

CONTINUOUS CHILLING & FREEZING SOLUTIONS



**Flexible systems to
crust, chill, or freeze**

UNITHERM

BETTER PROCESS...BETTER FOOD®

CONTINUOUS CHILLING & FREEZING SOLUTIONS

Our Unitherm line comprises a range of continuous, compact mechanical solutions engineered to be hygienic while achieving your desired goal of chilling, crusting, or freezing efficiently. Principle to the design concept are fully welded enclosures with integrated steam sterilization. In general, reduced residence times results in less cell damage and higher yields. However, as with any processing step, every product is unique, and flexibility of the equipment a plus. Unitherm's broad portfolio of crusting and freezing equipment ensures you will find the best solution to achieve your goals while maintaining the quality of your product.



Aquaflow Triple Stack



Aquaflow Water Chiller

Water is one of the most efficient heat transfer mediums. Compared to air, which can deflect and be hard to control, water evenly envelops the product's entire surface. Our Aquaflow Water Chillers are custom-built and designed to achieve the critical final degrees of properly chilling a product to below 39°F / 4°C. At the core of the design is the precisely balanced combination of water volume, movement, and recirculation through the heat-exchanger to maintain setpoint and achieve target temperatures. Product integrity is maintained through the process as the Aquaflow gently carries the product on a flighted conveyor. The system can be designed in a multi-level format to reduce the operational footprint.

Linear Impingement Chiller / Freezer

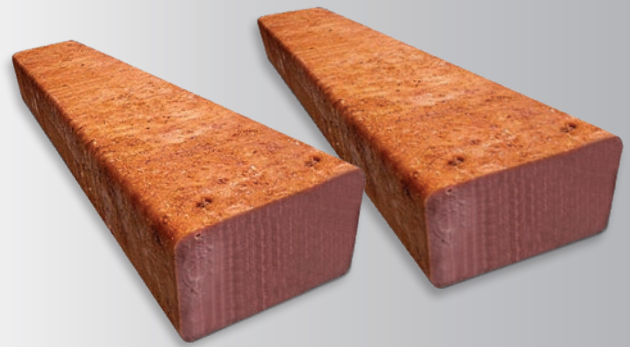
Our Linear Impingement Chillers and Freezers are designed specifically for products that give off energy quickly, like sliced bacon, or flash crusting deli slicing logs. These systems offer a cost-effective mechanical solution over the expensive cost of nitrogen tunnels. Additionally, because they are fully welded and stainless steel enclosures, they can be sterilized to greatly reduced the risk of pathogen contamination to the product's surface.





Mechanically Refrigerated Chiller

Flexible systems to crust, chill, or freeze



Spiral Chiller / Freezer

Compared to our linear solutions, our Unitherm spiral solutions offer a horizontal airflow design and minimal operational footprint. These highly efficient systems offer sequential defrost controlled via touch screen interface. The fan motors are mounted externally to reduce thermal load. The spiral solution can stand alone or be placed in line with other equipment. Our spiral Chillers and Freezers pair perfectly with our Unitherm Spiral Ovens for a continuous cook-chill process. All options are fully-welded stainless steel, compact spiral systems that arrive fully assembled.

Hygiene

Principle to Unitherm's design concept are fully welded enclosures with integrated steam sterilization. Our chillers and freezers use a hot steam step post-CIP to sterilize the inside of the production machine. Heat is used to sterilize the innermost portion of the evaporator coil where it is hardest to clean. This provides extra insurance toward pathogen-free equipment. As a result, product shelf life is extended, and the risk of product recall reduced.

Vertical Cruster / Freezer

Improve the efficiencies and yields of your slicing process by delivering consistent product surface temperatures to the slicer. Our patented crust freezing process is a mechanical solution that reduces footprint and operating costs. The



Vertical Cruster

carrier design transports product vertically through aggressive horizontal airflow. A recipe-controlled process targets freezing to 2mm of the product's surface to 25°F (-4°C). By freezing the outer surface of deli meat logs, our vertical crust freezer prevents folds or tears during slicing operations to improve stacking and slicing speeds and yields, allowing the slicer to run at maximum speed. Our Vertical Cruster operates on Freon or Ammonia rather than nitrogen to reduce operating costs. Critical to the design is the system's fully welded, stainless

steel enclosure. The system's unique hot steam sterilization heats the system post CIP allowing for pathogen-free startup significantly reducing the risk of cross-contaminating the product's surface.

Patents: US 6,622,513 B1

US 6,675,589 B1

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Recognized as a premium manufacturer of highly engineered food processing equipment and systems, Marlen International designs and builds solutions for the food processing industry.

Our premiere brands, Marlen, Carruthers, Afoheat, and Unitherm, have long set the standard for quality and performance. Internationally recognized, Marlen builds innovative solutions in vacuum stuffing and pumping, portioning, size reduction, thermal processing, and food handling.

We assure value to our customers through the highest consistency, accuracy, and product integrity. Our teams of expert engineering, design and technical personnel consult, collaborate, and partner with you to create custom solutions for your business.

Marlen International has been trusted by the world's leading food brands for over 60 years. Our world-class Solution Centers strategically located across the globe, allow processors to lean on our highly experienced food processing technologists to develop and test unique solutions for your products. Marlen International is a Duravant Company and is backed by SupportPro, a complete lifecycle management program for parts and service.

It's the Company Behind the Machine that Makes the Difference.



Micro & Mini Lines;
Mini Grill, Spiral Oven, IQF



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