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Optimized pneumatics

Like other packaging machinery OEMs, FOX IV looks for ways to optimize machine design, including the pneumatics assembly that drives its print-and-apply labeler.

By Pat Reynolds, VP Editor

When the engineers at FOX IV Technologies realized that it was time to redesign their TwinPrint™ thermal-transfer labeling system, they saw it as an opportunity to overhaul their approach to pneumatics, too. So they established a stronger relationship with Asco and relied on Asco for a solution that was leaner and simpler. The result? Where twelve components were needed in the past, only five are needed now. In what might be the engineering understatement of the year, Director of Engineering Services Rick Fox III says, “That makes it a lot nicer.”

The TwinPrint thermal-transfer print-and-apply labeling system is aimed squarely at the e-commerce sector. In the past, the Amazons and Zappos of the world had to print out an 8x11-inch sheet of paper with confidential packing slip information and stuff it inside the corrugated shipper containing the product being shipped to a consumer. Or sometimes the packing slip information would be in a little plastic envelope applied to the outside of the case. With TwinPrint, which utilizes two thermal-transfer print heads, the shipping information is printed on the top label while the packing slip information is printed on the label release liner. The liner is die-cut such that it remains with the top label and provides a protective and secure adhesive perimeter around the label. Once applied to a case, the packing slip information on the printed liner remains confidential and provides tamper evidence protection during shipping. This packing slip is accessed by simply tearing a zipper strip.

“This is one of our more complex machines,” says Fox. “As we found ourselves adding additional pneumatic valves, we wanted to simplify things where the pneumatic assembly was concerned. What Asco has done is take all the individual valves we had and condensed them all down into a manifold. Five valves are now combined into one nice condensed unit.”

One of the tools Asco used to get FOX IV to a cleaner and more efficient machine design is called “Numasizing.” Fundamentally it’s an engineering tool that sizes all the pneumatic components of an air system so that the use of pressurized air is optimized. So everything from tubings, fittings, mufflers, filter regulator lubricators, solenoid valves, vacuum generators—all of these are optimized so that the machine delivers higher throughput and greater efficiency. Fox says he’s seen a 20% increase in labels applied per minute since the new pneumatics entered the picture.

According to Asco, Numasizing is not based on a theoretical approach or a mathematical model, but on actual results of over 250,000 test firings of cylinders. They ranged from 3/8” to 14” bores, in conjunction with different diameter/length conductors and valve sizes. The cylinders were subjected to every conceivable dual pressure/load combination feasible. Consequently, it makes it possible to predict and recommend components and pressures with confidence.

Another big improvement in how things now work for FOX IV revolves around procurement. In the past, the many components the firm had to order for one machine’s pneumatic assembly might have been as high as 16 or 17 individual line items. But Asco created an assembly number so that now FOX IV has one part number per machine. “That was another significant value proposition we offered,” says Mark Jagels, Packaging Industry Specialist at Asco.

“The process we went through prior to implementing the Asco solution is similar to what many OEMs go through when building a piece of packaging machinery,” says Fox. “It’s piecing together the valves and pneumatics that you purchase from whatever supplier it might be just to move the machine forward. But at some point you look to optimize and standardize and simplify. That is what we have done here.”

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