



## Liquid nitrogen tunnel technology solutions

### 1. Main technical parameters

NO.	Project	Parameters
1	Mesh belt size:	6000 mm (L) ×800 mm(W) Capacity300KG/H
		8000 mm (L) ×1000 mm(W) Capacity500KG/H
2	Outline dimension:	6000 mm (L) ×1700 mm(W)×2050 mm(H)
		8000 mm (L) ×1900 mm(W)×2050 mm(H)
3	Working temperature:	-180℃~15℃
4	Control accuracy:	±2℃
5	Tunnel cycle time:	8-40Min Adjustable
6	Cooling rate:	10℃/Min
7	Supply power:	380V/50HZ
8	Power:	8KW、12KW
9	Refrigerant:	5-10BAR liquid nitrogen

### 2. Main structure and configuration

The equipment is a continuous production line, Safe and durable, Easy operation. Quick freezing machine mainly by the body, insulation system, transmission system, refrigeration system, control system



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Body and thermal insulation system	<p>Body design:The thickness of the inner cavity and the outer cavity is 2MMsus304 food grade stainless steel plate shearing and bending.The position of the force with the reinforcement and reinforcement of Teflon , To ensure long-term bearing does not deform, Make the craft beautiful.</p>
	<p>Integrated electric cabinet, Save space.</p>
	<p>Thermal insulation layer: Germany imported BASF polyester raw materials.Multi layer thermal insulation foam insulation layer, insulation layer thickness: 150mm</p>
	<p>Equipment maintenance: Adopt integral lifting system, Easy to clean and maintain the conveyor belt The bottom of the body with drain out, In order to discharge equipment to clean waste residue and water ; Design of equipment with long life and low consumption , Simple and rapid replacement of vulnerable parts , Excellent maintainability.Lifting screw material is SUS304.</p>
Transfer system	<p>Food transportation: SUS304 food special conveyor belt , With variable frequency adjustable speed motor , Conveying speed can be adjusted according to different products; The device is also provided with a mesh belt tightness adjusting device, To ensure the stable and long life of the food conveyor belt</p>
	<p>Variable frequency motor and speed reducer, Adjustable speed.</p>
	<p>Conveyor belt is stainless steel 304 chain plate mesh belt, Corrosion resistance and low temperature resistance, Can be used for a long time.</p>
Refrigeration system	<p>Liquid nitrogen flow control solenoid valve: KEIHIN solenoid valve with manual liquid nitrogen stop valve joint control, equipped with redundant systems, in which a group of faults, but also normal production, to ensure adequate safety</p>
	<p>A series of stainless steel nozzles formed in liquid nitrogen quick freezing zone formed a uniform and stable liquid nitrogen cold flow, and the nozzle has a long life without damage.The conveyor belt is equipped with a spray device , Automatic manual operation, Can open all the work can also open the work independently.The upper and lower spray angle can be adjusted, so that the speed of product production more uniform effect</p>



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	<p>Low temperature long axis motor and aluminum alloy axial fan, In the air cooling mode, it can guarantee the fast convection cooling, at the same time, it can ensure the uniform temperature field and the fan speed can be adjusted. Fan blade angle can be adjusted manually according to different products</p>
	<p>Liquid nitrogen transfer tube: Low temperature high pressure liquid nitrogen conveying pipe, The outer layer is treated by heat preservation, Not easily damaged, Can effectively reduce the loss of liquid nitrogen</p>
	<p>The feed end and the discharge end are provided with a tail gas outlet, which is connected with a large flow frequency conversion fan, and the tail gas of the quick freezing line can be drawn out to the designated position for discharging or pre cooling material</p>
Control system	<p>The control system has two kinds of automatic and manual refrigeration mode, the user can choose according to the different production needs</p> <p>With the running speed of the network, the fan speed can be adjusted by frequency conversion, matching the different temperature to adapt to different frozen categories</p> <p>The use of man-machine interface (touch screen) input, PLC intelligent control, with PID automatic adjustment function, can be divided into ten steps to cool and heat preservation, automatic alarm after the end of all procedures</p> <p>PT100 platinum resistance temperature measurement, Measuring range: 200℃ ~ -200℃。</p> <p>SIEMENS 10 inch color screen, Manual and automatic operation, Input is intuitive and simple. Can store a variety of refrigeration technology, one button operation.</p> <p>Contactors, buttons: all imported Schneider components, reliable and durable</p> <p>Belt drive system is equipped with independent frequency conversion motor</p> <p>At the discharge end of the equipment, the receiving end of the electric cabinet is equipped with emergency stop safety switch to ensure the safety of different stations at any time</p>



### 3. Equipment main component configuration list

NO.	Name	Parameters	Brand
1	Cryogenic Globe Valve	DN25	CHINA
2	Temperature sensor	PT100	CHINA
3	PLC	1BD23	SIEMENS
4	PLC Modular	7PD22	SIEMENS
5	Touch screen	10inch	MCGS
6	Sealing strip		USA
7	Thermal insulation layer material	BASF Polymeric material	USA
8	Axial flow fan	1.1KW	CHINA
9	Conveyor belt	SUS304	JAPAN
10	Low temperature solenoid valve	1/2inch	JAPAN
11	Relay	Schneider	FRANCE
12	Frequency converter	VFD022M43B	CHINA
13	Low temperature bearing	SUS304	Customized
14	Box material	SUS304 Thickness:2mm	CHINA
15	Transfer motor	1.5KW	ABB
16	Screw lifting system	RNF040	CHINA
17	Ultra low temperature vacuum hose	Length 2 m	CHINA



## 4. Products service commitment

The company has 20 years of experience in the production of frozen equipment design experience. The company to **Quality first. Customer first. Service first** service to serve customers, customer satisfaction as the goal of special service commitment

### A. The Sales prior to service commitment

- 1.Free of charge to provide customers with technical advice and product information
- 2.According to customer needs to provide a reasonable price.
- 3.According to the customer needs we can not subject to design and production
- 4.We provide a study of the reception, at any time to receive your inspection, and try to provide a variety of convenient conditions for your inspection.

### B. The sales service commitment

- 1.Consciously abide by the provisions of the contract law, to ensure the smooth performance of the contract and technical agreement.
- 2.By the amount of time to provide you with quality products, and the optimal mode of transport, to ensure that you receive the goods flawless and perfect.
- 3.Actively communicate with the use of personnel, respect for customers, to provide customers with thoughtful technical support.
- 4.According to the provisions of the contract to provide you with guidance and installation, commissioning and training services

### C. The Service commitment after sales

- 1 . We randomly provide equipment for wearing parts.
- 2 .We will provide the technical training and technical data of the relevant personnel in accordance with the requirements of the customer.
- 3 . Products have quality problems, a year of free mailing equipment accessories, life-long technical support and maintenance, there is a contractual agreement in accordance with the contract.
4. We are free to carry out technical guidance, from your own to rule out the simple failure of the equipment.

5. Equipment reference picture

