

The Ultimate Guide to Industrial Belt Type Microwave Jackfruit Kiwi Dried Fruit Sterilization Machine in 2024

Detail Introduction :

Introduction

Working Principle

Advantages of microwave sterilizer

Key components of microwave sterilizer

Comparison and advantages of microwave technology and traditional sterilization methods

Types of microwave sterilizers

Technical parameters

Technological progress and innovation

Precautions for selecting and implementing microwave sterilizers

Challenges and limitations of microwave sterilizers

Introduction

In 2024, the industrial landscape witnesses a significant leap forward in fruit sterilization technology with the advent of the [Industrial Belt Type Microwave Jackfruit Kiwi Dried Fruit Sterilization Machine](#). This revolutionary equipment combines the efficiency of microwave technology with the precision of industrial belt mechanisms to deliver unparalleled results in the sterilization of jackfruit, kiwi, and various dried fruits. As experts in the field of food processing, we delve into the intricacies of this groundbreaking machine, exploring its functionalities, benefits, and implications for the food processing industry.



Working Principle

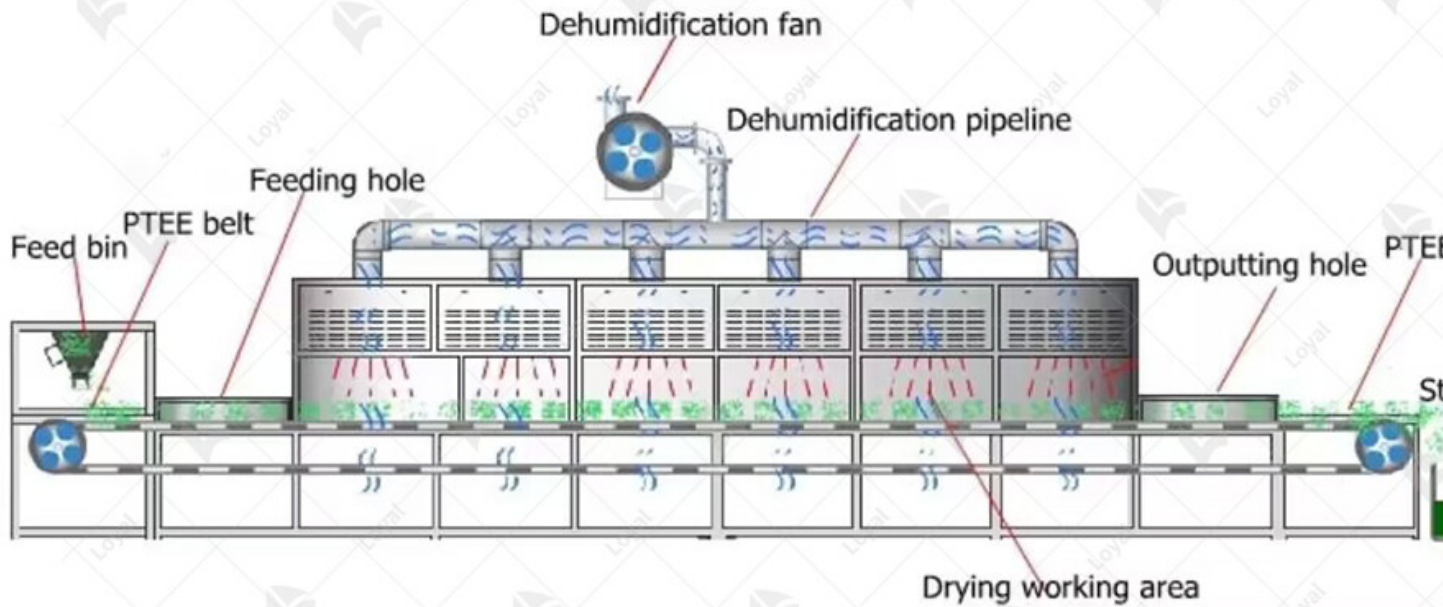
The [industrial belt type microwave jackfruit kiwi dried fruit sterilization machine](#) operates on the fundamental principles of microwave technology combined with an innovative conveyor belt. Microwave technology is utilized due to its ability to rapidly and evenly heat substances, penetrating deeply into the material to effectively eliminate harmful microorganisms while preserving the nutritional quality and flavor of the fruits.

The machine consists of a conveyor belt that transports the dried fruits through a microwave chamber. Within this chamber, microwave radiation is emitted uniformly, generating heat throughout the product. As the fruits pass through the chamber on the conveyor belt, they are exposed to this microwave radiation, which effectively sterilizes them.

The conveyor belt system ensures a continuous and even flow of fruits through the sterilization process, maximizing efficiency and throughput. Additionally, the speed of the conveyor belt can be adjusted to accommodate different types of fruits and desired levels of sterilization.

By harnessing the power of microwave technology in conjunction with an industrial belt system, this machine offers a highly effective and efficient solution for sterilizing jackfruit, kiwi, and other fruits, meeting the stringent standards of food safety and quality assurance in the year 2024.

Continuous Microwave Equipment Working Process

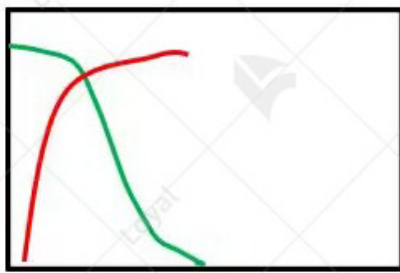


Advantages of microwave sterilizer

Advantages	Description
Rapid Sterilization	Industrial belt type microwave jackfruit kiwi dried fruit sterilization machine utilize microwave technology to rapidly and effectively sterilize fruits, ensuring a quick turnaround time for production processes. Microwave energy penetrates the fruit, targeting and eliminating harmful microorganisms swiftly.
Uniform Sterilization	Unlike traditional methods, microwave sterilizers ensure uniform sterilization throughout the entire batch of fruits. This uniformity is crucial in maintaining product quality and safety standards across all pieces of fruit, reducing the risk of contamination or uneven processing.
Preservation of Nutritional Content	Microwave sterilization preserves the nutritional content of jackfruit, kiwi, and other dried fruits by minimizing exposure to heat and maintaining optimal temperature levels during the sterilization process. This helps retain vitamins, minerals, and other essential nutrients, ensuring a healthier end product for consumers.
Energy Efficiency	Industrial belt type microwave sterilization machines are highly energy-efficient, utilizing microwave technology to generate heat directly within the fruit, rather than relying on external heat sources. This not only reduces energy consumption but also minimizes production costs, making it a sustainable and cost-effective sterilization solution.
Reduced Processing Time	The use of microwave technology significantly reduces processing time compared to conventional sterilization methods. This efficiency enables manufacturers to increase production output, meet market demands, and improve overall operational efficiency, thereby gaining a competitive edge in the industry.

LOYAL'S MICROWAVE ADVANTAGES

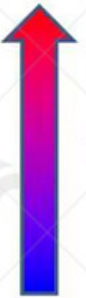
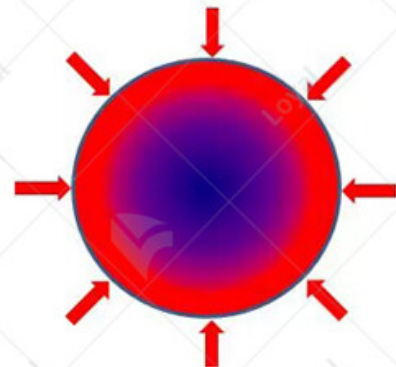
Microwave Heating



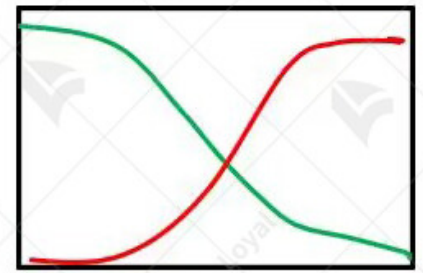
Time

FASTER, MORE EVEN

Conductive Heating



Tempe



Time

SLOWLY...

Key components of microwave sterilizer

Component	Description
Magnetron	The magnetron is the heart of the microwave sterilizer. It generates microwave energy used for sterilization.
Conveyor Belt System	This system moves the fruit through the sterilization chamber efficiently ensuring uniform treatment.
Control Panel	The control panel allows operators to set and monitor sterilization parameters such as time, temperature, etc.
Microwave Chamber	This is where the fruit is exposed to microwave radiation for sterilization, designed for maximum efficiency.
Cooling System	A cooling system is essential to maintain optimal operating temperatures and prevent overheating of components.
Safety Interlocks	These mechanisms ensure that the sterilization process can only begin when safety criteria are met.

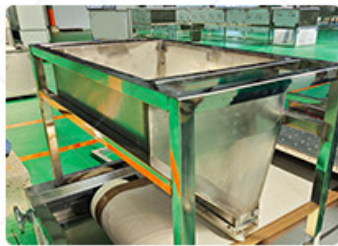
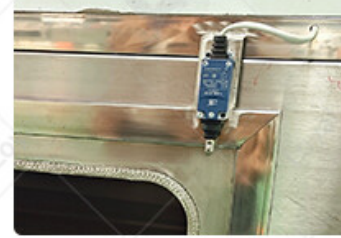
1. PLC control system



6. Machine Material : 304 stainless steel



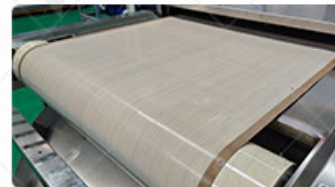
5. The observation window is equipped with a travel switch to prevent microwave leakage and improve safety.



2. Material Feeder : Customizable according to your materials, both Liquid & Powder & Pellet available



3. Belt: Customizable mesh belts of various materials



4. Control cabinet: Add a control box, neat and easy to clean



Comparison and advantages of microwave technology traditional sterilization methods

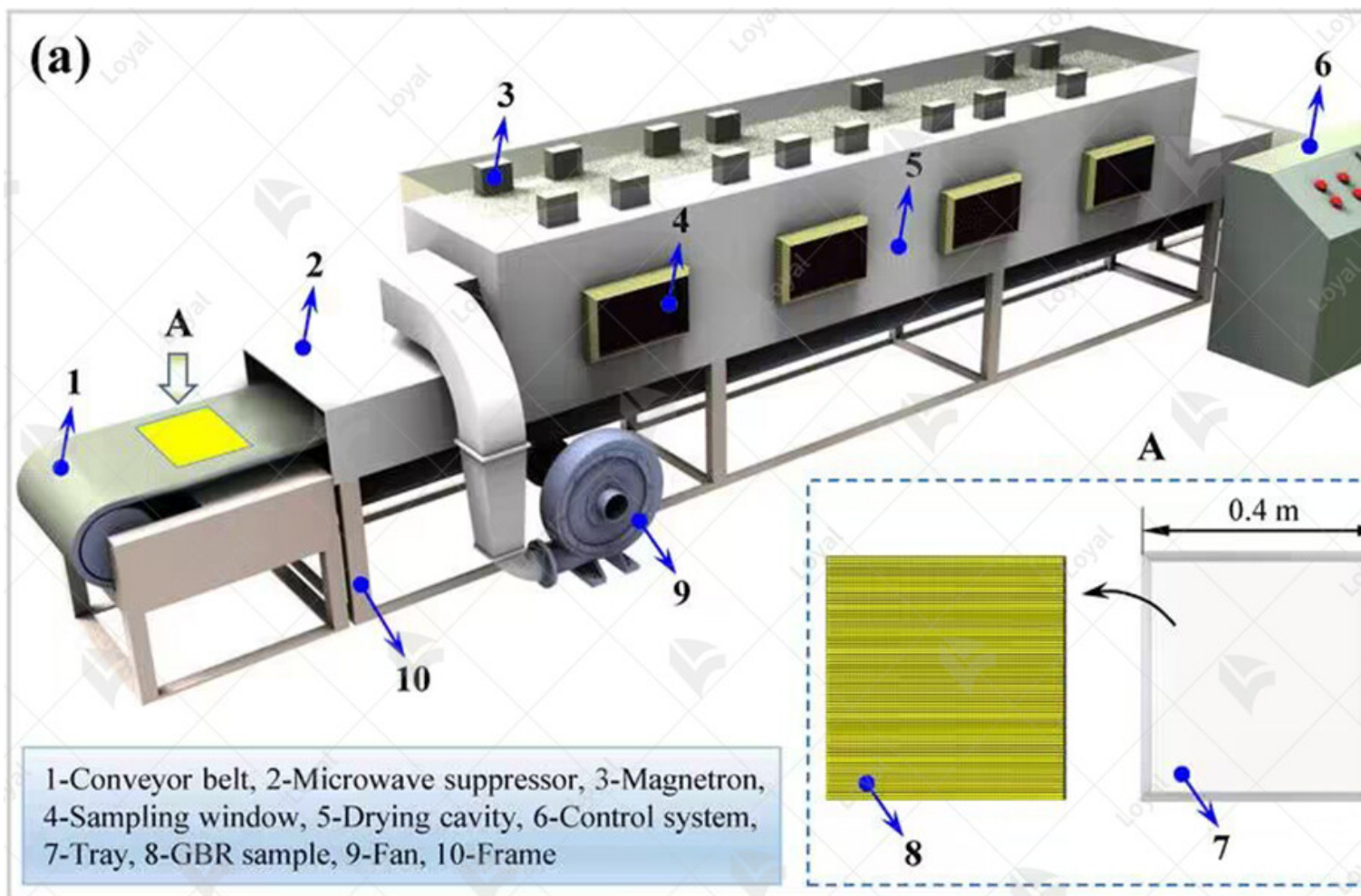
Criteria	Microwave Technology	Traditional Sterilization Methods
Speed	Microwave technology operates at high speeds, allowing for rapid sterilization of jackfruit, kiwi, and other dried fruits within minutes.	Traditional sterilization methods such as steam or hot air require longer processing times, often taking hours to achieve similar levels of sterilization.
Energy Efficiency	Microwave sterilization machines are known for their energy efficiency, as they directly heat the product without heating the surrounding environment.	Traditional methods may consume more energy due to the need to heat a larger volume of air or water.
Sterilization Efficacy	Microwave technology effectively kills bacteria, molds, and other pathogens present on the surface of fruits, ensuring high levels of sterilization.	Traditional methods also provide effective sterilization but may not penetrate the product as deeply as microwave technology, leading to potential microbial growth in the interior.

Quality Retention	Microwave sterilization preserves the quality of fruits by minimizing heat exposure, retaining nutrients, color, and flavor.	Traditional methods, particularly those involving high temperatures, may lead to degradation of quality attributes such as color, texture, and nutritional content.
Uniformity	Microwave technology ensures uniform sterilization throughout the product, reducing the risk of uneven heating or hot spots.	Traditional methods may result in uneven sterilization, especially in large batches, leading to variations in product quality.
Flexibility	Industrial belt type microwave sterilization machines offer flexibility in processing various types of fruits, including jackfruit and kiwi, with adjustable settings for different moisture levels and product characteristics.	Traditional methods may have limited flexibility and may not be suitable for all types of fruit or specific production requirements.
Environmental Impact	Microwave technology typically has a lower environmental impact compared to traditional methods, as it requires less energy and generates fewer emissions.	Traditional sterilization methods often involve the use of fossil fuels and chemicals, contributing to environmental pollution.
Cost	While initial investment costs for industrial belt type microwave sterilization machines may be higher, operational costs are often lower due to energy efficiency and faster processing times, resulting in long-term cost savings.	Traditional methods may have lower initial investment costs but incur higher operational expenses over time due to energy consumption and longer processing times.



Types of microwave sterilizers

Type	Description
Industrial Belt Type	Utilizes a conveyor belt system to continuously feed products through the microwave sterilization process. Ideal for large-scale operations and high throughput.
Batch Type	Operates in batches, where a fixed quantity of products is loaded into the sterilization chamber for treatment. Suitable for smaller-scale production or products requiring individual attention.
Rotary Drum Type	Features a rotating drum where products are evenly exposed to microwave energy for sterilization. Effective for products with irregular shapes or those requiring gentle handling during processing.
Tunnel Type	Similar to industrial belt type, but products move through a tunnel-shaped chamber for sterilization. Offers flexibility in configuration and can accommodate various product sizes and shapes.
Cabinet Type	Compact units designed for laboratory or small-scale production settings. Products are placed inside a cabinet-like chamber for sterilization. Offers precise control over process parameters and is suitable for research purposes or specialized applications.



Technical parameters

Technical Parameters Of Continuous Microwave Dryer Industrial Microwave Dryer Machine

Model	Size LWH(Can be customized according to the customer's requirements)	Output power	Dewaterability	Sterilization capacity	Baking, Roast capacity (Depend on different raw materials)
LY-10KW	5000mm825mm1750mm	?10KW	10KG/Hour	100KG/Hour	30-50KG/Hour
LY-20KW	8000mm825mm1750mm	?20KW	20KG/Hour	200KG/Hour	60-100KG/Hour
LY-30KW	8500mm1160mm1750mm	?30KW	30KG/Hour	300KG/Hour	90-150KG/Hour

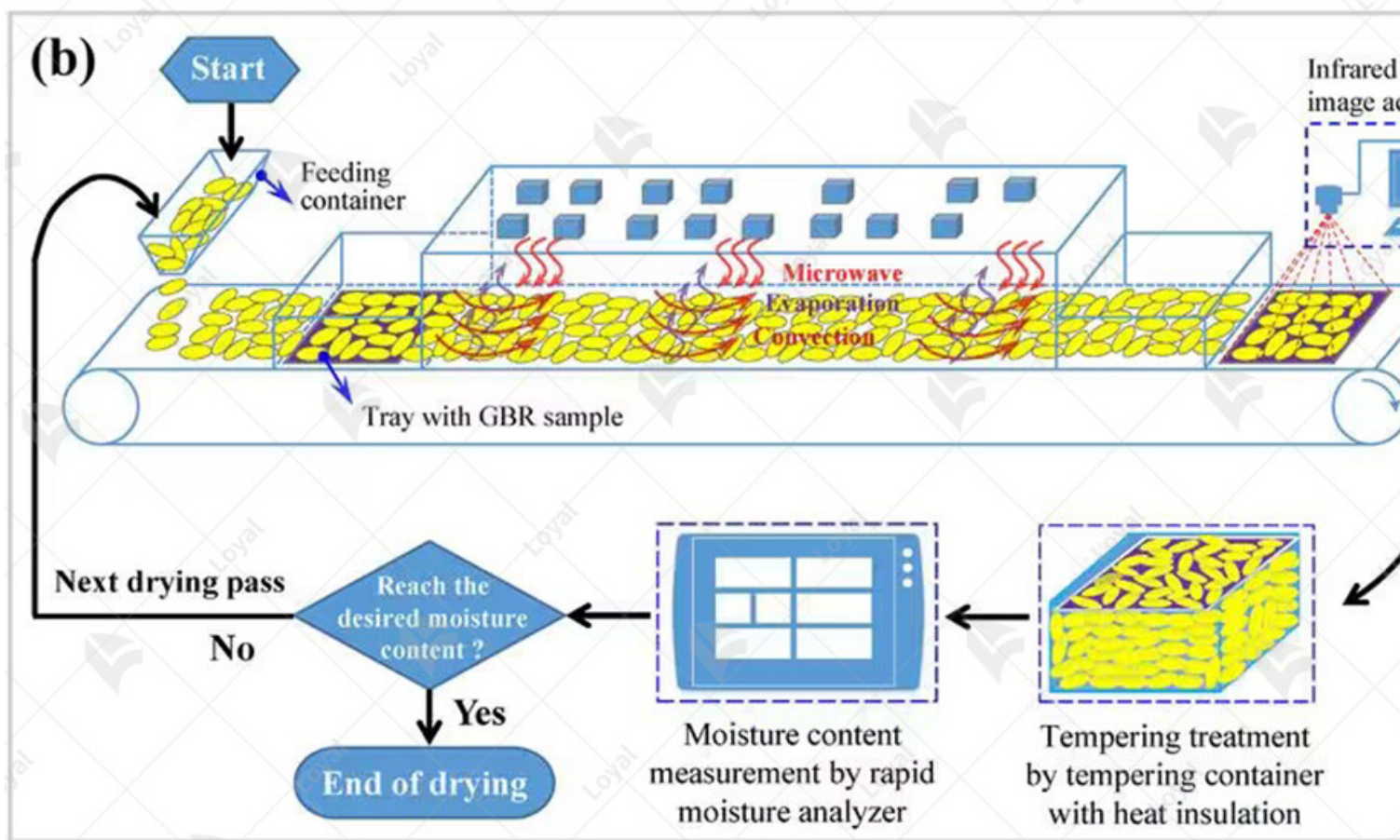
LY-40KW	10000mm1160mm1750mm	?40KW	40KG/Hour	40KG/Hour	120-200KG
LY-50KW	12500mm1160mm1750mm	?50KW	50KG/Hour	500KG/Hour	150-250KG
LY-60KW	13500mm1450mm1750mm	?60KW	60KG/Hour	600KG/Hour	180-300KG
LY-70KW	13500mm1500mm1750mm	?70KW	70KG/Hour	700KG/Hour	210-350KG
LY-80KW	13500mm1650mm1750mm	?80KW	80KG/Hour	800KG/Hour	240-400KG
LY-100KW	16800mm1650mm1750mm	?100KW	100KG/Hour	1000KG/Hour	300-500KG
LY-150KW	22400mm1850mm1750mm	?150KW	150KG/Hour	1500KG/Hour	450-750KG
LY-200KW	27000mm1850mm1750mm	?250KW	250KG/Hour	2500KG/Hour	750-1250KG
LY-300KW	32000mm1850mm1750mm	?300KW	300KG/Hour	3000KG/Hour	900-1500KG
Power Supply		380V±10% 50Hz±1% Three-Phase Five-Wire			
Microwave Output Frequency		2450±50Mhz			
Microwave Input Apparent Power		?168Kva			
Microwave Output Power		?120Kw			
Microwave Power Adjustment Range		0-30Kw(Adjustable)			
Ambient Temperature		-5-40°C			
Relative Humidity		?80%, Surrounding Environment:No Corrosive Gas, Conductive Dust And Explosive Gas			
Transmission Speed		0-10m/Min(Adjustable)			



Technological progress and innovation

In 2024, the industrial landscape witnesses a remarkable stride in the field of food processing with the advent of the Industrial Belt Type Microwave Jackfruit Kiwi Dried Fruit Sterilization Machine. This cutting-edge equipment embodies a fusion of advanced technology and meticulous engineering, revolutionizing the preservation and sterilization processes for dried fruits like jackfruit and kiwi. The essence of this sterilization machine lies in its utilization of microwave technology, a method renowned for its efficacy in eliminating harmful pathogens while preserving the nutritional integrity and flavor profile of fruits. Unlike conventional sterilization methods, which often entail prolonged exposure to high temperatures, microwave sterilization offers a swift and uniform heating process, thereby minimizing the risk of thermal degradation and ensuring superior product quality. At the heart of this industrial marvel is its belt-type configuration, which facilitates seamless and continuous processing of large volumes of dried fruits. This innovative design not only enhances operational efficiency but also ensures consistent sterilization outcomes across the entire production batch.

One of the key distinguishing features of the Industrial Belt Type Microwave Jackfruit Kiwi Dried Fruit Sterilization Machine is its adaptability and versatility. Equipped with intuitive controls and customizable settings, this equipment can accommodate a diverse range of fruit varieties and processing requirements, thereby catering to the dynamic needs of the food industry. Furthermore, this sterilization machine embodies a commitment to sustainability, with its energy-efficient design and optimized resource utilization. By minimizing energy consumption and waste generation, it not only reduces operational costs but also aligns with the broader imperative of environmental stewardship.



Precautions for selecting and implementing microwave sterilizers

Microwave technology has revolutionized the food processing industry, offering efficient and sterilization methods for various products, including jackfruit, kiwi, and dried fruits. In the real industrial food processing, the utilization of industrial belt type microwave sterilization machines become increasingly prevalent. These machines offer precise control over the sterilization process ensuring product safety and quality. However, selecting and implementing these machines require careful consideration and adherence to certain precautions.

1. **Understanding the Technology:** Before selecting a microwave sterilization machine, it is crucial to have a comprehensive understanding of the technology. Microwave sterilization relies on electromagnetic radiation to penetrate food products, effectively eliminating pathogens and microorganisms. Industrial belt type machines utilize a conveyor belt system to ensure uniform exposure to microwave energy, guaranteeing thorough sterilization.
2. **Quality and Reliability:** When choosing a microwave sterilization machine, prioritize quality and reliability. Opt for machines from reputable manufacturers with a proven track record in the industry. Conduct thorough research, read customer reviews, and seek recommendations from industry experts to ensure the chosen machine meets your specific requirements and quality standards.
3. **Customization and Flexibility:** The versatility and customization options offered by the sterilization machine are paramount. Look for machines that allow for precise control over variables such as temperature, power output, and conveyor speed. This flexibility enables tailored sterilization processes to accommodate different types of fruits and varying production demands.

4. Compliance with Regulatory Standards: Compliance with regulatory standards and food safety guidelines is non-negotiable in the food processing industry. Ensure that the selected microwave sterilization machine adheres to relevant regulatory requirements and certifications. This includes certifications from food safety authorities and adherence to industry-specific standards such as HACCP (Hazard Analysis and Critical Control Points).
5. Operational Efficiency and Maintenance: Assess the operational efficiency and maintenance requirements of the sterilization machine. Opt for machines that are easy to operate, maintain, and clean. Consider factors such as energy efficiency, downtime for maintenance, and availability of technical support from the manufacturer. Regular maintenance and servicing are essential to ensure optimal performance and longevity of the machine.
6. Integration into Existing Production Line: Seamless integration of the microwave sterilization machine into your existing production line is essential to minimize disruptions and maximize efficiency. Consider factors such as space requirements, compatibility with other equipment, and the overall workflow of the production process. Collaborate with the manufacturer to design a custom solution that seamlessly integrates with your specific production requirements.
7. Training and Support: Adequate training and technical support are imperative for successful implementation and operation of the sterilization machine. Ensure that your staff receives comprehensive training on machine operation, maintenance procedures, and safety protocols. Additionally, establish a reliable communication channel with the manufacturer for ongoing support, troubleshooting, and assistance.

DETAIL CHARACTERISTICS



01 ENVIRONMENTAL POLLUTION-FREE

Microwave drying equipment does not produce environment of high temperature, dust and noise, without waste water and exhaust gas in the process of operation, no waste is generated.



03 ADVANCED TECHNOLOGY EASY TO USE

Microwave heating just have the control of water, electricity, as long as the microwave which can realize the control of heating process is.



02 HEATING UNIFORMITY

Material can generate heat at the same time under the action of electromagnetic waves from microwave, there will be no coke endogenous phenomenon.



04 SMALL FOOTPRINT SAFE AND HARMLESS

Because the microwave energy is control in metal heating indoor and work in the waveguide tube, so rarely microwave leak, no radiation damage and harmful gas emissions, and does not produce waste heat and dust pollution.

Challenges and limitations of microwave sterilizers

Title: The Ultimate Guide to Industrial Belt Type Microwave Jackfruit Kiwi Dried Fruit Sterilization Machine in 2024

Microwave sterilization technology has revolutionized the food industry, particularly in the processing of dried fruits like jackfruit and kiwi. In this guide, we delve into the challenges and

limitations associated with industrial belt type microwave sterilization machines, offering insights from experts in the field.

1. Understanding Microwave Sterilization:

Microwave sterilization utilizes electromagnetic waves to target and destroy microorganisms in food products. Unlike conventional methods such as heat pasteurization, microwave sterilization offers rapid and efficient processing, making it ideal for industrial applications.

2. Challenges Faced by Industrial Belt Type Machines:

While industrial belt type microwave sterilization machines offer significant advantages, they face certain challenges. One primary challenge is ensuring uniformity in sterilization across the batch of dried fruits. Variations in moisture content and product density can lead to uneven heating, potentially compromising the effectiveness of the sterilization process.

3. Limitations in Penetration Depth:

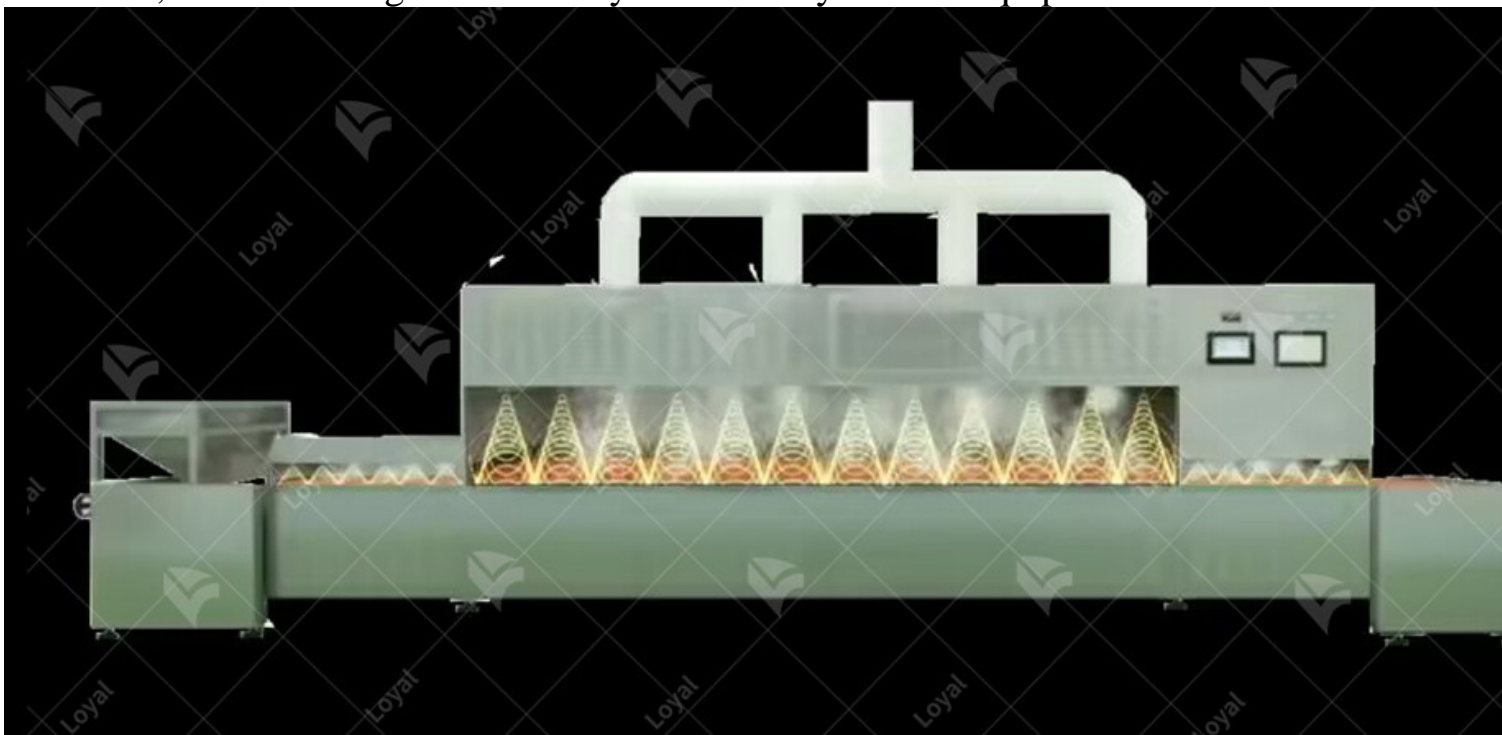
Another limitation of microwave sterilization is the restricted penetration depth of the electromagnetic waves. This can be particularly problematic in dense or thick food items, where achieving thorough sterilization throughout the product can be challenging. Manufacturers must carefully adjust parameters such as power levels and conveyor speed to optimize penetration depth while maintaining product quality.

4. Addressing Temperature Variations:

Temperature variations within the sterilization chamber can also pose challenges. Hotspots may develop, leading to over-sterilization in certain areas and under-sterilization in others. Advanced temperature monitoring and control systems are essential for mitigating these issues, ensuring consistent and effective sterilization throughout the entire batch.

5. Overcoming Regulatory Compliance:

In the food industry, regulatory compliance is paramount. Industrial belt type microwave sterilization machines must adhere to stringent guidelines set forth by regulatory bodies to ensure food safety and quality. Manufacturers invest heavily in research and development to meet and exceed these standards, demonstrating the reliability and efficacy of their equipment.



References

The following are five authoritative foreign literature websites in the field of industrial microv

1. IEEE Xplore Digital Library

Website: [<https://ieeexplore.ieee.org/>]

2. ScienceDirect

Website: [<https://www.sciencedirect.com/>]

3. SpringerLink

Website: [<https://link.springer.com/>]

4. Wiley Online Library

Website: [<https://onlinelibrary.wiley.com/>]

5. PubMed

Website: [<https://pubmed.ncbi.nlm.nih.gov/>]