good working order, periodically clean all the external parts using a soft damp cloth and normal,neutral detergent (do not use corrosive or abrasive products).
--Do not use abrasive cloths, pads or metal brushes (or anything abrasive) to clean the metal.

--Before starting each cycle, clean the door seals carefully using a damp cloth.
--The formation of white stains on the base of the chamber shows that the demineralised water used is of poor quality.

Maintenance programme

FREQUENCY	OPERATION
DAII.Y	Cleaning of the door seal. General cleaning of the external surfaces. General cleaning of the internal surfaces.
WEEKLY	Cleaning of the sterilization chamber. Cleaning of the trays and the support.
ANNUALY	Maintenance of the safety valve.
EVERY 500	CYCLES Replacement of the bacteriological filter.
EVERY 500	CYCLESReplacement of the seals.
AFTER 10 YEARS	Request a structural check of the chamber.
WHEN NECESSARYA	Djustment of the closing mechanism.

Cleaning the sterilization chamber, accessories, door and seal.

WARNING: DISCONNECT THE POWER SUPPLY BEFORE STARTING WORK. Non-observance may cause serious injury to people and may seriously damage the unit.

Sterilization chamber

Clean the sterilization chamber thoroughly (Fig.11.2-1),after having removed the tray support,using a non-abrasive damp cloth. To dampen the cloth, use only and exclusively distilled or demineralised water. Follow the same procedure for cleaning the trays and their support. Cleaning the sterilization chamber is important for eliminating deposits that could compromise the good working order of the machine.To dismount the tray support:
remove the support from the chamber (Fig.11.2-2), taking care not to damage the probe at the bottom of the chamber. After

cleaning, perform the above operation in reverse order.

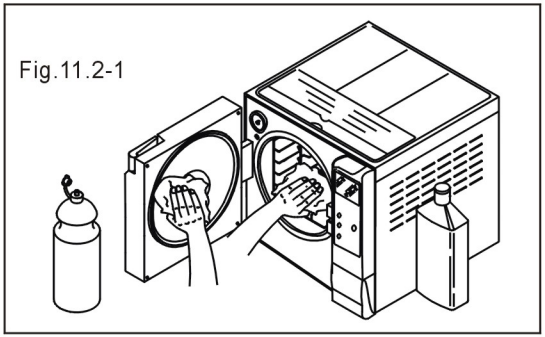


Fig.11.2-1

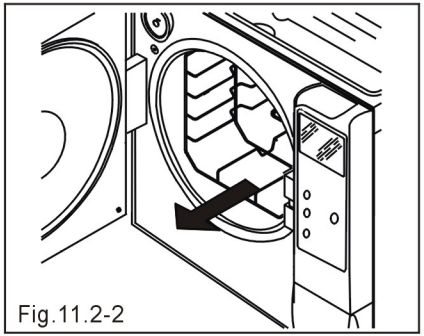


Fig.11.2-2

Do NOT use disinfecting substances to clean the chamber.

Seal and door

Clean the seal and door with a damp cloth(Fig.10.2-3),dampened with water or vinegar to eliminate traces of lime-scale.Cleaning should be carried out to remove any impurities that could cause a lack of pressure in the sterilization chamber and possible cuts in the seal.

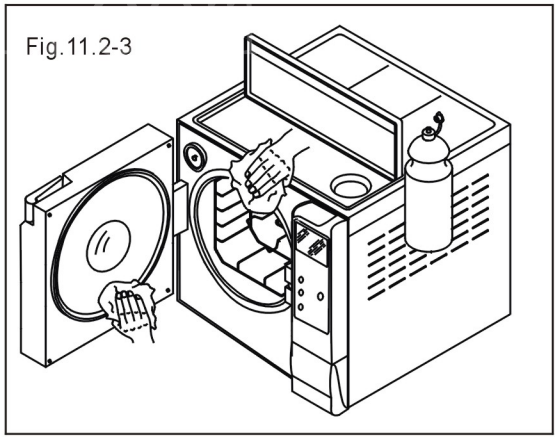


Fig.11.2-3

WARNING: do not allow residues of lime-scale or dirt to accumulate on the seal, since these can damage orbreak it over time.

To maintain the unit in good working order,periodically clean all the external parts using a soft cloth and normal neutral detergents or just water (do not use abrasive products).

Do NOT wash the unit with direct sprays or high-pressure jets or water,since any infiltration into the electrical components could prejudice the working of the machine and the safety systems.

Emptying and cleaning the tanks

WARNING: DISCONNECT POWER SUPPLY. Non-observance may cause serious injury topeople or may seriously damage the unit.

WARNING: if the unit is not used for more than three days, both tanks should be emptied to prevent deposits from forming.

1. Empty the clean water tank: fit the end of the tube with the connector into the connector at the bottom of the front of the unit (Chapter 10.1) and the other end into an empty container.
2. Empty the internal tank for collecting used water: fit the end of the transparent tube into the connector at the bottom of the front of the unit (Chapter 10.2) and the other end into an empty container.
3. At the end of the draining operation, remove the tube from the connector by pressing on the clip.
4. Remove the cover in order to access the tanks:

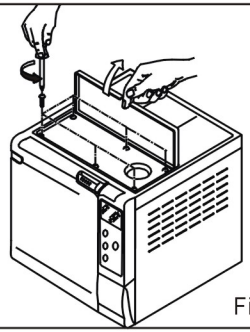


Fig.11.2-4

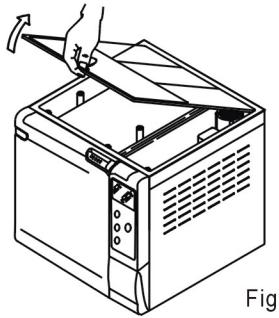


Fig.11.2-5

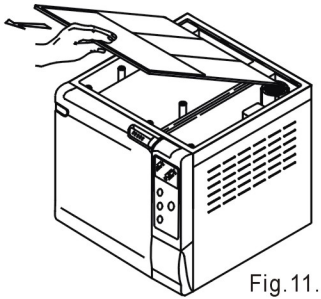


Fig.11.2-6

5.Carefully clean the tanks with the sponge supplied and water,using it on the spongy side and not on the abrasive side.Clean with care, paying particular attention to any dirt that may have deposited in the corners.
6.**Rinse thoroughly** and empty the water used for this operation.
7.Run a sterilization cycle without loading the unit.

WARNING: while performing all cleaning operations, **be careful not to damage the floating sensors** situated in the tanks.

11.2.1 Periodic Maintenance

WARNING: DISCONNECT POWER SUPPLY BEFORE STARTING WORK. Non-observance may cause serious injury to people or may seriously damage the unit.

Servicing the safety valve

WARNING: HIGH TEMPERATURE. Only perform this operation when the machine is cold.
WARNING: DISCONNECT POWER SUPPLY BEFORE STARTING WORK. Non-observance may cause serious injury to people or may seriously damage the unit.

1.Access the safety valve mounted at the rear of the machine.
2.Turn the plug located on the upper part of the valve anti-clockwise until it reaches the end of the thread and turns loose.
3.Return the plug to its original position,screw it back on and repeat the operation from the beginning at least a couple of times.

WARNING: this operation ensures the safety valve works correctly over time. Make sure the plug is properly closed afterwards.

Adjusting the closing mechanism

WARNING: HIGH TEMPERATURE. Only perform this operation when the machine is cold.

The closing mechanism of the unit occasionally requires adjusting due to normal settling of mechanical parts and wear on the seal gasket.This is particularly important as a poor seal may prevent the pressure from increasing to the level set for the selected program and therefore jeopardise the result of the cycle.Proceed as follows
1. Open the door. **Always work with the unit cold.**

2.Fit the extraction and adjustment lever between the door gasket and the guard,holding it with its widest part.Slip the tip into the nut in the middle of the door gasket.
3.Turn the adjustment pin anticlockwise, looking at the door gasket, by 1/8 of a turn (to close).
4.Check that the door closes properly. If the handle is too hard to close, turn a little in the opposite direction (clockwise).
5.Carry out a test cycle to check it is correctly adjusted.

Resetting the safety thermostat

WARNING: the safety thermostat can only be reset by the responsible authority.
WARNING: DISCONNECT POWER SUPPLY BEFORE STARTING WORK. Non-observance may cause serious injury to people or may seriously damage the unit.
WARNING: HIGH TEMPERATURE. Only perform this operation when the machine is cold.

To reset the safety thermostat, proceed as follows:
1. Wait for about 10 minutes for the machine to cool down.
2. Unscrew the black protruding cap (the bottom right at the rear of the machine) .
3. Press the red button inside the hole with a pointed object (such as a screwdriver).
4. Screw the black cap on. The machine has now been reset.

After resetting the safety thermostat, reconnect power supply, restart the cycle and make sure the fault has been eliminated.

WARNING: if the fault persists, switch off the unit and call the Technical Assistance Service. Do not reset the thermostat again. PERFORM THIS OPERATION JUST ONCE.

11.3 Extraordinary Maintenance

Any jobs not mentioned above are considered as extraordinary maintenance. In these cases, contact specialists authorised by Getidy M,I.Co.,ltd.

The Air filter and the gasket are components that are not covered by the guarantee.

Service maintenance

After 1000 cycles or after two years from installation,This can only be performed by specialists authorised by our company.

WARNING:extraordinary maintenance must only be performed by specialists authorised by our company.

Replacing the Air filter

--Unscrew the Air filter by turning it anticlockwise;
--Screw on the new filter by turning it clockwise until it is tight.

Replancing the door sealing

--Grip the lip of the sealing with two fingers and remove it;
--Clean the seat of the seal with a cloth soaked in alcohol;
--Fit the new seal into the seat located in the door and distribute it evenly around the circumference by applying the same pressure on the entire gasket with your fingers.Then lift up the lip of the gasket tomake s ure no points have been badly fitted;
--Switch on the autoclave,close the door making sure the correct closing force is required; if necessary,adjust the closing force with the relative adjustment wrench.

Cleaning the draining water filter

If necessary, cleaning the the draining water filter.Unscrew the filter as showed in the picture and clean it with water. Take care that the screw or other object fall down into the solenoid valve.(Fig.11.3-1)

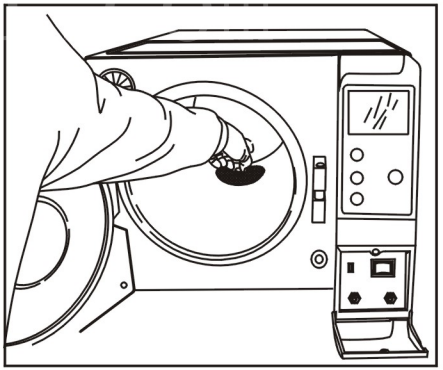


Fig.11.3-1

Power fuse

The fuse on the internal card is of the type:
5X20-10A(AC 230V/50Hz/60Hz);5X20-20A(AC 110V/60Hz)

11.3.1 Rusting

The unit is made from materials that make it impossible for rust to form on the instruments to sterilize.
The formation of rust on the surfaces of the unit or instruments is caused by the introduction of rusty instruments,even if

made from stainless steel, or of instruments in normal steel that cause galvanisation to take place.
The introduction of a single instrument with a rust stain is often sufficient to form and develop rust on the instruments and in the unit itself.

WARNING: DISCONNECT POWER SUPPLY BEFORE STARTING WORK.Non-observance may cause serious injury to people or may seriously damage the unit.

If rust forms in the unit,clean the walls of the sterilization chamber and the tray holder using special products for stainless steel, as described previously in the paragraph "Cleaning the sterilization chamber, accessories,door and gasket".

WARNING: do not use metal sponges or brushes.Use a damp soft cloth to remove dirt stains.

12 Scraping

12.1 Scraping Instructions

The Sterilizer unit has been manufactured using ferrous materials, electrical components and plastics. To scrap the unit, separate the various components according to the material they are made of in order to simplify reuse or differentiated disposal.
No particular operations are required after scrapping.
Do not dump the unit.
Take it to a disposal company.
Always comply with the current laws governing the scrapping of material in the country of use.

12.2 Resale

If the unit is sold,hand over all the technical documentation to the new purchaser,inform him/her about any repair work carried out and how to use and service the machine. Also infor our compay of the sale and provide it with data about the new purchaser.

APPENDIX 1 Preparing the instruments for sterilization

A correct sterilization depends on the processes described below being carried out correctly; these are al lequally important and, therefore, care must be taken while performing them.
1. Preparing the instruments to sterilize; **2.** Packing; **3.** Loading; **4.** Sterilization;
5. Preserving the sterilized instruments; **6.** Routine maintenance of the unit.
All the objects must be decontaminated and carefully cleaned and dried before being sterilized. In the case of instruments with parts that are joined to each other, divide the parts or open them as wide apart as possible.

In the case of overalls or other reusable fabrics, these must be washed and dried after use and before sterilization,to remove organic material and lengthen the "life" of the fabric, restoring it with its natural watercontent (i.e. degree of humidity).

The objectives of the initial decontamination procedure are as follows:
a) inactivating bacterial proliferation; b) preventing mutual contamination while handling instruments;
c) preventing any products present on the instrument from drying up; d) protecting personnel
Decontamination is carried out using detergents and, generally, solutions that are active against HIV, HBV and HCV,or by washing at 93°C for ten minutes in thermo-disinfectors. Observe the indications given in thetechnical data sheets of the products used.
The instruments are cleaned so as to eliminate blood, saliva,dentin and organic substances in general, that may damage the materials to be sterilized or even the sterilizer itself.The use of ultrasound baths isrecommended,which offer numerous advantages with respect to traditional cleaning methods, such as efficacy,speed and delicacy on the object being cleaned; always follow the recommendations provided by the respective manufacturers. In general, after ultrasound cleaning with detergent and/or disinfectant,rinsing the instrument is recommended, in that the disinfectant may take on corrosive characteristics as a result of the heat.

Always clean the solution carefully to avoid residues of moisture.Once dry, the instruments to be sterilized in the unit must be appropriately packaged, whereas those to be cold sterilized must be immersed in the appropriate chemical solution (glutaraldehyde, paracetic acid, etc.).
Checking the instruments to be used is also important: ensure that devices with the following characteristics are not subject to sterilization:
- breaks
- stains
- rust
- mono-use devices that cannot be reused

APPENDIX 2 Packaging

The correct packaging of the materials is essential in ensuring that sterility is maintained.Packaging of the instruments is done so as to maintain the materials sterile until the time of their use.

The way in which the sterilized instruments are packaged, and then stocked, determines the state of preservation of sterilization.

The following can be used as containers: metal containers with lids or perforated bottoms with filters in paper, pouches in paper

or polypropylene,Medical Grade paper or trays that are perforated or with grilles.
Pouches in paper-polypropylene are excellent packaging systems for steam sterilizing small sets of surgical instruments or individual instruments.

Use materials that comply with **EN868-1** for packaging the materials to sterilize.

Do not re-sterilize the pouches in paper-polypropylene and the Medical Grade,in that they undergo a substantial change in their structural characteristics and would no longer guarantee the characteristics of "protective barrier".

For packaging, observe the following recommendations (for pouches in paper-polypropylene):
1. Contents must not exceed ¾ of the volume of the pouch
2. The instruments must be positioned so that they can be extracted by their handle
3. The sealing strip on the pouch must be continuous with a height of at least 6mm (UNI EN 868-3).

Each package prepared must at least indicate the date of sterilization, the type of cycle performed and the date in which the preservation of sterility expires; this latter value must be established considering the length of preservation of sterility as indicated by the manufacturer of the packaging material,the internal procedure used and the stocking conditions of the sterilized material itself.
Instruments packaged in individual pouches have a life (in terms of sterility) of 30 days, those in double pouches of 60, if kept in closed cabinets.These values are,in any case,to be considered indicative,in that the date of preservation is influenced by various factors,such as the environmental microbic level,the granulometry of environmental dusts (that act as carriers of micro-organisms),as well as the temperature, pressure and ambient humidity parameters and the degree of handling of the sterilized material.

Packaging methods that make it possible to avoid partial withdrawals and that allow for mono-patient use are optimum.

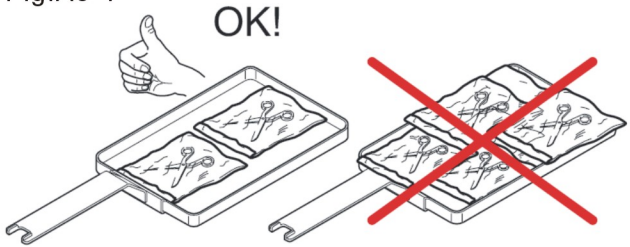
APPENDIX 3 Positioning the load

The way in which the load to sterilize is arranged is also considerably important to the sterilization process.Always observe the maximum load indicated in this manual,a value that has been tested by the manufacturer and that is therefore valid.
- Always use the tray supports, to facilitate the circulation of steam.
-Do not load trays that are not being used.
-Load the unused trays in an upside down position, to avoid any accumulation of water in the boiler.
-Where it is necessary to sterilize loose instruments, it is advisable to cover the tray with sheets of Tray Paper to avoid any

direct contact of the instruments with the tray.
-Ensure that instruments of different materials are separated and placed on different trays.
-For improved sterilization,open instruments such as pincers,scissors,or other composite instruments.
-Position the instruments sufficiently distant from one another that they remain separate for the whole sterilization cycle.
-Do not stack instruments on the tray: overloading could compromise sterilization.
-Mirrors should be placed glass side down.
-Do not stack the trays on top of each other,but use the tray support.It is necessary to leave a space between each tray to allow for the circulation of steam during the sterilization phase and then to facilitate drying.
-Place a chemical sterilization indicator on each tray.

- *Tubes*
  After the tubes have been cleaned normally, rinse them using water without pyrogene.
  Place them on the tray so that the two ends are open and so that they do not bend or twist.
- *Packages*
  Place the packages upwards, next to each other, do not allow them to come into contact with the sides of the chamber.
- *Material in pouches*
  When sterilizing material in pouches, do not overlap the pouches on the trays (Fig. A3-1).
  Place the pouch with the transparent side face down (in contact with the tray) and with the paper face up (Fig. A3-2).
  Instruments must be put into separate pouches.

Fig.A3-1



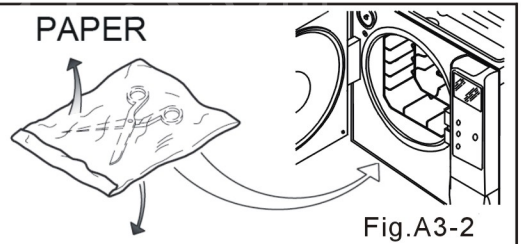


Fig.A3-2

FILM (transparent part)

After following the instructions above, put the tray holder and trays into the sterilization chamber.

WARNING: insert the tray support and the trays, paying particular attention not to damage the door gasket.

APPENDIX 4 Description of Tests

It is important to periodically verify the performance of the unit by performing the appropriate tests; JQ-A series can perform three different ones:

--B&D test -- Vacuum test -- Helix test

The frequency at which these tests should be performed is indicated below:

Vcauum Test	**Monthly**
B&D Test	**Daily**
Helix Test	**Daily**

The parameters of the respective cycles are as follows:

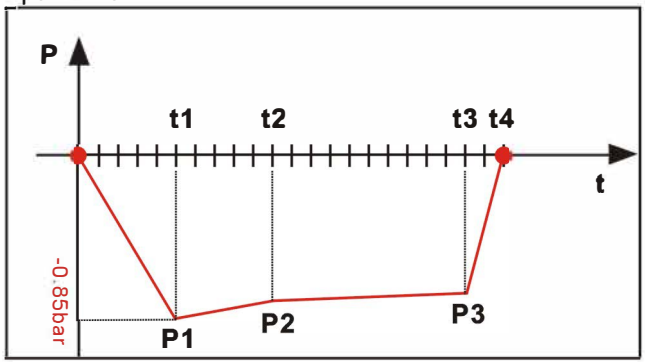
Parameter cycles	Vacuum Test	B&D Test	Helix Test
Temperature	----------	135.5℃	135.5℃
Pressure	-0.85bar	2.16bar	2.16bar
Sterilization	----------	3'30"	3'30"
Drying	----------	9'	9'

Vacuum Test

This test is performed in order to check the performance of the unit, in particular:
- the efficiency of the vacuum pump;
-the seal of the pneumatic circuit.

The cycle is structured as follows:
1. a vacuum is created up to -0.85bar.
2. this pressure is maintained for 5 minutes and then measured
3. pressure is maintained for 10 minutes and then measured
4. Pressure in Chamber balance with the air pressure,2 min.

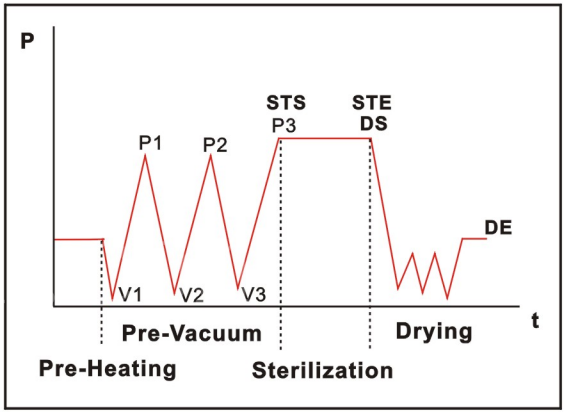
In compliance with EN 13060:2004,the test requires a tightness test of less than or equal to 13mbar during the 10 minutes of test;if the leakage is greater than this value,the outcome of the test is negative; the seal of the pneumatic circuit of the device must be chceked.



In order to achieve a correct result, the test must be carried out with the unit cold, i.e.within 3 minutes from machine start-up.

Bowie & Dick test

This is a chemical-physical test that is also known as the Brown test: the indicator is a heat-sensitive sheet that is placed in the middle of a packet made up of various layers of paper and foam rubber.
The B&D test simulates the performance of the unit with regard to the sterilization of porous loads, in particular:
--the efficiency of the preliminary vacuum and the penetration of steam within the pores;
--the temperature and pressure values of the saturated steam during the sterilization phase.

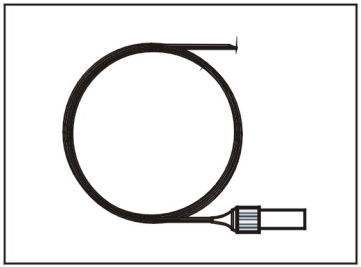


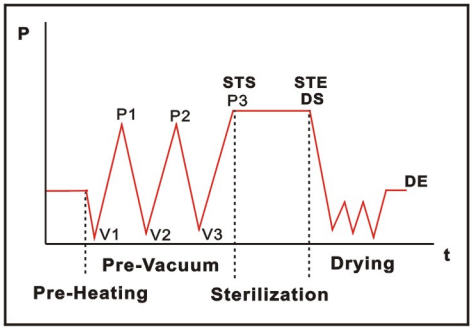
The packet for the B&D test must be inserted on its own, preferably on the lowest tray, with the label facingup.
After performing the cycle, specifically the 134 cycle, immediately verify the test. Being careful while handling
the packet (it is still hot), remove the indicator sheet and follow the instr-uctions given in the package for evaluating the result of the test.

Helix test

The Helix test represents a hollow A-type load, i.e. the load with themost critical characteristics.
The test consists of a tube in polytetrafluoroethylene (PTFE)with a length of 150mm and internal diameter of 2mm.
The Helix test simulates the performance of the unit with respect to the sterilization of hollow loads,in particular:

--the efficiency of the preliminary vacuum and the penetration of steam within the pores;
--the temperature and pressure values of the saturated steam during the sterilization phase.





WARNING: carry out the Helix test only after a sterilisation cycle.

After placing the strip in the capsule, position the tube on the lowest tray inside the sterilization chamber.
At the end of the cycle, take the tube out immediately (with care in that the load is still hot)and verify the result of the test,referring to the indications given on the package.

APPENDIX 5 Validating the cycles

With reference to standard EN 13060, the following cycles have been validated:

	134℃-04min-15min-3	134℃-18min-15min-3	121℃-20min-15min-3
Dynamic pressure of the chamber of the sterilizer	●	●	●
Air leakage	●	●	●
Empty chamber	●	●	●
Solid load	●	●	●
Small porous articles	●	●	●
Light porous loads	●	●	●
Full porous loads	●	●	●
Hollow load B	●	●	●
Hollow load A	●	●	●
Multiple packaging	●	●	●
Dryness, solid load	●	●	●
Dryness, porous load	●	●	●

A number of definitions that are of use in understanding the table above follow:
--Solid load: non-porous article, without notches or other characteristics that may hinder the penetration of steam in an equal or greater amount than those of a hollow load.

--Porous load: material that is capable of absorbing fluids; in particular this regards:
A . a full porous load when the load occupies 95±5% of the usable space.
B . a light porous load when the load occupies 20-25% of the usable space.
C . a small porous load when the load occupies 0.5-5% of the usable space.

--Hollow load **A**:space open at one end in which 1≤L/D≤750,where D is the diameter of the cavity and L the length,with L≤ 1500mm,or space open at both ends in which 2≤L/D≤1500, with L≤3000mm and that is not hollow load B.

-- Hollow load **B**: space open at one end in which 1≤L/D≤5, where D is the diameter of the cavity and L thelength, with D≥ 5mm, or space open at both ends in which 2≤L/D≤10, with D≥5mm.

APPENDIX 6 Quality of process water

With reference to standard EN 13060,the table below indicates the recommended limit values (maximum) for contaminating agents, as well as the chemical-physical characteristics of the water used for condensate and inlet water.

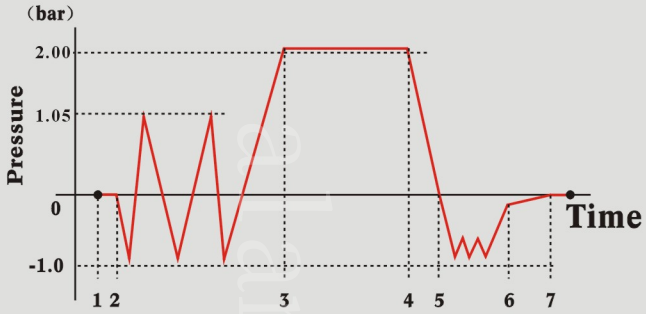
Condensate is produced by the steam that was formed by the empty chamber of the sterilizer.

The use of water for generating steam containing contaminants at higher levels than those shown in this table may considerably shorten the working life of a sterilizer and may invalidate the maker's guarantee.

	Inlet water	Condensate
Evaporated residue	<10 mg/l	<1 mg/l
Silicon oxide	≤1 mg/l	≤0.1 mg/l
Iron	≤0.2 mg/l	≤0.1 mg/l
Cadmium	≤0.005 mg/l	≤0.005 mg/l
Lead	≤0.005 mg/l	≤0.05 mg/l
Heavy metal residues	≤0.1 mg/l	≤0.1 mg/l
Chlorides	≤2 mg/l	≤0.1 mg/l
Phosphates	≤0.5 mg/l	≤0.1 mg/l
Conductivity at 20°C	≤15 µS/cm	≤3 µS/cm
PH	5-7	5-7
Appearance	colourless,clean,sediment-free	
Hardness	0.02 mmol/l	

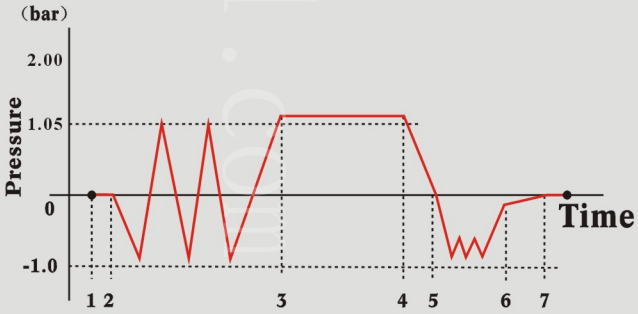
APPENDIX 7 :three times pre-vacuum sterilization graphic

134℃ Sterilization graphic



1-2 pre-heating　　2-3 pre-vacuum
3-4 Sterilization　　4-5 air discharge
5-6 drying　　6-7Equilibrium1-7 entire duration

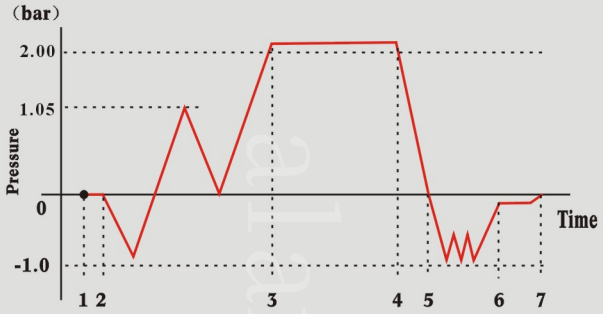
121℃ Sterilization graphic



1-2 pre-heating　　2-3 pre-vacuum
3-4 Sterilization　　4-5 air discharge
5-6 drying　　6-7Equilibrium1-7 entire duration

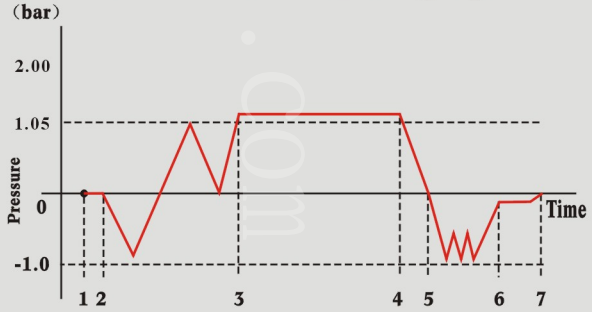
APPENDIX 8 :one times pre-vacuum sterilization graphic

134℃ Sterilization graphic



1-2 pre-heating　　2-3 pre-vacuum
3-4 Sterilization　　4-5 air discharge
5-6 drying　　6-7Equilibrium　1-7 entire duration

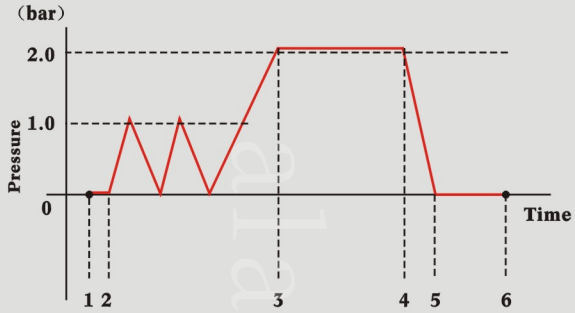
121℃ Sterilization graphic



1-2 pre-heating　　2-3 pre-vacuum
3-4 Sterilization　　4-5 air discharge
5-6 drying　　6-7Equilibrium　1-7 entire duration

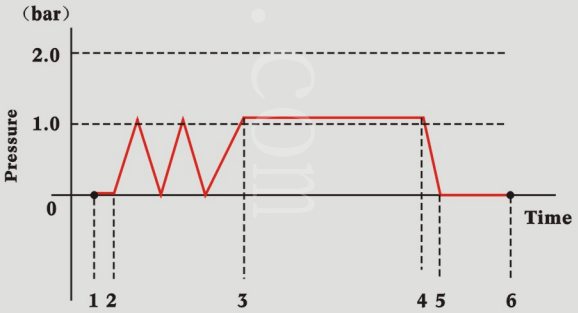
APPENDIX 9: Thermal air sterilization graphic

134℃ Sterilization graphic



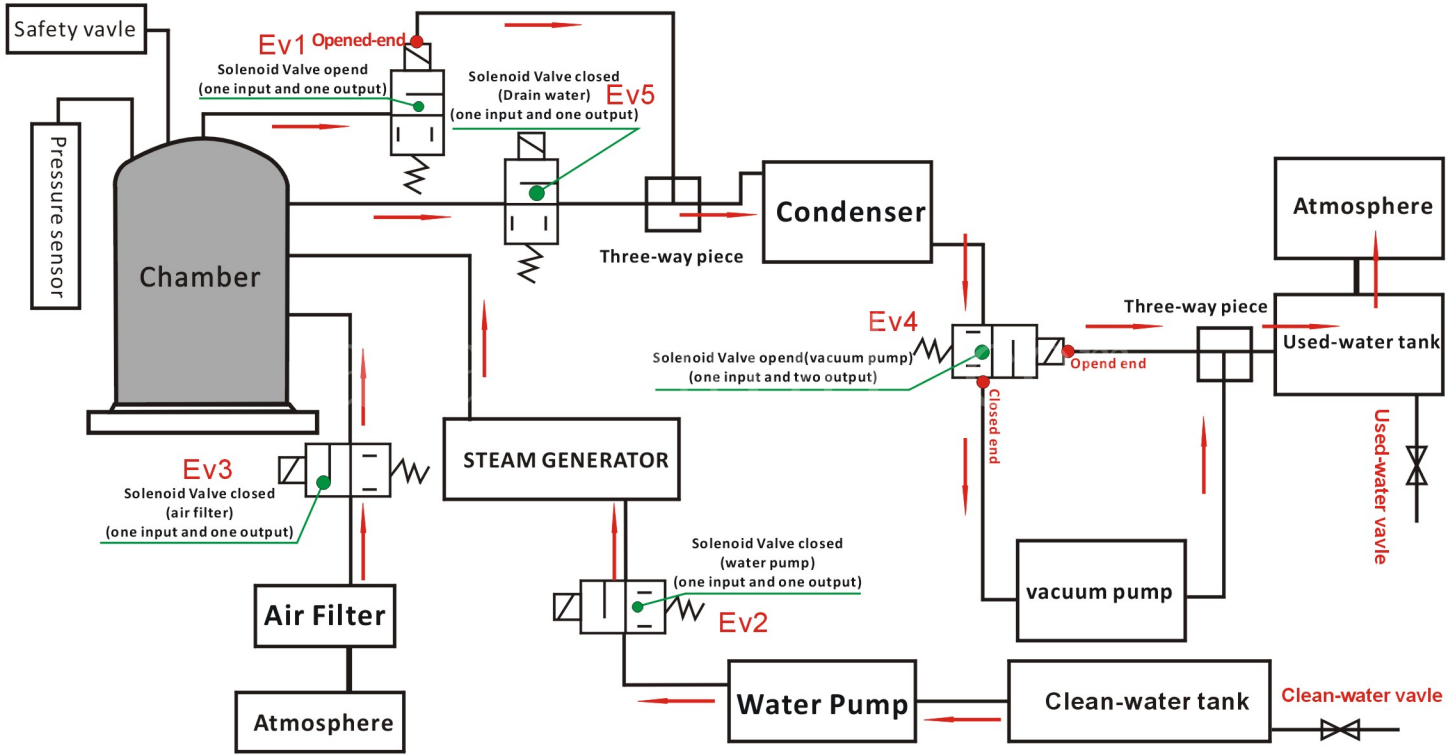
1-2 pre-heating
2-3 heating
3-4 Sterilization
4-5 air discharge
5-6 drying
1-6 entire duration

121℃ Sterilization graphic

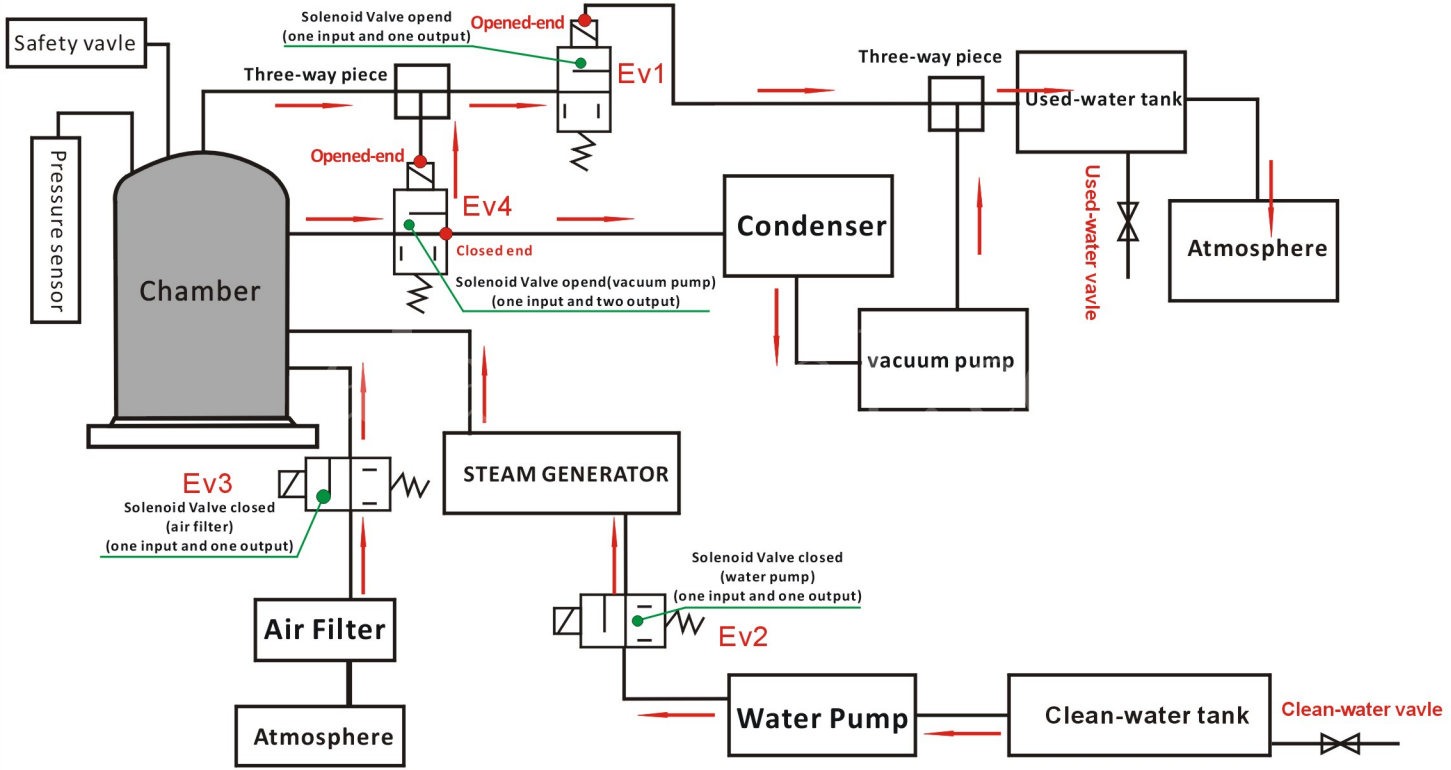


1-2 pre-heating
2-3 heating
3-4 Sterilization
4-5 air discharge
5-6 drying
1-6 entire duration

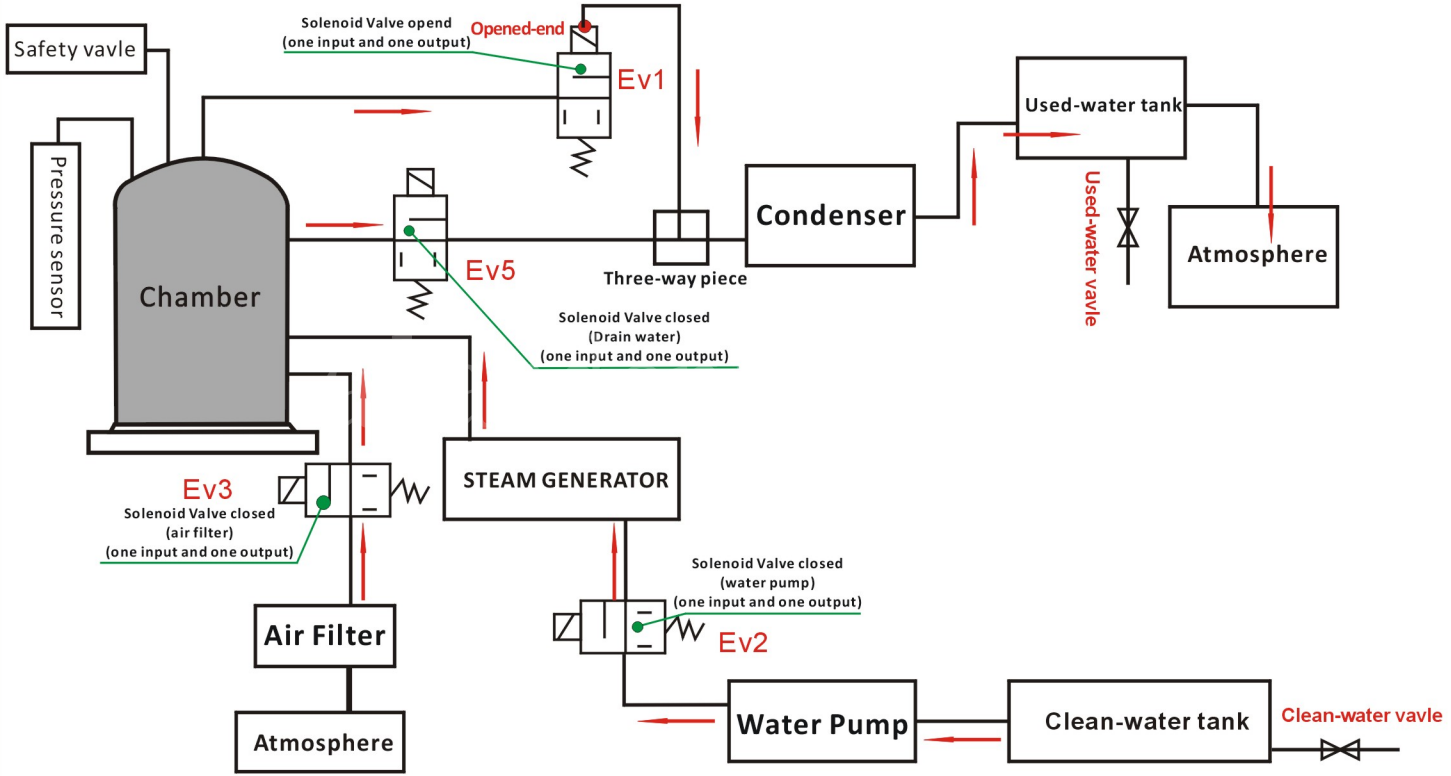
APPENDIX 10: JQ-A-23 JQ-A-18 JQ-23 JQ-18 JY-A-23 JY-A-18 JY-23 JY-18 Steam Sterilizer Hydraulic Circuit



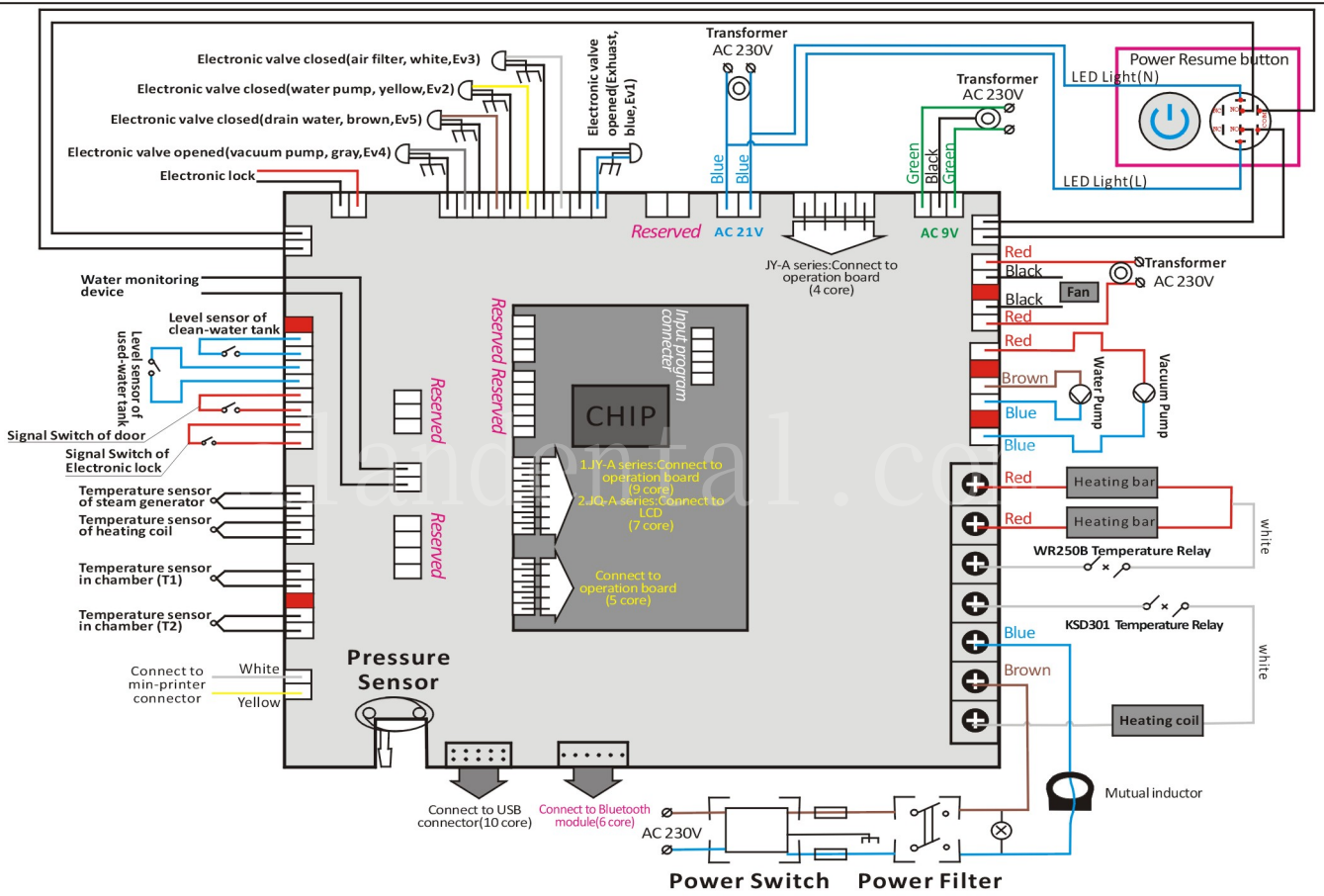
APPENDIX 11:JY-16 JY-12 SJY-8 Steam Sterilizer Hydraulic Circuit



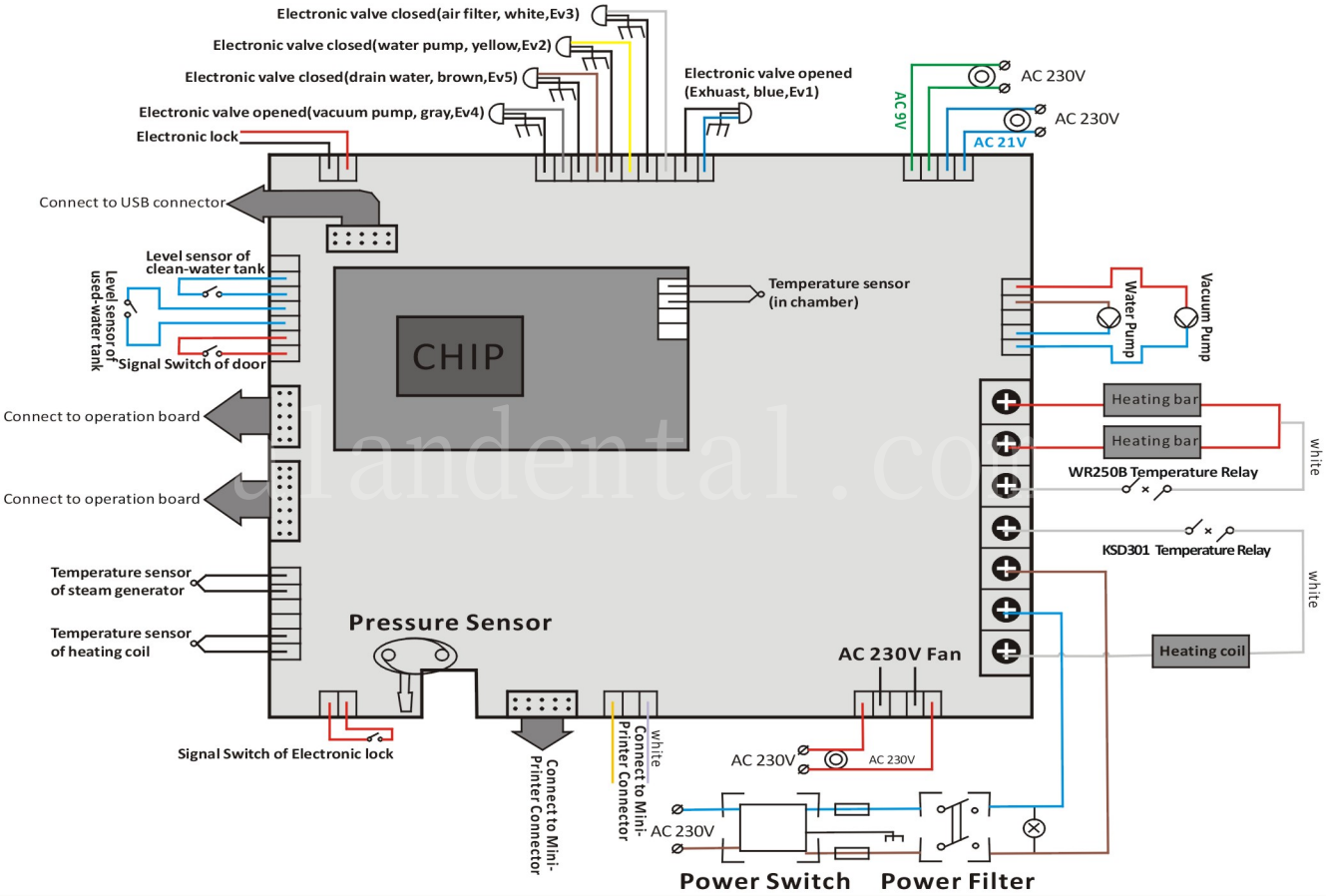
APPENDIX 12:JF Series(No Vacuum Process) Steam Sterilizer Hydraulic Circuit



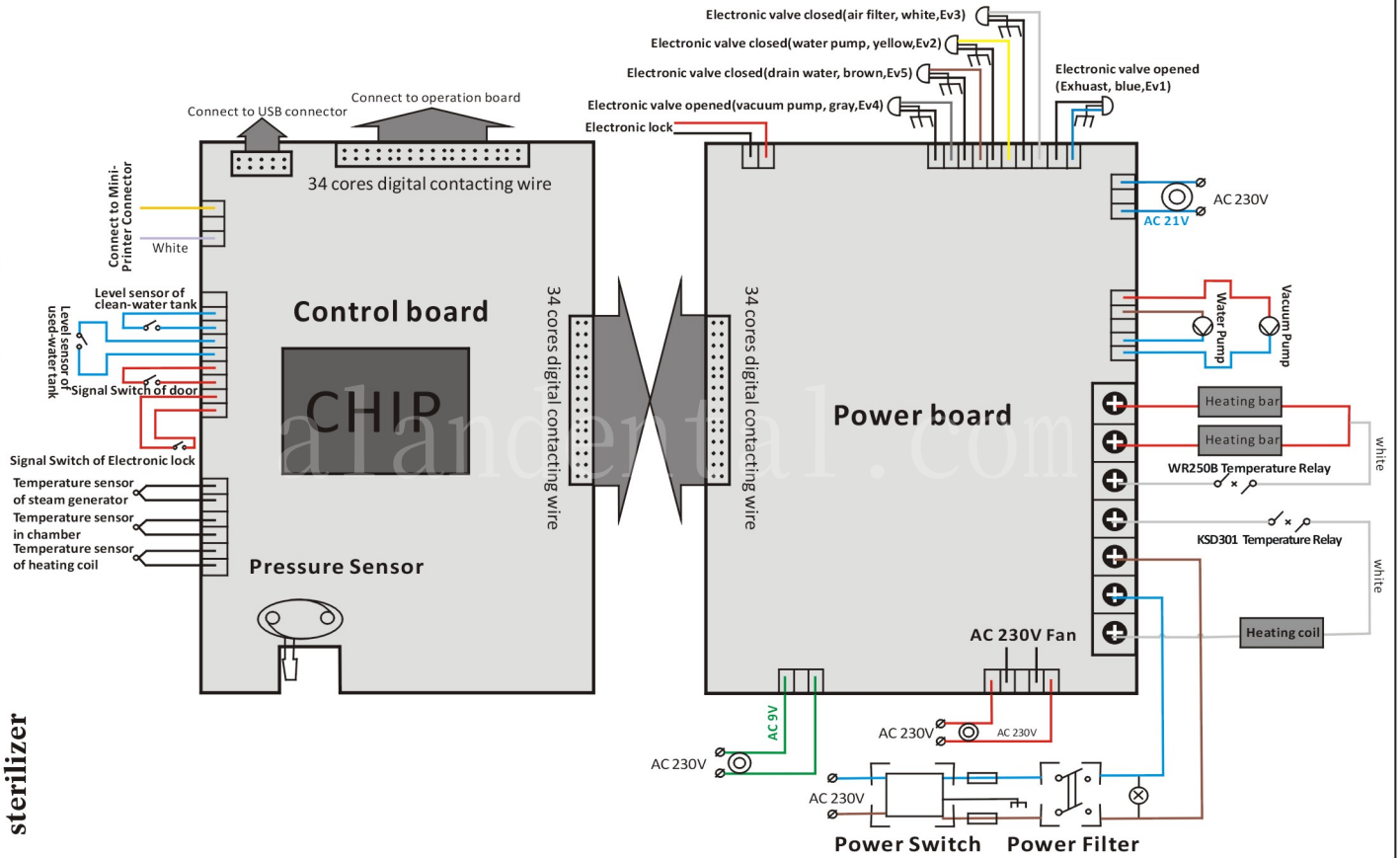
APPENDIX 13: Circuit Diagram of JQ-A-23 JQ-A-18 JY-A-23 JY-A-18 Steam sterilizer



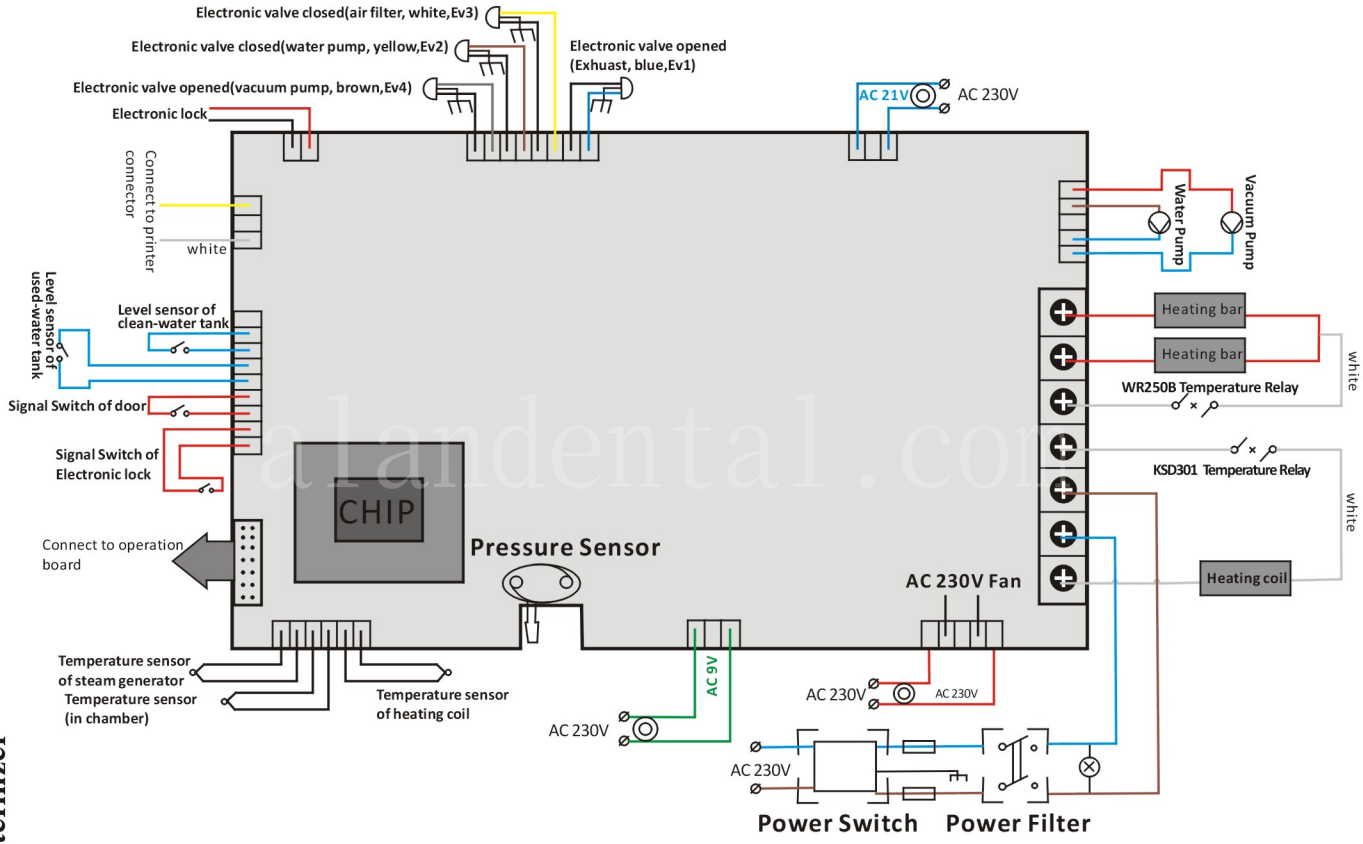
APPENDIX 14:Circuit Diagram of JQ-23 JQ-18 Steam sterilizer



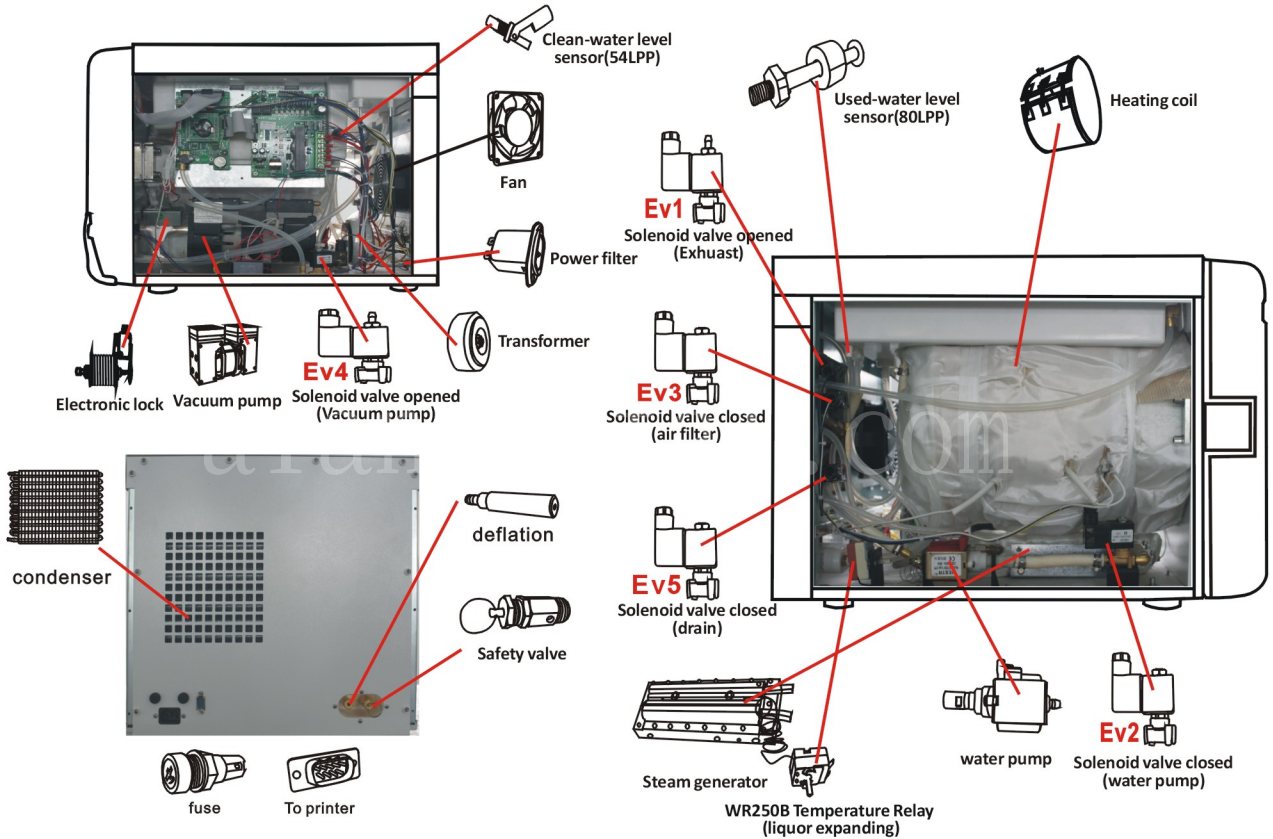
APPENDIX 15:Circuit Diagram of JY-23 JY-18 Steam sterilizer



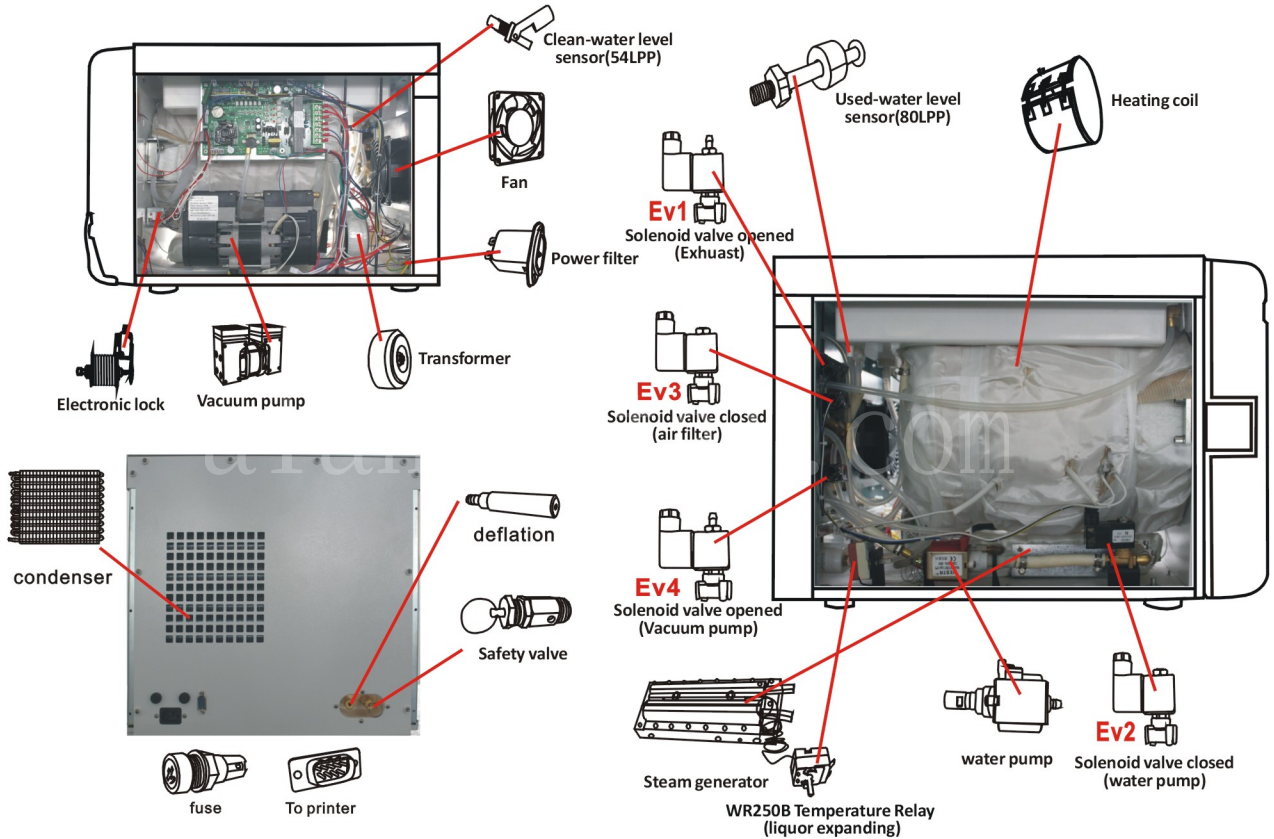
APPENDIX 16:Circuit Diagram of JY-16 JY-12 SJY-8 Steam sterilizer



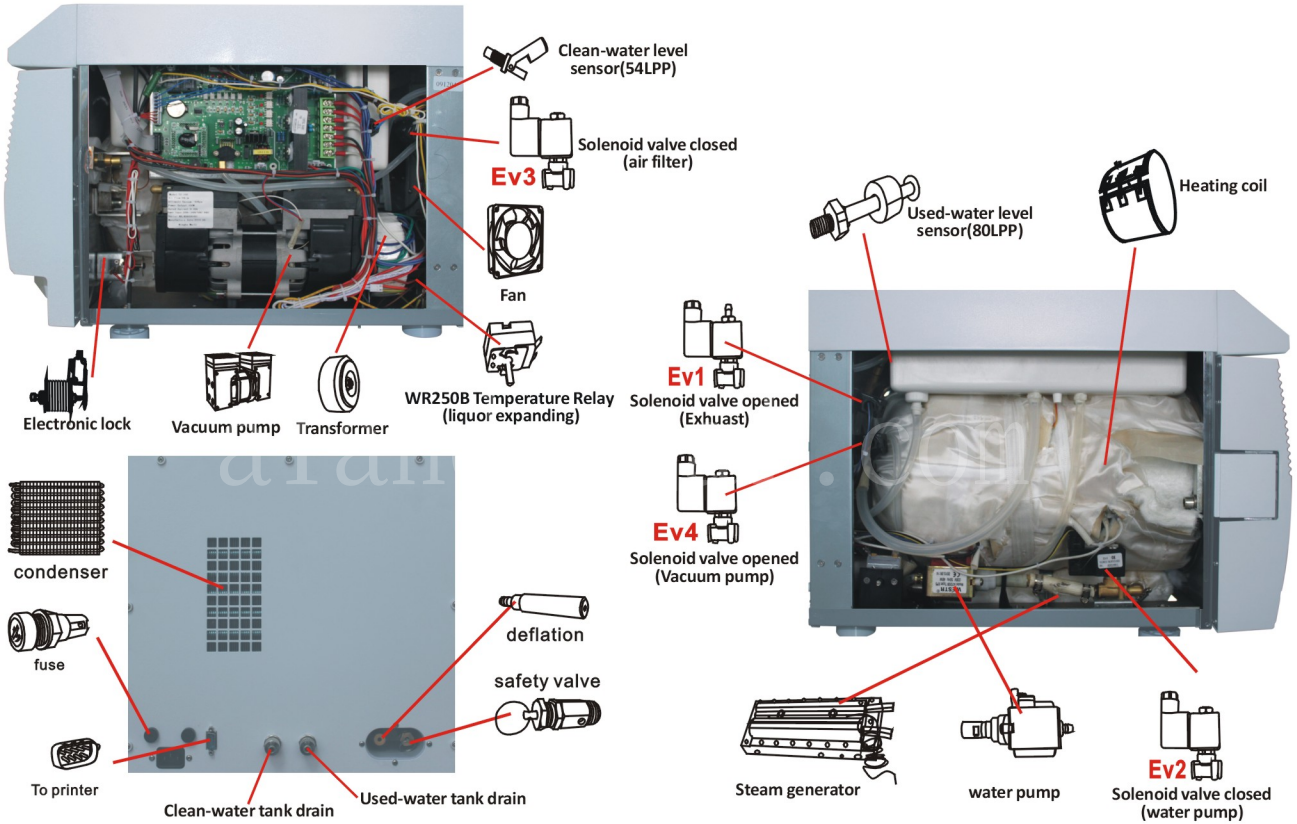
APPENDIX 17:Components graph of JQ-A-23 JQ-A-18 JQ-23 JQ-18 JY-A-23 JY-A-18 JY-23 JY-18steam sterilizer



APPENDIX 18:Components graph of JY-16 JY-12 steam sterilizer



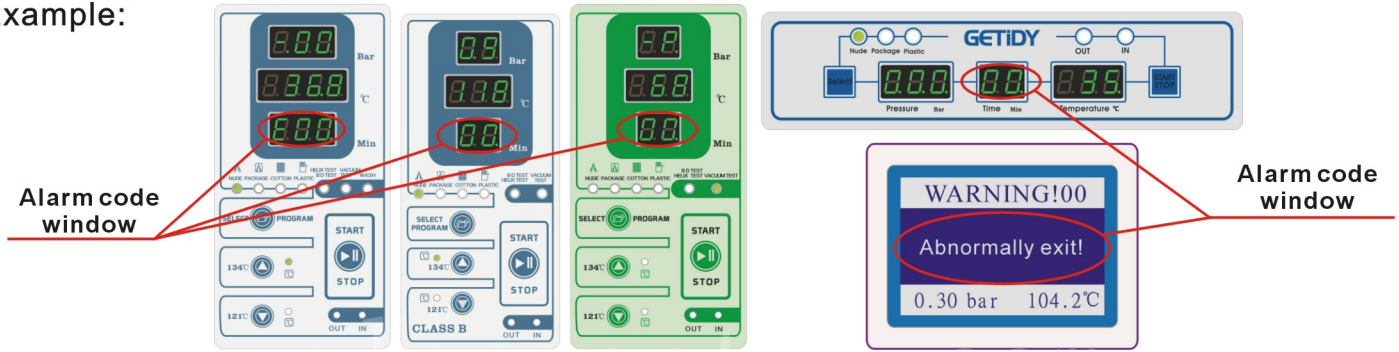
APPENDIX 19:Components graph of SJY-8 steam sterilizer



APPENDIX 20:Alarm code and solutions of JQ-A/JQ/JY-A/JY/SJY Series Steam Sterilizer

The table below lists all the alarm messages with the probable causes of faults; whenever your display shows a screen of this type, before calling the technical assistance service, perform the operations indicated.

Example:



(1)Alarm code and solutions JY-18 JY-23 steam sterilizer

Alarm Code	Alarm Cause	Solution
E 00	Abnormally Exit	If you need abnormally exit during sterilization,you have to press “START/STOP” button 5 seconds,LED appear “E00” alarm code and flash on.Repress “START/STOP” button to relieve alarm,then enter vacuuming-drying process,after 4 minute vacuuming,the Sterilizer automatically work to the end.this cycle is over,the operation display window show flashing “do”， The door of sterilizer can be opened.
E 98	Power outage during operation	If you encounters abrupt power failure during the sterilizer operation,until the power is restored, the alarm code will appear on the LED . You press the “START/STOP” button to clear this code.
E 01	Teperature sensor (steam generator) is broken!	Measure:temperature sensor resistance value(Ω)≈1000+(Ambient temperature ℃*3.8) (1)if measurement result is OK,check poor contact point between the sensor and the control board.(2)if measurement result is No,replacing the temperature sensor.

Alarm Code	Alarm Cause	Solution
E 02	Teperature sensor (heating coil) is broken!	Measure:temperature sensor resistance value(Ω)≈1000+(Ambient temperature ℃*3.8) (1)if measurement result is OK, check poor contact point between the sensor and the control board.(2)if measurement result is No, replacing the temperature sensor.
E 03	Teperature sensor (inside chamber) is broken!	Measure:temperature sensor resistance value(Ω)≈1000+(Ambient temperature ℃*3.8) (1)if measurement result is OK, check poor contact point between the sensor and the control board.(2)if measurement result is No, replacing the temperature sensor.
E 04	Sterilization failed!	(1)adjust to the door seal tightness, it may have leakage.(2)Replace the door seal.
E 05	Pressure can not be exhausted!	(1)check the opened-solenoid valve(Ev1) or drain-solenoid valve(Ev5), take out spool and cleaning.(2)check three-way piece to used-water tank, open and cleaning it.(3)check the opened-solenoid valve(Ev1) or drain-solenoid valve(Ev5) is DC 24V power.
E 06	Door is opened in the working!	(1)check the door hook and door signal switch contact point is good? To maintain contact between them.(2)open the door, check leading point of electronic lock is retracted? Replace the electronic lock.
E 07	Operation over time!	(1)adjust to the door seal tightness, it may have leakage.(2)Replace the door seal. (3)check the opened-solenoid valve(Ev1) or drain-solenoid valve(Ev5) and vacuum-solenoid valve(Ev4), take out spool and cleaning.(Judgment leakage Methods: small mist of water droplets on silicone tube and hot). (4)check the heating bar, Judgment Methods: it measurement resultof resistance(Ω)≈68~73Ω(750W);50~55Ω(1000W).if it measurement result of resistance(Ω)≈∞Ω, it is broken! (5)check the heating coil, Judgment Methods: it measurement result of resistance(Ω)≈30~37Ω(1500W).if it measurement result of resistance(Ω)≈∞Ω, it is broken!and check electronic temperature Relay of heating coil, poor contact point betweenthe connector and jack. (6)check the steam generator is blocked?Judgment Methods: the silicone between the water pump and water pump-solenoid valve is be bloated. (7)check water pump is be broken?Judgment Methods: Very loud sound and water in silicone have move forward? (8)check the vacuum pump is working?Focus on checking start capacitor is broken?

Alarm Code	Alarm Cause	Solution
E 08	Over temperature!	Measure:temperature sensor resistance value(Ω)≈1000+(Ambient temperature ℃*3.8) (1)if measurement result is OK,check poor contact point between the sensor and the control board.(2)if measurement result is No,replacing the temperature sensor.
L E	Electric-lock not moving!	(1)check DC 24V electric-lock power supply indicator is lights? (2)check poor contact point between the electric-lock and the power board. (3)check not touch between blanks on the door handle and leading point of electronic lock. (4)check poor contact point between micro switch of electronic lock and touching flakes.

(2)Alarm code and solutions JQ-A-23/JQ-A-18/JQ-23/JQ-18/JY-A-23/JY-A-18/JY-16/JY-12/SJY-8 steam sterilizer

Alarm Code	Alarm Cause	Solution
E 00	Abnormally Exit	If you need abnormally exit during sterilization,you have to press “START/STOP” button 5 seconds,LED or LCD appear “E00” alarm code and flash on.Repress “START/STOP” button to relieve alarm,then enter vacuuming-drying process,after 4 minute vacuuming,the Sterilizer automatically work to the end.this cycle is over,the operation display window show flashing “do” or “open the door!”， The door of sterilizer can be opened.
E 98	Power outage during operation	If you encounters abrupt power failure during the sterilizer operation,until the power is restored, the alarm code will appear on the LED or LCD. You press the “START/STOP” button to clear this code.
E 01	Teperature sensor (steam generator) is broken!	Measure:temperature sensor resistance value(Ω)≈1000+(Ambient temperature ℃*3.8) (1)if measurement result is OK,check poor contact point between the sensor and the control board.(2)if measurement result is No,replacing the temperature sensor.
E 02	Teperature sensor (heating coil) is broken!	Measure:temperature sensor resistance value(Ω)≈1000+(Ambient temperature ℃*3.8) (1)if measurement result is OK,check poor contact point between the sensor and the control board.(2)if measurement result is No,replacing the temperature sensor.
E 03	Teperature sensor (inside chamber) is broken!	Measure:temperature sensor resistance value(Ω)≈1000+(Ambient temperature ℃*3.8) (1)if measurement result is OK,check poor contact point between the sensor and the control board.(2)if measurement result is No,replacing the temperature sensor.

Alarm Code	Alarm Cause	Solution
E 04	Sterilization failed!	(1)adjust to the door seal tightness,it may have leakage.(2)Replace the door seal.
E 05	Pressure can not be exhausted!	(1)check the opened-solenoid valve(Ev1) or drain-solenoid valve(Ev5),take out Spool and cleaning.(2)check three-way piece to used-water tank,open and cleaning it.(3)check the opened-solenoid valve(Ev1) or drain-solenoid valve(Ev5) is DC 24V power.
E 06	Door is opened in the working!	(1)check the door hook and door signal switch contact point is good? To maintain contact between them.(2)open the door,check leading point of electronic lock is retracted? Replace the electronic lock.
E 07	Operation over time!	(1)adjust to the door seal tightness,it may have leakage.(2)Replace the door seal. (3)check the opened-solenoid valve(Ev1) or drain-solenoid valve(Ev5)and vacuum-solenoid valve(Ev4),take out spool and cleaning.(Judgment leakage Methods: small mist of water droplets on silicone tube and hot). (4)check the heating bar,Judgment Methods: it measurement resultof resistance(Ω)≈68~73Ω(750W);50~55Ω(1000W).if it measurement result of resistance(Ω)≈∞Ω,it is broken! (5)check the heating coil,Judgment Methods: it measurement result of resistance(Ω)≈30~37Ω(1500W).if it measurement result of resistance(Ω)≈∞Ω,it is broken!and check electronic temperature Relay of heating coil,poor contact point betweenthe connector and jack. (6)check the steam generator is blocked?Judgment Methods: the silicone between the water pump and water pump-solenoid valve is be bloated. (7)check water pump is be broken?Judgment Methods: Very loud sound and water in silicone have move forward?
E 08	Over pressure!	check the opened-solenoid valve(Ev1) is be blocked? open the opened-solenoid valve (Ev1),take out spool and cleaning.
E 09	Over temperature!	Measure:temperature sensor resistance value(Ω)≈1000+(Ambient temperature ℃*3.8) (1)if measurement result is OK,check poor contact point between the sensor and the control board.(2)if measurement result is No,replacing the temperature sensor.

Alarm Code	Alarm Cause	Solution
E 10	Temperature and Pressure do not match!	Measure:temperature sensor resistance value(Ω)≈1000+(Ambient temperature ℃*3.8) (1)if measurement result is OK,check poor contact point between the sensor and the control board.(2)if measurement result is No,replacing the temperature sensor.
E 11	Electric-lock not moving!	(1)check DC 24V electric-lock power supply indicator is lights? (2)check poor contact point between the electric-lock and the power board. (3)check not touch between blanks on the door handle and leading point of electronic lock. (4)check poor contact point between micro switch of electronic lock and touching flakes.
E 12	Vacuum process failure!	(1)check the vacuum pump is working? Focus on checking start capacitor is broken? (2)check the water filter in chamber is be blocked?details operation see Fig.6.4-17. (3)check the opened-solenoid valve(Ev1) or drain-solenoid valve(Ev5) and vacuum-solenoid valve(Ev4),take out spool and cleaning.(Judgment leakage Methods: small mist of water droplets on silicone tube and hot).

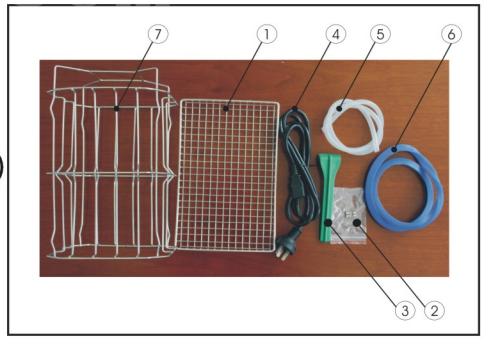
APPENDIX 21:Accessories

1、Instrument container plate.....3 Sets
2、Fuse.....2 Piece
3、Instrument plate hand clip.....1 Piece
4、Power cord.....1 Piece
5、Drain tube.....1 Piece
6、Rubber seal.....1 Piece
7、Instrument plate shelf.....1 Piece
8、Instruction manual(Software CD).....1 book
9、Warrenty card.....1 Piece
10、Certificate.....1 Piece

8


9

10



NOTE:

1.The sterilizer should be put on level worktable.
2.Be sure to use distilled water in order to prolong the use age of sterilizer.
3.Do not jam or cover the sterilizer radiator.
4.Sterilizer instrument should put in the instrument plate,each instrument should have some gap in order to make ventilation.
5.Freezing water tank should drain out constantly,usually it should drain out one time once the water saving tank use up.
6.Push the door to the very end while sterilizing.
7.Be sure not to open the door when the pressure has not fall down to 0.0bar.
8.Do not stand clear the door when the door in order to avoid burning.
9.Be sure to power off when fix or back out the seal ring and be sure to do it after enough freezing.
10.Be sure do not to drag the sterilizer on transport.
11.The electric power must contact the earth.
12.Can not be placed tp some where the power is not easily cut off.