CCL-90YDB

WS Series Horizontal Steam Sterilizer

USER'S MANUAL

Alarm:To ensure the safety of the operators and prevent the damages to the unit ，

don't use the unit before reading the users' manual carefully,the manufacturer is not responsible to any result lead from improper use by the user or disclaim all responsibility for damage caused by misuse.

1.General introduction

WS series horizontal pressure steam sterilizer type CCL-90YDB is the equipment that disinfects and sterilizes the objects with saturated steam, its structure is horizontal and electrical heated, digital controlled,,composed of sterilization room, sterilizing plate,water tank,control system , power system and the storage room.

2.Application

The product is applicable to disinfect and sterilize medical devices, dressings, glass wares and hydroponics medium etc in the steam method.

3．Normal Working Condition

Normal working condition shall comply with the following conditions:

a) Environmental Temperature +5℃～+40℃;

b) Relative Humidity ≤80%RH

c) Atmospheric Pressure 70kPa～106 kpa;

f) Working Power Supply :AC 220V±20V，50Hz±1Hz

4. CONSTRUCTION AND PRINCIPLE

I.Construction (See picture 1)

1、water inlet

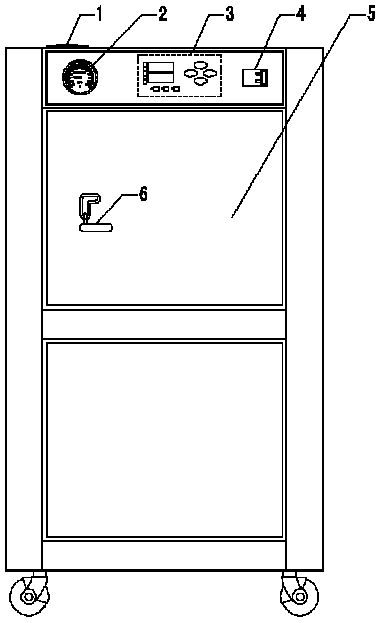
2、pressure gauge

3、control system

4、breaker

5、chamber door

6、handle



(pic.1)

II.Principle

The sterilizer is designed by gravity type pressurized steam sterilization principle. Put enough distilled water into sterilization chamber, electrical heated directly to produce pressurized steam. The pressurized steam act with

microorganism on the objects to be sterilized to destroy its structure and reach the purpose of sterilization.

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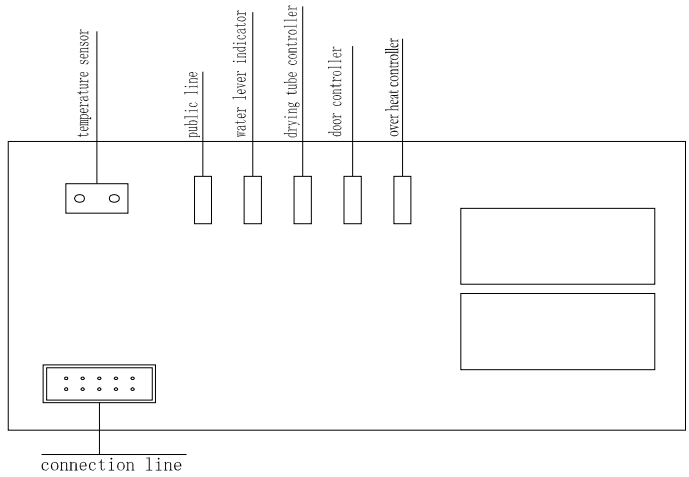

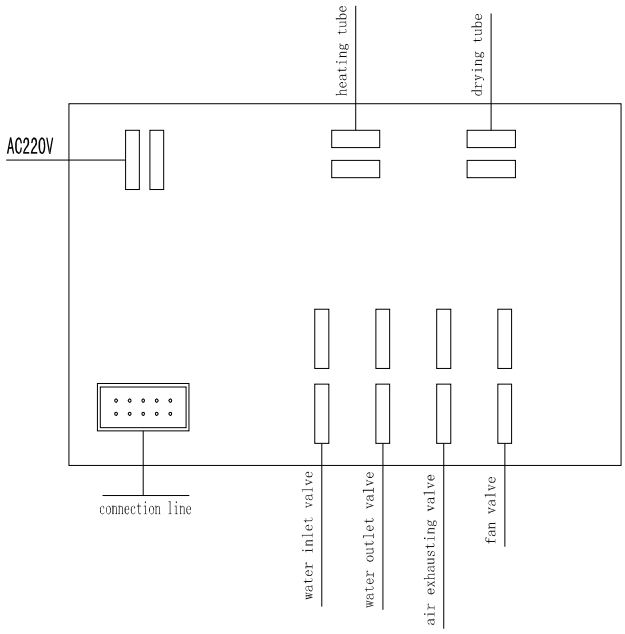

(Pic.2　Electrical wiring diagram)

5. PARAMETER

~~Type~~	**CCL-90YDB**

Parameter	
Chamber Capacity	90L
Rating working pressure	0.22MPa
control way	Micro computer
Rating working temperature	134℃
Timer Adjust	0～99min
Temp. And Pressure Control range	115～134℃/ 0.07～0.22MPa
Consumption/power supply	4000W/AC220V.50Hz
feature	Water lack protection, over current power cut off, safety lock system
Outer size	940×690×1330mm
Package size	1030×770×1460mm
N.W/G.W/	187KG/232KG

Atten: Sterilizing pressure range: 0.07～0.22(MPa) Sterilizing temperature range: 115～134（℃）

6.operation

I).Environment requirement and the setting

1.this unit should be placed on flat ground

2. the temperature of the environment should not be over 40℃.

As the other electrical equipment, the electrical system fail and working procedure disorder which lead from the high temperature would cause the malfunction of the unit.

3. Make sure there is ample room for placing the unit, ventilation well, and the unit should keep certain distant from the wall, over 50cm from the left wall,over 50cm from the back wall, over 50cm from the right wall. Keep the exhausting port of the safety valve away from the pug socket, and the port can not be blocked by anything.。

The placing room should be big enough to confirm the door can be freely open and close,the sterilizing objects can be delivered smoothly, and the steam can be scattered rapidly, or which would affect the features and lifetime to the unit.

⚠ **Alarm:The unit is equipped with the safety valve, if the steam valve exceed 0.24 mpa,it will release the pressure automatically, and if the temperature exceed 140℃（284° F）,the unit will cut off the power,and the unit is equipped with water lack protection, over current cut off system.**

II)The power connection

a）Power requirement: Single phase AC220V±10% 50HZ

b）Power supply must be firmly grounded,if the outlet is without the ground end, separate ground line must be required to connect before energizing.

⚠ **Alarm:1)The power cord must be connected to a dedicated electrical power switch,which can not be distorted, if which is damaged, exposed or loose, it may cause a fire or electric shock**

2)Equipment must be grounded firmly, do not connect the ground wire to plastic pipes, gas pipes, water pipes or etc.

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III）Attention

1． The unit use the saturated steam to sterilizing, and the below item should be paid attention to:

a)The sterilizing objects can bear the high- temperature and high moisture,or which is not suitable for using this unit for sterilizing.

b) Not suitable for the oils and the fats

c) The sterilizing objects should be clean in advance to prevent the adherent dirt affect the sterilizing result.

d) Choose suitable sterilizing temperature and time according to different object.

2. To ensure the safety of operation, please appoint special person who responsible directly to use and maintenance.

3. It is normal that the unit will produce some sound during water inlet and exhausting the air, please feel free to use it.

IV)The preparation and inspection before use

1.Inspection the power supply , Check the power supply if which is conform to product requirement and grounded firmly. (Single phase AC220V, 50Hz).

2.Prepare several liters of distilled water.

3.The binding of dressing and textile can not be too tight

4.Certain amount of sterilization indicator (chemical indicating piece or biologic indicating piece)'

V） The instruction of operating key, indicating lamps, switches and relevant marks.(see pic3)

1． pressure gauge

MPa /℃ ---------Display the pressure and temperature, Mpa show inner pressure and ° C show inner temperature

2． fixed cycle

 -------- Naked instrument, apparatus, textiles and fabrics

 -------- packaged instrument, apparatus, textiles and fabrics

 ------- fluid

3．setting key

setting the sterilizing temperature /sterilizing time

For setting sterilizing temperature （0~134 ℃）/ sterilizing time （1~99min59sec.）/ for check in the course of sterilizing

▲ increase

For increase the value of temperature or time, also for clear the buzzer in using.

▼ decrease

For decrease the value of temperature or time, also for clear the buzzer in using.

CONFIRM KEY

ENT for confirm

For confirm the state of sterilizing temperature and time. Also for emergency stop in using.

4．Screen indicate

(Pic.3 control panel)

℃ Window for temperature**----display setting & real chamber temperature** 0~134℃, range 103~134℃

Time Window for time**--- display setting time and sterile back timing, range** 0~99min59sec. when the chamber's temperature reached the setting value, it began back timing and flash.

Heating pilot--- push key ENT, the pilot light tell the sterilizer in heating, the pilot out tell it reached the setting temperature and stop heating.

Sterilizing pilot-------it light tell the objects be sterilized have reached the setting temperature.

Overheating pilot---the pilot flash means the water fill to chamber from the water tank, the pilot light means the water lack and the trouble of overheat.

Water fill pilot--------it light means the water is filling now.

Dry pilot—it light tell in dry heating.

² **WATER TANK WATER OUTLET** --The distilling water in the tank must be exhaust from this outlet every week.

Switch---power switch

VI.Sterilizing operation

- **Load the objects to be sterilized**

Load the objects to be sterilized in instrument plate. Then put in the sterilizer and close the door.

- **Fill water to water tank**

filling 5liter distilled water to water tank.

- **Start the device**

Connect the power, turn on the power switch. Three times display on screen and three times buzzer sound, the pilot of temperature and time light, it enters the state of standby.

Attention: This unit is equipped with safety protection, check if the control valve is at the sterilizing position after sterilizing, and the door should be closed tightly.

- **4.Choose the the Fix Cycle Key, and then press ENT key to start the automatic cycle.**
- **5. Or setting the sterilizing temperature/sterilizing time/drying time**

The setting range can be referred to the below sterilizing chart, choose the sterilizing temperature/sterilizing time 134℃/4min(the sterilizing cycle is 15mins.

Different article sterilizing temperature and time（form 1）

article	Put form	Sterile temperature ℃	Sterilize time min
instrument	open	134	15
		126	30
	pile	134	20
		126	40
Solution	open	134	12
		121	30

Setting procedure:

a)Push key SET, enters the state of setting sterilizing temperature, meanwhile the window of temperature flash, time and heating pilot light.

b)push key increase▲ the value more or key decrease ▼the value less, you keep push seconds, the value increase or decrease continuously.

c)Push key SET, enters the state of setting sterilizing time, meanwhile the window of time flash, temperature and heating pilot light.

d)push key increase the minute adding, push key decrease the value less, keep push the value adding or less continuously. (useful time setting 1~99min 59sec.)

e)Push key SET, enters setting dry time state, meanwhile window of time flash and the heating pilot out, dry pilot light.

f)push key increase the minute adding, push key decrease the value less, keep push the value adding or less continuously. (useful time setting 1~99min 59sec.)

g)Push key SET, fulfill the task of setting sterilize temperature, time and dry. meanwhile the window temperature

and time stop flash, and the heat pilot out.

- **start sterilizing**

Push key ENT, the screen  flash and shows the water filling to the chamber, until the water enters the chamber wholly, the pilot out. Then the program enter the sterilizing, the window display real chamber temperature, heating pilot and time pilot light, when the temperature reached the setting value, heating pilot out, time window display back timing begin and the heating pilot light and out in the course of sterilizing.

- **sterilize end**

When the back timing show zero, the temperature as real value, the sterilize end the buzzer sound, this time push key ▲or ▼can cancel the sound.

- **dry**

Open the door, make the door open about 1cm space, push key DRY, enters the state of dry, this time the drying time window show back timing, dry pilot light and out.

VII.trouble dealing

1. Door's pilot light and buzzer sound, heat pilot out, you can re-close the door and restart the machine.
2. check the temperature and time you forgotten.

a）Push key SET in the course of sterilizing, show instant setting temperature flash, useless you push key▲ or▼ this time.

b）Push key SET again, show instant setting time flash, useless you push key▲ or▼ this time.

c）Push key SET, recover the state of sterilizing and the checking end.

d) Operation error--- if you do not push the key SET, but push the key ENT, the buzzer sound, just push key ▲or ▼can stop the sound. Then reset the temperature etc according to the item 4 above in sterilizing operation.

3. Water lack and overheat

the buzzer sound in the course and the pilot  light tell the chamber water lack and overheat, the machine will auto release the pressure to zero, you can shut down the power, then restart the sterilizing operation.

4. over current protection

the over current occur, the fuse auto cut out, you can dealing the trouble then restart and setting temperature and time etc……..

5. emergency stop

For accident or mistake operation you must stop the machine, push key ENT, the buzzer sound, just push key ▲or ▼can stop the sound. Then reset the temperature etc according to the item 4 above in STERILIZING OPERATION.

VIII.Safety protection device

1. The door is with the safety lock system, if the door doesn't close tightly.
2. During the sterilizing the start switch is locked,the steam will be released to the collecting tank.
3. If it forced to open the door, during sterilizing, the steam will automatically release the water into collecting tank.
4. Water-off & over-temperature protection. When the heating element is heating without water, the power supply will be cut.
5. Over-current protection. If the current exceeds the rated value, the power broken circuit will cut power automatically.
6. Over-pressure protection.If the inlet pressure＞AC280V.the over-pressure indicating lamp will be on, and it will cut off the main board power,the buzzer sound. Cut off the power switch first ,after the trouble shooting, the unit can be restart.

7. Safety valve. When the pressure exceeds 0.24Mpa, the sterilizer will automatically exhaust to drop the pressure.

8.Over temperature protection. When the chamber's real temperature ≥140℃, the power supply will be auto cut.

7.MAINTENANCE

1).To ensure the reliability of the sterilization effect chemical indicating piece of biologic indicating piece must be put into the sterilization chamber, together with the: objects to be sterilized. After sterilizing, the sterilization effect can be checked.

2).The safety valve is at the back of the unit.

3). Safety valve must be checked once every year and replace it. If the safety valve is in malfunction during use and the pressure keeps increasing, the power supply must be cut off directly to ensure a safe use.

4).The trap will be damaged after long time use, if the operator find the difference of chamber pressure and temperature, the core should be changed.

5).The rubber seal ring is easily aged. If aging causes leakage, the seal ring should be replaced in time.

6).The temperature & pressure meter must be standardization every year.

7).The machine must be keeping clean, and protecting the incrustant occurs on the surface, please wash it with distilling water once a week.

8).If the water tank use not often, please clean by distiller water before use; often use clean by distiller water every week.

9).If the over heat protection damaged, only required to change the small round cover at the bottom of the unit.

trouble	possible cause	Solve method
E01	water lack in the tank	adding water into the collection tank
E02	the door is not closed tightly	Check if the door close tightly or the door switch is damaged
E03	temperature sensor malfunction	Check if the temperature sensor is loose or damaged
E04	over heat of the sterilizing	Check the sterilizer is lack of water or the over heat Temperature is damaged

(Pic.4 Ordinary Trouble And Repair)

8、Special Attention:

1. The users should read the users' manual before operation, strictly use the unit according to the manual said one step by another, and scheduled maintenance,make sure the unit is under normal situation to prevent the accident.

2. The solution which will be sterilized should be filled in heat resistant flasks, but don't fill too full. 1/2 – 3/4 of the volume are good. The flasks should be plugged with absorbent gauze, in no wise with the non-pore plugs, such as rubber of cork stoppers. The flasks should be placed in a tray and then in the container in case the flasks may break up and solution will remain in the tray and will not contaminate other articles.

3. It is dangerous if there is any crash or over pressure happened during working, if the pressure showed on the gauge is exceed the allowable pressure but without exhausting, the safety valve maybe broken, the unit should be cut off directly to stop working, after the replacement and inspection of the safety vale, the unit can be used again.

4.The rubber seal ring is easily aged. If aging causes leakage, the seal ring should be replaced in time.

5.Specification and the parameter of replaced fuse should be same as the original one, strictly conform to the manual said.

6. The units must be firmly grounded. Power supply must be firmly grounded.

7.Keep clean of the sterilizer.

Appendix:

- Sterilizing plate : mainly to put instruments.
- Cup: for adding the distilled water.
- Clamp: use for moving sterilization plate from chamber. (see pic.5)

(pic.5 clamp)

9.Alarm ⚠

1. If the pressure exceed 0.24 mpa but without exhausting the air, and the pressure keep coming up, the safety valve is broken, please cut off the power supply directly to stop use and later inspect.
2. The unit must be firmly grounded.
3.Distilled water is required.

10.breaker and fuse

1. the capacity of the breaker： 40A

2. Fuse： 220V/0.5A Φ5×20mm。