Rolling with the changes

Suppliers focus on versatility and sanitation in conveying and belting system designs

BY LYNN PETRAK
meatpoultry@sosland.com

When operations are moving at an ever-increasing pace, so are the mechanisms that carry meat and poultry products throughout processing plants. Conveyors and belting systems, literally and figuratively, carry the weight of a protein company's business, as materials make their way from the farm in raw form to the table in boxes or pallets.

"The longevity and quality of today's [belting and conveyor] materials have improved and can take thermal shock."

"The processing industry is unique for belts and conveyors because it is so diverse. There are a variety of different cooking processes and applications, such as breading, battering, frying, coating, baking, grilling, cooling and freezing, where belting and conveyors are necessary. And each application is different and poses different challenges," says Card.

Dana Summerour, corporate account manager for Harahan, La.-based Intralox LLC, USA agrees that demand for conveyors and belts has shifted along with processors' changing needs.
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CLEANER CONVEYORS

Intralox ThermoDrive (left) handles temperature extremes during processing. The Tough Belt system (right) is for applications with high impact, such as bone discard lines. (Photos courtesy of Intralox)

business. “One of the things that makes the meat and poultry industry unique is the fact that you have raw-product environments and fully-cooked product environments and you have to have products tailored to each,” she says.

As a processor, Suzanna’s Howard has seen belts and conveyors evolve to meet the newer demands of the industry. “The longevity and quality of [belting and conveyor] materials have improved and can take thermal shock. At the exit of our ovens, for example, some product is hitting those belts at 180°F to 220°F and at the exit of our spiral freezers, it could be minus 15°F to minus 40°F,” he says.

These days, durability is arguably more important than ever for all types of belts and conveyors, due in large part to the still-struggling economy. “The economy heightens awareness of belt life. They [processors] are looking for high quality and from a maintenance perspective, they want to avoid anything that costs them downtime,” points out Summerour.

Card also cites the effects of the downturn. “The lag in the economy has certainly changed some of the meat processors’ priorities related to conveyor belting. There has been a lot less replacement of entire conveyor belt circuits and more repairs done on the fly,” she says, adding that suppliers are working to offer new products based on current marketplace demands. “A lot of our innovations have been improving the design of existing products that offer customers incentive to improve their downtime and save money on repairs.”

Likewise, Jon Lasecki, chief engineer for Ashworth Bros. Co, a metal and hybrid conveyor belting company in Winchester, Va., reports that with the economy the way it is, customers are looking for ways to get longer life out of their conveyor belts. “One way that has proven to be helpful is providing customers with free tension tests where we are able to spot problems immediately and provide suggestions on how to prevent future problems. Our factory service also offers proactive maintenance programs and training for optimizing performance and increasing the operating life of conveyor systems,” he says.

Clean and simple

While long-term goals of durability and quality remain strong, sanitation remains a core driver in the choice of belts and conveyors. After all, nearly every protein product at some point, whether raw or cooked, has come in direct contact with such surfaces within the plant. A non-sanitary surface can cause problems ranging from issues during inspections to a large-scale recall.

“Sanitation is a top concern. The meat and poultry processing industry has very demanding cleaning and sanitation requirements and it is important to design and engineer conveyor belts that can be cleaned effectively and efficiently. This means reducing the areas where the product can get trapped,” says Lasecki.

Summerour of Intralox says, “The one constant theme we’re hearing is food safety — providing solutions that can help ease the cleaning process as well as enhance it.”

Likewise, Bill Shiltz, project manager for stainless-steel food processing and material-handling equipment manufacturer KOFAB, says that sanitation remains a core focus for processors. The Algona, Iowa.-based company’s latest conveyor and drive components feature a low-tension system with a solid surface urethane material that prevents the buildup of pathogens and allows for faster, simpler cleaning. “With this, you don’t even have to remove the belt and soak it. Also, less heated water and chemicals are required,” Shiltz explains.
Ashworth offers customers its Advantage plastic belt or the OmniPro stainless conveyor. (Photos courtesy of Ashworth Bros. Co.)

In terms of the best material for sanitation purposes, there are proponents of both plastic and stainless (and, like KOFAB, solid surface) systems. Both kinds can be found in meat and poultry plants, sometimes even within one facility.

Card says stainless steel has proven effective. "Stainless steel is easier to clean and less prone to developing scratches and crevices that will offer suitable breeding grounds for pathogens. The surface of a plastic belt can become scratched during cleaning cycles far more easily than stainless-steel surfaces, which creates pits and cracks or topography patterns in the belt," she comments. Wire Belt Co., she says, continues to offer new products, such as its CompactGrid conveyor belt created to replace heavier balanced weave belts and what it deems harder-to-clean plastic modular belts.

Makers of plastic belting, meanwhile, point to the benefits of that material. "It all ties back to sanitation. With plastic, you have durability and ease of cleaning with a corrosive-resistant material," offers Summerour, adding, "You get the best of both worlds." Intralox recently began offering a positive sprocket-driven, homogenous flat belt that eliminates the use of hinges.

Ashworth offers its customers both plastic and stainless. "We know both materials have advantages and disadvantages," notes Lasecki, who says the Wire Belt's CompactGrid stainless-steel conveyor belt was created to replace heavier balanced weave belts. (Photo courtesy of Wire Belt Co.)

The preferred material depends on a specific application. According to Lasecki, Ashworth continually develops and improves equipment, such as its new conveyor belts for low-tension spirals, stacker replacement belt, tension gauge and line of spiral lubricants.

The sum of the (moving) parts
Today's belts and conveyors may be keeping pace with customer demands for cleanliness, but designs are built around other factors besides sanitation.

For example, as plants produce more products — and as companies grow larger, due to consolidations or acquisitions — capacity becomes an issue. "Sustaining capacity is required and increasing capacity is expected," says Lasecki.

Tied into capacity is weight and impact. Last year, Intralox unveiled a Tough Belt system for applications with high impact, such as bone discard lines. "For heavy applications, where you have a lot of volume, this lasts two to three times as long without breakage," explains Summerour.

Meanwhile, energy consumption, especially in the current economy, has also moved up the priority list among operators. KOFAB'S Schiltz says its latest positive drive conveyor helps maximize energy efficiency: "It's a lighter-weight product."

Given improved technology in the past decade, "smarter" conveyors are emerging as well. "We're also focused on key elements of processing, such as product orientation, product placement and improved production throughput. The conveyors we design now are more focused on adding value to a product as it flows through a process rather than just moving a product from point A to point B," remarks Card.