IQF FREEZING, CHILLING & GLAZING EQUIPMENT
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**FREEZING & TEMPERATURE DIVISION**
Message from the Managing Director

In 2005 Dantech Food Systems Pte. Ltd. became a member of Marel. The freezing operations of both companies were merged into one single business unit, operating under the Dantech brand. This merger created a very strong company and reinforced our efforts to become one of the best in the Business.

We like to think of ourselves as your, one stop supplier of IQF Freezing and Food Processing Technology. We offer by far the largest range of freezing equipment on the market - no competitor comes even close. With more than 800 units sold worldwide, our freezers and systems are operating in more than 50 different countries.

We are strongly represented for Sales and Service through our Marel offices Worldwide. On top of that we have strong support from a large number of independent agents, distributors and business partners in many countries and specific industries.

Synergy within the Marel Group enables us to undertake large advanced turnkey applications, and we have a strong presence in all sectors of the Food Industry. We work closely with our entire renowned sister brands. This is of great benefit to our customers. Working with us and our sister companies makes the choice easy, since we can provide all you need, leaving no grey areas to worry about.

At Marel - Freezing & Temperature Division, we strive hard every day to keep abreast of the technological development and follow the trends in the industry. It is our goal to provide our customers with top-notch equipment, saving energy and adding value to your business.

Our dynamic and multinational workforce is dedicated to serve your best interests at all times by focusing first and foremost on your needs. We are determined to stay on top of the business and be your preferred supplier.

Henrik Ziegler
Managing Director
# Equipment Application

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*Please consult us at dantech@marel.com for other various products.*
The IXP Mini Spiral is available in 5 different models, which are all fully factory assembled. This feature offers great savings in terms of installation time at site.

The Mini Spiral Freezer operates on the well-proven rapid Horizontal Principle called: Arcticflow®, which ensures an ultra short, uniform and rapid freezing and gives great energy savings along with days of operation, without any defrosting requirements.

The IXP Spiral Series of Freezers can be used for a great variety of products, such as: Seafood products, Shrimps, Vegetables, French Fries, Dairy, Ice Cream, Meat, Poultry and Tray Packed Products, etc.

The IXP Mini Spiral Freezer offers many unique advantages and features such as adjustable airflow and multi adjustable freezing times. Furthermore, the freezer meets all the relevant criteria for today's requirement of freezing equipment. The entire unit is manufactured from Stainless Steel and other non-corrosive material.
We offer a wide selection of Spiral Freezers ranging from Standard Range Spiral Freezers to the various tailor made Spiral solutions.

The standard range Spirals are offered in 12 different standard configurations suiting most applications within the food industry. In this range we offer more than 450 different configurations.

We offer a large variety of tailor made Spiral Freezers custom made to our customers’ requirements. During the times we have made numerous tailor made Spiral Freezer and among our achievements is the largest Spiral Freezer in the world for one of our Ice Cream customers.

Our Spiral Freezers are available with single, double and triple drum and are capable of freezing product in IQF form, tray products and products packed in boxes. The freezers are well suited for products such as Seafood, Fish, Meat, Poultry, Bread and Dairy Products.
Spiral Freezer
Type: Arcticflow Series®

Freezing principle
Our Spiral Freezers operate on the energy saving principle of rapid horizontal Airflow called Arcticflow®. This principle offers great savings in terms of consumed energy. The Arcticflow® principle is superior in terms of the flexibility offered to freezing a great variety of products. The well proven principle of Arcticflow® ensures a rapid and uniform freezing within a minimum of time.

Design
Our Spiral Freezers are manufactured in a compact design using only high quality stainless steel components. Our Freezers are designed with an open design ensuring easy daily cleaning, long life without corrosion as well as meeting even the strictest cleaning requirements.
The Easyclean® Tunnel Freezer is specially designed for freezing of Shrimps, Fish, Hamburgers, fragile products and products placed on trays.

The freezer arrives fully assembled from our factory and requires a minimum amount for installation at site. The freezer is supplied with electrical hoist motors to lift the fully welded stainless steel insulated top cover for easy cleaning and maintenance. Furthermore, compared to other freezing systems, the freezer does not require a concrete foundation or any other foundations.

With a simple change in air plates, the freezer is easily adaptable for both high speed vertical airflow, called Superflow® and a conventional high speed horizontal airflow, called Arcticflow®. This will provide the user great flexibility to minimize the cost of freezing. However, the capacity will vary depending on the type of airflow, product loads etc.
Superflow®/Arcticflow EasyClean Freezer
Type: EasyClean Series®

Superflow® EasyClean Series:
On the selected belt, the product is led past the high velocity impingement airflow called Superflow®, which is a turbulent vertical impingement airflow that blows the air stream directly on to the product and then the air stream will change direction, becoming a combination of Vertical and Horizontal airflow, before returning back to the evaporators.

The Superflow® EasyClean version will have the option of running either with a Superflow® airflow or with an Arcticflow® airflow.

Both the Superflow® and the Arcticflow® airflow together with the ultra low temperature ensures a quick and homogenous freezing within a minimum of time. Thus ensuring a good quality finished product, with an equalized core temperature of min. -18°C.
Superflow/Arcticflow Easyclean Freezer
Type: Easyclean Series®

Arcticflow® Easyclean Series:
On the selected belt, the product is led past the conventional high velocity Horizontal airflow called Arcticflow®, which blows the air horizontally over the belt and past the product and then continuously blowing through the evaporators.

Unlike the Superflow® Easyclean version; the Arcticflow® Easyclean version does not have the option of running both airflows (Superflow® & Arcticflow®).

The freezer can be used as a stand-alone unit or as an integrated part of a fully automated processing line.

Twin Belt Version

The Easyclean Series comes with either a Single Belt or Twin Belt version. The Twin belt version will give its user the flexibility to run two different products at the same time.

Different Belt Types for the Easyclean Tunnel Freezers

- DTZ Belt
- Stainless Steel Mesh Belt
- Flat Modular Stainless Steel Belt
- Plastic Modular Belt
Superflow/Arcticflow Tunnel Freezer
Type: Energia Mk 8 Series

The Energia Mk8 Tunnel Freezer is specially designed for freezing of seafood products, meat patties and other fragile products.

**Superflow® Series:**
On the selected belt, the product is led past the high velocity impingement airflow called Superflow®, which is a turbulent vertical impingement airflow that blows the air stream directly on to the product and then the air stream will change direction, becoming a combination of Vertical and Horizontal airflow, before returning back to the evaporators.

**Arcticflow® Series:**
On the selected belt, the product is led past the conventional high velocity Horizontal airflow called Arcticflow®, which blows the air horizontally over the belt and past the product and then continuously blowing through the evaporators.

The ‘Superflow® Energia Mk8 version’ will have the option of running either with the Superflow® airflow or with the Arcticflow® airflow while the ‘Arcticflow® Energia Mk8 version’ does not.

The Energia Mk8 Tunnel Freezer can also be used for a great variety of other products such as: shrimp, shellfish, fish and other small food items. Furthermore the machine has the advantage that freezing of products in trays is easily possible.

**Different Belt Types for the Energia Mk8 Tunnel Freezers**

- DTZ Belt
- Stainless Steel Mesh Belt
- Flat Modular Stainless Steel Belt
- Plastic Modular Belt

FREEZING & TEMPERATURE DIVISION
The Millennium Double Belt Arcticflow® EasyClean Freezer is specially designed for individual freezing of small items such as: shrimp, shellfish, fish and other small food items.

The 2-belt system gives the advantage: That product is surface frozen on the top belt, and then transferred gently to the slower running lower belt, where the products are fully frozen.

On a plastic modular belt, the product is led past the high velocity airflow called Arcticflow®, which blows the air over and under the products and then continuously blowing through the evaporators. The rapid Horizontal Arcticflow® and the ultra low temperature ensure a quick and homogenous freezing within a minimum of time.

The freezer arrives fully assembled from our factory and requires a minimum amount for installation at site. The freezer is supplied with electrical hoist motors to lift the insulated top cover for easy cleaning and maintenance. Furthermore, compared to other freezing systems, the freezer does not require a concrete foundation or any other foundations.

As a special feature the unit can be supplied with a tray attachment for freezing of products packed in trays.
Flow Freezer
Type: FTF Series

The IQF Flow Freezer series is a 2-belt Tunnel operating according to the vertical blowing principle. Designed for individual Quick Freezing a wide range of small products such as Shrimps, Fruits, Vegetables and Meat Cubes.

The IQF Flow Freezer series is designed for two stage freezing, shell freezing and final deep freezing of sticky products. On a plastic belt, the product is led past axial fans, which blows the air through an evaporator generating an air temperature of below -30°C. A quick freezing with a product temperature down to -18°C is achieved.

The cabinet is made of modules with polyurethane insulation. The conveyor frame is made of Stainless Steel and the belt of FDA approved materials. The open design facilitates a cleaning that meets even the strictest veterinary demands.
Single Crust Freezer
Type: FT/CF Series®

The Single Crust Freezer freezes the outer layer of the product, which is in direct contact with the belt, preparing the product for a variety of freezing applications such as slicing/cutting operations. The Single Crust Freezer can also be used for various other applications such as avoiding belt marks on products prior to entering the main IQF Freezers and increasing capacities for existing IQF Freezers.

The Single Crust Freezer is a fully factory assembled series, which offers great savings in terms of installation time at site.

The belt is continuously cleaned by special scrapers mounted above the belt. The scrapers are mounted at the belts return side at the freezers inlet. The unit is equipped with a pneumatically controlled quick release system for easy cleaning and maintenance.

The unit comes in four standard sizes. Tailor made solutions are also available.

The Single Crust Freezer can be used as a stand-alone unit or as an integrated part of a fully automated processing line.
Single Crust Freezer
Type: FT/CF Series®

The Principle
The products are placed on a thin Teflon belt and gently led through the freezing zone. Cooling plates are mounted under the belt ensuring a fast crust freezing of the products “underside”.

Design
The freezing zone is built into a fully welded insulated stainless steel cabinet. Pneumatically hoistable insulated cover, for easy cleaning and maintenance.

Sea water resistant Aluminum Freezing plates for efficient Heat Transfer. The unit is equipped with fans above the product, which can be optionally operated for better air distribution inside the unit. Special Belt Control System ensures that the belt runs in a straight, smooth and trouble free operation at all times.
The Trolley Blast Freezer Tunnel is operating according to the horizontal blowing principle called Arcticflow®. The Blast Freezer unit is designed for freezing of almost all sorts of products such as: Seafood, Meat & Poultry, Ice Cream, Bread & Bakery, Ready Meals, Vegetables, and Scientific & Medical Products.

Products are manually loaded in trays, which are then loaded onto the Tray Rack Trolleys. When fully loaded the trolleys are manually pushed into the freezer. As an option the unit can be delivered with an automatic hydraulic pushing system. The unit operates with the principle of First In – First Out. This ensures an easy and fast loading/unloading of the freezer, hence a higher productivity is achieved.
The range of Brine Freezers is particularly developed for quick freezing of Shrimps, Shell Fish and Crabs etc. With the Brine Freezer you will obtain rapid freezing with minimum weight loss.

**Freezing Principle:**
For Brine Freezing, we offer 3 different principles of freezing:

1. **Immersion Batch**
   Immersion Freezing by means of submerging the product into agitated brine by the means of a hoist system. In the batch brine freezing process, the products are packed in plastic or stainless steel baskets, placed in racks with several trays, which are immersed into the brine, after which each product goes through a freezing process. The stainless steel baskets with the products are lowered into the tanks with the salt brine by forklift or fixed monorail crane system.

2. **Continuous Immersion System**
   Immersion Freezing by means of submerging the product into agitated brine by the means of a conveyor system. The product is then drained before entering a Hardening Tunnel for deep/full freezing.

3. **Continuous Shower System**
   Products are placed onto the moving conveyor belt and led past multiple spray nozzles which sprays cold brine to bring the temperature of products down at a rapid rate. In this process, both tray products and IQF products can be frozen. The product is then drained before entering a Hardening Tunnel for deep/full freezing.
Glazing Equipment

1. Dip Glazer: Immersion Glazing by means of submerging the product into chilled water by the means of a conveyor system. The Dip Glazing System is available in single or multiple dip solution.

2. Belt Glazer: The frozen product is sprayed with chilled water on both sides. The 2 x 3 (3 Nozzle on each pipe) nozzle zones can easily be adjusted individually and the unit has a control valve, which maintains full control of water supply pressure making it easy to achieve the required glazing percentage.

3. Vibrating Glazer: The frozen product is sprayed with chilled water on both sides. A uniform coating is achieved due to the vibrations.

4. Double Dip Glazer: The conveyor brings the product gently to the first glaze basin, where the products will pick up the initial glaze. Products then incline upwards out of the glaze basin for a brief equalizing period before entering the second glaze basin for the second glaze pick up process. This process ensures that the products have collected the maximum amount of glaze possible.

5. Tray Glazer: The frozen product in “tray” is sprayed with chilled water from the top.
Re-Freezer (Hardening Tunnel)
Type: AFT Series

We offer a standard range of Re-Freezers (Hardening Tunnels) matching all the freezers in our range along with tailor made solutions for any applications. Re-freezers are commonly used for freezing products after the glazing process in order to remove heat from products and ensures adequate temperature for proper storage. All our Re-Freezers (Hardening Tunnels) can be connected to our standard range of glazing equipment as well as being suitable for any type of IQF main freezer.
Our Test Centers are located in our Singapore, Denmark and Holland factories. These centers are particularly suitable for testing of existing and newly developed equipment. The center can be subdivided into three categories: Product-quality test, retention time test and engineering test.

To ensure we do not oversize or undersize our equipment, an accurate retention/freezing time is essential in our design calculation. In addition, we have a database of thousands of test results which have been collected in the course of the years.

During the development of new equipment or redevelopment of equipment and components used in all our equipment, we always carry out design tests. New types of process equipment for the Food Industry go through extensive testing to ensure that they comply with our high reliability requirements before being released onto the market.

“Product Testing conducted at Marel - Freezing & Temperature Division’s Test Center ensures that the End User receives Quality Products from our equipment”

R. H. Kurosaki
Test Center Specialist
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