Corrugated TODAY
THE BI-MONTHLY PUBLICATION FOR AMERICAN AND CANADIAN INTEGRATED AND INDEPENDENT BOX MAKERS
SEPTEMBER/OCTOBER 2021



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10

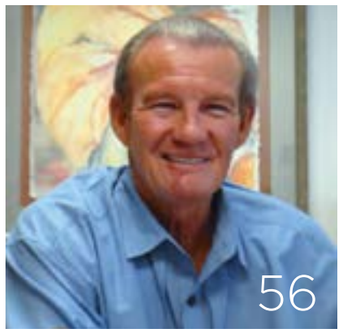
26


50

# contents

# contents continued

**September/October 2021** | Volume 17 No 5





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**Daniel M Brunton** Joint President/Publisher

**Board of Directors** Jeneane Vilardi
Daniel M Brunton

**NORTH AMERICA**

**Editorial Office:** Jackie Schultz
Tel: 440-356-2257
**jschultz@corrugatedtoday.com**

**Sales Office:** Robyn Smith
Tel: 910-553-4055
**rsmith@nvpublications.com**

**Marketing and Circulation Office:**
PO Box 802, Manasquan, NJ 08736
Tel: 800-962-3001
**advertising@nvpublications.com**
**www.nvpublications.com**

**Jackie Schultz** Editor-In-Chief
**Robyn Smith** Executive Publisher
**Len Prazych** Contributing Editor

**EUROPE AND ASIA**

**Editorial/Marketing Offices:**
1 Salisbury Office Park, Salisbury,
Wiltshire SP1 3HP, England.
Tel: 011 44 1722-337038
Email: **dan@brunton.co.uk**

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Jackie Schultz

# AN INDUSTRY IN OVERDRIVE

Corrugated shipments rose at a record-setting pace during the first half of 2021. Integrated companies reported solid earnings growth and expect sales to remain strong through the rest of the year. Demand is robust, inventories are low and price hikes are taking hold. These are extraordinary days for the corrugated industry.

Look no further than the headlines in *Corrugated Today* and sister publication *Board Converting News* to get a snapshot of an industry in overdrive. It seems my biggest challenge lately when writing articles is finding synonyms for the words "growth" and "expansion." In my more than 20 years covering this industry, I cannot remember a time when corrugated manufacturers and industry suppliers enjoyed such immensely healthy balance sheets. And I do not recall the extent of plant expansions and machine investments that we are seeing today.

In this issue are several articles representative of this growth. In fact, throughout the year we reported about many company expansion plans, both integrated and independent. Equally impressive are the announcements of mill conversions or additions. As RISI's Ken Waghorne pointed out earlier this year, "North American containerboard capacity shortages are unlikely for some time."

So, the million dollar question here as companies execute major expansions is: "Where is the workforce needed to staff these expanded or new facilities going to come from?" It is one of the biggest challenges in the corrugated industry right now. The National Association of Manufacturers (NAM) defines it as a crisis.

Manufacturers in all industries will need to hire 4 million workers between now and 2030 to account for growth and fill positions left open by retiring workers, according to Deloitte and the Manufacturing Institute (MI). Yet 2.1 million of those jobs could go unfilled because of the skills gap.

Julia Asoni, MI Senior Director of Student Engagement, says, "The solution is to inspire the next generation of manufacturers and educate students, parents, teachers and the public on the important role that manufacturers play in our lives." And the perfect time to do that is right around the corner – MFG Day 2021 on Oct. 1.

The NAM web site lists a variety of ways to engage younger prospective employees, such as reaching out to local schools, hosting events and creating experiences that change the perception of a career in manufacturing. I recommend checking it out at www.nam.org.

## Another Surge?

The rapid acceleration of e-commerce sales due to COVID was a major contributor to increased box demand. Could box makers be looking at another surge in demand as the new Delta variant of COVID takes hold in the U.S.?

In recent weeks I've noticed a reluctance by many friends and family members to dine inside restaurants and attend larger group activities. Some have even cancelled their fall and winter travel plans. Stores are once again requiring masks. Major events are being postponed and businesses are pushing back plans for employees to return to the office. With the fall and winter months fast approaching and cooler weather on the horizon, the COVID variant could trigger a return to e-commerce deliveries for all household needs.

Box plant owners and managers might want to keep their COVID contingency plans handy. With only 50% of the US population vaccinated, employees are getting sick or are nervous about getting sick, creating major challenges for employers.

One wonders whether this will be the new normal for the rest of our lives. More important, what lessons have we learned over the last year? No doubt there is much more to learn. It will be interesting. ■

Feel free to contact me with story ideas, comments or suggestions.
I can be reached at 440-356-2257 or e-mail jschultz@corrugatedtoday.com

# 2021 BOX MANUFACTURING OLYMPICS

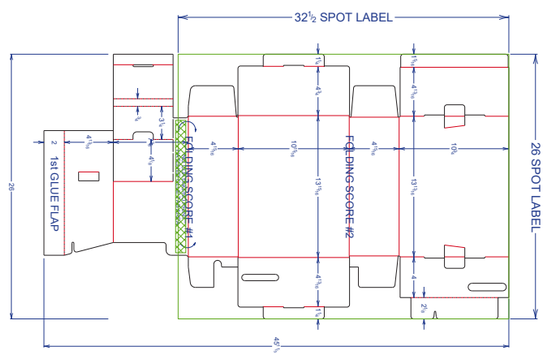
McLean Packaging Corp. and Vanguard Companies received Best of Industry awards in the 2021 Box Manufacturing Olympics. The awards were announced during SuperCorrExpo® at the Orange County Convention Center in Orlando, Fla. This was the first time TAPPI's CorrPak Competition and AICC's Design Competition joined forces as the Box Manufacturing Olympics. There were 170 entries from 33 companies. While the competition was open to corrugated, folding carton and rigid box manufacturers, *Corrugated Today* is featuring the corrugated winners only.

## BEST OF INDUSTRY – PRINTING

John Macy Cheese Crisp Club Tray
**McLean Packaging Corp.**


## BEST OF INDUSTRY – STRUCTURE

Remington iLight IPL3500CDN for Costco Canada
**Vanguard Companies**









# STRUCTURE

## INNOVATIVE STRUCTURAL DESIGN, CONSUMER & INDUSTRIAL FOCUS — INDUSTRIAL

### 1ST PLACE

**Peachtree Packaging & Display**
Mobis Parts America

### 2ND PLACE

**BoxMaster**
Profile 3 Spoke

### 3RD PLACE

**Top Fairing Kit**
Intercontinental Corp.

## INNOVATIVE STRUCTURAL DESIGN, CONSUMER & INDUSTRIAL FOCUS — CONSUMER

### 1ST PLACE

**Vanguard Companies**
Remington iLight IPL3500CDN for Costco Canada


### 2ND PLACE

**BoxMaster**
Bowl Insert

### 3RD PLACE

**BoxMaster**
2019 Beer Advent Calendar

## COUNTER, SHELF, POWER WING AND PDQ POINT OF PURCHASE DISPLAYS – PRODUCT

### 1ST PLACE

**Great Little Box Co./ Ideon Packaging**
Straight & Narrow – 6 pack Dispenser Display


### 2ND PLACE

**C&B Display Packaging Inc. Division of Royal Containers LTD**
Purina Pro Plan FortiFlora PDQ


### 3RD PLACE

**C&B Display Packaging Inc. Division of Royal Containers LTD**
Dentyne Ice Counter Display

## FLOOR DISPLAYS AND STANDEES – NO PRODUCT

**1ST PLACE**
**C&B Display Packaging Inc.**
**Division of Royal Containers LTD**
Sing It With Oreo Floor Display


**2ND PLACE**
**C&B Display Packaging Inc.**
**Division of Royal Containers LTD**
Canadian Olympics Floor Display

## FLOOR DISPLAYS AND STANDEES – PRODUCT

**1ST PLACE**
**Bay Cities**
Scout Comics Vending Machine


**2ND PLACE**
**Corrugados y Especialidades SA de CV**
Floor Display Honey

**3RD PLACE**
**Peachtree Packaging & Display**
Bota Wine – Camper Display

## E-COMMERCE AND SUBSCRIPTION PACKAGING


**1ST PLACE**
**Corrugados y Especialidades SA de CV**
Caja Sorpresa, Surprise Box

**2ND PLACE**
**Wasatch Container**
Paint Mixer

**3RD PLACE**
**CompanyBox**
PuraVida






# 'A SPECTACULAR SHOWING'

The judges were impressed with the number and quality of the entries, many of which provided lots of 'Wow' features. "This was the biggest competition we've had in 21 years," said Cordes Porscher, Box Manufacturing Olympics Chairman. "Not only were there a lot of entries, but they were high quality. The print was extremely sharp, clean and crisp. In the past it was very easy to decide who was worthy of first, second and third place. This year it was not. The competition was a spectacular showing of what the industry can do."

"My overall impression after my fifth time judging was that this was the best quantity and quality, hands down," said Bill Farber of Container Graphics Corp. "There seemed to be more entries that solved specific packaging issues. Digital and short run items were a trend."

"It was a strong competition with numerous well executed flexo direct print pieces of astounding quality, as well as growing participation of digital inkjet printing," said Chris Heusch of ARCH, Inc.

"There were a number digitally printed displays from a wide variety of machine manufacturers, such as HP, Mimaki, Barberan, and EFI," said Colten Freeze of Bennett Packaging.

The e-commerce category and the replacement of wood/plastic/foam with corrugated category had a large number of entries as well. "This speaks to the brands and retailers that this industry supports and their initiatives on environmental sustainability," Freeze said."

Kevin Koelsch of Dynamic Dies, Inc. added, "There were some great entries in the e-commerce category. The three winners really hit the mark in creating a package that provided a 'wow' feeling. A great concept that I anticipate we'll see more of in the future.."


**Back row, from left: Daniel Malenke, PKGPRO, LLC; Kevin Koelsch, Dynamic Dies, Inc.; Gary Cooke, Stafford Cutting Dies; Rick Putch, National Steel Rule; Colten Freeze, Bennett Packaging; David Doberstein, DS Smith; Edward Trainor, International Paper; Cordes Porcher. Front row, from left: Michael Herbig, INX International Co.; Bill Farber, Container Graphics; Nicole Ross, Miraclon; Catherine Haynes, All Printing Resources; Chris Heusch, ARCH, Inc.; Rick Pomerenka, Printron.**

"I have been doing this for quite some time and will say the skills displayed from the entries this year was the best ever," said Rick Putch of National Steel Rule. "We made some difficult decisions. While I did not see any laser diecut parts, the creativity utilizing cutting tables was exceptional."

Regarding Vanguard's Best of Industry entry, Putch said, "The retailer asked for the product to be packaged in an oversized carton with eye-catching graphics for the obvious... sell the product. Wow! The converter sure delivered. The physical size of the device is somewhat small and had to display a Medical Certification Serial Number therefore the designers created a clever one-piece tuck top carton with an integrated insert securing the device in the lower right corner, then added a diecut oval for access to the certification number.

The graphics and foil embellishment were well executed and the diecutting and crease quality was flawless."

The design included multiple hidden but impressive design features, Koelsch said. "One was the addition of an inner 'spacer/partition' that was dual purposed. The partition held the product neatly in its position while adding support to the void area created to make the box larger. Additionally, the package was a one-piece diecut that utilized innovative specialty gluing to attach the expandable, auto forming inner partition. Lastly, the outer package had a diecut hole at the bottom of the box. This hole was sized and positioned specifically to create a viewing window to the smaller, finished product package bar code. This was brilliant. The smaller, already finished and beautifully done package was simply placed in a secondary, larger package, also beautifully done, to meet both merchandizing requirements."

## BEST USE OF CORRUGATED REPLACING OTHER SUBSTRATE

**1ST PLACE**
**Danbury Square Box Co.**
Rom Tech

**2ND PLACE**
**Sumter Packaging Corp.**
LG Litter Box

**3RD PLACE**
**Great Little Box Co./ Ideon Packaging**
BC Fresh Potato Basket & Tray

## PRINTING

### COUNTER, SHELF, POWER WING AND PDQ POINT OF PURCHASE DISPLAYS – PRODUCT

**1ST PLACE**
**Great Little Box Co./Ideon Packaging**
Performatrin Ultra Limited Display



**2ND PLACE**
**Smurfit Kappa North America**
Shelf Display Super Glue

**3RD PLACE**
**Great Little Box Co./ Ideon Packaging**
Straight & Narrow – 6 pack Dispenser Display

## FLOOR DISPLAYS AND STANDEES – NO PRODUCT

**1ST PLACE**
**Bay Cities**
Avengers Infinity War Trend Pod Header

**2ND PLACE**
**C&B Display Packaging Inc. Division of Royal Containers LTD**
Canadian Olympics Floor Display

**3RD PLACE**
**C&B Display Packaging Inc. Division of Royal Containers LTD**
Sing It With Oreo Floor Display


## FLOOR DISPLAYS AND STANDEES – PRODUCT

**1ST PLACE**
**Corrugados y Especialidades SA de CV**
Floor Display Honey

**2ND PLACE**
**Buckeye Corrugated – Knoxville**
Chip and Dip Display

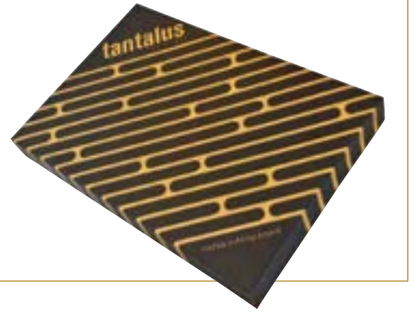

**3RD PLACE**
**Complete Design & Packaging**
Promo 51 TIP FP Display


## DIRECT PRINTING ON COMBINED BROWN BOARD – LINE WORK

**1ST PLACE**
**DS Smith – Roanoke, Va.**
Parts Box – Black on Kraft


**2ND PLACE**
**BoxMaster**
Laid Back Snacks

**3RD PLACE**
**BoxMaster**
Cutting Board



## DIRECT PRINTING ON COMBINED BROWN BOARD – LINE/SCREEN COMBINATION

**1ST PLACE**
**Peachtree Packaging & Display**
GEVEKO Markings Box


**2ND PLACE**
**Buckeye Corrugated New York Region**
United Apples Tote Cover

**3RD PLACE**
**Smurfit Kappa Colombia**
2 Inks Multicolor Dog House

## DIRECT PRINTING ON COMBINED BROWN BOARD BUILT COLOR PRINTED ON BROWN PAPER OR ON A LAYER OF WHITE INK


**1ST PLACE**
**Royal Containers Limited**
Fresh Citrus

## FLEXO PRINT ON COMBINED BOARD – LINE WORK

**1ST PLACE**
**Unicorr Packaging Group**
Aim Controllers

**2ND PLACE**
**DS Smith – Lebanon, Ind.**
Reese's 7ct Tray


**3RD PLACE**
**BoxMaster**
Fall 2021 Jilly Box





## FLEXO PRINT ON COMBINED BOARD – LINE/SCREEN COMBINATION MODIFIED PROCESS


**1ST PLACE**
**Tavens**
Cat Scratcher



**2ND PLACE**
**Master Pacakging Inc.**
Spindrift Brewing
Generic 4 x 6 – 455mm Cans

**3RD PLACE**
**Buckeye Corrugated New York Region**
Country Crush Carton

## FLEXO PRINT ON COMBINED BOARD BUILT COLOR IMAGES: PROCESS OR MODIFIED PROCESS COLOR CARTOON ART OR COMPUTER ART

**1ST PLACE**
**McLean Packaging Corp.**
Fruity Pebbles and Cocoa Pebbles
Retail Ready Packaging



**2ND PLACE**
**Royal Containers LTD**
Wilson Total WipeOut

**3RD PLACE**
**Royal Containers LTD**
Wilson Lawn Weed Out

## FLEXO PRINT ON COMBINED BOARD PROCESS COLOR: PHOTOGRAPHS OR ORIGINAL ART CONTINUOUS TONE IMAGES

**1ST PLACE**
**McLean Packaging Corp.**
John Macy Cheese Crisp Club Tray



**2ND PLACE**
**Sumter Packaging Corp.**
Graphic Box

**3RD PLACE**
**McLean Packaging Corp.**
Fruity Pebbles and Cocoa Pebbles Retail Ready Packaging


## PREPRINTED LINERBOARD BUILT COLOR IMAGES: PROCESS OR MODIFIED PROCESS COLOR CARTOON ART OR COMPUTER ART

**1ST PLACE**
**DS Smith, Lebanon, Ind.**
Doublewall Preprint
Dog Food Box






## PREPRINTED LINERBOARD PROCESS COLOR OR MODIFIED PROCESS

**1ST PLACE**
**Buckeye Corrugated New York Region**
Seagrams 12pk Preprint



**3RD PLACE**
**Master Packaging, Inc.**
My Grandma's Coffee Cake

**2ND PLACE**
**DS Smith – Lebanon, Ind.**
Dog Burger Box


## E-COMMERCE AND SUBSCRIPTION PACKAGING

**1ST PLACE**
**Bay Cities**
Outriders VIP Kit


**2ND PLACE**
**Corrugados y Especialidades SA de CV**
Promotional Vinil Box

**3RD PLACE**
**Green Bay Packaging Inc.**
Barf World's New Design

## COMBINED

### BEST APPLICATION OF SPOT OR FULL LABEL WITH OR WITHOUT DIRECT PRINT DIGITAL OR FLEXO

**1ST PLACE**
**Vanguard Companies**
Remington iLight IPL3500CDN for Costco Canada


**2ND PLACE**
**Utah Paperbox**
UPB Holiday Gift Wrap




**3RD PLACE**
**DS Smith – Roanoke, Va.**
Open Touch Pillow Box

### DIGITAL PRINTING CONTAINERS AND DISPLAYS INK JET/DIGITAL ENTRIES ONLY

**3RD PLACE**
**Complete Design & Packaging**
G-Tower


**1ST PLACE**
**Complete Design & Packaging**
BF Spongebob Vidalia Sweet Onion Dump Bin



**2ND PLACE**
**Vanguard Companies**
Manna Pro Flock Party End Cap

## FORM AND FUNCTION
## USING CORRUGATED OUTSIDE OF PACKAGING AND DISPLAYS


**2ND PLACE**
**BoxMaster**
2021 Recovery Box

**1ST PLACE**
**Sumter Packaging Corp.**
LG Litter Box


**3RD PLACE**
**BoxMaster**
Medium Bin

## BEST CORRUGATED SELF-PROMOTION


**1ST PLACE**
**Tavens**
Lakewood Boat Regatta

**2ND PLACE**
**Bay Cities**
Bay Cities 2019
Christmas Book


**3RD PLACE**
**Utah Paperbox**
UPB Holiday Gift Wrap





## CORRUGATED ART AND DESIGN

**1ST PLACE**
**Sumter Packaging Corp.**
Employee Appreciation Connect 4



**2ND PLACE**
**Buckeye Corrugated – Knoxville**
Knoxville Skyline

**3RD PLACE**
**Corrugados y Especialidades SA de CV**
Boliche


PCG employees (in red shirts) and engineers from Engico (in black pullovers), from left: Mike Degroat; Richard Goldberg of PCG; Keith Umlauf of Haire; Stefano Falvo; Wednér Hyppolite; Lizandro Martinez: and Luca Borellini.

# PRESIDENT CONTAINER CONTINUES BOOMING GROWTH

**NEW MACHINERY INVESTMENTS, INCLUDING AN ENGICO FFG, SUPPORT ONGOING EXPANSION AT NEW YORK 'SUPER PLANT.'**

BY LEN PRAZYCH

"It's a great time to be in the box making business!" For the last year, this has been the refrain of virtually everyone in the North American (and global) corrugated and folding carton industries, which continues to enjoy unprecedented growth and ongoing backlogs. A sheet plants' output appears to be limited only by the amount of board it can acquire and larger independents with corrugators by the amount of paper they can procure. The fact that our industry was deemed "essential" contributed to the current state of affairs, but independents and integrateds alike are now facing delays in getting product to their customers because of "supply chain disruptions," specifically, finding enough people to drive the trucks to transport the finished goods to market.

Smaller independents are growing bigger, if not in physical size, then in capacity, customer orders and revenue; larger independents are growing even larger. For example, Middletown, N.Y. based President Container Group (PCG), owned by Larry and Richard Grossbard, who already lay claim to a 500,000-sq-ft "super plant," one of the largest in the Northeast, announced earlier this year that they are building a 100,000-sq-ft addition in which they will invest in a second Fosber corrugator, a second





PCG will also continue its impressive streak of acquiring at least one new major piece of machinery every year for the past 11 years, according to Richard Goldberg, Vice President of Operations.

Mitsubishi EVOL, a Göpfert, and approximately six miles of conveyor. Construction started in the spring and is ongoing.

## New Jumbo FFG

PCG will also continue its impressive streak of acquiring at least one new major piece of machinery every year for the past 11 years, according to Richard Goldberg, Vice President of Operations, who manages and monitors the super plant's constant growth and continuous improvement initiatives. Last year's "investment" was a jumbo flexo folder-gluer by Engico, a small Italian manufacturer of converting machinery still relatively new to this continent. The story of how an Engico jumbo came to be the latest piece of equipment now humming away on PCG's production floor is almost as intriguing as the machine's engineering itself.

The story began during a late-night fishing expedition at AICC's Northeast Region Meeting in Atlantic City, N.J., in August 2019. Goldberg started chatting with Keith Umlauf, Executive VP of Sales at Haire Group, which had recently begun representing Engico in North America. The conversation somehow got around to machinery – surprise! – when Goldberg mentioned that PCG was going to be replacing its flexo and jumbo. Umlauf told him about Engico's machine and its too-good-to-be-true efficiencies. Goldberg was intrigued. He arranged

The Engico dual-sized 66/99-inch jumbo flexo-folder-gluer

> "The integration of quick setup capability on the print unit's slotting section and diecut section launched Engico into a league of their own. They're doing with a jumbo machine what others are doing on a mini, including having the ability to set up while running."
>
> KEITH UMLAUF, EXECUTIVE VP OF SALES AT HAIRE GROUP

a meeting with Umlauf and Engico founder and engineer Rinaldo Benzoni, and PCG owner Larry Grossbard, who was impressed by what he heard.

Goldberg performed his requisite "due diligence," which he does before making any machinery purchase. He did research, he asked questions and for "intel" on the Engico he "poked around" Italy, where his industry connections run long and deep. "Everyone I spoke to in Italy had rave reviews not only about Engico as a company and the way it did business, but they couldn't speak more highly of Rinaldo Benzoni, the company's founder and mastermind behind the technology," says Goldberg. "That made our decision to purchase the new machine an easy one."

The machine in question was a dual-size manufacturing marvel with 66-inch/99-inch cutting dies and print heads. It was essentially two machines in one. "The ability to cut and print from 66 inches to 99 inches, basically from the smallest box to the biggest, is huge," says Goldberg. "The integrated stitch heads can stitch jumbo boxes on the fly at normal speed, skip feed and double skip feed. You can even run end slots and trays and tubes." (PCG ultimately purchased a customized model with three print heads; two are 66-inches and the third is 99-inches).

"Engico has been around for decades. In the '90s and into the early 2000s they built a slotting section that is unique and retrofittable in other OEM machines. It's no secret the key to a square box is directly linked to the slotting section. Engico's is unlike anything you've seen on any other machine," adds Haire's Umlauf. "The integration of quick setup capability on the print unit's slotting section and diecut section launched Engico into a league of their own. They're doing with a jumbo machine what others are doing on a mini, including having the ability to set up while running."



The Engico has two 66-inch printers and one 99-inch.

## Miracle Machine

So where has Engico's "miracle machine" been all our lives? The technology had its roots in the early 1990s, which was the advent of Just In Time (JIT) delivery. "We wanted to improve the flexibility and speed for converters running boxes on large machines," says Engico's Benzoni. "The only way to compete and survive against the large machine manufacturers was to be a specialist and to create something different, so we developed the technology that offered increased flexibility, reduced setup times, rapid order changes and high-speed production. I did not imagine that one day we would be importing this unique technology to the U.S."

Benzoni says that in the early days, his goal was not to manufacture machinery but to own a small service and maintenance company. After discovering there was a diversification in the production needs of box makers and that machine manufacturers at the time were only making "standard" machines, he shifted his business focus. Located in Lissone, Italy, just north of Milan, Engico had built long and trusted relationships with the select companies that manufacture the mechanical and electrical components that go into each of the company's machines. All the iron Engico buys for its machinery is certified and contains a detailed description of the chemical components used in the manufacturing process. Any other components that require "chemical treatment" is accompanied by a certificate detailing exactly how and with which chemicals the components were treated. A fully stocked parts warehouse permits the company to provide its global customers with spare parts as quickly as possible. And all Engico machines are equipped with a remote control system that allows the company's service team to assist customers in real time.





> "The only way to compete and survive against the large machine manufacturers was to be a specialist and to create something different, so we developed the technology that offered increased flexibility, reduced setup times, rapid order changes and high-speed production. I did not imagine that one day we would be importing this unique technology to the U.S."
>
> RINALDO BENZONI, ENGICO FOUNDER AND ENGINEER

## First U.S. Installations

The first U.S. installation of an Engico machine happened 15 years ago in 2006 at Lawrence Paper Company (LPCO) in Lawrence, Kan., where the 66-by 188-inch workhorse exceeded the expectations of owner Justin Hill. In 2017, Hill purchased the dual sized 66/99 by 188-inch dual-size machine for Jayhawk Packaging, LPCO sister plant, in Freemont, Neb. With the success of the dual-size and added features on the Jayhawk machine Hill purchased a third Engico to replace the original installation in 2006.

Addressing the reason as to why there have not been more sales of Engico's converting technology in North America, Benzoni says that his previous agents were not able to express to potential customers the true technological abilities of the machine and respond to the customers' real needs. "Then Haire Group came along," he says. "We finally found an agent who really understood the key to our technology and was able to pass this along to the customer. Not only the features of the machine, but the attitude of our company. Even though we are a small and young company, we are flexible and aggressive. Keith Umlauf and Haire Group have been successful in sharing this message with the United States market."

This message was not lost on President Container Group. After the initial meeting with Benzoni and Umlauf in August 2019 in Atlantic City, Goldberg and Grossbard visited Jayhawk to witness the Engico's performance on a live production floor. They made the decision to purchase the machine in October 2019 and were expecting to have it up and running by September 2020. The installation, however, did not go as planned.

## The COVID Effect

Along with the rest of the global economy, the impact of the pandemic wreaked havoc on Engico's ability to perform a timely and efficient installation in Middletown, NY. Major shipping delays at the ports caused the machine's delivery timeline to be adjusted time and again. The machine that should have been converting boxes at PCG by November didn't even arrive in the U.S. until December, and then it had to be put in storage while the N.I.E. (National

Engico's inline stitcher

PCG added a specially designed Alliance FEEDMASTER Jumbo Bottom Feeder to the Engico's front end.

Interest Exception), the authority at the American embassy in Milan reviewed Engico's application to let its employees travel to the United States. After receiving approval, the five Engico employees who journeyed to PCG's super plant in New York to install the machine, Benzoni among them, tested positive for the coronavirus and were quarantined in a hotel near the plant. More delays.

"Logistically, the obstacles were unbelievable, but the machine was finally up and running on February 17," says Goldberg. "Rinaldo and his team did a fantastic job, which was a shining example of his commitment to grow his business. From the minute we turned the machine on, the Engico has been making boxes."

By removing its old 1636 and McKinley and replacing them with Engico's dual-sized machine, PCG can now run boxes "that are down in the 1228 world all the way up to the 220," according to Goldberg. "The flexibility combined with the speed associated with the technology is huge." He appreciates the imagination and creativity on the part of Engico's Benzoni and Daniele Mazzola, who for 15 years has been the company's mechanical engineer and Benzoni's "right-hand" man. "Daniele has been able to polish the design of the machine to make it extremely customer-friendly. His ability to transfer Rinaldo's vision into the machine now running on our floor is incredible. That relationship is special," says Goldberg.

Production speeds on the Engico – it can convert between 2000 and 8000 boxes per hour – have been improving since its installation in February. To maximize performance, an Alliance FEEDMASTER Jumbo Bottom Feeder, designed especially for jumbo machines, was installed. Since commissioning the Engico, PCG has been running it two shifts and went to three in early April. Goldberg admits that there is still a learning curve – for example, discovering the best and fastest way to run an RSC – that needs to be scaled before setting production speed records and there has been a concerted effort on training because the machine can simply do so many things.

"So how do you take a traditional flexo operator who doesn't know what a stitcher is or an operator doing end slots and trays on an old machine? Engico has been with us every step of the way – their employees have been here for six months to help with maintenance and training – and their people have been working with our designers, teaching them how to leverage the ability of the machine."

Presently, Engico employees and trainers are in the United States servicing and supporting the growing installation base. The Haire Group, which currently handles sales, parts, service and support for the APSTAR product line in North America, is working closely with Engico to replicate a successful proven model. Providing excellent service and the ability to tap into Haire Group's rigging and support team, if and when needed, reinforces its long-earned reputation in the American market. Says Benzoni, "Sometimes our technology appears unbelievable, but when it is introduced and presented by someone who is already trusted, like Haire Group, we can be successful. You can have the best technology in the world, but if it is presented by someone who hasn't earned the trust of the customer, the relationship will not work."

"Like PCG, Rinaldo is an independent in the true sense of the word," says Goldberg. "He and Engico will do whatever it takes to satisfy whatever the relationship needs but he expects that as the customer, we will provide the same effort. And we have. It's been a great partnership from the very beginning. I can confidently say that the Engico was fairly priced and is a great investment. If a box plant owner leverages that investment, especially with the speeds the machine can achieve, it will pay for itself in no time." ■

# NEW SOLUTIONS FOR CORRUGATED

**SUPERCORREXPO DELEGATES GAINED INSIGHT INTO BOBST'S LATEST SOLUTIONS TO SUPPORT ITS VISION FOR THE PACKAGING INDUSTRY.**


Jean-Pascal Bobst presenting during June 2021 Press Conference

"WE DEVELOPED AN AMBITIOUS VISION AND ONE YEAR ON, WE ARE ROLLING OUT NEW SOLUTIONS TO HELP BRAND OWNERS AND CONVERTERS TO DELIVER BETTER QUALITY, EFFICIENCY AND CONTROL IN A SUSTAINABLE MANNER AT A TIME WHEN THESE QUALITIES HAVE NEVER BEEN MORE IMPORTANT."

**JEAN-PASCAL BOBST, CEO BOBST GROUP**

One year ago, BOBST announced its vision to shape the future of the packaging world, offering a profound transformation of the packaging industry. "We developed an ambitious vision and one year on, we are rolling out new solutions to help brand owners and converters to deliver better quality, efficiency and control in a sustainable manner at a time when these qualities have never been more important," said Jean-Pascal Bobst, CEO Bobst Group.

BOBST showcased some of its latest technologies and solutions for the corrugated packaging sector at SuperCorrExpo®, Aug. 9-12 at the Orange County Convention Center in Orlando, Fla.

Brian Kentopp, Zone Business Director, Folding Carton & Corrugated Board, said, "Our vision is about creating change within the packaging world that enhances, enables and reflects the key industry drivers of connectivity, digitalization,

At the annual press conference, the company unveiled innovations for folding carton, corrugated and flexible packaging. For the corrugated board industry, these include the MASTERCUT 1.65 and the SPEEDPACK.

BOBST MASTERCUT 1.65

automation and sustainability. We are completely focused on bringing technologies and machines to market that truly address the challenges of the industry today and into the future."

## Newest Innovations

Two of the newest innovations include the MASTERCUT 1.65 PER flatbed diecutter and SPEEDPACK automatic packer, designed to support converters looking to achieve higher quality, more efficient and sustainable products and processes.

Set to be launched in early 2022, MASTERCUT 1.65 PER has been specially designed for litho-laminated converting. It handles all corrugated board, carton and litho-laminate equally well, making this machine a sound investment choice for converters seeking a flexible, best-in-class diecutting solution.

Combining the advantages of folding carton and corrugated board flatbed diecutters, it can process both robust and delicate materials, going from 300g solid board to BC doublewall litho-laminated. It offers extremely precise, high-quality diecutting, even for complex box designs and delicate substrates, thanks to a sheet-to-sheet top feeder, a specially adapted POWER REGISTER and its high cutting force.

It is said to be the only solution on the market for blanking in size VII and offers the possibility to deliver single cut, double cut and full sheets. Its exceptional ergonomics, accessibility and optimal level of automation, as well as the intuitive HMI SPHERE, also allow fast and easy handling for maximum productivity.

Meanwhile, for folding-gluing lines, BOBST is soon to launch the SPEEDPACK. Visitors to the BOBST stand learned more about this automatic packer that complements the EXPERTFOLD 145/165, the EXPERTFOLD 170-350 and the MASTERFOLD 170-350 and enables corrugated converters to realize the full potential of their folding-gluing lines.

The versatile SPEEDPACK can handle all types of boxes, whether corrugated, litho-laminated, straight-line, 4&6 corners, or crash-lock bottom. With the highest possible number of batches per hour and very short setup times, SPEEDPACK significantly increases productivity while preserving box quality.

BOBST SPEEDPACK





Folded and glued boxes are automatically counted, stacked and banded, and perfectly formed bundles are delivered, ready for palletization.

BOBST also showcased the FFG 8.20 EXPERTLINE flexo folder-gluer which offers flexibility and heightened efficiency to the production line. It is a high-speed box-making solution that can process up to 24,000 boxes/hr across a wide range of corrugated flute types, including single and doublewall boards. Designed to be intuitive and bring additional value to the supply chain, this flexo folder-gluer combines automation, accuracy and quality in one machine to offer superb return on investment. It also boasts ultra-quick setup times, or order changeover during the run, of just two minutes with Rapid-Set. ■

# GP HUMMINGBIRD BUILDS LEADING-EDGE PREPRESS WORKFLOW

**THE SOPHISTICATED PRE-PRINT BUSINESS INVESTED IN AN ADAPTABLE PROCESS THAT PROVIDES FLEXIBILITY AND SUPPLY CHAIN EFFICIENCIES FOR CUSTOMERS.**

MIKE AGNESS
HYBRID SOFTWARE

Digital presses have revolutionized packaging, delivering high-impact color and creating a new paradigm for versioning and customization. Despite its innovations, digitally printed packaging has not always offered solutions across the full spectrum of sizes and quantities. Georgia-Pacific Hummingbird® digital packaging solutions overcame that barrier by producing digitally pre-printed rolls for a full range of customer needs, from specialty versions to everyday large runs.

"GP Hummingbird really incubated at Georgia-Pacific's Color-Box, one of the largest corrugated litho providers in North America," recalls Robert Seay, Vice President, Digital Print Solutions, Georgia-Pacific. "They did something very innovative. They took the work into pre-print, which included laminators and flatbed diecutters – and the corrugated market."

Digitally pre-printed rolls are produced for a full range of customer needs, from specialty versions to everyday large runs.






GP Hummingbird was proof of concept that digital could work as an offset alternative.

Recently, Georgia-Pacific announced the purchase of an HP PageWide T1190 Press, the world's highest-volume digital corrugated packaging solution, providing an east-west footprint.

Along came the HP PageWide T400, complementing the other equipment. The company already had laminators where rolls or sheets could be made into combined board and its box plants were converting offset pre-print from a roll press. Now it could take the rolls right off the T400, and already had the tools to make that work, immediately. "The wide web digital press let us attack high graphics print completely differently. Then, it morphed and became its own business," Seay says.

GP Hummingbird was proof of concept that digital could work as an offset alternative. When the HP T1100 was announced, Hummingbird was the first packaging supplier in North America to provide 110-inch wide web capability for digital pre-print at lengths. Recently, Georgia-Pacific announced the purchase of an HP PageWide T1190 Press, the world's highest-volume digital corrugated packaging solution, providing an east-west footprint. It will assure redundancy, provide scale, and let GP Hummingbird improve turnaround time while reducing shipping and logistics costs.

"Much of our value proposition is supply chain efficiency. We can help different corrugated converters, turning around high volumes quickly. It's easier to ship rolls of pre-print than boxes," notes Seay. "Anybody can order our rolls, but we focus on those who know how to run pre-print. Our onsite packaging engineers can help optimize layouts and packaging structures."

## Varied Customer Base

Serving many corrugated converters, GP Hummingbird has to consider how its workflow will be used everywhere. Clients will deliver a piece of art, perhaps from a flexo job, but will want to print digitally. The art could be a square or a rectangle but finishing and the requirements of the box must also be determined.

Once a one-up is approved, a step-and-repeat layout must be prepared. The sheets must be imposed for the corrugated converter's cutter. For example, a corrugated converter might generally use rotary diecutters. A file built for a flatbed diecutter needs an edge trim and a sidebar to grab before it goes on a rotary. You have to rethink the artwork at three levels – the one-up for the customer, the 'n-up' sheet for print and the corrugating and diecutting tolerances. What does that layout look like, and how do they get the customer to approve it? GP Hummingbird wanted an automated way of doing that.

The entire process of creating the art and structure requires that they are approved together. "Sometimes we complete the art, but the structure changes because it's going to a different corrugated converter – or a different piece wants the flap slightly different. That puts the art out of synch with the structure," says Seay. At first, the process was very manual and intensive, with many cross-checks to assure something didn't change along the way, requiring adjustments.

GP Hummingbird's business model is unique. "Our original workflow couldn't be customized, which became limiting, pretty quick," discloses Seay.

"Much of our value proposition is supply chain efficiency. We can help different corrugated converters, turning around high volumes quickly. It's easier to ship rolls of pre-print than boxes."

**ROBERT SEAY, VICE PRESIDENT, DIGITAL PRINT SOLUTIONS, GEORGIA-PACIFIC**

Serving many corrugated converters, GP Hummingbird has to consider how its workflow will be used everywhere.

"Because we had HP digital presses, we'd already bought the SmartStream front end. We needed tools that could be adapted for our needs. We invested in HYBRID Software's PACKZ and CLOUDFLOW and discovered a very flexible workflow."

The workflow is used to clean up files and ensure that processes are standardized. That becomes fairly important given all the work running through the shop. "The more touch points, the more potential for mistakes. The first thing we did was deploy our workflow, along with our HP and graphic management software," Seay says. "The challenge is to know what you want to do and manage the installation as a software project. It was helpful that we could customize everything at our centralized hub in Cincinnati."

## A Comprehensive Process

GP Hummingbird breaks the workflow down into three buckets: programming and integration, editing tools and then step and repeat, building a solution that offers everything to create a press ready PDF.

The workflow is tied into the order processing system when product designs are created. They can refer to an existing design that will be changed, an existing structure, or anything in between.

Human intervention could result in a lack of consistency. "We have a



The workflow conducts all of the traditional prepress tasks like preflighting and trapping – as well as a few that are more sophisticated

Because we had HP digital presses, we'd already bought the SmartStream front end. We needed tools that could be adapted for our needs. We invested in HYBRID Software's PACKZ and CLOUDFLOW and discovered a very flexible workflow."

ROBERT SEAY, VICE PRESIDENT, DIGITAL PRINT SOLUTIONS, GEORGIA-PACIFIC


"We have a structured process so we can trust what's going through our system."

**DAVE FOX, HUMMINGBIRD GRAPHICS MANAGER**

structured process so we can trust what's going through our system," says Dave Fox, Hummingbird Graphics Manager. Hummingbird creates PDFs that are automatically processed, eliminating judgment calls when setting the job for the press. An example is automated marks: Where are the slit lines and cut marks for the corrugated converter? What should the diecutter expect?

The workflow conducts all of the traditional prepress tasks like preflighting and trapping – as well as a few that are more sophisticated. For example, GP Hummingbird can recognize a barcode and replace it, adjusting for any print method. The company will also distort files to take into consideration what's going to happen on the press or with the corrugated converter. It also conducts color mapping, adjusts transparencies and clipping paths, and more. By standardizing and automating these functions in one application, it makes creation of a press ready PDF file much easier. "We get different files from many different places. They arrive with a variety of issues. There are many things we can fix automatically," continues Fox.

The company prefers to call its proofing system a graphics portal – not a customer or vendor portal – because it's about managing the entire graphics process. It can offer quick layout suggestions that way. For example, solid fills can cost more using digital ink. GP Hummingbird will offer cost-effective alternatives that are graphically better and can show examples of what they might look like. Customers view their proofs online. If somebody wants to make a change, it's not communicated via email. They can mark it up online and approve it, streamlining the entire process.

Step and repeat files and adjustments can be made without affecting the approved art. With the templates, imposing repeat items on existing layouts is faster and has increased consistency from layout to layout, because all marks are already placed, and approved.

Key to the process is being able to link the press upload server to the workflow, so files can be sent automatically to the press with a time stamp. There is one location to submit all project notes, reducing email traffic and offering a central place for team members to scan print sample info. Team members can track to see which jobs have been posted to press.


## A Complete Workflow

During the COVID pandemic, GP Hummingbird's graphic designers were able to work from home and still be effective, working from the HYBRID server. "We really didn't miss a beat. That's a big deal," exclaims Seay.

Delivering samples and proofs can delay a deadline, but some customers still want to visit and do crosschecks – although there have been fewer during COVID. Online proofing simplified the process and has made the workflow very easy for many customers.

The software has eliminated a number of potential mistakes. That matters because customers want supply chain efficiency. "Our workflow conducts so many deep edits that our pre-production people can effectively normalize our production files in a third of the time, with fewer workarounds and issues due to file components. We cleared up a lot of initial graphics





Customers view their proofs online. They can mark them up online and approve them, streamlining the entire process.

work making Hummingbird's prepress so streamlined that one person easily handles the work of two or three people using more traditional imposition tools," says Seay.

"The corrugated converter or the supply chain constantly changes. We need to pivot on the fly. A lot of the complex decisions surround finishing. How much tolerance do you have on the diecut or how is it laid out? For example, one high volume customer uses us for work that dynamically changes. When the art is ready, we need to print the jobs quickly, and to very specific specs," he continues.

"One job may require 70-inch rolls, while another might require 80 inches. If I didn't have the workflow, it would be harder to manage.

"One of the key values of our workflow was flexibility. Digital is going to morph and evolve. We want to morph and evolve our software suite as well. We also want to offer a better experience for our customers. It really comes down to, 'Can I control their artwork? Can I control the workflow in between? Can I give customers assurances that it's going to get done in a structured manner?' Because our workflow is incredibly flexible, adaptive, and delivers high quality work, it is now extremely valuable for our business and our customers," concludes Seay. ■

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*Mike Agness, HYBRID Software Executive Vice President, Americas – and previously Vice President of Sales for HYBRID North America – joined HYBRID Software in 2011 after a long career at Pitman Company and Agfa Corp. He brings a strong blend of technical and sales experience to HYBRID Software and its customers. He can be reached at mikea@ hybridsoftware.com*

The Omega Magnus folder-gluer uses carrier motor control buttons on both sides, a color monitor on the feeder for surveying delivery, an additional control board at the end of delivery and remote control.

# KOENIG & BAUER EXPANDS INTO CORRUGATED

**THE COMPLETE HIGH-PERFORMANCE CORRUGATED PORTFOLIO IS REPRESENTED BY THE ENTIRE NORTH AMERICAN SALES FORCE.**

To remain committed to its customers in North America, Koenig & Bauer (US/CA) is expanding its portfolio to include the corrugated printing and converting segment. Its three major products: the CorruCUT, CorruFLEX, and Omega Magnus, will be represented by the entire North American sales force.

"We are pleased to expand our dedication to the corrugated market," says Kilian Renschler, President and CEO of Koenig & Bauer (US/CA). "All three of our new products, the CorruCUT, CorruFLEX, and Omega Magnus, are successfully being operated at a customer's facility.

"Our North American sales team is the most experienced in all facets of packaging from folding carton to litho laminates to flexible substrates to the label markets. For them, it's a natural bridge to support the corrugated market along with the expertise of Jurgen Gruber, Corrugated Product Manager, and our extensive German factory team. They will be your trusted advisors as they introduce our portfolio of corrugated products and help to support our customers with their total packaging needs."


The CorruCUT has been designed for the high-performance rotary production of diecut corrugated products in ultimate flexo post-printing quality

## CorruCUT

The CorruCUT has been designed for the high-performance rotary production of diecut corrugated products in ultimate flexo post-printing quality. It can handle corrugated sheets with a width of up to 110.24 in (2,800 mm) and a thickness of 0.354 in (9 mm), running at speeds up to 12,000 sheets per hour. Operators can set up new jobs while production is running providing fast job change and low-maintenance. Press control can be handled via a flexible Profibus system and touchscreen.

## CorruFLEX

The CorruFLEX is a turnkey solution that produces high-performance post-printing on corrugated board in the highest possible flexo quality. It boasts a multitude of unique features, such as a vacuum-belt feeder that operates without feed rollers, and an innovative anilox roller changing system. It can be operated either as a stand-alone solution or be integrated into a production line together with conventional flatbed diecutters.

Current customers are reporting positive results. At the end of 2020, the THIMM Group installed its first CorruFLEX press at its facility in Sibiu, Romania, from Koenig & Bauer. The new press is being primarily used for four-color production on coated board.

> Current customers are reporting positive results.

## Omega Magnus

Like all Omegas, the Magnus folder-gluer is a user-friendly machine which utilizes carrier motor control buttons on both sides, a color monitor on the feeder for surveying delivery, an additional control board at the end of delivery and remote control. It's 3 cm solid steel frames ensure high productivity and long-lasting life and quality output.

"We have numerous Omega Magnus folder-gluers running an array of corrugated products throughout the U.S.," says Tom Fitzgerald, Director of Post-press at Koenig & Bauer. "Our folder-gluers for the corrugated market are extremely versatile and fully customizable to meet a customer's individual needs." ■

# UNDERSTANDING INK'S ROLE IN COLOR MANAGEMENT

**TIME SHOULD BE SPENT LEARNING THE CHEMISTRY AND WORKING WITH INK SUPPLIERS TO ASSURE CONSISTENCY.**

BY DICK TARGET
"ON TARGET" CONSULTANTS

In recent articles, I have addressed proper calibration techniques for flexos and rotary diecutters. These techniques are required and are necessary tools in running a profitable box plant operation. This article will focus on ink and its application to corrugated sheets.

Ink is frequently a challenge to manage and is generally misunderstood. After box structure and performance, printing and color management are the most important areas for discussion and product acceptance. If the color is off or inconsistent, customers will not only reject the order but in future orders will look closely into other areas of the box, such as squareness, score performance and caliper consistency (ECT).

We should also understand that the paper on which we are printing is a moving target. Kraft is rarely ever the same shade brown roll to roll or mill to mill. It is a challenge to print consistent red and black designs on kraft paper whose color shade is a variable. Because of this, we must focus on color density and consistency.

Color is an effective marketing tool that sells product. All retail manufacturers compete for shelf space in stores, encouraging consumers to buy their products on display. There are also many point of purchase stores competing for business using color as an effective tool for product identity.

Color management is critical! Coca Cola has a "red" that is different than the red and blue on Pepsi. Johnny Walker "Red" and Johnny Walker "Black" labels define specific levels of quality and expectations.

People frequently tell me they only print one-color black and therefore color is not that important. That is completely wrong! If we are printing black on a shipping container, it must be sharp, dense and consistent. Printing bar codes is a perfect example. Not only the black color but the color density and ink viscosity must be controlled. Line thickness must be consistent. If the bar codes are not readable and the lines are not the same, the box will be rejected.

Managers need to better understand this area of manufacturing. Time should be spent learning and understanding the chemistry of ink and how it works and working with ink suppliers to assure consistency in their products.

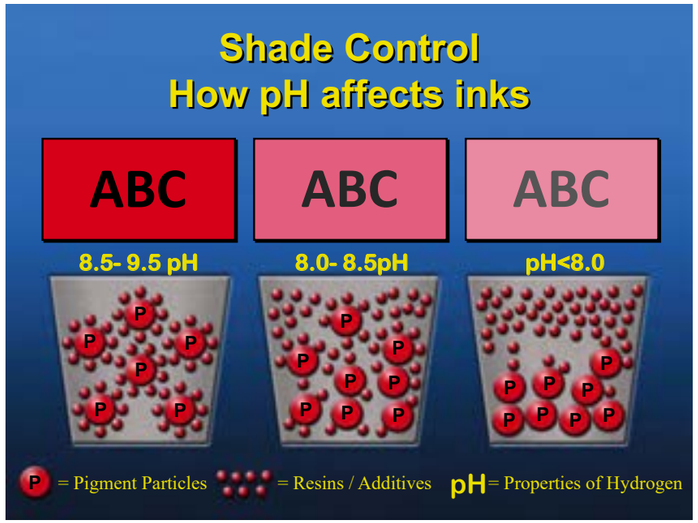
Ink is frequently a challenge to manage and is generally misunderstood.



Coca-Cola red is different from the red on other brands.

## The Basics

Let's review and understand the ingredients in ink. There are four main components in flexo inks: pigment, resins, amines and water. Pigment is the color. It is the most important and expensive ingredient. Resins are the carriers. They are responsible for keeping the pigment particles in solution and delivering consistent color to the sheet. Amines maintain proper pH in order for the pigment and resins to have a proper relationship. Inks are called flexographic inks because they are a water-based product.




pH refers to the properties of hydrogen ions and defines the water-based inks as an acid, neutral or alkaline. The inks used in the corrugated industry are on the alkaline side of the spectrum. (See ABC diagram). Worldwide, flexo inks have a pH range from 8.5 to 9.5. Note that pH numbers are logarithmic. This means that 8.6 is 10 times more alkaline than 8.5. 8.7 is 20 times more alkaline than 8.5, and 9.5 is 100 times more alkaline than 8.5.

The pigment and resin particles in our inks are inert materials, meaning they have no chemical activity and are on the same par with sand. In order for them to have a proper relationship and be chemically active, they need to reside in an alkaline environment. That is the reason for the third ingredient: amines.

There are several different types of amines in the ink industry, and they all relate to the speed at which the amines evaporate. Simply put, there are slow, medium and fast evaporating amines, and they control and help determine the drying process of the ink on the sheet.

I would like to point out that amines are a temperature sensitive product. As we walk past print stations, we frequently smell inks. Actually, we are smelling the amines that are evaporating from the buckets. In cooler climates, the inks tend to be more stable due to the lower temperatures. The amines are not evaporating. In the summer months, they evaporate much faster due to the warmer temperatures. We then lose the pigment-resin relationship in the ink and the color changes.

> Flexo inks have a pH range from 8.5 to 9.5.

### A Proper Ink

In the ABC diagram, you can see the large circles (pigment) and the small circles (resins) encapsulate the pigment particles. The job of the resins is to protect and support the pigment particles and keep them in solution until they arrive on the corrugated sheet.

The left side shows ink in its proper pigment/resins relationship (74 red). You can see that the pH of this red ink is between 8.5 and 9.5. This is controlled by the amines. This is a proper ink with a correct pigment/resin relationship. If this ink is delivered to the sheet, the color will be consistent and correct.

The center view shows ink where some of the amines have evaporated. You can see the pigment/resin

> In cooler climates, the inks tend to be more stable due to the lower temperatures.

> Traditionally, we have trained operators to add water to thick ink in order to reduce its viscosity. This is WRONG.

relationship has changed. Some pigment particles are separating from the resins and are falling to the bottom of the cell. At the same time, the color is now bleeding into the water losing color density. The net difference is that the color has changed and is now lighter. We now lose the color the customer has ordered.

Earlier I wrote that the jobs of the resin particles are to transport the pigment particles and keep them in solution during the process. Actually, the resins have two jobs. The first is to transport the pigment and their second job is to fix or glue the pigment to the sheet. As the resins separate from the pigment particles during the printing process (caused by the evaporation of the amines), the resin particles start to touch each other. At this point they become sticky. Properly formatted, as the ink arrives on the acid-based paper, the pH drops while the ink ingredients separate. The pigment is absorbed into the paper and the resins then fix or glue the color (pigment) to the sheet. At this point, the amines are now evaporated. The water is absorbed into the sheet and the job is done.

## Do Not Add Water

During production the amines will always evaporate. This changes the viscosity of the ink. The ink will become thicker, and the color will be incorrect. Traditionally, we have trained operators to add water to thick ink in order to reduce its viscosity. This is WRONG. The inks became thicker because the amines have evaporated. Just replace the amines and the ink quality will be maintained.

If we add water (7pH) to adjust the ink, we are adding a lower pH material (water) to already disturbed ink due to the evaporation of the amines. The proper technique is to replace the ingredient that has evaporated. The product is the amines. I would suggest that crews add 2 ounces of amines every hour throughout the day as an easy tool to maintain ink integrity. When the order is finished, add 2-3 ounces of amines to the used bucket. This will sustain the proper pigment/resin relationship (color) in the ink and the color will remain consistent.

I do believe that we have too many buckets of ink on our shelves. When we deliver a box to our customer and the color is wrong, our salespeople have no recourse other than to ask the customer what color they want. Then as a box supplier, we will match the color to their specifications. We now have a new custom color ink on the shelf. If we deliver consistent color inks the first time, customers will be less likely to reject the order due to a color variation.

Now, let's review the chemistry of paper. The pH of kraft paper or mottled white is acid. Properly managed inks (alkaline) will print consistent color on an (acid-based) paper and the printing will be perfect. The chemistry of the paper (acid based) forces evaporation of the amines. The pigment separates from the resin particles during the printing process. The pigment particles are then absorbed into the sheet. The resin particles stick together and fix the color to the sheet. This is how the process works.

Color is a major ingredient in our process and in most cases, if properly done, will encourage customers to accept the order and not look for other possible defects in the box.

In the next article, I will offer additional tools that we can use to optimize our manufacturing process.

As always, enjoy your job! ■

*Dick Target is a regular contributor to Corrugated Today. He is the owner of "On Target" Consultants in Lower Gwynedd, Pa., and teaches flexo and diecutter calibration short courses for TAPPI. He can be reached at dicktarget@gmail.com*


The expansion offers enough capacity and redundancy to serve customer's needs within a 10-day window.

DIGITAL EXPANSION

"Customers do not need to settle for 'close enough' to get all the benefits digital packaging has to offer."

KYLE DEJESUS, COMPANYBOX PRESIDENT

# COMPANYBOX COMPLETES MAJOR EXPANSION

**THE CHARLOTTE INDEPENDENT INSTALLED A SECOND HP C500 PAGEWIDE PRESS, MAKING IT THE FIRST IN THE WORLD TO HOUSE TWO C500S IN THE SAME FACILITY.**

CompanyBox, a Charlotte, N.C.-based corrugated packaging company, has completed a significant expansion in capacity and nationwide corrugated digital print solutions with the multi-million dollar investment in a second HP C500 press. The purchase adds to the robust suite of digital equipment and further strengthens capabilities for all sizes of business.

The new C500 is equipped with a state-of-the-art stacker that allows CompanyBox to run small jobs continuously with larger runs without slowing up the press. "Combined with our platform and technology, we are providing our customers with new and innovative ways to capture the consumer's attention," says Louie DeJesus, CompanyBox CEO. "The package can now become a communication piece; personalized and targeted to specific geographic markets and events. Gone are the barriers and long lead times inherent in traditional platforms."

The press, known for its flexibility on small to large runs, delivers sharp text, barcodes, and smooth tone transitions, all in vivid colors. As a true replacement to litho, the print resolution can be viewed in accurate detail. "Customers do not need to settle for 'close enough' to get all the benefits digital packaging has to offer," notes Kyle DeJesus, CompanyBox President. "Our suite of world class printers allows us to work with brands like Polaroid, Lowe's, and SnackMagic."

As a minority partner, Green Bay Packaging is invested in its growth. "CompanyBox is an industry leader in digital printing, service and quality. This investment builds on the platform that CompanyBox established by being a pioneer in digital printing. Green Bay Packaging is excited to be a part of this investment and taking the next step in the journey," says Bryan Hollenbach, Executive Vice President at Green Bay Packaging.

## Added Capacity

CompanyBox is the first in the world to run two C500s in the same building. The Charlotte location recently added a second 65,000-sq-ft facility and now has 180,000 sq ft completely dedicated to digital packaging. The expansion offers enough capacity

To support the added capacity, additional converting equipment was installed, including two Eterna diecutters, a 2-piece stitcher gluer from Stitching and Gluing Solutions (S&G), a Vega Altair specialty gluer and a Balemaster central scrap system.

Louie DeJesus, CompanyBox CEO

> "This investment will make what we believe to be the largest totally digital post print packaging company in the US."
>
> LOUIE DEJESUS, COMPANYBOX CEO

and redundancy to serve customer's needs within a 10-day window.

The two presses operate side by side, linked via an automated conveyor system from SeeMotion. "We can now automate two-sided digital printing utilizing the two HP C500's with our fully conveyorized facility," explains Louis DeJesus. About 30% of the business is two-sided printing.

To support the added capacity, additional converting equipment was installed, including two new Eterna diecutters from Brausse Group, a 2-piece stitcher gluer from Stitching and Gluing Solutions (S&G), a Vega Altair specialty gluer with a SG20044 Easypack Unitizer supplied and installed by S&G, a rotary diecutter, and a Balemaster central scrap system. "This investment will make what we believe to be the largest totally digital post print packaging company in the US," DeJesus says.

He says the markets currently driving the most growth for digital printing include point-of-purchase in the beverage and spirits markets and e-commerce. The company offers customers a one-stop shop packaging platform through CompanyBox.com. The site enables businesses to easily design and order high-graphic custom packaging along with an innovative suite of customizable packaging products online.

CompanyBox will be holding a ribbon cutting ceremony in November 2021. ■

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# NEIL MACDONALD

## CEO OF INDEPENDENT II

**WE ASK THE QUESTIONS...**

BY SARAH BERTRAM MOZINGO

"I WOULD SAY MY FATHER IS A FORCE OF CHARACTER. TO MANY – HE'S UNMISTAKABLE. THE IMPRESSION THAT HE HAS MADE OVER HIS CAREER AND CONTINUES TO MAKE TODAY IS ONE THAT IS LASTING TO SAY THE LEAST. WHAT I FIND IS THAT THE 'IMPRESSION' HE MAKES HAS A RANGE. TO SOME – IT'S VERY VISIBLE... A PONYTAIL, A SPORTS CAR, NO SOCKS. TO OTHERS IT'S A QUALITY – DEDICATION, LOYALTY, CREATIVENESS. PERHAPS HIS BEST TRAITS ARE SHARED WITH THOSE HE'S WORKED MOST CLOSELY WITH – HIS HUMOR AND STORYTELLING, HIS GENEROSITY."

**FINN MACDONALD, PRESIDENT OF INDEPENDENT II AND SON OF NEIL**

According to the Bureau of Labor Statistics, the average American holds 12 jobs in their lifetime and retires at an average age of 65. But Neil MacDonald, CEO of Independent II in Louisville, Ky., is far from what one might call average. Between starting and selling two companies, taking a decade long retirement hiatus, and coming out of retirement at the age of 65 to start a third company, he has seen and done it all in the corrugated industry.

MacDonald grew up in western New York as a talented swimmer and diver. An accident during a trip to Florida to pursue a diving scholarship left him with a broken back, and as one might assume, a diver with a broken back is not a good combination. After taking two years to fully heal, MacDonald's high school swimming coach connected him with the University of Louisville, who was looking to rebuild their swimming and diving program. With his dream of being a collegiate athlete finally coming to fruition, MacDonald enrolled at Louisville.






Neil MacDonald with his son Finn

Shortly thereafter, he met his wife, they got married, and he began pursuing a law degree after completing his undergraduate studies. His father-in-law, who owned Independent Boxmakers at the time, offered MacDonald a job doing inventory control. It didn't take long for his night shift at the plant to turn into a love for the corrugated industry. Law school didn't stand a chance.

**You have 55 years of experience in the corrugated industry. What are the biggest changes you have observed?**
When I first started in the industry, all the box plants used oil-based inks. When you ran a box through a press and put down oil-based ink, it took time to dry. If you ran the box through another machine, a gluer for example, the ink would often smear. In my lifetime, the introduction of water-based inks probably had the largest impact in the industry. Water-based inks dry much quicker than oil-based; almost instantly. So once these inks were created, the machinery evolved to accommodate it. Boxes were able to be printed, cut, and glued all in a single pass without the ink smearing.

When I was in inventory control at Independent Boxmakers, everything was handwritten. In the late '70s, there was a fella in Philadelphia by the name of Cosmo DeNicola, who started Amtech Software. We knew one another, and when I started Independent Container, I was one of the early adapters of Amtech, maybe the second or third customer of Cosmo's. We've used Amtech ever since. His software has been very helpful to the independent corrugated companies in particular. Before Amtech, we had more people working longer hours, and quite frankly, making more mistakes. But now, things are more efficient and streamlined.

People have to realize that computers and technology are here to help us communicate, but they don't necessarily make us good communicators. I'm old enough to have learned that you have to know how to communicate properly verbally and in writing first; if you aren't a good communicator in those ways, technology likely won't help like it's supposed to.

**What industry change or innovation was the biggest propellor of you and your company's success?**
When I first started in the industry, almost everyone had their own corrugator. If you didn't have one, you had to purchase your sheets from a competitor who could potentially control your growth. There were a lot of lawsuits that happened because of this. When I started working at Independent Boxmakers, there were seven companies that had their own corrugators and only one sheet plant in Louisville. The sheet plant was only in business because the larger corrugator plants preferred not to run small orders. They would send paper and small orders to the sheet plant.

Shortly before opening Independent Container, a group of people decided to open a company that only had a corrugator in Indianapolis. That was Jack Schwarz's first sheet feeder. We ended up not installing a corrugator at Independent for that reason. It was very expensive to split startup costs between a corrugator and finishing equipment. It was a relatively new concept to have companies that had just a corrugator or just finishing equipment. I think it was this shift that allowed us to start on the right foot.

When I first started in the industry, almost everyone had their own corrugator. If you didn't have one, you had to purchase your sheets from a competitor who could potentially control your growth.

**You have been a part of two company acquisitions in your 54 years. How did you know it was the right time to sell?**
The first acquisition was the sale of Independent Boxmakers and A Box Unlimited to Chesapeake Container. I was a family member by marriage to the owner, and it was his decision to sell. I had to sign a four-year

> My wife and I spent seven months per year for the next 10 years living in Colorado skiing, fly-fishing, and having a great time. Everyone should retire between their mid-50s and mid-60s!

noncompete for this sale. Four years and a few days later, Independent Container was born. After 15 years of running Independents' three plants and having no children who wanted to be in the business, I received a good offer from Greif and sold with no regrets. My wife and I spent seven months per year for the next 10 years living in Colorado skiing, fly-fishing, and having a great time. Everyone should retire between their mid-50s and mid-60s!

During my retirement, I would frequently visit home in Kentucky and get together with old friends and customers. In 2005 a group of former employees asked me if I would be interested in starting up a company again. If so, they would come and work for me. I thought about it for quite some time and considering I was getting pretty bored in retirement, I accepted their proposition. My wife made me promise that if I started again, I could only have one plant. She didn't specify how large of a plant though! So, at age 65, I came out of retirement and Independent II was born. I am now 79 and having a ball. For my 80th birthday I'm giving myself a new 340,000-sq-ft building.

**Have you ever considered selling Independent II? Does the recent quantity of mergers and acquisitions cause concern about the state of the independently owned corrugated industry?**
I consider selling Independent II every day, but my wife tells me I am not welcome at home during daylight hours and reminds me that the reason I have always had my own companies is because no one would hire me! All jokes aside, I think the current market for independent companies is solid because the mills need a source for paper, and that likely won't change for quite some time. There will always be independent companies because mergers and acquisitions send good people into the market, and some of them become the next great company.

**What is it like working with your son, Finn? What makes your working relationship successful?**
Finn and I have always had a great relationship and have shared similar interests outside of work. After college, Finn wanted to pursue other lines of work along more creative and graphic areas. He lived in different parts of the country and was involved in different levels of management in his career. About 12 years ago, conversation led us to think about having him join the company and see how he liked it. He has been through all aspects of the business, and I can say he loves it and it shows.

**Finn's Perspective:** Over the last 10 years there have been some terrific turns, and some aspects of our relationship haven't changed a bit. On the plus-side I have benefitted tremendously by working my way up in the company his generation started and also by working with many customers that he first earned. Those are two entities that define a great part of his life – and because I'm now heavily involved with them, we share a lot of the same daily concerns. It is not that we "talk" about either in great detail; I think it is more that we both understand the shoes the other guy is walking in. Understanding this is one of our strongest bonds. We share strong beliefs in how we can grow, operate, and lead the company as well, but let's just say this is a father and son activity that we're still working on together.

**What is your advice for younger generations getting started in the corrugated industry?**
I have been in this business for 55 years and I love it. I look forward to every day and every opportunity. My advice to any young person is simple – love what you do.

The love MacDonald has for this industry is clear and unmistakable. Through the introduction to the industry by his father-in-law, the relationships he has sustained with employees and customers for over 50 years, and the bond he has strengthened with his son, his legacy will be marked not only by his business successes, but the lives he has impacted along the way. ■

> For my 80th birthday I'm giving myself a new 340,000-sq-ft building.

*Sarah Bertram Mozingo is Marketing Coordinator for Complete Design & Packaging, a sheet plant in Concord, N.C. where she manages social media accounts, implements campaigns, and supports the sales team with data and content. She is a regular contributor to Corrugated Today.*

# TAPPI Corrugated NEWS


## TAPPI Calendar of Events

**Chicago TAPPI Golf Outing**
September 14, 2021
Ruffled Feathers, Lemont, IL
www.tappi.org/chicagotappi

**Chicago TAPPI Trade Fair**
November 2, 2021
Marriott - Oak Brook, IL

TAPPI CORRUGATED PACKAGING DIVISION

# Highlights From SuperCorrExpo® 2021

# LIVE from SuperCorrExpo 2021: Recipients of the Awards and Scholarships

Established in 1928, the **Gunnar Nicholson Gold Medal Award** is granted to those "who have made preeminent scientific and engineering achievements of proven applied benefit to the world's pulp, paper, board, and forest product industries. This is the highest honor TAPPI can bestow upon an individual.

*Frank*

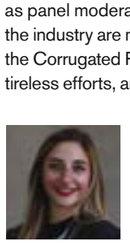
This prestigious award is presented to **Benjamin Frank**, Director-Materials Research and Innovation at Packaging Corporation of America (PCA). Frank received a Ph.D. in physics and M.S in Colloids, Polymers and Surfaces (Chemical Engineering) in 1995 from Carnegie Mellon University. Following post-doctoral research at Stanford and IBM, he started his career in the forest products industry at International Paper and joined PCA in 2001 as the Manager of the Packaging and Materials Testing Labs.

In his role at PCA, he leads a team involved in research, technical support, and product development. Their research efforts focus on better understanding our materials and improving existing test methods in both accuracy and precision. Through these efforts, they've been able to advance modeling and prediction of compressive strength for containerboard, corrugated board and corrugated packaging, as well as assessments of overall package performance in various parts of the supply chain. They leverage large datasets to explore and address sources of variation, from papermaking through combined board and package production to end use. This work has enabled their group to champion development of new paper grades and evaluation methods, enabling sustainability benefits while assuring reliability in packaging. Dr. Frank has also run a co-op program while with PCA, training and mentoring over 60 students. The students become integral parts of the group and go on to contribute significantly in their careers after graduation. This outreach effort has also provided Dr. Frank the opportunity to guest lecture, teach and guide undergraduate and graduate students at many of the top packaging schools across the country.

Over the years, Frank's involvement in TAPPI and the industry has grown. With TAPPI, he has held leadership roles in Fiscotec, the Corrugated Awards Committee and the Quality & Standards Management Committee (Q&SMC) and has been active in Corbotech and ISO TC6. His involvement with the standards process includes authoring and revising for both TAPPI and ISO. He is active in ISTA, particularly through the ARVD program. He is the present chair of the FBA Technical committee, has been involved in many of their activities and technical publications for the past 15+ years, including various revisions of the Fibre Box Handbook and recently sponsored research projects.

*Snyder*

This year's recipient of the President's Choice Award is **Peter Snyder. The President's Choice Award** recognizes an individual who has devoted their time and talents not only to their specific TAPPI Division, but to the TAPPI Association overall. Pete has been a member of TAPPI since 1986 and during this time he has been chair of multiple corrugated division committees, editor of the corrugated newsletter and a member for the Corrugated Packaging Council. Throughout his career, Pete has been a member of TAPPI Foundation Board, four different TAPPI Local Sections, and a member of the Cullison Scholarship Committee. Pete has presented over 20 times as a course instructor and numerous times as panel moderator or presenter at TAPPI events. His contributions to the industry are many, including participation in FTA, ACCCSA, AICC and the Corrugated Packaging Division's growth. Pete's countless abilities, tireless efforts, and continuing leadership make all good things happen.



*Sharesky*

The award to recognize aspiring young leaders employed in the global forest products, pulp, paper, tissue, packaging, and associated industries for their contributions in the following areas: leadership, community service, and problem-solving contributions to scientific or engineering projects is the **Young Professional of the Year Award**. This year, the award is presented to **Lena Sharesky** of Packaging Corporation of America. A graduate of Monmouth University in New Jersey, Lena has been a TAPPI member since 2018. She currently serves as the Director of Events for the Young Professionals Division, is an active participant on the TAPPICon 2021 Steering Committee, a participant in TAPPI's Mentor Match program and is actively engaged in creating numerous Webinars and standalone social programming focused on connecting Young Professionals around the globe. Lena serves on the Corrugated Packaging Council as the Liaison between the Council and the Young Professionals Division.

## Outgoing Corrugated Packaging Council Members

*Hoyt*

*Krumm*

Formed in 2002, with the objective of being an advisory board to TAPPI in all areas related to the members of the Corrugated Division and how TAPPI can best serve the industry, the Corrugated Packaging Council is comprised of six appointed members, both integrated and independents, and nine elected members. The CPC members volunteer their time and knowledge and the TAPPI Corrugated Division is stronger because of their involvement. Outgoing members are **Craig Hoyt**, CEO of Buckeye Boxes, who has been a member of the CPC since 2007 and **Chris Krumm**, Vice President, CorrChoice, who joined the CPC in 2010. Three newly elected CPC members are **Dave Burgess**, JB Machinery, **Mike Kohler**, Kohler Coating and **Jeff Gebauer**, Niagara Sheets.

*Burgess*

*Kohler*

*Gebauer*

The Outgoing Division and Committee Chairs who have served the corrugated division in leadership roles over the past several years include **Jeff Quinn**, Corrugated Division Chair; **John Semenske**, Corbotec Committee Chair; **Stephen Burnett**, Fiscotec Committee Chair; **Ed Stuczynski**, Technical Program Chair; **Ell Townsend**, Awards & Scholarship Chair; and **Greg Jones**, Supplier Committee Chair.

*Quinn*

*Semenske*

*Burnett*

*Stuczynski*

*Townsend*

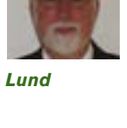
*Jones*

This year's recipient of the **David A. Carlson Division Leadership and Service Award**, which recognizes an individual for outstanding leadership and exceptional service which has resulted in significant and lasting benefits to the Division's members, is **Glenn Rogers**.

*Rogers*

Glenn is the former Chair of both the Corrugated Technical Committee (Corbotec) and the Fiberboard Testing Committee (Fiscotec), a current appointed member of TAPPI's Corrugated Packaging Council, and a member of the Fibre Box Association Technical Committee. He has helped create the Corrugated chapter in the college text book "Fundamentals of Packaging" (2014), and the updated Fibre Box Handbook (2015). Glenn has participated in numerous TAPPI Standards and TIPs reviews during his 26 years of membership with TAPPI and has made many contributions to the industry during his 40-year career.

**Richard (Dick) Lund** is the recipient of the **2021 Division Technical Award and Harry J. Bettendorf Prize**, which recognizes outstanding accomplishments or contributions, which have advanced technology or processes in the corrugated industry. Lund has been a TAPPI member since 1983 and has participated as a member of the South Central TAPPI Local Section and the Chicago TAPPI Local Section. He has given several technical presentations at TAPPI conferences and participated on both the Corrugated Technical Committee (Corbotec) and the Fiberboard Testing Committee (Fiscotec). Dick' participation in the Standards Division of TAPPI include being a Working Group Chair, and participating in 41 Standard Specific Interest Groups. His numerous contributions to other industry technical associations include: membership in the American Chemical Society for 46 years, member of the former AF&PA Technical Committee, representative for WY and LFC on the Fibre Box Association Technical Committee, and serving on the American Society for Testing and Materials for 36 years including D10.27 Subcommittee Corrugated and Related Packaging Chair for 20 years.



*Lund*

This year, the Division Awards and **Scholarship Committee** has chosen five outstanding recipients who will each receive a $1,000 scholarship. The **John O. Telesca Engineering Scholarship** recipient is **Isabelle Ownby** from Western Michigan University; the **Corrugated Packaging Division Scholarship** recipient is **Jarod Pierce** from North Carolina State University; the **Corrugated Supplier Scholarship** recipient is **Natalie Laux** from North Carolina State University; the **Mitsubishi Scholarship** recipient is **William Cotter** from Miami of Ohio, and the **Bobst Scholarship** recipient is **Daniel Sommers** from the University of Wisconsin, Stevens Point.

*Ownby*

*Pierce*

*Laux*

*Cotter*

*Sommers*

*Tocco*

The **Joe Dieffenbacher Memorial Engineering Scholarship** was established by the Corrugated Packaging Council in honor of Joe and this year is awarding a $5,000 scholarship to **Jessica Tocco** from Western Michigan University, who is pursuing a career in the engineering area of the corrugated industry.

*Loges*

This year's winner of the **Terry S. Paulson Memorial Scholarship** is **Phillip Loges** from Miami of Ohio. This scholarship has been established by friends of Terry and Schwarz Partners for students pursuing further education in the maintenance and engineering area of the corrugated field.

*For information on how to contribute to the Terry S. Paulson Memorial Scholarship, or the Joe Dieffenbacher Engineering Memorial Scholarship, please contact Kristi Ledbetter, Corrugated Division Manager, kledbetter@tappi.org*

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# INCREASING UPTIME

## OEM OPERATOR TRAINING

THE FORGOTTEN KEY TO OPTIMIZING MACHINE PERFORMANCE

BY MARK PEYTON

***THIS IS THE FIFTH IN A SERIES OF ARTICLES BY SUN AUTOMATION ABOUT KEEPING MACHINES IN GOOD WORKING ORDER.***

A lot of thought, effort, and money is invested in making the machines at a corrugated facility run properly. Everything from repairs to routine maintenance and upgrades and innovations in equipment can do wonders for maximizing profit and minimizing downtime. There is, however, an often overlooked factor that has a detrimental impact on output efficiency, and it may be hiding in plain sight: the operators themselves.

### A Common Problem

Most people in manufacturing, and corrugated specifically, are aware of some of the challenges facing their industry, based on employment trends: "the silver tsunami," high turnover rate, and difficulty finding interested candidates. As baby boomers – who still make up a disproportionately high percentage of the workforce in corrugated – retire in greater numbers and at a faster rate, a wealth of institutional knowledge is leaving the manufacturing floor along with them. This trend has been even further exacerbated by the fallout and other differing generational sensibilities regarding employment.

The trickle-down effect of these employment trends to the operator training is that there is often a higher turnover rate of machine operators. Many companies may consider it to be more expensive and more time consuming to properly train operators, especially if they do not have confidence that they'll stay in the job for very long. So instead, they have previous or outgoing operators train their replacements. Unfortunately, this turns machine operation protocol into a proverbial game of "telephone," where each trainee is receiving less and less information straight from the source.

Operators may be fully capable of explaining and passing on the day to day operation techniques, but in many cases, they have little or even no experience dealing with certain types of issues that arise less frequently, many of which require specialized knowledge to rectify. Worst of all, the trainees are generally new to this type





Most people in manufacturing, and corrugated specifically, are aware of some of the challenges facing their industry, based on employment trends.

surrounding the COVID-19 pandemic, which has hastened retirement of employees of ages deemed to be higher risk by the CDC.

This recent trend has expanded beyond boomers – there is a markedly higher turnover rate across generations over the past year plus, as people have begun to rethink their employment needs and goals. Even before the COVID-19 pandemic, manufacturing operations were having a more difficult time enticing millennial and Gen-Z workers into roles at plants, on account of the hours, the heat and the dirtiness of the facilities, and other differing generational sensibilities regarding employment.

The trickle-down effect of these employment trends to the operator training is that there is often a higher turnover rate of machine operators. Many companies may consider it to be more expensive and more time consuming to properly train operators, especially if they do not have confidence that they'll stay in the job for very long. So instead, they have previous or outgoing operators train their replacements. Unfortunately, this turns machine operation protocol into a proverbial game of "telephone," where each trainee is receiving less and less information straight from the source.

Operators may be fully capable of explaining and passing on the day to day operation techniques, but in many cases, they have little or even no experience dealing with certain types of issues that arise less frequently, many of which require specialized knowledge to rectify. Worst of all, the trainees are generally new to this type of role, so they often don't know what they don't know. This makes it difficult for them to ask the right questions or know how to address what problems may arise after their trainer is long gone, when they are on their own.

### The Operator Holds The Power

There are a lot of nuances and intricacies to corrugated operations that make them run properly. But a major problem comes from machine operators not being properly trained by OEMs. This problem often flies under the radar because it is possible to operate machines on a basic or even intermediate level without a full training from an OEM. This may lull both the operator and the owners and managers of the facility into a false sense of security because daily operations will not likely suffer to the naked eye.

However, without proper training, in many cases, while operators learn how to do the basics, they are not experienced in fine-tuning the process, which is essential to unlocking maximum efficiency. This can lead to problems as natural wear and tear occurs on parts, as these novice operators do not know how to fine-tune machines or how to interpret the underlying causes of issues like jams-ups, compromised speed, or sub-standard end products. These operators also often do not know the value of certain parts or components either, so it is not uncommon to see substandard practices, such as operators throwing print plates on the floor, not realizing that they are damaging equipment that costs thousands of dollars to repair.

Worst of all, the lack of high-level operational knowledge means that output speed may not be maximized, or production quality may be sub-optimal. This means that operators are actually unwittingly costing the business money by compromising margins, and although this may be imperceptible to the untrained eye, it has the potential to leave thousands or even millions of dollars on the table annually.

The telltale sign of untrained operators reveals itself when OEMs are on sight for repairs. Oftentimes, these OEMs will ask the machine operators questions about why a particular component is on so tightly, or why certain things are set up the way that they are, and the untrained operators simply do not know the answer. They commonly reply, "It's always been this way" or "It seemed to be running just fine, so I didn't want to mess with it." The reality is that these operators are treading water in the deep end of the pool without ever having learned how to swim properly.

### The Benefits of OEM Training

At SUN, our technicians get fewer calls for OEM operator training than nearly any of our other services. Without understanding the benefits of the training or the risks and costs

Even before the COVID-19 pandemic, manufacturing operations were having a difficult time enticing millennial and Gen-Z workers into roles at plants.

It is never too late for OEM training, even if a machine operator has been on the job for months or even years, because there is always room to learn more about these elaborate, powerful and highly customizable and adaptable machines.

stemming from improper training, operations see the training as an unnecessary expense, and believe that they can save money by not paying for a full training. However, a full OEM training pays for itself because it empowers operators to make the machines run more efficiently and read and address the warning signs of underlying issues before they become major breakdowns or catastrophic failures – a double-edged sword that both costs money to fix and loses out on money while machines are down for repairs.

These trainings go beyond simply turning a machine on and off, as they focus on teaching trainers the "why" behind certain more esoteric adjustments and more subtle warning signs of a machine that is under undue stress or performing at a substandard level.

It is never too late for OEM training, even if a machine operator has been on the job for months or even years, because there is always room to learn more about these elaborate, powerful, and highly customizable and adaptable machines. To learn more about OEM training and how it can improve your operations, contact a SUN service representative. ■

*Mark Peyton is the Director of Aftermarket at SUN Automation Group. He brings decades of industry experience and expertise to SUN where he has held many customer-focused positions. Prior to his 20-year career with SUN, he worked for Langston and United. He can be reached at mpeyton@sunautomation.com or 410-472-2900.*


# PANDEMIC HAS MIXED IMPACT ON FRESH PRODUCE BOX MARKET

**NEW STUDY ANALYZES U.S. MARKET FORECASTS, OPPORTUNITIES AND CHALLENGES.**

The impact of the COVID-19 pandemic on fresh produce corrugated box usage varied in 2020, finds a new Freedonia Group analysis. Healthy increases in demand were seen in the retail sector, especially online grocery applications, while foodservice markets were restrained by a reduction in sales of product to full-service restaurants and schools.

Overall, the produce industry proved to be resilient, with production of fresh fruits and vegetables falling only about 1% compared to the prior year. Though the foodservice sector was hit hard by the pandemic due to dramatic reductions in dine-in patronage, quick service restaurants and other foodservice establishments shifted to a model relying on drive-thru and carry-out customers, and an expansion of delivery options.

Demand for corrugated boxes used to package fresh produce is projected to increase 3.3% annually to $2.4 billion in 2024, supported by modest increases in domestic produce production and rising use of value-added boxes, such as those with retail-ready features designed to reduce labor costs, white-top linerboard boxes, those with additional functionality, and moisture-resistant boxes.

## E-commerce Sales

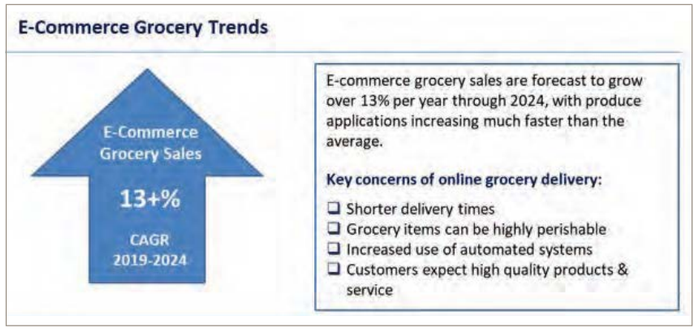
Online grocery sales have been the holy grail for the corrugated industry, which continues to find solutions to keep perishables fresh during transit. According to Freedonia, fresh produce currently accounts for only a small share of annual e-commerce sales, but growth is expected to accelerate sharply through 2024 due to: improving technology, especially in same-day delivery services, the presence of large purveyors such as Amazon and an increasing number of specialty retailers providing deliveries of organic and other fresh foods, and a populace that prizes convenience but also wants to avoid processed food

At this point, most fresh food ordered via e-commerce platforms is delivered through curbside pickup or same day delivery from a local grocery store. Therefore, they are using a lot more retail packaging (e.g., retail bags) than e-commerce packaging (e.g., boxes). “However, that is changing,” says Jennifer Mapes-Christ, Freedonia Team Leader Consumer and Commercial. “More e-commerce platforms are delivering from warehouses rather than retail settings and are shipping complete orders to homes in insulated boxes.”

Additionally, the surge in online grocery delivery and pickup orders seen during the COVID-19 pandemic is expected to have a lasting effect on e-commerce produce sales. Consumers who used these services for the first time during the pandemic are more likely to use them again going forward having come to enjoy and appreciate the convenience of these services.

“However, as many consumers still have a strong preference for handpicking produce themselves, e-commerce sales of these items will remain limited compared to shelf-stable groceries,” she says. “On the other hand, as more consumers become accustomed to getting fresh produce selected by shoppers or delivered as part of meal kit orders, many will adapt to having others pick their produce. Improvements that help consumers communicate their preferences and help suppliers show exactly what is available will also aide adoption.”

Leading e-commerce companies in grocery are Amazon, Instacart, FreshDirect, Kroger, and Walmart, although there are other specialized chains like Green Bean and store-specific services involved in local grocery delivery. Amazon’s first foray into fresh food delivery, Amazon Fresh, was limited in scope even before services were suspended in a number of cities in November 2017. Amazon expanded its fresh food delivery services in 2017 following its purchase of Whole Foods, which was fully integrated into its Prime membership program by mid-2018. The more recent proliferation of farm-to-table delivery options, imperfect produce suppliers, and specialty food vendors are expanding in the area of home delivery not coming from a retail outlet.




Selling fresh produce online has many challenges, including more complex logistics requirements, shorter delivery times, and the need for controlled temperatures and atmospheres to ensure very perishable produce remains of high quality. Adequate insulation, the use of cooler packs, and prompt delivery are necessary to successful delivery.

“As e-commerce sales of produce grow, there will be a concomitant need for standardized packaging that maintains brand quality through the shipping process but that also streamlines distribution,” Mapes-Christ says.

## RRPs Drive Demand

Greater use of improved, valued added boxes – notably modular and display-ready containers, white-top linerboard boxes, and moisture-resistant boxes – will provide support to market value.

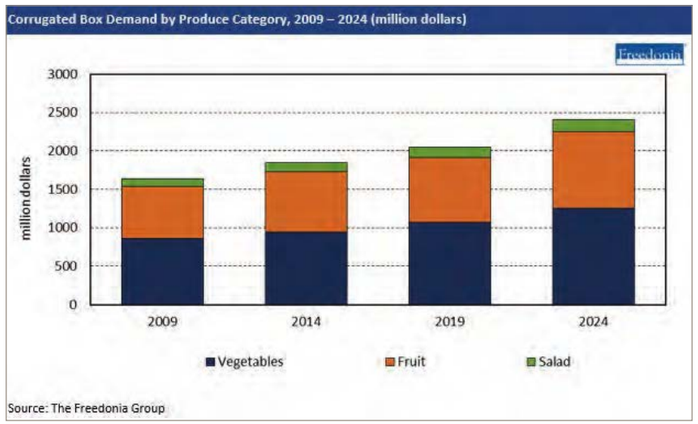
Corrugated boxes – particularly Corrugated Common Footprint (CCF) boxes – account for the majority of retail-ready produce packaging demand because they are well established, easily recycled, and retailers accept them as efficient, one-way shipping solutions.

Produce boxes have used graphics and quality printing for branding purposes, but additional functionalities are increasingly being built into box designs, such as tray-styles designed to hold smaller

**Corrugated Box Demand in Fresh Produce Packaging by Produce Category, 2009 – 2024 (million dollars)**

| | | | | | % Compound Annual Growth | | |
|---|---|---|---|---|---|---|---|
| Item | 2009 | 2014 | 2019 | 2024 | 09-14 | 14-19 | 19-24 |
| Corrugated Produce Box Demand | 1641 | 1844 | 2047 | 2410 | 2.4 % | 2.1 % | 3.3 % |
| Vegetables | 862 | 945 | 1074 | 1249 | 1.9 % | 2.6 % | 3.1 % |
| Fruit | 677 | 781 | 834 | 1002 | 2.9 % | 1.3 % | 3.7 % |
| Salad | 102 | 118 | 139 | 159 | 3.0 % | 3.3 % | 2.7 % |

Source: The Freedonia Group




clamshells of berries or other fragile items. "These trays are designed to go from a produce walk-in refrigerator to the display case in very little time with a minimum of effort while helping to keep the produce area – one of the most labor-intensive portions of a supermarket – neat, organized, and attractive," she says.

Despite competition from RPCs, retail-ready corrugated boxes will continue to see strong gains in fresh produce applications due to their low cost and ability to be printed with high-quality graphics.

Demand for all other corrugated boxes in produce applications – including open-top tray-style boxes, bulk bins, and shipping boxes – is forecast to increase 1.3% annually to $1.4 billion in 2024. Sales will be supported by:

- The well-established position of corrugated boxes in the shipping, distribution, and bulk storage of produce
- Expanding use of higher value moisture-resistant recyclable boxes (e.g., boxes treated with biodegradable coatings)
- The increasing popularity of locally grown produce in retail establishments, as boxes are more likely to be used in these applications

## A Few Headwinds

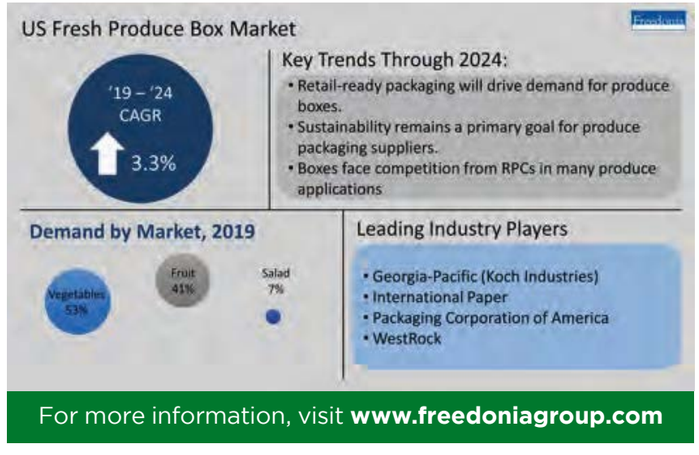
Mapes-Christ says growth will be much slower than the rate expected for retail-ready versions of corrugated boxes and for produce packaging overall. "This will be at least partially attributable to the increased use of reusable plastic containers (RPCs), which have been widely used for produce in Europe for some while now."

Corrugated boxes compete with RPCs, foam boxes, and wooden crates for bulk shipments of produce and for display purposes. RPCs present a challenge, as these products have made inroads as shipping and display containers for fresh produce sold at Walmart and other large grocery chains.

Currently, most retail outlets are well suited to receive produce in corrugated containers – many retailers use some of them as retail displays – and have a well-integrated recycling program. As the RPC infrastructure continues to expand and retailers become adept at using RPCs for some or all of their produce, the inherent advantages of corrugated boxes may be diminished somewhat.

Freedonia's new study, Fresh Produce Corrugated Box Market, analyzes the U.S. market. Historical data (2009, 2014, and 2019) and forecasts for 2024 are presented for produce packaging demand in current US dollars (including inflation) and units by product and application. Products covered include regular slotted containers; full telescoping boxes; boxes with cut-outs for display purposes; open-top tray-style boxes; fold-over gift boxes; bulk bins; display-ready boxes

Demand is also discussed by produce applications: fresh vegetables (e.g., tomatoes, potatoes, lettuce, onions, carrots, mushrooms celery, cabbage, peppers); fresh fruit (e.g., berries, apples, melons, citrus, grapes); salad. ■




# PAMARCO SHOWCASES NEW LOCATION

**THE 36,000-SQ-FT GREENFIELD FACILITY EXCLUSIVELY PRODUCES LASER ENGRAVED CERAMIC ANILOX.**

BY GREG KISHBAUGH

Obsolescence comes quickly to companies that do not innovate and grow. So, as it celebrates its 75th anniversary this year, anilox roll supplier Pamarco continues to introduce new technology, refine its long-standing processes, and find solutions to streamline the ways in which it operates.

The company recently opened a new anilox manufacturing facility in Batavia, Ill., and, despite working on the new facility during the chaotic backdrop of the COVID-19 pandemic, managed to do so on time and under budget. The 36,000-sq-ft greenfield facility was opened in June of last year.

Pamarco has operated in Batavia for 61 years. The original location, opened in 1960, stands about two and a half miles from the new location. In the original location Pamarco produced laser engraved and mechanically engraved anilox rolls. The mechanical roll production was moved to its Roselle, N.J., location, allowing the new facility to exclusively produce laser engraved ceramic anilox.

"The old building presented too many organizational problems to overcome, we simply could not continue to grow efficiently in the old location," said John Burgess, President, Flexo Division for Pamarco. "We wanted to create a new workspace that would benefit our employees, provide the capacity for continued growth and provide a venue to showcase our technology and educate our customers. This new facility and the capital invested is designed to meet the ever-increasing demands from the market on precision, accuracy and response time."





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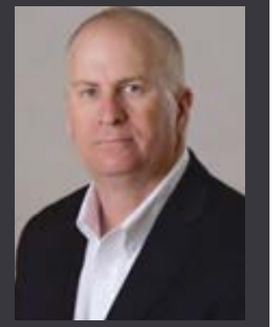
>
> **JOHN BURGESS, PRESIDENT, FLEXO DIVISION**



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The new building was designed with a bridge crane system, which allows materials to travel from workstation to workstation without the need for employees to move them manually.

Every roll at the facility begins its journey with an inspection to identify the work needed to return the roll or sleeve to OEM specification. After initial inspection, anilox rolls move to the prep department where the old ceramic is stripped, and repairs are made to prepare them for coating and then the laser engraving processes. These critical processes are controlled to the highest standards, and independent laboratory testing is regularly performed to certify process control.

At the beginning of this year, a new 3.5M ALE laser was installed in Batavia, the third fiber optic solid state laser at the facility. The laser is fully equipped to produce rolls and sleeves in all screen count and volume ranges.

Finally, a final inspection is performed and a cellbase certification is issued using Ultra-precision white light interferometry measuring not only the depth of the cell but the shape and final cell volume of the anilox. Certifying that the roll or sleeve has been produced to the highest standard and to the customer's specification.


The new facility offers a streamlined manufacturing process.

Earlier this year a new 3.5M ALE laser was installed, the third fiber optic solid state laser at the Batavia facility.

## Four Locations

Pamarco operates four laser engraving facilities: La Palma, Calif.; Atlanta, Ga.; Warrington, UK and the new Batavia facility, each utilizing state-of-the-art technology. Consistency and repeatability remain the cornerstone of flexo printing and Pamarco's ERP system ties its facilities and specifically its lasers together for perfect matching/repeatability of an engraving. This allows its laser operators in any location to match engravings produced in other locations, a great benefit as converters standardize production jobs in multiple locations.

At this moment in time, perhaps nothing is as important to customers – and consumers – as the protection of the environment, and sustainability. Pamarco has made certain that those criteria have all been met at the new facility.

"In addition to focusing on precision and quality we also focused on the environment. This is a completely green facility," said David Drozd, VP Manufacturing, Flexo Division. "We don't produce hazardous waste, all biproducts of the manufacturing process are recyclable." ■

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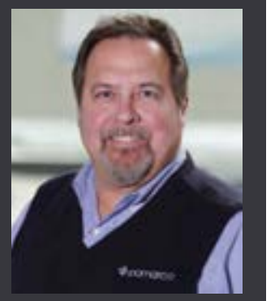
DAVID DROZD, VP MANUFACTURING, FLEXO DIVISION



If not properly calibrated, the load cells on the mixer scales can cause incorrect amounts of ingredients in the starch formula and wreak havoc on the viscosity. They should be checked once a quarter.

TROUBLE SHOOTING BOARD DEFECTS

# ADJUSTING THE STARCH

**A SIMPLE CHANGE IN THE MOISTURE CONTENT OR CAUSTIC SENSITIVITY CAN HAVE PROFOUND EFFECTS.**

BY WAYNE PORELL
HARPERLOVE

A new delivery of starch will often change the characteristics of the corrugating adhesive, even with no change to the adhesive formula. A simple change in the moisture content or caustic sensitivity of the starch can have profound effects. These may appear as runnability issues or as reduced quality of the combined board (e.g., wet board, reduced pins, lower ECT, delamination, warp). When faced with these issues, we need to focus on the temperature, viscosity, and gel point of the batch to bring the adhesive back to the correct specifications.

## Temperature

Changes in batch temperature are usually caused by changes in 1) the steam, 2) the cooling water, 3) the mix time, or 4) the ambient temperature of the plant.

The amount of steam needed will vary depending on the incoming temperature of the batch water. In many

Changes in batch temperature are usually caused by changes in 1) the steam, 2) the cooling water, 3) the mix time, or 4) the ambient temperature of the plant.

climates, this will change seasonally. Also, a steam leak in the mixer can increase the batch temperature and may also create gel balls. You will usually see these in the catch basket when transferring the starch to the storage tank from the mixer. If there is a steam leak in the mixer and the lid is closed for a few hours, you will see steam inside the mixer when the lid is opened. If a steam leak in the mixer is not repaired in a timely manner, it can get worse and lead to a gelled batch in the mixer.

Insufficient cooling water in the secondary portion of the batch can cause the batch to finish with a higher temperature than desired. Excess mix time will also raise the batch temperature. The friction between the starch and mixing blades adds heat to the adhesive.

The ambient temperature of the plant will affect the temperature of the adhesive. The starch lines usually run along the ceiling over the corrugator, in the hottest part of the plant. In the summer months, the starch in the lines will pick up heat from the plant. Insulating the starch lines will help keep the starch temperature more consistent through the seasons.

Similarly, a pump issue or partially clogged starch lines can lead to slow-flowing starch through the supply and return lines. If the starch moves slowly through the lines, it will pick up more heat from the ambient air.

## Viscosity

The amount of moisture in the pearl starch affects the viscosity of the formulated adhesive. The moisture content of pearl starch is documented on the Certificate of Analysis (CofA) that accompanies each delivery. Viscosity can be adjusted by changing the carrier portion of the batch, generally by 2 pounds at a time. Any starch that is added/removed from the carrier should be offset by a corresponding amount of starch in the secondary so the overall starch solids remain the same.

Caustic sensitive starch can also cause increased viscosity. Caustic sensitivity is also shown on the CofA (Alkali Sensitivity UL CPS). If the caustic sensitivity is high, the starch may have the correct viscosity in the mixer but will swell in the storage tank. This can be checked by comparing the gel temperature in the storage tank as soon as the batch is finished with the gel temperature after the starch has been in the storage tank for 45 minutes. If the gel temperature in storage has decreased, then the amount of caustic in the formula needs to be reduced – generally 2 pounds at a time for a larger batch (above 250 gallons) and 1 pound at a time for a smaller batch (less than 250 gallons). It can also be helpful to conduct a caustic sensitivity test on a sample of the starch when it is delivered.

The addition rate of the secondary starch to the batch can affect the finished viscosity. The secondary starch should come in at a rate of at least 160 pounds per minute. A slower feed rate can cause the first portion of the secondary starch to swell and create more carrier. Because viscosity is greatly affected by the amount of carrier starch in the formula, a slow feed rate can lead to an unintended increase in viscosity.

Water inadvertently added to the starch from machine clean-ups will lower the viscosity. This can be alleviated by a valve at the machine enabling the operators to send the clean-up water to the drain and not back to the storage tanks.

The load cells on the mixer scales, if not properly calibrated, can cause incorrect amounts of ingredients in the starch formula and wreak havoc on the viscosity. The load cells should be checked once a quarter.

Temperature affects viscosity, and the TVC on the storage tanks must be in good working order to keep the starch at the correct viscosity. The lower the starch temperature, the higher the viscosity; the higher the starch temperature, the lower the viscosity.

Shear in the starch lines can cause the viscosity to drop. Shear increases with sharp bends or turns in the lines – gentle sweeps are preferable to 90° turns. Shear in the starch lines can generally be offset by running a higher initial batch viscosity.

Bacteria in the starch will break down viscosity over time. The greater the bacteria, the faster this will happen. Bacteria issues can be resolved by thorough cleaning, use of a bactericide, and not storing the starch for extended periods.

Most plants use a 50% liquid caustic soda (NaOH) solution to adjust the gel temperature of the starch. The starch may swell if too much caustic is added to the batch.





If there is a steam leak in the mixer and the lid is closed for a few hours, you will see steam inside the mixer when the lid is opened.

It is important to check the starch temperature, viscosity, and gel temperature at the mixer, in the storage tanks, and at the machine centers before making adjustments.

## Gel Temperature

Most plants use a 50% liquid caustic soda (NaOH) solution to adjust the gel temperature of the starch. The starch may swell if too much caustic is added to the batch. Most corn starch gel temperatures can only go as low as 136°, but it is not advisable to run this low. Having the gel temperature too low will cause the starch to swell in storage and could possibly cause the batch to gel into a solid mass. You can come out of the mixer with a gel temperature of 139° to 140° without any issues of swelling. If resin is being added to the starch, it will raise the gel temperature by approximately 2° after the starch sits in storage.

It is always important to check the starch temperature, viscosity, and gel temperature at the mixer, in the storage tanks, and at the machine centers before making any adjustments. Careful analysis should lead you to the correct adjustments to bring the starch to the desired specifications. ■

*Wayne Porell has more than 40 years of corrugated industry experience. He is a Senior Technical Representative serving customers primarily in the Northeast where he has helped numerous plants with corrugator issues and improved their waste, productivity and quality.*

# VIRTUAL ROUNDTABLE

## QUALITY CONTROL SYSTEMS FOR FOLDER-GLUERS

RICK PALLANTE
President, Baumer hhs USA and Canada

ANDREW SIMS
W.H. Leary Director of Product and Market Development

SCOTT LYDELL
Valco-Melton Folding Carton Manager

There have been continued improvements in quality control systems for folder-gluers, especially as customers elevate their requirements for defect-free boxes. In this virtual roundtable discussion industry suppliers highlight the importance of these systems and what converters should look for when including them on new or existing equipment. Participants include Rick Pallante, President Baumer hhs USA and Canada, Andrew Sims, W.H. Leary Director of Product and Market Development and Scott Lydell, Valco-Melton Folding Carton Manager.

**What are some common problems associated with folding and gluing and what benefits do advanced quality control systems provide?**

**Scott Lydell** When it comes to higher processing speeds of gluing, there is a higher risk of quickly creating a poorly produced product and ultimately creating waste. Sensors for glue application detection helps ensure every box is glued to a specification. To go a step further, adding camera technology ensures the glue is applied accurately and offers a more comprehensive investigation of all aspects of the gluing and folding process. For instance, did any glue fall outside of its intended location potentially creating a sticker? Did the corner not tuck in but the glue was applied correctly on a lock bottom application? Did the flap of the box tear off in the fold rails or did other visible catastrophes occur? A camera inspection system with a field of view larger than a sensor has the ability to see so much more and support the operator's increased production speed, ensuring each box is produced to the highest of quality.

Valco Melton vision inspection

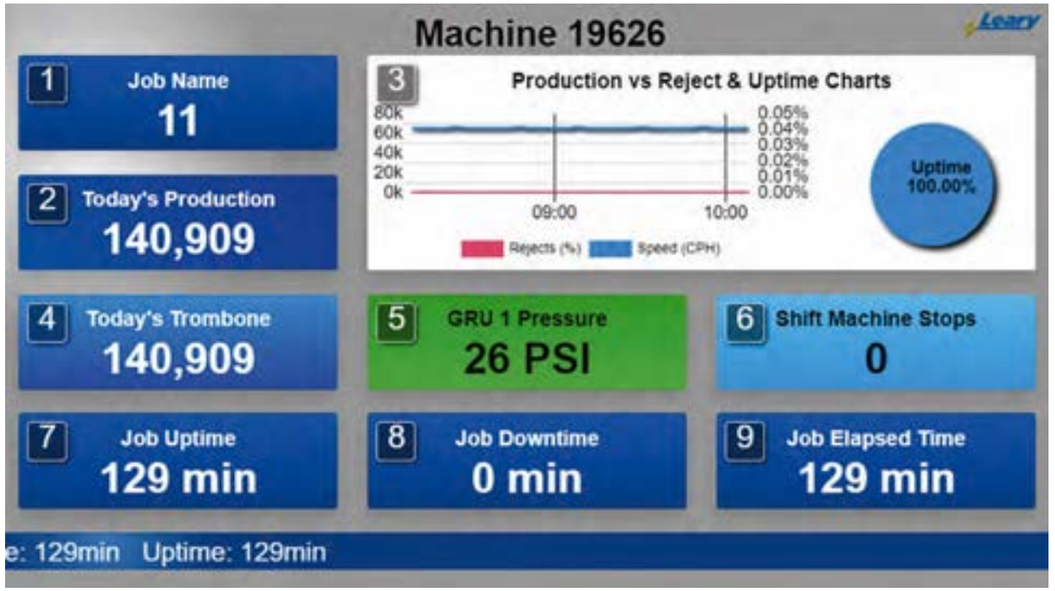




> "A camera inspection system with a field of view larger than a sensor has the ability to see so much more and support the operator's increased production speed, ensuring each box is produced to the highest of quality."
>
> SCOTT LYDELL, VALCO-MELTON

**What has changed over the years making these systems even more important?**

**Andrew Sims** The demand for increased automation in box production has made technologically advanced QA systems more important. There are simply less people in the process to find potential quality problems. As box manufacturers work to increase sustainability efforts, decreasing waste and improving efficiencies, they are also facing workforce challenges. Previously, operators with a strong level of expertise focused on each machine's output, controlling all aspects of production including quality, machine stops and lengthy startups. Plants relied on personnel skill; box manufacturers increasingly find these skills difficult to recruit for and the risk of human error impacting quality has increased significantly. Quality systems that are easy-to-use and can automate multiple areas of operation, not only find and reject bad product, but inform manufacturers of the root cause of production issues will succeed.




Leary iQ Production Display visual management tool

**What questions should converters ask suppliers before investing in a quality control system?**

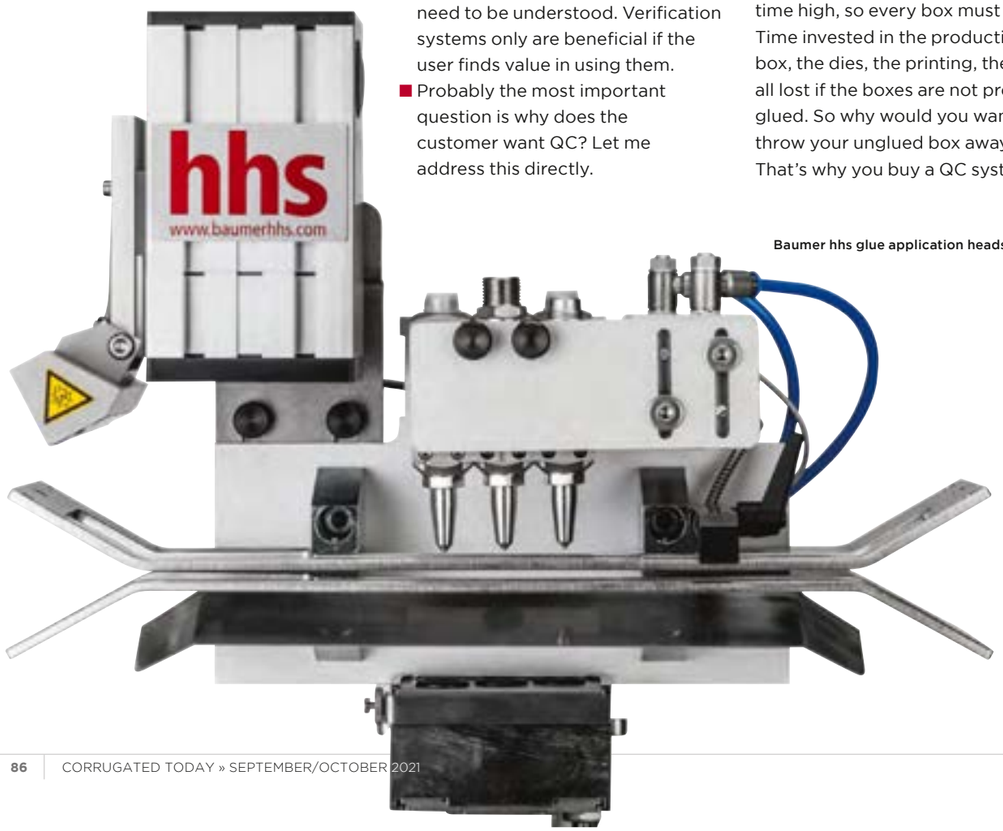
**Rick Pallante** It is recommended that customers do their homework and talk to others in the industry who have purchased a QC system or have one that was included with their original folder-gluer. A reputation in the market is a good first cut on who to consider. If the QC system is difficult to use, then end-users are not going to get the full benefits and operators are going to try and bypass it instead of using it. Companies should be looking for ways that they can validate that the products are properly manufactured. The following are some key questions to ask:

- Who offers the most solutions (glue detection, code detection, camera-based detection)?
- Can verification data be downloaded and shared with the customer?
- Can the faulty product in the production process be traced?
- Can the sensors differentiate between wet glue and cured glue?
- Is the operator able to validate presence and placement of adhesive or a code?
- Customers need to know how the system works and how it processes the data. Just knowing that the product did not kick out does not always mean it is good. How the operator sets up the system and what parameters are being measured need to be understood. Verification systems only are beneficial if the user finds value in using them.
- Probably the most important question is why does the customer want QC? Let me address this directly.

> "Time invested in the production of the box, the dies, the printing, the ink are all lost if the boxes are not properly glued. So why would you want to throw your unglued box away? That's why you buy a QC system."
>
> **RICK PALLANTE, BAUMER HHS**

Times have changed. Consumer tastes have changed. Packaging is now more than just for protection; it also sells and educates the customer. Specialty folder-gluers are becoming mainstream in corrugated plants as corrugators are now able to supply corrugated folding cartons from inception to consumer.

Lines run much faster now and faster line speeds have a higher probability of creating waste. Waste kills ROI. Board costs are at an all-time high, so every box must be right. Time invested in the production of the box, the dies, the printing, the ink are all lost if the boxes are not properly glued. So why would you want to throw your unglued box away? That's why you buy a QC system.




**Baumer hhs glue application heads**


LearyVIEW Print camera inspection

**When is adding a camera system on the glue line suggested?**

**Scott Lydell** Today, camera systems offer so much more in terms of what they are able to inspect compared to a sensor. A sensor can visibly see 8 to 10mm compared to specific glue application cameras in the market today (capable of seeing 30mm minimum up to 800mm). Consider what clients are going to do with the boxes you are producing for them. If it is used in an automated packing machine, will a box with a glue sticker stop the machine? Is the box perforated? If that perforation is not separated in your gluing process will that stop the machine? If you have clients with any sort of automation in their production process you should be utilizing cameras.

**What features should customers be looking for when installing a quality control system?**

**Andrew Sims** Ease-of-use and simple setup is obviously very important. Software should be intuitive and guide the operator in a logical way through the process with clear and simple feedback. The supplied hardware should be flexible and easy to position correctly, robustly designed and with few adjustments necessary.

But when purchasing a quality control system, it is important to look for a supplier with whom you can create a long-lasting relationship. Quality needs change over time as new jobs are taken on and new customers gained. That ongoing process requires a supplier with a broad product portfolio. The ability to combine sensor and camera technologies for specific applications offer solutions that improve machine efficiency and the ability of the software interface to control these automated functions are all important. Equally important is the in-depth application knowledge to assist with today's and future needs. This level of expertise needed to deliver quality product in an efficient and sustainable way is vital as implementing a new solution to a current production process can be challenging. Having a knowledgeable, dedicated after-sales service and support team will make all the difference. The production environment is filled with variables that can impede product quality and delivery; new job requirements, substrate alterations, personnel changes, shorter delivery times, delayed materials, demands for improved efficiency are all inevitable over time and a reliable supplier will offer consistent, timely and solution-orientated support, every time.

> "Quality systems that are easy-to-use and can automate multiple areas of operation, not only find and reject bad product but inform manufacturers of the root cause of production issues, will succeed."
>
> ANDREW SIMS, W.H. LEARY

**Are different types of systems and sensors needed for hot melt glue vs. cold glue?**

**Rick Pallante** Cold glue and hot melt both are adhesives but have different makeup and characteristics. Cold glue is an emulsion where the glue is carried in another medium, such as water. When detecting cold glue, quality control companies will try and detect the water medium or will add another ingredient, such as an ultraviolet (UV) tracer. So, for a cold glue system, the glue itself is not really being detected but rather the carrier or additives used for it. A cold glue QC system could use a moisture sensor to detect the amount of water. These are small sensors widely used in the industry. Typically, the sensor shines a light into the glue bead and measures the spectrum of light that reflects back to the sensor that is not absorbed by the cold glue. It compares this absorption with the background. If the background is damp or wet, it can skew the readings, resulting in inaccurate verification results. Fortunately, wet or damp boxes are not the norm.


Baumer hhs Xtend³ system

UV tracers have their own challenges. With the increased use of UV inks and specialty UV coatings, the UV additives make the board indiscernible from the UV tracer in the glue, so the UV sensors cannot tell the difference between the two. This can create all types of challenges on the folder-gluer.

Hot melt detection is done with a thermopile detector. The sensor is looking for the temperature difference between the board and the glue and is typically placed close to where the hot melt is dispensed from the hot melt applicator to achieve the largest temperature difference possible. The sensors need to be kept at least 30 mm away from the heated hot melt gun in order not to affect the functionality of the hot melt sensor. Some hot melt sensors can limit the line speed of the folder-gluer as it can become saturated and no longer process the temperature difference. This limitation needs to be discussed before choosing a hot melt sensor.

Besides cold glue and hot melt sensors, camera systems can be used as well. Cameras can take a digital picture of each product and compare it with a baseline picture where the patterns or codes have been verified. If a picture varies from the original picture, the product is identified as non-conforming and is marked or mechanically removed from the production line. Camera systems also have traceability capability, so if a product is found to be faulty after delivery to the customer, if marked or time coded, it can be traced back to time of production, the machine it was processed on and the operator involved. These additional capabilities bring a great deal of value, and, therefore, camera-based quality control systems are more expensive than standard sensor-based systems.

Camera systems are a larger investment and the ROI makes sense when you typically have over eight lines of adhesive to monitor. Seeing is believing:

**Economics/number of glue lines** – A beverage carrier can require 16 cold glue guns to glue the carrier. This means there are 16 separate lines of glue patterns that must be verified. In a sensor-based system, 16 individual sensors are required, where a single camera could provide the needed verification. So, in this scenario, a camera system can be determined to be a feasible option for quality control.

Considering the opposite scenario with a single gun straight-line system only requiring a single sensor, a camera-based system could be an over-investment. Because of the wide variation in patterns, boxes, operator preference and setups, there unfortunately is not an easy way to say there is a general tipping point where the decision goes from sensor to camera. The decision is best discussed with a gluing and QC specialist.

**Setup time/make ready** – Adhesive sensors are quick to set up. They usually are mounted directly to the dispensing guns and follow where they are mounted on the machine. They require a simple teaching function where they memorize the correct pattern and tolerances and monitor them through the run. A camera system will require proper lighting and mounting that allows it to see the entire pattern. If a new box is run, a completely new setup needs to be undertaken, adding time to the setup. So, the length of the normal runs by the customer can have an impact on the decision between a camera system and using sensors. If a customer is changing over continuously, a camera system may not be feasible. However, if a machine is running a particular job over and over, it may well be worth the investment.

**Traceability** – A camera system will store a picture of each box and can allow the operator to trace a potential issue all the way back to the actual creation of that box. A sensor system will not be able to provide a visual output of what was good or bad about the box. If the customer received a series of bad boxes, a picture can show what the cause was while a sensor-based system will require the manufacturer to tear open the box and play sleuth to figure out what happened..

**What types of boxes would benefit the most from a quality control system?**

**Rick Pallante** Almost all types of boxes or other folding/gluing work can benefit from a quality control system, but it really comes down to who is willing to pay for it. It is similar to buying insurance in that hopefully it never needs to be used, but it is good to have if something goes wrong. How much does it cost to get a semi-trailer full of pallets of boxes back because some of them were not glued? Doing this once may not equal the amount invested in a quality control system, but how much is the manufacturer's name worth? Is it worth the risk of having the quality of the shop questioned?

I'll go back to one basic question of this roundtable. Why do you need a QC system? I'll also answer it with a question. How much is your reputation worth? ■


Valco Melton ClearVision

# WASTE EXTRACTION AND BALING SYSTEMS

INDUSTRY SUPPLIERS PROVIDE AN UPDATE.

Throughout the process of corrugated board manufacturing and converting, there is a constant and unavoidable generation of edge trim and other waste material. It is a nuisance in the production area and becomes costly, time-consuming and a threat to productivity if not handled effectively. There is little doubt that efficient waste management and associated issues, such as dust control, have gained even more importance in recent years. Increasing concern in working conditions, hygiene and the environment, as well as heightened legislative issues has meant that the topic should be taken seriously.

Automatic, high performance systems, containing custom designed equipment, have been developed to cater to all the industry's waste materials. Today's 24/7 production schedules, escalated by robust e-commerce sales, are dependent upon a truly reliable process waste handling system. Following are supplier submitted updates about their state-of-the-art-solutions.

## Scrap Conveyance Systems

The events of last year proved how essential the box and carton industry was to the health and safety of our country. The huge uptick in demand converted into the need for more scrap handling equipment and systems, as well as the associated maintenance and support services. 2021 has kept companies busier than ever, and AES has been equally busy helping customers better manage their increased volumes of scrap paper. Since 1989, customers have relied on AES to keep their scrap conveyance system running smoothly and efficiently.

Customers are adding new equipment and building new facilities to meet increased demand. We can perform an assessment of the current system to determine its ability to handle additional volume. We specialize in scrap system retrofits, and can boost capacity with additional fans, duct runs and scrap hoods. Don't forget the role of the baler at the end of the line: old or under-sized balers are often the biggest issue when adding equipment to the system, because they can't process the additional material fast enough. AES offers expert equipment selection services and can provide new and reconditioned balers to keep up with production and make your recycling program a success.

The redesigned exclusive AirShark™ rotary material separator now includes additional sizes and capacities from 20,000 to 64,000 CFM. It's ideal for new systems as well as retrofits. Many customers want to move away from rooftop cyclones. The AirShark separator fills that need nicely, delivering high air handling capacity and robust performance in a compact footprint. This versatile separator can be installed either over or under the roof. Customers have had great success using it in combination with a fresh air intake system to reduce plant heating and cooling losses, while eliminating the need for expensive dust collectors.

AES is a factory authorized provider of flame and spark detection and extinguishing systems.





AES scrap conveyance system

These life / safety systems are an increasingly important part of air conveyance systems, as NFPA, OSHA and insurance companies tighten their standards and requirements for dust control and fire and explosion prevention. Our technical staff provides expert service for these systems, as well as filter bag change-outs and other repairs requiring confined space entry.

Internally, investments in areas that improve the customer experience include expanding product and service offerings. Everything is focused on finding new and better ways to serve customers. We've also begun a massive rebranding program, refreshing our logo and look, and a new website to launch this fall.

**www.aesales.net**

## Customer Focused

Today's corrugators and diecutters are super-fast and the scrap system has to keep up. Balers are now designed to be much more productive and reliable at top speeds.

At American Baler Company the PAC series (printers and converters) continues to be a top seller for the corrugated industry. The PAC+ series features 100 hp systems, larger feed openings and more pressure – providing just what the customer desires. Some of these new scrap systems are now designed for more than 10 tons per hour. These highly productive balers still have one of the best designed tension systems featuring a single cylinder, four-way free floating tension control, which provides the heaviest bales in the industry. The Swing-away five wire tie on castors provides easy adjustment and cleaning and the pull wire technology assures an efficient tie process.

Additional benefits include the bulk wire feed systems – allowing customers to purchase wire in 1800 pound spools vs 100 pound boxes saving in wire cost and labor to change out boxes. Our bi-level stands can also reduce the footprint of wire stored with three spools on the bottom and two on the top. Helping customers with the dust these big plants produce, American provides dust seals on the PAC series. We also

One of many Engineered Recycling Systems' (ERS) installs featuring American Baler Company PAC4029-8T30.

AES AirShark rotary material separator

offer a dust pickup to both sides of the tier and rear of the machine that can be hooked up to the pneumatic scrap conveying system.

The scrap system is usually located in the back area with less air flow and/or warmer temperatures. Another offering is an air-to-oil cooling system with increased cooling capacity – up to 64% more than our standard models. This helps keep the baler running during exceptionally warm days.

The company backs up its products with 24-hour phone support, factory startup and training, as well as 19 authorized dealers.
**www.americanbaler.com**



## Performance Tested

Ohio Blow Pipe (OBP), established in 1932, is now INNOVEYANCE, as announced at TAPPI SuperCorrExpo 2021. INNOVEYANCE offers the corrugated and folding carton industries comprehensive and innovative solutions through the combined synergies of Ohio Blow Pipe and C&M Conveyor.

Rest assured, the focus and innovation will not veer from delivering custom engineered scrap removal, dust collection, air conveying and recycling systems we have built our reputation upon. INNOVEYANCE thrives on listening to the "Voice of the Customer" to understand the specific needs and values to collaborate and infuse our expertise to offer the best engineered scrap or dust system solution.

Whether a customer requires a cyclone or under-roof system or a dust-collection system, INNOVEYANCE is a leader in providing performance-tested products. This performance testing is invaluable as it provides important information, such as emission data, particle sizing and dust levels that help with EPA and OSHA permits or audits, enabling customers to make thoughtful, value-based decisions. And when it comes to knowledge of EPA, OSHA and NFPA compliance, INNOVEYANCE takes the time to inform customers on the regulations, best practices, and products to ensure compliance. In addition, INNOVEYANCE offers comprehensive system and Dust Hazard Analysis audit services that helps get any scrap or dust system back to a high-performance level and correct any operational, compliance or safety issues. An educated customer will make the best decisions.

Scrap system and dust collection choices available include:

- Cyclones that have been emission tested.





Ohio Blow Pipe's Mist-Clone wet dust filtration

- Low-profile under-roof Air-Screen®+ separator systems married to high-speed high-output balers that fit under roof when ceiling height is an issue.
- Pit belt systems that are energy efficient.
- Cleanair dust collectors with NFPA compliant accessories that have been rigorously tested and certified for compliance.
- The Mist-Clone™ wet dust filtration product designed to handle dust from vacuum feeds.
- System components including ductwork, switch valves, material handling fans, airveyors, touch screen controls, balers, shredders and dust briquetters.

Complete scrap systems, baler selection, system upgrades, cyclone replacements or system additions are a part of the full-service offering. Most important, our expert installations are performed by ISNetworld "A" safety-rated installation mechanics and experienced leads.
**www.INNOVEYANCE.com**


Ohio Blow Pipe's rooftop Air-Screen system

## Breathing New Life

Paper and Dust Pros/Baler Service Company are known for providing complete scrap and dust collection systems. One of the advantages in putting those together in a timely and cost-effective manner is our in-house equipment repair and rebuild capabilities.

The baler is the heart of a scrap system, and as component availability and lead times have been stretching out farther into the future, the ability to strip a baler down to its bones and repair, replace, modernize and customize the components provides an advantage on lead times and overall costs.

From the bare steel frame we repair, resurface, line or replace the floor and sidewalls. We drain and fully clean the hydraulic system. We hone and reseal (or replace) the cylinders. We mechanically and electrically test each component on the power unit. All wear parts, filters and oil are replaced. If the control cabinet is outdated, we remove those components and replace them with a PLC and modern control system that can be set up to communicate directly with the controls for fans, shredders, machines or other components in the facility. After a fresh coat of paint, the baler is reassembled and run through a complete battery of tests to verify smooth and reliable operation.

A new swap-and-rebuild program specific to balers keeps customers fully operational while maintaining and modernizing their existing equipment. A new or refurbished baler is supplied to replace one of the customer's existing balers. We then bring the replaced baler back to our shop and go through the complete rebuild process. For customers with multiple balers, that equipment can be used to replace another baler in their system, repeating this process until all the existing balers have been cycled out. Completely rebuilt and

Paper and Dust Pros/Baler Service Company breathe new life into old equipment.

modernized equipment keeps their operations running smoothly, safely and reliably.

Whether the refurbished baler is integrated into a complete system with a separator, filter, shredder and fans or is a replacement component in an already-existing system, our complete and comprehensive process breathes new life into old equipment.

**www.paperanddustpros.com**
**www.balerservicekc.com**

## High Production, Less Power

Since 1982, ASDI (Air Systems Design, Inc.) has been providing quality systems for the corrugated paper industry.

New corrugator plants using properly designed mechanical conveyor systems in a trench has proven to have low decibel readings, high production, and less power consumption. The older plants with







ASDI separator

screen separators inside and cyclones outside now average 300 HP or more per plant. A plant that runs 24/7 at 10 cents per kilowatt would spend approximately $165,000 per year. The new plants are running on 30 HP, approximately $16,500 per year. There are still paper handling fans required for the corrugator trim and cutters like Baysek. Their scrap is air conveyed onto the incline conveyor that feeds the baler via an air lock. The air is filtered and put back into the converting area.

Mechanical conveyors have also played a larger part on the "chop out" sections and "zero defect" sections that go to shredders or direct to balers. ASDI's modified conveyor design decreases the breakdowns of normal slider-bed conveyor belts from shifting and tearing for more reliable production, even compared to that of a paper handling fan. Wide belts of 120 inches can take scrap from the "chop out" to the "zero defect" and combine the two to feed a shredder or baler direct.

ASDI continues to use cyclones to replace old ones and under-roof material discharge unit separators for the plants that want to go in that direction.

For dust control on the vacuum feeds of diecutters and flexos, ASDI has designed a filter that meets the NFPA without using a baghouse or cartridge collector and is over 99% efficient down to 5 microns. The largest issue with most of the existing systems is the back pressure of the type of filters being used. When allowing the vacuum fans to do the work of conveying to the filter there is no additional fan to overcome the back pressure of the filter. ASDI uses a clean air fan behind the media, which is continuously cleaned by a vacuum blower and gives zero pressure between the filter and the vacuum fans from the machine. This way the vacuum fans from the machines do not see this added pressure. These vacuum fans start to crack and

ASDI filter

have stress fractures around them after going to systems without back pressure. The positive systems have much more dust around the machine area and on the ceiling. The negative dust system is the best in the long run. **www.airsystemsdesign.com**

## Keeping Up With Increased Scrap

E-commerce is certainly creating a demand for more packaging. As box plants expand and volume flowing through them increases, so too does their corrugated scrap. This puts a strain not only on valuable floor space, but more importantly it puts a strain on their bottom line.

Balemaster's EO-Series balers can help. These large-framed high capacity balers have long feed chutes and can create some of the industry's largest, densest and heaviest bales – ranging from 2000-2500 pounds in a six-foot length. The proprietary bale density control system automatically and continuously regulates the tensioning pressure creating the proper squeezing force to achieve the highest bale density possible. Denser bales mean fewer bales. Fewer bales means lower material handling cost, lower overall wire cost, less storage space and lower shipping costs – all helping to lower a facility's bottom line.

With many plants now utilizing under the roof air systems, there is less storage space available than traditional rooftop cyclones allow. The EO-Series baler has an oversized feed opening that provides greater storage capacity. Plus, the EO-Series offers feed hoppers up to 50 inches in length which is critical during increased scrap surges.

The EO-Series balers are fully automated so man-hours are kept to a minimum, allowing workers to concentrate on other things. And they're fast. The heavy-duty automatic wire-tier completes the tie-off cycle in less than 30 seconds.

In addition to our energy efficient hydraulic power packs, which are available up to 225 horsepower to meet any capacity demand, the comprehensive touch screen controller makes operating our equipment a breeze.

In all, with the EO-Series you have a baler equipped with all the features and benefits needed to keep up with all the increasing demands that the industry has to offer.

The 1200 Series heavy-duty hogger is also available for the corrugated industry. This model is ideal for shredding cores, roll peel and board without any special handling or preparation. The 1200 Series hogger features a heavy-duty arbor measuring 22 inches tip to tip with reversible steel blades. And to help visualize the operation and provide diagnostics and system efficiency tracking, it's equipped with a touch screen and PLC controls.

Balemaster baler

As a market leader in the baler industry since 1946, Balemaster has been providing innovative solutions based upon solid engineering and expertise. As customer requirements have changed over the years we have continually responded by offering products capable of cost-effectively meeting any automatic waste handling challenge. Our goal is to make your baling process more profitable. **www.balemaster.com**

## From Concept to Completion

Founded in 1968 in South Holland, Ill. and now located in Memphis, Tenn., Air Conveying Corp. (ACC) provides trim removal systems, including all of the components, state-of-the-art electrical control systems and accessories needed in today's corrugated box plants, folding carton plants and printing plants.

ACC is recognized as a dedicated partner, providing information and insight into the pros and cons of each type of system to make sure board converters get the best possible system for their budget.

ACC's motto is to not intentionally stop the paper from moving until it is in the baling chamber. Systems that have multiple moving parts will require maintenance. A trench conveyor or rotary airlocks are examples where if they fail, all of the machines on the line will have to be evacuated by hand. A Draw Thru or Neutralizing System does not only work much better to precisely regulate the down pressure in the baler chute, but they also require no maintenance and if they do fail, all of the trim removal systems can still operate until the problem has been resolved at the convenience of the plant.

Unnecessary maintenance and cleanup jobs are labor costs that can be avoided if the trim system is configured properly ahead of time. Labor is also a cost that needs to be factored in when justifying the equipment for the trim removal system. ACC can supply and install all of the equipment needed. We make everything we sell from our own shredder line, belt conveyors and Airveyors, bale transfer and weighing systems, TangentAir® Separators, Low Profile TangentAir® Separators, the Classifier® Filter, Vacuum Transfer Systems, support steel, material


ACC Classifier filter

handling fans and all of the fittings, elbows and hardware. We can also provide one of the best briquetters in the world that are not sensitive to either positive or negative pressure from the filter.

ACC is a quality provider to all of the major integrated companies as well as a huge base of independent converters. With about 150 years of combined experience, the company has the resources to handle every phase of a project, from concept through completion, whether it's a new plant or an existing operation. This includes professional engineering analysis for support steel and foundation design with stamped and certified drawings for permit acceptance. Other support functions include rental equipment, crane and electricians, plumbers and concrete contractors. ACC is also well versed in EPA, OSHA and NFPA related requirements, inspections, certifications and permits.

**www.accfilter.com**

## Adapting To Customer Needs

With over 59 years of relentless focus on process balers and shredders, Maren Balers and Shredders are well known in the corrugated box industry. The company has kept customers coming back by adapting both balers and shredders to changing customer demands. These demands include safer machines with more guards and safety redundancies and smarter machines with simple yet powerful touch screen controls to allow easier operation and troubleshooting. Many features like high temperature and low oil level alarms and other machine condition alarms are standard. Maren considers them standard because it's hard to imagine a plant manager that doesn't care about a machine condition that if addressed quickly, could prevent plant downtime.

Baler throughput, at most plants, is an ever changing target. The 24/7 super plants now have a need to process a higher volume than the plants of the past. The ProPak "A" series shear balers were developed to handle these needs with models in the field now processing over 10,000 tons per month. That's a truckload an hour! Not every plant is a super plant requiring 'super' throughput and that is why we produce the "A" series in a variety of sizes, from 30" wide x 30" long to 45" wide x 80" long feed openings and horsepower's from 20 to 150. Customer input played a role in the design of our "A" series. Customers spoke up about things like automatic self cleaning behind the ram to eliminate costly shutdowns for cleaning, easy access ahead of and behind the ram face for PM service and repairs, a long wearing replaceable ram guide system, and a bale chamber designed for maximum seal to minimize product migration, dust, debris and cleanup around the baler. Addressing those and many other important features propelled Maren's launch of the ProPak "A" series with success in multiple box plants.

The corrugated industry not only stretches baler throughput requirements on the top end, but many smaller specialty box plants are becoming conscious of their waste as well and are requiring smaller machines capable of baling DLK box trim. When one customer came to Maren with this very challenge they couldn't have expected a more valuable solution. The customer had quotes for air systems and balers that they sat on for months. They wanted to bale their scrap but the ROI just wasn't there for an air system and auto tie baler. Maren's solution was the Propak 60 closed door manual tie baler equipped with a custom variant of its popular above ground conveyor. The solution provided in-house baling of all their press trim and scrap at a fraction of their expected cost but with throughput that allowed them plenty of growth. And if bale weight and trucking was ever questionable, the concern was quickly put to rest when the first truck was loaded and shipped with perfectly stacked bales, fork lifted straight into the trailer, and much of the trailer had to be left vacant to avoid overloading.

**www.marenengineering.com**






Maren ProPak A series

also creates less wear on moving parts.

Shredders are sized to handle a customer's widest scrap and are available in sizes from 36" to 110" wide. They feature simple yet modern controls that are easily incorporated into the scrap handling control system.

BloApCo rim cutters eliminate disruptive scrap blockages, which enable web manufacturers, slitters and converters to minimize downtime and run at full speed. This is achieved by cutting the continuous edge trim and web matrix into small pieces. Small pieces move through ductwork more easily, which is especially beneficial wherever multiple sources of scrap are conveyed through the same duct. The scrap system may be required to alternate between pick-up locations as well. Diverters are specifically designed to handle pneumatically conveyed scrap, not just air. Diverters redirect scrap without clogging or leaking between duct lines, and a complete line of material handling fans provide the power required to efficiently convey scrap to the baler. BloApCo sizes and fabricates cyclones designed to never clog and provide the baler with extra surge capacity for tie-off cycles.

## Dependable Equipment

Blower Application Company (BloApCo) has been making scrap handling equipment the corrugated industry depends on since 1933, providing all the equipment and support needed to handle scrap from the point it is created until it reaches the baler.

Shredders can be installed to automatically remove rejected material from a corrugator, or to be manually fed by an operator. Every shredder can process waste stacks, cores, peel wrap and carton waste. The patented Pierce-and-Tear technology allows the shredder's shafts to run at low RPMs, making the machine reliable and quiet. Because it operates quietly, it does not need to be contained in a sound enclosure, which gives it a smaller footprint on the plant floor. The low RPM design


BloApCo shredder

BloApCo works with end-users and system integrators to size and seamlessly integrate equipment into each scrap system and provides customers with shredders, trim cutters, material handling fans, diverters and cyclones. The experienced staff regularly provides comprehensive support throughout the system design, engineering and installation processes.
**www.bloapco.com/converting**

## New for 2021/2022

Puhl has been blessed with the good fortune of continuing to operate at full capacity through the pandemic and solid production loadings into 2022. The business is constantly evolving as we further diversify our system offerings into corrugated and digital print operations and adapt/adjust accordingly with staffing and other resources.

New for 2021/2022 is the ability to offer field UL certified systems. This requires coordination with the customer's local electrical and fire suppression contractors and is a great way to upgrade safety to a certified level for those interested. Recent installations are in locations that require UL listing of the system for permitting purposes. This capability is in addition to offering optional UL listing upgrades to our system control panels.


GF Puhl 3 baler system

The use of a 3D printer continues development of our small electrical parts including form fit photo eye lenses for improved scrap flow over the lens area. This development also accelerated development of a quick change photo eye lens which can be changed on the run without tools in most cases.

The relatively new Gen 3 Floor Sweep shredder, a lower cost option for sheet plants needing to shred heavy sheets, has continued to be a hit with customers in the corrugated industry. Packaging facilities are also interested in this high performance shredder. They can shred up to 5 singlewall sheets in one pass and 2 ft of nested stacks of "food buckets" very well.


GF Puhl 1 baler system





The heated photo eye enclosures have also continued to function well and are gaining attention from customers with outdoor systems in areas that are subject to rapid temperature swings to below freezing.

Training videos professionally edited and produced are available for customers with multiple systems upon request.
**www.gfpuhl.com**

## Massive Volume

The Conquest baler from Harris Equipment was developed to bale old corrugated at very high production rates. Baling old corrugated usually involves a lot of bridging during the loading process. Because of its extremely large feed opening (72 x 72 inches) it almost never jams, bridging or hangs up with material in the feeding hopper. It bales 150 cubic feet of material on every stroke or cycle. With this massive volume of material bales on each stroke, it can produce up to 37 tons per hour of old corrugated that weighs 3 pounds per cubic foot loose. The bales measure 43 inches wide by 43 inches high by approximately 66 inches long and weigh from 2100 to 2300 pounds. With these weights a paper recycler can load 56,000 to 58,000 pounds into a 40-foot sea land container.

The Conquest has two articulating sides that open for material to fall into the baling chamber. This patented movement allows the high grade material like ledger to be able to bale without a shredder, preconditioning or fluffer. Since the high material is not preconditioned it can weigh up to 12 pounds per cubic foot. These pre-bale densities can produce production rates up to 90 tons per hour.

Harris also manufactures a line of automatic horizontal balers that can fit in an air system to bale OCC trim. These balers make bales 30 inches wide by 42 inches high by variable length. They range in HP from 20 to 100 and volumes from 3000 to 15,000 cubic feet per hour. Typically, the feed opening is 30 inches wide by 50 inches long.
**www.harrisequipment.com**


Harris baler

UNDER THE PRODUCT
**SPOTLIGHT**

# Max-Q Strapping System

**EAM-MOSCA'S NEXT GENERATION OF BUNDLING SYSTEMS ENABLES BOX MAKERS TO TAKE FULL ADVANTAGE OF FASTER FLEXOS AND BUNDLE SPLITTERS IN RESPONSE TO INCREASED DEMAND FOR SMALLER BOXES.**

Well-known for its highly successful SQ4A Tandem System, EAM-Mosca Corporation's new MAX-Q strapping system reinvents the conventional Tandem System by combining proven technologies with new designs and product handling.

As box production speeds and bundle counts continue to increase, particularly on two-up stacks of small boxes produced by box slitters or bundle breakers, EAM-Mosca looked for a way to increase bundle throughput without loss of performance or reliability.

The new system integrates two strappers whose position can be varied inside a fixed-length chassis to align with the strap-to-strap distance of adjoining bundles. This design allows it to strap two bundles simultaneously without separating the bundle after slitting. By simultaneously strapping, the MAX-Q increases bundle throughputs by 48% from 32 per minute in the current SQ4A Tandem System to 48 per minute.

Beyond the throughput benefits, the system also improves bundle handling integrity. Unstrapped bundle travel is reduced by as much as 74% when running smaller bundles. In addition, the need for bundle pacing to create separation, required for current systems, is eliminated. With that requirement removed, also gone are the momentum changes that contribute to bundle shifting. Bundle shifting demands slower run speeds and contributes to unplanned downtime. Both benefits enhance overall bundle integrity in such a meaningful way to allow for higher bundle counts and consequently even additional throughput potential.

> By simultaneously strapping, the MAX-Q increases bundle throughputs by 48% from 32 per minute in the current SQ4A Tandem System to 48 per minute.





Strapper on transfer cart

> The standard system includes three strappers, two active units, and a spare, along with two transfer carts.

## Strapping Feature

The MAX-Q features a patent-pending variable-length roller conveyor that enables a 48% reduction in line space compared to the SQ4A Tandem System, from 160.8″ to only 83.6″. The space-saving shorter footprint simplifies the high-speed conveying of unstable small box bundles that complicates conventional bundling systems.

The simultaneous strapping feature allows the MAX-Q to strap twin bundles as short as 7″ each (produced from a single 14″ bundle before slitting) and as long as 25″ each (produced from a single 50″ bundle before slitting). The maximum one-up bundle length for centered straps is 40″ with maximum widths of 56″ with squaring and 63″ without squaring. Larger boxes in one-up bundles are typically strapped by the downstream strapper, with the upstream unit on standby in the event of technical issues. In this case, the system can strap up to 24 single bundles per minute. System setups are fast, convenient, and performed by operator input or data transfer from the flexo or upstream control system.

The Max-Q can be configured in left- or right-hand versions and features the highly successful Mosca SoniXs® Series 6 sealer and strap track found in the SQ4A Tandem System. The standard system includes three strappers, two active units, and a spare, along with two transfer carts to provide fast, convenient bundler removal and insertion in under 5 minutes for maximum uptime with convenient offline storage. Due to the new bi-directional accumulator, each strapper is interchangeable and can be placed in either the up or downstream position within the Max-Q chassis. Dual dispensers with automatic coil changers come standard, and a portable maintenance station provides the ability to perform strapper maintenance remotely.

EAM-Mosca's Max-Q brings the next generation of bundling systems to the corrugated industry, enabling box makers to take full advantage of faster flexos and bundle splitters in response to increased demand for smaller boxes.

Combining proven strapping technology with new designs shows why EAM-Mosca Corporation is the technology leader in strapping and end-of-line packaging systems. ■

Max-Q spare strapper with maintenance station

FOR MORE INFORMATION
**EAM-MOSCA CORPORATION**
**www.eammosca.com**

# High-speed Variable Imager

DigiFlex™ is a new high-speed, inline, variable data printing system from JB Machinery that can be installed on virtually any flexo folder-gluer, rotary or platen diecutter, specialty folder-gluer or anywhere space will allow the top printing device to be installed. The portable print engine design also allows the system to be transferred between machine lines that meet the operating requirements. "DigiFlex brings the versatility of digital printing to analog printers and introduces value-added printing capabilities to traditionally non-printing processes," says Dave Burgess, Sales Director, JB Machinery. "Brand owners are looking to maximize their packaging, unboxing experience and overall loyalty, especially in the ever-expanding ecommerce market. The ability to add use or assembly instructions, personalized marketing messages, AR and many other forms of variable data including QR, SKU codes, serialization and cert stamps, creates additional value-added options they may present to their customers."


DigiFlex can print single color QR or bar codes, serialized numbering, personalized marketing, certification stamps and more, to the inside or outside of any box or blank. The 600dpi head prints high resolution images at speeds up to 1000 fpm (300 mpm) on virtually any coated or uncoated stock. A recirculating, filtered, self-cleaning ink system keeps ink fresh and clean to minimize print head maintenance and maximize system efficiency. Integrated water-cooled LED UV curing instantly sets the ink maximizing throughput and eliminating offsetting. The system is also operable as a water-based ink configuration. The integrated control and graphic editing system allows the operator to easily load, create and/or edit graphics and set up, edit and store job specification, which can be recalled from memory for quick setup of repeat orders. The drag and drop graphic WYSIWYG editor supports TIFF and PDF graphic formats, CSV files for variable data printing and supports over 50 barcode standards including code 128 and 93.

FOR MORE INFORMATION
JB MACHINERY
www.jbmachinery.com

# Baler Updates

American Baler's W721 and W828 2-Ram balers now come with a power unit and manifold block designed with off the shelf Parker Din Cartridge valves on the manifold and standard Directional Control Valves. All the pumps have their own Pressure Control Kit for all (3) stages of pump. No unloader blocks. "Warranty claims were higher than desired with our manifold blocks and our engineering risk evaluation model led us to these cartridge valves," says Jim Wolfe, VP Engineering & Customer Service. "The new design is easier to build with less errors." Mike Schwinn, Sales Manager, adds, "This change was implemented in our larger W828 series two years ago and the results have been superb, so improving the W721 was a logical next step." The W721 2-Ram series is American Balers most popular model. While it is a wide body baler it is priced closer to many narrow body machines. The price point fits many MRF applications as well as paper, plastic, and non-ferrous metals plants.

FOR MORE INFORMATION
AMERICAN BALER
www.americanbaler.com

# 500 kpm Prefeeder

The Inverting Top Feeder (ITF) is Alliance Machine Systems International's latest prefeeder for high performance flexo folder gluers. "As OEMs find clever ways to increase thruput, Alliance is challenged to produce high performance feeders that match the capacity of the finishing machines. The ITF was specifically designed for high-performance, double-kick flexo folder gluers," says Rick Wilkinson, Alliance's Vice President of Sales and Marketing. The ITF inverts the entire infeed stack and controls the delivery into the variable depth pre-hopper. The pre-hopper is designed to minimize the depth of the drop the blank must travel during a changeover, which helps minimize pre-hopper jams. The pre-hopper then acts as a blank reservoir that maintains a continuous shingle while running. The continuous shingle stabilizes product flow into the finishing machine hopper. Other features include a 3-belt extendo to minimize belt edge wear when running small blanks, a deluxe waste gate that allows removal of waste sheets without the operator having to climb under the extendo area, an about 12-inch load side shift to align incoming loads, and Autoset for quick changeovers.

FOR MORE INFORMATION
**ALLIANCE MACHINE SYSTEMS INTENRATIONAL LLC**
**www.alliancellc.com**

# Remote Service App

Baumer hhs is now using TeamViewer Pilot to provide packaging manufacturers with instant assistance. Machine operators and technicians can download the free TeamViewer Pilot app to their smartphones. Based on augmented reality, the interactive remote service app is a real-time technical support tool for helping customers minimize machine downtime. Machine operators can use the camera on their smartphones to show Baumer hhs service experts the inside workings of their production systems. Thanks to 3D object tracking, service experts can draw markers on the images, such as circles or arrows, point out details, add text annotations and share this information with machine operators via live video stream. "With TeamViewer Pilot, our service experts can effectively help customers resolve most technical problems that occur and get their production systems back up and running without delay. Should a customer still need on-site service, we can optimally prepare for it based on the information provided in the real-time visual support session. TeamViewer Pilot gives our technicians added options for maximizing the availability of our customers' production machines. We highly recommend the remote service app for these reasons," explains Roberto Melim de Sousa, Head of Sales at Baumer hhs GmbH. The company is working to establish the app among customers globally. TeamViewer Pilot can be downloaded free from the Apple App Store or Google Play Store for iOS and Android smartphones.

FOR MORE INFORMATION
**BAUMER HHS**
**www.baumerhhs.com**

# Flexo Plate Cleaning

Baldwin Technology Company's new state-of-the-art Ultra Wide FlexoCleanerBrush™ is a fully automated flexo plate-cleaning system that can be up to 126 inches (3.2 meters) wide. The FlexoCleanerBrush is Baldwin's flagship solution to enhance print quality and improve worker safety in corrugated printing. The system automatically removes dust and contamination from the plate in seconds during production, without stopping the press. It also performs full end-of-job plate cleaning and drying in fewer than four minutes, enabling increased uptime and sustainability. Because it is fully automatic and spans the entire width of the plate cylinder, it improves safety by eliminating routine operator contact with the machine and reduces the risk of operator contact with wash agents and cylinder nip injuries. The core of the Ultra Wide FlexoCleanerBrush is made of carbon fiber, which ensures a stable, uniform and consistent flexo plate cleaning throughout the whole width of the plate and keeps this wide system to a minimal weight.

FOR MORE INFORMATION
BALDWIN TECHNOLOGY COMPANY INC
www.baldwintech.com

# Corrugating Additives

Henkel's new Aquence Halo product line replaces standard powdered borax to improve safety and efficiency in corrugating starch operations. Using powdered borax is labor intensive and an operator safety concern – with risks including the inhalation of borax dust and lifting of heavy bags to load hoppers – and prone to dispensing inaccuracies.

The Aquence Halo product line of corrugating additives offers a viable alternative to standard powdered borax, with some products including a rheology modifier to reduce starch consumption. "The new corrugating additives provide trusted performance and improve operating efficiency," says Mark Mitchell, Senior Manager Technical Customer Service, Henkel Paper Solutions North America. "Our Halo line increases worker safety while reducing downtime on corrugated production lines, which improves productivity and reduces cost."

Benefits include:

- Operator safety – no lifting, cutting bags, climbing to load hoppers, inhalation of borax dust, or slip hazards from powder spills
- Dosing accuracy – consistent viscosity and gel point assures starch placement
- Clean machining – reduced slinging so there's less clean up: the starch goes on the flute tip and not on the machine, floor, etc.
- Production efficiency – less monitoring and downtime gives operators time to complete more value-added tasks.

FOR MORE INFORMATION
HENKEL
https://www.henkel-adhesives.com/us/

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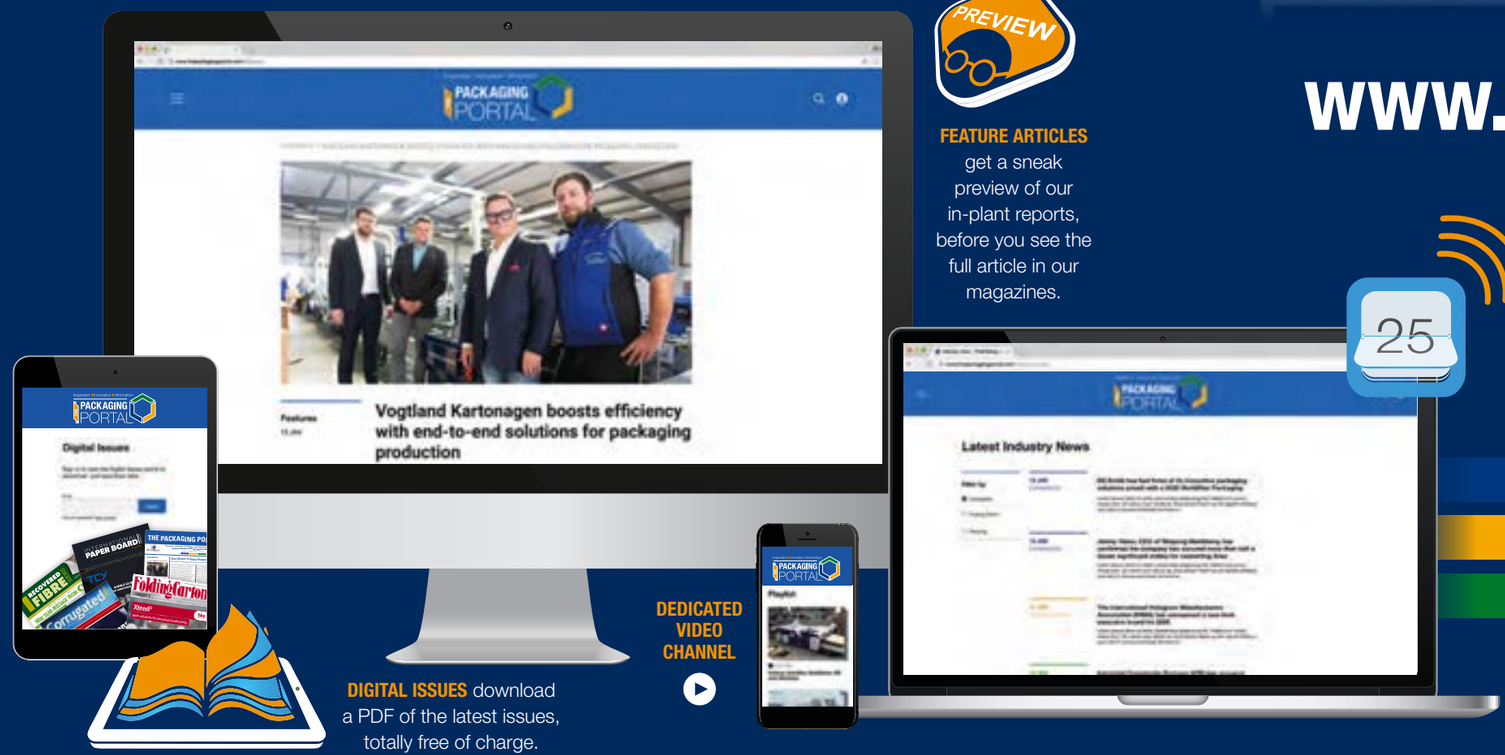


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# Flexo Print Technology


UK-based flexographic pre-press specialist Reproflex3 has confirmed a new technical partnership with ARC International to deliver its VORTEX™ print technology to the Americas. The partnership is aimed at the growing demand for high-quality corrugated packaging graphics across all flute types and print across the territory. Vortex technology allows post print graphics to be produced at higher screen levels with superior solid coverage. Designs that would normally be printed using a pre-print or digital process, can now be more cost-effective and printed directly on a flexo folder-gluer. It will also allow brown box printers to achieve better ink coverage on their boxes due to how the ink is transferred from the plate surface. According to Reproflex3, Vortex delivers improved press setup time, high impact graphics and super solid color densities. The new alliance will be supported by Canada-based DTM Flexo Services and Pacificolor, a leading supplier of pre-press services in both the US flexo and offset print industries.

FOR MORE INFORMATION
**REPROFLEX3**
**http://reproflex3.com**





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