Precise Product Movement

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Since 1973, companies have turned to Hartland, WI-based Dorner Manufacturing for improved efficiency and productivity when it comes to the design, manufacture, and distribution of conveyance systems. Dorner recently developed a precise product movement solution, Precision Move, for its 2200 and 3200 series belt conveyors, which are used in manufacturing and packaging processes in many industrial applications.

After more than a year in development, Precision Move was conceived on the idea of using positive-drive conveyor belting to disrupt the conventional friction-drive belt conveyors. According to Mike Hosch, director of product development at Dorner, the company wanted to change the way that conveyors could be applied by adding greater capabilities and more built-in accuracy.

“We’re now able to know exactly where the conveyor belt is and whether or not the product is located properly on the conveyor belt,” says Hosch. The new feature has the intention to improve indexing and positioning applications, as well as increase the load capacity. With positively engaged teeth, it’s also looking steal a few eyes from flat belts, which are traditionally friction driven.

While the belting aspect is the lynchpin of the new design, the development also focused on improving the drive and the gearmotor. “Now, you not only accuracy within the conveyor, but you need to have a way to transmit that power and maintain that accuracy with the drive structure,” says Hosch. To do this, Dorner brought in standardized servo packages in order to create a fully integrated system.

Consider an application that is positioning a product underneath a robot for gluing or assembly. Previously, an integrator would first purchase a conveyor, servo, and gearbox. They would then determine whether or not that package could be accurate enough to suit the application. Dorner hopes to dispel this practice by offering a conveyor that is inherently accurate with the integration of a more accurate servo drive, a servo gearhead, and a servo motor. Given the parameters of the application, Dorner can tell the user the exact accuracy of the conveyor so he/she can rest assured that the assembly operation will perform exactly as needed.

The 3200 complete conveyor package now has a ±0.20” accuracy while the 2200 offers ±0.40”. In addition, the 3200 offers single belt widths from 3.75” to 18” to provide maximum flexibility in direct mounting of parts or pallets (see sidebar for

additional features).

Multiple elements go into providing an accurate product. In addition to the new belt structure, Dorner developed an attachment method that enables users to attach fixtures and pallets to the conveyor. The unique mounting method has an accuracy of ±0.005”.

According to Hosch, “This has been the largest area of adoption. The 2200 has had a good adoption rate, because people realize the advantage of being able to see where the belt is, especially in applications that have needs in electronic assembly. In the 3200, it’s for more fixture/pallet application where they are attaching fixtures to the belt and positioning the product for things like robotic assembly.”

Since the product’s launch earlier this year, Hosch notes that the response has been expectedly positive. “We did a couple of applications through a beta process where we worked with a local integrator to automate the assembly process for drinkware that were welded together,” he says. “The payback was quick.” For the application, the partner was going through an expansion, had recently gained some large contracts, and was looking to add a tremendous amount of [staff]. The company built a new machine using Dorner’s Precision Move technology and was able to decrease cycle times, allow for more flexibility, regarding the multiple sizes of drinkware, and increase production rates without dramatically increasing the amount of labor that went into each product.

By increasing the flexibility and technical capability of the product and integrating electrical components with mechanical components in an integrated package, Dorner is ultimately helping engineers in the marketplace do more as time schedules shrink and requirements skyrocket.

For more information, please visit www.dornerconveyors.com *[1].*

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