

Baked and Prepared Food Items.

Spiral Freezers from Messer Make Big Impact for Nation Pizza & Foods, LLC.



Freeze quality is essential when manufacturing well over a million baked and prepared food items a day for shipment nationwide. Nation Pizza & Foods, LLC, based in Schaumburg, Illinois, first started high-volume production of topped frozen pizza in 1987. In the late '90s, the company introduced a "crispy crust" technology that allowed breads to stay crisp in the microwave which it later applied to microwaveable sandwiches.

Today this innovator is one of the largest private-label frozen food manufacturers in the U.S., and can

bring a near endless variety of products to market quickly from high-end, high-quality pizzas to toasted subs, panini, bruschetta, garlic toast and breakfast items.

Three Messer nitrogen spiral freezers apply a quality freeze on a range of high-volume products at Nation's nearly 200,000 sq. ft. facility. To meet new demand for a premium national brand of frozen pizza, Vice President of Operations Vince Nasti naturally turned to the food team at Messer (Bridgewater, N.J.). The team has performed annual audits on the

compact cryogenic spiral freezers since first installed more than 10 years ago, and has upgraded new proprietary features as they become commercially available.

"A lot of what drives our enhancements is cost and efficiency. We're always looking to increase our production rates and freeze at a lower cost per pound. With the support of Messer's engineering team and industry expertise, we've been able to run these freezers not only more efficiently to get more throughput, but also at a lower cost per pound



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Liquid nitrogen is supplied by truck to storage silos, owned and maintained by Messer, outside Nation's nearly 200,000 sq. ft. production facility in Schaumburg, IL.

while maintaining quality," says Nasti who has managed the plant for over 12 years. With an MBA, he is acutely aware of the impact to the bottom line of the "small" improvements and upgrades Messer has made over the years.

To address the needs of Nation's for higher capacity within its existing facility, Messer focused on the line that primarily processes premium pizzas, ranging from 3" to 16" pies, from plain to multiple toppings. Frozen specialty crusts are conveyed down the line and topped with refrigerated ingredients before going into the cryogenic spiral freezer and out into packaging.

The Messer spiral freezer operates colder than -100 °F. It uses a direct spray of cryogenic nitrogen to ensure toppings are firmly frozen to the pizza prior to final packaging. This is critical because in the hyper-competitive market for frozen pizza, appearance signals product quality and freshness. Excess sauce should not bleed through cheese – and other toppings,

from sausage and peppers to pepperoni and onions, must remain in place and frost-free.

After product exits the spiral freezer, Nation can either shrink wrap, or send product for modified atmosphere packaging (MAP). When MAP is required (as with the premium pizza line), the oxygen is flushed from the bags with Messer carbon dioxide and/or nitrogen MAP gases. "MAP extends shelf life and helps give a premium look for both pizzas and sandwiches," he says.

Messer's spiral freezers are hygienically designed for high-efficiency and operate with a proprietary exhaust system that automatically ramps up or down with production. As part of the annual audit process, Messer engineers ensure that the heat load of the food, cryogen use, and the exhaust system are all operating in unison. After Messer helped optimize the freezer with Nation Pizza & Food, production on the premium line was ramped up to achieve a substantial increase in

volume in the same compact footprint. Further optimization of the exhaust system identified an opportunity to reduce operating costs an estimated \$50,000 a year.

"Messer works with us," Nasti says. "They take measurements. They examine the entire process with an understanding of what we're looking for, and they come back with a solution."

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