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Why Steam Sterilizer (Autoclave) is a good choice for hospital and Pharmaceutical field?

Autoclaves are widely used in medical institutions, laboratories, and industries where the quality of reusable items is maintained with respect to infection control. They are, however, not available locally in many developing nations, and many of those in the system are already broken due to lack of indigenous technology and spare parts.

One of the major problems confronting healthcare professionals is the control of pathogenic organisms. This is because microorganisms are present in our environment and may contaminate healthcare instruments from time to time. An autoclave was designed and constructed to sterilize materials/items used in such healthcare institutions.

The process whereby microorganisms of all kinds are inactivated, killed, or removed from materials is known as sterilization. Sterility is the term used in relation to microorganisms to describe the total absence of all life forms in an environment, surface, object, or in an object which may be ingested, such as food, medical, or pharmaceutical products. Thus an object is said to be sterile when it is free of all forms of life. This is an essential pre-requisite for certain categories of pharmaceutical and medicinal products such as injections, infusions and drops, in order to prevent health hazards through contamination by microorganism.

Under ordinary circumstances, heating water above the boiling temperature in an open vessel is impossible. This is due to extensive evaporation that occurs during boiling. If water is heated in a sealed vessel, it is possible to increase the boiling temperature. An autoclave is a sealed vessel and a large pressure cooker; it operates by using steam under pressure as the sterilizing agent. High pressure enables steam to reach high temperatures, thus increasing its heat content and sterilizing power.

Most of the heating power of steam comes from its latent heat of vaporization. Steam sterilization is the most practicable method for sterilizing reusable medical devices in healthcare institutions because; it has lethality to pathogens, it is rapid; and it is nontoxic. The standard temperature/pressure-time relationship for steam sterilization is 1.05 bar (15 psi), 121 C (2500 F) and 15 minutes.

Steam is able to penetrate objects with cooler temperature

because once the steam contacts a cooler surface, it immediately condenses to water, producing a replacement in folds, thereby resulting in decrease in steam volume. This creates negative pressure at the point of condensation and draws more steam to the area for further condensation.

This condensation continues so long as the temperature at the condensing surface is less than that of steam present, until temperature equilibrium is obtained; and a saturated steam environment is formed.

The more moisture present, the more heat can be carried, so steam is one of the most effective carriers of heat. Moist heat kills microorganisms by causing coagulation of essential proteins structures that are nucleus and cytoplasmic membrane inclusive, rendering the cell non-viable.

The rate at which bacterial cells are thermally inactivated depends on the temperature and time of heat exposure.

If you are intend to buy a steam sterilizer, just pick up phone call us +86 18013573318 or send your request to us juliet@medpharmchina.com, we will give you a perfect plan!!