

# FRESER

SPECIALIZED MANUFACTURER OF FOOD FREEZING MACHINERIES

## 輸送板式IQF急速凍結機

CONVEYOR IQF QUICK FREEZER



老日光冷凍工業股份有限公司

FRESER INTERNATIONAL CORPORATION

# 急速凍結產地鮮度！

保存原色・原香・原風味！

**QUICK FREEZING THE FRESHNESS!**

**RESTORING THE COLOR, TASTE AND FLAVOR!**

## 凍結速度和品質

食品凍結時，0℃至-5℃稱爲“最大冰結晶生成帶”，通過此溫度帶的速度，影響冰晶的大小和形狀的生成，而決定冷凍食品的品質。

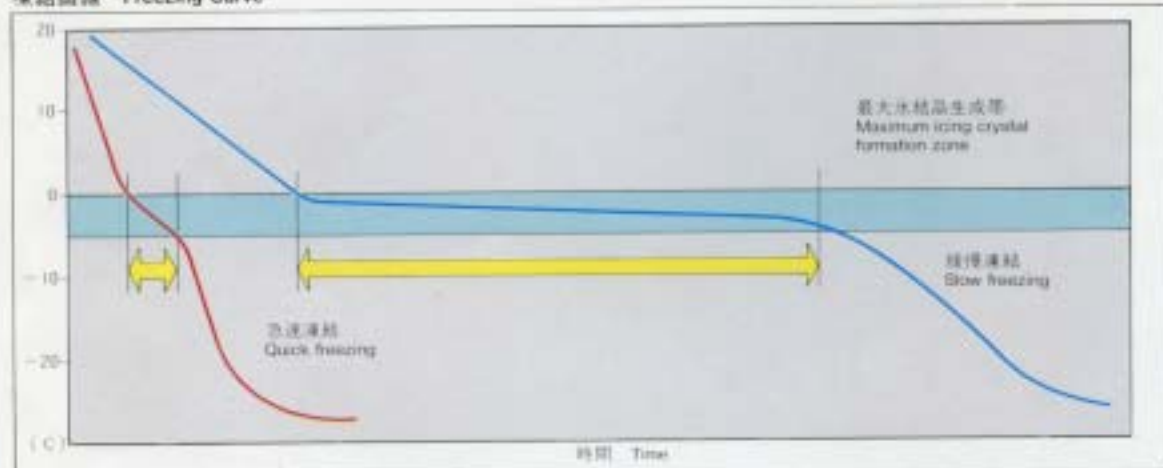
- 緩慢凍結：生成的冰晶粗大而量少，破壞食品細胞組織；解凍時，養份水份流失多，失重率較高。
- 急速凍結：生成的冰晶微細而量多，不會破壞食品組織，保存了鮮度和品質；解凍時失重率低。

## COOLING SPEED & QUALITY

The range from 0℃ to -5℃ is called "Maximum Icing Crystal Formation Zone" in food freezing, and the speed to pass through this temperature zone will influence the size and shape of ice crystal formed, then determine the quality of frozen foods.

- **SLOW FREEZING**: The ice crystal formed in large shape and small quantity among cells, would destroy the food structure, then drip away nutrition and water and lose weight after defrost.
- **QUICK FREEZING**: The crystal formed becomes a large number and minified shape, would not destroy the food structure, reserve the freshness and quality; less weight lost after defrost.

凍結曲線 Freezing Curve



## 雙重凍結效果

輸送平板式(IQF)急速凍結機，係將食品以不銹鋼輸送板送入PU隔熱的凍結室中，上端施行-35℃的低溫冷風冷卻，食品下端則接觸著不銹鋼平板面，平板之下面則以-40℃的超低溫不凍液體，從其下方向上噴灑冷卻。在這種雙重冷卻下，使食品在極短的時間內，達到需求的中心溫度。

因通過“最大冰結晶生成帶”的時間比傳統急速凍結設備爲短，凍結後的冰晶微細而量多，不會破壞食品組織；解凍時，養份水分流失少，失重率極低，保存了原色原香原風味的高品質。

## DOUBLE FREEZING EFFECT

The **FRESER CONVEYOR IQF**, with its stainless steel conveyor belt, delivers the foodstuffs into a polyurethane well-insulated freezing chamber; with -35℃ cooling air blasts over the top of foods, and direct contact with the stainless steel belt at the bottom. The steel belt is sprayed with -40℃ cold brine from below and cooled down. Under this double freezing effect, foodstuffs can be deeply frozen in quite a short time with identical surface and core temperature.

Since the speed of passing through "Maximum Icing Crystal Formation Zone" is much faster than conventional freezers, the ice crystal formed in small shape and large number, will not destroy the food structure, reserve the freshness and quality, thus the color, taste and flavor can be restored after defrost.

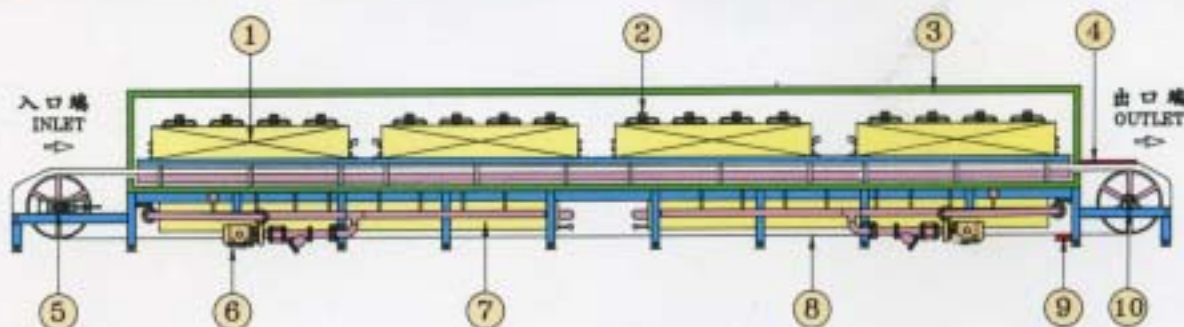


# 輸送板式IQF急速凍結機

## CONVEYOR IQF QUICK FREEZER

### 內部結構

### INTERNAL STRUCTURE



1. 冷風機組  
COOLING UNIT

3. 保溫庫體  
INSULATED CABINET

5. 輸送板調整器  
TENSION ADJUSTER

7. 不凍液冷卻器  
BRINE CHILLER

9. 清洗裝置  
CLEAN DEVICE

2. 凍結風扇  
FAN MOTOR

4. 冷風阻隔板  
COLD AIR SHUTTER

6. 不凍液循環泵  
BRINE RECIR. PUMP

8. 不銹鋼輸送板  
S/S CONVEYOR

10. 傳動馬達  
DRIVE MOTOR

### 設備特點

### FEATURES

- 操作成本低，經濟效益高：流水線式連續生產，大幅提高產能，比其他傳統凍結設備，凍結成本低，速度快，衛生好，品質高。
- 功能完備的電氣監控系統：具有數字顯示裝置，可以隨時精確地監督全程冷媒及不凍液溫度和各項設備負載的運轉變化情形；亦可提供需要的設定與控制，或異常警示等保護裝置。
- 特殊設計之耐超低溫庫體：使用耐酸鹼板材，以PU整片一次灌注而成，隔熱保溫效果特佳；採用庫板組合式結構設計，易於安裝、分解及維護，並具可擴充產能之彈性。
- 高品質的凍結專用冷風機：精確的風量計算，合理的台數配置，確保凍結室內冷風氣流最高效率的循環流通。
- 可調速式不銹鋼輸送板帶：完全接觸凍結食品，熱傳導效率高，並有清洗裝置保持板面衛生；輸送板調速器，可依不同的凍結食品及厚度，調整通過凍結室的時間，以達到完全凍結的效果。
- 廣泛適用於各種冷凍食品：不銹鋼帶可確保凍結產品不變形，故不論產品有無包裝皆可使用，輸送平板式IQF可廣泛適用於調理食品、水產品及農產品之凍結。

- **Full-Function Control System:** Equipped with digital display, can be precisely monitoring temperatures of refrigerant and brine, the load conditions of major equipments in the system; also provides setting and control, alarm and protection required.
- **Durable Insulated Cabinet:** Adopt high quality steel plates with formed-in-place polyurethane insulation to make the panels. With the assembly design feature, easy to install, reassemble and maintenance, and the flexibility to increase capacity.
- **Efficient Air Blast System:** High quality special fan motors for inside use in freezing chamber, engineering air volume design, number of cooling units and its layout, assuring the most efficient cooling air flow recirculating system for saving energy.
- **Speed Adjustable S/S Conveyor:** The stainless steel belt is in full contact with the products, renders high efficiency of heat transfer; equipped with cleaning device to maintain sanitation of belt surface; the time for food to pass through the freezing chamber can be adjusted by speed adjuster according to different products and its thickness in order to reach complete freezing effect.
- **Variety of Application:** The stainless steel belt can assure the fine freezing treatment with no deformation of products, with or without packing. Therefore, the FRESER IQF can be extensively applied to the freezing process of processed food, marine and agriculture products.

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# 高品質・低成本・用途廣！

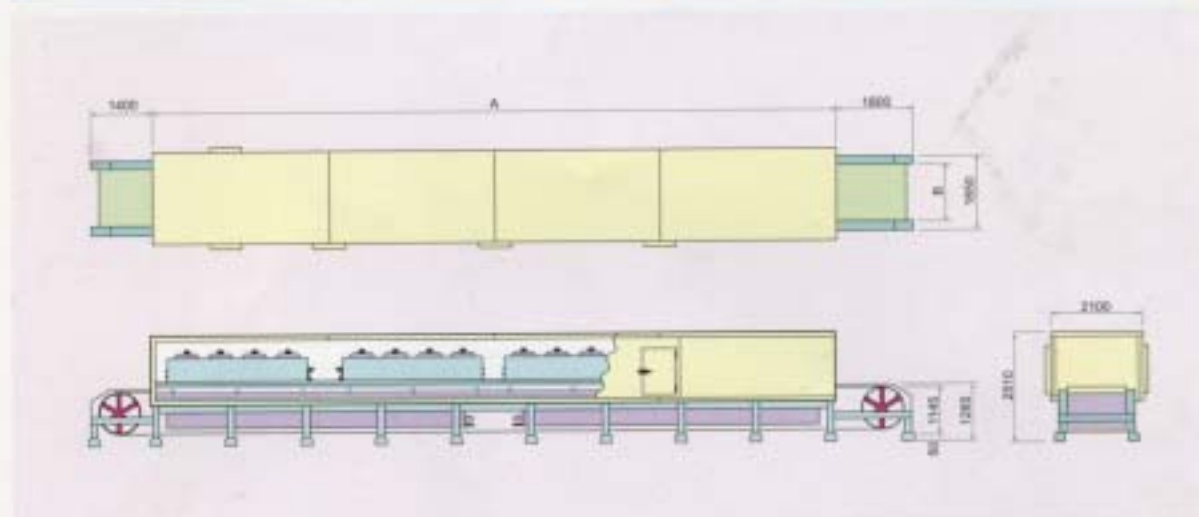
流水線連續生產・大幅提高產能！

**QUALITY · SANITARY · EFFICIENT · ECONOMIC!**

**CONTINUOUS LINE PRODUCTION · ENHANCE CAPACITY!**

## 能力規格

## SPECIFICATION



| 機 型                                                      |                                | IQ-500     | IQ-750     | IQ-1000    | IQ-1250    |
|----------------------------------------------------------|--------------------------------|------------|------------|------------|------------|
| 凍 結 能 力<br>FREEZING CAPACITY # (kg/hr)                   |                                | 250        | 500        | 750        | 1000       |
| 有 效 凍 結 長 度<br>EFFECTIVE FREEZING LENGTH A (mm)          |                                | 7650       | 11250      | 14900      | 18610      |
| 輸 送 帶 有 效 寬 度<br>EFFECTIVE CONVEYOR WIDTH B (mm)         |                                | 1100       | 1100       | 1100       | 1100       |
| 輸 送 帶 總 寬 度<br>OUTER WIDTH OF CONVEYOR (mm)              |                                | 1220       | 1220       | 1220       | 1220       |
| 有 效 凍 結 面 積<br>EFFECTIVE FREEZING AREA (m <sup>2</sup> ) |                                | 8.42       | 12.38      | 16.39      | 20.47      |
| 驅 動 馬 力<br>HORSEPOWER<br>OF MOTOR                        | 低 溫 用 冷 風 機<br>BLAST FAN MOTOR | 1/2Hp×16 台 | 1/2Hp×24 台 | 1/2Hp×32 台 | 1/2Hp×40 台 |
|                                                          | 輸 送 機 馬 達<br>CONVEYOR MOTOR    | 2 Hp       | 2 Hp       | 2 Hp       | 2 Hp       |
|                                                          | 鹽 水 循 環 泵<br>BRINE RECIR. PUMP | 10 Hp      | 10 Hp      | 10Hp×2 台   | 10Hp×2 台   |
| 庫 體 冷 凍 庫 門 數 量<br>NUMBER OF CABINET DOORS               |                                | 3          | 4          | 5          | 6          |

● 為應產品改良所需，能力規格之改變，恕不另行通知。 ABOVE SPECIFICATION IS SUBJECT TO CHANGE WITHOUT PRIOR NOTICE.

※本表所列之凍結能力，係在下列溫度條件下始達成：

- 凍結品初溫 +7℃
- 冷風溫度 -35℃
- 塩水溫度 -40℃
- 冷媒蒸發溫度 -45℃

※Freezing capacity shown is based on the temp. Conditions set forth below:

- Initial Temp. of Products +7℃
- Blast Air Temperature -35℃
- Brine Temperature -40℃
- Evaporating Temp. -45℃



## IQF 輔助設備

### 預冷機組

平板式急速凍結機之前處理裝置，擬凍結品原料（成品），在等候進入凍結箱之期間爲了保持流程中之新鮮度而提供之冷卻裝置，經冷卻後可自冷卻槽內，自動輸送銜接進入凍結平板板面上，以利節省中途搬運人力。

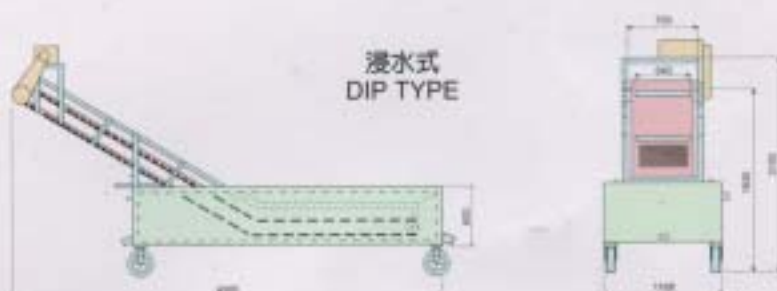
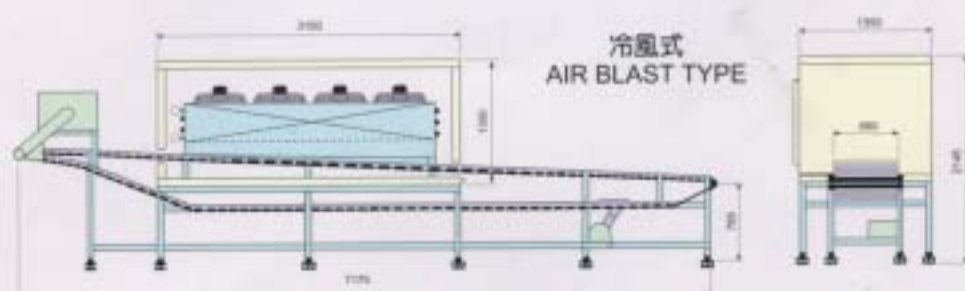
1. 冷風式—供調理食品使用。
2. 浸水式—供水產品及農產品使用。

## IQF IMPLEMENTARY EQUIPMENTS

### PRECOOLING UNIT

In front of IQF inlet, precool the materials, lower its temp., keep its freshness before entering IQF and reduce freezing time for better quality and energy saving. Materials will be auto-delivered into IQF by conveyor and saving labor.

1. Air Blast Type—for processed food.
2. Dip Type—for marine and agricultural products.

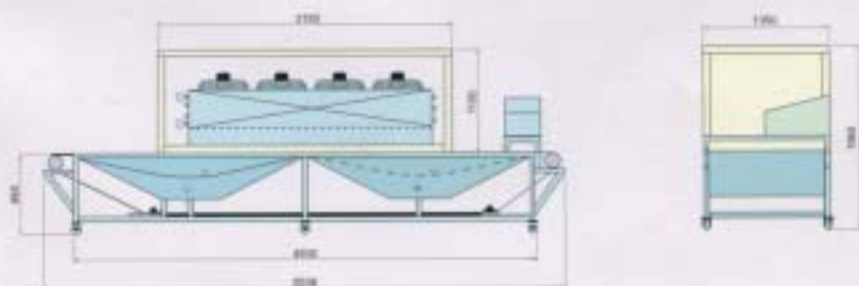


### 包冰機組

置於平板式急速凍結機之出口尾端。經凍結原料（成品）銜接導入冷卻水槽，與冰水接觸形成保護冰膜，離開水槽時受低溫冷氣箱之冷氣烘乾，使得外覆冰層更加透澈。成品經過包冰處理，可提高冷凍食品貯存後的品質，主要不致使其冷藏後失重，適用於各類生鮮水產品。

### ICE FILMING UNIT

Behind the IQF outlet, dip the frozen products into cold water and form a protective ice film on the surface, then blast cold air to make ice film clear, reserve the quality of products during storage and transportation and less weight loss after defrost. Majorly applied on fresh marine products.



## 冷凍製冰 • 空調電氣 • 整廠輸出

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- |                          |            |
|--------------------------|------------|
| • COLD STORAGE PLANT     | • 冷凍庫冷藏庫   |
| • BLOCK ICE MAKING PLANT | • 大型製冰工廠   |
| • IND. FLAKE ICE MAKER   | • 產業用碎冰機   |
| • CONVEYOR IQF FREEZER   | • 輸送板式 IQF |
| • CONTACT FREEZER        | • 接觸式凍結機   |
| • AIR BLAST FREEZER      | • 冷風急速凍結   |
| • FROZEN FOOD PROCESS    | • 食品加工冷凍   |
| • VESSEL REFRIGERATING   | • 漁船冷凍設備   |
| • PLANT AIR-CONDITIONING | • 廠房空調電氣   |
| • SYSTEM IMPROVEMENT     | • 冷凍系統改善   |

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## 專業規劃 • 設計製造 • 統包服務



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