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Clearly, a Cleaner, Safer Way To Convey Frozen Foods



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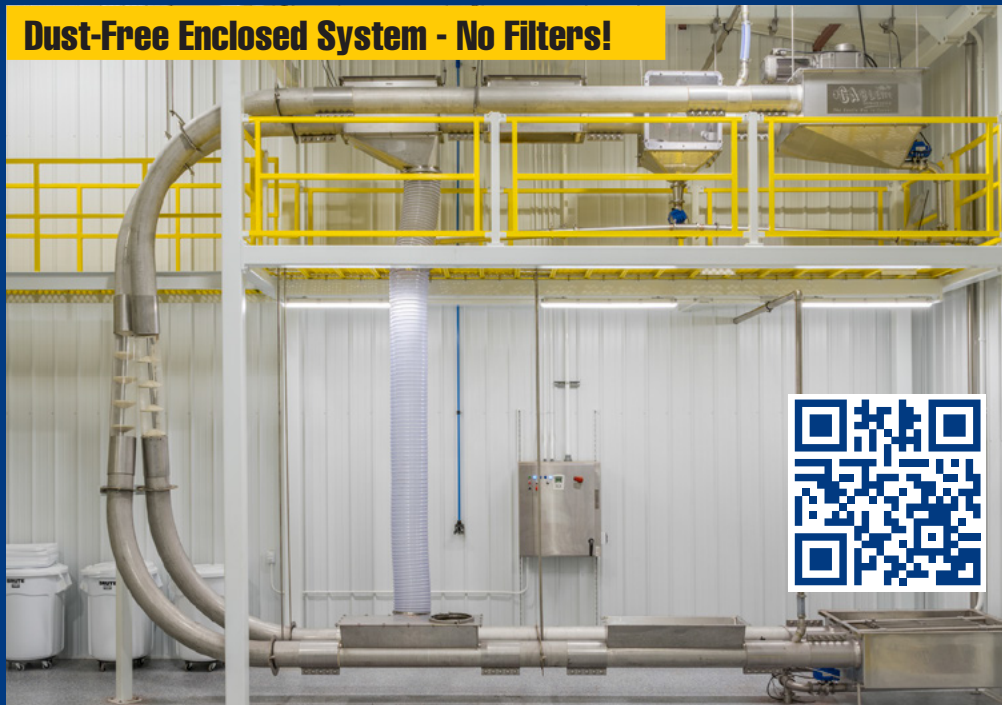
- 8" (203.2mm) tube diameter
- Moves up to 2,000 Ft³ (56.6 M³)/hr
- Moves up to 80,000 lbs /hr*
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*depending on bulk density of materials)

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Why Frozen Foods Are Hot

The category was picking up steam even before the COVID-19 pandemic forced people to cook and dine at home.

By Food Processing

□ It's like that Mark Twain quote. After several years of dwindling sales, the frozen foods category was pronounced dead by many observers. But those reports "have been greatly exaggerated" – the category sprung to life in March 2018 and has been growing ever since.

The frozen foods department in grocery stores grew 3.5% in 2021 to reach \$23.3 billion, according to IRI. "Only 3.5%," but that came after a stellar, COVID-fueled 2020, when the category grew 19.8%.

Last year, all frozen sub-categories saw at least some growth except for pasta and pizza, both of which had hard-to-beat 2020 sales years.

"While frozen food was already experiencing a renaissance of sorts, reduced access to restaurants and fast casual businesses due to the COVID-19 outbreak caused demands to soar," says Deepak Amin, CEO of Deep Indian Kitchen.

"This, in turn, has led to the consumption of more frozen staples and frozen international products while people stayed safe at home



Nestle's frozen pizzas did well during the pandemic. Other brands include DiGiorno, CPK, Jack's and Outsider's.

and sought products that have long shelf lives," he continues.

Not counting ice cream and frozen novelties, the top frozen department categories were dinners & entrees at \$11.7 billion, pizza at \$5.9 billion and breakfast items, which have really grown in recent years, at \$4.6 billion.

The frozen department drives 31 trips per buying household annually and adds \$10.90 to shopping baskets per trip, according to the National Frozen & Refrigerated Foods Association (NFRA). Ice cream and vegetables are the categories with

the highest household penetration, showing up in more than 80% of homes. With half of U.S. households having access to more than one freezer, there is opportunity to take advantage of this extra capacity.

"Frozen foods have seen strong growth over the last few years as innovative products now align with consumers' demands for organic, plant-based, gluten-free and so much more," says NFRA President and CEO Skip Shaw. "NFRA's consumer PR efforts have been successfully working to tell this positive story about today's frozen foods. It's real food, just frozen."

Frozen is the best medium for many products because it helps protect the integrity of the ingredients as well as its shelf life – especially for products that carry "clean" ingredient statements.

HOW LEADING COMPANIES INNOVATE

Nestle USA's frozen foods division includes such brands as Hot Pockets, Lean Cuisine, Stouffer's,

Sweet Earth and pizzas from California Pizza Kitchen, DiGiorno, Jack's, Outsider's and Tombstone.

They are seeing three main factors contributing to the resurgence of the frozen category:

- **Convenience:** First and foremost, convenience of frozen meals as the “the original meal kit” is appealing for shoppers, particularly as the novelty of delivered meal kits may be waning. Millennials who grew up in an age of instant gratification are creating great demand for frozen recipes as they transition to the busiest phase of their lives (many as working parents) and have less time to prepare meals.
- **At-Home Dining:** Another growth driver is at-home meals, accounting for more than 80 percent of eating occasions – which is greater than ever before. Consumers are opting for frozen options as a simple and efficient heat-and-serve solution. Frozen meals provide the same convenient lunchtime fix in the workplace, while dinner is the prime meal where frozen foods come into play to save time. And lately the frozen breakfast category has been soaring.
- **Modern Health:** As definitions of wellness continue to evolve, the frozen aisle now offers a larger variety of products suited to fit consumer preferences and



Frozen entrees had been a stagnant category for a few years but came to life, as did all frozen categories, even before the pandemic.

lifestyles – including plant-based, gluten-free and organic. Culinary innovations that offer new global flavors and/or restaurant-inspired tastes also resonate with consumers, allowing them to try something new for a fraction of the cost.

Recent Nestle introductions include Lean Cuisine sub-brand Life Cuisine; a Croissant Crust pizza for DiGiorno; relaunched Stouffer's Lasagna with Meat & Sauce, which now features two times the meat; and new and updated recipes and formats for more than half the Lean Cuisine line.

Del Monte Foods may be best known for canned products, but the company launched a big effort in frozen products in 2019. Company officials said they wanted to be a part of the category's transformation with the new healthy-ingredient

snack and meal options that consumers are seeking today.

Del Monte is one of the original plant-based companies and believes in the power of nutritious fruits and vegetables. They saw a great consumer response when they launched frozen Veggieful Bites, which contain a full serving of vegetables in every five bites with 9g of protein. They don't sacrifice flavor and are made with real cheese and no artificial preservatives.

The company's first Contadina frozen item, Pizzettas bite-sized snacks, features a blend of Roma tomato sauce, cheese and a crust baked with cauliflower to provide a healthy and fun snack. The new product has been well received and even won recognition in the frozen category of the 2020 Product of the Year Awards.

What sets both those products apart is the dough made with cauliflower and whole wheat. It's crusty on the outside yet yeasty on the inside. The dough is rolled out, filled with ingredients, then baked just like consumers would make bread at home. They're healthy alternatives to what's currently on the market.

People are looking for easily accessible, nutritious foods with wholesome ingredients, and frozen is a perfect category to address those needs, Del Monte says.

Deep Indian Kitchen has seen a general rise in consumption of

Frozen is the best medium for many products because it protects the integrity of the ingredients and extends shelf life.

frozen food by millennials over the past several years, especially frozen ethnic food. The frozen food category allows Deep Indian Kitchen to meet this demand by making the ethnic flavors that people are seeking easier to prepare and enjoy in their own homes.

The company's frozen Indian entrees, street foods, appetizers and breads cater to this culinary trend by appealing to adventurous taste buds in an approachable way. The company understands that Indian food can be intimidating for novice chefs to re-create in their home kitchens, so frozen foods help make the experience more approachable while still living up to the high quality standards that today's consumers have.

As for health and wellness, the Indian diet is historically largely vegetarian and gluten-free — these happen to be popular diets that many millennials adhere to now by choice or personal restriction. Deep's frozen meals are authentically slow-cooked for hours, the result of which directly challenges the myth that frozen food can't be as flavorful and healthful as non-frozen. Additionally, they use no artificial preservatives, colors or flavors.

Frozen dishes are convenient for people who are leading increasingly busy lives, but still want to experience well-prepared dishes. Additionally, as people continue to seek out global cuisines to try, frozen food provides a format for them to experience new dishes without hesitation.

Spinato's Fine Foods has found consumers still want pizza, as it's America's No. 1 convenient food, but they are looking for healthier, better-for-you options for their families. So Spinato's is continually researching and innovating to stay ahead of trends, and as a result launched a line of broccoli crust pizzas in 2019. The pizzas are filled with micronutrients that are essential for the everyday diet, and broccoli is America's favorite vegetable.

Frozen is the best medium for their product, company officials say, because it protects the integrity of the ingredients as well as extends its shelf life. Frozen convenience foods, especially pizza, provide consumers comfort and a way to bring the family together around the table, and consumers are buying pizza because it's always handy and has a long

frozen shelf life. Many are trying pizza products they have never tried before.

“Home-baked happiness” is at the core of **Mason Dixie Foods**. They believe in the frozen category because consumers are looking for healthier, simple, preservative-free options. Therefore, more and more brands are gravitating to the frozen category because it's the only real way to ensure preservative-free performance outside of canning and pickling.

Mason Dixie makes clean-label products that contain simple ingredients that can be found on your grocer's shelf; no preservatives, artificial ingredients or unnatural flavorings. They don't use substitutes, trans fats, oils, corn syrups or gums, and they opt for aluminum- and titanium-free ingredients always.

Mason Dixie is a small brand with big ambitions, and the frozen category has allowed them to build their brand. No longer speaking to the frozen consumer of the 1980s, Mason Dixie gives them a new, better, modern option. Consumers are looking for clean label options and the best way to guarantee freshness and quality is freezing. ■

Conveying Frozen Vegetables Safely, Efficiently and Transparently

Between growing demands for food waste reduction and cooking at home during the COVID-19 pandemic, the frozen food segment has seen healthy growth over the past three years.

Success sometimes comes at a cost, however. One processor of frozen peas, diced carrots, cut corn and pinto beans needed to upgrade its conveying to keep up with higher throughput. The increase in processing was putting greater demands on old equipment, which also was wasting energy. And food safety was always a concern.

The customer's previous setup used positive displacement (PD) pneumatic conveyors. However, due to the inherent high temperatures of compressed air, after coolers (heat exchangers) were needed just after the blower to cool down the temperature of the air used for conveying product. While that minimized potential heat increases for the delicate product, this setup added complexity and was expensive to operate, especially figuring in coolant recharging and general maintenance of the additional equipment.

All PD pneumatics require a filter receiver to operate, which



creates its own issues with product buildup around the tangential inlet that needs constant cleaning to maintain sanitary operation. This design also enlarged the equipment footprint, which impeded operator access area during maintenance requirements.

Most of the PD systems for these operations require a minimum of 25hp motors, sometimes up to 45hp. These systems normally operate around the clock for at least six months of the year, which means increased costs through higher energy use. This particular location is in operation 12 months of the year, with full processing operation lasting approximately

six months – right after the first harvest from June to November. During this time 180 million pounds of vegetables are processed.

THE SOLUTION

Cablevey Conveyor's solution was its 300 Series tubular drag cable and disc conveyor system. It consists of 6-inch diameter clear plastic tubing, one inlet, one pneumatic discharge, one clean-out box and drive unit with discharge extension chute.

The system's 5hp gear motor significantly reduced energy consumption. The gentle conveying eliminated potential product degradation, increased sanitary



compliance via the enclosed tubing, took up a smaller footprint and gave operators clear visibility of the product during the conveying process – appreciated by the plant’s quality assurance personnel.

They can see the frozen veggies being gently moved through the transparent portions of the cable-and-disc conveyor. Yet the entire path is enclosed, preventing any chance of contamination.

Product is introduced from the freezer tunnel belt conveyor and then dropped into an inlet and conveyed approximately 90 feet to

designated discharge points. The product is discharged into universal bulk containers and stored in cold storage, waiting for repackaging to CPG consumers. The conveyor is wet-cleaned and ready for an ATP swab test after each shift.

The system was commissioned by Cablevey Conveyors in May of 2020. The customer immediately saw improvements in simplicity, energy cost and food safety. In the two years since, the system has been running trouble free, increasing throughput and efficiency, saving money and maintaining the safety of the frozen vegetables. □