

DRYTRAY™



FRUIT AND VEGETABLE FREEZE-DRYING PROJECT



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



DRYTRAY INDIA LLP is a leading manufacturer of electric food dehydrators and freeze dryers based in Bengaluru. We specialize in designing high-performance drying solutions for food processing industries, entrepreneurs, and agricultural businesses.

Our machines are widely used for drying fruits, vegetables, spices, herbs, mushrooms, meat, and more — preserving natural nutrients, flavor, and shelf life with efficiency and hygiene.



Beyond dehydrators and freeze dryers, we also supply a range of food processing and packaging equipment, including slicers, grinders, sealing machines, and packaging machines, enabling businesses to establish complete food preservation and processing setups under one roof.

Driven by innovation and quality, DRYTRAY INDIA LLP is committed to delivering high-performance, durable, and energy-efficient food drying technologies that empower food entrepreneurs, processing units, and agricultural businesses across India to enhance product quality, reduce wastage, and create value-added food products.

FREEZE DRYING EQUIPMENT

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.



INTRODUCTION

Freeze-dried fruits and vegetables

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

One machine for all types of fruits vegetables and so on



FREEZE-DRIED SNACKS



FREEZE-DRIED FRUITS AND VEGETABLES



FREEZE-DRIED DAIRY PRODUCTS

Outstanding advantages:

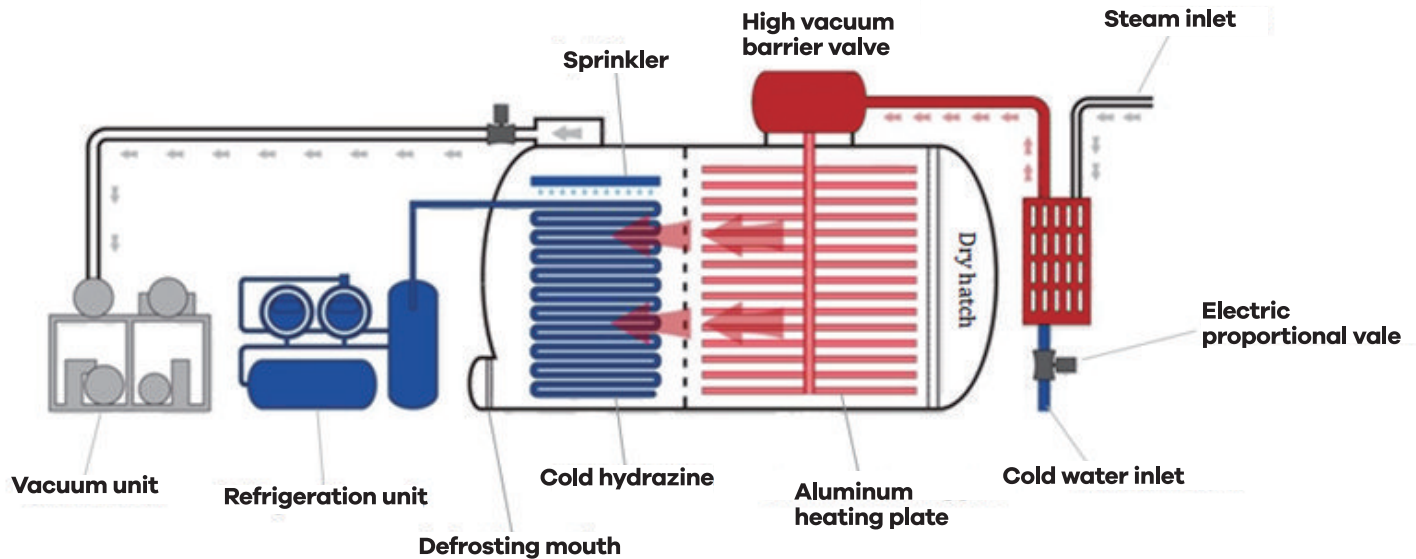
- Drying silo: silo body shape
- Door opening method: Suspension rail translation warehouse door
- Heating method: steam heating
- Cold trap water trap: tubular cold trap
- Control part: PLC control system
- Vacuum unit: Roots water ring vacuum unit
- Refrigeration unit: Bitzer Germany



EQUIPMENT INTRODUCTION

Freeze-dried fruits and vegetables

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.

Steps1:Freezing

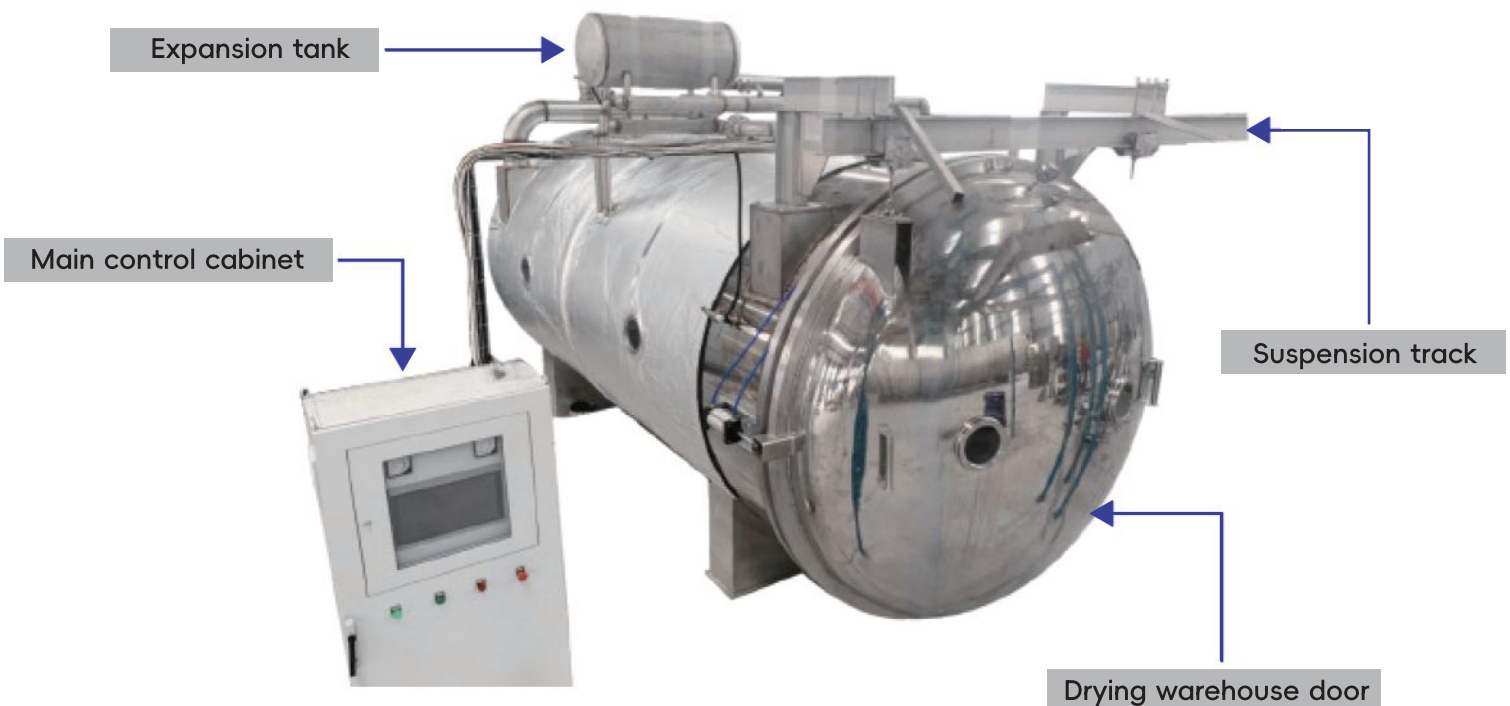
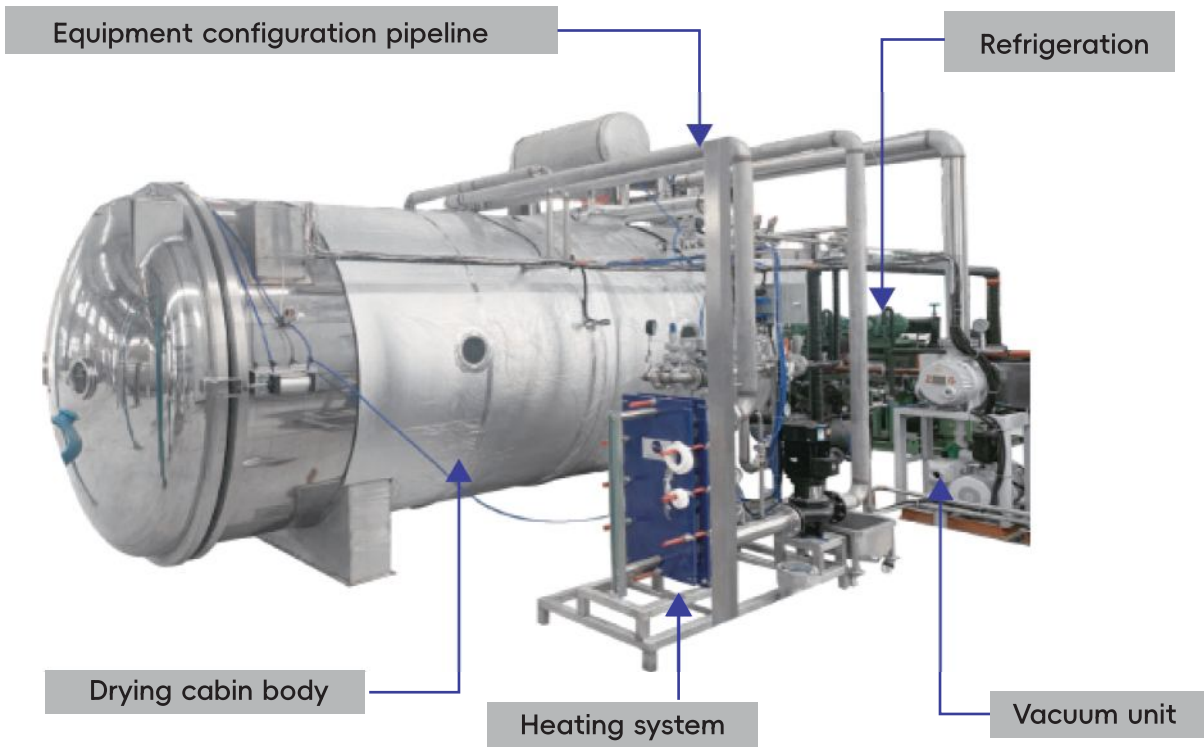
After the vacuum freeze dryer is turned on, the material is put into the material box for freezing. It is the process of quickly freezing the dried material at low temperature, and then directly sublimating the frozen water molecules into water vapor in a suitable vacuum drying oven environment. In the freezing process of materials, on the one hand, the vacuum system is evacuated to take away part of the water; on the other hand, when the material is frozen, the water contained in some molecules is discharged to the surface of the material for freezing. After the freezing requirement is met, the material is heated and dried by the heating system. Through vacuuming, the moisture contained in the material is brought to the freezer and trap box for freezing, so as to meet the requirements of freeze-drying of the material.

Steps2:Low temperature drying

The material is always at a low temperature (frozen state) before drying, and the ice crystals are evenly distributed in the material, the sublimation process will not cause condensation due to dehydration, and avoid side effects such as foaming and oxidation caused by water vapor. The dry substance is porous in the form of a dry sponge, the volume is basically unchanged, and it is easily soluble in water and returns to its original state. Greater protection against physicochemical and biological denaturation of dry matter.

RELATED EQUIPMENT

Freeze-dried fruits and vegetables



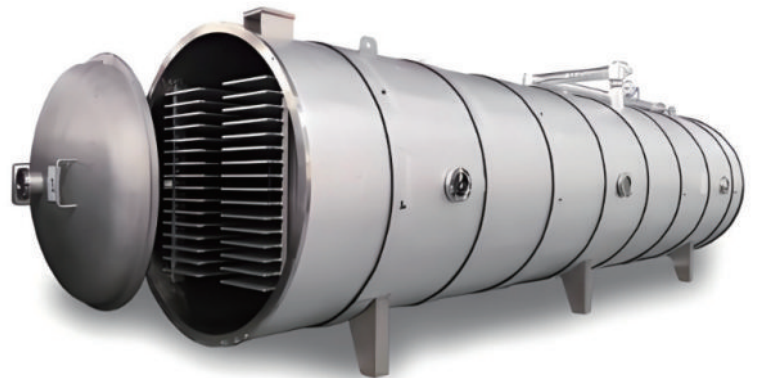
RELATED EQUIPMENT

Freeze-dried fruits and vegetables

DRYING CHAMBER: SHAPE OF CABIN BODY

Freeze drying chamber is the shape of cylinder, with the front door open, and the material trolley enters and exits from the front. The outer wall of the silo has a reinforcing ring (16# channel steel 4 lanes) and a base.

The dry chamber door is a translational door. The direction of the door is that one opens the door to the left and the other opens the door to the right.



COLD TRAP WATER TRAP: TUBULAR COLD TRAP



The cold trap is a tubular cold trap, which is horizontally arranged at the rear of the drying silo body. The diameter of the cold trap cylinder is the same as that of the drying silo. The cold trap and the drying silo are separated by electric stainless steel shutters. The barrel is made of SUS304 stainless steel, and the ribs and base of the barrel are made of carbon steel.

RELATED EQUIPMENT

Freeze-dried fruits and vegetables

CONTROL PART: PLC CONTROL SYSTEM



Touch control panel



Control cabinet

The control cabinet is made of stainless steel, and the material is 304. The main control circuit part adopts Siemens PLC, Kumlun touch screen, Siemens inverter, Siemens temperature control module, and Siemens analog output module. Schneider circuit breaker, Schneider circuit breaker, Jiegu terminal block, Schneider AC contactor, Weidmüller relay, Siemens switch, Siemens warning light.

VACUUM UNIT

Composition:

The Roots water ring vacuum unit is composed of a Roots pump as the main pump and a water ring pump as the backing pump in series.

Advantages:

Roots water ring vacuum unit chooses water ring pump as the backing pump, which is more advantageous than other vacuum pumps, it overcomes the limit pressure difference when a single water ring pump is used (the ultimate pressure of the unit is greatly improved than that of water ring pump), the disadvantage of low pumping rate under a certain pressure, while retaining the advantage that the roots pump can work quickly and has a larger pumping rate.



RELATED EQUIPMENT

Freeze-dried fruits and vegetables

REFRIGERATION UNIT

Composition:

Suitable for all kinds of refrigerants, up to 6 compressors can be connected in parallel, the displacement of the compressors is divided into 11 levels, and the cooling capacity is also the same. The use of parallel systems can bring additional benefits to the customer

Advantages:

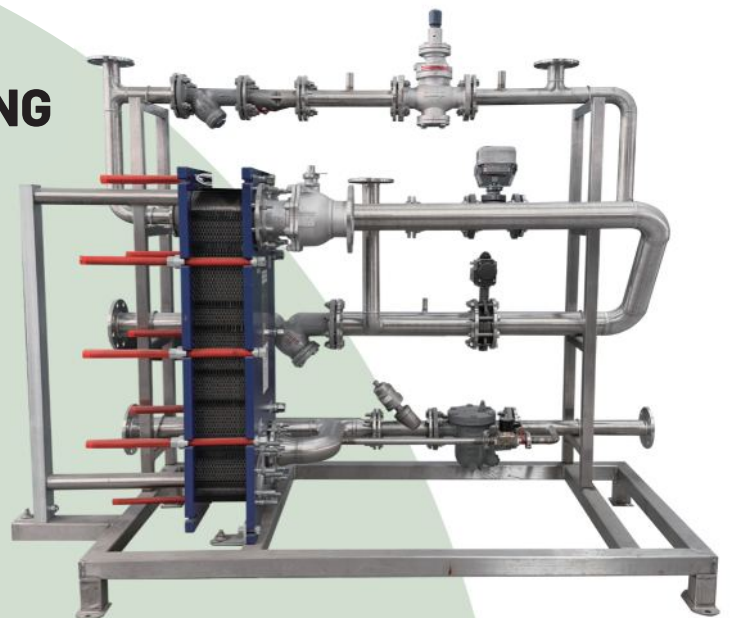
The reliability of the system is high, the compressors are used as backup for each other, the cooling capacity is adjusted steplessly, the compressors are always working at full load, and the partial load efficiency of the system is high. The compressor system has a compact structure and is easy to maintain and repair.



HEATING PLATE: STEAM HEATING

Radiant heating, the water is heated by the heat exchanger and introduced into the heating plate in the cabin for heating, and the water is always in a circulating state during the heating process.

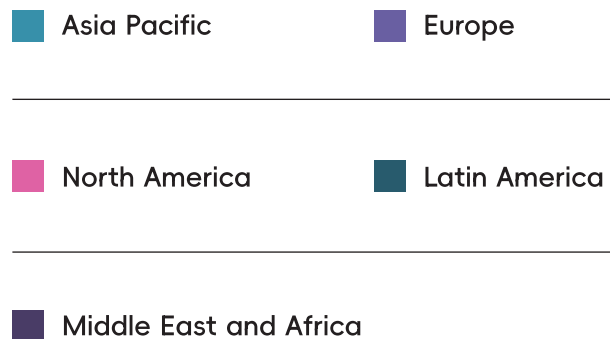
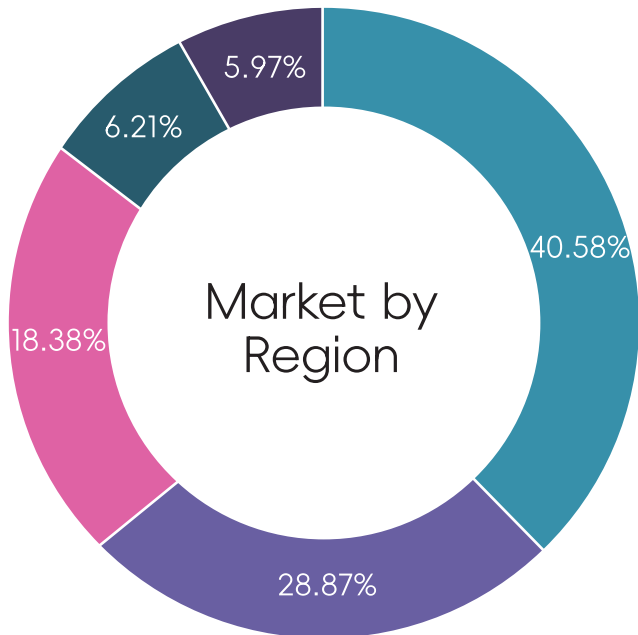
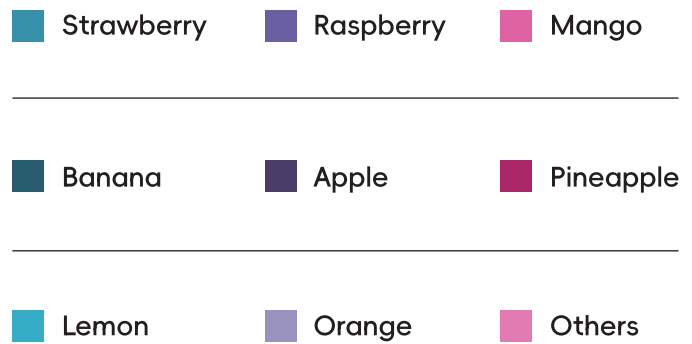
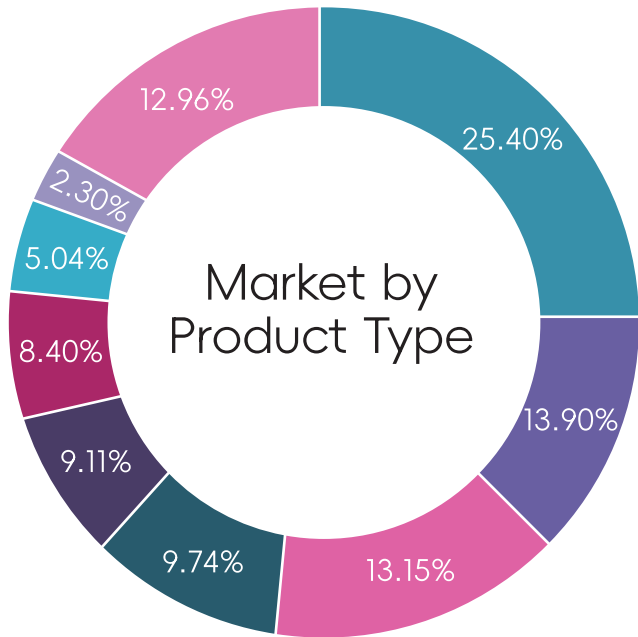
The size of the heating plate is 5100*630*16mm. The heating plate header is made of stainless steel 0Cr18Ni 9, and the connecting hose is stainless steel hose.



POPULAR PRODUCTS

Freeze-dried fruits and vegetables

GLOBAL FREEZE DRIED FRUITS PRODUCT MARKET



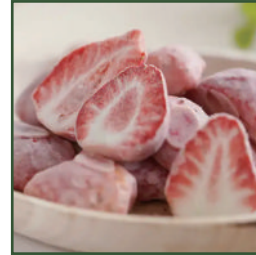
PROCESSING

Freeze-dried fruits and vegetables

PROCESSING FOR POPULAR PRODUCT

Strawberry processing line

1.Working table to remove leaves → 2.Bubble washing 1 → 3.Bubble washing 2 → 4.Air drying → 5.Freeze → 6.Freeze dryer → 7.Packaging



Mango processing

1.Mango peeling,pitting → 2.Mango Washing → 3.Cube/ Chips cutting → 4.Freeze → 5.Freeze dryer → 6.Packaging



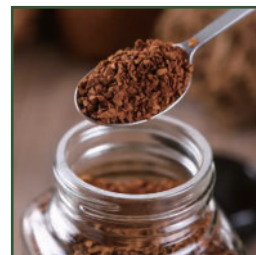
Orange/Lemon chips or powder processing

1.Orange/lemon brush washing → 2.Bubble washing → 3.Chips cutting → 4.Freeze → 5.Freeze dryer → 6.Grinding(for powder use) → 7.Packaging



Coffee Processing

1.Coffee baking → 2.Grinding → 3.Extraction → 4.Con- densation → 5.Freeze → 6.Freeze dryer → 7.Grinding → 8.Packaging



MAIN NECESSARY MACHINES

Freeze-dried fruits and vegetables

BUBBLE WASHING MACHINE

Pot thickness	3mm
Mesh belt	spiral mesh belt
Mesh belt bracket thickness	3mm
Material	SUS304
Power	3kw



Multi-angle cleaning without dead angles, thoroughly remove the residue on vegetables and fruits; low energy consumption, high yield, green and healthy; overall stainless steel, automatic time control, frequency conversion speed regulation, with filter box, water recycling, equipped with blower, high-pressure bubble cleaning, Spray pipe at the outlet

BLANCHING MACHINE

plays an important role in deactivating enzymes, preventing browning, changing cell structure and texture, maintaining the original color and nutrients of fruits and vegetables, and preventing the deterioration of fruits and vegetables after thawing during the refrigeration process . (Appropriate control according to the type and size of raw materials. Generally, the temperature is 90-96 degrees and the time is 2-5 minutes), automatic temperature control, frequency conversion speed regulation



MAIN NECESSARY MACHINES

Freeze-dried fruits and vegetables

SLICER/CUBE CUTTING MACHINE

The advanced slicing technology can quickly and accurately complete the slicing of a large number of fruits and vegetables. Whether it is potatoes, sweet potatoes, carrots, or apples, bananas, dragon fruits, you can get fruit and vegetable slices with uniform thickness and consistent shapes.

Different fruits and vegetables use different cutting which can cut into chips, cube or strips as request.



MAIN NECESSARY MACHINES

Freeze-dried fruits and vegetables



MANGO PEELING AND DEPITING MACHINE

Mango peeling/destining machine:

For mango peeling and pitting

Capacity: 1000pcs/hour Dia of fruit:40-100mm Height of fruit: 40-140mm

PINEAPPLE PEELING, CORE, HALVING ALL-IN-ONE MACHINE

This machine can cleanly peel the pineapple, remove the head and tail of the peeled pineapple, remove the core. It is easy to operate, efficient, safe and reliable, and is widely used in factories, restaurants, canteens, etc.



HYPOTHERMY PULVERIZER

Application: Used for freeze-dried material ultra-low temperature crushing;

MAIN NECESSARY MACHINES

Freeze-dried fruits and vegetables

AUTOMATIC ROTARY PACKAGING MACHINE FOR CHIPS OR CUBE

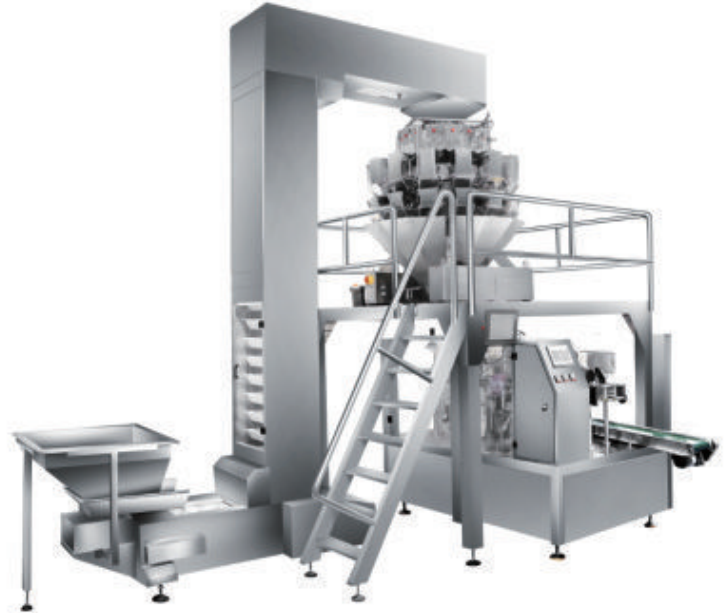
Material: SUS304

Package specification:

width: 50 ~ 200mm length : 100 ~ 350mm

Working process:

1. Bag loading
2. Coding
3. Bag opening
4. Blanking
5. Dust sweeping
6. Heat sealing
7. Heat sealing
8. Cold sealing



AUGER AUTOMATIC PREMADE BAG POWDER PACKAGING MACHINE

Material: SUS304

Application:

it is suitable for the powder packaging


It is with screw hoister, weighing, packaging machine

Air compressor: $\leq 0.6\text{m}^3/\text{min}$





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