

YR05747 // YR05748// YR05749// YR05750// YR05751//  
YR05752 // YR05753

H2O2 Low Temperature Plasma Sterilizer (Cassette)

## Instruction Manual

Thank you very much for purchasing our H2O2 Low Temperature Plasma Sterilizer (Cassette)

Please read the “Operating Instructions” and “Warranty” before operating this unit to assure proper operation. After reading these documents, be sure to store them securely together with the “Warranty” at a hand place for future reference.



Warning: Before operating the unit, be sure to read carefully and fully understand important warnings in the operating instructions.



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## **NAME AND MODEL**

YR H2O2 Low Temperature Plasma Sterilizer (Cassette)

## **USE**

Hydrogen peroxide low temperature plasma sterilizer is a computer controlled automatic sterilization equipment which is newly developed and produced by our company. Its technical level and manufacturing process are in the leading position in China. The product is composed of microcomputer PLC control system, vacuum sterilization chamber system, constant temperature system and residual gas treatment system. When used, it only needs one key to realize automatic heating, vacuum extraction, vaporization, sterilization, residue disposal and other complex processes, which is very convenient and safe, and the sterilization rate is 100%. At the same time, the equipment has a cassette, with the characteristics of flame retardant, explosion-proof, strong penetration, high efficiency and broad-spectrum sterilization, short sterilization time, no corrosion, no residual poison, no pollution to the environment and so on. This product has the unique superiority to the sterilization and disinfection of the articles which are afraid of dampness and heat. At present, it is widely used in the fields of medical and health, industry.

## **PRODUCT FEATURES**

1. Short sterilization time and high utilization rate.
2. Low temperature sterilization does not damage any equipment.

3. The waste gas produced is water vapor and does not pollute the environment.
4. Humanized man-machine exchange interface, more simple operation.
5. Power failure memory, fault prompt printing record more humanized.
6. Color touch 7- inch LCD screen, font clear at a glance.

## **WORKING PRINCIPLE**

1. Hydrogen peroxide plasma can realize the purpose of rapid drying sterilization under normal temperature condition, which is the result of the comprehensive action of many sterilization conditions.
2. The working principle of hydrogen peroxide low temperature plasma sterilizer is to sterilize by hydrogen peroxide low temperature plasma. In the process of disinfection, a variety of microorganisms on medical instruments and surgical instruments are inactivated in a specific way, so as to achieve the purpose of sterilization.
3. Hydrogen peroxide low temperature plasma sterilizer (VHP) takes advantage of the advantage that hydrogen peroxide has more spore killing ability than liquid state at room temperature, by generating free hydroxyl group, used to attack cell components, including lipid, protein and DNA tissue, to achieve the requirements of complete sterilization.
4. Effect of oxygen free radicals: plasma contains a large number of reactive oxygen ions, high-energy free groups and other components, easily with bacteria, mold, spores and viruses in the protein and nucleic acid substances oxidation



reaction and denaturation, resulting in the death of all kinds of microorganisms.

5. Plasma breakdown: observed by electron microscope after the sterilization experiment, the images of bacteria and virus particles after plasma action are in a state of full of holes, which is caused by the etching and breakdown effect produced by electrons and ions with high kinetic energy.

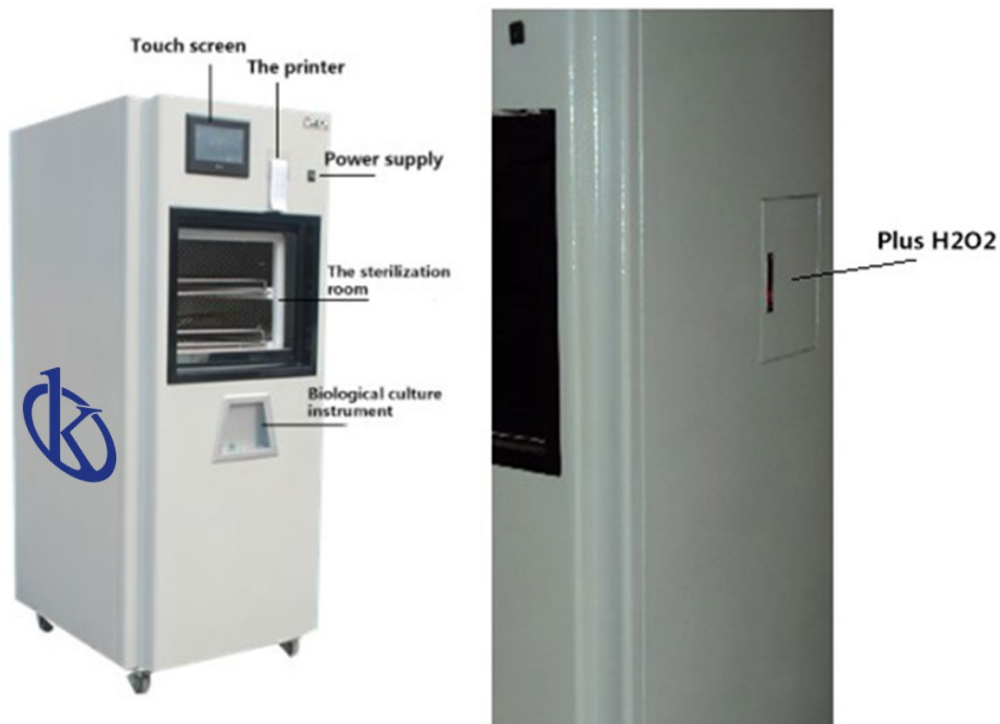
## PRODUCT PERFORMANCE

1. With hydrogen peroxide as the medium, the sterilization chamber is pumped with negative pressure to the set pressure through a vacuum pump, and then inflated to atmospheric pressure after passing the leakage keeping pressure. The solenoid valve on the pipeline between the hydrogen peroxide liquid and the sterilization chamber is opened by vacuuming to the set pressure again, and the hydrogen peroxide is pierced by its own suction and powered puncture. The liquid is converted into gas by the vaporized purifier into the sterilization chamber for sterilization at the set pressure. After the plasma generator excited to form plasma and complete sterilization, the final product is a small amount of water vapor and oxygen, no toxic residue and discharge, no damage to medical personnel, no pollution to the environment.
2. Adopt automatic control touch screen, easy to operate, simple installation and debugging, safe to use.
3. Sterilization temperature is about  $50\pm 5^{\circ}\text{C}$ , no damage to instruments and articles, can protect valuable surgical instruments from high temperature

sterilization damage, prolong the service life of instruments, improve the utilization rate of instruments.

4. Sterilization mode is divided into three kinds: "rapid sterilization", "standard sterilization" and "enhanced sterilization". The equipment can be used directly after the operation is completed.
5. Automatic lifting door, with anti-pinch device, to ensure equipment and personal safety.
6. Hydrogen peroxide solution, easy to use and safe.

## PRODUCT STRUCTURE



## APPLICATION SCOPE

Used for sterilization of equipment that can withstand vacuum negative pressure, hydrogen peroxide gas and sensitive to high temperature.

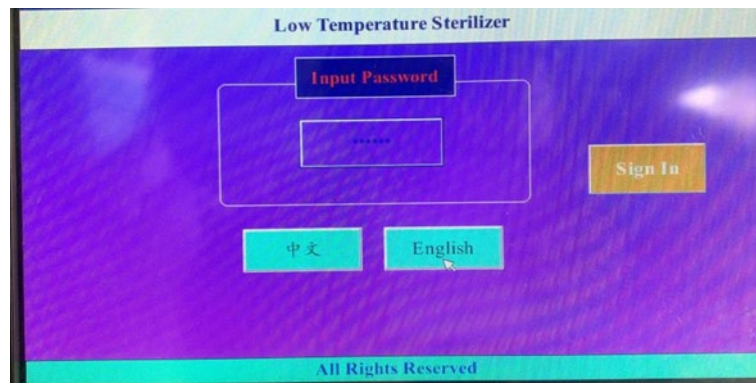
## MATTERS NEEDING ATTENTION

1. Place the sterilizer on a level floor about 20 cm from the wall to allow ventilation heat.
2. Separate lines and automatic circuit breakers (above 32A) must be installed, with core wire size not less than 3 mm<sup>2</sup>.
3. The power supply must be reliably grounded.
4. Do not share the socket with other electrical appliances, do not modify the power plug and pull the power cord.
5. Power must be cut off before moving, cleaning and repairing.
6. Wash and dry the object to be sterilized, put it on the shelf, and do not stack, and open the joint of the instrument. Use special packaging bags or non-woven packaging.
7. Storage of sterilizer: the concentration of hydrogen peroxide solution is 58%, which is flammable and explosive, so it should be kept away from fire. The sterilizer should be stored at room temperature not more than 30 degrees. When replacing the sterilizer, latex gloves should be worn and eyes should be protected, so as not to splash on skin and eyes.
8. Change the pump oil every three months and maintain it once a year.



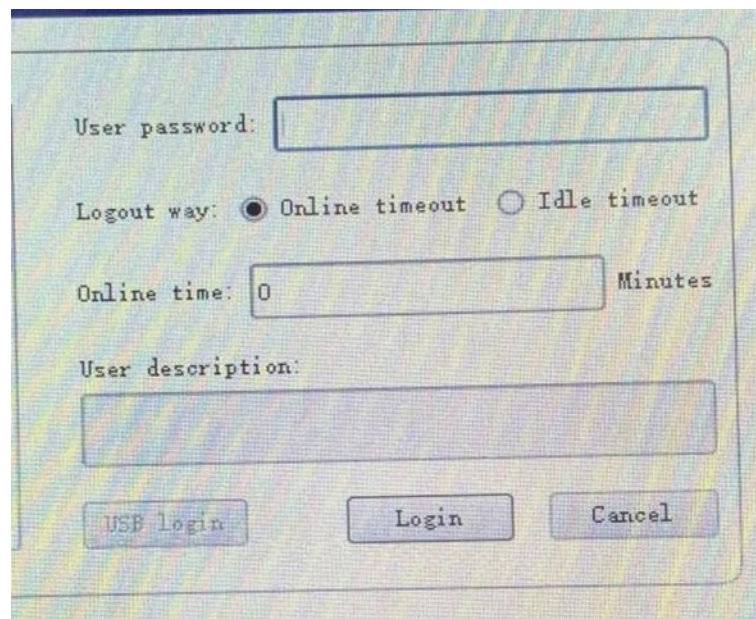
## USE METHOD

1. Turn on the power and the following appears on the screen



start-up first interface

2. Touch Enter Password "" and click" Enter"



password input interface

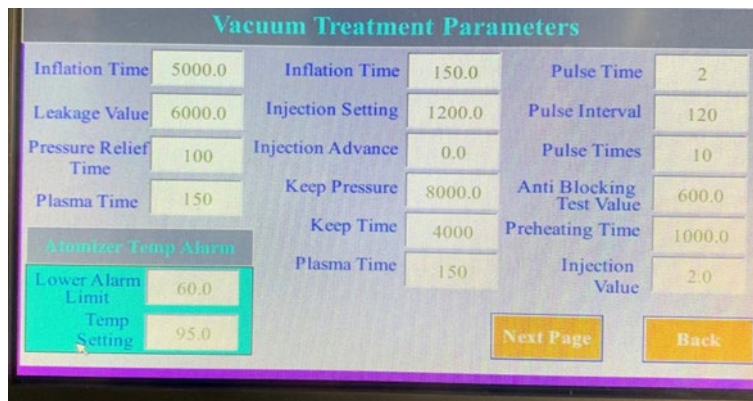
3. After entering the password (note: the password can also be set by yourself), the following main interface will appear, and three formats such as "rapid sterilization", "standard sterilization" and "enhanced sterilization" can be selected according to the requirements.





sterilization process

4. Contact sterilization parameter setting, can be customized sterilization parameters.



Sterilization parameter setting

5. Packing equipment

In paper-plastic packaging bags, non-woven or crepe paper packages need to be sterilized items, and inside the package or bag into the I instruction card type hydrogen peroxide, external paste II type hydrogen peroxide indicator CARDS, (note: the package instruction card should avoid completely gland by instrument)

After starting the machine and entering the home page, you can click the word "Open the door" on the touch screen to put the items. Items can not be overlapped, should be loosely placed on the shelf, and then click "close".

## 7. Select the program

The machine has three programs to choose from. "Rapid Sterilization" "Standard Sterilization" "Enhanced Sterilization". (note; Conventional sterilization choose "standard sterilization" or "enhanced sterilization". "Rapid Sterilization" is used to sterilize unpackaged instruments and test machines during emergency operations.

### (1) Rapid sterilization

Vacuum processing → One H<sub>2</sub>O<sub>2</sub> treatment → Primary plasma sterilization → Ventilation

### (2) Standard sterilization

Vacuum processing → One H<sub>2</sub>O<sub>2</sub> treatment → Primary plasma sterilization → Secondary H<sub>2</sub>O<sub>2</sub> treatment → Secondary plasma sterilization and ventilation

### (3) Enhanced sterilization

Vacuum processing → One H<sub>2</sub>O<sub>2</sub> treatment → One H<sub>2</sub>O<sub>2</sub> treatment → Secondary H<sub>2</sub>O<sub>2</sub> treatment → Secondary plasma sterilization and ventilation → Three H<sub>2</sub>O<sub>2</sub> treatments → Three times plasma sterilization → Ventilation

- Select the program click start can run
- In sterilization after click "ok" to go. To print, click "Print" to print the result. Record detailed parameters for preservation.
- The end of the sterilization, power off the panel.
- If you need to do biological culture, put *Bacillus subtilis* reagent into the tube

with the instrument to sterilize. After sterilization, break the inner glass tube with a special clamp, and then press the cap downward. (Power on the incubator 5 minutes in advance. The power switch is on the left side of the dosing box. Put the bacteria tube into the special incubator at the front and bottom, and take a non-sterilized reagent to break the cap and press it together and put it into the positive pair for care. Develop determination results after 48 hours, nutrient solution from purple to yellow color, show positive indicator for unqualified. If the color of culture medium remains the same as purple, the indicator is negative for qualified.

## SCREEN PROMPT AND CLEANING MAINTENANCE

### 1. Screen introduction

- Screen prompt "vacuum timeout" ----- reason: the door did not close the good air leak or vacuum pump is broken.
- The screen prompts "liquid level alarm" ----- reason: hydrogen peroxide solution needs to be added (Note: when adding hydrogen peroxide, latex gloves, glasses and other protection should be taken, do not splash on the skin and eyes, such as splash on the skin with a lot of water to clean, serious medical treatment).
- The screen prompts "whether to continue" ----- reason: power off midway, after the call to re-enter the home page, touch "continue" to continue to run the program. Touch "End" to end the program.



- Screen prompt "intake failure" ----- reason: intake valve bad or relay bad
- Screen prompt "maintenance" ----- reason: need to change a pump oil and filter.

## 2. Cleaning and maintenance

- Before cleaning the sterilizer, be sure to disconnect the power and unplug the power cord.
- When cleaning, the inside and outside surface can be wiped with soft cotton cloth (or sponge) cleaner.
- Avoid using gasoline, polishing agent, detergent powder and other toxic, corrosive cleaning agents for cleaning.
- Do not directly spray the cabinet with water, so as not to cause leakage or rust cabinet.

