



Omega Design saves a bundle with Haydon Kerk's Rapid Guide Screw

Intelligent Motion Design Lead Screw helps Packaging Machinery Manufacturer accommodate for Alternative Shapes and Sizes

Recognized as an industry leader for over 30 years, Omega Design Corporation manufactures a broad range of high-quality container handling and packaging equipment systems. The list of equipment produced by the Exton, Pennsylvania-based company is impressive: plastic bottle unscramblers, puck unscramblers with container placement, shrink bundlers, stretchbanders, tray shrink packaging systems, wrap-around case packers, secondary orienters, canister desiccant feeders, and specialty equipment.

The wide range of markets served by Omega equipment is equally noteworthy, with installations in the pharmaceutical, personal healthcare, cosmetic, food, beverage, dairy and chemical industries, to name a few.

Industry Installations

- pharmaceutical
- otc healthcare
- cosmetic
- food / beverage / dairy
- chemical

One of the company's flagship products, the *Classic Series of Shrink Bundlers*, has gained a particularly stellar reputation. Hundreds of units have been sold and are in operation throughout the world. The pneumatically-driven, PLC-controlled machine was designed for automatic shrink- or stretch-packaging of glass, plastic or metal containers, boxes or cartons into pre-determined bundle configurations. The design of the *Classic Series* helps to eliminate the high cost of cardboard boxes and creates a more efficient, secure package, which lends itself to further automation down the line, such as case packing.

In the spirit of constant improvement, Omega sought to enhance the performance of the *Classic Shrinkbundlers*. After incorporating several other machine upgrades – resulting in a 50% increase in output – the company focused on the product pusher, a pneumatic-driven actuator that literally “pushed” the product into the film or other packaging material. Inherent in this pneumatic-driven actuator was excess play and uneven motion control, resulting in increased setup time and maintenance.

But that was just the tip of the proverbial iceberg. With many of Omega's customers increasing their demands for unique packaging, the company needed to accommodate an increase in alternative package designs, sizes, materials and configurations. This was





proving to be a difficult proposition with Omega's current pneumatic system, because the uneven motion control produced inconsistent product flow through the pusher area, and could cause the products to become misaligned, creating a machine stoppage.

Stoppages result in downtime, which translates to a loss of profits.

"Frequent changeovers on a packaging line often require you to stop production for re-tooling, sometimes taking up to several hours. We needed an intelligent yet cost effective solution that could handle a variety of packages," said Devendra "Win" Shendge, a Product Development Specialist with Omega Design.

Additionally, Omega needed to reduce the amount of air being used in the existing version of the machine. "The more air we can take out of this or any our machines, the better," said Shendge. "Air can be expensive, and the existing actuator system used quite a bit of it."

Omega needed an actuator that would produce higher speeds, yet would have "intelligent" motion control capabilities to accommodate a broad spectrum of product dimensions. They also needed a solution that would require little or no maintenance and one that would greatly reduce the use of costly air, as well as the occurrence of air leaks.

In a quest for a new solution, Omega engineers contacted numerous suppliers and scanned the design trade magazines before coming upon an advertisement for Haydon Kerk Motion Products, a leading manufacturer of non-ball lead screws. After discussions with applications engineers and a thorough examination of the company's offerings, Omega saw tremendous promise in the Haydon Kerk Rapid Guide Screw 10, RGS10, a screw-driven slide that offers exceptional linear speed, accurate positioning, and long life in a compact, value-priced assembly.

While the RGS is not an actuator, Omega, relying on its penchant for innovation, used the RGS10 as the centerpiece of a new assembly. Omega's product development engineers worked with Haydon Kerk to incorporate a servo motor and a few additional components, to create a revolutionary new "intelligent motion" solution that would replace the existing pneumatic system. The easy insertion of the RGS10 made the unit even more attractive. "It was a simple swap-out," said Shendge. "Haydon Kerk's RGS was retrofittable to the unit we were already using, easily meeting the machine's space constraints."

The length and speed of the Haydon Kerk RGS was not limited by critical screw speed, allowing high RPM and linear speeds, even over long spans. Standard leads include .100", .200", .500" and 1.00" travel per revolution. With Haydon Kerk's wide range of available leads, speeds over 60 inches per second (1.5 meters per second) are possible, rivaling belts and cables while offering superior positioning accuracy, repeatability and axial stiffness.

The Haydon Kerk RGS includes a precision aluminum guide and carriage and is driven by a precision rolled stainless steel lead screw. The moving surfaces include Haydon Kerkite® high performance polymers running on Haydon Kerkote™ TFE coating. It has a unique, compact profile that provides exceptional torsional stiffness and stability for its size and weight. The integral mounting base allows support over the entire length if desired.

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– Devendra "Win" Shendge
Product Development Specialist
Omega Design



The Haydon Kerk RGS10 also comes standard with a wear compensating, anti-backlash driven carriage.

Using the RGS10, Omega Design succeeded in producing a new machine with benefits for their customers. The new bundler demanded less maintenance and required less labor to maintain. Omega also realized significant cost savings, as less labor was needed to assemble the machine, and the number of components was reduced. No longer Omega or their customers need to stock various sensors and pneumatic parts, which have now been replaced by the intelligent actuator.

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Product Development Specialist
Omega Design

“Before it was just a continuous motion, 0-50 inches/second,” said Shendge. “Now we can accelerate or decelerate the machine. This is critical, when dealing with some of the unusual shapes and heavier mass of some products, you can’t just thrust them through the machine at top speed. You can damage the machine as well as the product.” Additionally, changeover time between products has decreased, since the machine can be programmed to adjust to various products through recipe-driven settings that are specific for each product’s handling needs, and thus, accommodate alternative package shapes. “Plus,” said Shendge, “we can take the feedback from this intelligent motion and use it to improve the overall operation of the machine.”

At the PMMI Pack Expo Show, Omega had the *Classic Shrinkbundler* with the intelligent pusher on exhibit for the first time. “A manufacturer of personal care products saw the machine at the show, and installation of the new machine was scheduled to occur in the next few months,” Shendge said. “We quoted the original actuator, but they liked it more with the Haydon Kerk unit.”

Shendge also indicated that Omega received a number of requests for RGS10 upgrades to existing bundlers. In fact, he said that Omega provided several quotes for upgrades from the trade show inquiries alone, where the RGS10 was introduced. Multiple upgrade installations for existing users were planned in the near future.

“We look forward to continuing our relationship with Haydon Kerk, and incorporating additional intelligent motion control solutions into our equipment,” said Shendge. ■

