

# The Ultimate Guide to Tunnel-Belt Type Snack Food Biscuits Baking Drying and Sterilizing Machine in 2024

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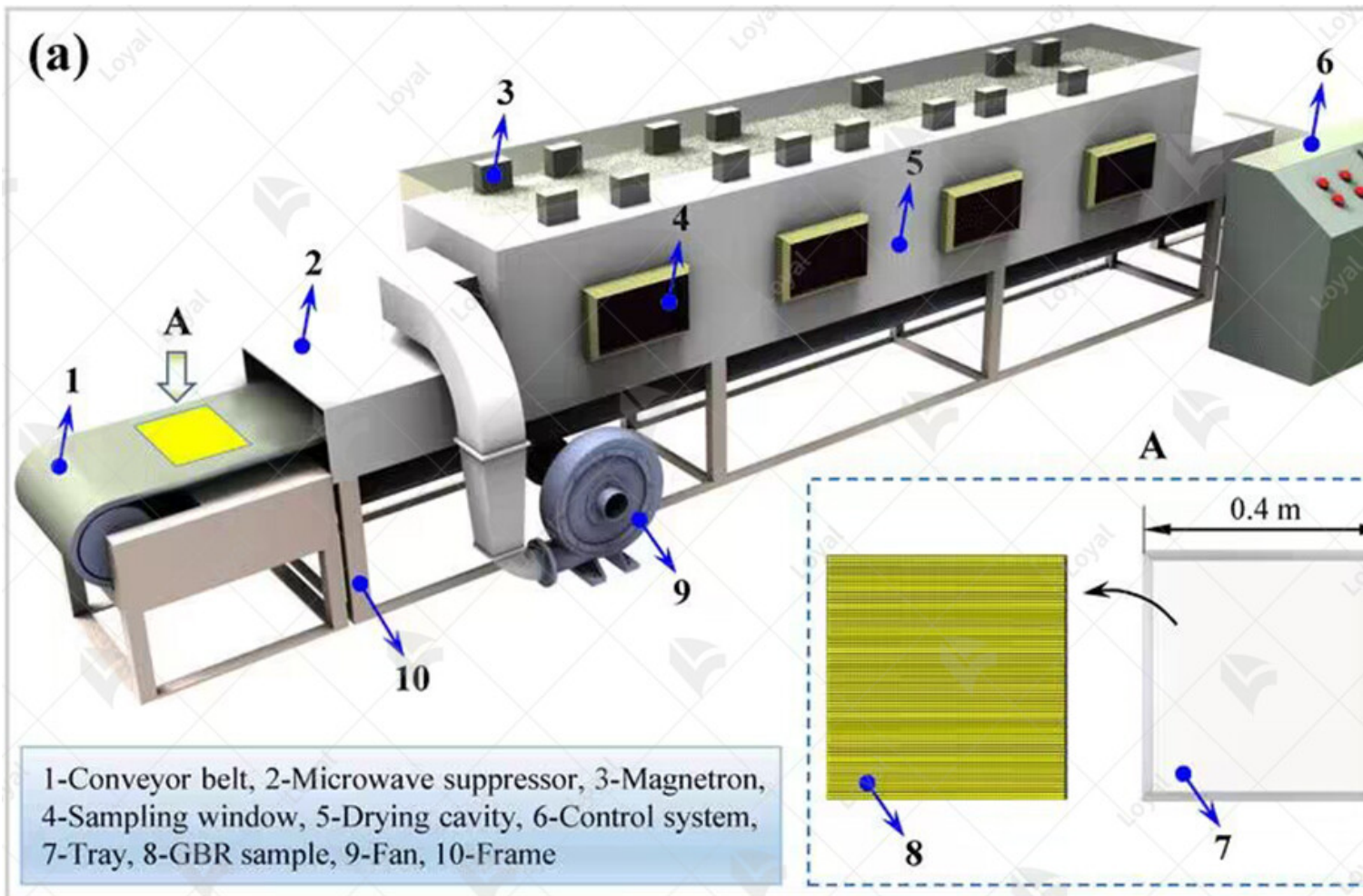
Reference

## Introduction

In the ever-evolving food industry, [the Tunnel-Belt Snacks Food Biscuits Baking Drying and Sterilization Machine](#) represents a pinnacle of technological advancement. This sophisticated machinery is designed to streamline the production process of snack foods and biscuits, ensuring high-quality results with enhanced efficiency. As we move into 2024, understanding the significance and functionality of these machines becomes crucial for industry professionals seeking to maintain a competitive edge.

[The Tunnel-Belt Snacks Food Biscuits Baking Drying and Sterilization Machine](#) combines several critical processes into a single, seamless operation. By integrating baking, drying, and sterilization, this machine not only optimizes production time but also ensures the safety and quality of the products. The inclusion of microwave technology in these processes further enhances efficiency by providing uniform heating and reducing overall energy consumption.

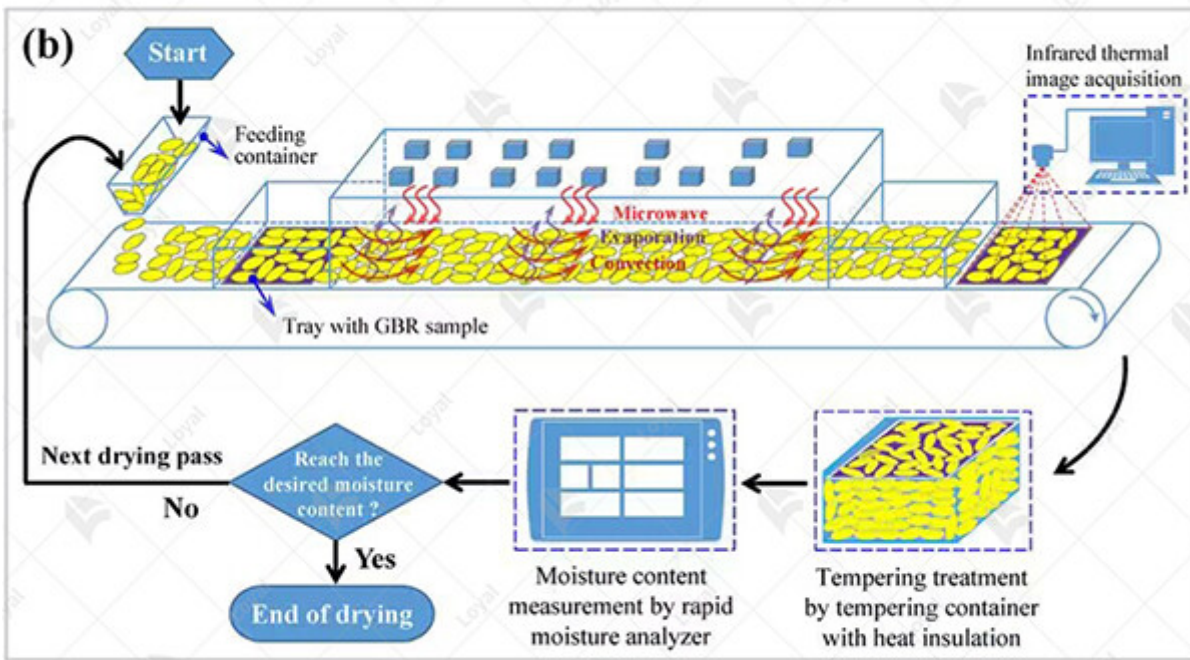
For manufacturers, the benefits are clear: consistent product quality, improved operational efficiency, and adherence to stringent food safety standards. As we delve deeper into this guide, we will explore the operating principles, technological advancements, and future trends associated with the Tunnel-Belt Snacks Food Biscuits Baking Drying and Sterilization Machine, providing a comprehensive understanding of its impact on the industry.



## Tunnel type-Belt type snack food biscuit baking, drying and sterilizing machine working principle

Section	Content
Introduction	The Tunnel-Belt Snacks Food Biscuits Baking Drying and Sterilizing Machine is an advanced technology used in the food industry to ensure efficient production and high-quality output of snack food biscuits. This machine integrates baking, drying, and sterilizing processes, making it a vital component in modern food processing facilities.
Working Principle	<p><b>Baking Process:</b> The tunnel-belt system transports the biscuits through a heated tunnel where consistent and even baking occurs. The heat is precisely controlled to achieve the desired texture and flavor.</p> <p><b>Drying Process:</b> After baking, the biscuits move to the drying section where moisture content is reduced to optimal levels, preventing spoilage and extending shelf life. This is achieved through controlled airflow and temperature management.</p> <p><b>Sterilization Process:</b> Finally, the biscuits pass through a sterilization zone where they are exposed to high temperatures or microwaves to eliminate any remaining bacteria or pathogens, ensuring the products are safe for consumption.</p>

Advantages	<ul style="list-style-type: none"> <li>- Efficiency: The integrated processes reduce the need for multiple machines, saving space and energy.</li> <li>- Quality Control: Consistent baking, drying, and sterilization result in high-quality products.</li> <li>- Safety: Ensures the final product is free from harmful microorganisms.</li> </ul>
Technological Developments in 2024	Recent advancements in 2024 have focused on enhancing the efficiency and precision of tunnel-belt machines. Innovations include improved temperature control systems, advanced monitoring sensors, and energy-efficient designs. These developments have led to faster production times and better product consistency.
Conclusion	The Tunnel-Belt Snacks Food Biscuits Baking Drying and Sterilizing Machine is a cornerstone in modern snack food production. Its integrated processes streamline production, ensure product safety, and maintain high quality. As technology continues to advance, these machines will become even more efficient and integral to the food industry.



Key components and functions of the tunnel-belt snack food biscuit baking, drying and sterilizing machine.

Component	Function
Conveyor Belt	Transports snack food biscuits through the baking, drying, and sterilization process.
Heating Elements	Provides consistent heat to bake the biscuits evenly and efficiently.

Cooling System	Rapidly cools down the biscuits after baking to prevent overcooking and ensure product quality.
Sterilization Chamber	Utilizes high temperatures or UV light to sterilize the biscuits, extending shelf life and safety.
Control Panel	Allows operators to monitor and adjust the machine's settings for optimal performance.
Air Circulation System	Ensures even distribution of heat and sterilization throughout the tunnel belt system.
Exhaust System	Removes excess moisture and fumes generated during the baking and sterilization processes.
Sensors	Detects temperature, humidity, and other parameters to maintain precise baking conditions.
Cleaning Mechanism	Facilitates easy cleaning and maintenance of the machine for hygienic production.



## Advantages and disadvantages of tunnel belt type snacking food biscuit baking, drying and sterilizing machine

Aspect	Advantages	Disadvantages
Efficiency	- Tunnel-belt type machines offer high efficiency in baking, drying, and sterilization processes, ensuring rapid production.	- Despite their efficiency, these machines may require a significant initial investment, which could be a barrier for some businesses.



Quality Assurance	- They provide consistent and uniform results, ensuring high-quality snacks, biscuits, and other food products.	- However, improper calibration and maintenance could lead to variations in product quality, affecting customer satisfaction.
Versatility	- These machines are versatile and can handle a wide range of snack food items, biscuits, and baked goods, offering flexibility in production.	- Nevertheless, they may not be suitable for all types of products or production scales, limiting their applicability in certain scenarios.
Time Savings	- Tunnel-belt machines enable continuous processing, reducing downtime between batches and increasing overall production output.	- On the flip side, complex cleaning and maintenance procedures may consume additional time and resources, impacting operational efficiency.
Sterilization	- They incorporate advanced sterilization technology, ensuring food safety by eliminating harmful pathogens and bacteria effectively.	- However, the sterilization process may require careful monitoring to prevent overexposure, which could affect product taste or texture.
Energy Efficiency	- These machines are designed with energy-saving features, optimizing resource utilization and reducing operational costs.	- Yet, the energy consumption of tunnel-belt type machines could be a concern for businesses aiming to minimize environmental impact.

**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.

**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.

**03 ADVANCED TECHNOLOGY EASY TO CONTROL**  
 Microwave heating just have the basic conditions of water, electricity, as long as control power of microwave which can realize the automatic control of heating process immediately.

**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.

Types of tunnel-belt snack food biscuit baking, drying sterilizing machines

In 2024, tunnel-belt type snack food biscuit baking, drying, and sterilizing machines have evolved significantly, offering various types tailored to specific needs in the food industry. Here are some notable types:

#### 1. Conveyor Belt Tunnel Ovens:

These ovens feature a continuous conveyor belt system that moves the snack food biscuits through a heated tunnel for baking, drying, and sterilization. They ensure uniform heat distribution, resulting in consistent product quality.

#### 2. Multi-Deck Tunnel Ovens:

Multi-deck tunnel ovens consist of multiple levels or decks stacked vertically. Each deck contains conveyor belts for baking different batches of snack food biscuits simultaneously, optimizing production capacity.

#### 3. Hybrid Tunnel Ovens:

Hybrid tunnel ovens combine the functionalities of traditional tunnel ovens with advanced features such as infrared heating or microwave technology. This hybrid approach enhances energy efficiency and reduces processing time while maintaining product quality.

#### 4. Customized Tunnel Ovens:

Some manufacturers offer customized tunnel ovens tailored to specific snack food biscuit baking, drying, and sterilization requirements. These machines incorporate specialized features or configurations to meet unique production needs.

#### 5. Compact Tunnel Ovens:

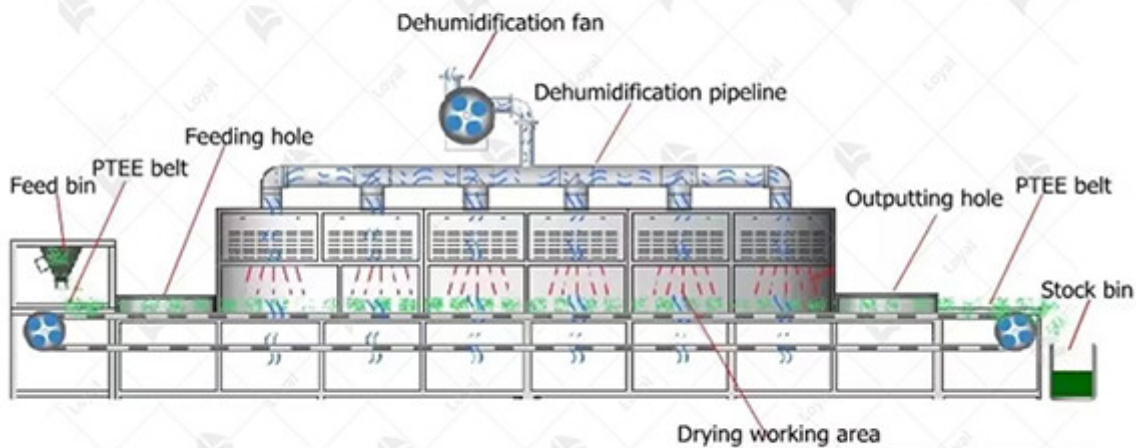
Compact tunnel ovens are designed for smaller-scale operations or limited space environments. Despite their compact size, they deliver efficient baking, drying, and sterilization processes, making them suitable for niche markets or startups.

#### 6. Microwave Tunnel Sterilization Systems:

Microwave tunnel sterilization systems utilize microwave technology to quickly and effectively sterilize snack food biscuits. These systems offer rapid processing times and precise temperature control, ensuring thorough sterilization while preserving product integrity.

Each type of tunnel-belt snack food biscuit baking, drying, and sterilizing machine caters to specific production requirements, offering a range of options for manufacturers to choose from based on their operational needs and preferences.

## Continuous Microwave Equipment Working Process



Comparison and advantages between tunnel-type and belt-type snack food and biscuit baking, drying and sterilizing machines and traditional sterilization methods

Aspect	Tunnel-Type Machine	Belt-Type Machine	Traditional Sterilization Method
Sterilization Efficiency	Ensures thorough sterilization due to uniform heat distribution along the tunnel.	Provides consistent sterilization results with precise control over temperature and airflow.	May lack uniform sterilization, leading to potential hot spots and uneven results.
Production Capacity	High throughput capacity suitable for large-scale production.	Moderate to high throughput capacity, depending on the size and configuration.	Limited throughput capacity, often suited for small-scale operations.
Flexibility and Versatility	Offers versatility to handle various snack food and biscuit products with customizable settings.	Provides flexibility to adjust parameters for different products and production requirements.	Limited flexibility; traditional methods may not accommodate diverse product types easily.

Energy Efficiency	Utilizes advanced heating and drying technologies for energy-efficient operation.	Incorporates energy-saving features and optimized airflow systems for reduced energy consumption.	May require high energy consumption due to prolonged heating or steam sterilization methods.
Process Control and Automation	Features advanced control systems for precise monitoring and automated process control.	Equipped with intuitive interfaces and automation capabilities for efficient operation.	Relies on manual monitoring and potentially leading to human errors and inconsistencies.
Product Quality and Shelf-Life	Maintains product quality and extends shelf-life through precise control over sterilization parameters.	Ensures consistent product quality and prolonged shelf-life with controlled baking and drying processes.	Product quality and shelf-life may vary due to inconsistent sterilization conditions.
Maintenance and Durability	Designed for durability and minimal maintenance requirements with robust construction.	Built to withstand continuous operation with minimal downtime and maintenance needs.	May require frequent maintenance and servicing due to mechanical wear and tear.
Cost-effectiveness	Offers long-term cost savings through efficient operation and reduced product wastage.	Provides a balance between initial investment and operational benefits for cost-effective production.	May incur higher operational costs due to product losses and inefficiencies in traditional methods.





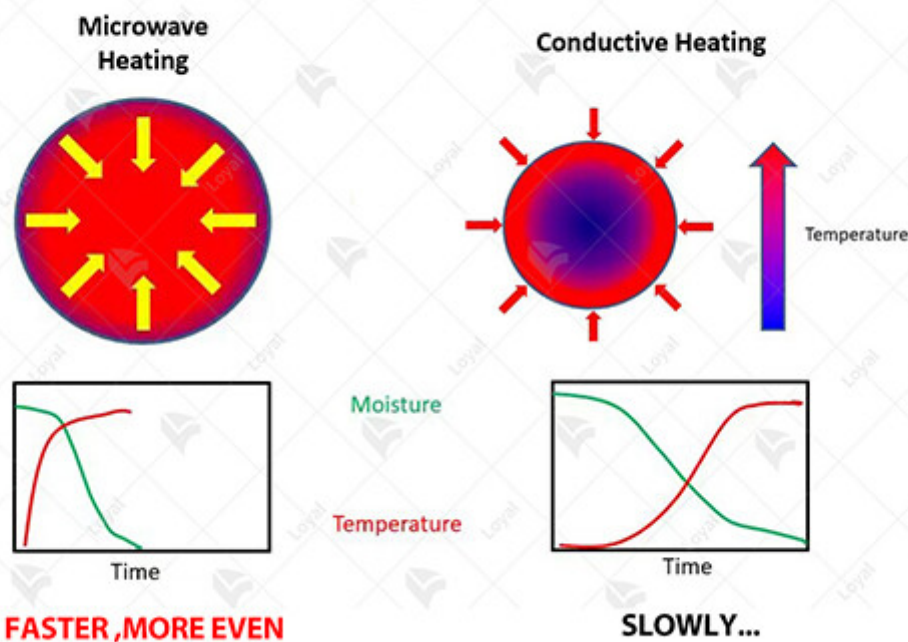
## Technical parameters

### 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 capacity (Depends 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/Hour

LY-50KW	12500mm1160mm1750mm	?50KW	50KG/Hour	500KG/Hour	150-250K
LY-60KW	13500mm1450mm1750mm	?60KW	60KG/Hour	600KG/Hour	180-300K
LY-70KW	13500mm1500mm1750mm	?70KW	70KG/Hour	700KG/Hour	210-350K
LY-80KW	13500mm1650mm1750mm	?80KW	80KG/Hour	800KG/Hour	240-400K
LY-100KW	16800mm1650mm1750mm	?100KW	100KG/Hour	1000KG/Hour	300-500K
LY-150KW	22400mm1850mm1750mm	?150KW	150KG/Hour	1500KG/Hour	450-750K
LY-200KW	27000mm1850mm1750mm	?250KW	250KG/Hour	2500KG/Hour	750-1250/F
LY-300KW	32000mm1850mm1750mm	?300KW	300KG/Hour	3000KG/Hour	900-1500K
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)				

## LOYAL'S MICROWAVE ADVANTAGES



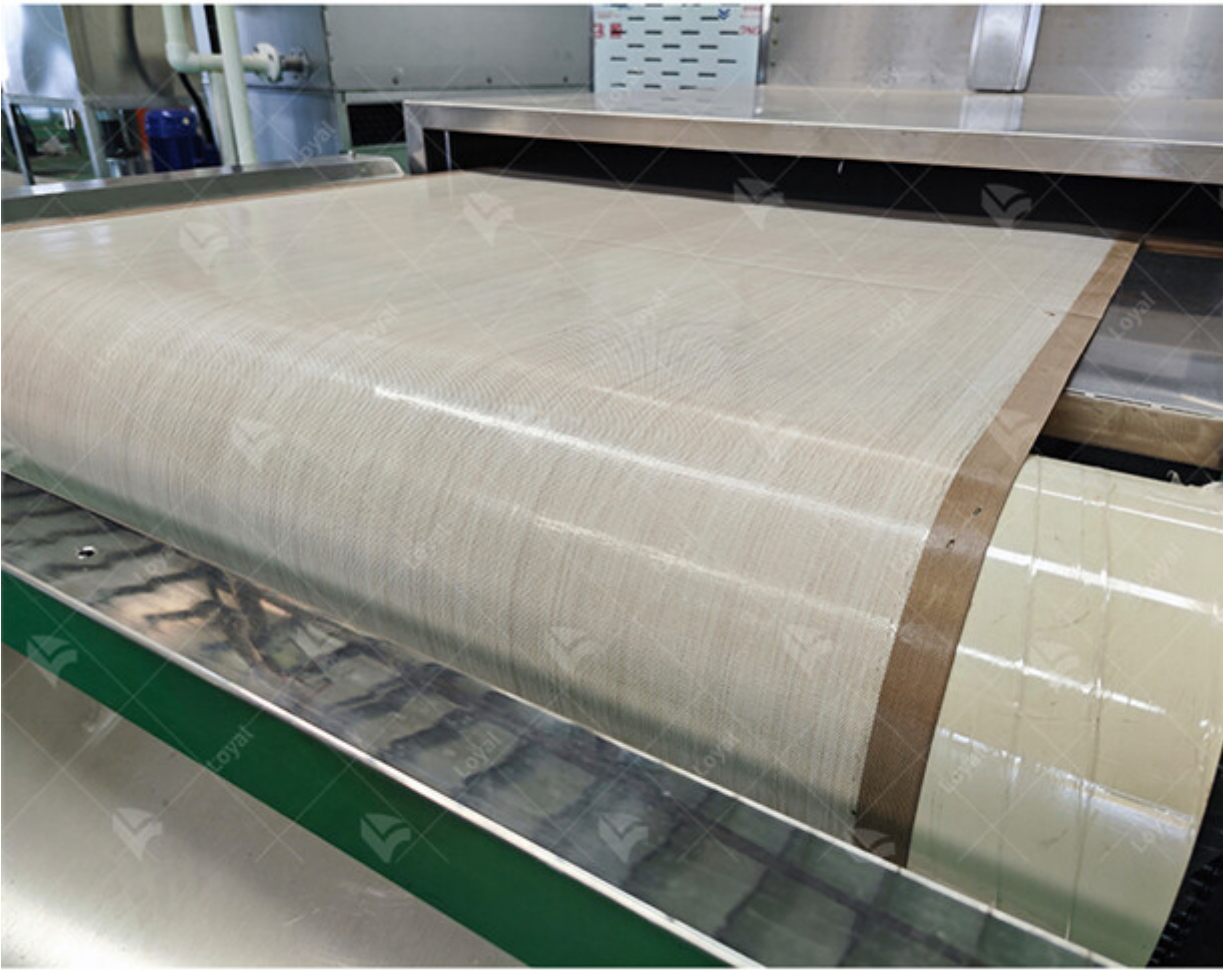
# Application of Tunnel Type-Belt Type Snack Food Biscuit Baking, Drying and Sterilizing Machine

In 2024, the application of tunnel-belt type snack food biscuits baking, drying, and sterilizing machines has become increasingly prevalent in the food industry. These machines play a crucial role in streamlining the production process and ensuring the quality and safety of snack food products. Tunnel-belt type machines are specifically designed to handle the baking, drying, and sterilization processes efficiently. They consist of a conveyor belt system that transports the food products through a tunnel-like chamber, where they are subjected to controlled temperature and humidity conditions. One of the primary applications of tunnel-belt type snack food biscuits baking, drying, and sterilizing machines is in the production of a wide range of snacks, including biscuits, cookies, crackers, and chips. These machines allow for uniform baking and drying of the products, resulting in consistent quality and texture.

Moreover, the sterilization function of these machines is essential for ensuring food safety by eliminating harmful bacteria and pathogens. This is particularly crucial for snack food products that have a longer shelf life and may be susceptible to contamination during the production process. The versatility of tunnel-belt type machines makes them suitable for use in various food processing facilities, including large-scale manufacturing plants and smaller artisanal bakeries. They can be customized to accommodate different product sizes and production capacities, making them an effective solution for businesses of all sizes.

In addition to their efficiency and reliability, tunnel-belt type snack food biscuits baking, drying, and sterilizing machines also offer benefits in terms of energy savings and environmental sustainability. By optimizing the baking and drying processes, these machines help reduce energy consumption and minimize waste, contributing to a more sustainable food production industry.

Overall, the application of tunnel-belt type snack food biscuits baking, drying, and sterilizing machines in 2024 represents a significant advancement in food processing technology. With their ability to enhance productivity, ensure product quality, and promote food safety, these machines are poised to play a central role in the future of the snack food industry.



## Technological progress and innovation of tunnel-type belt-type snack food and biscuit baking, drying and sterilizing machines

In the realm of microwave technology, significant strides have been made in the development of tunnel-type and belt-type snack food and biscuit baking, drying, and sterilizing machines. These innovative machines have revolutionized the food industry by offering efficient and effective solutions for processing various types of snacks and biscuits.

The tunnel-belt design of these machines allows for a continuous flow of products through the baking, drying, and sterilizing processes. This continuous operation ensures consistent quality and productivity, making them indispensable tools for large-scale food production facilities.

One of the key features of these machines is their ability to utilize microwave energy for heating and sterilizing food products. This technology offers several advantages over traditional methods, including faster processing times, uniform heating, and better retention of nutrients and flavor.



Moreover, the precise control systems integrated into these machines ensure optimal conditions at each stage of the baking, drying, and sterilizing processes. This level of control not only enhances product quality but also minimizes energy consumption and reduces waste.

In 2024, the latest advancements in tunnel-belt snack food and biscuit baking, drying, and sterilizing machines have focused on improving efficiency, flexibility, and sustainability. New materials and designs have been introduced to enhance durability and reduce maintenance requirements, while advanced automation and data analytics capabilities have been integrated to optimize performance and minimize downtime.

Furthermore, there has been a growing emphasis on sustainability in machine design and operation. Manufacturers are incorporating eco-friendly materials and energy-efficient technologies to minimize environmental impact and meet increasingly stringent regulations.

Overall, the technological progress and innovation in tunnel-belt snack food and biscuit baking, drying, and sterilizing machines in 2024 have paved the way for more efficient, sustainable, and high-quality food production processes. As the demand for convenient and nutritious snacks continues to rise, these machines will play a crucial role in meeting consumer needs while ensuring food safety and quality.





# Conclusion

In conclusion, the tunnel-belt type snack food biscuits baking drying and sterilizing machine is a paramount technological solution in the food industry, particularly in the realm of microwave applications. Its innovative design and advanced functionalities cater to the evolving needs of food processing, ensuring efficiency, consistency, and quality in the production of various snacks, and other food items. With its ability to harness the power of microwaves for rapid and uniform heating, drying, and sterilization, this machine embodies the pinnacle of modern food processing technology. As we stride into 2024 and beyond, the continued advancements and integration of cutting-edge technologies will further propel the capabilities and applications of tunnel-belt type snack food biscuits baking drying and sterilizing machines, reshaping the landscape of food production and meeting the ever-growing demands for safe, nutritious, and delicious food products.

# Reference

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

1. IEEE Xplore Digital Library

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

2. ScienceDirect <https://onlinelibrary.wiley.com/>

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/>]