



WOSON Medical System

# Technical Publications

**ASS0003 REV- B**



## **TANCO Steam Sterilizer Operation Manual**

Operation Documentation

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## ***Regulatory Requirement***

**This product complies with regulatory requirements of the following European Directive 93/42/EEC concerning medical devices.**



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## Revision History

REV	ISSUE DATE	REASON FOR CHANGE
Rev-A	2010.01.25	First Issue
Rev-B	2011.07.31	Version Change

Please verify that you are using the latest revision of this document. Information pertaining to this document is maintained on manufactory. If you need to know the latest revision, please contact your distributor, sales representative, or our service dept.

# Regulatory Requirements

## Conformance Standards

The content of this instruction is fit for sterilizers.

Above sterilizer accord with the requirements of European Class B:

93/42/EEC

97/23/EC

EN 61010-1

EN 61010-2-040

EN 13060

EN 61326-1

## European Authorized Representative

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This product complies with the regulatory requirement of the following:

- Council Directive 93/42/EEC concerning medical devices:

The CE label affixed to the product testifies compliance to the Directive.

The location of the CE marking is shown in this manual.

## Certifications

Manufactory is EN ISO 9001 and EN ISO 13485 certified.

## Original Documentation

The original document was written in English.

## Declaration of Conformity

Council Directive 93/42/EEC concerning medical devices:

The CE label affixed to the product testifies compliance to the Directive.

The location of the CE marking is shown in this manual. In this manual there are present the CE certification and the Conformity. Check appendixes.

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# *Chapter 1 Introduction*

## **1.1 Attention**

- ❖ This manual contains necessary and sufficient information to operate the system safely, like optimal use, a safe and reliable operation, regular and correct servicing requirements.
- ❖ Read and understand all instructions in this manual before attempting to use the product.
- ❖ Keep this manual with the equipment at all times. Periodically review the procedures for operation and safety precautions.

## **1.2 Usage Indications**

Application to all wrapped or non-wrapped, solid, hollow load products type A and porous products or related articles.

This sterilizer can be used for dental clinic, laboratory, surgical room, emergency room, ophthalmology, gynecology and steam, cosmetic hospital and so on, by doctors and professionals.





## **1.3 Contraindication**

There is no any contraindication of this equipment.







## Chapter 2 Safety

### 2.1 Explanation Symbol

#### Device Icon Description

	<p>“ATTENTION” – Consult accompanying documents” is intended to alert the user to refer to the operator manual or other instructions when complete information cannot be provided on the label.</p>
	<p>Pay attention to the high temperatures in the chamber, and to the sterilizer exterior when exhausting system is running.</p>
	<p>“Protective Earth” indicates the protective earth (grounding) terminal.</p>
	<p>“CAUTION” - Dangerous voltage” Be aware of electric shock hazards.</p>

#### Label Description

	<p>Symbol for "SERIAL NUMBER"</p>		<p>Symbol for "MANUFACTURER"</p>
	<p>Symbol for "CATALOGUE NUMBER"</p>		<p>Symbol for "AUTHORISED REPRESENTATIVE IN THE EUROPEAN COMMUNITY"</p>
	<p>Symbol for "DATE OF MANUFACTURE"</p>		<p>Symbol for "CAUTION"</p>



**Manual Prompt**

<b>Note</b>	Indicates that concerning information which easier or helpful in operation
<b>Caution</b>	Indicates that a potential hazard may exist which through inappropriate conditions or actions will or can cause: <ul style="list-style-type: none"> <li>• Minor injury</li> <li>• Property damage.</li> <li>• Damage to machine</li> </ul>
<b>Warning</b>	Indicates that a specific hazard is known to exist which through inappropriate conditions or actions may cause: <ul style="list-style-type: none"> <li>• Severe personal injury</li> <li>• Substantial property damage</li> <li>• Substantial damage to machine</li> </ul>

NOTE: Please apply the precautions or recommendations indicated in the Operation Manual.

**2.2 General Safety Recommendations**

- ❖ The user is responsible for proper operation and maintenance of the sterilizer in accordance with the instructions listed in this manual.
- ❖ The sterilizer could not be used for liquid.
- ❖ The sterilizer has not been designed to operate in the presence of gas or explosive vapors.
- ❖ The trays and the load will still be hot at the end of each cycle. Use the tray holder to remove each tray from the chamber.
- ❖ Do not open the door of the chamber during the sterilization programs.
- ❖ Do not put you hands or face on the cover of the water tank when the sterilizer is running.
- ❖ Do not remove the instruction plate or any label from the sterilizer.
- ❖ Do not pour water or any other liquid over the sterilizer.
- ❖ Do not fill the caustic liquid into the water tank.
- ❖ Do not fill the caustic matter in the chamber.
- ❖ Use only high quality distilled water.
- ❖ Unplug the mains lead before inspecting or servicing the machine.
- ❖ Only an approved technician using original spare parts can carry out repairs and

maintenance.

- ❖ In case of transport, drain both water tanks completely, allow the sterilization chamber to cool down and preferably use the original packaging.
- ❖ The articles under sterilization should be picked-up by special handle of getting plate when the temperature shows over 40°C.
- ❖ Picking-up the sterilizing plate should use the special tools provided.
- ❖ During the transport, the 4 bottoms of sterilizer should be carried by two people in case of turning over.
- ❖ Notice! This product can't be put on the place that is not easy to cut off power supply.
- ❖ Prohibit covering the cover of water tank during usage.

## 2.3 Safety Parts

### Temperature Protection

Part Name	Function
Temperature Protector (Steam Generator)	Cut off current when the steam generator temperature is too high.
Temperature Protector (Heating Ring)	Cut off current when the heating ring temperature is too high.

### Electronic Protection

Part Name	Function
Double Fuse	It will be broken circuit if the connected power is too high or unstable.
Electronic Filter	It will filter the electromagnetic interference during working

### Mechanical Protection

Part Name	Function
Jiggle Switch	To ensure the door is closed completely for avoiding the risk of safety
Tray tong	when removing articles from the chamber

### Control Part

Part Name	Function
Temperature Sensor (Inside Chamber)	To measure temperature inside the chamber
Temperature Sensor	To measure temperature of the heating ring

(Heating Ring)	
Temperature Sensor (Steam Generator)	To measure temperature of the steam generator
Pressure Sensor	To measure pressure of the chamber
PCB Control	Control system for controlling all the process of sterilization

**CAUTION MANUFACTURER IS NOT HELD RESPONSIBLE FOR ANY ARBITRARY DISASSEMBLY, AMENDMENT WITH THE UNIT, BY UNAUTHORIZED PERSON OR UNPROFESSIONAL TECHNICIAN**

## 2.4 Operation Risk

Please take attention on avoid operation risk during operation.

### Scald risk

- ❖ Every time open the door after finish the cycle, please keep an appropriate distance, because the chamber still have rudimental steam with high temperature, avoid to be scalded.
- ❖ Every time open the door after finish cycle, please not touch the main door and chamber, because of high temperature, and avoid to be scalded.

### Pollution risk

Please clean the chamber after every time use to avoid rudimental contamination left inside chamber.

## 2.5 Protection Device

Device Name	Function
Plastic or fabric glove	Useful during load and remove articles, avoid scald.

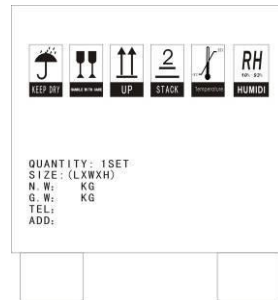
## Chapter 3 Receiving and Installation

### 3.1 Check the Package

Please check package carefully when you receive the product, any damage of package maybe damage the product inside.



Front



Flank

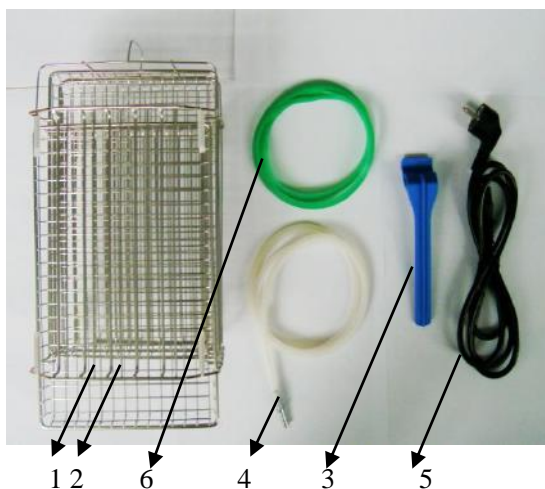


Item	8L Model	12L Model
Packing Size	652×549×486	652×549×486
Packing Weight	42kg	48kg


### 3.2 Unpacking the Accessories

Open the package and take the product out, remove the plastic bag then open the door to take all the accessories and check as followed:

No.	Part Name	Qty
1	Tray frame	1 piece
2	Trays	3 sets
3	Tray removal tong	1 piece
4	Draining tube	1 piece
5	Power supply cable	1 piece
6	Door gasket	1 piece
7	Operation manual	1 piece

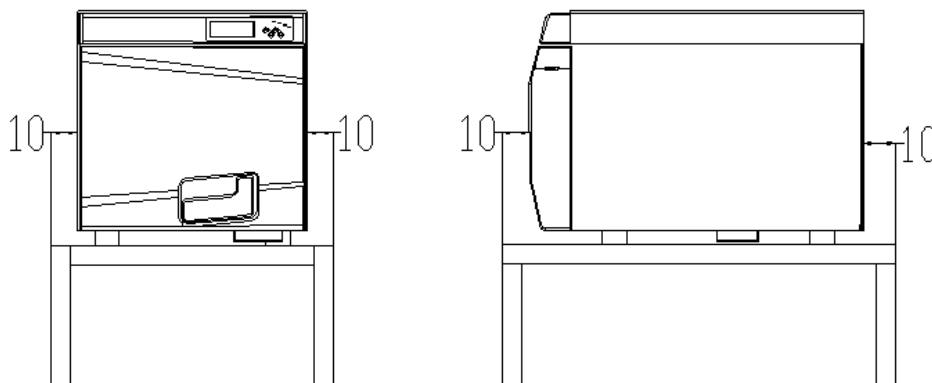


### 3.3 Optional Accessories

Name	Model	QTY	Picture
Mini Printer	PINTER10	1	

### 3.4 Installation Environment

The sterilizer should be set in a place which at least has 10cm distance with each side (20cm of the top) as followed:



The sterilizer should be set in a place with good ventilation.

The temperature of environment: 5-40°C

The humidity of environment: ≤85%

Atmosphere pressure: 860Hpa ~ 1060Hpa

An earth connection is essential

**CAUTION DO NOT PUT ANY STUFF WHICH EASILY MELTS NEAR THE STERILIZER.**

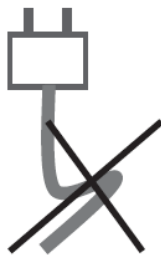
### 3.5 Set

- ❖ The sterilizer should be set on level table or place; the front-end should be a little bit higher than back-end.
- ❖ The sterilizer cooling and vent area should not be jammed or blocked.
- ❖ Do not put any stuff on the top of the sterilizer.
- ❖ Do not put any stuff in front of the door, to avoid accident when open the door.
- ❖ Do not put any corrosive stuff near the sterilizer to avoid accident or risk.

### 3.6 Power Connection

- ❖ The sterilizer should be connected with a stable and separated power source
- ❖ Power socket is at the back of the sterilizer
- ❖ Please confirm the connection power is complied with specification of nameplate at the back of sterilizer

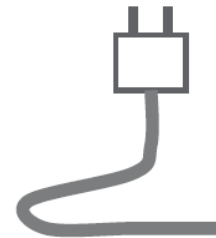
**CAUTION DO NOT BEND THE POWER WIRE TO AVOID DAMAGE OF POWER WIRE  
DO NOT PUT ANY HEAVY STUFF ON THE POWER WIRE TO AVOID DAMEGE OF POWER WIRE  
DO NOT USE OTHER POWER WIRE TO AVOID DAMAGE OF STERILIZER  
DO NOT TRY TO ADD THE POWER WIRE TO AVOID ACCIDENT AND RISK**



Wrong



Wrong



Right

## Chapter 4 Description and Specification

### 4.1 Front View of the Sterilizer



Name	Description
1. Displaying Window	Show temperature, pressure or other sterilization information on the window, easy for you to operate during working.
2. Control Panel	Operation button to control the process of unit
3. Filling Water Port	Manually
4. Door Handle	Open and close the door of sterilizer

### 4.2 Rear View of Sterilizer



Name	Description
5. Power socket	Connected power source
6. Fuse	Protect product when the power is not stable.
7. Print out port	It could connect a mini printer and output sterilization record
8. Relief Valve	Protect pressure inside chamber over the working pressure.
9. Nameplate	Basic information of manufactory
10. Vent area	Output heat from this vent area by condenser

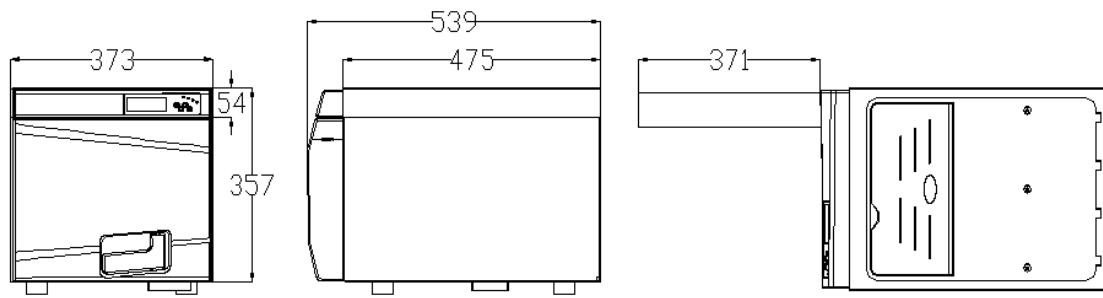
### 4.3 Opened View of Sterilizer



Name	Description
11. Air Filter	Filter the air and ensure air into chamber is clean
12. Door Gasket	For sealing the door
13. Tray Holder	To load the sterilized instrument
14. Pressure protector	It ensures the door cannot be opened when chamber with pressure
15. Drainage Port	For distilled water out
16. Drainage Port	For used water out



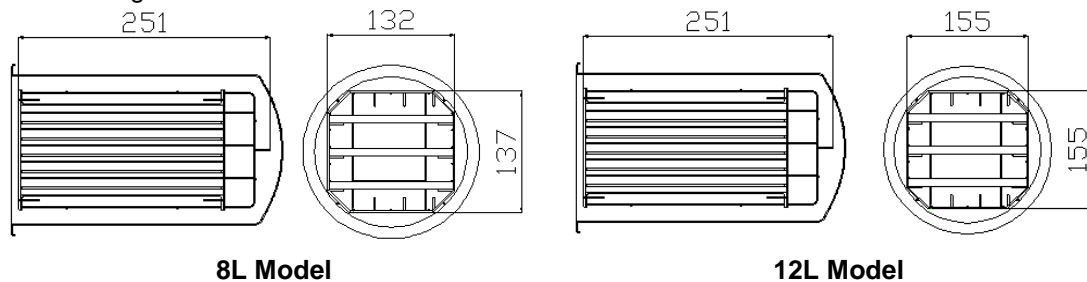
## 4.4 Outside Size



Item	8L Model	12L Model
Size of Closed Door	539×373×357	539×373×357
Size of Opened Door	848×373×357	848×373×357

## 4.5 Loading Size

The loading size of sterilizer as followed:



## 4.6 Specification

### Basic specification

Rated Voltage: a.c.220V-230V, 50Hz

Rated power: 1500VA

Fuse: T10A

Operation temperature: 5~40°C

The board affording weight: 4000 N/m<sup>2</sup>

Noise :< 50db

The maximum capacity of a plate:1000g

The maximum duration of using loading test: 90mins.

The maximum thermal radiation energy under the condition of 20°C~26°C<2000J.

**Sterilizer chamber:**

Material: stainless steel (for medical)

Max. Work Pressure: 2.5 bar

Min. Work Pressure: -0.9 bar

Max. Temperature: 145 °C

Chamber volume: 8L(Φ170×320mm) 12L(Φ192×320mm)

Loading size: 8L (132×137×251mm) 12L(155×155×251mm)

Max. Loading weight: 8L (2.56kg/cm<sup>2</sup>) 12L (2.85kg/cm<sup>2</sup>)

Working Pressure/Temperature: 1.10~1.30bar/121°C~122°C; 2.10~2.30bar/134°C~135°C

Water volume for one cycle: 0.16L (min) 0.18L (max)

**Sterilizer steam safety valve:**

Safety release pressure: 2.45 bar

Max. Working temperature: 160 °C

**Water tank**

Main water tank volume: 8L (4.5L) 12L (4.5L)

**CAUTION WATER ADDED INTO MAIN WATER TANK MUST USE DISTILLED WATER!  
AND WATER TEMPERATURE MUST UNDER 40°C.**

Used water tank volume: 8L (4.5L) 12L (4.5L)

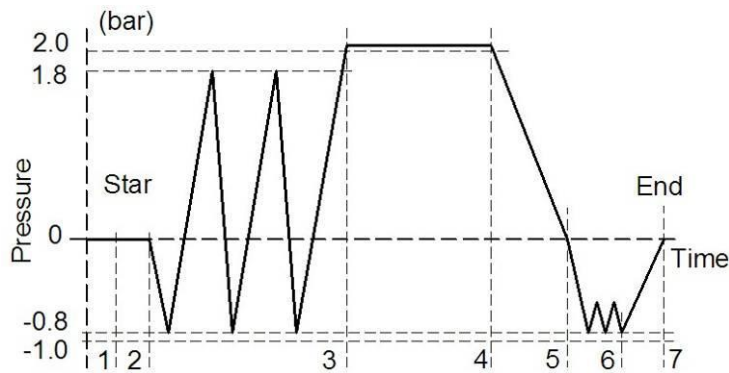
**Test Method**

Vacuum Test

B&D Test

Helix Test

### 4.7 Sterilization Cycle



- 1-2 pre-heating
- 2-3 pre-vacuum
- 3-4 sterilizing
- 4-5 air-discharging
- 5-6 drying
- 6-7 stabilizing
- 1-7 entire duration

**Table—Types of sterilization cycles**

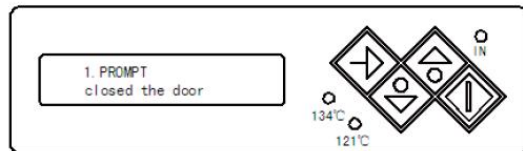
Type	Description of intended use
B	The sterilization of all wrapped or non-wrapped, solid, hollow load products type A and porous products as represented by the test loads in this standard.
S	The sterilization of products as specified by the manufacturer of the sterilizer including non-wrapped solid products and at least one of the following: porous products, small porous items, hollow load products type A, hollow load products B, single wrapped products, multiple-layer wrapped products.
NOTE 1	The description identifies ranges of products and test loads.
NOTE 2	Non wrapped sterilized instruments are intended either for immediate use or for non sterile storage, transport and application (e.g. to prevent cross infection).

# Chapter 5 Panel and Functions

## 5.1 Controlling Panel

### 5.1.1 Integrated display

- ❖ Display the chamber pressure, unit is:bar



pic 5-1

- ❖ Display the chamber temperature, unit is:°C
- ❖ Display the cycle situations。 Please see the circumstance which is attached (Sterilizer operation cycle display chart).
- ❖ Display the alarm error code when the sterilization gives the alarm during the working cycle, then you can check and find the malfunction components according to the error code.



### 5.1.2 up choosing button

Up choosing has the function that is used for setting down the cycle program. In the program menu, press this button to choose the programs by up direction. If press this button 3secs, it will enter into time setting program.

### 5.1.3 down choosing button

Down choosing has the function that is used for setting down the cycle program. In the program menu, press this button to choose the programs by up direction.

### 5.1.4 Button

Program setting button, press this button 3secs, it will enter into the cycle program choice menu, and then please press  or  button to choose the cycle program as you need.


### 5.1.5 Button

This button is used for confirmation on the start or end the cycle and removing the malfunction of program. After you choosing a certain program, please press this button to confirm it. Press the machine again will start a working cycle. And if press this button for 5 seconds, it would stop the working cycle immediately, and when error code displays, presses this button to stop the alarm program and returns to the working cycle state.




**CAUTION PLEASE CONTACT YOUR DISTRIBUTOR OR AUTHORIZED PERSON WHEN ERROR CODE DISPLAYED.**

## 5.2 Menu


### 5.2.1 Main menu













Turn on the power, keep pressing  button 3secs to enter the program choose menu, it is the sub-menu list.

<p>&lt; 1. PROMPT &gt; 134°C 2.1 bar 03min</p>	<p>It is a fast working cycle, one time vacuum; working temperature 134°C; working pressure 2.1bar; sterilization cycle time 3 minutes; and drying time 10 minutes.</p>
<p>&lt; 2. PACKAGE &gt; 134°C 2.1 bar 05min</p>	<p>It is completely working cycle for package instruments. Three times vacuum; working temperature 134°C; working pressure 2.1bar; sterilization cycle time 5 minutes; and drying time 17 minutes.</p>
<p>&lt; 3.COTTON &gt; 134°C 2.1 bar 05min</p>	<p>Specially for cotton or concerning instruments. Three times vacuum working temperature 134°C; working pressure 2.1bar; sterilization cycle time 15 minutes; and drying time 17 minutes.</p>
<p>&lt; 4.RUBBER &gt; 121°C 1.1 bar 15min</p>	<p>Specially for rubber or concerning instruments. One time vacuum, working temperature 121°C; working pressure 2.1bar; sterilization cycle time 15 minutes; and drying time 17 minutes.</p>

Press  or  button to choose the program, Press  button to confirm.

### 5.2.2 Time Set

Keep pressing  button for 3secs to enter time set program.

<p>TIME SET Month = 11</p>	<p>Press  or  button to choose the correct value, and press  to go next Date setting window.</p>
<p>TIME SET Day = 03</p>	<p>Press  or  button to choose the correct value, and press  to go next hour setting window.</p>
<p>TIME SET hour = 09</p>	<p>Press  or  button to choose the correct value, and press  to go next minute setting window.</p>
<p>TIME SET Minute = 29</p>	<p>Press  or  button to choose the correct value, and press  to save and quit</p>

### 5.3 Window of Sterilization Process

3 times pre-vacuum program example: Package

0.00bar Preheating <20°C --:--	-0.22bar Vacuuming 66°C 03:00
Preheating	First vacuum
0.36bar Pressurize 102°C --:--	0.53bar Exhausting 113°C --:--
First pressurizing	First exhausting
-0.35bar Vacuuming 95°C 03:00	0.21bar Pressurize 87°C --:--
Second vacuum	Second pressurizing
1.26bar Exhausting 128°C --:--	-0.25bar Vacuuming 97°C 03:00
Second exhausting	Third vacuum
-0.32bar prssurize 86°C --:--	2.1bar Sterilization 134°C 05:00
Third pressurizing	Sterilizing
1.56bar Exhausting 133°C 05:00	-0.23bar Drying 97°C 3:45
Exhausting	Drying
-0.01bar Waiting 80°C --:--	0.00bar END 85°C
Waiting	End

1 time pre-vacuum program example: PROMPT

<p>0.00bar &lt;20°C Preheating --:--</p> <p>Preheating</p>	<p>-0.22bar 66°C Vacuuming 03:00</p> <p>First vacuum</p>
<p>0.36bar 102°C Pressurize --:--</p> <p>First pressurizing</p>	<p>0.53bar 113°C Exhausting --:--</p> <p>First exhausting</p>
<p>0.01bar 97°C Pressurize --:--</p> <p>Third pressurizing</p>	<p>2.1bar 134°C Sterilization 01:31</p> <p>sterilizing</p>
<p>0.56bar 105°C Exhausting 02:04</p> <p>Exhausting</p>	<p>-0.23bar 97°C Drying 3:45</p> <p>Drying</p>
<p>-0.01bar 80°C Waiting --:--</p> <p>Waiting</p>	<p>0.00bar 85°C END</p> <p>Finished</p>



## Chapter 6 Operation Process

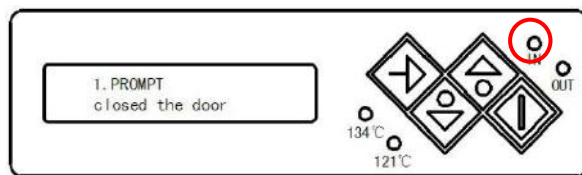
### 6.1 Power On

Please connect the power cord before you start the operation. The power switch to control the unit turn on or off. It is located back right corner of the sterilizer. When you turn the power on, the sterilizer is originally state showing the last sterilization program and opening alarm "Please open the door before working". If the door closed before turn on power, you should open the door at power on state, and then go to the next step.

**Attention** IF YOU DO NOT OPERATE THE PANEL MORE THAN 40SECS, THE SCREEN WILL BE OFF AUTOMATICALLY FOR SAVING POWER. IT WILL RESUME WHEN YOU PRESS ANY BUTTON.

### 6.2 Distilled Water Adding

After you connecting to the power and select the corresponding program, if the "in" lamp on the panel is on, which means the water in the water storage tank is of its lowest level and you have to add water in.



Pic 6-1

The "in" lamp will be illuminated when the water is not enough for next cycle.

If "in" lamp is illuminated, though you choose program and press start button, it will not work either, so you need to add distilled water in until the lowest required level can be reached.

You can fill in water manually on the right top of the machine. Open up the top cover, to fill in water according to the front view, stop filling in water when you hear beep sound.

If the water shortage alarmed during the sterilizing, you should not worry about it, the water will not influence this process. The water that had been left in the tank is adequate for the operating cycle, but it can not be run for next cycle.

**CAUTION** USE DISTILLED WATER ONLY TO EXTEND THE LIFE TIME OF THE MACHINE.

**DO NOT TILT THE STERILIZER WHEN THE RESERVOIR IS FULL OF WATER.**

### 6.3 Alarming If Used Water Reservoir Is Full

If the “OUT” lamp on the panel is indicated during the sterilizing, which means that the used water reservoir needs to be drained out.

Connect the water tube to the machine left lower corner inlet connector as right picture arrow marked, please see **pic 6-2**




(pic 6-2)

Water has been drained when it reaches the maximum temperature, 70°C. If it is higher, you need to check whether the fan operates normally, or contact the local distributor immediately, we will offer our best service to you in no time.

### 6.4 Selecting Sterilizing Program

Please check the LCD screen without any alarm information before selecting the sterilizing program.

Keep pressing  button 3secs to enter program menu, Select the sterilizer program which you want.

### 6.5 Loading Articles

Articles should be put on the trays with some gap between each articles so that the steam can be ventilated freely. Please use the attached handle tool to load instrument trays into chamber to avoid scalding. (pic 6-3)



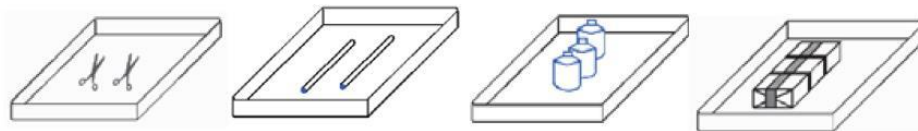
(pic 6-3)

### Arrangement on Trays before Sterilization

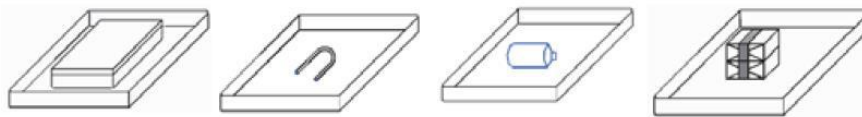
- ❖ Read the following instructions for proper usage and maintenance of articles and material.
- ❖ Make sure that the articles of different materials are separated and placed on different trays.
- ❖ In case of carbon steel articles, place a towel or paper-wrap between the tray and the articles in order to avoid a direct contact.
- ❖ All the articles must be sterilized in an open position.
- ❖ Make sure that the articles remain apart during the sterilization cycle.
- ❖ Do not overload the trays.

### Drawings explain:

**RIGHT**



**WRONG**



**CAUTION RECOMMENDED TO CLEAN THE ARTICLES BEFORE LOADING.**

**ATTENTION IT IS HELPFUL TO TURN ON POWER FOR WARMING 5 TO 10MINS BEFORE RUNNING PROGRAM, IF THE ENVIROMENT TEMPERATURE UNDER 10 DEGREE**

## 6.6 Closing the Door

Close the door after loading the articles which need to be sterilized. Pull the handle out like picture showing, push the door until close it and then set back the handle as picture showing. "LCD" will alarm if the handle did not be closed fully.

When close the door, however, if the chamber is warm and steam still be left in it, you may feel a strong resistance when you close the door. You just have to push harder and latch the handle completely. You may also leave the door open to release the steam and kindly close the door again. Or you can push the door hardly in while you turn the door handle. If you still unsure the door has been closed properly, you can also adjust the door (refer to adjusting the sterilizer door)



Close the door



Set back the door handle

Drawing Explanation



WRONG




WRONG



RIGHT

**Attention** THE LCD WILL DISPLAY AN ALARM IF THE DOOR IS NOT CLOSED FULLY, THE STERILIZER WILL NOT RUN UNLESS THE DOOR HAS BEEN CLOSED COMPLETELY. IF THE DOOR HAS BEEN OPENED DURING THE CYCLE, THE STERILIZER WILL DISPLAY: DOOR IS OPEN DURING THE CYCLE! IF  
✂  
SO, PLEASE PRESS TO CANCEL THE ALARM, THEN CLOSE THE DOOR COMPLETELY AND RESTART.

## 6.7 Starting a Sterilization Program

Ensure the door is closed completely, then you can press  button to start a working cycle, the LCD will display the cycle state. The sterilizer will heat, sterilize and drying the instruments automatically for you. The whole process will take 10-50 minutes. It depends on the object being sterilized, the initial temperature, and the program you selected.

### The Process of Sterilization as followed:

Pre-heating: Display Preheating

Chamber will start to be pre-heating when you are turning on the power switch, and keeping the chamber warm.

Pre-vacuum: Display Vacuuming.

Outputted the air in the chamber, and inputted steam in the chamber, run 3 cycle times.

Exhausting: Display Exhausting

Exhausting high pressure air inside chamber.

Heating: Display Pressurize.

Keep heating until getting the correct temperature and pressure

Sterilization: Display Sterilization

Display sterilizing time and temperature. The sterilizer keeps the temperature of sterilization with time is counted down.

Vacuum drying: Display Drying

Releasing pressure until the pressure down to the 0 bar or -P

Display dry-vacuum time and the temp. Draining used water and steam. Sterilizer will automatically switch to vacuum drying process after the steam pressure drop and chamber temperature down,

End: Display END.

The buzzer make a sound means the total sterilization processes have been finished, then wait for the pressure down to "0" bar at the steam manometer on command front panel.

**CAUTION DO NOT PUT OR COVER ANY STUFF ON THE MACHINE TO KEEP HEAT VENTING WELL.**

## 6.8 End Of The Sterilization Working Cycle.

When working cycle has been finished, the LCD Screen will give you a sound of alerting, and then you can open the door and take the sterilized instruments out.

**WARNING DO NOT TRY TO OPEN THE DOOR IF THE PRESSURE DOES NOT SHOW "0 BAR".**

When the door of sterilizer has been opened, the program will return to the initial state, heat-preserving and waiting for next sterilizing cycle. Before starting a new program it will be kept in a heat-preserving condition all the while.

**CAUTION AFTER STERILIZING HAS BEEN FINISHED, PLEASE USE THE MATCHED ARTICLE HAND TONG TO TAKE THE TRAYS OUT FROM STERILIZING CHAMBER. IT WILL BE BETTER TO STORE STERILIZED ARTICLE AFTER THEM HAVE BEEN COOLED DOWN TOTALLY.**


## 6.9 Power Off

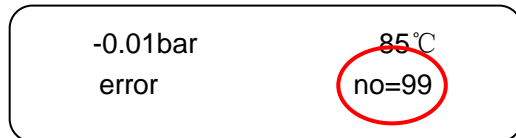
If you finished the sterilization, please turn off the power switch, the power switch light will be off, and close the door but not lock it.


If you will stop use it for a long time or for storage, please unplug the power cord.

**ATTENTION DURING THE STERILIZING, WE SUGGEST THAT YOU USE THE INDICATOR TAPE. PUT THEM IN THE CHAMBER IN ORDER TO ENSURE RELIABILITY OF STERILIZATION.**

## 6.10 Abnormal Exiting

In the cycle, if the program is interrupted by the error or press  button more than 3 seconds it will enter "Abnormal Exiting program" as followed window:

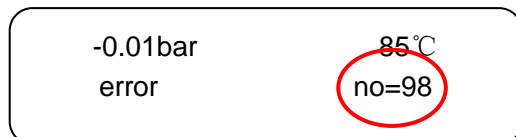



Error No.99 means the abnormal exiting by user. Press  to run vacuum pump enter the 3mins dry program, to ensure that the water inside the chamber is totally draining out. Then skip to original state, remind you to open the door, open and close the door then to go to the next sterilization cycle.

**WARNING DO NOT TRY TO OPEN THE DOOR IF THE PRESSURE INSIDE CHAMBER DOES NOT SHOW "0 BAR".**

## 6.11 Sudden Power Off

During the cycle, if power is sudden interrupted, then the power reconnect, the window will be showing the last state during the cycle with current temperature and pressure.



Error No.98 means the sudden power off happen during cycle. Press  to run vacuum pump enter the 3mins dry program, to ensure that the water inside the chamber is totally draining out. Then skip to original state, remind you to open the door, open and close the door then to go to the next sterilization cycle.

**WARNING DO NOT TRY TO OPEN THE DOOR IF THE PRESSURE INSIDE CHAMBER DOES NOT SHOW "0 BAR".**

## Chapter 7 Essential Information

Please ensure the sterilizer operated correctly. It is very important to follow below points and carry out the necessary maintenance procedures as specified.

### 7.1 Please Ensure The Following....

- ❖ You have read and follow these operating instructions.
- ❖ The load is suitable for sterilizing in the cycle selected.
- ❖ The load can be sterilized at the selected temperature.
- ❖ The load has been rinsed thoroughly in clean water before sterilization to avoid any chemical residues left after cleaning contaminating the sterilizer.
- ❖ When placing instruments on trays, ensure that they are placed on the ribs of the tray (to help drainage), they must not touch each other and must not interfere with other trays or the chamber above.
- ❖ Only distilled, de-ionized or sterile water can be used.
- ❖ The sterilizer should be set in a ventilated area.
- ❖ The sterilizer is not installed in an enclosed cupboard space.
- ❖ Keep the door ajar if not in use.
- ❖ Only qualified personnel could do the service of sterilizer.
- ❖ Keep and reserve the package for transportation

### 7.2 And Please Do Not....

- ❖ ...lose this manual
- ❖ ...add any chemicals or whatsoever analogous water to the sterilizer.
- ❖ ...attempt to sterilize volatile substances, toxic materials or other unsuitable loads. Refer to your "Responsible Person" for advice.
- ❖ ...place the sterilizer in direct sunlight.
- ❖ ...place the sterilizer on heat sensitive surfaces.
- ❖ ...use inappropriate cleaning materials.
- ❖ ...drop or abuse the sterilizer.
- ❖ ...use in areas of risk associated with flammable materials or gases.



# Chapter 8 Maintenance

## 8.1 Maintenance Schedule Chart

Maintenance Required	Person Responsible
<b>Daily</b>	
Clean Door Gasket	User
Clean Chamber	User
<b>Weekly</b>	
Clean Chamber, Trays and Rack	User
Clean Water Draining Filter	User
<b>Monthly</b>	
Clean Reservoir	User
<b>Yearly</b>	
Performance Verification and maintenance	Qualified service personnel
<b>As Required</b>	
Change Door Gasket	User
Cleaning function	User

## 8.2 Daily Maintenance

### Cleaning Door Gasket

The door gasket and the mating surface should be wiped off clean each day with a clean, damp cloth. Do not use abrasive cleaners on the gasket or mating surface.

Use warm soapy water for keeping marks of sterilizer persistent, but ensure any soap residues are completely removed by wiping both the gasket and the vessel again with water using a lint free damp cloth.

**WARNING** Refer to qualified personnel for servicing: **Never use a wire brush, steel wool, abrasive material, or chloride-containing products to clean door and chamber assembly. "Caution hot surface. Avoid contact."** ensure that the sterilizer is cooled down fully before cleaning to avoid burns.

### Cleaning After Liquid Loads

Biological media tends to boil at a higher rate than other liquids during venting. This causes media to be spattered inside the chamber. Therefore, the chamber must be cleaned daily when you are sterilizing media. Cleaning as follows:

- 1) Allow unit to be cooled down.
- 2) Wipe out chamber and door with a clean, damp cloth.

**WARNING** Failure to keep the interior of the stainless steel chamber free of mineral deposits and debris can cause premature failure of the sterilizer.

## 8.3 Weekly Maintenance (More Often If Necessary)

### Cleaning Chamber, Trays and Rack

At least once a week, the trays and tray rack should be removed from the sterilizer chamber. The trays, tray rack and chamber should be thoroughly cleaned to remove any deposits from the surfaces.

Clean the trays, rack and chamber (especially the bottom of the chamber) with appropriate antibiological cleaners. Wipe all residues from the surfaces with a dampened, lint-free cloth.

**WARNING** To prevent from collection of mineral deposits and corrosion of chamber components, use distilled or deionized water only as specified. Clean chamber after each use if sterilizing saline solutions.

### Cleaning water draining filter (pic 8-1)



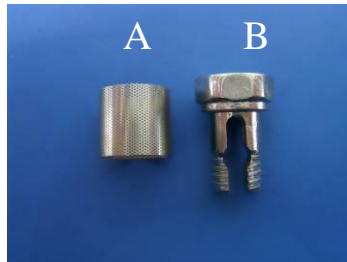
pic 8-1

Water draining filter might have been jammed by some dust because of use for a long-term, so effect of vacuum and drying would be influenced. Some tiny impurity might be deposited on the filter after a long-term use, blocking the filter, so as to influence the effect of the vacuuming and water discharging. The kinds of impurity come from smeary dust on the instruments being sterilized or some calcification in the water.

Keep cleaning of the inside chamber in order to make life-time of filter much longer; please

take the following advice for consideration:

- 1) Use eligible distilled water;
- 2) The instruments should be cleaned before placing in; it is good to use specified packing for the instruments with oil or other impurity, don't forget to seal up.
- 3) Rotate the water filter which composed by filter net tube(A) and filter holder(B) inside the chamber. Cleaning the part A and B, ensure that there is no any dirty thing on it.( We suggest you to clean by ultrasonic cleaning machine). Then set it back and rotate to the hold bottom of the chamber.



(pic 8-2)

## 8.4 Monthly Maintenance

### Cleaning Reservoir

There are some impurities and some toxins had been left behind in the reservoir because distilled water stored for a long time. You need to drain and clean regularly. According to the picture which shows below, loose the screw by screw-driver, and open the cover to clean inside. As **pic 8-3** shows



(pic 8-3)



**ATTENTION BE SURE THAT USE DISTILLED WATER PROPERLY IN ORDER TO EXTEND THE STERILIZER LIFE-TIME.  
DO NOT RAVE ABOUT THE STERILIZER WHEN THE TANK HAS BEEN FILLED.  
DO NOT ADD MORE THAN 7 LITERS OF WATER TO THE RESERVOIR AFTER CLEANING.**

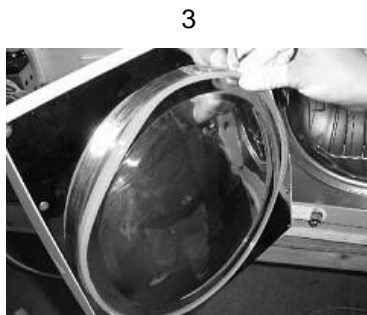
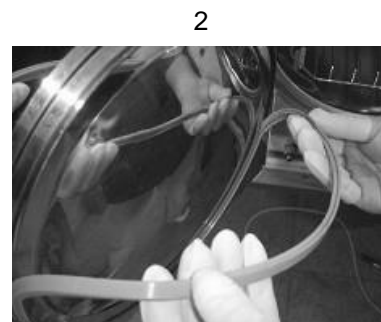
## 8.5 Other Maintenance

### Changing Door Gasket

Tool: a plain screw driver without sharp head is needed.

Disconnect the sterilizer from the power supply. Ensure that the sterilizer is cool and depressurized.

- 1) Hold verge of the seal by one hand softly, and another hand should be inserted the screwdriver into the gap between gasket and door, take out the seal slowly.
- 2) Once you take out one part of the seal, you can draw out the whole seal slowly. After taking out the seal, please check and clean the groove of gasket, so does the gasket, please replace the gasket if there is some damage.
- 3) Fix the clean gasket in initial door groove. Attention: the gasket should be imbedded in the groove equably. At first, please imbed the 4 spots equably into groove when fix the gasket, and then embed the other parts. After that, press the gasket equably by hand.
- 4) Attention: the inner edge of gasket may be ectropium during embedding it in the door groove, at this time; you'd better to tight it back to the groove by using the screwdriver carefully.



## *Chapter 9 Servicing By the Approved Technician*

Service is essential for consistently effective sterilization.

We recommend servicing by an approved technician every 2 years.

### **Check-list:**

- 1 Checking the solenoid valves.
- 2 Checking the water pump.
- 3 Checking the vacuum pump.
- 4 Checking the distilled water drain valve and the used water drain valve.
- 5 Checking the relief valve.
- 6 Checking the door locking system.
- 7 Checking the sensor of the pressure and temperature.
- 8 Checking the sensor of the water level.
- 9 Checking the electrical connections.
- 10 Checking the hydraulic connections.
- 11 Checking the safety thermostat.
- 12 Cleaning the sterilization chamber.
- 13 Cleaning the trays and the tray holder.
- 14 Cleaning the reservoirs.
- 15 Replacing the water filter.
- 16 Replacing the air filter.
- 17 Replacing the door gasket.

## Chapter 10 Transportation and Storage

### 10.1 Preparation before Transportation and Storage

Shut off the power switch, unplug the cord, and make the sterilizer been cooled down completely.

### 10.2 Draining

Drain water from reservoir and the condensate collector completely: insert the joint end of the attached tube to drain connection. (The spout on the left is the water spout used for the “used-water out”, the one on the right is used for the “clean-water” drain spout)



### 10.3 Conditions For Transportation And Storage

Temperature: -5 °C~ +55°C

Relative Humidity: ≤85%

Atmospheric pressure: 500HPa~1060HPa

### 10.4 Package

Package is used in transportation for protecting product, conveniently delivery and sales.

The sterilizer package requirement should as followed:

- 1) Product can not over 3/4 volume of package
- 2) Product should be fix inside the package
- 3) Package bag should be higher than product 6mm

## *Appendix 1 Instrument Which Need To Sterilize*

The instrument should be treated as followed process:

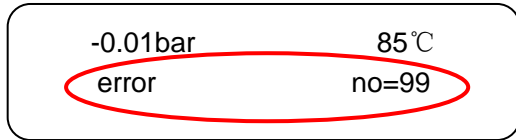
1. Clean the instruments, keep them dry
2. Packing the instrument into sealing bag( if need)
3. Put instrument into sterilizer
4. Run appropriate sterilization program
5. Take out and store

**CAUTION THE STERILIZED INSTRUMENT SHOULD CHECK THE BAG OF INSTRUMENT WITHOUT DAMAGE OR AVULSION.  
THE STERILIZED INSTRUMENT STILL WITH HIGH TEMPERATURE SHOULD NOT STACK, TO AVOID BAD HEAT RADIATION.**

## Appendix 2 Error Code List

The sterilizer will show Error information when some problem with sterilizer.

### Drawing Example



Error Information

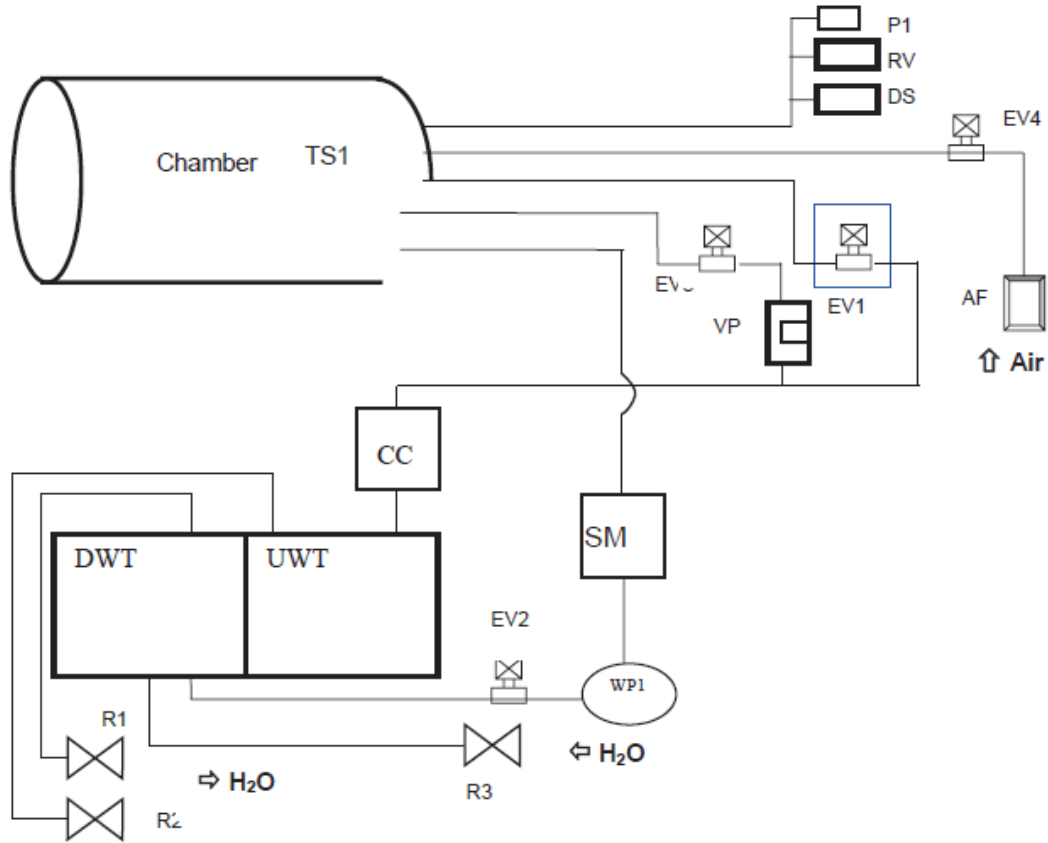
### Error Code List

Error Code	Error Information	Remark
E1	Temperature sensor in steam generator problem	
E2	Chamber surface temperature over	
E3	Chamber inside temperature over	
E4	Failure to keep sterilization temperature and pressure	
E5	Pressure can not be exhausted	
E6	Door opened during cycle	
E7	Working over time	
E8	Abnormal pressure	
E9	Abnormal temperature	
E10	Pressure and temperature can not match	
E11	Reserved	
E12	Vacuum failure or tube leaking	
E13	Reserved	
E14	Communication failure:	
E98	Power interrupted during cycle	
E99	Abnormally exit	



Appendix 3 Electric And Hydraulic Drawings

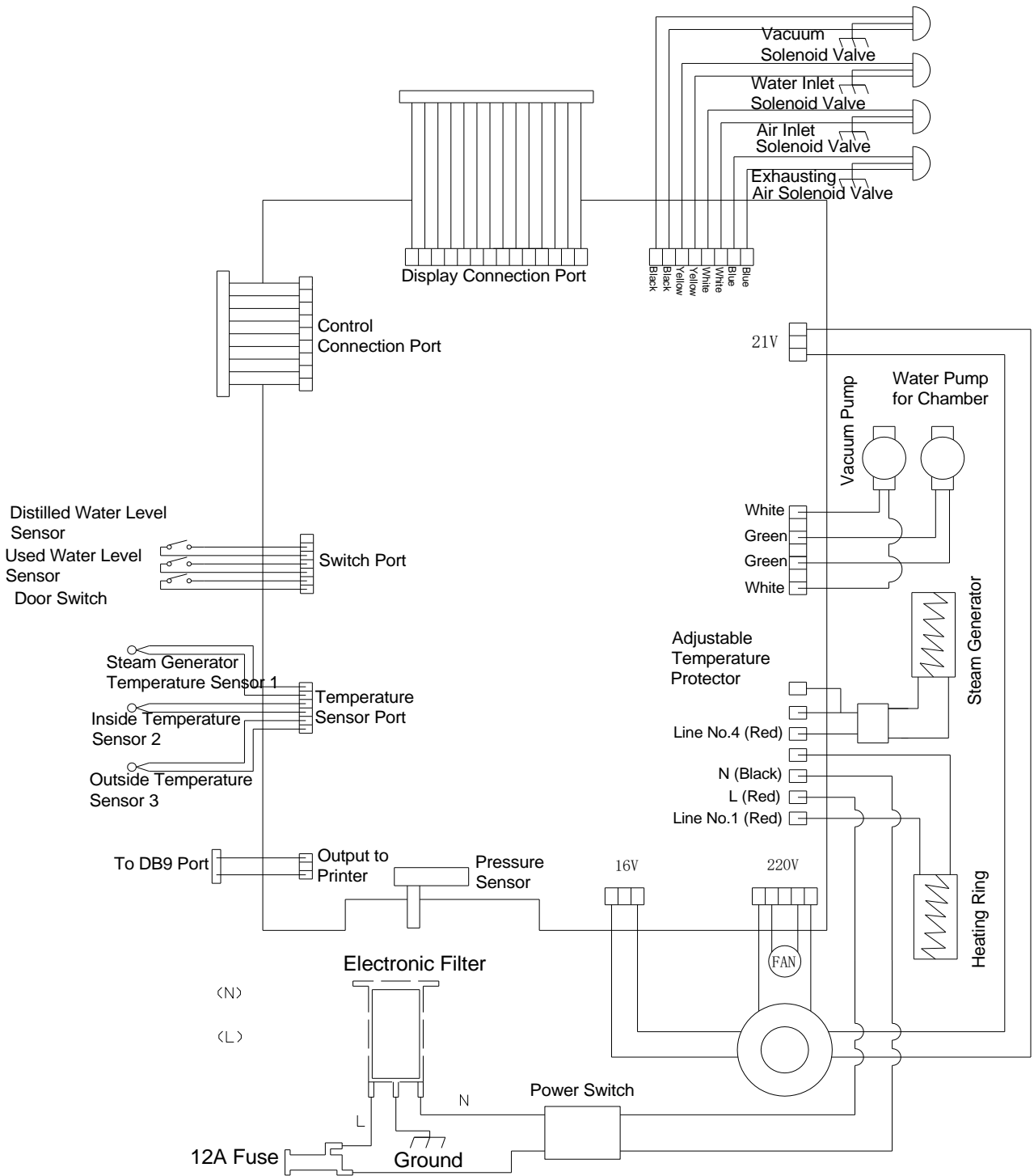
Hydraulic Drawing



AF	Air Filter
UMT	The Used Water Tank
DWT	The Distilled Water Tank
EV1	Air Outlet Valve
EV2	Chamber Water Inlet Valve
EV3	Vacuum Valve
EV4	Drying Air Inlet Valve
P1	Pressure sensor
DS	Door security System

CC	Condensate Collector
WP1	Main Water Pump
SM	Steam Maker
VP	Vacuum Pump
RV	Relief Valve
R1	Distilled Water Drain Port
R2	Used Water Drain Port
R3	Water Adding Port
TS1	Temperature Sensor

# Electric Drawing



### Appendix 4 The Standards Of Testing

NO.	Testing item	Request of standards
1	Shape	The shape of sterilizer should be tidiness and mustn't have the disfigurements, such as deflection, hollowness, collision, nick, sharp edge, and so on.
2	Out-veil	The out-veil should be assured to disassemble easily in order to repair the equipment.
3	Letter marker	The letter marker in panel of sterilizer should be legible.
4	Electroplate components	The Electroplate should accord with YY0076-1992 class 2, which for the request of aspect.
5	Printer components	The Printer components should accord with YY1055-1999 the class II which for the request of aspect.
6	Door safe lock	On the normal condition, if the sterilizer door hasn't been locked tightly, the program can not start.
7	Chamber Pressure	The door should ensure that the door can't be opened when the chamber pressure over than 0.027Mpa.
8	Relief Valve	Sterilizer have to install relief valve, when the pressure range from 0.27Mpa±0.01Mpa that the relief can be opened, and when arrive at the seting pressure, the air relief valve will open automatically and discharge pressure.
9	Sterilizing Program	Sterilizer should have the pre-established program about 121°C and 135°C ,dressing and instruments.
10	Controlling system	The control system in sterilizer should limit the steam which in the chamber be controlled at the highest average temperature in ±3°C of pre-establish station. And ensure the temperature value accords with the pressure controlling value.
11	Timing control	It's possible that the sterilization and drying can be timing control, and the windage should be limited that smaller than 10% of pre-establish value.
12	Button and Switch	Buttons and switches should be flexible and reliable on the sterilizer.
13	Indicator and display	The indicators and displays of sterilizer should show the states of every sterilizing procedure exactly. Under the normal situation, sterilizer should indicate: <ul style="list-style-type: none"> <li>a) Chamber temperature</li> <li>b) Chamber pressure</li> <li>c) Sterilizing work state</li> <li>d) Water level state</li> <li>e) Station of the opening or closing door</li> </ul>

14	Quantum of leak	on the condition of the vacuum - 0.07 Mpa, the sterilizer shouldn't leak 0.013Mpa within ten min.
15	Leak forbid	The sterilizer can't leak under the work pressure
16	protective earthing impedance	The impedance between protective earthing point of the power input faucet and protective earthing can be touched all metallic parts, doesn't over than 0.1Ω.
17	Successional leakage current under the work temperature	a) Earth leakage current on the normal condition: ≤0.5Ma the single blooey state: ≤1 mA
		b) Crust leakage current on the normal condition: ≤0.1 Ma the single blooey state: ≤0.5Ma
18	Dielectric strength with Working Temperature	a) A-a1: It should bear the sine wave test alternative voltage ,50Hz, 1500v, which between the web power input port and protective earthing can be touched all metallic parts. It lasts 1 min, and hasn't the phenomenon of breakage and flashover
		b) A-a2: It should bear the sine wave test alternative voltage, 50Hz, 1500v, which between the web power input port and the enclosure of which isn't be pretended earthing. It lasts 1 min, and hasn't the phenomenon of breakage and flashover
19	No-load	For all loads except hollow load A, the presence of saturated steam in the usable space and the load is deemed to have been achieved when, throughout the holding time, all temperatures measured in the usable space and the load: (Attention: the theory of steam temperature is accounted by measuring pressure, which can be considered the test temperature.)
		are not lower than the sterilization temperature;
		are not more than 4 K above the sterilization temperature;
		do not differ from each other by more than 2 K.
		The usable place temperature during the no-load can not over than the scope of highest temperature.
20	Hollow load	The hollow load A and B, As for testifying whether the saturation steam existing is relevant to the color change, by distinguish used chemistry direction system whether it was according to the direction system manufacture
21	Dryness, solid load, double wrapped	For wrapped loads, any remaining moisture shall not lead to wet packages and shall not result in detrimental effects on the sterilizer load. Any remaining water droplets on the inner side of the film of laminate pouch shall evaporate within 5 min.
		For load the moisture content shall not exceed 0,2 %