

DRYTRAY™

DRY TRAY INDIA LLP



**COMPLETE
SOLUTION FOR
VACUUM FRYING
PROJECTS**



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.

VACUUM FRYING EQUIPMENT

Vacuum frying refers to frying and dehydrating food under negative pressure. The negative pressure is between $-0.092-0.10\text{Mpa}$, and the temperature is generally between 80 and 100 $^{\circ}\text{C}$. Since the internal pressure of the equipment is lower than the atmospheric pressure, food processing under such relatively hypoxic conditions can effectively reduce the damage of high temperature to the nutritional components of food, and can reduce or even avoid the harm to the human body and bacterial invasion caused by oxidation reactions, such as fatty acid rancidity, enzymatic browning and oxidation, carbonization enzyme changes and other harmful substances. At the same time, it also retains the natural nutrition, color and taste of fruits and vegetables, and cannot have any toxic side effects or harmful substances. Vacuum frying has a very wide range of applications in the food industry, and can process a variety of products such as vegetables, fruits, dried fruits, aquatic products, livestock and poultry meat. Vacuum frying technology is known as the green revolution food of this century, and the finished product has a lower oil content and is healthier.



INTRODUCTION

Vacuum fried fruit and vegetable chips

EQUIPMENT INTRODUCTION

Advantages of vacuum fryer

- **Color preservation:** Low-temperature vacuum frying greatly reduces the frying temperature and the oxygen concentration in the fryer. Fried foods are not easy to fade, discolor, or brown, and can maintain the color of the food itself.
- **Fragrance preservation:** Low-temperature vacuum frying is used, and the raw materials are heated in a sealed vacuum state. Most of the flavoring components in the raw materials are water-soluble and do not dissolve in the oil. As the raw materials are dehydrated, these flavoring components are further concentrated. Therefore, the vacuum frying technology can well preserve the aroma of the raw materials themselves.
- The low temperature range of vacuum frying is 80-120 C to fry the food, so that the original nutrients of the material can be kept intact.
- The vacuum deoiling process is more efficient, ensuring that the product has an extremely low oil content.
- **The main applications of fried products at present:**
 - ① Fruits: pineapple, durian, banana, apple, date, kiwi, persimmon, strawberry, grape, peach, pear, etc.;
 - ② Vegetables: okra, tomato, sweet potato, potato, green bean, shiitake mushroom, garlic, carrot, green pepper, pumpkin, onion, etc.;
 - ③ Nuts: peanut, cashew, green bean, etc.;
 - ④ Aquatic products and livestock and poultry meat, etc.

SOME PRODUCTS



CARROT



BET



ONION



OKRA



PUMPKIN



MANGO



APPLE



BANANA



KIWI



MUSHROOM

INTRODUCTION

Vacuum fried fruit and vegetable chips



ROOTS WATER RING VACUUM PUMP



HYDRAULIC LIFTING DEVICE

OBSERVATION MIRROR

VACUUM OIL TANK

HEAT EXCHANGER

INTRODUCTION

Vacuum fried fruit and vegetable chips

VACUUM OIL TANK



1. The vacuum oil tank pot body is made of 8mm stainless steel plate, made of 304.
2. The outer shell of the vacuum oil tank pot body is made of 1.5mm stainless steel plate, made of 304.
3. The heating coil is made of $\phi 25 \times 3$ mm seamless 304 stainless steel pipe, with a working pressure of 0.5Mpa and a test pressure of 0.65Mpa.
4. After the pot body is welded, a water leakage test is carried out to ensure that there is no leakage.
5. A 50mm thick aluminum silicate plate is installed between the pot body and the outer shell.
6. The vacuum oil tank uses a quick-opening 304 stainless steel manhole, which is convenient for cleaning the oil stains in the oil tank for a long time. In order to prevent the product residue from mixing with the oil during the frying process, a movable stainless steel leakage net is added under the manhole.

HEAT EXCHANGER

1. The heat exchanger head and cylinder are made of 5mm stainless steel plate, made of 304.
2. Hundreds of $\phi 12 \times 1.2$ mm stainless steel seamless pipes are used in the heat exchanger, made of 304.
3. The heat exchanger plays an auxiliary heating role during frying.
4. After the pot body is welded, the air pressure and water leakage test are carried out to ensure that there is no leakage.



INTRODUCTION

Vacuum fried fruit and vegetable chips



DOOR OPENING AND CLOSING METHOD

1. Automatic door opening device. With hydraulic lifting device, the door can be pushed from outside to lift and open. It gets rid of the laborious manual door opening and closing of the previous handwheel.
2. When the equipment enters the initial frying state, the door will close automatically. If the door is not closed, the next frying state cannot be entered. The door will open automatically after the oil is thrown off.

CONTROL SECTION

The control cabinet is made of stainless steel, the material is 304. The main control circuit part uses Mitsubishi PLC, Mitsubishi touch screen, Mitsubishi inverter, Mitsubishi temperature control module, Mitsubishi analog output module. Schneider circuit breaker, Schneider circuit breaker, Jiegu terminal block, Schneider AC contactor, Weidmuller relay, Siemens switch, Siemens warning light. Good human-machine interface, centralized, intuitive and convenient operation. Equipped with emergency stop switch, total leakage protection switch, over-temperature alarm, automatic power cut-off and alarm when sensor fails. (The equipment itself is not equipped with transmission main cable and compressed air pipeline outside the equipment, etc.)



INTRODUCTION

Vacuum fried fruit and vegetable chips



THE VACUUM UNIT CONSISTS OF THREE PARTS: VACUUM PUMP, CONDENSER AND BUFFER TANK.

1. Our company uses Roots water ring vacuum unit which is composed of Roots pump as main pump and water ring pump as fore-stage pump in series. It is more advantageous for Roots water ring vacuum unit to use water ring pump as fore-stage pump than other vacuum pumps. It overcomes the disadvantages of low exhaust rate under certain pressure due to the limit pressure difference when using a single water ring pump (the limit pressure of the unit is much higher than that of water ring pump), while retaining the advantage of Roots pump that it can work quickly and has a large exhaust rate.
2. Water-cooled condenser uses water as cooling medium and is a kind of heat exchanger. It can convert gas or steam into liquid and put the liquid into the buffer tank. The buffer tank should discharge the condensed water in the tank regularly to avoid being pumped into the vacuum pump.
3. The condenser, buffer tank head and cylinder are all made of 5mm stainless steel plate, made of 304.
4. Hundreds of $\phi 12 \times 1.2$ mm stainless steel seamless pipes are used in the condenser, made of 304.
5. After welding, the condenser and buffer tank shall be subjected to air pressure and water leakage tests to ensure that there is no leakage.

PROCESSING

Vacuum fried fruit and vegetable chips

PROCESSING FOR POPULAR PRODUCT

Carrot chips processing line

1. Material selection → 2. peeling → 3. slicing → 4. cleaning → 5. rinsing (killing the green and protecting the color) → 6. sugar dipping (or not) → 7. cleaning → 8. quick freezing → 9. vacuum frying → 10. seasoning (or not) → 11. packaging (nitrogen flushing)



Beet chips processing line

1. Material selection - 2. removing roots and stems - 3. slicing - 4. cleaning - 5. bleaching (killing green and protecting color) - 6. sugar dipping (or not) - 7. cleaning - 8. quick freezing - 9. vacuum frying - 10. seasoning (or not) - 11. packaging (nitrogen flushing)



Okra and mushroom crisp processing line

1. Material selection - 2. trimming - 3. cleaning - 4. bleaching (killing green and protecting color) - 5. sugar dipping (or not) - 6. cleaning - 7. quick freezing - 8. vacuum frying - 9. seasoning (or not) - 10. packaging (nitrogen flushing)



Potato chips and banana chips processing line

1. Material selection - 2. peeling (core removal) - 3. slicing (cutting into strips) - 4. cleaning - 5. rinsing (killing the green and protecting the color) - 6. sugar dipping (or not) - 7. cleaning - 8. quick freezing - 9. vacuum frying - 10. seasoning (or not) - 11. packaging (nitrogen flushing)



MAIN NECESSARY MACHINES

Vacuum fried fruit and vegetable chips

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

Vacuum fried fruit and vegetable chips



CLEANING AND STONE REMOVAL MACHINE

The equipment integrates high-pressure spraying and tumbling cleaning functions. For example, the cleaning box is equipped with multi-directional water spray ports to remove mud and sand on the surface of raw materials through water flow impact and mechanical tumbling. For example, in potato processing, the residual mud and sand rate can be reduced to less than 0.3%, avoiding impurities from coking during frying and affecting the flavor of the product.

WEIGHING + PEELING MACHINE

The weighing and peeling machine is mainly used for weighing and peeling in the pre-processing stage. It can effectively remove the skin of fruits, vegetables or specific raw materials to improve the subsequent processing efficiency and product quality.



MAIN NECESSARY MACHINES

Vacuum fried fruit and vegetable chips

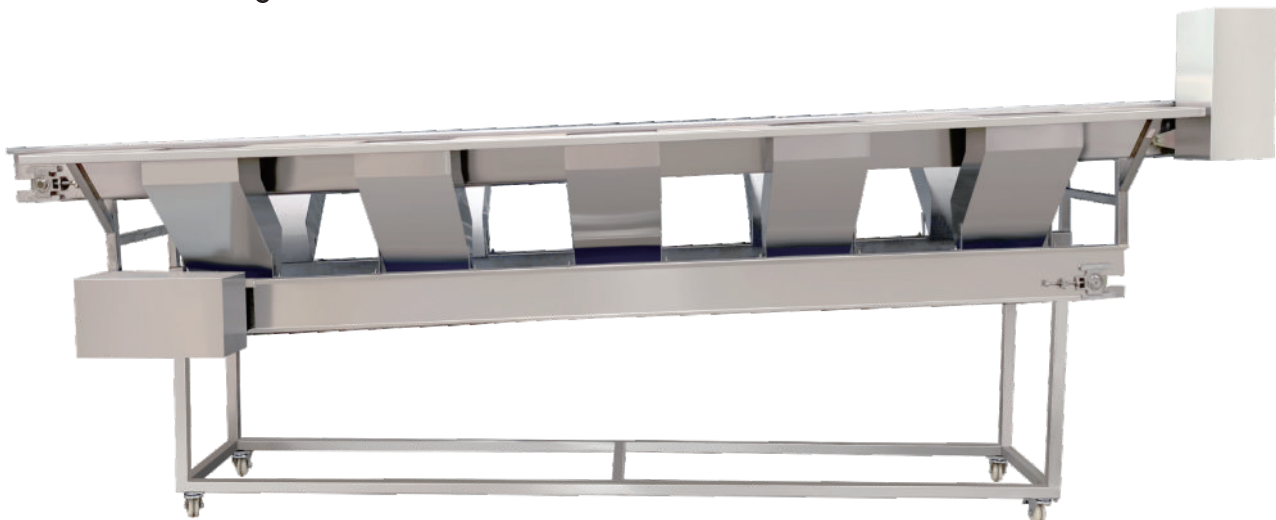
BRUSH PEELING MACHINE

Through the rotation and friction of hard or soft brushes (such as nylon), combined with a high-pressure spray system, the mud, pesticide residues and surface impurities on fruits and vegetables can be quickly removed. For example, after the rolling and friction of root vegetables such as potatoes and carrots, the surface removal rate can reach more than 90%, while retaining the integrity of the flesh.



PICKING CONVEYOR

The picking conveyor is used to manually sort and pick fruits and vegetables, and then send them to the slicer for slicing.



MAIN NECESSARY MACHINES

Vacuum fried fruit and vegetable chips

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

Vacuum fried fruit and vegetable chips



VIBRATING DRAINER

The vibration drainer drives the screen to vibrate at high frequency through a motor, and uses gravity and centrifugal force to quickly remove moisture from the surface of fruits and vegetables, making it easier to enter the quick freezing equipment and reducing the refrigeration consumption of the quick freezing equipment.



QUICK FREEZING EQUIPMENT

The quick freezer rapidly cools down the temperature (usually below -18°C) to form tiny ice crystals in the water inside fruits, vegetables, meat and other raw materials.

When the quick-frozen materials are vacuum fried, the ice crystals directly sublimate into water vapor, the evaporation rate of water is accelerated, and the frying time can be shortened by 30%-50%. At the same time, the pre-formed pore structure helps to separate the oil more easily during degreasing, so that the oil content of the product can be controlled at 10%-20%.

MAIN NECESSARY MACHINES

Vacuum fried fruit and vegetable chips

AUTOMATIC ROTARY PACKAGING MACHINE FOR CHIPS OR CUBE

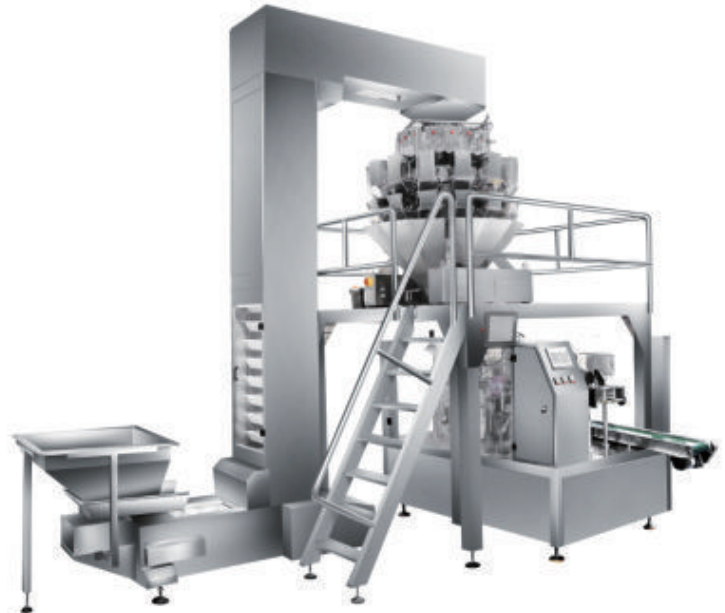
Material: SUS304

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



EQUIPMENT PARAMETERS

Vacuum fried fruit and vegetable chips

CUSTOMER-PROVIDED AUXILIARY EQUIPMENT

1. Steam source: The steam pipe is required to be connected to the vacuum frying machine workshop, the pressure is not less than 0.4mpa, and a single set of equipment requires 0.3kg steam per hour.
2. Air pump, customers must have an air pump of more than 0.5 cubic meters, and the pressure must not be less than 0.6Mpa.
3. Water source, tap water pipes enter the frying workshop, which is required for cooling the vacuum unit.
4. The drainage pipe is prepared by the customer, and our company is responsible for guiding the installation.

EQUIPMENT PARAMETERS


MODEL	FLOOR SPACE (LENGTH*WIDTH*HEIGHT MM)	FRYING CHAMBER/VACUUM OIL TANK (INNER DIAMETER)	VACUUM OIL TANK (VOLUME M ³ /OIL VOLUME KG)	FRYING BASKET SIZE (DIAMETER*HEIGHT MM)	INSTALLED POWER (KW)
DT-VD-800	4800*3200*3200	800/1100	0.92/750	600*460	17*3 (CONDENSER CIRCULATION PUMP)
DT-VD-1000	4800*3500*3200	1000/1300	1.5/1100	800*520	17*3 (CONDENSER CIRCULATION PUMP)
DT-VD-1200	5000*3500*3300	1200/1500	1.9/1400	1000*560	23*3 (CONDENSER CIRCULATION PUMP)
DT-VD-1400	5200*3500*3500	1400/1700	2.4/1800	1200*560	33*3 (CONDENSER CIRCULATION PUMP)

DT-VD-17kw (vacuum unit 9kw + oil circulation pump 5kw + variable frequency speed motor 3kw)
 DT-VD-17kw (vacuum unit 9kw + oil circulation pump 5kw + variable frequency speed motor 3kw)
 DT-VD-23kw (vacuum unit 15kw + oil circulation pump 5kw + variable frequency speed motor 3kw)
 DT-VD-33kw (vacuum unit 19kw + oil circulation pump 11kw + variable frequency speed motor 3kw)

1. The whole set of equipment includes; frying room, vacuum heating oil tank, vacuum unit, heat exchanger, condenser, buffer tank, stainless steel oil circulation pump, frying basket hydraulic cart and the whole set of equipment body pipes and valves (all drainage pipes are prepared by customers).
2. Chiller power DT-VD-800-100 type with 9P, power 7kw. DT-VD-1200-1400 type with 12P, power 9kw. (It is recommended that southern customers use chillers)



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