

Integrated Vaporized Hydrogen Peroxide Sterilization System

集成式汽化过氧化氢灭菌系统



Product Introduction 产品简介

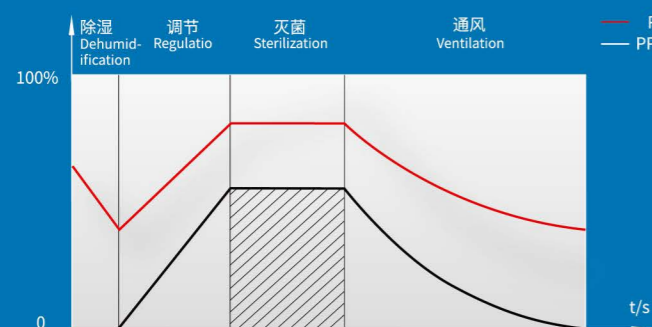
集成式汽化过氧化氢灭菌系统：

是指将VHP发生设备集成到空调系统，利用空调系统传输、扩散过氧化氢蒸汽，对目标空间灭菌的系统。灭菌前，空调系统对目标空间的温度、湿度进行调整，以满足灭菌需求；灭菌过程中，VHP发生设备产生过氧化氢蒸汽，经空调系统进行传输、扩散，从而实现目标空间的空间灭菌；灭菌后，空调系统开启排残模式，快速排出目标空间内的过氧化氢蒸汽。

Integrated vaporized hydrogen peroxide sterilization system:

It refers to a system that integrates VHP generation equipment into the air conditioning system, uses the air conditioning system to transmit and diffuse hydrogen peroxide steam, and sterilizes the target space. Before sterilization, the air conditioning system adjusts the temperature and humidity of the target space to meet the sterilization requirements; During sterilization, the VHP generator generates hydrogen peroxide steam, which is transmitted and diffused through the air conditioning system to achieve space sterilization of the target space; After sterilization, the air conditioning system will open the residue removal mode to rapidly discharge hydrogen peroxide vapor in the target space.

Technological Process 工艺流程



除湿阶段 Dehumidification stage

在开始向目标空间加注过氧化氢蒸汽之前，空调系统将目标空间内的相对湿度控制在40-60%之间，温度控制在26-30°C之间，为程序进入调节阶段做准备。

Before starting to inject hydrogen peroxide vapor into the target space, the air conditioning system controls the relative humidity in the target space between 40-60% and the temperature between 26-30 °C to prepare for the adjustment phase of the program.

Product Features 产品特点

合规性好 Good Compliance

VHP已经成为各国药典、欧盟GMP、消毒灭菌技术规范所推荐的方法，其灭菌工艺成熟，重现性好。

VHP has become a method recommended by national pharmacopoeia, EU GMP, and disinfection and sterilization technical specifications, with mature sterilization process and good reproducibility.

自动化程度高 Highly Automated

空调系统集中控制，一键灭菌。支持SCADA数据采集，具备审计追踪功能。

The air conditioning system is centrally controlled and sterilized with one button. Support SCADA data collection, with audit tracking function.

安全性好 Good Safety

具有自主知识产权的闪蒸器结构，先进的汽化控制方案，保证过氧化氢汽化完全，实现干法灭菌，腐蚀性小，材料兼容性好。灭菌后，过氧化氢分解为水和氧气，对人员和环境友好。

The flash evaporator structure with independent intellectual property rights and advanced vaporization control scheme ensure the complete vaporization of hydrogen peroxide, realize dry sterilization, with low corrosivity and good material compatibility. After sterilization, hydrogen peroxide is decomposed into water and oxygen, which is friendly to people and the environment.

灭菌能力强 Strong Sterilization Ability

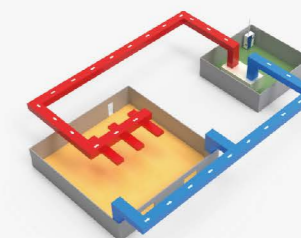
利用“闪蒸”技术将过氧化氢液体迅速变成过氧化氢气体，并通过空调系统将其扩散到目标空间，可应对复杂空间的灭菌需求。最大灭菌区域容积可达1000 m³以上。

The "flash evaporation" technology is used to rapidly change hydrogen peroxide liquid into hydrogen peroxide gas, and the air conditioning system will diffuse it to the target space, which can meet the sterilization requirements of complex space. The maximum sterilization area volume can reach more than 1000 m³.

传输效率高 High Transmission Efficiency

选用CPVC管路将VHP蒸汽从VHP发生设备传输至空调系统，CPVC材质管路导热效率低，耐温和耐腐蚀效果好。在传输管路外部缠绕自限温伴热带，包裹橡塑保温，确保VHP蒸汽无传输冷凝损耗。

CPVC pipes are selected to transmit VHP steam from the VHP generating equipment to the air conditioning system. The CPVC material has low heat transfer efficiency and good temperature and corrosion resistance. The CPVC pipeline is wrapped externally with a self-regulating trace heating tape, rubber and plastic insulation to ensure no transmission loss of VHP steam.



调节阶段 Regulation stage

VHP发生设备开始产生过氧化氢蒸汽，经过分配管道进入空调系统，目的是迅速提升目标空间内过氧化氢浓度水平。

The VHP generation equipment starts to generate hydrogen peroxide steam, which enters the air conditioning system through the distribution pipeline, in order to rapidly increase the hydrogen peroxide concentration level in the target space.

灭菌阶段 Sterilization stage

过氧化氢蒸汽持续通过分配管道进入空调系统，维持目标空间的过氧化氢浓度水平，直至灭菌完成。

The hydrogen peroxide steam continuously enters the air conditioning system through the distribution pipe to maintain the hydrogen peroxide concentration level in the target space until the sterilization is completed.

通风阶段 Ventilation stage

VHP发生设备停止加注过氧化氢蒸汽，空调开启排残模式，迅速降低目标空间过氧化氢浓度至安全水平。

The VHP generator stops filling hydrogen peroxide steam, and the air conditioner starts the residue removal mode to rapidly reduce the hydrogen peroxide concentration in the target space to a safe level.