

速冻装置

QUICK FREEZING EQUIPMENT

Tunnel series quick-freezing device

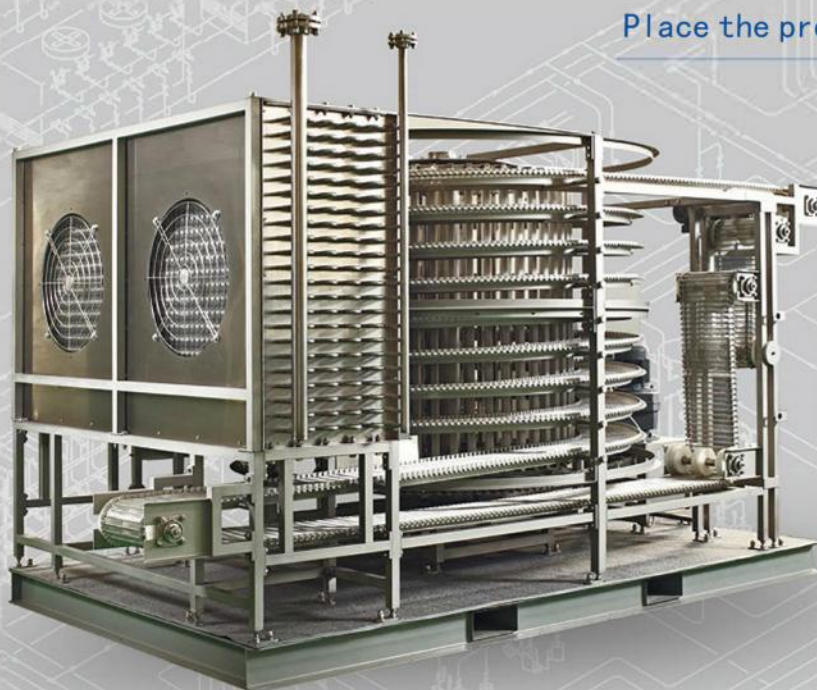
Spiral series quick-freezing device

Fluidizing quick-freezing device

Intelligent tunnel quick-freezing device

Flat plate series quick-frozen pack

Place the process Shanghai-ice line





目录

| | |
|---|----|
| Tunnel series quick-freezing device | 02 |
| Common tunnel type quick-freezing device | 03 |
| Tunnel (plate belt) type quick-freezing device | 03 |
| Tunnel (net belt) quick-freezing basketry | 03 |
| Double-channel tunnel quick-freezing device | 04 |
| Efficient tunnel quick-freezing | 05 |
| High efficiency tunnel plate belt quick-freezing device | 06 |
| High efficiency tunnel mesh belt quick-freezing device | 07 |
| Spiral series quick-freezing device | 09 |
| Spiral quick-freezing device | 10 |
| Pile type spiral quick-freezing device | 11 |
| Fluidizing quick-freezing device | 12 |

overview

During the food freezing process, rapid freezing can make the ice crystal particles formed by the internal moisture of the food smaller, minimizing damage to cellular tissues, reducing the water loss rate of the product, and maximizing the preservation of taste and nutritional value.

Continuous freezing product features

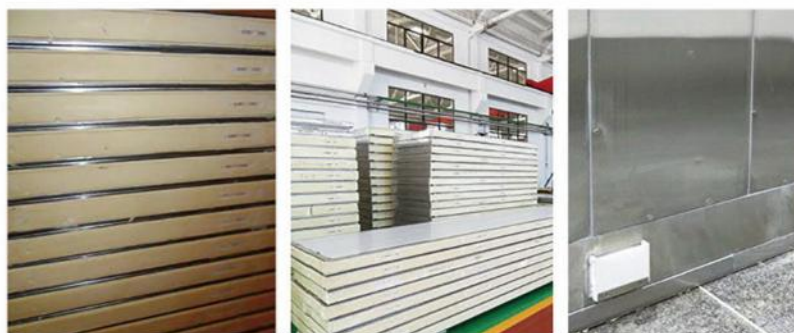
The continuous freezing products of the ice wheel environment include four series of products:

tunnel series quick-freezing device, spiral series quick-freezing device, fluidization quick-freezing device and intelligent tunnel quick-freezing device, which have the following significant common characteristics:

There are aluminum tubes, aluminum sheets, stainless steel tubes, aluminum sheets, steel tubes, hot zinc dipping steel sheets and other forms. The tube group adopts the form of straight row, the structure of varying sheet distance, smooth flat sheet, and the contact between the tube and the sheet is close. The area ratio is reasonable, the temperature difference between inlet and outlet air is reduced, the freezing efficiency is improved, and the frosting rate is reduced.



The thermal insulation storage body conforms to the People's Republic of China machinery industry standard JB/T6527-2006 "Thermal insulation sandwich board for Combined cold storage". The internal and external panels of insulation are made of 304 stainless steel plates, hard polyurethane foam, and the plates are connected by hook lock box locking.



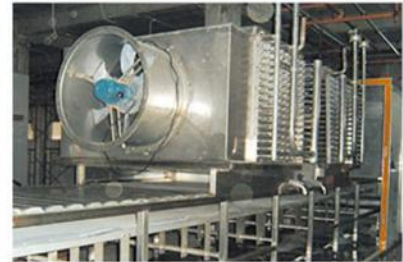
Tunnel series quick-freezing device

The tunnel quick-freezing device of ice wheel environment includes three series of products: ordinary tunnel quick-freezing device, efficient tunnel quick-freezing device and double-channel tunnel quick-freezing device.

Tunnel series quick frozen package abusive unique features

The high-efficiency single freezing machine adopts a centrifugal fan specially designed for low temperature and humid environments. The motor is a waterproof and moisture-proof precision cast aluminum motor with good anti-corrosion performance. The impeller is integrally formed with die cast aluminum.

Imported high strength stainless steel plate belt.



1 Common tunnel type quick-freezing device



Application scenario of common tunnel (plate and belt) quick-freezing device

It is mainly used for aquatic products (such as scallops, shrimp, various fish fillets, fish segments, sushi fish, etc.) fried cakes, meat and other products that do not need to be quickly frozen.

The tunnel (plate belt) type quick-freezing device is divided into single plate belt and double plate belt, the freezing capacity of single plate belt is 250 ~ 800 kg/h, and the freezing capacity of double plate belt is 500 ~ 1600 kg/h.

Note: Frozen products are naked frozen scallop column (specification $q > 20 \times 18 \text{ mm}$, 80 grains/pound, water content is 80%, fabric density of about 4 kg/m^2 , entry and delivery temperature $+10^{\circ} \sim -18^{\circ} \text{C}$) shall prevail.

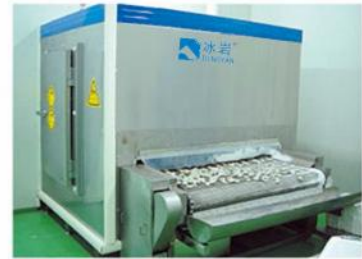


Application scenario of common tunnel (mesh belt) quick-freezing device

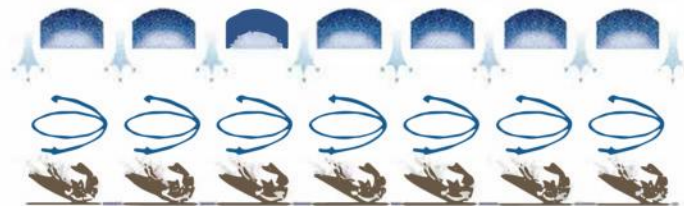
It is mainly used for preparing food (such as dumplings, dumplings, steamed buns, poultry, meat, spring rolls, vegetable rolls, bread fish, bread shrimp, siu mai, cake, etc.), single shrimp, fish fillet, most of the plate frozen products and naked frozen meat.

Tunnel (net belt) type quick-freezing device is divided into single net belt and double net belt, net width range of 1.2 meters ~ 4 meters, single net belt freezing capacity range of 250 ~ 3000 kg/h, double net belt freezing capacity range of 500 ~ 6000 kg/h.

Note: Frozen products are subject to naked frozen raw dumplings (specifications 20g/piece, fabric density about 10kg/m², entry and delivery temperature +1s0c, -18°C).

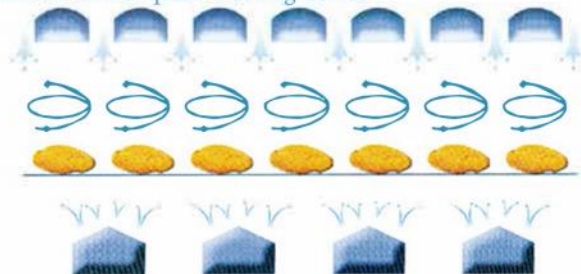


Using the "heat wave" air distribution system, the frozen heat transfer efficiency of food in the fluctuating state is significantly improved, and the energy consumption is also greatly reduced.



"Heat wave" air distribution system

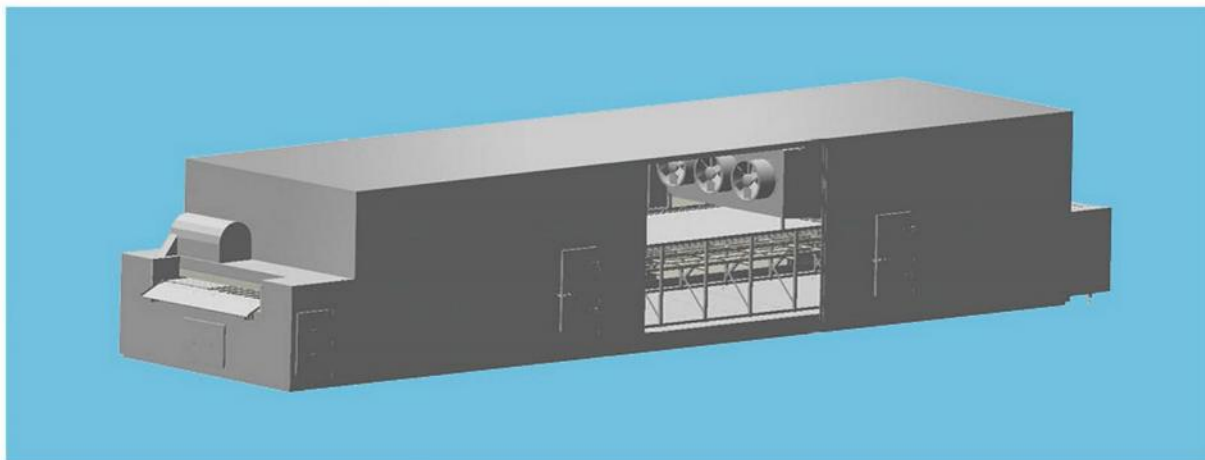
Air distribution method of common tunnel quick-freezing device



"Two-way heat wave" air distribution system

2

Double-channel tunnel quick-freezing device



Abusive application scenarios for double-channel tunnel quick-freezing

The main application of thousands of prepared food such as dumplings, steamed buns, dumplings, etc., can also be applied to thousands of mono or plate meat, aquatic products quick freezing.



Capacity of double-channel tunnel quick-freezing device

Dual channel: net width range of 1.2 m ~ 4 m, single net freezing capacity range of 250 ~ 3000 kg/h.

Note: Frozen products with naked frozen raw dumplings (specifications 20g/ piece, fabric density about 10kg/m incoming and outgoing temperatures +15°C, -18°C) shall prevail.

Product characteristics of double-channel tunnel quick-freezing device

- Both sides of the belt are spacious enough for smooth access
- Put into the storage body for sanitary cleaning.
- The interior maintenance space of the library is spacious, which can be easily entered for maintenance.

3

Highly efficient tunnel frozen swears



Application scenario of efficient tunnel plate and belt quick-freezing device

Especially suitable for quick freezing of fillets, fish and some shrimp aquatic products. The high efficiency tunnel plate belt quick-freezing device is divided into single plate belt and double plate belt, the freezing capacity of single plate belt is 400 ~ 750 kg/h, and the freezing capacity of double plate belt is 800 ~ 1500 kg/h.

Note: Frozen products shall be naked frozen tilapia fillets (200X100X20mm, 120g/piece, water content is 75%, fabric density is about 7.5kg/m², entering and shipping temperature +10°C, -18°C).



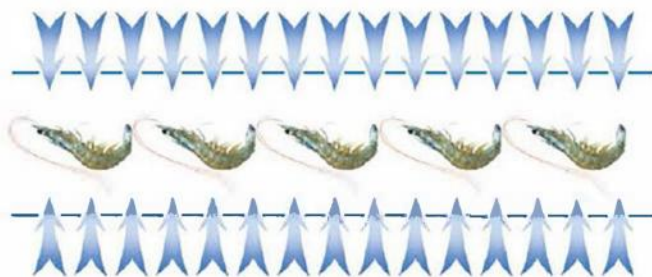
Application scenario of high efficiency tunnel mesh belt quick-freezing device

It is especially suitable for the rapid freezing of fish, some shrimp and other aquatic products. Compared with the ordinary tunnel, the high efficiency tunnel has faster freezing speed, lower dry consumption and higher quality. Usually supporting silver ice coat machine, secondary freezing production line. The freezing capacity of the high-efficiency tunnel network belt quick-freezing device ranges from 500 to 1500 kg/h.

Note: Frozen products are raw shrimp without first head (size <1)15x 80mm, 16 ~ 20 / lb, water content is 75%, cloth density is about 3kg/m², and the temperature of entry and delivery +15°(-18°C) shall prevail.

Air distribution method of high efficiency tunnel quick-freezing device

On the basis of the ordinary "heat wave" air distribution system, the wind speed is greatly increased, and the freezing time is greatly shortened, which further improves the freezing efficiency and reduces the dry consumption of food.



Spiral series quick-freezing device

Special features of spiral series quick-freezing device

· Spiral series quick-freezing device is divided into single spiral and double helix two kinds, double helix can be low feed, low discharge, single helix can only be low feed, high feed or high feed, low discharge, and can provide a variety of inlet and outlet direction choice according to user requirements.



· The internal channel of the quick-freezing device is spacious, the personnel can walk freely, and there is no sanitary dead Angle, which is convenient for the interior cleaning and repair.



· The blades and brackets of the axial fan are made of stainless steel, the blades are stainless steel castings, and the motor is waterproof and moisture-proof precision cast aluminum motor.
· The air distribution mode is one to one between the evaporator and the drum, and the freezing efficiency is better
· The bottom storage plate of the quick-freezing device is in the form of two sides with slope, the bottom plate with Angle plate, and the gutter on both sides. Bottom plate
· The upper panel is welded as a whole, with good flatness and no water leakage. The drain outlet is located at the end of the thousand bottom storage board, and the drainage is convenient.



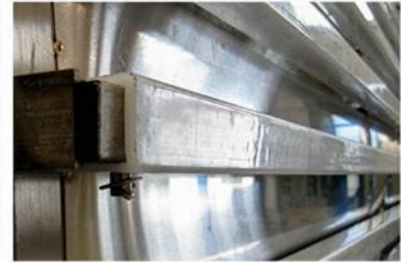
The transmission mode adopts the unique slight tightening technology, and the operation state of the conveyor belt is uniform and loose, which ensures the stable operation of the conveyor belt.



Multi-point fault detection, real-time monitoring of the working state of the quick-freezing device, instant alarm and fault display point and fault cause, protect the transmission components from being destroyed.



Drum drive friction strip is "C" type ultra-high molecular material, using a unique wrapping and fixing process. It can effectively prevent the movement, and effectively avoid the friction strip surface deformation caused by thermal expansion and cold contraction



The control cabinet adopts international famous brand PLC controller and touch screen control. The display is intuitive and the operation is simple. Reserved signal interface, can upload frozen abusive signals.



Can effectively prevent the movement, while effectively avoid due to thermal expansion and contraction caused by cold. Inlet and outlet are provided with emergency stop switch and alarm light, in case of accident or emergency can be stopped at any time friction strip surface deformation and alarm.

The reducer adopts imported well-known brands. The main drive drum, reducer and inverter are one-to-one mode, which can ensure long-term smooth operation.



1 Spiral quick-freezing device



Application scenario of screw-type quick-freezing device

It is widely used for quick freezing of prepared food, aquatic products, meat and poultry, ice cream, pastry, small packaged food, etc., especially for frozen products with long freezing time, high entering temperature and large output requirements, suitable for thousands of pipeline processing.

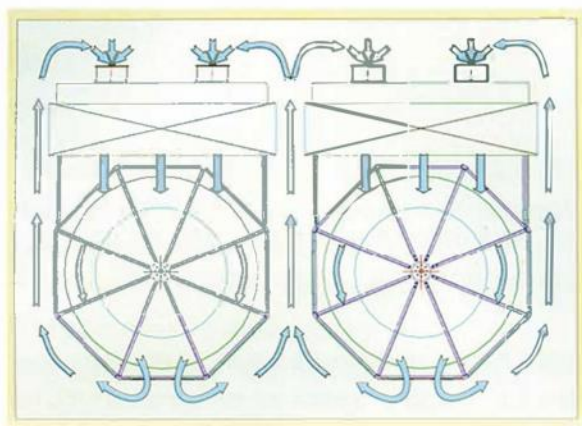
Spiral freezing device is divided into single and double helix, single helix freezing capacity range of 250 ~ 2500 kg/h, double helix freezing capacity range of 500 ~ 5000 kg/h.

Note: Frozen products with naked frozen raw chicken pipa legs (specifications $< 80 \times 100 \text{ mm}$, 100g/piece, fabric density is about 11 kg/m^2 , incoming and outgoing temperature $+20^\circ\text{C}$, -18°C) shall prevail.

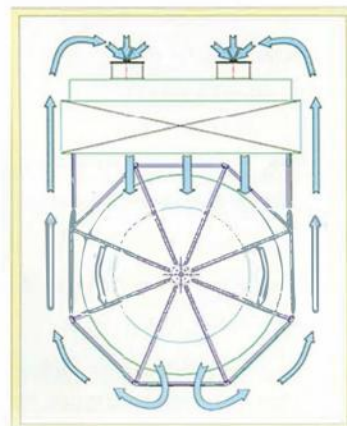


Air distribution mode of spiral quick-freezing device

Horizontal air supply, cold air blown by the evaporator and bellows to form a uniform scattered air state, uniform distribution after blowing to the food surface, greatly shorten the evaporator air and return air path, as far as possible to reduce the temperature difference between the evaporator and the return air, the outside of the evaporator is connected by stainless steel wind deflector, and the insulation library together to form a reasonable and smooth air deflector, to ensure that the wind is uniform in different locations of the net belt. Make the frozen products get the best heat transfer effect, and can ensure the same tray in different parts of the product freezing quality consistency, and effectively reduce the evaporator frost speed.



Double spiral air distribution mode



Single spiral air distribution mode

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Pile type spiral quick-freezing device



Pile-up spiral freeze-set abusive application scenario

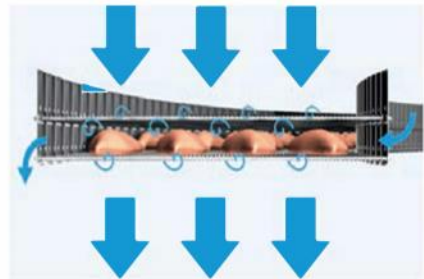
Suitable for fast freezing of fried food, meatballs, chicken rice krispies and other products. The freezing capacity of stacked spiral quick-freezing device ranges from 250 to 2500 kg/h.

Note: Frozen products are naked frozen fried chicken rice noodles (specifications <1,20mm, 10g/piece, fabric density of about 7kg/m², entry and delivery temperature +70°C, -18°C).



Air distribution method of spiral quick-freezing device

The stacked spiral quick-freezing device adopts vertical air supply, and all the cold air passes through the multi-layer mesh belt from top to bottom. At the same time, the mesh belt baffle is provided with a certain number of stars of ventilation holes, which can make the surface of the mesh belt to form a radial air flow; Food is always frozen under the combined action of vertical cold air and horizontal cold air, increasing the freezing speed by more than 20%.



Product characteristics of piling spiral quick-freezing device

- Save more than 40% of the floor space compared with traditional equipment.
- Users can choose CIP automatic cleaning system to realize automatic cleaning and disinfection of clean water and foam, saving more than 50% of cleaning water.
- The user can choose ADF air defrost, which can extend the continuous working time of the single freezer and improve the freezing efficiency.



Fluidizing quick-freezing device



Application scenario of fluidized quick-freezing device

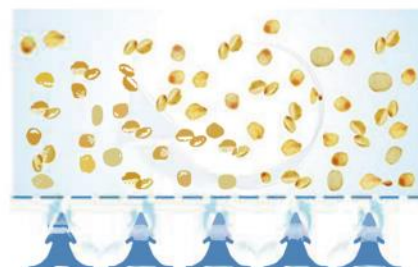
It is mainly suitable for freezing grain, flake, block and other food fast freezing, such as green beans, corn kernels, green pepper, cucumber, strawberry, pumpkin, tired vegetables, garlic moss, potatoes, asparagus, apple head, yam, cauliflower, fresh mushrooms, etc., can also be applied to the rapid freezing of thousands of cooked shrimp. The two-stage fluidized quick-freezing device has a net width of 1.2 meters or 1.5 meters and a freezing capacity range of 1000 ~ 10000 kg/h



Note: Frozen products with naked frozen bean (cloth density of about 20 ~ 30kg/m², entering and shipping temperature

Fluidized freeze-pack abusive distribution mode

Under the bottom-up action of strong cold air, the granular, flake or block food uniformly placed on the screen shows a "fluidization" movement, and is quickly frozen in the movement.

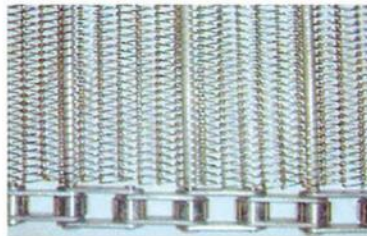
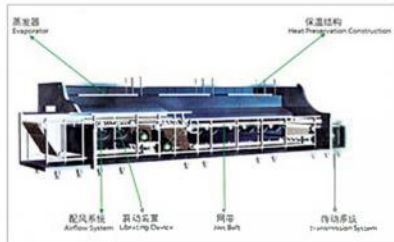


Special features of fluidization quick-freezing device

- Evaporator variable sheet distance structure, sheet distance of 40-20-10mm, inlet side sheet distance of no less than 1000 mm, outlet side sheet distance of no less than 1000 mm.
- Fan selection of axial flow or centrifugal fan, in order to meet the food flow based on the wind pressure, to ensure that the product freezing required air volume motor waterproof and moisture-proof motor, wiring for waterproof, moisture-proof design.



- Using two-stage design, the freezing effect of monomer rate and dry consumption is better than that of one-stage fluidized quick-freezing device.
- Conveyor belt selection of high strength stainless steel mesh belt.
- The fan, conveyor belt and vibration are variable frequency speed regulation, which can meet the freezing needs of different products.



Intelligent tunnel quick-freezing device

Application scenario of intelligent tunnel quick-freezing device

Intelligent tunnel quick-freezing device series products can be widely used in the quick-freezing processing of thousands of plates of food, including meat, aquatic products, some prepared products, ice cream and many other products, can replace the large-scale quick-freezing warehouse to achieve automated continuous production, and have the storage function of the quick-freezing warehouse. The freezing capacity of intelligent tunnel devices is usually 8t/h~15t/h. Frozen products shall be subject to the dish frozen chicken products.



Intelligent tunnel quick-freezing device product features

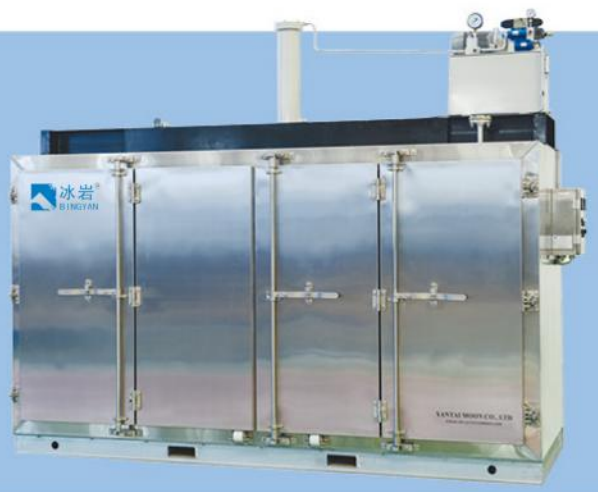
- Intelligent control, automatic entry and exit of goods, saving labor costs and improving working conditions.
- Output statistics intelligent, easy to achieve accurate management of production mode.
- The equipment can achieve continuous production for a long time.
- Compared with the traditional quick-frozen warehouse, it can save more than 60% of the building area.



Plate series quick-freezing device

1 Plate quick-freezing device

Food and metal plates are double-sided contact type for rapid freezing. The metal plate serves as an evaporator, and the upper and lower surfaces of the food are in close contact with the metal plate. The cold energy is directly transmitted to the food through the metal plate. Due to the high thermal conductivity of the metal compared to the air surface heat exchange system, rapid freezing of food is achieved.



Flat plate quick-freezing device application scenario

It is mainly used for freezing food that is not afraid of extrusion or easy to shape in any dish, such as meat, poultry, by-products, etc.

The freezing capacity of the plate quick-freezing device ranges from 960 to 2520kg/ time.

Note: The frozen quantity is based on the fish plate (600X400X80mm 15kg/plate, entry and delivery temperature +20°C, -18°C).

Plate series quick-freezing device features

- The plate evaporator is professionally designed to ensure the uniform evaporation of refrigerant, the uniform surface temperature of the plate and the high freezing efficiency.

Liquid supply and steam return manifold are stainless steel tubes, which can ensure long and frequent use in low temperature environment. The flow of liquid supply and steam return are optimized to ensure the uniformity of liquid supply.

- The lifting mechanism is stable and reliable, professionally designed hydraulic system, high-precision hydraulic cylinder, high-quality hydraulic pump, to ensure that the hydraulic system can run stably for a long time.



2

Plate shelf freezer



The food is in direct contact with the bottom surface of the metal plate, and the other surface of the food is subjected to convection heat transfer by the cold air generated by the fan. The heat transfer mode is direct contact and cold air double heat transfer, also known as "double-effect quick-freezing form".

Application scenario of plate shelf freezer

Widely used for cutting meat, aquatic products, poultry, prepared food and some fruit and vegetable food quick freezing.

The freezing capacity of the plate shelf freezer ranges from 1500 to 5000kg/ time.

Note: The frozen quantity is based on the fish plate (600X400X80mm 15kg/plate, entry and delivery temperature +20°C, -18°C).



Plate shelf freezer features

- The plate shelf evaporator adopts special-shaped design, which greatly improves the heat transfer efficiency.
- The two ends of the plate are equipped with axial fan cold air circulation, which achieves double freezing mode of contact and convection, and the heat transfer coefficient is large.
- If necessary, evaporation coils can be equipped at both ends of the plate to increase the quick-freezing efficiency.

3 Integrated tablet series



On the basis of the plate speed device and the plate shelf freezer, the corresponding cold source is configured and installed on a unified base or placed separately in a similar position to form a self-matching cold source plate series.

- Type plate series production capacity

One plate series freezing capacity range 1200 ~ 1500kg/time.

Note: The frozen quantity is based on the fish plate (600X400X80mm 15kg/plate, entry and delivery temperature +20°C, -18°C).

- Water-cooled all-in-one machine, customers only need to connect the corresponding power supply and water source to use.
- Air-cooled integrated machine, customers only need to connect the corresponding power supply, to solve the unit condenser ventilation and cooling can be used.



Process line

1 Pace line

Pacing machine/secondary freezing

Jin ice dressing machine and secondary freezing, supporting shrimp quick freezing device, mainly used for icing and secondary freezing of shrimp after quick freezing. After quick-freezing and forging ice, not only the color of shrimp is bright, but also can prevent the moisture loss of shrimp, prevent protein oxidation, and better ensure the freshness and taste of shrimp. To ensure that the nutritional value of shrimps can be preserved to the maximum extent during long-term storage.

Although the production of silver ice coating machine and secondary freezing is matched with the quick-freezing device, the processing capacity is usually in the range of 500kg/h ~ 3000kg/h. Products are subject to shrimp.



2 Fruit and vegetable pretreatment line

It is mainly used for pretreatment of fruits and vegetables before quick-frozen processing. For different food processing techniques, the corresponding equipment components are configured to complete food pre-treatment processing, such as cleaning, blanching, cooling, cloth and other pre-treatment processing.

The production capacity of fruit and vegetable pretreatment is matched with the quick-freezing device, and the processing capacity is usually in the range of 1000kg/h ~ 5000kg/h. The pretreatment scheme of different products is different and needs to be customized according to the food process.

