



Digital Printing, Creasing, Cutting Come to Carton Converting

Folding carton converter Boutwell Owens & Co. is among the first in the world to combine wide-format sheet-fed digital printing and digital creasing with cutting. (www.highcon.net) introduced its Euclid system the world's first fully digital creasing and cutting machine for converting folding cartons. Euclid greatly streamlines the tried-and-true but rather cumbersome process of creasing and cutting cartons that is used today. It also reduces the need for the highly skilled employees typically needed to make carton creasing and cutting cartons that is used today. It also reduces the need for the highly skilled employees typically needed to make carton creasing and cutting dies, which involves the skilled hammering of steel rules into sheets of plywood. And finally, because it does away with conventional dies, it frees up storage space formerly occupied by those dies.

As appealing as such manufacturing and operations advantage may be, the real value in digital carton creasing and cutting lies in what it permits Boutwell Owens to bring to its customers; an unmatched ability to meet the growing need for shorter runs of packaging materials now that micro-segmentation, SKU proliferation, and event-driven packaging campaigns are increasingly popular among the Consumer Packaged Goods companies of the world. Making the Boutwell Owens story all the more intriguing is that shortly before the November 2014 installation of its Euclid system, the firm made another bold investment in digital technology when it became one of the U.S. to install an HP Indigo (www.hp.com) 30000 sheet-fed digital press. Built to accept a 29.5x 20.9 inch sheet size, the HP Indigo 30000 brings the same wide format capability to sheet-fed carton converting that the HP Indigo 20000 brings to roll-fed flexible film converting. Possessing as it does both the

HP Indigo 30000 sheet-fed digital press and the Highcon digital carton finishing system. Boutwell Owens is in the catbird's seat when it comes to fast turnaround/short run carton converting.

Though the two digital machines sit side by side in a specially built room-air conditioning, moisture and humidity control, newly poured cement floor-there is no attempt at linking them in a continuous in-line print-to-finishing work flow. "In fact," says Hodges, "We use the Highcon for cartons printed on our conventional offset presses when a run is short, thus saving the customer the cost of tooling a die."

Brave New World

It should be pointed out that certain challenges come with this brave new world of digital manufacturing. Figuring out an appropriate pricing structure is among them. "We did the math on the number of jobs it was going to take to generate the necessary revenue through these digital systems," says Vice President of Operations Bill Lorenz. "What you have to keep in mind is that these are all going to be smaller jobs that go through the digital workflow. A smaller number of sheets, regardless of what the revenue per sheet is, means less revenue per job compared to the traditional work flow we have in the plant. How do you factor in customer service costs, administrative time, quoting time, and so on when you introduce so many small jobs into your work flow?"

Hodges adds that HP Indigo 30000 also has some ideas on how to optimize this process, as do pre-press specialists like Esko. But he thinks that when it comes to managing work flow in a world of digital manufacturing, most converters are going to be looking to customize it according to the way they themselves do business. "Plenty of questions are surfacing and some potential solutions are being offered where work flow is concerned," says Hodges. "But our stance it is that, in the interest of getting to market as quickly as possible, we're better off developing our own solutions rather than waiting on the rest of the world to do it for us."

Perfect Customer for Digital?

When asked to describe the ideal customer most likely to benefit most often from Boutwell Owens new digital capabilities, Hodges says there is no single perfect customer.

He also says that while figuring out which customers to target is still a work in progress, two



Carton Done Digitally, Boutwell Owens is among the first in the U.S. to install this fully digital carton and cutting system.

targets are very clear: customers looking to better manage packaging obsolescence and customers seeking ways to keep inventory to a minimum.

One example of a customer with much to gain from a carton converter with digitally driven flexibility is UCI Fram Autobrands, makers of the well known Fram oil filters that are ubiquitous in the automotive aftermarket. "They make a filter for every car on the road," says Hodges. "The pressure of providing a full range of products for the never ending stream of new vehicle models combined with having to make filters for all the older models that are disappearing steadily from the roads is very taxing on their business. They've always been forced to buy large amounts of carton inventory, even though some of their SKUs are low-volume in nature. Now we're in a position to do some of their low-volume jobs practically on demand. Piece prices may be higher than in the past, but that will be more than offset by the savings they'll gain by carrying less inventory and reducing obsolescent packaging."

The other big opportunity Boutwell Owens will be targeting is in areas such as **prototyping**, new product releases, market testing, and focus group testing. "In the past customers would have a sample house print something in small quantities just to get them through a photo shoot or trade show," says Hodges. "The quality was usually suspect. Now we'll be able to print right on the actual paper stock they plan to run on and give them an actual production-quality piece."

Healthcare packaging is another target. "Highcon lets us do customized braille embossing or debossing," says Hodges. "And some of the ethical drug prescription business that's low volume is another place where digital is working well for us. They might look for **250 to 1000 units.**"

Finally, there are the CPG companies who see customized or personalized packaging as the next great thing. "Like the Share a Coke campaign," says Hodges. "That sort of thinking is going to follow into other industries and package formats, including cartons. We'll be able to change an image or artwork from carton to carton. It's not cheap, because it takes time at

the front end. But it gives the customer a flexible bandwidth of possibilities they would never even have dreamed of and the quality of print is terrific." Hodges also believes that having digital converting capabilities brings the company an opportunity to enter markets outside its current folding carton work flow. "It won't be just existing customers.

The key to Euclid

The key to Euclid is DART: Digital Adhesive rule Technology. Digital creasing data is uploaded from a DXF file to the Euclid system. Proprietary software translates the data and sends it to a special dispensing unit that contains an unnamed polymer. This polymer is released onto a PET jacket mounted on a hard metal upper cylinder. In essence, the dispensing unit extrudes onto the PET jacket the rules needed to make the carton creases. The pattern it extrudes is dictated by the digital data uploaded from the DXF file.

As soon as the polymer rules are laid down, they're hardened by exposure to UV light. Directly beneath the upper cylinder and its PET jacket is a lower cylinder that has a soft, silicone-like blanket mounted on it. All that remains is to send printed paperboard carton sheet through the two cylinders. As the upper cylinder with its UV-hardened rules presses into the soft surface of the lower cylinder, the carton stock in between is creased by the rules. Once the required number of sheets has been creased, the PET jacket is removed from the upper cylinder and a fresh one takes its place so that a completely different job can be downloaded.

As for cutting individual cartons from the sheet, it's done within the Euclid system immediately after creasing. An array of high-powered CO2 lasers combine with scanners and advanced optics to perform whatever cutting design was spelled out digitally in the uploaded file.

Among the things that pleasantly surprised the Boutwell Owens team is how quickly the Highcon machine went from arrival and installation to commercial production. "Within a week of its arrival it was creasing and cutting cartons," says Lorenz.

Pat Reynolds, VP Editor



DART, Digital Adhesive Rule Technology extrudes the rules needed to make carton creases. The rules are then hardened by UV light so that they can produce creases as sheets of printed cartons pass through the system.



Commercial Examples, Shown here are two well known brands benefiting from the short run/quick turnaround capabilities of Boutwell Owens digital converting systems.