

TCA



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CAROLINA GUTIERREZ



FREEZE-DRIED PET TREATS PRODUCTION LINE

ZHUCHENG XINXUDONG MACHINERY CO., LTD.





TCA

A GROUP OF PEOPLE WITH THE SAME BELIEF
"QUALITY FIRST, ETERNAL IMPROVEMENT, INTEGRITY-BASED, CONSIDERATE SERVICE"
ON AN HONEST TRADING PLATFORM
CREATE HARMONY FOR SOCIETY
CREATE VALUE FOR CUSTOMERS
CREATE THE FIRST BRAND IN THE FOOD MACHINERY INDUSTRY



COMPANY PROFILES

Zhucheng Xinxudong Machinery Co., Ltd. is a global supplier specializing in the production of food frying equipment. The company focuses on production lines for Frozen French fries, potato chips, meat prepared foods, snack foods, fruit, fish meat, dried fruit foods, etc. R&D, manufacturing and sales and providing customers with complete complete solutions. The company's products have passed CE certification and ISO9001-2015 international quality management system certification, and comply with QS standards for food companies. After years of hard work and innovation, Xinxudong food equipment has been exported to the United States, the United Kingdom, Italy, Spain, Saudi Arabia, India, Thailand, Indonesia, Australia, Chile and other countries, and enjoys a high reputation among its peers.

The company has powerful technical force and standardized management. it not only has a leadership team composed of business management experts, professional designers and engineers, but also has a large number of employees with many years of production experience. At the same time, it has introduced foreign advanced equipment and production technology, research and development, and manufacturing and sales to provide global customers with complete solutions for food production and processing.

The company's main products: vacuum freezer dryer; vacuum frying equipment; single frying machines; frying production lines; French fries and potato chips production lines; chicken nugget and patty processing production lines; meat product processing lines; fruit processing production line, quick freezer machines, dryers and other food processing equipment.



FREEZE-DRYING TECHNOLOGY

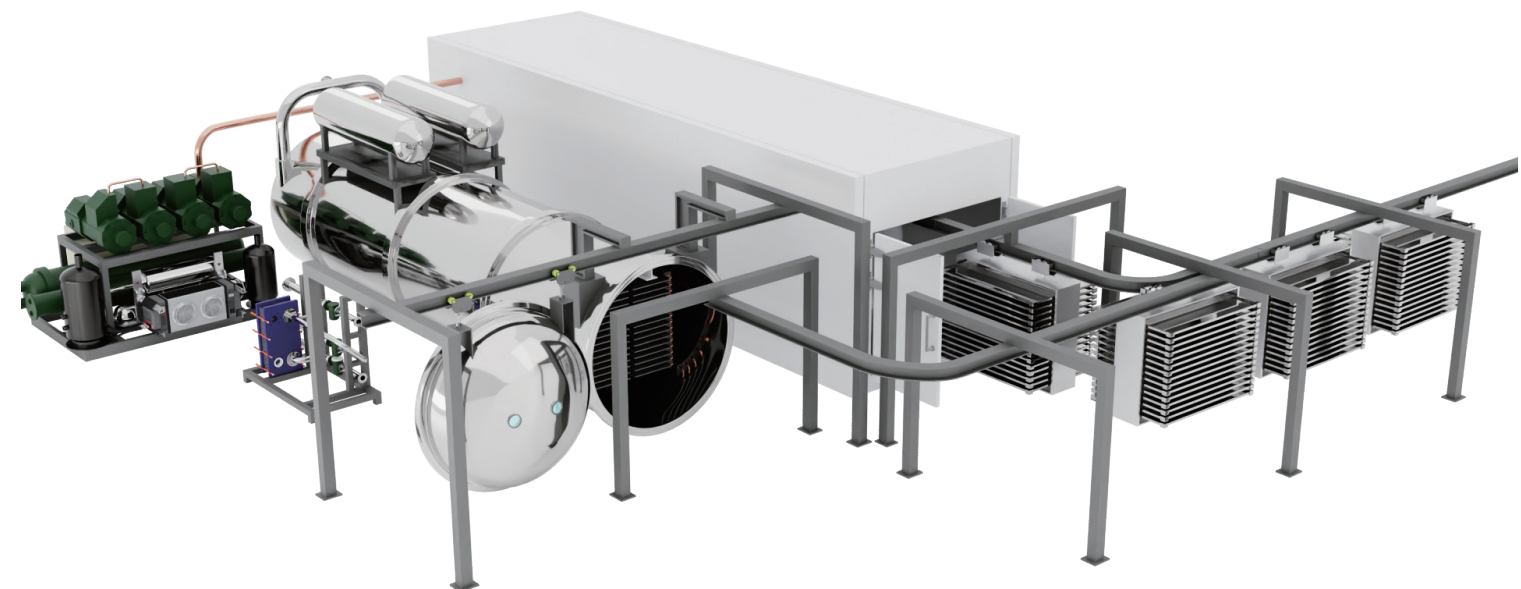
Vacuum freezing and drying technology is currently the most advanced technology for food dehydration processing in the world. Compared with the commonly used drying method, the freeze-dried food produced with this technology features long period of quality assurance, good rehydration nature, good-looking color, good flavor, taste and high content of nutritious components. The dried food basically remains unchanged in its volume and shape, looks like sponge and has no shrinking. This drying technology can be widely used in process of vegetables, fruits, condiments, aquatic products, biological products, medicine, beverage, exemplar etc.

PRODUCTION PROCESS

Freeze-dried pet treats

FREEZE-DRIED PET SNACKS PROCESS FLOW CHART

step	Instructions	Key Parameters
Raw material pretreatment	Choose fresh meat (chicken, beef, etc.) and fruits and vegetables, with no pesticide residues and protein $\geq 18\%$	- Meat cubes: 5-10 mm ³ - Fruit and vegetable cubes: 3-5 mm - Blanching time: 30-60 seconds
Sterilization	High temperature steam or ultraviolet sterilization ensures that microorganisms meet the standards.	- Steam temperature: 121°C - Sterilization time: 15 minutes - Sterilization rate $\geq 99.9\%$
Pre-freezing stage	Quickly freeze the raw materials until the ice crystals are completely solidified, inactivating bacteria and fixing the shape.	- Temperature: below -30°C - Time: 8-24 hours (longer for fatty meat)
Sublimation drying	The partitions are heated in stages under vacuum, allowing ice crystals to sublime directly into water vapor.	- Vacuum degree $\leq 610\text{Pa}$ - Shelf temperature: gradually increase to 20-30°C - Time: 10 hours
Desorption drying	Remove residual bound water and improve product stability.	- Steam temperature: 121°C - Sterilization time: 15 minutes - Sterilization rate $\geq 99.9\%$
Packaging and storage	Sealed moisture-proof packaging to ensure shelf life.	- Steam temperature: 121°C - Sterilization time: 15 minutes - Sterilization rate $\geq 99.9\%$



EQUIPMENT INTRODUCTION

Freeze-dried pet treats

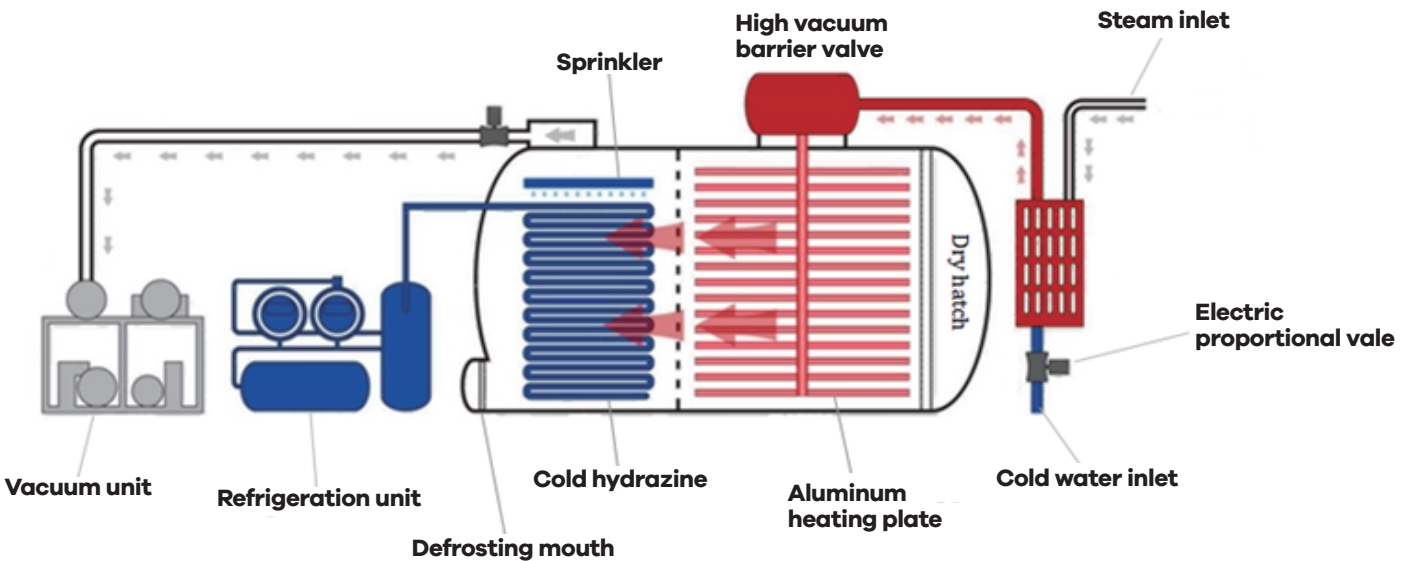


- OUTSTANDING ADVANTAGES:**
- 1. Drying silo: silo body shape
 - 2. Door opening method: Suspension rail translation warehouse door
 - 3. Heating method: steam heating
 - 4. Cold trap water trap: tubular cold trap
 - 5. Control part: PLC control system
 - 6. Vacuum unit: Roots water ring vacuum unit
 - 7. Refrigeration unit: Bitzer Germany

FREEZE DRYER (INCLUDING QUICK FREEZING)

The vacuum freeze dryer is mainly used for freeze-drying vegetables, fruits, meat, beverages, and dairy products. Mainly used in food, biology, pharmaceuticals, nutrition and health products and other fields. Cold trap type, rear. Working pressure in drying chamber: 30pa-133pa

STRUCTURE AND FUNCTION:



WORKING PRINCIPLE:

Freeze-drying is a drying technology using the principle of sublimation, so that the moisture in the pre-frozen material is directly sublimated into water vapor in the ice state without melting the ice to be removed, so as to achieve the purpose of freeze-drying. When drying at low temperature, the loss of some volatile components in the substance is very small, the volume is almost unchanged, the original structure is maintained, and no concentration phenomenon occurs. It is suitable for drying some chemical products, medicines and food.

PREPROCESSING STAGE

Freeze-dried pet treats

Pretreatment of raw materials is an important step to ensure the smooth progress of the freeze-drying process. Different materials have different pretreatment processes, but the general process includes cutting, cleaning, blanching and sterilization.



PELLETIZER/CUTTING MACHINE

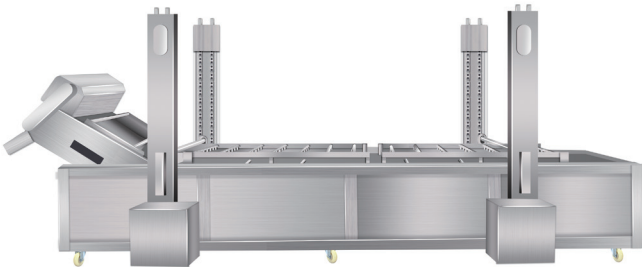
Cut meat ingredients into small pieces or shreds suitable for pets, and cut vegetables and fruits into small pieces or dices as needed. Cut evenly so that subsequent processing is smoother.

Processing capacity	200-500 kg/h (cutting meat, fruits and vegetables)
Material	stainless steel blade and body, corrosion-resistant
Cutting accuracy	±1 mm (adjustable)

CLEANING MACHINE

Usually use running water cleaning or ultrasonic cleaning equipment to remove impurities and dirt on the surface of raw materials

Cleaning efficiency	300-800 kg/h (adjusted according to raw material type and output)
Power	5-15 kW
Function	remove surface impurities and pesticide residues



PREPROCESSING STAGE

Freeze-dried pet treats

BLANCHING MACHINE

Put the ingredients into boiling water and heat them for a short time to remove blood and fishy smell, and soften the ingredients, which is conducive to subsequent sterilization and freeze-drying.



HIGH TEMPERATURE STEAM STERILIZER

Use high temperature steam or ultraviolet sterilization to ensure that the raw material microbial indicators meet the standards

Sterilization temperature	100-121 °C (adjustable)
Processing time	10-30 minutes/batch
Material	SUS304 stainless steel



PREPROCESSING STAGE

Freeze-dried pet treats

PRETREATMENT EQUIPMENT (AUXILIARY EQUIPMENT)



HOMOGENIZER/PULVERIZER

Used to make meat puree or mixed formula (such as homogenization after adding nutrients)

The maximum processing capacity is 4000L/H, and the working pressure is up to 1500bar, ensuring efficient homogenization. The equipment operates stably, is equipped with quadruple safety settings, supports automated production, and can provide explosion-proof and aseptic customization services to meet the diverse needs of industries such as biopharmaceuticals, food processing, and nanomaterial preparation.

FORMING MACHINE

Press the mixed ingredients into specific shapes (such as meat patties, bone shapes)

①Pure physical pressing and molding, no high temperature destroys the original nutritional components of meat;

②Cold-pressed food can be a higher proportion of meat products, which greatly improves the quality of pet food;

③The subsequent process can choose not to season, reduce additives, and make pet food more nutritious and healthy.



FREEZING AND LYOPHILIZATION

Freeze-dried pet treats

FREEZER AND FREEZE DRYER



QUICK FREEZING WAREHOUSE

Temperature range: -30℃ to -50℃

Quick freezing time: 3-4 hours (meat), 1-2 hours (fruits and vegetables)

Capacity: Suitable for freeze dryer processing capacity (such as 200 kg/batch)

Cold source configuration: Independent refrigeration system (to avoid interference with freeze dryer)

Name	Model	Quantity
150mm polyurethane insulation board	Baosteel Single/double-sided color steel thickness: 0.5mm	
Cold storage door	SPLM-2-1827 (stainless steel plate, with air curtain)	2 fans
Air cooler	TSD63-240W-2B816A	6 units
In-store air guide system	SUS304 stainless steel	1 set
Floor pattern aluminum plate	Thickness 3mm (integrated with the ground foam)	1 set
Storage fan support	Carbon steel hot-dip galvanized	1 set

FREEZE DRYER

Freeze-drying chamber: Made of stainless steel, it provides a vacuum environment and low temperature conditions to support ice crystal sublimation (core component).

Vacuum system: A vacuum pump group is used to maintain a low pressure environment (usually <100Pa) to accelerate water sublimation.

Refrigeration system: Compressors, condensers and other components maintain low temperatures (below -50℃).

Heating system: A temperature-controlled heating plate that heats up in stages to promote ice crystal sublimation and residual water evaporation.



EQUIPMENT INTRODUCTION

Freeze-dried pet treats

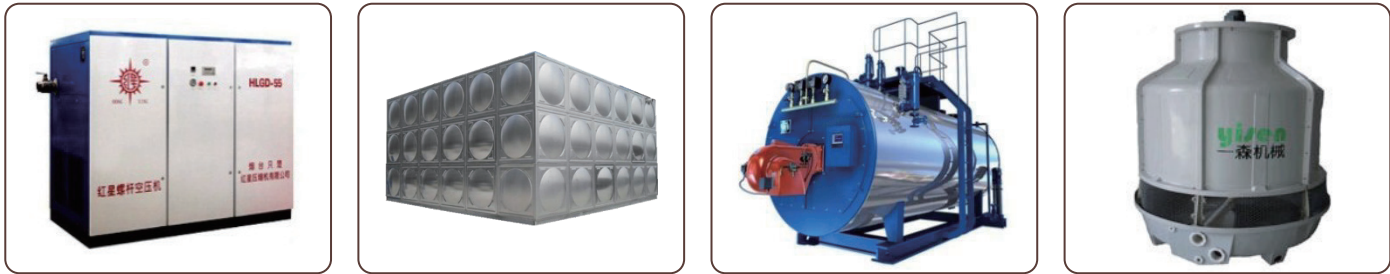
FREEZE DRYING EQUIPMENT

Equipment can be selected according to different production sizes, with an area of 1 m²~200 m² and a production capacity of 10kg~2000kg



AUXILIARY EQUIPMENT

Freeze-dried pet treats



CUSTOMER-PROVIDED AUXILIARY EQUIPMENT

1. Steam source: The steam pipe is required to be connected to the steam connection port of the freeze-drying equipment, and the pressure should not be less than 0.4 MPa. The boiler model is determined according to the actual equipment model purchased.
2. Air pump. Customers must have an air pump of more than 1 cubic meter, and the pressure must not be less than 0.8 MPa.
3. Water source. The water source pipe port is connected to the required pipe port of the equipment, such as cooling tower, cooling port, defrosting port, etc.
4. The drainage pipe is prepared by the customer, and our company is responsible for guiding the installation.
5. Power supply. The power supply is connected to the main distribution box of the equipment