

# Wave Impingement Freezer.



## Concept

The Messer wave impingement freezer is an innovative high-capacity freezing solution that combines the benefits of wave product agitation with impingement gas flows to give customers new-found levels of flexibility and productivity.

Messer's patented impingement technology combines cryogenic gases with high-velocity convective airflow to achieve rapid chilling and freezing of food products. This powerful and economical impingement technology has now been combined with the quality gains of wave controllable vibration systems for individually quick frozen (IQF) products. This dual-purpose solution supports high throughput rates at or greater than CO<sub>2</sub> flighted freezers. It is ideal for meats, seafood and IQF products such as shrimp, sliced/diced chicken, sausage, meatballs, pasta, pizza toppings, fruit and vegetables.

The combination of wave and impingement technologies provides users with the design flexibility to either increase production capacity or reduce freezer length relative to traditional IQF freezing systems. This is possible due to the high heat transfer rate of the Messer wave impingement freezer.

## Refrigerant

Messer's wave impingement technology employs liquid nitrogen as the cryogenic medium for an instant crust freeze that locks in natural flavor and moisture.

## Operation

The product enters the Messer wave impingement freezer on a vibrating, customized stainless steel belt. This vibratory action creates a wave-like motion along the length of the conveyor, evenly spreading individual product from the belt and surrounding product. As the

product moves through the freezer, it is exposed to both liquid spray and high pressure gas to form a frozen crust. The exhaust vent is balanced to improve overall cryogenic efficiency by reducing the ingress of outside air. The wave impingement freezer uses powerful motorized blower-wheels and impingement plates instead of traditional fan blades to increase the static pressure and the overall velocity of the airflow.

The Messer wave impingement freezer can be controlled via the built-in multi-language touchscreen. The main menu displays the current product, motor speeds, safety status, machine messages, selected operational mode and the freezer temperature. It also gives the operator access to other screens and menus. In the event of a fault, detailed information on the source of the problem is displayed. Recipes can be stored in the system, allowing the user to call up the operational parameters of all product types in a matter of seconds.

## Hygiene

The Messer wave impingement freezer is designed for ease of use and low maintenance with minimal cleaning effort. Messer freezers feature sloping floors and center trough drainage. All internal components are made of stainless steel or polyethylene. Modules are fully welded, ground and finished. The freezer top lifts vertically via an electric screw jack, providing full access to the tunnel for cleaning. Up to one year's operating parameters can be stored for quality assurance tracking and traceability.

## Features and benefits

- Dual-purpose design for both IQF and non-IQF foods
- Increased product quality due to superior IQF performance
- High production capacity at or greater than CO<sub>2</sub> flighted freezers
- Cryogen savings with heat transfer rates two to three times those of traditional modular cryogenic freezers
- Elimination of downtime associated with mechanical freezers
- Reduced overhead and unit cost along with ease of maintenance
- Hygienic design – less water and time required for cleaning
- Controllable belt vibration to suit product size and integrity
- Optional belt washer at product in-feed

## Technical data

	Wave Impingement 1000-5	Wave Impingement 1000-8	Wave Impingement 1000-11	Wave Impingement 1000-14
Overall length	17 ft 6 in	27 ft 4 in	37 ft 2 in	47 ft
Overall width	7 ft 1 in	7 ft 1 in	7 ft 1 in	7 ft 1 in
Overall height (closed)	7 ft 3 in	7 ft 3 in	7 ft 3 in	7 ft 3 in
Overall height (open)	9 ft	9 ft	9 ft	9 ft
In-feed height	36 ± 4 in	36 ± 4 in	36 ± 4 in	36 ± 4 in
Maximum product height (IQF products)	2 in	2 in	2 in	2 in
Maximum product height (standard tunnel)	4 in	4 in	4 in	4 in
Usable belt width	42 in	42 in	42 in	42 in
Electrical	460V / 3 Phase / 60 Hz	460V / 3 Phase / 60 Hz	460V / 3 Phase / 60 Hz	460V / 3 Phase / 60 Hz



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