

Small Size, Big Power

High performance conveyor system uses Turck's IP67 rated power supply that withstands high pressure washdowns and doesn't require an enclosure

Food and beverage manufacturers need systems to move their products throughout the plant. That's where DCC Automation, a division of Dairy Conveyor Corporation, steps in. Located in Brewster, New York, DCC has been designing, engineering, manufacturing and installing conveyor systems – for dairies, citrus products, juices and frozen foods – for over 50 years. Dennis Scott, Application Engineer with DCC, says that they appeal to a market that demands higher longevity and performance from conveying systems. “More often than not, the market sector we serve – stainless steel food oriented conveying systems – will opt for a more productive and durable solution,” says Scott.

The key to DCC's success is a stainless steel conveyor system that is able to withstand the soapy, hot, high pressure washdowns called for in the food industry. DCC has improved on their stainless steel system by introducing a zero-pressure accumulation

conveyor, coined Aqua-Zone. Zero-pressure accumulation is a method of accumulating product on the conveyor without the pressure of the products causing a pile-up on the system. Zero-pressure accumulation was introduced into the market about 20 years ago as a way to manage the back and forward pressure of a product as it travels through a conveyor system, allowing products to be stopped with a gap between each product to prevent pressure buildup, and released sequentially in relation to the products down and up-stream from them. This let products move through the conveyor system without coming into contact with one another. The downfall was that this method contained a lot of mechanical parts that could breakdown with wear and it was expensive to institute. The present incarnation of zero-pressure accumulators use electrical equipment rather than mechanical, which are less susceptible to wear – and in the case of DCC's Aqua-Zone system – able to withstand washdown environments.

Author

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Wear-free: ACC's zero-pressure accumulation conveyor uses electrical equipment rather than mechanical





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DCC designed the Aqua-Zone system by employing a series of washdown resistant electronic vision sensors with onboard logic that monitor and control independently driven accumulation zones, and then deliver (or remove) drive force from specific accumulation zones depending upon product flow conditions. The Aqua-Zone module monitors both its own zones status, as well as the status of the next downstream zone. Based upon this information, the module provides drive force to its respective zone length.

The Zone concept

When a product is sensed and accumulated in zone "A", the zone "A" module delivers an output signal to the module in zone "B". As soon as the product enters zone "B" it is actuated, removing drive force and stopping product in zone "B". Simultaneously the zone "B" module delivers an output signal to the zone "C" module, so this accumulation process may repeat upstream. When zone "A" clears, the output signal from the zone "A" module to the zone "B" module is removed, and drive force is reinstated to zone "B". Once zone "B" clears, the zone "B" module delivers an output signal to the zone "C" module so the zone release process may be repeated upstream.

In order for DCC to introduce the Aqua-Zone system into washdown or high moisture environments, it first had to ensure that all the parts incorpo-

rated into the system were able to withstand these conditions, which led them to Turck. "For our stainless steel zero pressure accumulation conveyor, we were looking for a high quality, compact, 24V power supply that would withstand frequent washdowns and exposure to moisture without requiring a separate water tight enclosure," says Scott.

DCC chose to implement Turck's IP67 rated power supply for its Aqua-Zone system. The Turck system supported all of DCC's power requirements, along with providing appealing mounting possibilities due to its compact footprint. The power supply is mounted underneath the conveyor which provides a measure of protection from the water and spray, but is still able to be monitored by plant personnel when the conveyor systems are mounted overhead, as they often are in the food sector. "DCC has a quality and performance oriented mindset, which is why many of our clients seek us out in the first place. Turck's innovative design fit our high standards for the equipment that is used on our systems," adds Scott.

"If it weren't for Turck, we'd have to use a NEMA 12, non-water proof power supply and mount it in an enclosure," Scott continues. "Not only have we saved the cost of the enclosure, we don't have to worry about leakage or not properly sealing the enclosure. Since Turck's power supply is about one-third of the footprint of an enclosure, we were able to mount it in an area that is more convenient for the customer to access." ■



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**Dennis Scott,
DCC**

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Manufacturers of the food and beverages we consume every day must adhere to stringent requirements in order to produce products that are safe for us to consume. There are many checks within the system, including frequent cleaning by high pressure washdowns to maintain sanitary conditions within the plant. Developing machinery that can withstand such cleaning is not an easy feat, considering that a lot of electronics are not designed to get wet or to function in high moisture environments.