

Chicken Processing Microwave Sterilization Machine



Microwave is an electromagnetic wave whose frequency ranges from 300 MHz to 300 GHz. Microwave sterilization is the result of microwave thermal effect and biological effect. The potential distribution of microwave on the cross section of bacterial membrane affects the concentration of electrons and ions around the cell membrane, thus changing the permeability of cell membrane. Bacteria are malnourished, unable to metabolize normally, and their growth and development are hindered and died. From a biochemical point of view, nucleic acids (RNA) and deoxyribonucleic acids (DNA) that normally grow and reproduce in bacteria are convoluted macromolecules closely linked by a number of hydrogen bonds. Microwave causes hydrogen bond relaxation, breakage and recombination, which induces genetic or chromosomal aberration, or even breakage. Microwave sterilization is the use of electromagnetic field effect and biological effect to kill microorganisms. Practice has proved that microwave device has obvious advantages in sterilization temperature, sterilization time, product quality maintenance, product shelf life and energy saving.



Food is easily contaminated and deteriorated in the process of production, preservation, transportation and marketing. Usually, high temperature, drying, blanching, pasteurization, freezing and preservatives can be used to achieve food insecticidal sterilization and preservation. But it often affects the original flavor and nutrition of food. Microwave insecticidal sterilization is a kind of microorganism in food. At the same time, it is affected by both microwave thermal effect and non-thermal effect, which causes the variation of protein and physiological active substance in the body, and leads to the delay and death of microorganism growth and development, so as to achieve the purpose of food sterilization and preservation.



Principle of [microwave sterilization machine](#): Thermal effect of microwave energy: Under the action of certain intensity microwave field, insects and fungi in food can absorb microwave energy to heat up due to molecular polarization, thus denaturing their proteins and losing their biological activity. The thermal effect of microwave mainly plays the role of rapid heating and sterilization. The non-thermal effect of microwave energy: high frequency electric field also changes the membrane potential and polar molecular structure of microorganisms, and changes the proteins and physiological active substances in microorganisms, resulting in loss of vitality or death. It plays a special role in sterilization which is not found in conventional physical sterilization, and is also one of the causes of bacterial death. Microwave sterilization and freshness preservation are the results of the combined effects of microwave heating and non-thermal effects. Therefore, the microwave sterilization temperature is lower than the conventional method. Generally, the conventional method sterilization temperature should be 120 - 130 C for about an hour, while the microwave sterilization temperature only needs 70 - 105 C for about 90 - 180 seconds.

The [chicken processing microwave sterilization machine](#) includes the following parts: The microwave generator and microwave catheter are the main components of the microwave generator. There are microwave agitation or dispersion devices in the furnace; 4. Sealing door part can prevent microwave leakage. Operation control part includes safety interlocking device. The working environment of the equipment is low in temperature and low in noise, which greatly improves the working conditions. The operator of the whole set of microwave equipment only needs 2-3 persons. It is widely used in the heating, drying and sterilization of beef jerky,

preserved pork, fish fillets, soy sauce, duck, chicken and other products. After microwave sterilization, the freshness, tenderness and flavor of meat products remain unchanged. The hygienic index can be completely lower than the national food hygiene standard. The shelf storage time can reach 1-2 months. The successful application of microwave sterilization and preservation technology for meat products has been extended from 3 days to 1-2 months. This technology has been improved to a new stage.