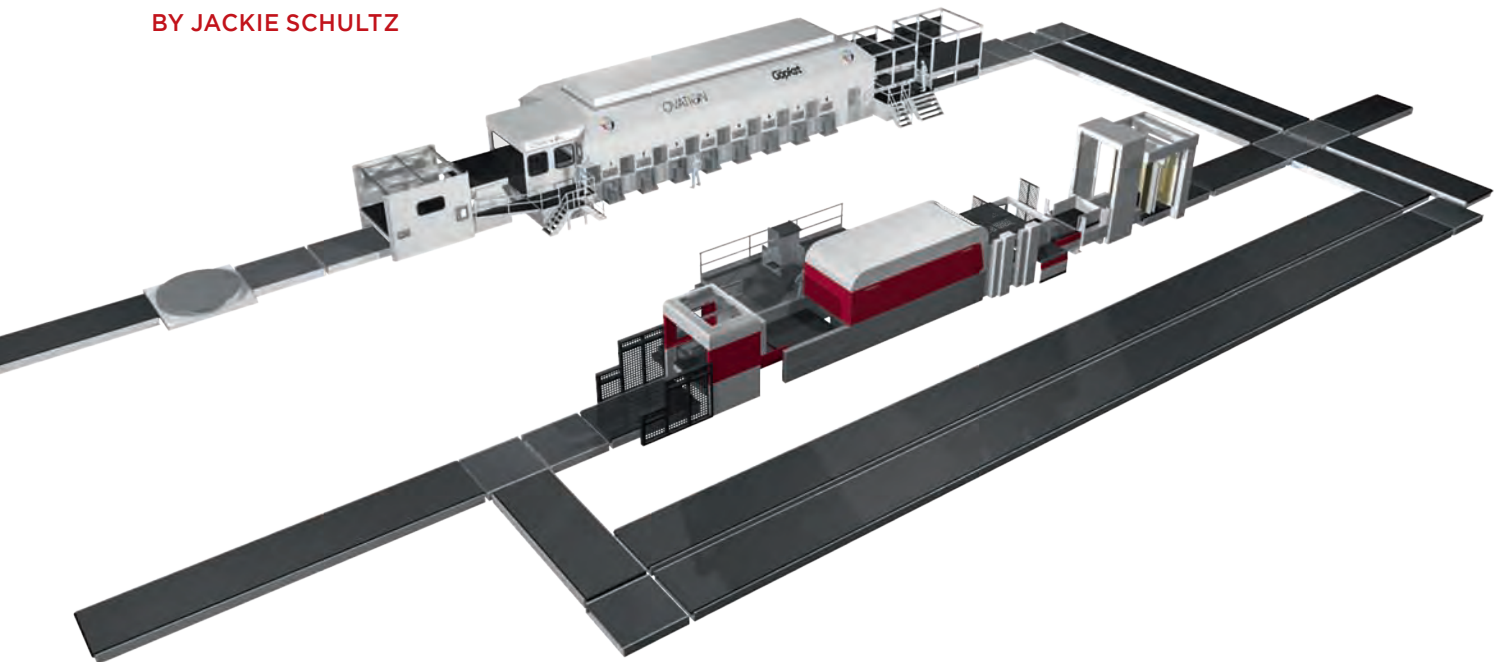


NEW HIGH-SPEED HIGH GRAPHICS LINE

ADVANCE PACKAGING'S BENTLINE TECHNOLOGY IS A DEPARTURE FROM TRADITIONAL IN-LINE PROCESSES, INTEGRATING TWO SEPARATE MACHINES TO OPERATE AS ONE UNIT.

BY JACKIE SCHULTZ



In an effort to significantly increase throughput and add high-end printing capacity, Advance Packaging Corp. has successfully linked two state-of-the-art machine lines to run as separate off-line processes, operating simultaneously as one unit. The line has been trademarked "BentLine Technology" and is the first of its kind in North America.

The inventiveness is inspiring and reflects a level of engineering seen only in the most progressive corrugated operations. The line is imposing in size and scale. At one end of the U-shaped configuration is a Göpfer eight-color Ovation high board line flexo press, the first in the



In front of the new press, from left: Scott Kloss, Kevin Cover, Brian Vanderstel, Ryan Gates, Claudine Chen, Scott Wilcox, Raymond Flynn, Tyronne Young, Ryan Stamm, Jesse Curl and Andrew Dehring. Crew members in orange shirts are new hires.

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The Mastercut's power registration system ensures print to cut register accuracy.

U.S., and at the other end is a Bobst Mastercut 2.1 diecutter. Conveyor lines join the two machines, which sit directly across from each other with their feed and delivery sections aligned in the same direction. In January this year, a Bobst Expertfold folder-gluer combined with a Speedpack packer, the first in North America, was installed on the other side of the Mastercut

The BentLine started up in August and ramped up to full production at the end of the year. The results to date have exceeded expectations with the new line producing near litho quality, premium diecut units at unparalleled speeds. The \$13 million investment is expected to double existing capacity and expand finished goods sales by as much as 40%, according to Advance Packaging President Don Crossley.

A Late Start

To understand the decision that led to this innovation requires a look back to the early 2000s when the Grand

Rapids, Mich., independent was more of a brown box supplier, serving key industrial markets in Michigan and the surrounding Midwest states from different facilities. With those markets susceptible to recessionary market swings, the decision was

made to enter the higher-end graphics segment, targeting CPG companies. In conjunction, the company consolidated its corrugator and sheet plants into one location.

In 2007, Advance installed a Göpfert Evolution seven-color flexo press with in-line diecutting and bundle breaking, and for the past 10 years has been perfecting the art of flexo printing, winning numerous awards, including FTA Excellence in Flexography Best of Show in 2012 and 2017. While brown box remains a large portion of the business, multi-color graphics packaging has grown to 25%.

Advance provides one-stop efficiency, offering customers a wide variety of products and services from its 500,000-sq-ft facility. "We made the decision to move from all brown to color in 2006," Crossley explains. "Being late to the graphics game we felt we needed to put all the necessary elements under one roof: corrugator, Göpfert press, material handling, ink kitchen, cutting and gluing capacity,



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Advance Packaging's 500,000-sq-ft facility



pre-press, etc. We recognized this wasn't the current industry model so we built the system for volume like an integrated plant but with the color quality of an independent.

“It took us several years to get it right, including putting our graphics pre-press team together led by David Straten,” he continues. “Our operators had basic training at Clemson. The mistakes we made gave us the knowledge to make our latest venture run much smoother. We set a press record the second week we had the Ovation.”

Success in the high-end multi-color graphics market came quickly, so much so that the Evolution reached capacity three years ago. “One year we ran it 168 hours a week, seven days a week, 24 hours a day for a whole year,” Crossley says.

When he began researching new equipment to add more capacity, he says the “topic of the day” was digital. Advance has an HP Scitex 15500 digital press that was installed in 2015. While the technology fits a need for smaller volume runs, Crossley was not convinced that the newer production

speed presses were suitable options, especially since the company had so much invested in flexo. Yet the decision to add another in-line machine was not ideal either. At face value, in-line processes offer key efficiencies and are the traditional route for North American board converters. However, the fact that the processes are beholden to each other can limit uptime, speed and productivity. “If

you have any issues in any one of those processes you stop the whole machine,” Scott Wilcox, Vice President of Sales & Marketing, says. “We wanted to separate them and allow the guys who are the printers to focus on printing and allow the guys that are diecutting to focus on diecutting.”

So instead of in-line, Advance devised on the BentLine to outperform traditional in-line printing and diecutting. “In-line has been one of our biggest stumbling blocks since we got into high-end direct print,” Wilcox says. “What I want to prove to the world is that by separating the processes we’re actually going to be more efficient. Already from a printing perspective we’re producing about 46% more today off that printer and about 20% more on the platen diecutter in only a three-month span of production.”

Meticulous Configuration

To ensure the BentLine operates continuously at peak performance – the Ovation prints 10,000 sheets per hour and the Mastercut diecuts 7000 sheets per hour – almost every option available was purchased. If they were new cars, the term used to describe them would be “loaded.”



Operators monitor the Göpfert press from a central control station.

“We put about as much into the options on this equipment as we did the actual equipment,” Wilcox says. “Don was unbelievable, giving us the necessary capital. We could have done this project for 30-40% less, but that difference is what we learned over the last 10 years. All those little details are the things that separate our process from somebody who just bought a Göpfert and a diecutter. And the integration that Rob (Howitt-Plant Manager) coordinated has just been incredible.”

Wilcox worked with Straten, Advance’s Director of Graphic Packaging, who has 38 years of graphics experience, to select the options for the Ovation. “It was like taking everything that you’ve learned over the years and fine-tuning it and putting it into this machine,” Straten says. “It was a dream come true.”

The Ovation is equipped with camera inspection, auto-registration, and dust collection systems,

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Units traveling to and from the diecutter.

ensuring the highest print quality. The registration system checks every sheet by reading a series of

dots on the lead and trail edges. The camera inspection system inspects every sheet for defects at top speed,



The dust collection system above the press adds additional assurance of uptime.

automatically ejecting any sheet that does not meet the designated parameters set by the operators.

It has eight JB Machinery ColorDry XL3000 Final Flexo Dryers, eight Power Drop-Down Systems, eight Sentinel automatic sheet detection units, nine VisionMaster in-press dryer inspection and monitoring systems and a ColorCure UV flexo curing system with Turbo Boost. The configuration provides the full array of print and varnish combinations, including seven colors with process printing, water-based or UV overprint varnish.

The plan is to switch some accounts to aqueous coatings. "We're seeing a substantial reduction in total ink costs by eliminating the UV and going with the aqueous," Wilcox says.

The press has doctor blades from Flexon North America and Pamarco anilox rolls. The anilox roll turrets can hold up to four rolls for each print station, allowing quick changeover in as little as five minutes. The targeted line screen for printed jobs is 150.

"We think there is still a long runway for the flexo world, especially in the volume market," Don Crossley says.

A full line Baldwin flexo printing plate cleaning system washes and dries all plates in about four minutes.

The extensive dust collection system adds additional assurance of uptime. "We want to keep running. We get some runs that are 100,000 pieces, so even if we're running an average of 7000 or 8000 an hour, that's a 14-, 15-hour run," Crossley says. "We're really more run oriented than setup."

The Mastercut diecutter also has vision systems and a power registration system for print to cut register accuracy. "If we were going to provide the best print quality in the world we wanted to provide the best diecutting quality," Wilcox

says. "The neat thing about platen diecutting is the size doesn't vary. For the end-user it doesn't matter what the print is, every part is exactly the same. That really helps their uptime and throughput. I think that's a real sellable feature for us."

"That's something Consumer Product Companies look for because a lot of their business is case erected business. Platen diecutting is more precise than rotary cutting," Crossley adds. "The customers we've already switched over are getting very high levels of production in their plants."

The cutting die suppliers are Marbach and Mark-Maker.

The diecutter has a fully automatic palletizer and in-line bundle breaking. Finished units are secured with stretch wrap and transported downstream via conveyor for finishing. "The units have to travel so far within the plant. When they get to the next operation we want them to be about as perfect as possible," Wilcox says.

C&M Conveyor installed the conveyor that links the two machines.



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Finished units are secured with stretch wrap and transported downstream

The printed units travel a well-choreographed and automated route that takes about five minutes from one machine to the other. Conveyor takes the units from the Ovation over to the front of the feed end of the Mastercut, intersecting units coming off the diecutter, and then around and up to the feeding end of the diecutter.

The BentLine is running a wide range of board grades, from E-flute to E/C doublewall. The diecutter builds a unit of doublewall every six to seven minutes.

For scheduling purposes, a phantom machine was created and is scheduled as one unit.

The BentLine crew consists of five people who are cross trained to operate both machines. "If they're running long jobs then the diecutter is the focus. If there are a lot of short jobs, then their focus needs to be on the printer," Wilcox says.

One benefit of separating the machines is the ability to get ahead of jobs, giving the crew time to set up for the next job. "Because

the printer prints faster than the diecutter, we can print up to about a half a shift worth of work for the diecutter and that enables the crew to get the next job set up," he says.

On-site Redundancy

With more than 15 machine lines, and a 110-inch BHS corrugator, there is a great deal of firepower on the production floor. The BentLine adds printing and diecutting redundancy and complements the existing technology. The printing plates on the seven- and eight-color Göpfert presses are interchangeable.

"Dave did a phenomenal job setting these presses up so we have 100% backup from a print standpoint," Wilcox says. "A lot of people may have multiple presses or multiple color presses, but most folks don't have two presses with the same ink metering system and the ability to transfer work between the two presses."

The higher line screens will open up more opportunity in litho replacement

jobs. "I'm not going to tell customers that it's a full replacement for litho because it's not going to be. But it is going to be very close and at a price point where I think the majority of buyers are going to have a hard time seeing the difference," he says. "One of the things that I have been tasked with is educating the sales force so they understand the nuances of the different processes, and Dave's big challenge is to make sure our customers don't know the difference between their green if you print it on the BentLine or if it was a litho job or even if it was on a brown box."

New jobs have already been secured for the BentLine. "We think there is still a long runway for the flexo world, especially in the volume market," Crossley says. "Our target now is to get to that 150 line screen, which is the beginning of the litho world. There are a lot of high-end consumer product companies that look at their packaging and wonder if it really needs to be 200 line screen litho." ■