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VOLUME 42 | ISSUE #2 | APR – MAY 2020

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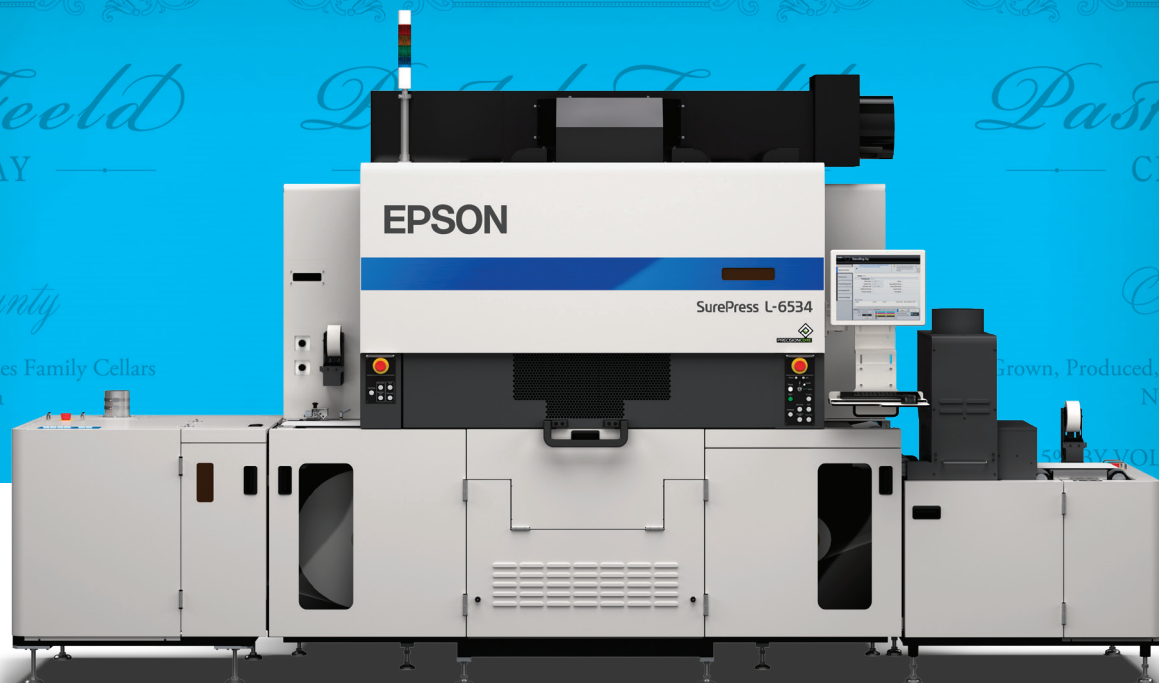
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L&L

– Meet the team

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Subscriptions

E: subs@labelsandlabeling.com
ISSN: 1478-7520

Printed by

Bishops Printers, Portsmouth, United Kingdom

US mailing

Labels & Labeling (USPS No: 002-914) is published
bi-monthly by Tarsus Exhibitions and Publishing Ltd and
distributed in the US by SPP, 95 Aberdeen Road, Emigsville
PA 17318. Periodicals postage paid at Emigsville, PA.

Postmaster: Send address changes to Labels & Labeling,
3175 N. Patrick Blvd. Suite 180, Brookfield, WI 53045

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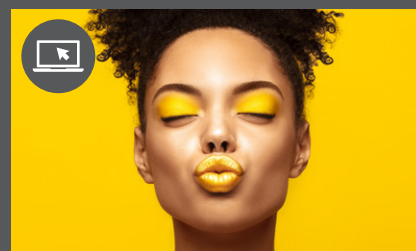
China's label industry hit by coronavirus (features)

How are the country's label converters responding?



Label Leaders Episode 2 (video)

TLMI features Label King in the second of its video series



Read L&L issue 1 online (magazine)

Previous issue of L&L is now available to read online



Brands don't exist without packaging (opinion)

Branding and design columnist Vicky Strull's latest article



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L&L looks back (L&L issue 2, 1989)



The complete solution to roll-label estimating

The production of roll labels is today a complex business involving a large number of possible variations – quantities, sizes, prices and press time, inspection and finishing. Production deadlines are often shortening and new labels, demanding, while quality and performance requirements are constantly increasing.

The all these factors together and the pressure on the label producer estimating department to give customers the most accurate and fastest estimates, led to the development of the SLC Roll Label Computer Estimating System. This system provides a complete solution to roll-label estimating, from the initial enquiry to the final estimate, and is the only system of its kind in the world.



The SLC Roll Label Computer Estimating System is a complete solution to roll-label estimating, from the initial enquiry to the final estimate, and is the only system of its kind in the world.



Today's pressure-sensitive meet the challenges of tomorrow

In the lead up to Labelexpo USA, Mike Fairley visits the FASSON research and production operations in the States to assess how the company is meeting current and future developments in the laminate and label user marketplace.

After 2000 years of history, the laminate and pressure-sensitive adhesive industry is still a very young one. The industry is still in its infancy, and the challenges of tomorrow are still ahead of us.

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LABELEXPO USA

Rosemont O'Hare Exposition Center, Chicago
May 9-12, 1989

LABELEXPO USA PREVIEW

Labels are everywhere, and they are becoming more and more important. They are the key to many businesses, and they are the key to many of our lives.

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European labelstock giant looks to the 1990s

It is little more than 15 years since Raflatex delivered its first pressure-sensitive material to a customer. Today, the company has a major share of the European and worldwide laminate market, with further product development and capacity investments taking place. Mike Fairley visits the company in Finland to review the developments taking place.

Raflatex is a Finnish company, and it is a very young one. The company is still in its infancy, and the challenges of tomorrow are still ahead of us.

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P12 L&L investigated a SLC Roll Label Computer Estimating System. It provided the first complete solution to the calculations required in roll-label estimating and operated on industry-standard computer hardware (IBM PC). The estimates were produced in less than a minute in up to five different quantities and then printed in letter form through a word processing program.

P24-25 Mike Fairley visited FASSON research and production operations in the United States to investigate its advanced laminating line at the Fort Wayne plant and assess how the company was meeting developments in the laminate and label user market and had continued its progress in quality performance, process improvements and reducing overall wastage.

P28-29 Labels & Labeling published a comprehensive preview article for Labelexpo USA, which was taking place in Chicago in May that year. The exhibition had more than 2,000 visitors pre-registered in March and was set to be an outstanding event for the world of labels, with a wide range of new product launches and services on show.

P50-51 Mike Fairley visited Raflatex's headquarters in Finland. The company was celebrating more than 15 years since delivering its first pressure-sensitive materials to a customer and already at the time held a major share of the European and worldwide laminate market, with exciting developments and capacity investments taking place.

Coronavirus dominates headlines

Editor's note

These are strange, unsettling times. As I write, much of the world is on lockdown as the coronavirus continues its rapid spread. Our first thoughts, needless to say, are with the safety and security of our readers and their families.

The impact of the coronavirus on the label and package printing industry will be felt hard, as in all other areas of our lives. As this edition of Labels & Labeling went to press at the end of March, the situation was changing daily.

Three of our writers report on the crisis: Mike Fairley considers its impact on the global supply chain; Chelsea McDougall reports on the industry's response in North America; Yolanda Wang spoke to both equipment suppliers and label converters in China to learn the effect on their businesses.

As Mike Fairley says in his

"Our first thoughts are with the safety and security of our readers and their families"

column in this issue, written as the virus started to spread in Europe, the situation has drawn wider attention to the connected nature of today's global economy. China is a key link in imports and exports for all major economies, with many global companies relying on suppliers from country. This was causing supply chain issues even before the spread of the virus to Europe and other parts of the world.

Chelsea McDougall, writing as the US reported the highest number of cases in the world, reports on the impact of the coronavirus on US converters. US label association TLMI, meanwhile, has written to members of the US House of

Representatives and US Senate asking them for clarity on essential business designations, and to urge federal government leaders to support designating label manufacturers as critical suppliers. TLMI president Dan Muenzer emphasized the key industries which label converters supply, including food, beverage, pharma and medical equipment.

Yolanda Wang, writing as the number of cases was still rising dramatically in China, describes the restrictions placed by the government on the country's label converters, and the impact of reduced orders on its equipment manufacturers. Smaller companies are being hit hard, reports Wang, and

many will not survive. Increased consolidation may be the result, as larger companies occupy the vacant market space. Focus on automated technical support will surely quicken. Spikes in online shopping, and huge demand for sterilization and other protective label products, have boosted some areas of business, but this is surely outweighed by the hit in other sectors.

The longer term effects, on not only the label industry but also our lives in general, are still uncertain. We can only hope that things begin to improve soon. In the meantime, stay safe.

James Quirk

James Quirk
Group managing editor

News



Avery Dennison's factory in Vinhedo, Brazil

Avery Dennison invests in new RFID factory in Brazil

Vinhedo will host fifth RFID manufacturing site globally

Avery Dennison is gearing up for future growth of RFID technology with a new manufacturing facility in Brazil. Just months after signing a deal to acquire Smartrac's transponder division, Avery Dennison announced the location of its next RFID manufacturing facility, its first in Brazil and fifth in the world. The new factory will be located in Vinhedo, the base of the company's existing pressure-sensitive business in Brazil, and open in 2021.

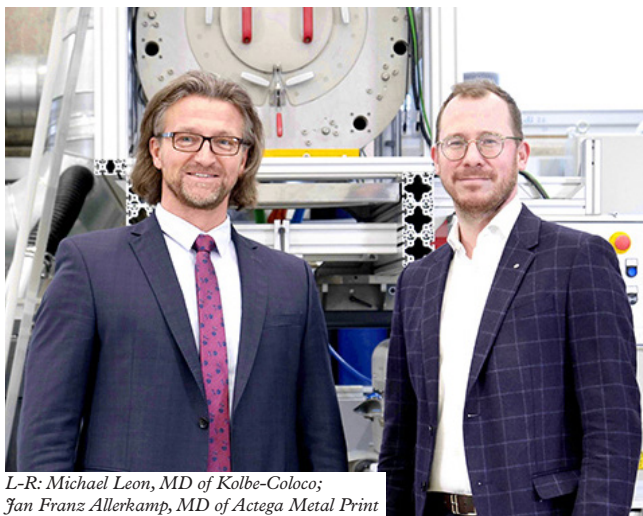
'We are very proud to announce this investment in Brazil as it represents an important step for industry 4.0 growth not only here, but throughout South America, with technology that has proven its ability to increase inventory accuracy, improve supply chain agility and increase visibility across all channels, besides enabling greater customer interaction and engagement,' said Ronaldo Mello, vice president and general manager, Avery Dennison Latin America. 'In addition to Brazil, Avery Dennison's RFID division has a plant in Mexico in Latin America.'

With advanced technology to produce Radio Frequency Identification inlays, Avery Dennison's new plant will have the potential to meet market growth, as evidenced by recent demands for projects in various segments.

'We believe in a future where every item will have a unique digital identity and digital life, with the ability to create richer consumer encounters,' said Francisco Melo, global vice president and general manager, RFID, Avery Dennison. 'We are committed to developing and expanding our intelligent labels business to enable this vision in many directions. Through a solid portfolio of intelligent RFID solutions, the new manufacturing facility will increase speed and delivery across South America, furthering our vision of a connected world.'

Resource Label acquires Axiom

Resource Label Group, a portfolio company of First Atlantic Capital and TPG Growth, has acquired Los Angeles-based Axiom Label & Packaging – its sixth acquisition in California.



L-R: Michael Leon, MD of Kolbe-Coloco;
Jan Franz Allerkamp, MD of Actega Metal Print

Actega Metal Print announces EcoLeaf beta testing

German converter Kolbe-Coloco begins trials

Actega Metal Print has named German printer Kolbe-Coloco Spezialdruck as the world's first beta customer for its sustainable metallization technology, EcoLeaf. Focusing on high-end applications, the converter will use EcoLeaf to print metallization embellishments onto self-adhesive labels for a broad variety of markets. The company cites the eradication of foil and its sustainability advantages as a key decision.

Kolbe-Coloco, part of Hamburg-based group H.O.Persiehl, is receiving EcoLeaf operator training. The unit's installation on a 12-color Gallus RCS press, with a combination of offset, flexo and screen in-line, began in early March. 'Our business is focused on print services that create a greater connection between brand and consumer, to ultimately aid sales. We do that by employing some of the best print technologies on the market, and EcoLeaf is a perfect example of this,' said Michael Leon, MD of Kolbe-Coloco. 'Eradicating foil is an incredibly important milestone in our industry, and this technology looks poised to support that. We have no doubt that our customers will embrace EcoLeaf with open arms, but we also know that they will love the opportunity to add cost effective and amazing metallization to their jobs too – this solution has the potential to be a serious game changer.'

The basis of EcoLeaf is a silver pigment that can be overprinted, leading to a rainbow of metallic colors including gold. Integrated in-line on analogue presses, digital printing presses or finishing equipment – either new or retrofitted to existing equipment – EcoLeaf consists of a printed trigger image and a metallization unit that applies only the precise and required amount of metal to the trigger image. The technology is expected to be commercially available in mid-2020.

Western Sheild acquires Label Print

US converter Western Shield Label Company has acquired Label Print Technologies, in line with its continued growth plans and to expand its presence in Ohio and the Midwest.

News



API's European foil business is back from the brink

Aldus acquires business of API Foils Europe

Deal creates new company, API Foilmakers

Aldus, an Australian company with operations throughout Australia, New Zealand, Malaysia and USA, has acquired the business of API Foils Europe (excluding its Dutch and Asian subsidiaries), creating a new company named API Foilmakers Limited.

API Group initiated bankruptcy proceedings in the UK and US in February.

Among Aldus group companies is Milford Astor Foilmakers, which manufactures foil in Australia and distributes it worldwide.

The new company will be led by Will Oldham, who was managing director between 2012 and 2015, and key members of the existing senior management team. 'I am delighted to be back leading the API's European foil business which has been at the forefront of quality graphic stamping foils for many years,' said Oldham. 'Joining the Aldus Group will give our team the financial strength and support to ensure the we can continue to deliver the highest quality product to our customers across Europe and the world.'

'We are particularly pleased to be restarting the Scottish manufacturing facility and ensuring the continuing operation of our distribution hubs across Europe, delivering 160 jobs, including more than 100 in Scotland.'

Frank Floriano, Aldus CEO, added: 'API has long been viewed as a market leader in high quality foils and we were very pleased to acquire the business. We are committed to provide additional capital and support to ensure that API will continue to supply its existing customers and invest in the development of market leading products.'

Commercial director Mark Gilbert said: 'We are delighted to be back in business and I would like to thank our customers for supporting all of our teams across our sites over the last few weeks and also those that helped us during the acquisition process.'

Kingfisher Labels reports record year

UK converter Kingfisher Labels has reported a 20 percent increase in turnover compared to the previous financial year, the best result in its history. The converter announced its financial results for the 12 months ending January 2020. Compared to the previous financial year Kingfisher's turnover increased by over 20 percent to nearly GBP 2 million (USD 2.58 million), a record for the company in the run up to its 25th anniversary.

'We continually invest in the latest technology to ensure we are agile enough to constantly meet the evolving preferences of our customers,' said Karl Jackson, production director at Kingfisher Labels. 'We have recently purchased two new Edale printing presses, to add to our existing armory, as part of a multi-million-pound investment program into machinery, infrastructure and people.'



Cover story

L&L's front cover uses Kurz's Lumafin transfer product

The front cover of this edition of L&L has been decorated using the semi-transparent Lumafin transfer product from Leonard Kurz. Lumafin is transferable by hot stamping (used for the cover), cold transfer, or digital transfer.

'Hot stamping, cold transfer and digital transfer products normally have a high covering power – not Lumafin, however,' said Elke Andersch, marketing manager, packaging and print at Kurz. 'This transfer product creates transparent effects and allows the printed motifs underneath to shine through in a deeper or modified color. It overlays the print image like a glossy shimmering veil and makes it appear as if it is at a depth. As the viewing angle is changed, an eye-catching effect occurs: the semi-transparent varnish transforms into a high-gloss, metal-like reflective color.'

Lumafin is available in various standard colors and in a transparent version – the latter was used for the L&L cover. It creates light effects that are similar to spot coatings. The advantage compared to spot coating, according to Kurz, is that Lumafin applied by hot stamping does not require a printing unit. This eliminates the time-consuming cleaning of the unit, which would normally be necessary before spot coating.

A Lumafin grade for sheet-fed printing was used for the L&L cover. A grade for narrow web printing that makes these effects available for label design has also been developed. Lumafin produces an ultra-thin, flat layer when applied. This makes the transfer product suitable for finishing roll-fed labels as no distortion occurs as the labels are wound up.

News



The project has been nominated for the Plastics Recycling Awards Europe

Herma, Polifilm and Schäfer-Etiketten enter recycling project

Labels produced entirely from recovered PE packaging

German converter schäfer-etiketten has started producing labels entirely from recovered PE packaging with Herma wash-off adhesive and Polifilm's products. The project has been nominated for the Plastics Recycling Awards Europe and has generated interest from drugstore chain dm-drogerie markt.

Based on a Herma self-adhesive material and a Polifilm product, schäfer-etiketten has produced a PE label consisting entirely of post-consumer recycled (PCR) material recovered from milk bottles. Last year the three companies received the German Packaging Prize for another PE label that's also a completely recycled product but made from equal portions of domestic refuse and industrial waste.

'At present, polyolefin packaging is often recycled without the labels being removed, so that the recovered material contains printing inks, varnishes and adhesives as well. Quality shortcomings are therefore inevitable,' explained Volker Hurth, the cosmetics key account manager for schäfer-etiketten. 'In consequence, we can produce vast quantities of flowerpots and park benches from recycled materials, but continue to use virgin plastics or, at best, only small amounts of recovered materials in cosmetics packaging.'

The Herma wash-off adhesive 62Rpw allows the labels to be washed off without leaving any residue so that they can be removed from the recycling stream together with the adhesives and inks.

'This marks a highly significant step towards the recovery of high-purity pellets from shampoo bottles for example. It's the only way of radically reducing the use of virgin PE and conserving resources,' commented Dr Thomas Baumgärtner, managing director of Herma. 'Last year we demonstrated the capabilities of our special wash-off adhesive in combination with PET bottles. We are now very proud to be offering a similar solution for other PE plastics.'

'We simply have to combine these two innovations with intelligent sorting technology, for instance using invisible barcodes or fluorescent markers,' added Volker Hurth of schäfer-etiketten. 'We have engineered a solution capable of genuinely enhancing the material cycle – provided that recycling operators switch from cold to hot washing for PE/PP. It's already a matter of course with PET bottles, so that it must be worthwhile adopting the process for PE/PP as well.'



The new Manchester location complements Accraply's global manufacturing footprint

Accraply to open manufacturing center in the UK

New site planned for Greater Manchester

Accraply will create a new innovation and manufacturing center in Irlam, Greater Manchester, UK.

Accraply is part of Barry-Wehmiller and is a manufacturer of automated label application systems, as well as converting and finishing equipment for the shrink sleeve and flexible packaging markets.

The new Manchester facility brings together three British brands – Harland, Graham and Sleeveit, with their associated self-adhesive and shrink sleeve labeling technologies – in one site, enabling shared innovation and manufacturing efficiencies.

'Accraply's investment in a larger, modern facility provides a strong foundation from which to grow and serve our expanding global customer base,' said Séamus Lafferty, president of Accraply. 'It will provide our team members with a state-of-the-art facility and serve as an excellent location to showcase our expanding range of labeling and sleeving solutions.'

By summer 2020, the 46,000 sq ft facility will house engineering, manufacturing and all related support functions. It will also act as the support hub for Accraply's sales and service network across the EMEA region and provide the company with a base from which to share best practices and engage with technology and supply chain partners.

The new Manchester location complements Accraply's global manufacturing footprint, with locations in the US and Canada, as well as service hubs across North America, the UK, Mexico, France, Germany, Italy and China.

Arden Software builds European training center

UK-based Arden Software has started the construction of its new European headquarters near Stuttgart, where its German division which will also house a state-of-the-art training facility.

The software company, which has its UK headquarters in Marple, Stockport, UK, specializes in CAD and CAM software for the print and packaging sector, with its Impact packaging design software being used all over the world.

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News



Glenn and Sue Hutchison, the chairman of the board and his wife, cut the ribbon. Also pictured are Larry Hutchison and Jim Hutchison

UEI Group opens new headquarters

The UEI Group of companies recently inaugurated its new global headquarters, located at 9000 Nieman Road, Overland Park, Kansas, USA, in January of this year.

To commemorate, the UEI Group held an opening ceremony for employees and local officials which concluded with a ribbon-cutting by Glenn and Sue Hutchison, the chairman of the board and his wife.

UEI Group was founded with one company by Glenn E. Hutchison in 1971. Since then, the UEI family has grown from a

single company and a few employees to multiple businesses in various locations.

The new UEI Group headquarters was completed in advance of the 50-year anniversary of the original UEI company, Universal Lustre Leaf.

With the continued growth and expansion of UEI Group (Universal Engraving, UEI Systems, UEI Falcontec and Infinity Foils), the company wanted a separate UEI Group facility dedicated to the advancement of all group companies. Under the guidance of an executive team, the new UEI Group headquarters staff can better coordinate the global needs of all UEI businesses. The new facility also contains an R&D program focused on developing new products and processes for the foil stamping and embossing industries.

Heading the executive team is Larry R. Hutchison, president and CEO of Universal Engraving. 'Helping each UEI Group company to better meet customer expectations, product needs and experiences is paramount with the Hutchison family and it's an integral part of the core foundation that built each UEI Group company,' said Larry Hutchison. 'We are thrilled with our new UEI Group world headquarters and the symbolism for which it stands and unites a unique group of companies for the betterment of the industries that they serve.'

The UEI Group headquarters is near several other UEI Group businesses and adjacent to Universal Engraving's facility, which was recently renovated.



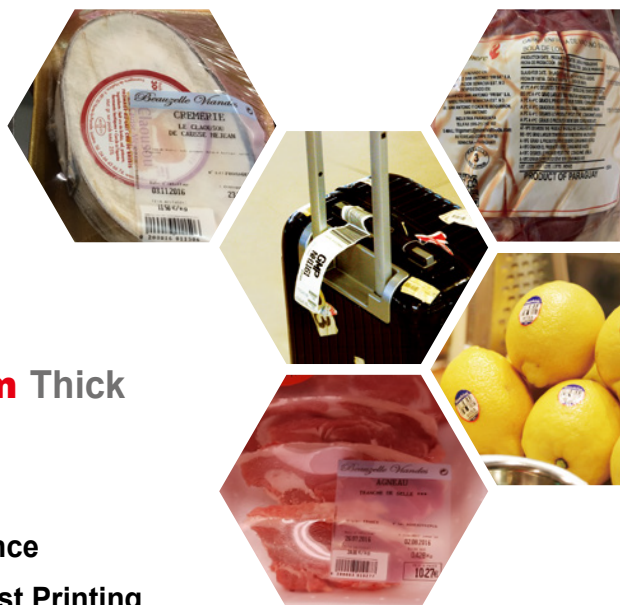
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News

MPS opens US headquarters

MPS marked the opening of its new North American headquarter in Levittown, Pennsylvania, with an open house in January. The 'Labels Connected' open house featured live demonstrations of a 13-inch hybrid EF Symjet hybrid press, with seven flexo print units, a six-color inkjet engine from Domino, a delam/relam unit with turner bar, cold foil and lamination units, die-cutting and a conveyer belt in-line.

Audience members heard customer testimonials from MPS customers, Tara Halpin, of Steinhauser, and Tom Staib of DWS Printing Associates. Steinhauser recently installed a 12-color, fully automated EF flexo press, and DWS has the hybrid EF Symjet press.

MPS was joined at the grand opening by industry partners including Cyngient, Domino, Esko, Flexo Wash, Imageworx, Kocher+Beck, LabelTraxx, Miraclon (Kodak), Prati, Twisted Rope, UPM Raflatac and Zeller+Gmelin.

MPS moved its Technology and Expertise Center to Pennsylvania, from Green Bay, Wisconsin, earlier this year. Michael Weyermann, VP of sales and marketing at MPS, said: 'Levittown, our new home, is conveniently situated between two major hub airports, Philadelphia and Newark. Additionally, the move allows MPS to share a facility with our partner Imageworx. We're really excited about this next chapter for MPS in North America.'

Atlas Copco to takeover Isra Vision

Atlas Copco and Isra Vision have signed an agreement for the latter to become a new division within Atlas' Industrial Technique business. As part of the agreement, Atlas Copco will launch a voluntary public takeover offer for all outstanding shares of Isra Vision. Atlas has already secured 34.9 percent of the shares via irrevocable undertakings from various shareholders.

Isra Vision will continue to operate under the same brand, with its headquarters in Darmstadt. The major shareholder, Enis Ersü who founded the company, has agreed to stay on as CEO and facilitate the integration.

'Surface inspection and 3D machine vision are part of Atlas Copco's long-term strategy,' said Henrik Elmin, president of Industrial Technique business at Atlas Copco. 'Isra Vision has a strong brand and market position, a highly regarded technological expertise as well as a solid financial track record. The ability to offer both joining technologies and machine vision solutions for the same application strengthens our position as a strategic partner for our customers in the future.'

'Atlas Copco is the committed and long-term owner I have been looking for to give Isra Vision a platform for further growth,' added Enis Ersü, CEO of Isra Vision.

SII



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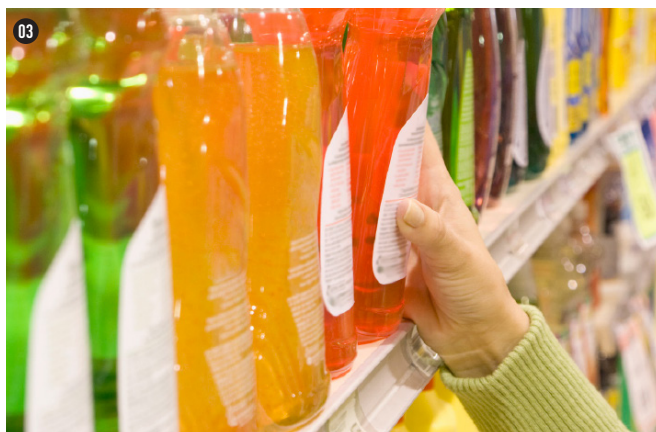


Gallus Labelfire 340

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Offering the industries best inkjet image quality at native 1200 dpi and fully integrating flexo printing processes, makes the Gallus Labelfire 340 a one of kind industrial-strength digital label converting solution.

New Products



01 *GripTight and SureLock adhesives*

Spinnaker Coating

GripTight is an aggressive, hot melt rubber-based adhesive designed for difficult surfaces, specifically building materials, manufacturing and packaging products, horticultural products, plastics, and woven surfaces. While it is a heavy coat weight, it can be die-cut, striped, and dispensed well compared to other similar aggressive adhesives as it doesn't require adhesive pattern application. The second product, SureLock, is another aggressive, hot melt rubber-based adhesive that offers excellent adhesion to textured substrates. To succeed in this environment the SureLock holds fast to the substrate, and then flows into the nooks and crannies. It is suited to substrates including foam, burlap, lumber, seed bags, and many other industrial type applications. 'Both of these products have proven to solve many challenges that our customers have had when

using labelstock for various difficult-to-stick-to applications where standard adhesives have failed,' said Joel Ulrich, roll product marketing manager.

02 *Integration with HP PrintOS Label Traxx*

With the new Label Traxx collaboration, HP Indigo digital press users can connect Label Traxx's MIS to HP's PrintOS to access information captured by the HP Indigo press such as production time, ink and media usage. The data fed from PrintOS Print Beat Jobs API is included in the Label Traxx cost analysis to reach accurate job costing. 'We finally have the remaining piece to the puzzle when it comes to post-production calculations for digitally-printed jobs,' said Ken Meinhardt, president of Label Traxx. 'HP Indigo press users now have the real "actual" data when it comes to comparing estimated ink, media and production time versus actual production.'

03 *Pearl and Storm polypropylene films* Technicote

Pearl is a top-coated, multi-layer cavitated white polypropylene developed for general purpose films and is available in both a 2.3 mil and 2.6 mil option. Storm is a non-top-coated polypropylene developed to offer performance, savings and service. It is focused on customers with an HP Indigo press, those using in-line primers for a digital print engine or those with corona treatment units or over-laminating stations. Storm is available in both a 2 mil clear and 2.3 mil white option. 'Pearl and Storm add to Technicote's versatile line of polypropylene products,' said Ed Klene, marketing director of Technicote. 'By combining Pearl or Storm with the right print engine, these products not only provide our customers with outstanding quality, but also offer outstanding value in today's tough environment.'

04 *MicroHawk smart cameras* Omron

The new V/F400 and V/F300 Series smart cameras are the latest additions to Omron's MicroHawk line that combines code reading and vision inspection capabilities into a single device. The company designed them especially for manufacturers who are looking to simplify their product inspections. By bundling multiple capabilities together, the new cameras will lower hardware costs and minimize the work required for commissioning and maintenance. Powerful technologies such as liquid lens autofocus, and a high-resolution 5-megapixel color camera ensure precision while promoting greater flexibility in production line layouts. The compact size makes it easy to embed them within space-constrained equipment and offers wide variety of supported communication interfaces include Ethernet/IP and Profinet for added flexibility.

New Products



05 *Eco-friendly AQ* *Contrast Enhancer* **Toray**

The AQ Contrast Enhancer is an eco-friendly post treatment for waterless offset printing plates that enhances the contrast after CTP-exposed waterless plates. It is specifically designed for the use with punch-bending and sorting equipment that need plates with an excellent contrast. Even after treatment of waterless offset plates, AQ Contrast Enhancer can be drained to public sewers with no special handling required. While it is specifically designed for use with Toray Imprima J series waterless offset plates, it can also be used with the full line of Toray plates when contrast enhancement is necessary.

Digital MCP plate **MacDermid**

Digital MCP is a hard durometer, round top dot photopolymer plate featuring MacDermid's patented Clean Plate technology designed

for flexo printing. The combination of digital plate chemistry and clean plate technology is designed to print cleaner on press, reduce ink build-up in-between dots and reverses, and require fewer press stops for plate cleaning.

06 *C6000 series thermal printers* **Epson**

The new ColorWorks models are engineered for applications delivering high volume color labels for production use, with printing speeds of up to five inches per second. Four and eight-inch models cover the full spectrum of label sizes, with two models claimed to be the first color inkjet printers to support peel-and-present capabilities for fast hand or automated label application, and two models including an auto cutter to create variable length labels and enable easy job separation. The 8-inch C6500A and C6500P models are already available for order while customers interested in the 4-inch



versions can pre-order printers for shipping in April 2020.

07 *PE PCR White TC 85* *label material* **UPM Raflatac**

The PE PCR White TC 85 is made with 30 percent post-consumer recycled (PCR) plastic from household waste and a minimum of 55 percent post-industrial (PIR) plastic. It supports the circular use of materials and helps brand owners reach their sustainability goals. It is available in Europe for the home and personal care markets. 'We showcase our commitment to the circular economy and help brand owners and end users achieve their sustainability targets,' said Anniina Kujala, segment manager for films at UPM Raflatac. 'As the label material contains PCR content from household waste and PIR, it reduces the use of virgin feedstocks and therefore saves natural resources, contributing to lower environmental impact.'

08 *MGI JETvarnish 3D One* **Konica Minolta**

MGI JETvarnish 3D One is a compact entry level version of the company's flagship JETvarnish system. It allows converters to add digital embellishment including raised print effects using UV inkjet technology. The small operational footprint allows even smaller converters to set up an in-house production and prototyping print embellishment system without the need for making screens, embossing dies or varnish plates. The patented varnish formula allows the production of both flat 2D spot UV gloss and matt varnishing as well as 3D raised special effects on a wide range of substrate stocks and up to 450gsm.

PV3 Printer **Sato**

The PV3 is built with durable polycarbonate and rubber overmolding, and, according to Sato, can withstand drop impacts



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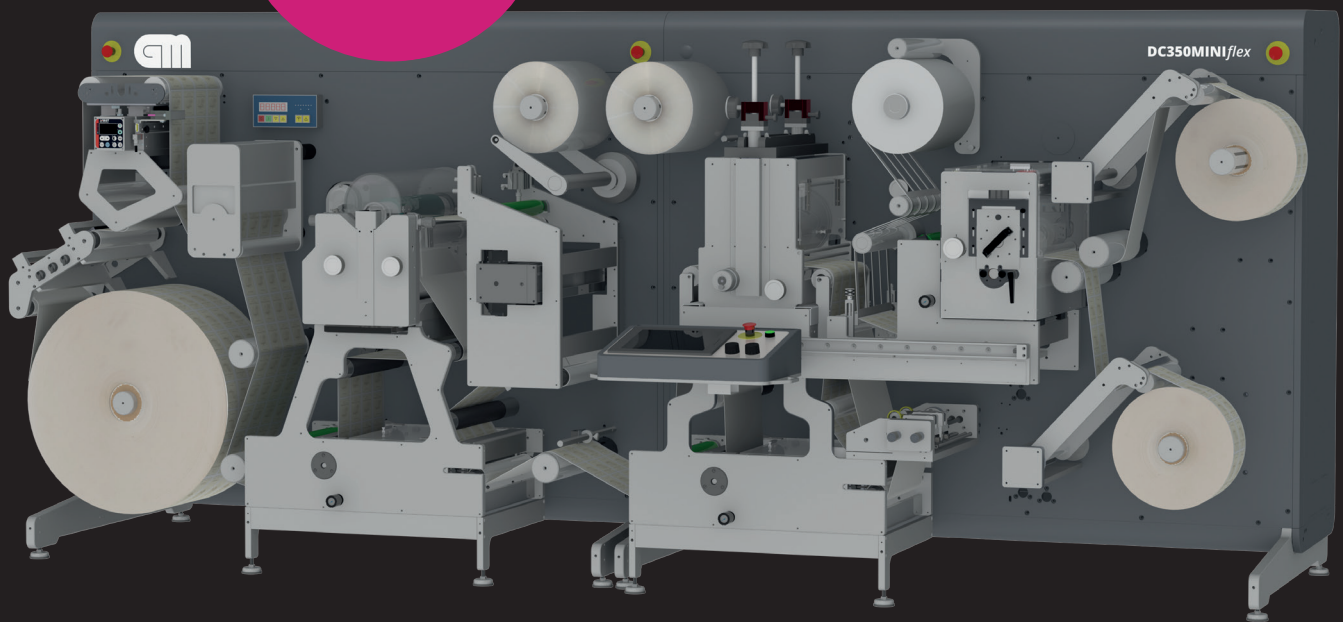
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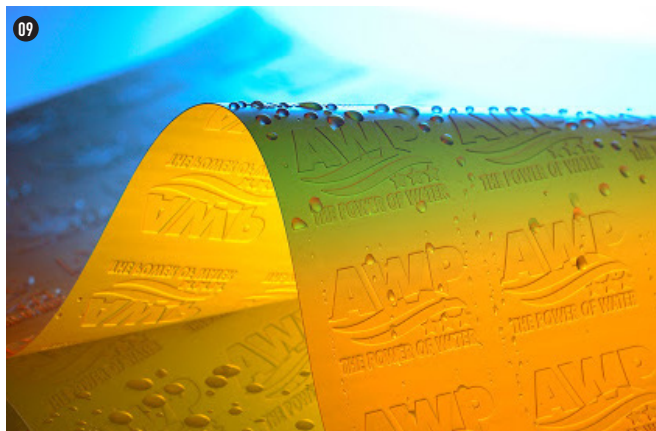
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New Products



of up to 6.9 feet. Despite its heavy-duty build, the new printer weighs only 1.5 pounds. It offers printing speeds up to 5 inches per second as well as connectivity across multiple networks.

09 Water recycling unit

Asahi

The new recycling technology uses two liters of water per square meter, versus 10 liters in units without the recycling unit installed, offering 80 percent reduction in wastewater. Additionally, minimal waste from the system, in the form of dry cake and a highly concentrated liquid extract, can be incinerated with the liquid contributing to the cooling of the plant, resulting in even more water savings. The new recycling unit will be incorporated in all new systems manufactured by the company and can be retrofitted to existing platemaking systems.

10 Sustainable wine labels

Avery Dennison

Avery Dennison Label and Packaging Materials has added six new facestocks to its wine and spirits portfolio, designed to help winemakers tell their brand's unique story. They are expected to deliver a high-end experience with a premium look, finish and feel that provide shelf appeal and are manufactured from sustainable materials. The new products include three cotton-based materials, ideal for a variety of finishing effects, including embossing, debossing and foiling; and three facestocks produced with organic and recycled content. 'Labeling technology must work harder than ever for the winemaker and retailer, and these new Avery Dennison collections go beyond helping a bottle stand out on the shelf,' said Vanita Marzette, senior product manager, wine and spirits, at Avery Dennison.

11 Sigma ink with extended shelf life

Kao Collins

Kao Collins has announced that ongoing testing of its new Sigma solvent ink proved the product now offers a two-year shelf life, which is, according to the company, four times more than competitors' inks. Longer shelf life contributes to less ink waste, providing an added environmental benefit, according to the company. Moreover, its more than 12-hour decap time offers a sustainable alternative for printers who rely on solvent ink for HP 45a industrial printing systems. It is said to be an ideal inkjet printing technology for mailing and addressing industries, along with product coding. The ink adheres to more substrates, including films such as BOPP, PE, PET and PP, foils, a variety of label materials, some metals, and many other non-porous materials.

12 Zanbarrier Natural Grease Resistant (NGR)

Zanders

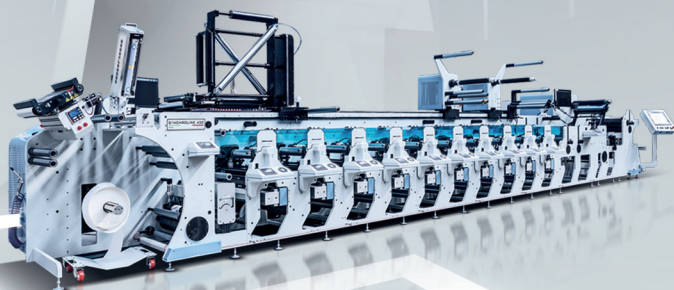
The new product offers a 100 percent natural barrier against oil and grease without the use of any chemicals, and now with an even higher density. It is made entirely with pure virgin fiber, is fully biodegradable and ideal for applications where avoiding any non-natural material is necessary, such as food packaging. The higher density of the improved Zanbarrier NGR enables new applications. It is suitable for several forms of flexible food packaging that require oil and grease-resistance as well as wet-strength such as fast food, bread roll bags, butter wrappers, pizza and confectionery cartons, cookie bags or food labels.



For more new products, go to www.labelsandlabeling.com/news/new-products

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Installations



01 BGM digital converting system

Kingfisher Labels, UK

The UK converter has installed an inspection system and a high-speed re-register digital converting system from Bar Graphic Machinery (BGM), taking the number of BGM machines running at its site to seven. Kingfisher Labels purchased the inspection machine in order to help it keep up with increasing customer demands. The company purchased a high-speed re-register digital converting system, allowing it to convert customer-supplied printed materials, as well as complementing its existing BGM machinery. Karl Jackson, production director of Kingfisher Labels, said: 'The inspection machine has made us more efficient, allowing us to provide our customers with quicker lead times. The machine is quick and easy to set up and the new razor slitting for unsupported film is fantastic. The HMI is also easy to use, as well as the controls.'

02 Brotech DL-330 slitter rewinder

Sonic Labels, India

Vasai, India-based Sonic Labels has invested in second Brotech DL-330 slitter rewinder finishing line for in-mold label finishing. Installed and serviced by Brotech's exclusive agent in India, Weldon Celloplast, the second machine has been installed within a year of the first. Kapil Vaidya, partner at Sonic Labels, said: 'The addition of this Brotech machine will increase our production speed by 30 percent. It is a very efficient system and has enhanced our capabilities to deliver finished products in time to our customers. The new investment proves our trust in Brotech's technology and the service of Weldon Celloplast.'

03 Gallus ECS 340 press

Batsios Labels, Greece

Based in Thessaloniki, Batsios Labels invested in a Gallus ECS 340 press with eight flexo units and one screen printing unit,

plus cold foil embossing. With a printing width of 340mm, the press is in use mainly for the printing and converting of self-adhesive labels. Besides increased productivity and broadening of substrate and color range, the Greek label converter reports that the investment is already paying off since its installation in May 2019. 'For six months now we are getting each day more and more acquainted with the machine,' said Andreas Nikoletsopoulos, business development manager at Batsios Labels. 'We are delighted to see that our investment is already starting to pay off.'

04 Dantex PicoColour digital press

Syracuse Label, USA

New York-based Syracuse Label & Surround Printing invested in a Dantex PicoColour UV inkjet press to replace its aging equipment and increase digital capacity for an expanding customer base. 'The investment in the Dantex

PicoColour was specifically made to replace our inkjet digital press, which had reached its end of life,' said Mark Howard, graphic services segment manager. 'We decided to partner with Dantex to take advantage of the step-change in technology that the PicoColour offers when compared to our previous press. Providing four colors, UV white, corona treatment and in-line die-cutting, this impressive press will allow us to make our process even stronger, while significantly increasing our capabilities. We are super excited to add this press to our production floor.' The PicoColour offers a printing width of 8.25in and running capacity of 82ft/min, works with UV-based inks and is available with CMYK + white, with the option of a variety of additional features.

Teklynx Sentinel

Dot Foods, USA

One of the largest food industry redistributors in the North America has invested in the

Installations



Sentinel automation system to increase print speed and labeling accuracy of over 300 printers within 14 distribution centers located in the United States, Canada and Mexico. According to the company, the new technology has already significantly improved labeling accuracy, efficiency and industry compliance.

**05 Mark Andy Digital Pro engine
Specialized Marking Systems, Canada**

The Ontario-based converter has upgraded its Digital One to the new Mark Andy Digital Pro engine to increase capacity and expand its digital label business. Digital Pro is the latest hybrid product line from Mark Andy and comes to market with two models, the roll-to-roll Digital Pro 1 and the advanced in-line converting Digital Pro 3 – available with semi-rotary die-cutting. Through a field upgrade program, select Digital Pro machine benefits are available to Digital One

customers, enabling Specialized Marking Systems to print at speeds of 77ft/min, increase capacity, and reduce its cost to print. The decision to upgrade to the Digital Pro engine came after a successful 18 months with the Digital One.

**06 Focus Label Machinery LX6 press
Bellwoven, UK**

The new Focus LX6 press added to Lancashire-based Bellwoven's production facility will accommodate growing demand for high resolution and high-quality printed garment labels. Steve Doney, co-owner of Bellwoven, said: 'We have accounts where the quality is absolute paramount and we felt we were not quite achieving this with our current equipment so turned to Focus. We have many Focus machines and knew they would produce the results we are looking for. The quality is exceptional, quite simply,

they are the Rolls Royce of garment label machines. Once we agreed a specification, we had no hesitation in making the decision. We have Focus machines approaching 30 years old that are still working reliably and with a service second to none, we anticipate a return on investment in no time.'

**07 Nilpeter FA-22 press
Skanem Stavanger, Norway**
Norway's largest producer of self-adhesive labels has acquired a new 9-color FA-22 from Nilpeter. In addition to the high print quality, intuitive user interface, and value-added possibilities, the new FA-22 is built with a clear focus on limiting waste, lowering power consumption, and reducing emissions. Eirik Bergh, MD of Skanem Stavanger, said: 'We are fully committed to creating renewable products, from labels to wraparounds and flexible packaging, with a key focus on reusable materials. We work side-by-side with customers

on various development projects to help them reach ambitious sustainability goals.'

**08 Comexi F4 press and ML1 MC laminator
Prima Jaya Eratama, Indonesia**

Flexible packaging manufacturer Prima Jaya Eratama has bought a Comexi F4 press and a Comexi ML1 MC laminator for its facilities in Tangerang, Indonesia. With the recent acquisition of the converter has optimized the customer's need to do short runs. Tjen Fa Sen, owner of Prima Jaya Eratama, said: 'Customer satisfaction is very important to us, therefore a machine's capability in terms of technology and output is vital. Prima Jaya Eratama relies on Comexi's competence and will continue to do so. The 24-hour customer service by Comexi is also very valuable. More importantly, Comexi has expanded to Southeast Asia and technical help will give more prestige to our company.'

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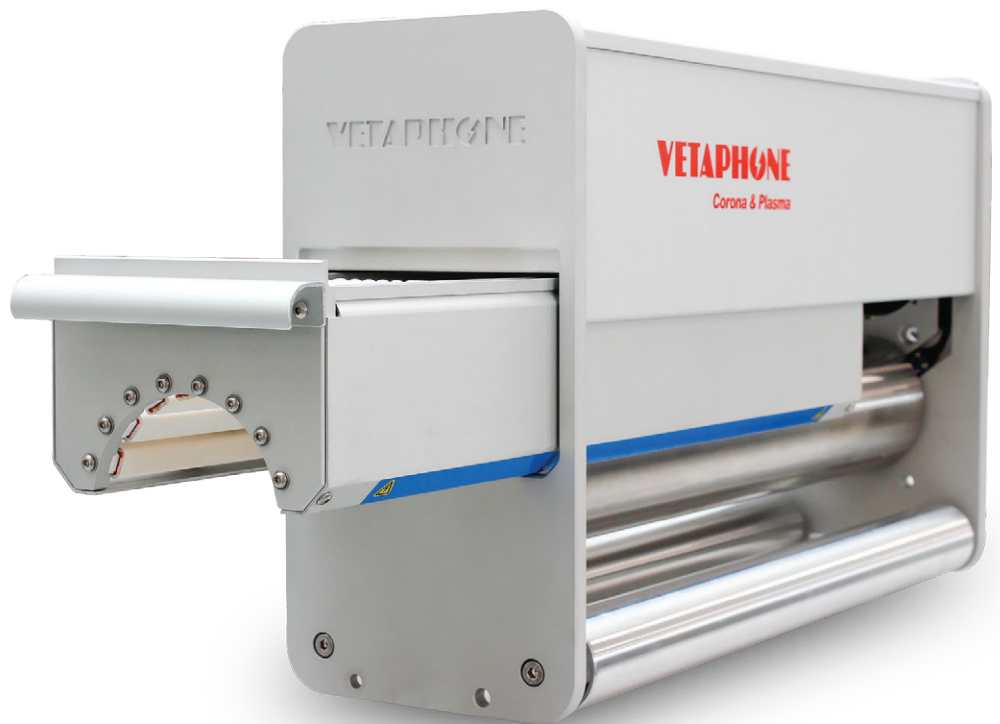
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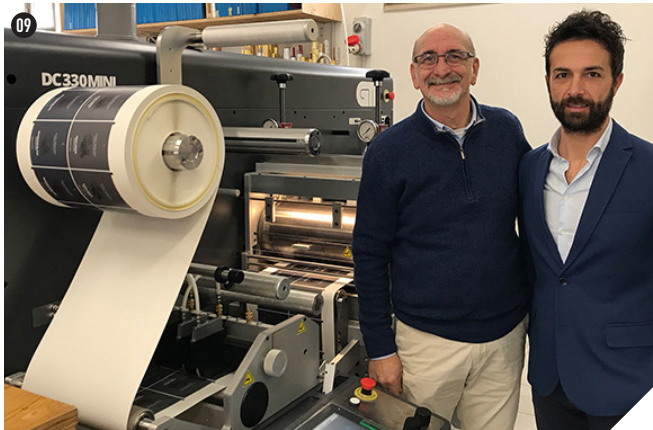
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Installations



09 GM DC330Mini Grafiprint Etichettificio, Italy

The purchase of a DC330Mini converting system from Grafisk Maskinfabrik resulted from the need to increase scratch resistance on labels thanks to the option of UV flexo varnishing, as well as to increase production efficiency due to fast rotary punching. 'Today, our basic activity is printing and refining labels on rolls, especially wine labels,' said Fabio Piacentino, owner of the Sicily-based converter. 'We can claim to be specialists in the field of label printing for the wine sector.'

10 Lemorau MEBR+ 430 Orcajada, Spain

It took six months to develop Lemorau's biggest project to date, the MEBR+ 430 converting system. The machine is fully servo driven and has three flexo stations to allow the Spanish converter to reverse print, and apply varnish and cold foil in a

single pass. The new system has a full rotary speed of 120m/min and semi-rotary speed of 80m/min, with a maximum unwind diameter of 800mm. The machine has a splice table with pneumatic clamps, corona treatment system, and electronic web guide with ultrasonic sensor which enables guiding of opaque and clear materials. There are three servo-driven gearless UV flexo stations in register, and two movable cold foil/UV lamination stations. A turnbar allows reverse printing on the first flexo station. The system features two die-cutting stations.

11 Rotocontrol Ecoline RSI Color Label, Denmark

The Danish converter has installed an Ecoline RSI inspection slitter rewinder from Rotocontrol. Nortech-Solutions, the recently appointed local agent for Rotocontrol in Denmark, Iceland, Norway and Sweden, led the sale. The company purchased the Ecoline RSI 340 inspection

slitter rewinder for finishing self-adhesive labels and other materials. The fully servo driven Ecoline RSI features an ultrasonic web guide, unwind splicing table, and runs at a speed of up to 300m/min. Erik Grønning, CEO and founder of Color Label, said: 'Rotocontrol's reputation for building high-quality finishing machines with superior performance, backed by our good relationship with Nortech-Solutions, is why we invested in the Ecoline RSI.'

12 SEI LabelMaster Vila Etiketten, Netherlands

Breda, Netherlands-based Vila Etiketten has invested in its second SEI LabelMaster via distributor Tripa Converting Solutions to better manage rapidly growing demand for digitally printed short-run labels. The Dutch converter, part of the Optimum Group, is a leader in self-adhesive labels and flexible packaging, serving the food and beverage market as well as

perfume products. 'We make small batches in Breda that are produced digitally. The increase in low runs increased our production capacity. We needed the second SEI LabelMaster to laser cut to keep up with the demand. It also comes with an extra unit that allows traditional cutting, making it a truly universal solution,' said Ton Reichardt, founder of Vila Etiketten.

Bel Information Systems Overprint MIS

Tantim Etiket, Turkey

The implementation of Overprint MIS provides end-to-end coverage in all departments and processes for cost estimation and quotation management, job order management and production planning, real-time data collection and production monitoring, warehouse management for raw materials and finished products.

For more installations, go to www.labelsandlabeling.com/news/installations

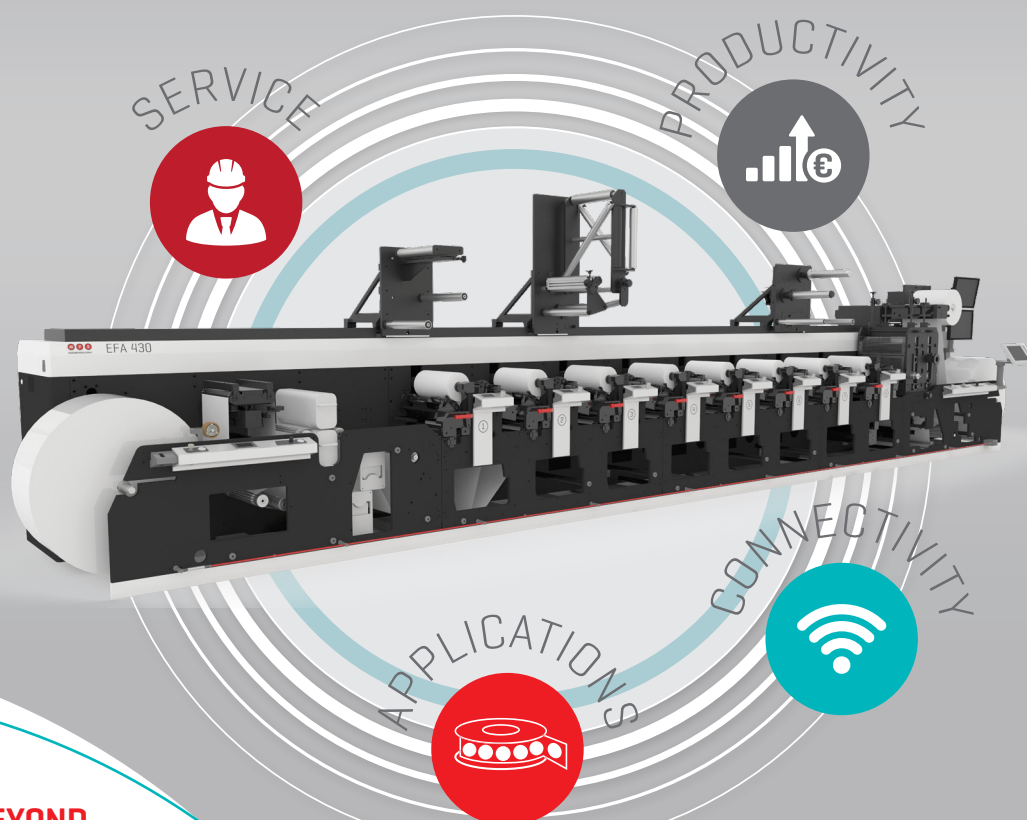


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Appointments



Justin Stovall
Vice president
Accraply
Stovall, who has 17 years' sales experience, will oversee all global sales and business development activities.



Georgina Daniel
Die-maker
Arden Dies, UK
Daniel becomes the first female die-maker at the Stockport-based firm.



Stephen Bennett
Vice president and general manager
Esko North America
Bennett will manage the overall Esko North America business strategy and 225 business professionals operating across the US packaging industry.



David Muncaster
Sales director North America
JM Heaford
JM Heaford has added US sales role to David Muncaster's responsibilities as part of organizational changes aiming to ensure consistency.



Ursula Fredriksson
Head of strategic development
Interket Group
Fredriksson will play a pivotal role in consolidation of the company's self-adhesive label operation.

Xavier Heiss

Executive vice president and president, EMEA
Xerox

Heiss succeeds Hervé Tessler and reports directly to CEO John Vicentin. He has been with the company for more than 30 years.



Malcolm Hillary
Sales manager
Apex Dynamics
Hillary is a dedicated northern sales manager to further strengthen company's profile in the north of England, Scotland and Ireland.



Sean Shine
CEO
Paragon Group
Shine succeeds Paragon's principal shareholder, Patrick Crean, who will now take on the role of executive chairman. Crean has been appointed as executive chairman, and John Rogers promoted as executive director.



Kevin Clunie
Sales and marketing director
Mactac
Clunie will lead sales and marketing functions within Mactac's roll label business, overseeing around 30 employees.



Franciso Soto
Director of sales, Latin America
Rotocontrol
Soto, based out of Toronto, also oversees Florida, USA and Caribbean markets. He brings over 14 years of experience in finishing machines and strong connection to Latin American printers.



Steve Lynn
Director, North America
Durst

Lynn will focus attention on developing Durst's growing software suite and the expanding digital markets of narrow web and corrugate.



Ronald Karsten
Commercial manager
Maan Engineering
Karsten, who will operate from the Dutch office in Raalte, will work together with business development managers Remco van der Velde and Wijnand Florijn. He will focus on further expansion of the company's international partner channels.



Paula Birch
Global sales director
Parkside
Birch has been promoted from European sales director, a role she has held for the last three years.



Jim Kissner
VP of sales
Kocher + Beck
Kissner is a well-known figure in the industry with over 34 years of experience in sales and business development.

Simon Vuillier
Business development team
Delta ModTech
He will help to expand sales and support coverage in Europe and will be working out of Delta ModTech's European sales office in Gothenburg, Sweden.



For more appointments, go to labelsandlabeling.com/news/appointments

Michael Wombacher
Managing director
Polar Group
Wombacher will manage the Polar Group as the sole managing director replacing Dr Markus Rall who is leaving the company.

Label & packaging showcase

01



02



03



04



Flexible Packaging Achievement Award Winners 2020

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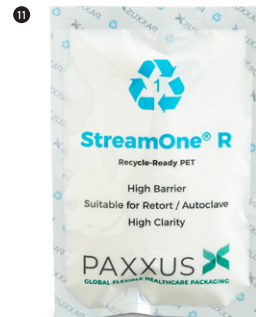
01 Innventure, USA
for Aeroflexx
Highest achievement award

Gold Awards: Expanding the use of flexible packaging; Packaging excellence; Shelf impact; Sustainability; Technical innovation

02 Uflex Limited, USA
for 4D bags with handle
Gold Awards: Expanding the use of flexible packaging; Packaging excellence

03 Uflex Limited, USA
for FlexiTube
Gold Awards: Expanding the use of flexible packaging; Packaging excellence

04 Plastic Packaging Technologies, USA
for Hill's All 'Recyclable' Pet Treat Bags
Gold Award: Packaging excellence



05 Amcor Healthcare Packaging, USA for Insura Seal Verification
Gold Award: Technical innovation

06 Printpack, USA for Paqui Chips pillow pouch
Gold Award: Shelf impact

07 Amcor Flexibles Brazil for Predilecta Sacciali jar shaped pouch
Gold Award: Shelf impact

08 Glenroy, USA for Premade Standcup inverter pouches
Gold Awards: Expanding the use of flexible packaging; Packaging excellence

09 ePac, USA for Skraich Labs Limited Edition EF Pro Cycling HP Mosaic packaging
Gold Awards: Printing; Shelf impact

10 PrintPack, USA for Stacy's Women's History month packaging
Gold Award: Printing

11 PAXXUS, USA for StreamOne R Retortable Recycle-Ready PET
Gold Awards: Sustainability; Technical innovation



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Opinion –

Key label trends for 2020

As today's business leaders look to the future, they are searching for ways to create new efficiencies and cost savings in the wake of increased competition and globalization. That's why as we move into 2020 these leaders are identifying new ways to optimize business processes to remove human error and avoid supply chain disruption. Forward-thinking companies are gaining a competitive advantage by investing in end-to-end labeling and packaging artwork solutions which enable them to create, manage and print complex labeling and packaging artwork and scale across their global operations.

By understanding the important role that labeling and packaging plays, companies can create new efficiencies and cost savings to keep pace with a new consumer driven marketplace and for today's multi-faceted, dynamic supply chain landscape.

Josh Roffman
Loftware

In 2020, we're going to see the wave toward sustainability reach the next level. Last year, at Labelexpo and elsewhere, we all felt the dramatically increasing demand for sustainable packaging from both brands and consumers.

As large CPGs are digging deeper into their commitment to full sustainability by 2025, the industry needs to respond with fully integrated, reliable and scalable solutions. Accomplishing this will require excelling at one overriding behavior: collaboration.

We need collaboration between manufacturers of various materials who are open to helping to develop complementary products and solutions. Even among competitors, we need to agree on testing standards and definitions and

“Even among competitors, we need to agree on testing standards and definitions and terms we use, so we can be sure we're all using the same language”

terms we use, so we can be sure we're all using the same language.

You will see tighter collaboration between manufacturers and converters, propelling R&D and discovering what works and what doesn't in terms of materials, workflow and finished applications. And not only will we collaborate on developing solutions, we need to work together on educating the market.

Ralph Giammarco
S-One Labels & Packaging

In India, flexo, with constantly improving pre-press available, is still the major technology of preference for new investments even though digital has started to attract attention. The high cost of branded digital presses and higher cost of inks or printheads is a deterrent in attaining a higher level of growth in this segment, yet we now see regular reports of digital press installations. It will not be long before the trend picks up pace. Most leading printers across the country are implementing better production techniques

to achieve efficiency and MIS systems to enhance their savings from reduced down times and wastages.

Sustainability and waste management is fast becoming an imperative with the country facing a gigantic pollution and environmental problem. The pollution control departments are now very active. Gone are the times when investment in waste management equipment was not even considered. Many companies have started to implement green factory initiatives and it is good to see the responsible trends in label industry.

Harveer Sahni
Weldon Celloplast

There is a seismic change in the industry toward shorter runs, just-in-time production and customization where label converters need the highest quality printing. These trends will continue to shape the label market going forward.

Brands continue to drive change by making short-run printing mandatory; increasingly they are making the ability to print digital labels a vendor requirement. Research from Finat Radar shows that 73 percent buy digital labels because they know that for some applications it's the best match. Converters are gaining skills in digital printing and selling digital printing. Other main market drivers include more targeted marketing, lean manufacturing, sustainability and variable data printing. All contribute to the overall growth rise of the color digital label printing market.

Whereas our customers use their machines primarily for label production, we see folding carton and flexible packaging increasingly becoming a second focus. An additional benefit – both in labels and in packaging – is that brands increasingly want to add value through innovative decorative and tactile elements within the printed piece, which is where the inherent nature of digital print brings distinct advantages.

Edoardo Cotichini
Konica Minolta Business Solutions Europe



Read more 2020 predictions at
www.labelsandlabeling.com/news/industry-updates/label-and-package-printing-industry-predictions-2020



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The Andy Thomas-Emans column

Label Industry 4.0 – myth or reality?

Although individual processes and pieces of machinery are being automated, what is the scope for integrating these into a true 'lights out' operation?

I was recently asked to develop feature ideas for the Gulf Print & Pack show focusing on 'Industry 4.0' automation. It soon became clear that this much-discussed term provokes a wide range of interpretations. So what should we understand by 'Industry 4.0', and what are the implications for the label printing industry?

A good place to start is Wikipedia's definition: 'Industry 4.0 factories have machines which are augmented with wireless connectivity and sensors, connected to a system that can visualize the entire production line and make decisions on its own.' The ultimate expression of an Industry 4.0 manufacturing operation is the unmanned 'lights out' or 'dark factory'.

We already see Artificial Intelligence (AI) systems – more properly called machine learning – mimicking human decision making across a range of white-collar occupations from insurance underwriting to online customer service and interpreting medical x-rays.

Given access to a defined data set (available resources in a label plant), clearly stated goals (the most profitable manufacturing route) and a set of logical rules, a machine system can, in principle, learn how to make highly complex decisions – and learn from its mistakes.

The victory of Google's AlphaGo computer program over the world's best Go player demonstrated this 'feedback learning loop' in action. AlphaGo did not win by sheer computing power, as unlike in chess, it is impossible to compute every possible Go variation. Rather AlphaGo learned to play starting from first principles, constantly playing itself to learn what strategies worked and which did not, then applying that learning system to a game with a human opponent – literally out-thinking him in real time.

An Industry 4.0 system is built around intelligent nodes on a network, be that a pre-press workstation, a flexo press or warehouse storage location. Self-monitoring sensors on each node feed status information back to a central processing hub and the node can also receive information which triggers some action (for example setting up a press camera, or making a plate).

The central processing hub runs a constantly updated virtual model of the system as a whole – 'cyber-physical systems monitoring physical processes, creating a virtual copy of the physical world and making decentralized decisions.'

Automation has been a key industry theme over the last five years, but automation systems tend to exist in their own 'islands'. Industry 4.0 puts these islands together on the same intelligent network and then starts making decisions according to the goals it has been set.

A goal might include 'only allow jobs to start which meet a certain level of profitability.' The system, through its sensor network, is already monitoring costs, drilling down far deeper than a human has time for. It is monitoring press energy costs and per hour rates;

"The ultimate expression of an Industry 4.0 manufacturing operation is the unmanned Dark Factory"

assessing makeready costs depending on colors and additional processing; querying warehouse nodes for information on stock availability; monitoring platemaking costs and lead-times and die availability; deciding what inks will need to be mixed, or are already available pre-mixed looking at availability of print, finishing and shipping resources.

AI turns to job scheduling. Can this job be run in slots where similar materials or press configurations are already planned? Does this affect the costing and therefore overall profitability? Finally it defines the machine resources and starts to upload all necessary processing information to each piece of production equipment.

Ground-breaking

As remarked above, much of this individual functionality is already available. One major stumbling block has been that narrow web press manufacturers have 'closed', or proprietary, press control systems which require data to be entered by the operator rather than uploaded from a central hub. Performance data such as press downtime is generally entered by scanning barcodes on a standalone console rather than by direct machine integration.

This looks set to change, however. In this edition of L&L my colleague Piotr Wnuk reports on a ground-breaking demonstration of integration between MPS' Talk to Me open press interface with a Cern MIS.

Finishing machine manufacturers are already making their control systems open to MIS – for example automated setting of slitting knives from pre-press metadata. Flexo presses are incorporating more self-monitoring sensors, and press cameras are being linked across cyberspace to learn via Big Data analysis about print defects and what causes them.

Back in 1993 when I was editing British Printer magazine, I heard a joke at a Heidelberg CIP3 demo, one of the earliest and most successful attempts at automation. 'The print factory of the future will be manned by an operator and a dog. The operator is there to feed the dog, and the dog is there to make sure the operator doesn't touch anything.' With Industry 4.0, that idea no longer seems so fanciful.



For more from Andy Thomas-Emans, go to www.labelsandlabeling.com/contributors/andy-thomas

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The Mike Fairley column

An inter-connected global economy facing disruption

There are few things that throw the global label industry significantly off track. Despite occasional wobbles, it has continued to grow over many years at above GDP in most markets and economies, spurred on in recent years by the powerhouses of China, India and parts of Southeast Asia.

However, that may all be about to change as the impact of the coronavirus as it spreads across the world, increasingly comes into play on both global manufacturing and financial markets. Indeed, the virus has undoubtedly drawn much wider attention to the connected nature of today's global economy.

“The virus has undoubtedly drawn much wider attention to the connected nature of today's global economy”

Perhaps the first thing to be noted is that this is a major disruptive event which has global implications for many different supply chains. China today is a key link in imports and exports for all major economies, with many global companies relying on suppliers from China. More than 300 of the Global Top 500 companies have a presence in the Wuhan region, including Microsoft and Siemens.

Many other global companies also rely on suppliers in the region. For example, Apple has 290 of its 800 suppliers based in China and the region is also responsible for nine percent of global TV production.

Something like 50 percent of all manufacturing in Wuhan is related to the global automotive industry. Wuhan has 10 car factories, including those of Honda, Renault, PSA and General Motors. Most automotive OEMs single source components for new vehicles and China is a large supplier of those. Even if just one component manufacture is halted, it can bring automotive production around the world to a halt.

China is also responsible for producing 40 percent of the active ingredients for the pharmaceutical world. Both the automotive and pharmaceutical industries globally are therefore already dealing with delays and shortages for required components or ingredients to make a final product.

This leads to component shortages, higher prices and lower production. For automotive parts it is a matter of factories – which may be in Mexico, eastern Europe, or Morocco – not being able to produce vehicles as needed. For pharmaceuticals, it can even be a matter of life or death for some drug users.

Even if just a small part of a product is manufactured in China, overall production elsewhere in the world can be slowed significantly or brought to a halt without those parts. This is already directly affecting the manufacturing of all kinds of other goods,

including electronics, household appliances, metal products and some food and beverages, because many factories have had to slow down production or even shut down, and global logistics for some sectors too have also become crippled.

Impact

So, how might the coronavirus impact the world of labels? Label converters in Europe, the Americas and elsewhere whose label products end up in automotive vehicles, electronic goods, household appliances, on drugs, and a whole host of other sectors that rely on some part of their production being sourced in China, may well find that orders or run lengths slow down or even stop for some time.

But it's not just China that is worrying manufacturers, and may effect label production anywhere in the world. The surge in coronavirus cases in countries like Italy also presents a risk to the European economic outlook, with the potential lockdown of parts of this highly industrialized region highlighting potential downside risks for Italy's neighbors. Germany, Switzerland and Austria all have close links to northern Italy's manufacturing hubs.

Many of the world's major airlines are also facing travel disruption and cancelled flights, which in turn can be a challenge for any label converter that supplies the airline industry.

And it's not just engineering, electronics and airlines that are having problems. Primark's owner, Associated British Foods, has said that several of its food factories in Europe are operating at reduced capacity due to labor constraints. It has also said it could run out of some clothing lines if factory delays are prolonged.

Is there anything that the label industry or label converters can, or should, be doing all the time that the coronavirus spreads? Should they be in a region that is placed under lockdown then extreme measures will undoubtedly come into play. No movement of people or goods outside an exclusion zone. How long can that be sustained?

For all other converters or suppliers it might be worthwhile drawing up contingency plans. What happens if supplies of materials are halted? Are key customers likely to be impacted and orders slowed or halted? What about employee travel to countries or regions where the virus has taken hold? Should we monitor employees returning from affected regions?

The after-effects of the coronavirus may also have other longer-term implications for the manufacturing and label industry worldwide, bringing an even greater drive towards automation, as clearly with less people working side-by-side in factories, the lower the risk of any future occurrence such as this one.

Hopefully, most of the label industry does not have to face such challenging issues in the coming months, but it may well be better to be safe than sorry.



Read L&L's China editor Yolanda Wang on the impact of the coronavirus on Chinese label converters on page 89



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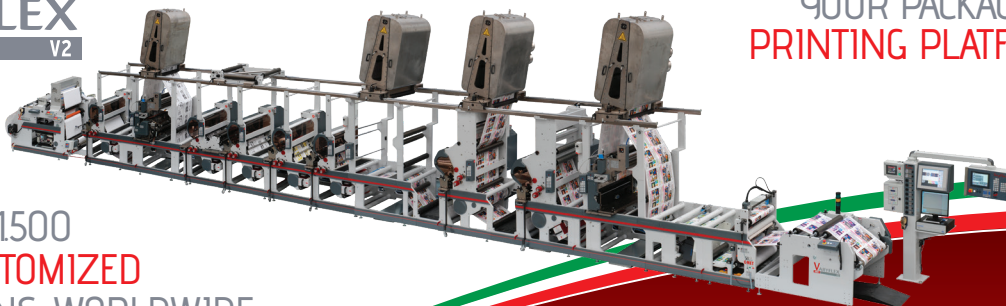
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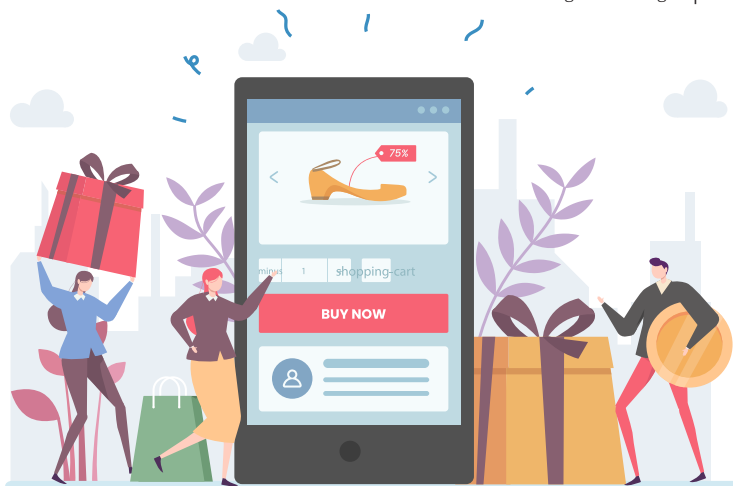
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P R I N T I N G . O M E T . C O M

Branding and design: Thwarting the counterfeiters



Vicki Strull explores how brands can protect their reputation, their equity, their customers – and their revenue

I typically buy my favorite perfume at a retail store near me. Unfortunately, the fragrance has been discontinued and my go-to retailers are out of stock. So, I shopped online. The first time I ordered from a third-party site, I was duped. While the packaging was sealed and very similar to the 'real' perfume, the bottle was a slightly different color and the screen-printed type was a different typeface. Then the cap fell apart. Most importantly, it didn't smell right.

As a designer and brand strategist in labels and packaging, I know that counterfeit products cost the economy billions a year. Fortunately, I know how to look for signs of counterfeiting.

The next time I ordered it, I noticed the packaging was produced on a high-quality substrate with 4-color and a spot metallic ink. It was loaded with finishing and embellishments: dull varnish overall, spot gloss varnish to highlight images, and embossing. From the packaging, this looked and felt promising. Next – and don't laugh – I used a loupe to check the type, registration and verify the fifth spot color. Finally, I opened the bottle, and it smelled like it was supposed to. This was the real deal.

Most consumers don't think 'fake' – they think the brand has lowered its standards.

I share all this with you because I'm not just a consumer who doesn't want to be taken for a ride. I'm a designer who knows how vital it is to a brand's equity, reputation and revenue for their customers to have confidence in the authenticity of their product. The typical consumer – who likely doesn't have a loupe nearby – may not realize they've purchased a fake but instead thinks that the brand has lowered its quality or used inferior ingredients. So they stop being a customer. They switch brands. They tell their friends and share their disappointment on social media.

It may never occur to them that the brand is the victim of a security breach.

Counterfeiting has reached 1.2 trillion USD worldwide, with yearly losses estimated at more than 98 billion USD, from both offline and online retailers, according to a report by Research and Markets.

So how do brands protect their reputation, their equity and their revenue? How do they guard against the counterfeiters? They turn to their print provider to understand today's options in security printing.

Counterfeiters attack in a variety of ways, and the first line of defense is always packaging. There are a variety of authentication methods and tamper-proof packaging options; as a print provider, you can help your clients determine the best combination of these methods to protect their brand.

Two types of security measures

There are two primary types of security measures. The first type

of brand protection falls under the category of overt security. Overt security elements are visible to consumers; we know they are there. When designing, I may include a high-quality substrate with embellishments and special effects such as embossing, metallics, holographics, and/or die-cuts. These are good strategies for creating a unique brand 'signature' that brand loyalists are likely to recognize and remember, but they also produce a label or packaging that is difficult to replicate. The more intricate a brand makes its packaging, the more challenging – and costly – it is to counterfeit. Other overt protections include serialization, guilloché marks, tamper-proof labels, security slits, and tactile printing, such as intaglio.

Covert security elements are hidden from the consumer. Examples include invisible or UV inks – which can only be seen with a black light – and microtext (1-point type that requires a trusty loupe). Microtext may include the brand name, a message, or even a serial number if it's printed digitally. Other covert elements include invisible watermarks, ink taggants and infrared ink. A counterfeiter trying to replicate a brand's packaging wouldn't know these security measures are in place.

Covert elements are typically used for tracking and tracing. That is, when authentic products leave the authorized supply chain and are sold on the grey market or in geographical areas where the brand doesn't do business, that costs the brand revenue – not to mention potential damage to reputation and equity.

When it comes to pharmaceuticals and nutraceuticals, it can cause customers physical harm or worse. When packages are equipped with a 'tracker' such as a QR code (whether overt or covert), the company can order the errant product and determine where in the supply chain the product was last scanned and thus diverted.

Brand security experts recommend 'multilayering' – combining covert and overt brand security elements. Perhaps an embossing and foil stamping or metallic ink – that's your overt – combined with some microtext and an invisible watermark or UPC code fingerprint – that's your covert.

When it comes to brand security, the details matter. Cost is relative when the risks are high to your brand equity, reputation, customer safety and loyalty, and ultimately, revenue. Brands can't afford to be so focused on the unit cost that they miss what counterfeits could cost them.



To continue reading Vicki Strull's design strategies, download her Sustainable Print Media Checklist at vickistrull.com/sustainability. More branding and design columns are available at www.labelsandlabeling.com/contributors/vicki-strull

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L I N T E C

How to evaluate an acquisition: Part I

In the first in a series of four articles, Bob Cronin of *The Open Approach* provides a guide through the due diligence process

The highly competitive M&A market has resulted in fewer 'slam dunk' label and packaging transactions. Top performers are often scooped up by strategic and private equity investors before they go to market, making it tougher to find – and confirm – good acquisitions.

This four-part series will guide you through the essentials of evaluating prospects, a process known as due diligence. Due diligence encompasses the activities performed during a transaction to find out the issues or to present the most favorable position to the acquirer. While your organization will have additional considerations, this series will cover those factors most important to any situation.

This includes: Part I – Ownership structure and financials; Part II – Sales organization, compensation, and customers; Part III – Product mix and markets, buildings and leases, and geographic locations; Part IV – Laws and issues, culture, and management team.

So let's look at Part I. Ownership structure can be an LLC, S-Corp, ESOP, or other. Private businesses choose ownership structures that 1) align with the people/entities invested, and 2) provide for the greatest tax advantages. It's important to know structure, as each type of ownership creates different challenges in taxation – and thus in valuation. Some things benefit the buyer and some the seller. Enlist the expertise of a tax advisor to ensure that the true dollar return works for you.

Knowing structure, you can then review financials. These are the documents used for recording results. Print as an industry uses many special financial techniques because of the customized nature of products. As you review, answer these questions:

Do the results conform to generally accepted accounting rules, and have they been validated by an outside auditor?

The 'quality' of a business's financials says a lot about its character. Sloppiness, omissions, oddities, or questionable financial practices can raise red flags. While some owner add-backs are expected, poor investments can signify the company is running off target. Sellers should have their financials in order long before going to market. And buyers should be ready to dig deep.

How timely are the books closed each month and quarter? A strong revenue recognition policy is based on sound accounting principles and strict adherence by all segments of the company. Timely reporting of results is key to understanding sales and profitability issues when they occur. If a company lags or is inconsistent in reporting, it will be difficult to gauge true performance. If you want to be taken seriously as a seller, get your books in peak condition at least a year before you sell.

Do the numbers show significant customer concentration either in sales or margins? While having a few really big customers may seem attractive, it can pose risk. Because of the 'relationship' nature of our business, management changes can cause attrition. Losing a client that represents 20+ percent of sales or margins can wipe out the value of a deal. If an owner's exit affects long-term loyalty, consider constructing the transaction as an earnout or providing an advisory position so the customer retains a familiar point of entry.

What do the last five years look like? History can tell you about an entity's future potential. While most companies are accustomed to showing three years' performance, make sure to evaluate (or provide) at least the last five. It's critical to see how a business performs in good economies and bad, and how it has responded to both negative and positive sales cycles.

What's the trending of work in process (WIP)? WIP can tell you about various parts of a company and their activity. It's a look at what can cause significant value swings quarter to quarter – and thus variations in cash flow. Seasonality is a reality in labels and packaging. It's good to know where gaps exist and whether the seller's available capacity may be able to support a buyer's other workflows. Likewise, if a buyer and seller struggle with similar seasonal times, a transaction could be arduous. This may also be an issue with your banker and could nix the deal before it happens.

Remember that in most cases the sale will require some type of new financial leverage. So it's important that your deal can get approved by your banker. As a

"A sale is never final until the money changes hands"

buyer, you need to understand your balance sheet and that of the seller to know what your leverage ratios will look like post-transaction. The banking industry has norms that it conforms to within certain market segments. Anything outside those will require funding other than traditional debt.

With financial assessments and plans in hand, you can better conduct the rest of your due diligence – and examine it in true context. Part II will look at the sales organization, compensation and customers and how various aspects of each should enter into consideration.

Analysis in Part I due diligence is crucial, and should be conducted to exacting measures. I've been involved in many acquisitions where the sale either didn't occur or was revalued based on findings. Be meticulous and clarify any questions and discrepancies. And don't be afraid to walk away. A sale is never final until the money changes hands. Use your due diligence wisely, and make sure that what you see will actually be what you get.



Bob Cronin is managing partner of *The Open Approach*, an M&A consultancy focused exclusively on the world of print. To learn more, visit www.theopenapproach.net, email bobrcronin@aol.com, or call (001) 630 323 9700

Q&A

Javier Ibero is Latam manager for Eadec, a Spanish label converter which set up a production facility in Chile in 2004 and in Peru in 2016. He discusses the company's experience setting up operations on a different continent, the challenges of the wine label market, and life in Latin America. Interview by James Quirk



Panorama of Eadec's factory in Peru

L&L: Your father founded the original label printing company Eadec in Spain. Tell us about the history of the business.

Jl: My father, Ildefonso Ibero, was the founder of the company in 1994, along with three partners in a small town in northern Spain in Navarra, Cascante. The adventure began and little by little we were progressing in the market, which in Spain was already somewhat mature. But we created a niche for ourselves and managed to serve large retail firms in the country: canneries, automotive companies and vineyards from around our area and which had customers all over Spain.

L&L: Why did Eadec decide to open a factory in Chile?

Jl: In 2002 the market in Spain was mature. Gaining market share meant lowering margins. So my father and his partners decided to expand the company's horizons and open a facility in another country. At the time, Latin America and Eastern Europe were considered the most attractive options. During a tour organized by the government for Spanish business professionals in Chile, my father was able to make some contacts and begin the development of the project. Finally, in 2004 they opened the company and began the challenge of working in a new market 13,000km away.

L&L: Since the foundation of Eadec Chile, what has been the evolution of the company in terms of technology and markets?

Jl: The operation in Chile was founded in 2004. Despite the distance, and the fact the project was complex and costly to get off the ground, by 2007 the company was already seeing the benefits. In 2012, I was offered the chance to enter the business and take on the challenge of the project in Chile. At the time, I had already finished a degree in industrial mechanical engineering and was working in the energy sector. I had also spent time at a food company. The project seemed interesting to me, so I decided to go to Chile and accept the challenge. The company in Chile had a great deal of investment and growth in the first five years – we doubled the size of the business and installed a whole new set of equipment. The first priority

was to install a digital press to cater to the country's short-run label market, then a finishing machine. We ended up renovating the whole factory floor.

L&L: What idiosyncrasies does the Chilean label market have that you had to adapt to?

Jl: The way of working and understanding business is different in each country. In my experience, every business must be adapted when arriving in a new country, since the culture and the way of working are different. The first challenge is language. Although it is the same language, Spanish, there are many nuances that change the interpretation of communication, and that if they are not understood they can lead to misunderstandings. The market in Chile was very competitive, but little by little we adapted and found a niche where we could differentiate ourselves: in service and quality.

L&L: The Chilean label market is dominated by the wine industry, particularly for export. What specific challenges does wine label printing bring?

Jl: The wine industry is a very demanding and complex sector due to various factors: the technical specifications from each country and the speed of delivery of orders are two fundamental factors. In addition, the number of SKUs handled by customers is huge and print runs are very short. This, coupled with the resources needed, makes for a complex end use sector. Lastly, wine labels have a wide variety of finishing options and added value, which forces you to invest in the very latest technology. This must then be complemented by good service.

L&L: Last year you opened another facility, this time in Peru. What was the motivation behind this move and how is business in Peru going?

Jl: The Eadec Group project was to expand horizons and continue to grow as an international company. In Chile, growth was rapid. We then had to seek the challenge of continuing to grow. With the stability of the Chilean company, and the difficulty of continuing to grow with our

Furniture from wood pallets

While setting up the factory in Peru, to reduce waste Eadec repurposed the wooden pallets used to deliver equipment to the new facility, turning them into desks, shelving units and other furniture. Watch the video at eadec.pe.

“In 2002 the market in Spain was mature. Gaining market share meant lowering margins. So my father and his partners decided to expand the company's horizons and open a facility in another country. At the time, Latin America and Eastern Europe were considered the most attractive options”

margins (because the market is small and competitive), I decided to evaluate different countries. After extensive analysis, the chosen country was Peru. The decision was made because of the growth potential of that market and because we saw that we could add value in some products. The early steps are never easy, but with continuous work and effort, and the conviction that there were opportunities, we hope to grow rapidly in the country in the coming years.

L&L: What equipment do you have installed in your factories in Chile and Peru?

Jl: We have a range of equipment in the factories, including HP Indigo digital printing

“The first step is to know what your environmental impact is. This impact must then be controlled and for this we have an annual environmental program. The most important thing is to be able to control the key performance indicators (KPIs) in order to reduce them”

technology and machines from Mark Andy and Omet. On the finishing side, we have systems from AB Graphic, Grafisk Maskinfabrik (GM) and Grafotronic.

L&L: At Label Summit Latin America 2020, you made a presentation on environmental sustainability. What measures has Eadec Chile taken to reduce its environmental impact?

JJ: The first step is to know what your environmental impact is. This impact must then be controlled and for this we have an annual environmental program. The most important thing is to be able to control the key performance indicators (KPIs) in order to reduce them. One of the most important points was the decrease in kilos of contaminated rags. Another very relevant point was the performance improvement per kWh worked, which is partly related to the upgrading of the machinery. We were able to improve things by reducing our carbon footprint by 20 percent.

L&L: Also during the event, you received an award from Asimpres (the Chilean graphic arts association) for New Generation Businessman. Congratulations – this must have felt like vindication of your work in the country.

JJ: Thank you. It was a great honor that the Chilean graphic arts



Javier Ibero receives his New Generation Businessman award from Asimpres general manager Maria Eugenia Mingo



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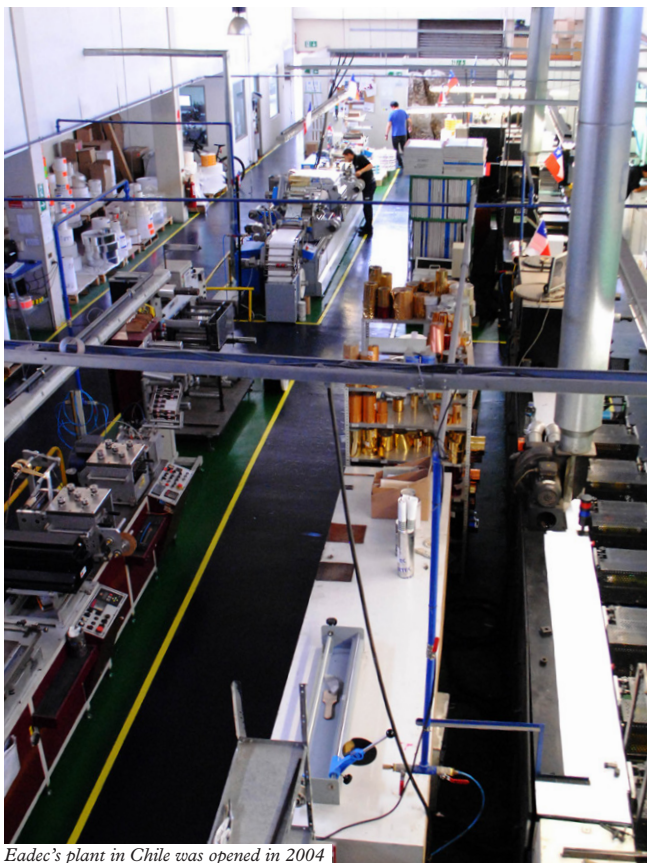
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Eadec's plant in Chile was opened in 2004

association gave me this award and chose me among all the participants. For me it was a very nice way to finish my work and seven years of living in Chile, as I am currently based in Peru, dedicated to our business there. I think the award is recognition of the effort of our whole team – we all work towards the same goal and that is reflected in the results. Without this team, there would be no award.

L&L: On a personal level, how have you adapted to life in South America?

Jl: The truth is that I love life in South America. I really enjoy getting to know new cultures and people; it can bring such rich experiences. When I was in Chile I took the opportunity to travel throughout the country, which is spectacular from north to south, and also through Easter Island. In addition to being able to get to know other Latin American countries, I think it is a unique opportunity, and I hope to continue taking advantage of it with my family.

L&L: Outside of work, what are your interests and hobbies?

Jl: I like to spend time with my family and friends. I have a great fondness for gastronomy and wine. I also like to play sport, as this is how I release a lot of tension and it helps me to keep a clear mind. One of the sports that I most enjoy is surfing. I have been doing it for a long time and in both Chile and Peru access is easy. I also like cycling and racket sports. Generally speaking, I like to compete.



Read a review of Label Summit Latin America 2020 on page 69

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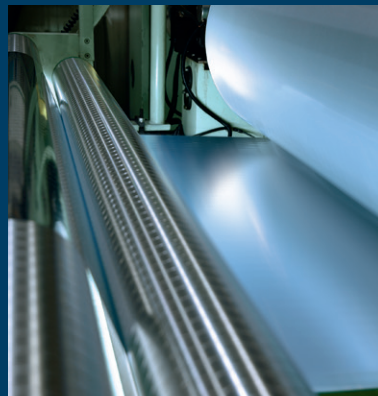
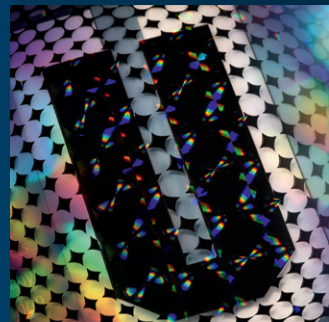
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HP raises speed bar with new in-line technology

HP Indigo V12 digital press

As part of a sweeping range of new technology announcements, HP Indigo has unveiled a new 12-color press capable of running up to 120m/min. Andy Thomas-Emans reports

HP Indigo has unveiled a new narrow web digital press platform capable of fusing flexo speeds with full digital flexibility.

The new HP Indigo V12 digital press will print at 120m/min (400ft/min) without requiring the dual engine format of the 8000 series. It is the first time HP Indigo has implemented its new LEPX in-line technology platform, which replaces the intermittent central drum design which powers all other HP Indigo label presses.

“The V12 press has six color stations running simultaneously, each of which has access to two color channels for a total of 12 colors per impression”

‘This is a complete departure from our existing architecture and unleashes the speed inherent in the LEP process,’ says Yogev Barak, head of strategy and business management at HP Indigo. ‘Everything customers are used to working with is built into this technology, but now they can do it in a more productive way.’

The HP Indigo V12 press has six color stations running simultaneously, each of which has access to two color channels for a total of 12 colors accessible. The 12-color capability would allow a converter to load up, for example, with a 7-color extended gamut ink set plus white, silver and three specialty security and special effect inks.

The HP Indigo V12 press also incorporates

HP Indigo’s High Definition (HD) imaging technology, with a new LED writing head doubling print resolution to 1600 DPI. This improves smoothness, and enables finer vignettes and security features and more accurate Pantones to be achieved.

The HP Indigo V12 will print on a wide range of substrates from 12 micron film to 450 micron (18pt) board, supporting pressure-sensitive labels, shrink sleeve labels, flexible packaging, tubes and IMLs. Workflow automation is a key focus, including HP Indigo’s new Spot Master automated color management system (see information box right).

Looking in more detail at the new LEPX in-line press configuration, we can see how different it is from – and the similarities to – the existing central drum LEP platform.

Each of the six print stations is fully self-contained in terms of imaging laser, dual BID ink dispensers and PID (photo imaging drum). Rather than being wrapped around a central drum, the blanket is now a continuous web which moves between the print units picking up 6 colors in one rotation or up to 12 colors in two rotations. When the image is fully built up on the blanket, it is transferred to the substrate. In that sense it remains the same ‘one shot’ process as the existing LEP technology.

A technical challenge has been to maintain perfect registration between the print units and the moving blanket. This has required development of specialist algorithms and control mechanisms which formed a key part of the 5-6 year long LEPX development program.

The HP Indigo V12 press will not replace the current HP 6900 narrow web press. Rather, says Alon Bar-Shany, general manager, HP Indigo, the HP Indigo V12 is targeted at mid-to-long run jobs, and the click charge model will be adjusted to take

Spot Master

Amidst all the excitement of new press technologies, it would be easy to overlook the importance of HP Indigo’s new Spot Master automated color-matching technology, which will be standard on the new ‘K’ range of machines (also the new HP Indigo V12) and available as a retrofit for all 6000, 8000, 20000 and 30000-series presses.

‘Spot Master is a ground-breaking new infrastructure which changes the way we manage color over all labels and packaging products,’ says Yogev Barak. ‘This is targeted at the most color-conscious industries, so packaging and labels in particular.’

Spot Master is a closed loop calibration system which makes use of the on-press spectrophotometer built into HP Indigo presses. Colors can be defined either as Pantone references or LAB values. In initial testing HP says the press has matched a Pantone color down to a low deltaE within 2-4 minutes and with less than three meters of waste. The press then maintains that calibration through the press run.

‘Each Pantone is managed as a separate color channel so when we change the Pantone color we do not touch the CMYK separations,’ says Barak. ‘This means we can hold stability across the run for both the Pantone and the CMYK image.’

Working with Brand Beat, a new application offered in HP PrintOS-X, real time color reports can be delivered directly to converters and brands. HP is also integrating Spot Master into Esko’s Automation Engine and browser-based WebCentre.



HP Indigo 6K digital press

account of this. The HP Indigo WS6900, and its successor the 6K (see below) will continue to be sold for short-to mid-run lengths. Bar-Shany sees the combination of the 6K and HP Indigo V12 as freeing up flexo presses for really long runs, increasing press uptime.

HP is working with its OEM partners to develop finishing systems for the HP Indigo V12, which shares the same 13in/330mm format as the existing 6000/8000-series. First out of the gate is HP Indigo's long-time partner AB Graphic, which has developed a non-stop high-speed finishing line for near- and in-line operation.

Yogev Barak says HP Indigo currently has a list of label converters waiting to take the HP Indigo V12 press for beta trials, which should begin to take place next year. The press is expected to be commercially available in 2022.

'We have really focused on the label market with the HP Indigo V12 in terms of width, number of colors, media versatility, automation and finishing,' says Alon Bar-Shany. 'We will see at a later stage where the technology will go next.'

'K' series introduced

As well as introducing the HP Indigo V12 press, HP announced new model names and configurations for its existing labels and packaging production presses.

The new press range is designated 'K' and includes the HP Indigo 6K and 8K digital presses for labels, the HP Indigo 25K for flexible packaging and labels, and the sheet-fed HP Indigo 35K and roll-to-B1 sheet HP Indigo 90K for folding cartons. 'Value packs' with various upgrade options will allow the existing customer base to benefit from the new features and capabilities introduced on the new presses.

Folding cartons

Although the label industry has not embraced digital carton printing as enthusiastically as flexible packaging, individual label converters like Nosco and Pemara have made the move, while more label converters are now part of groups which include carton divisions.

As part of its drupa rollout, the sheet-fed B2 HP Indigo 35K replaces the HP 30000. The 35K is fitted with Spot Master color automation, HD imaging and the ability to print on thinner substrates down to 150 micron to capture applications like rigid boxes. Also new is the Tresu iCoat II in-line coater, claimed to deliver 'offset quality' for overprint varnish and coating applications using industry-standard UV or water-based varnish.

The 35K can utilize HP Indigo's new ElectroInk Invisible Yellow, track-and-trace and security inks to develop multi-layered brand protection applications.

Two new carton presses are announced. The sheet-fed B2 HP Indigo 15K is targeted at mixed commercial print and packaging production, while the HP Indigo 90K is a B1 format roll-to-sheet press with an in-line water-based/UV coater and sheeter.



HP Indigo 25K digital press

"Spot Master is a closed loop calibration system which makes use of the on-press spectrophotometer built into HP Indigo presses"

The HP Indigo 6K digital press is the new model of the highly successful HP Indigo 6x00 series. Like all the new 'K' series presses, it comes fitted as standard with a range of new capabilities including Spot Master color automation.

The press will have access to the full range of new HP Indigo ElectroInks including higher opacity white for shrink sleeves, silver, fluorescents, invisible yellow, orange and green for brand protection applications and new high-durability varnishes. The 6K is also fully compatible with HP Indigo's emerging suite of digital embellishment equipment, now including the in-line Kurz DM-Jetliner digital metallization, ElectroInk Silver for metalizing the color gamut and the GEM single-pass digital embellishment unit.

The HP Indigo 25K digital press replaces the mid-web 20000. It can be fitted with a new label slitter which allows converters printing PS labels to slit to the width of their existing narrow web finishing equipment. The press is fitted with Spot Master color automation, two white ink stations and a bigger print frame – 737mm compared to 729mm for the 20000.

Along with the Karlville Pack Ready thermal laminator, HP Indigo has expanded the range of flexible packaging finishing options with the new 800mm-wide SuperSimplex e800 solventless laminator designed and built by Nordmeccanica. HP says this offers 'low waste and reduced energy consumption' for on-demand pouch production.

'The Nordmeccanica system is targeted more at flexible packaging converters looking to introduce digital print operations and wanting to leverage their existing expertise in water-base and solventless lamination,' explains Yogev Barak. 'The Karlville Pack Ready thermal laminator with Pack Ready requires less of a learning curve, and has therefore proved popular with label converters moving into flexible packaging for the first time.'

With the increasing focus on sustainability, HP Indigo's ElectroInks have now been certified with the 'OK Compost' Green Leaf mark from TUV Austria, which verifies they can be used as printing inks for packaging which is recoverable through composting and biodegradation.

The HP Indigo 6K, HP Indigo 8K and HP Indigo 25K presses will be commercially available towards the end of 2020.



HP Indigo's new presses were due to be unveiled at drupa 2020, before the event's postponement until next year



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Arconvert excited by synergies with Ritrama

The acquisition of Ritrama by Arconvert's parent company Fedrigoni Group has created Europe's third-largest self-adhesive materials manufacturer. James Quirk reports

In one of the label industry's most notable M&A deals of recent times, Fedrigoni Group, the owner of Arconvert, has completed its acquisition of Ritrama. The agreement, which creates Europe's third-largest self-adhesive materials manufacturer, was signed in October 2019 and finalized in January. Ritrama's 400 million EUR revenue in 2018, coupled with Fedrigoni's revenue of 1.2 billion EUR in the same year, amount to total revenues of the combined group of approximately 1.6 billion EUR.

"We only see strong synergies with Ritrama's operations, which will allow us to better satisfy our customers' needs with combined know-how, expertise and different technologies"

Fulvio Capussotti, executive vice president, Pressure-Sensitive Label Business Unit of Fedrigoni Group, describes the acquisition as fitting the group's wider strategy of consolidating its presence in the fields of specialty papers and self-adhesive materials, and sees synergies between the respective companies' product lines.

'With Ritrama's strength focused on pressure-sensitive film materials, visual communication materials and industrial products and Arconvert's focus on premium papers, our customers will be better served with a full-range of solutions for self-adhesive labels, with an extremely diversified state-of-the-art offer, both from a technological and aesthetical point of view,' he says.

'Thanks to the acquisition, we can now combine Fedrigoni's excellence in the production of wine labels, and labels for food, household and logistics markets, with the advanced self-adhesive technologies of Ritrama, which is one of the top global producers of labels for the pharmaceutical, beverage and personal care industries. Ritrama, through the visual communication and industrial range products, complements Fedrigoni's portfolio.

'To better communicate the new added value coming from the integration, we are working on a rebranding strategy, leveraging both the high value of Arconvert, Manter [Arconvert's premium self-adhesive material brand] and Ritrama and the long heritage of Fedrigoni's umbrella brand. We are working on giving a clear message to the market, helping clients to easily find what they need and to keep and strengthen the trust and relationship they have built with each company, focusing on the brands' respective competitive advantages and specialization verticals.'

Global footprint

Ritrama certainly adds to Fedrigoni's global footprint, with manufacturing operations in Italy, Spain, the UK, Chile and China, as well as 10 slitting and distribution centers in Latin America, Poland and South Africa.

Ownership structure

With a 130 year history, Fedrigoni Group boasts a strong identity and positioning in market niches, backed up by a wide global distribution network.

In 2018, Bain Capital Private Equity, a global private investment firm, became the main shareholder in the Fedrigoni Group (with 90 percent of its shares), alongside a branch of the Fedrigoni family who retained 10 percent of the business. That same year, the Cordenons Group, specialists in specialty papers for luxury market niches, joined the family.

Then, on January 2020, Fedrigoni finalized the acquisition of Ritrama.

Following the acquisition of Ritrama, Fedrigoni Group now has a turnover of 1.6 billion euros; an adjusted EBITDA year on year of 12.3 percent; 4,000 staff in 23 factories in Italy, Spain, UK, Brazil, United States, Chile and China; and 32,000 products distributed in almost 130 countries.



Fulvio Capussotti, executive vice president, Pressure-Sensitive Label Business Unit of Fedrigoni Group



Following the acquisition of Ritrama, Fedrigoni Group now has a turnover of 1.6 billion euros



Ritrama will continue to develop its Core Linerless Solution

'Arconvert and Ritrama joining forces will give the Pressure-Sensitive Business Unit of the Fedrigoni Group a strong presence in the key markets on an international level, which will further strengthen our ambition to be a truly global player,' continues Capussotti.

'Then, apart from obvious advantages such as logistic continuity and quality consistency of the exclusive facestock materials produced by the mother company Fedrigoni, the competitive advantage of the group is not just being the only player on the market offering premium tailor-made coordinated solutions for luxury packaging.

'Another pivotal advantage, compared with other competitors, is the flexibility that both Arconvert and Ritrama can provide the customers with.

'We only see strong synergies with Ritrama's operations, which will allow us to better satisfy our customers' needs with combined know-how, expertise and different technologies.'

Ritrama will continue to develop its Core Linerless Solution. 'We will continue to further invest in this and other technologies to be at the forefront of pressure-sensitive label solutions,' confirms Capussotti. 'Our R&D teams are working hard to develop more and more sustainable solutions for the label industry.'

On the subject of sustainability, Capussotti continues: 'Fedrigoni Group, since 2013, is the only graphic specialty player in Europe to go through the assessment of the Environmental Paper Company Index (EPCI), a WWF tool to increase transparency and awareness on how the pulp, paper and packaging sectors can reduce their footprint and demonstrate leadership in disclosing environmental information.

'Fedrigoni adheres to the Ethics Code of the European paper industry and exclusively uses pulp from forests managed in accordance with sustainable forestry schemes, regulated and recognized on an international scale, especially FSC, in terms of both traceability (Chain of Custody2) and controlled origin of wood (Controlled Wood3).

'Most of Fedrigoni's and Arconvert's papers contain recycled fibers, or fibers from annually renewable plants like linen, bamboo, hemp or sugar cane. Moreover, there is a cogeneration plant in all group production sites and, despite the production growth of 69 percent during the past 13 years, we have managed to reduce CO2 emissions by 29 percent, nitrous oxides by 48 percent, water consumption by 50 percent, and waste production by 15 percent. Fedrigoni also adheres to labels and marks of a voluntary nature, accompanying products to confirm their specific ecological and safety attributes in compliance with the ISO 14021 standard.

'Our strong commitment to sustainability will continue in the coming years.'

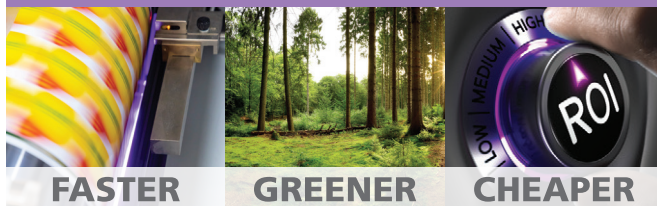


Read more about Ritrama's linerless technologies on page 91



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First Mark Andy P9E press boosts Berkshire

Berkshire Labels has installed Europe's first Mark Andy P9E press to drive growth in both its shrink sleeve and PS label business. Andy Thomas-Emans reports

UK-based label and shrink sleeve converter Berkshire Labels has installed the first 17in (430mm) Mark Andy Performance Series P9E at its manufacturing facility in Hungerford, some 100km west of London. The P9E is the latest model in Mark Andy's range of Performance Series flexo presses and is designed for specialist film applications as well as traditional label converting. It joins a 17in Mark Andy P7 installed in 2017 and three other 13in Mark Andy presses at Hungerford.

Berkshire Labels' managing director, Paul Roscoe, explained the latest investment program. 'First of all, we decided that 430mm is the best fit for our work, and once we had fully loaded our P7 it was clear we had urgent need for a second press. The P9E moves the game on though, with its independent servo driven anilox roll, which is double the size, so moves at half the speed, and gives us more flexibility and higher production speeds across all substrates. It also means the ink is moving at half the speed and does not fly off even when we're running at speeds up to 180m/min.'

Considered Mark Andy's flexo flagship, the P9E is almost 30 percent faster than its P7 stablemate on the same job, according to Roscoe, making it a highly efficient production tool. Chosen initially for its ability to grow Berkshire's shrink sleeve business, the new press is in fact handling a good mix of work. Currently the volume of paper and film-based substrates used at Hungerford is roughly equal, with film – including both shrink sleeves and roll-fed wraparound – growing faster. Although well equipped with digital print and converting technology, Berkshire Labels still estimates that flexo production accounts for 60 percent of its business.

Berkshire Labels' P9E is a highly specified model, featuring eight UV flexo print stations, corona treatment and web cleaning, delam/relam, a crossover facility for peel/reseal, and the full 'Filmic Pack', which includes chilled impression drums and lightweight tension control. It also has Mark Andy's QCDC quick change die station and web advance waste rewind.

Since installation it has allowed Berkshire Labels to switch from 24/7 working on the



Mark Andy's UK and Ireland sales manager Paul MacDonald with Berkshire Labels' managing director Paul Roscoe and the first P9E to be installed in Europe

“Considered Mark Andy's flexo flagship, the P9E is almost 30 percent faster than its P7 stablemate on the same job, according to Roscoe, making it a highly efficient production tool”

P7 to double day shifts on both machines, with capacity to spare. 'We saw the benefits of having two Performance Series presses immediately – in fact, a fleet of P9Es would be ideal for us and our customers,' says Roscoe. 'It gives us better control of scheduling and shift planning as well as making routine maintenance easier.'

Berkshire Labels has invested heavily in Esko pre-press software and recently installed the latest Cerm MIS platform to which all machines are linked. 'We are pushing towards an Industry 4.0 workflow,' notes Paul Roscoe. 'The Cerm MIS is now linked to our Esko pre-press workstations and a key objective this year is to really get the Cerm system working to its full potential, aiming for a "one-click" workflow.' Job planning is now handled through Cerm and live jobs are entered into the system using a barcode scanner at each press and finishing workstation.

A key aspect of Berkshire's move towards

automation and standardization is a GMG color management system, which allows operators to digitally measure Pantone colors. This standardization runs through all the plant's print and proofing systems, with hard copy digital proofs run out on an Epson Pro 4900 benchtop press.

Everything is produced to Esko's full HD Flexo specification which allows Roscoe and his production team to choose between flexo and digital production purely on machine availability. He says that some customers specify which technique they require for their job, but most do not, and many could not tell the difference as far as quality is concerned. 'Our aim was to match quality across digital and flexo and we have been successful in achieving that. It allows us to support our small start-up customers, like micro-breweries and artisan food producers, and grow with them as they become major players in the market – it's win-win for both parties.'



Complex finishing and digital variability enhance Derrick organic wine brand

Future development

Still family owned and managed almost 40 years on, Berkshire Labels is undertaking an expansion program at Hungerford, having acquired adjacent buildings to its purpose-built facility that it occupied 20 years ago. The plan is to build the company up to a 20m GBP operation by separating the digital print and finishing operations across the new buildings, with one building housing the growing shrink sleeve label operation.

The next major machinery investment is likely to be in digital again, says Roscoe. 'We have a high level of investment which sees us alternate from flexo to digital each year to ensure we remain right on top with both technologies.'

Currently Berkshire runs a battery of five ABG Digicon finishing machines, the latest of which is one of the highest specified Digicon 3s in production.

In common with other successful label converters, Paul Roscoe very much puts people, as much as technology, at the center of the company he wants to build. 'We like to engage with all our employees and invest heavily in training and personal development. We have some of the most skilled and talented people in the industry working here and this says as much about how they feel towards the company as the investment we have made in training them. It all helps us to build and cement long-term relationships with our customers, who are fundamental to our future growth.'

There are currently five apprentices working at Berkshire Labels, and Roscoe is keen to encourage multi-skilling and movement between departments. Examples include a press operator who started as a cleaner, and who now produces, with calm efficiency, sheets of stickers on a specially adapted Mark Andy 2200. In another case, a digital press operator started out working on customer accounts.

Paul Roscoe is a great advocate of going into schools to encourage students to consider print as a career. 'I pushed hard for our local schools to have career days, but in school hours and not in the evenings or weekends when nobody wants to come!'

Currently employing 90 staff and generating an annual sales figure of 12m GBP, Berkshire Labels is well set for sustained

"There are currently five apprentices working at Berkshire Labels, and Roscoe is keen to encourage multi-skilling and movement between departments"

growth. In particular it's proud of its environmental credentials. 'We have developed a number of green alternatives to traditional labels and sleeves, and these are well-received by those customers who choose them,' says Roscoe. 'There is a small premium to pay at present, but this will disappear as demand and volume increases, and not all customers use price per unit as their main criterion.' Berkshire Labels is BRC/IOP and ISO accredited and also FSC and PEFC registered.

Brand engagement

Much of Berkshire Labels' success has come about by engaging proactively with brand owners and design agencies, which has particularly driven new business with start-ups and 'challenger' brands in the soft drinks, toiletries, craft brewery and spirits space.

'Beer, wine and spirits has become a big area of growth for us, and particularly for shrink sleeves printed either flexo or digital with high end embellishments,' says Roscoe. 'And for customers who are more used to buying shrink sleeves from bigger converters our key benefit – as well as the high quality we can achieve – is shorter lead times. Often they are expecting 3-4 weeks, but we are often delivering the job in just 4-5 days after receipt of artwork.'

Berkshire's growing expertise in shrink sleeve labels was recently recognized with a win in the 2019 AWA International Sleeve Label Awards.

Digital is a key area where Berkshire is happy to share its creative ideas with designers. The company acquired its first digital press ten years ago and now has a battery of three HP Indigo 6800 presses along with sophisticated finishing capabilities. A recent project involved utilizing and adapting HP's Mosaic software for the launch of the Dulwich Gin brand. January saw the company hit a record six million printed digital impressions, up from the company's previous high of five million in a month. 'This was an important milestone that we celebrated and was down to the successful efforts of having a motivated, dedicated and results driven team,' Roscoe adds proudly.

The digital presses are now complemented with one of ABG's most highly specified Digicon 3 converting machines, configured with two flexo heads, two Bigfoot flatbed hot foil/embossing units (each applying 50 tonnes of pressure), semi-rotary screen, auto slitting and automated die-loading plus full reverse print and peel and read configuration. Some interesting brand launches have already been accomplished with these capabilities. One application was achieved with one of the company's designer contacts Will Parr, of Will Parr Studios, who was working on a brief for a new Organic Wine Brand, based in The Netherlands. The stunning labels used both Mosaic and complex decoration including raised screen tactile finishes and foil/embossing. The final job involved RIPping 80,000 unique images and serial numbers.

It is this combination of creativity, attention to staff development and a willingness to invest in cutting edge technology which looks likely to propel Berkshire Labels to its ambitious growth targets in 2020 and beyond.



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The acrylate-based dispersion pressure sensitive adhesive 62Rpw in combination with certain paper labels has no negative effects on the recycling path for transparent PET bottles according to the requirements and assessment catalogue.



“Concept 2023”: The Future of RFID Label Manufacturing



The growing demand for RFID labels brings many new opportunities for label converters around the globe; to take advantage of these opportunities the following challenges must be overcome: complex global supply chains that stretch out the value chain over three continents cause unnecessarily long time-to-market cycles. Additionally, high customer demands regarding product variety put a huge pressure on RFID manufacturers to improve on lead times and flexibility. To build a solid foundation for a successful RFID business of the future, a decisive change in strategy is needed. It is based on **three key factors**:

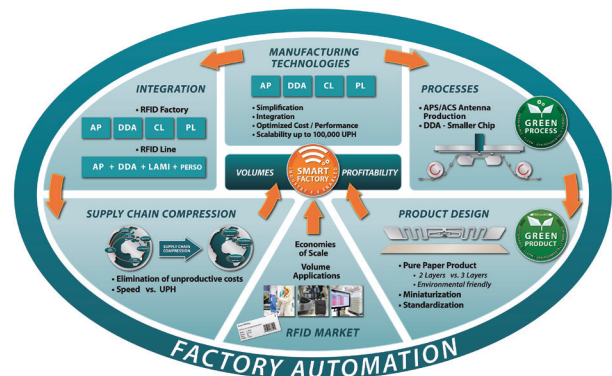
Firstly, a solid **change of established processes** in the marketplace and backwards integration towards more eco-friendly and streamlined technologies is required. The inclusion of more production steps into the in-house production and the use of sustainable processes will ensure a flexible just-in-time production and future growth in the industry.

Secondly, it is important to take advantage of the **newest advancements in automation technology**. Supporting production processes with automated butt splicers, turret rewinders and use of AIVs for automated material handling will further improve the cost structure of your products and give you and your customers the decisive competitive edge.

And last but not least, **digitalization**. Full transparency of production processes, machine parameters and operator efficiency brings the existing production equipment to peak efficiency. Feeding all the gathered data into a smart production planning system and preventive maintenance tools will further improve the RFID business' overall performance.

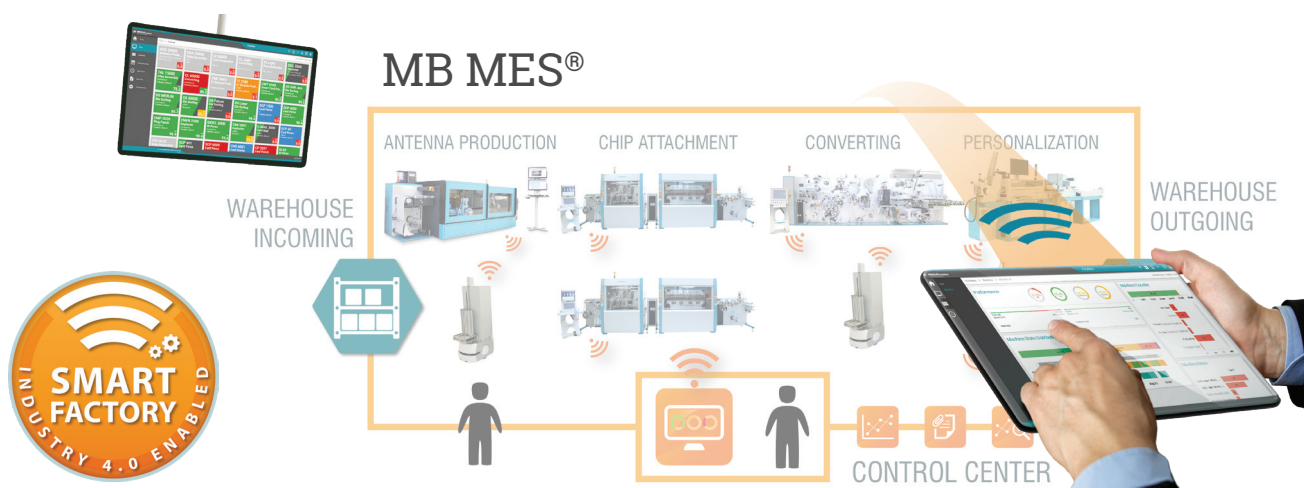
Mühlbauer, a well-established turnkey production equipment and software provider for the RFID industry, has proclaimed 2023 as the year where the vision

of a Smart RFID Factory will become reality. In its “**Concept 2023**”, Mühlbauer combines its revolutionary advancements in antenna manufacturing technology with its unmatched know-how in chip bonding and RFID label converting, as well as personalization by the means of **MB MES®**, a state-of-the-art production control software.



MB MES® is not only used to gather all possible available process information and machine data of the entire machine park, but also as an essential tool for smart and optimized production planning and automated material handling. With integrated tools to schedule preventive maintenance cycles, performance monitors and in-depth reporting functions, the system covers all aspects of a state-of-the-art Smart RFID Factory.

As the market-leader in RFID production equipment with a worldwide market share of over 90% in RFID chip bonding, Mühlbauer knows about the importance of uptime and reliability needed for a smooth ramp-up and a stable production. Mühlbauer has proven to be the strongest and most reliable partner to develop and grow your RFID business into the future !



Press connectivity boosts productivity

This bold promise of substantial productivity and efficiency improvements attracted multi-national label converters to a Performance Connected event organized at MPS's headquarters in the Netherlands. Piotr Wnuk reports

MPS, Esko and Cerm hosted a two-day Performance Connected event in January which aimed to show visitors how to improve their businesses' productivity by 30 percent by integrating machinery and workflow systems.

'Today's message is not an easy one,' said Atze Bosma, CEO of MPS Systems, in his opening speech. 'Over the last couple of months, we have tried to introduce a few performance and connectivity improvements in a certain group of customers. It quickly transpired that MPS is seen as a machine builder, converters are busy with orders, Cerm is occupied by its MIS system and Esko with the process flows. This also led to the simple conclusion that there is massive disconnection and separation of all these technologies.'

'What I want to stress today is that combining these technologies will uncover the hidden potential of machines and can bring up to 30 percent improvement in performance. We are living in a world that is constantly changing. In the printing industry, there is a world of opportunities when it comes to connectivity and data-driven service. We are keen to show our customers how to improve the performance of their MPS presses and overall business by 30 percent with some very easy steps.'

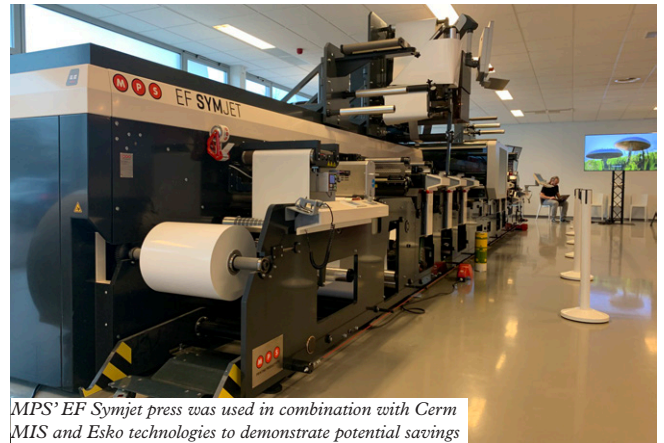
"Combining MPS, Cerm and Esko systems will uncover the hidden potential of machines and can bring up to 30 percent improvement in performance"

Bert van den Brink, technical director of MPS, added: 'When Atze came on board at MPS, with his experience in the packaging industry, he brought a fresh look at the label market and saw the potential lying in connectivity and data harvesting. Last year at Labelexpo Europe, we first introduced the "Beyond the machine" philosophy. We strongly believe there is a real potential to increase the efficiency of the machine, which is not achievable without correct data analysis and collection. Connecting our printing press, Cerm's MIS system and Esko's pre-press knowledge gives us a clear set of data, helping to identify exactly where the inefficiencies occur and how to tackle them to increase the overall productivity.'

According to Bosma, productivity is one of the key pillars of the 'Beyond the machine' concept. 'We are pleased to share our expertise and advise our customers how to achieve optimal lifecycle performance and maximize production efficiency from their MPS machines. In the end, our customer's success is our success,' he said.

Real-time savings

Performance Connected featured a hands-on workshop program including live demonstrations of what MPS called its 'Beyond the machine' technology. The demonstration showed an MPS Symjet hybrid press linked to Cerm and Esko software printing



MPS' EF Symjet press was used in combination with Cerm MIS and Esko technologies to demonstrate potential savings

extended gamut jobs. The session led by Bosma showed the power of the software and hardware ecosystem. It was able to calculate the real-time savings achieved thanks to collecting over 300 parameters directly from the press. This proved that even a 10-second improvement to job change times can lead to significant savings.

The event was also an ideal platform for technical workshops during which Cerm demonstrated how its MIS connects with Esko pre-press and directly with the MPS press operating system, and the performance improvements it can offer a daily operation.

'All three individual systems offer an interesting set of functionalities that can easily improve converters' productivity,' said Geert Van Damme, MD at Cerm. 'But the interaction between these systems provides an extra dimension that can be compared to any team-sport: it's the way they play together that makes them win.'

Esko showed how Value Stream Mapping (VSM) can benefit the label business. It focuses on a company's value creation workflow, exposing waste and inefficiencies based on insights gathered from employees, revealing opportunities to improve productivity and throughput.

VSM considers the workflow as a system of steps and activities which are all connected in one way or another, helping executives to establish a long-term zero waste strategy rather than undertaking isolated actions. It is the starting point of a business improvement project. Ken Polspoel, global solutions manager at Esko, said: 'VSM forces you to think holistically. There's no point in creating islands of success in a sea of waste.'

'We are working with our customers to help them to unleash the full potential and the productivity of our machines, which are often underutilized,' concluded Bosma. 'During our live demonstrations today, we have calculated that a small 10-second improvement to the job change can lead to long-term 78,000 EUR profits for our customers. That's for us a good reason to have this in our vision and to be sure that the connectivity is our main focus over the next period of time.'



For more information about Performance Connected go to www.mps4u.com



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Making business stick

OKI's Pro Series label printer has allowed German converter Urlichs & Pape to branch into new markets. James Quirk reports

Urlichs & Pape, a printing business based in Aachen, Germany, has reaped the benefits of installing OKI's Pro1050 5-color digital LED label printer in combination with the UniNet iColor LF700+ digital label finishing system.

The family-run company, founded in 1928, has extensive experience in offset and book printing, and specializes in label production, including numbering, perforation, blind stamping, die-cutting, grooving and lamination.

After decades of success in sheet-fed printing of labels using offset paper, gummed paper and adhesive paper, Urlichs & Pape's two managing directors, Ulrich Peters and Wolfgang Hohgardt, added label roll production using a thermal transfer printer as a service line. Pre-punched formats were used, which were printed only in black with just a few format variations.

However, using this format, customers gradually withdrew and moved into their own label production. This prompted Urlichs & Pape to search for a system that would enable it to print color adhesive labels.

It opted for OKI's Pro1050 5-color digital LED label printer, with the UniNet iColor LF700+ digital label finishing system. The combination enables Urlichs & Pape to print high-quality color labels and carry out further processing efficiently.

'OKI's Pro1050 is a very well-designed and highly sophisticated system that, in combination with the UniNet finisher, guarantees seamless, smooth production at maximum quality,' says Ulrich Peters. 'The rolls with the respective media types can be replaced very quickly and the consumables have a high capacity.'

The team from Urlichs & Pape were supported in the set-up of the new label printer by its partner Faber, which handled the installation, preparation and on-site training.

However, according to Peters, much of the training wasn't required: 'The OKI system is easy to use and features a simple format and material change procedure, which means you can get the next job running in just three minutes. As I was already familiar with Illustrator and InDesign, I was ready to use the new system after just two days of instruction.'

Using the new system, Urlichs & Pape can now print on a wide range of media, including uncoated, glossy and textured papers, as well as synthetic materials with a variety of substrates including transparent,



Ulrich Peters and Wolfgang Hohgardt, the two managing directors of Urlichs & Pape, with the OKI Pro1050 label printer

"Offset printing is not able to cope with label production in this form. This is where the strengths of the OKI label printer come into play"

opaque, white or colored.

Having the option of white as a fifth color gives the company greater flexibility in the design of printed labels. White can be used as a background on transparent substrates or to create new designs on colored or metallized materials.

'The enormous advantage of this solution is that from now on we no longer have to buy ready-made materials or punching tools,' said Peters. 'For the individual formats of the respective labels, I can now easily create a cutter line for the drag knife of the finisher, the matrix is removed and the product is cut and wound, moving from rows of three to one. The order is ready to ship before you know it and the customer is happy.'

Benefits

Since moving to OKI's Pro1050 printer and UniNet iColor LF700+ digital finishing system, switching between different media has proved to be easy for Urlichs & Pape.

Efficiency has also been a big advantage, making it possible to produce more in a shorter time. Small labels in small print runs now cost less and are more bespoke, making them more attractive to customers.

'Today's customers no longer want sheet material as an end product, where they have to painstakingly tear off each individual label,' explains Peters. 'Offset printing is not able to cope with label production in this form. This is where the

strengths of the OKI label printer come into play. The labels on the roll are printed in perfect color and quality. The roll then hangs in the finisher where the matrix is professionally removed and the labels are cut, separated and rewound.'

With the new possibilities offered by the OKI printer, Urlichs & Pape is now in a position to access new industries and expand its existing customer base. In particular, it is targeting industries that need labels in smaller quantities.

'We initially contacted machine manufacturers, pharmacies, jewelers, and florists, and showed them the new possibilities we can offer,' says Peters. 'Bakeries and confectionery companies, which by law have to label each individual bag of food in order to specify which ingredients are contained, represent a particularly interesting customer group for us. The same applies to butchers who offer vacuum-packed meat in addition to canned and jarred produce. These products must be labeled correctly. We want to push into these small niches in a very targeted manner and are convinced that this business area will grow and generate enough volume to warrant the installation of a larger system after the start-up phase.'



Read more about OKI at
[www.labelsandlabeling.com/
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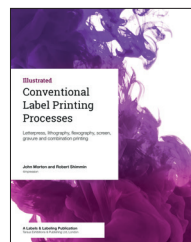
Technology has brought more control, automation and sophistication to every stage of the label and package printing process – from a customer placing an order to receiving it. This is creating vast opportunities for converters, as well as adding complexity to project management.

Management Information Systems and Workflow Automation is an essential read for new, as well as more experienced users, to help navigate the intricacies of choosing the most appropriate system for your business from the many options available.

This illustrated guide will not only explore MIS and workflow automation systems, but it will specifically look at:

- + Accounting for profitability
- + Inventory control and quality management
- + Efficient order processing and job management
- + A detailed appendix of industry suppliers

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US label industry braces for Covid-19 impact

Across the US, label industry converters and suppliers are responding to the global crisis caused by the novel coronavirus. Chelsea McDougall reports

At the time of writing, the latest figures from the CDC report 85,356 Americans have the virus and 1,246 people have died from complications after contracting it.

In the US, the government response varies from state to state, which has created a patchwork of varying responses, and some states – New York, California and Washington – faring worse than others. From coast to coast, bars, restaurants, churches and other 'non-essential' businesses have temporarily closed. More than 100 million Americans live under 'shelter in place' or 'stay at home' orders from state governments in an attempt to stop the rapid spread of coronavirus.

“We have customers that manufacture medical devices, ventilators, sterilization equipment and medical lab equipment and reagents to just name a few. We need to keep them supplied”

This means that only essential businesses, such as grocery stores, pharmacies, food producers and hospitals will remain open. As suppliers to these critical industries, many label converters are exempt from these stay at home orders.

Coast Label Company is located in California, which was one of the first states to ask its residents to stay home. Many of Coast Label's customers are in the medical device industry.

'We are trying to balance keeping our employees and their families safe while serving our customers at the same time,' said Coast Label president Craig Moreland. 'We have customers that

manufacture medical devices, ventilators, sterilization equipment and medical lab equipment and reagents to just name a few. We need to keep them supplied.'

Economic outlook

For many business owners, the economic impact is just as nerve-racking as is contracting the virus.

Industry Insights, a research and analytics company, conducted a survey on how manufacturers, distributors, retailers and professional service organizations are responding to Covid-19.

The report included TLMI member responses and figures specific to the label industry. The survey was conducted on March 16-18 and had more than 2,500 respondents.

Of the TLMI members who responded, there were no reported cases of Covid-19 in employees, but about 10 percent have reported that employees have had contact with a person who has tested positive for coronavirus.

Given the highly contagious nature of the virus, this is concerning for many employers.

Thomas Dahbura, president of Maryland-based Hub Labels, said: 'We are working hard to reinforce good hygiene here at work, but what I'm seeing is that there is a threat from the outside that we have no control over. What people do at home is impacting what we do here. My goal is to communicate with our team that we are working for a higher purpose now – we have an important role to play. This is not a time to fear, but to be aware, prepared and informed. We will work slow, deliberate and avoid knee-jerk reactions to the news that is becoming available.'

At the time of the survey, about 30 percent of TLMI respondents reported a negative financial impact as a result of the pandemic, but 80 percent are preparing for a somewhat to very negative impact this year.

A smaller subset, 11 percent, said the pandemic could have a positive impact, which is likely from those providing labels and

“Employers should consider a plan for major disruptions such as employee absenteeism, extended sick pay, finding alternative suppliers, prioritizing customers or having to suspend operations. But 27 percent of TLMI members have no formal plan for these scenarios”

packaging to the food and beverage industries as more consumers are staying indoors.

‘We are trying to figure out which of our customers are going to benefit from this and which ones will suffer,’ Moreland said. ‘We do very little food and beverage, which is doing well right now. Time will tell how the rest of our vertical markets will do.’

Industry events

Many highly anticipated industry events in the US, such as FTA Forum and Infoflex, Dscoop and Esko World have been canceled or postponed.

However, the label industry’s biggest event, Labelexpo Americas and Brand Print Americas, will continue as planned. In a message on its website, the event organizer said it is working with the venue, the Donald E Stephens Convention Center, to ensure ‘the most stringent health measures will be in place.’

‘We are very mindful of the impact caused by the ongoing Covid-19 situation, however given that the events are still a number of months away, for now we remain focused on planning and delivering events that will rebuild pipelines and help get the industry back on track,’ the statement reads. ‘The health and safety of our exhibitors, visitors and staff will always be our top priority – we will continue to closely monitor the Covid-19 situation and adhere to the recommendations of the CDC in the lead-up to the shows.’

Industry response

Nearly all companies have taken some new actions due to the coronavirus. Many have increased hand sanitizer supplies and canceled large group events. They are also distancing employees and implementing daily office cleanings and sanitizations.

Hub Labels, Coast Label and Dallas, Texas-based Abbott Label are restricting who comes into their buildings. Abbott Labels’ manufacturing sites in Texas, Georgia, California and Illinois will remain open with additional precautions including disinfecting production equipment between jobs and shifts and workstations daily, no visits to the plants, eliminating travel and meeting with no more than two people at a time.

‘As an essential business our goal is to work so that we can continue to serve and supply customers with labels and tags,’ president John Abbott said. ‘In an effort to do that, Abbott Label is taking extra precautions to ensure the health and safety of our people.’

Hub Labels is experimenting with work-from-home scenarios for some employees. According to the Industry Insights survey, Hub is joined by 43 percent of other companies who are responding that way. However, remote work is just not a luxury that can’t be afforded to those on the production floor.

‘We are planning with our IT, customer service, estimating, purchasing, and finance teams to have laptops so that if the need would arise those team members could work from home,’ Dahbura

said. ‘Beginning next week, customer account managers will be testing work from home scenarios to see how it will work and what requirements we need at Hub to continue operations effectively if our staff were to need to work remotely.’

Managing crisis

A crisis management plan can prove to be critical as business leaders balance the needs of their customers and potential threats to their business. Employers should consider a plan for major disruptions such as employee absenteeism, extended sick pay, finding alternative suppliers, prioritizing customers or having to suspend operations. According the Industry Insights survey, 27 percent of TLMI members have no formal plan for these scenarios.

TLMI has written to members of the US House of Representatives and US Senate asking them for clarity on essential business designations, and to urging federal government leaders to support designating label manufacturers as critical suppliers.

There are 16 critical infrastructure sectors, as outlined by the US Department of Homeland Security, that are considered vital to security, national economic security, national public health or safety of the country, so therefore will remain open during the crisis. Those include food and agriculture, public health, transportation, government, financial services, emergency services, energy, nuclear materials and information technology. Even with these designations, there is a lot of ambiguity over what is considered an ‘essential business.’

‘The bulk of our member companies’ businesses are in supply and service to numerous “essential” operations, including the food, beverage, medicine, pharmaceutical, medical equipment and numerous in-demand products for consumers and businesses,’ TLMI president Dan Muenzer wrote in the letter. ‘The labels provided by TLMI member companies provide approved and often required warnings, advisories, ingredient and allergen information, for a large swath of consumer and industrial products. Simply put, TLMI member companies operating in these supply channels need the ability and assurance to operate and be as fully functioning as possible.’

Muenzer echoed the frustrations of label companies across the country who are managing conflicting messaging on what is considered an ‘essential business.’ Federal guidelines give state and local authorities leeway in what is considered essential businesses during an emergency, meaning the rules vary state to state.

‘TLMI member companies are currently contending with varying, conflicting and often ambiguous local and state government business restriction orders, as local governments continue their efforts to respond to the COVID-19 outbreak,’ Muenzer said. ‘While the Department of Homeland Security’s current non-binding guidance is helpful in identifying a broad set of critical industries and infrastructure, it can and should be strengthened, by highlighting the role that these industries’ supply chain partners play in supporting essential consumer and business marketplaces.’

Coronavirus updates

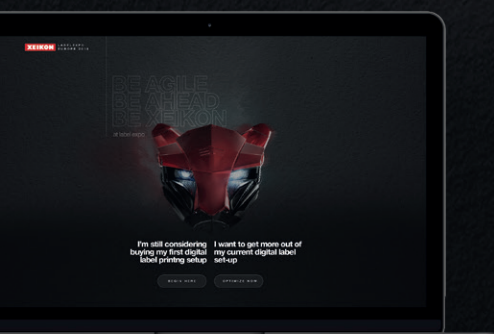
You can read updates on how the coronavirus is affecting industry events at link.labelsandlabeling.com/ry5e, and a list of statements from suppliers and converters on how they are handling their business activities at link.labelsandlabeling.com/pis9.



Read more on the coronavirus’ impact on the label industry on pages 39 and 89

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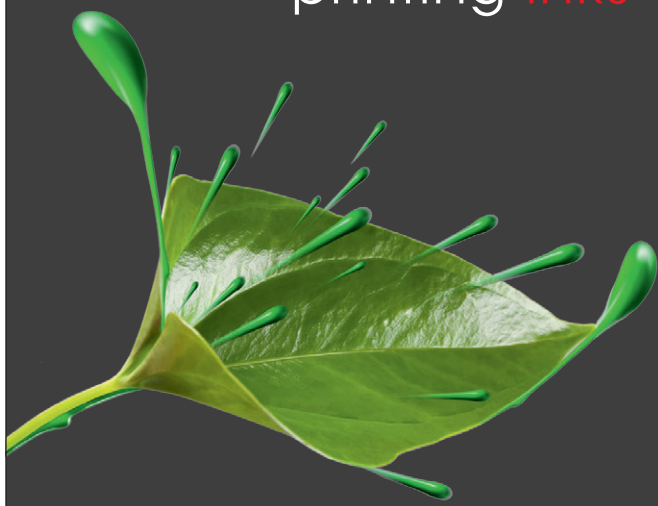
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GOpak launches digital flexible packaging start-up

A new digital flexible packaging company in Wisconsin caters to small and medium size jobs. Chelsea McDougall reports

A former label sales account executive and a plastics entrepreneur have partnered to form a digital-only flexible packaging start-up in Delafield, Wisconsin. Together, the combined business leadership of AJ Buran and David Hotchkiss totals more than 50 years.

Buran spent 25 years with WS Packaging. Eying the disruption and growth in the flexible packaging production, he saw a growing demand for small and medium run flexible packaging jobs. Buran teamed up with Hotchkiss, a 27-year veteran of the plastics machinery business, and together the duo created GOpak, which opened in a 10,000 square foot space in May 2019.

A 30-inch wide HP Indigo 20000 digital press is the backbone of the operation, supported by cutting-edge eBeam technology and a Karlville slitter.

'Many container packaging segments are moving to flexible packaging, including food and beverage, health and beauty, and other consumer products,' Buran says, 'However, smaller brands are not able to get high-quality printed pouches due to large minimums and plate costs. Smaller brands are typically forced to buy blank pouches and label them, and now with the HP Indigo 20000 the emerging brands can eliminate the label and compete with the bigger brands and gain shelf appeal.'

In addition to meeting demand for small and medium packaging volumes, GOpak was established on a philosophy of speed-to-market and improved sustainability, or 'fast and clean,' as Buran says.

'Our technology promotes what our business is all about: fast and clean,' he says. 'And by that I mean offering a faster time to market and being more sustainable. We want to be the printer of choice for our ability to supply high SKU, low volume, fast turnaround, high quality, sustainable packaging.'

GOpak's business model is attractive to many small and medium brands, Buran says, because they take less risk by ordering smaller quantities and increasing their cash flow. Brands are also attracted to the benefits of personalized or versioned packaging.

'I saw what was happening with large companies as brands need to refresh their packaging often,' he says. 'That trend is continuing and will only grow as more and



David Hotchkiss, left, and AJ Buran with their HP Indigo 20000 digital press

more companies realize the benefits.'

The company has already noticed the demand in the 10 months since opening. 'Opportunities are out there,' says Buran.

Production

GOpak provides stand-up pouches and roll stock packaging to printing and packaging companies and CPGs. Many of its orders are from trade printers and food and cannabis companies.

GOpak surface prints on pre-laminated structures and follows that with eBeam curing, allowing the company to ship printed rolls in a few days. Pouch production is completed with off-site partners pending the style needed.

The 30-inch wide eBeam system allows GOpak to create gloss, matte, and soft touch finishes. The 'liquid lamination' curing technology uses a thin layer of coating to cover and protect graphics and prepare the material for converting. And the durability of eBeam curing, which cross-links the varnish, inks and material as one, can eliminate a lamination layer, providing sustainability advantages that are important to its business model, Buran says. eBeam technology cures instantly and uses no photo-initiators, making the process safe for food applications.

GOpak installed S-OneLP's first CatPak system. The system combines an eBeam curing system for packaging film, a corona

GOpak, go!

In Wisconsin, many people believe GOpak's name comes from the Green Bay Packers American football team's rallying cry, 'Go Pack, go!' In fact, the name is derived from the company's philosophy of speed to market. 'We create packaging so customers can go pack their products,' explains Buran.

treater and 30in web unwind and rewind modules, integrated into the eBeam curing system base frame. The system takes up less than 300sq ft.

'The CatPak, with its eBeam curing technology, is superior to traditional methods of finishing, eliminating the lamination and set aside time,' says Buran. 'This allows us to slit and convert immediately, enhancing our speed to market. With no lamination needed, it opens opportunities for recyclable and compostable pouches and films.'

The development of the CatPak system was a partnership between S-OneLP, Tim Burke at Custom Design Applications and PCT eBeam and Integration.



For more information on GOpak, visit www.gopakflexibles.com

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Label Summit returns to Chile

The two-day conference and exposition returned to Santiago with sustainability, design and wine label printing all major focuses. Chelsea McDougall, Jordan Hart and James Quirk report

The 17th edition of Label Summit Latin America closed on a high note in Santiago recently. Taking place in the Chilean capital for only the second time, the two-day event brought together 499 attendees from 21 countries, eager to share ideas and shape the future direction of the region's label and package printing industry.

“The latest Label Summit Latin America which took place in Chile confirmed once again that it is the main event in the region for the label and packaging industry”

The conference, hosted at Espacio Riesco Convention Center on March 10-11, was chaired by Labels & Labeling editor James Quirk, with 11 conference discussions and in-depth expert-led presentations taking place over the two days. The focus was firmly on printing, branding, design and wine, and sustainability was a recurrent theme.

Tasha Ventimiglia, Label Summit Latin America 2020 event director, commented: 'Once again, we're delighted to bring the industry together during the latest Label Summit Latin America. Despite an ambiguous period, we were able to host a lively and extremely well-received conference, with truly inspiring speakers and fantastic educational sessions covering the most topical converter, design and sustainability issues facing the region's label and package printing industry.'

Delegates also took advantage of the exclusive accompanying exposition showcasing the latest technology driving the region's industry, with 57 exhibiting companies taking part, including AB Graphic. The company's Sebastián Rosero said: 'The Summit was a key show for AB Graphic, allowing us to engage with visitors on the scale of new developments in our finishing equipment and the opportunities available, particularly in increased automation and faster workflows. We had some constructive discussions with the packaging group All4Labels Argentina, and barcode and RFID technology specialists Sato, also based in Argentina, both of which should result in new business.'

Echoing this, Hernán Braberman, partner and executive design director at Tridimage,

who gave a presentation in the conference, said: 'The latest Label Summit Latin America which took place in Chile confirmed once again that it is the main event in the region for the label and packaging industry. There I had the chance to talk with converters, suppliers of software and machinery and design agencies about future for the label and packaging industry in Latin America.'

Day one

Mariana Soto, general manager of Cenem, kicked off the conference with a presentation which focused on climate change and how it impacts the Chilean economy. Climate fluctuations are particularly hard on the country's food and wine regions, a key vertical for the region's label producers. And while Chile may be known for its vibrant wine industry, it remains one of the top food exporters in the world.

'Our country is really small, and therefore our industry cannot just grow on internal consumers,' Soto said. 'Exports are a main driver for growth.'

Soto's session was a perfect segue to the next presentation, from Javier Ibero, Latam manager, for Eadec. Eadec is a Spanish printer of adhesive labels and flexible packaging which established a plant in Chile in 2004. In 2016, it opened a facility in Peru. 'One of the most important things for a manufacturer of labels is to identify our environmental impact, so we have as little impact as possible,' he said.

At Eadec, measuring its waste output is the key to reducing it. 'We have to see the starting point, so we can see where we have to improve,' Ibero continued.

When Eadec opened a satellite location in Peru, it recycled the pallets that the equipment arrived in, turning them into printshop furniture. The goal, according to Ibero, is to transform into a circular economy, where the waste of one project can be used as the beginning of another.

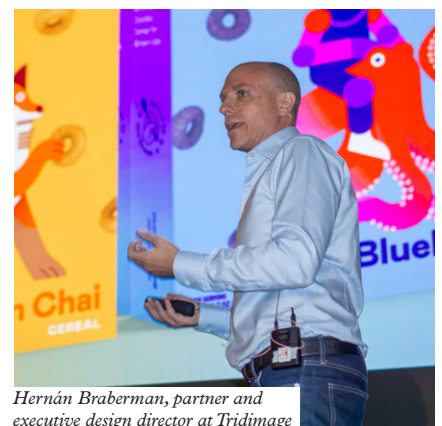
The keynote speakers, Askold Zimmermann and Suleik Quintero from the event's gold sponsor, GlobalQuality,



Mariana Soto, general manager of Cenem



Askold Zimmermann from the event's gold sponsor, GlobalQuality.space



Hernán Braberman, partner and executive design director at Tridimage

Labelexpo Mexico to debut in 2021

Labelexpo Mexico, the first such event organized by the Labelexpo Global Series in Latin America, will take place on June 23-25 next year at the World Trade Center in Mexico City. Go to www.labelexpo-mexico.com for more information.



A converter panel featured (L-R) Germán Calvi of Etiketten in Argentina, Ignacio Cortiñas of Eadec Chile, moderator Juan Pablo Figueroa of Contraseña magazine, Jorge Garrido of Garinos Hnos in Uruguay, and Ignacio Ramos of R&R Impresores in Chile



The two-day event brought together 499 attendees from 21 countries

“We must be careful with our investments. There is a revolution that we are going through and it’s very fast. This change may be harmful for us if we are not careful. We have to pay attention to technology developments”

space, transitioned from environmental concerns to technical improvements. They explained how their technology can help printers save time by removing non-value added tasks through a workflow system.

The next presenter, Ignacio Ramos of R&R Impresores, a printer in Santiago, Chile, discussed what he called the great migration, or the movement of commercial printers into the label industry. He gave the example of his own company’s conversion to labels and packaging.

Citing statistics from a recent SGIA study of printers in North America, Ramos explained that 95 percent of almost 500 surveyed respondents said that there is opportunity to expand their business. Of that 95 percent, 39 percent are already in the process of investigation and 33 percent have already diversified into new markets. ‘By far the main printing migration is from commercial,’ Ramos said.

Before it entered the label market, R&R Impresores focused its research in three key areas: market, technology and the human impact to its business.

Adding workforce is proving difficult, Ramos said. There are at least three people needed to produce a label, meaning more salaries were added to the books, not to mention the difficulty finding and training new employees.

Yet these concerns are not proving to be a deterrent: of the commercial segments considering moving into another sector of printing, 39 percent are considering moving into labels, according to Ramos.

However, the label market can be challenging, as the next presenter, Francisco Bardi explained. Bardi, senior advisor of Graphic Executive Management, discussed meeting the demands of labels in a changing era. With more than 25 years of experience in the industry, he shared his insights about the importance of having a technological advantage.

Adding value to labels is the main way converters can avoid producing a commodity product. He discussed value-added effects such as embossing and foils, as well as smart label technology such as RFID, NFC and augmented reality.

‘Technology is always surprising us,’ he said. ‘You have to think about using these tools to help your sales people.’

He added that the best strategy is to develop a relationship with your customers that is built on more than price. ‘You want a relationship that is more than that of a vendor who sells products

that are cheaper or more expensive, and that’s all. The task is building a relationship in the long term, so the client is going to call you first. The client is the most important part. If they do well, I am going to do well, but for me to do well I have to have a sales team that is creative for my clients.’

Day one ended with a panel discussion with label converters from the region, chaired by Contraseña magazine director Juan Pablo Figueroa. The panel featured Germán Calvi of Etiketten in Argentina, Ignacio Cortiñas of Eadec Chile, Jorge Garrido of Garinos Hnos in Uruguay, and Ignacio Ramos of R&R Impresores in Chile. Topics under discussion ranged from digital printing and recruiting press operators, to staying ahead of the competition.

In terms of automation and technology, ‘we always want to be one step ahead of people who are following us,’ Calvi said. ‘The Southern Cone faces social unrest which is almost permanent, and we have work hours that are shorter, so we have to automate processes wherever we can. That gives us the incentive to invest.’

Given the speed of innovation in the label industry, Garrido said, ‘we must be careful with our investments. There is a revolution that we are going through and it’s very fast. This change may be harmful for us if we are not careful. We have to pay attention to technology developments.’

Just as important as the technology on the shop floor are the people operating them. Ramos said: ‘When you are purchasing a machine you are not just purchasing a machine. It’s important that your supplier can give you the knowledge you need to get everything you need out of that machine.’

While quality workers are valuable to any business, so is knowledge of operation costs. At Eadec, the company continually reviews its material consumption to ensure success.

Cortiñas said: ‘How much ink, paper and other materials you are using really determines if you are making any money. If you are unable to know those parameters, and you are lowering prices without knowledge, you may go from making money to making no money. That’s why it’s so important to measure everything. We review, review and review some more. It’s fundamental to everything we do.’

Day two

The second day of the conference opened with Labels & Labeling editor James Quirk, who offered a comprehensive view of label and packaging trends from around the globe. He offered updates on

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“The brand is an emotion. Food is a function, but the brand is the heart. Eighty percent of buying decisions are based on emotion, so if we have that emotional connection with consumers, they are more likely to buy our brands”

trends in North America, Latin America, Europe, India, Southeast Asia and China, compiled by the magazine's global editorial team, before highlighting the technical trends which are driving the industry. These included the impact of digital printing technology and the response from conventional press manufacturers – who have increasingly automated conventional label production and partnered with inkjet suppliers to create hybrid press offerings; the rapid development of management information systems to streamline and automate production processes; the arrival of wide web press manufacturers into the narrow web sector; and the trend towards wider web presses which creates opportunities for diversification into shrink sleeve and flexible packaging production.

Luis Arevalo, packaging engineering director at Kellogg company, kicked off an afternoon of largely branding and design focused presentations. Arevalo discussed the design elements important to a large CPG. 'The brand is an emotion,' he said. 'Food is a function,



Entertainment at the networking party

but the brand is the heart. Eighty percent of buying decisions are based on emotion, so if we have that emotional connection with consumers, they are more likely to buy our brands.'

This is the reason why personalized campaigns do so well, Arevalo said. 'Tell your story: that's how we can connect with consumer's emotions. Tell them who you are, what you do, what you believe in, and what will it be like to use the product. Answer the question: will I trust you?'

Hernán Braberman, partner and executive design director at Tridimage, took the audience through what he called his 'design playlist'. Braberman pointed out all the design elements that appeal to each generation. Baby Boomers prefer classic images, and a sense of legacy; Gen X likes nostalgia and items that feel luxurious but are affordable; Millennials want packaging that can be photographed and which translates well to social media, typically with vibrant colors and personalization; Gen Z prioritize social causes, and their

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The Label Summit hosted 57 exhibitors



Visitors at Label Summit Latin America 2020

boundary between the physical and virtual worlds are often blurred.

Following Braberman's discussion, Ignacio Zermeño from MGM Mexico discussed counterfeiting measures that labels can take, including RFID, NFC inlays, microtext, void, guilloche printing, and closure seals.

The conference program closed with a panel discussion focused on design and the wine label sector in Chile. The session was moderated by L&L's James Quirk and featured panelists María Jesús Valdés of JVD Studio, Eduardo Wexman of ValueBranding, José Mingo of CCL Chile and Viña Aresti, and Carolina Lucero of Armaria

Arquitectura y Diseño.

There are many elements to the design process, and Mingo advised attendees not to overlook the importance of the initial briefing and marketing proposal for a product design. He added that designers need to be up to date with technology suppliers, so both elements can work together.

To take advantage of globalization, Lucero emphasized that design should be overarching and universally appealing, rather than specific to a certain region.

The panel wrapped up by returning to the focus at the beginning of the Label Summit: sustainability. According to Wexman, 'the wine industry in Chile has been a pioneer in terms of sustainability.'

Label society

Turn to the Label society page at the back of this issue to see more photos from Label Summit Latin America 2020.



For more from Ignacio Ramos and R&R Impresores' journey from commercial print to labels, see page 75

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Label success for Chilean commercial printer

Chilean commercial printer R&R Impresores has found opportunities for growth by diversifying into label and packaging production. Chelsea McDougall reports

A Chilean converter with a background in commercial rotary and sheet-fed printing is finding success in the label and packaging markets as it continues its quest to diversify its business.

R&R Impresores commercial manager Iganacio Ramos recently spoke at Label Summit Latin America 2020, held in March in Santiago, Chile, about his company's decision to turn to the label market.

The company began 30 years ago on a foundation of commercial print, producing 50 to 60 editorial magazines per month. 'As time went by, however, we realized we were facing some difficulties in that market,' recalls Ramos. 'That means that this migration can be a life or death situation for a company. For us, it had to happen. We couldn't wait any longer.'

'The migration of print forms that is occurring worldwide in printing presses is fascinating, versatile and very accelerated,' he says. 'Any means of improving your processes, diversifying or simply reinventing is something that should be done and should be in the plans of each printer right now.'

About six years ago, the company turned to folding cartons and gift box packaging. After a year of research and installing equipment purchased at Labelexpo Americas 2018 – an HP Indigo 6900 digital press, and Digicon Series 3 and Digicon Omega from AB Graphic – R&R Impresores officially entered the label market in mid-2019. Label production already makes up 12 percent of the company's business,



Iganacio Ramos, commercial manager at R&R Impresores, speaking at Label Summit Latin America 2020

“Under one roof we can make a label and a gift box for a wine customer, and also the paper to wrap it, plus its commercial printing such as a catalog or sustainability report, all simultaneously”

and Ramos expects that to rise to 25 percent by mid-2021.

Markets

R&R Impresores caters primarily to the wine and spirits segment. Its move into label and packaging production has allowed the company to expand other parts of its business.

'Our label operation has enabled us to diversify our solutions for our folding carton customers,' Ramos says. 'Imagine that under one roof we can make a label and a gift box for a wine customer, and also the paper to wrap it, plus its commercial printing such as a catalog or sustainability report, all simultaneously. It's also worth noting that we have grown enormously in the gift box sector for wines and spirits because of our entry into labels.'

Other Chilean printers have been slow to adopt diversification on the same level as R&R Impresores, but Ramos says it's only a matter of time before more follow suit.

'I believe that if we do not diversify, the market and globalization will do it for us.'

In a market evolving so quickly, if you don't offer what customers expect, they will leave you behind,' he says. 'It is not common for a flexible packaging company to migrate towards folding cartons or vice versa, but if that is what the market demands, it is necessary to investigate. Undoubtedly, the more solutions offered to a particular customer under one roof, the more value that company will have in the market.'

'We have gone from commercial rotary printing to commercial printing on sheets. Then about six years ago we moved to folding carton packaging, and very recently to labels. All four areas are still operating today at R&R, but these last two represent 80 percent of our annual revenue. In that sense, I think we are a good example of what conversion means and how transcendental it can be for the survival of a printing company.'

More printers eye diversification

During Label Summit Latin America 2020, Iganacio Ramos presented statistics from a recent SGIA study of printers in North America. According to the research, 95 percent of almost 500 surveyed respondents said that there is opportunity to expand their business. Of that 95 percent, 39 percent are already in the process of investigation and 33 percent have already diversified into new markets. 'By far the main printing migration is from commercial,' Ramos says.



For more a full review of Label Summit Latin America 2020, see page 69



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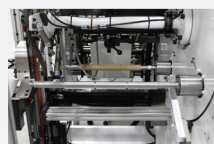
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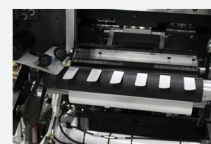
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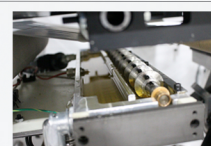
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Brady expands in Southeast Asia

Brady Corporation has opened a plant in Bangkok, Thailand – its third in Southeast Asia. Aakriti Agarwal reports

Brady Corporation expanded its presence in Southeast Asia with the inauguration of a manufacturing plant in Bangkok, Thailand, in 2019. With this plant, the company now has three manufacturing sites in the region. SY Lim, Southeast Asia operation director, says: 'The new facility is focused on providing more customized products and to strengthen our presence for local customers.'

Brady Corporation moved into Australia, Hong Kong, Japan and Singapore in the 1980s and subsequently expanded to other parts of Southeast Asia in the 2000s. The company opened its first manufacturing site in the region in 1991 with a plant in Singapore. 'We started operations in Malaysia in 2001 in the Bayan Lepas Free Industrial Zone in Penang,' says SY Lim. 'Due to an increase in demand, this facility is set to be a significant manufacturing hub with a wide range of products being produced here.'

Brady has continued to invest in various printing capabilities in Southeast Asia, including thermal transfer, flexo, letterpress, silkscreen and digital printing capabilities. 'The choice of printing technology or adding capacity depends on customer and market requirements, as well as the need to add capabilities for futuristic and niche product demands,' says SY Lim.

'Each technology has its own pros and cons. We made our first investment in a digital label press for the local market in 2004. This technology has helped us improve our capabilities and product offering to our customers. It helps offer faster response to customers with more innovative products using efficient processes while offering better quality.'

Product offering

With an array of options for label printing, Brady puts its customers' experience at the center. 'We adopt the most optimal solution at the right price and best quality to resolve customers' issues,' says SY Lim. 'Although Brady is a multi-national company, we adapt to local needs and demands when it comes to business development. We have customized products to serve the region's needs. Having said that, there are also standardized items that are used across different regions, such as our printers or



The new Brady plant in Thailand

“Due to an increase in demand, this facility is set to be a significant manufacturing hub with a wide range of products being produced here”

standard materials.'

'For the Southeast Asian market specifically, we largely use THT printers as we are industrial identification experts,' explains Desmond Chua, sales manager, Southeast Asia. 'This includes catering to industries such as marine, oil and gas, among others. Many of these industries require outdoor identifying labels that have to withstand aggressive solvents and temperatures without suffering losses in visibility or readability.'

One of the latest developments from the company is an ADR (Australian Design Rules) compliant label for shipping companies transporting hazardous goods.

'We take pride in offering the best solutions possible, answering challenges set by industries, by the environment they operate in, or by legislative bodies,' says Ren Wanting, R&D manager, APAC Material Technical Service. 'Therefore, it is very important to constantly research, develop

and invest to drive future organic sales growth. We have a large R&D team globally that works tirelessly to increase productivity and diversity of our new product pipeline. With an investment of 45 million USD globally in its research and development in 2019 fiscal, Brady is committed to focus on efficiency and shortening time to market.'

Responding to market trends, Brady moved into smart label production in 2014, providing RFID-enabled labels to its customers.

Catherine Oh, senior sales manager, Southeast Asia, says: 'Currently, Brady Corporation is providing a complete RFID solution to the aviation industry. Brady's aerospace RFID integrated label is designed to meet AS5678 requirements and the aerospace industry's ATA Spec 2000 specifications. These smart RFID labels are the next generation of products to extend the use of smart asset tagging in aerospace applications. At Brady, we use customer



Various services are offered at the new Brady plant in Thailand



Samples of industrial RFID labels manufactured by Brady

“Although Brady is a multi-national company, we adapt to local needs and demands when it comes to business development”

feedback to continually design, improve and innovate our products from general identification solutions to custom engineered labels. With multiple research and development centers globally, Brady is capable of providing testing, as well as product development, to meet the stringent specification provided by various segments such as the fast-growing e-commerce market.’

Other product offerings from Brady range from customizable supply chain-controlled labels that are used in highly targeted anti-counterfeiting applications, to an assortment of tamper-evidence labels. The company caters to many brands worldwide with different kinds of brand protection labels. ‘Brady’s product authentication labels and services help client combat threats of counterfeiting, gray market diversion and tampering. This can be achieved by designing a multi-faceted security strategy for brands with various overt, covert, digital authentication and tracking technologies,’ says Oh.

For products manufactured in Southeast Asia across all three factories, about 50 percent are exported, and the rest are consumed in the domestic market.

Waste management

Brady ensures that all sites comply with governmental standards and laws as defined by the relevant local authorities.

In Malaysia, hazardous waste which is known as Scheduled Waste is treated in accordance with the standards set out in the Environment Quality Act 1974 (Scheduled Waste) regulations 2005. All hazardous waste is fully controlled by the Department of Environment Malaysia (DOE), Ministry of Energy Malaysia, Technology and Environment & Climate Change. All hazardous waste is sent for disposal through the licensed contractor based on guidelines set by Department of Environment Malaysia.

Similarly, in Singapore, toxic industrial wastes and non-recyclable general wastes are disposed in accordance with the criteria stated in Environmental Public Health Act and its relevant subsidiary legislations. The company engages licensed waste collectors to collect and dispose the wastes, based on requirements set by the local authority, National Environment Agency.

For recyclable waste, which mainly consist of packaging materials

such as pallets and carton boxes, the company either reuses them or they are collected by recycling vendors for recycling off-site or disposed of as general waste.

Workforce management

Thorough waste management, however, is just one of the many aspects of Brady’s operations. The company also boasts a minimal and manageable staff attrition rate at a time when there is a shortage of skilled workforce in the market.

Lim Siew Yin, senior human resources manager, Southeast Asia, explains: ‘Brady believes in recognizing and rewarding our employees who go above and beyond in their jobs. We run a “Bravo program” which is a rewards system to thank our employees for the work they’ve done. It allows managers to award employees with points that can be redeemed for cash or gift cards.’

‘All employees are encouraged to participate in continuous improvement projects. We track the Kaizen project progress and performance periodically. On top of that, Kaizen project submission is also one of our factory’s key performance indicators (KPI) that gets evaluated in yearly employee’s performance’s goals. These individual goals affect individual yearly performance assessment or evaluation.’

Furthermore, the company organizes both in-house and external equipment training to its employees. ‘They are trained by equipment vendors, or visit one of Brady’s other sites or the local site’s experts trains them on specific machines or technology. We also have a Global Learning Center (GLC) for providing local in-house training by our personnel. At the same time, we also engage with some external training services providers for both soft skill and hard skill training,’ says Siew Yin.

GLC is an e-learning platform that is accessible by employees in all sites. This platform supports a wide variety of learning delivery including instructor-led training and virtual classrooms through an intuitive and personalized experience. Courses catering to the varied needs of individual needs, whether in soft or hard skills can be found on this platform and employees can register for it. ‘They can find a course suitable to their own development needs and learn at their own pace too. We have about 39 percent and 28 percent of our exempt employees in Singapore and Penang respectively accessing the training courses conducted in 2019,’ says Siew Yin.



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Creativity and efficiency drive Signode India

The Indian converter's new plant, inaugurated last year, features a range of Gallus presses and one from Iwasaki. Aakriti Agarwal reports



The new plant was inaugurated by Signode president Robert Borque along with members of management committee of Signode Group and Gururaj Ballarvad



Signode India was the first converter in the country to install a Gallus Labelmaster

On November 7 2019, Signode's president, Robert Borque, inaugurated Signode India's new state-of-the-art factory in Bengaluru, spread across an area of 85,000 sq ft. With a built-up area of 25,000 sq ft, the plant houses a range of Gallus label printing presses including a new Gallus Labelmaster, as well as one Iwasaki TR2 intermittent offset press. The company has a second plant dedicated to label printing in Rudrapur, which hosts Gallus EM 280 presses.

“A team dedicated to job changeovers has reduced this time by 10 to 12 percent”

The label printing division of the company, Signode India Wintek Flexo unit, witnessed growth of around 9 percent in the last year.

Lakshminarayanan Parthasarthy, business unit head, Signode India Wintek Flexo Prints, says: 'Our growth is driven by producing consistently high-quality labels, innovation and improved efficiency. The company will continue to grow in the same direction as the market and is widening its product portfolio to include premium security labels and performance labels for durables.'

'We are evaluating further diversification to include in-mold labels and shrink sleeves as well as short run promotional jobs for beverage companies. Building on our expertise in new product segments, we would ideally like to take high-value, profitable jobs that stand out on the market shelf.'

Story

The company fulfils the premium label requirements of multinational companies primarily in the personal care, FMCG, and pharmaceutical segments. Innovations at Signode India include feature-laden security labels, domed labels, registered lens, cast and cure, three-layer booklet labels, and augmented reality, among

others. 'Every brand has a story and we want to be a median to narrate the story through augmented reality,' explains Parthasarthy. Augmented reality is a technology that superimposes a computer-generated image or a code in microtext onto a label, that when scanned makes a label come to life engaging the consumer with the brand.

'Signode India is a solution provider and strives to offer cost-effective, yet high quality labels to customers,' says Parthasarthy. Citing an example, he says that the company aims to increase its market share by printing labels for cans, and recently converted a direct printed tube to high-value pressure-sensitive labels. With highly configured Gallus presses, which feature in-line screen, foiling and a gravure unit among other options, Signode India offers many innovations such as the option of cost-effective labels printed with solvent-based metallic ink instead of foil.

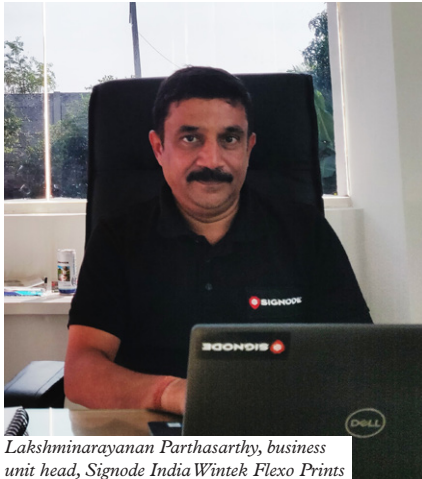
'The Gallus presses perform extremely well,' says Parthasarthy. 'With multiple Gallus presses spread across two plants, we are extremely happy with the service support and the convenience of using tools interchangeably. This not only reduces costs but also saves time and increases efficiency on production floor.'

The company's label division operates in Bengaluru and Rudrapur. 'We keep adding capacity to meet market demand and continue to have excess capacity to allow us to meet that demand, with a planned roadmap to get into the right market segments,' says Parthasarthy.

Factors that drive the company to invest in a new press include optimum equipment efficiency of its existing presses and the need to bring new technology in-house.

Gauging demand by end-users, Signode India has also been manufacturing label applicators since 2017 to further diversify its business. The company either offers applicators on lease to brand owners, while managing the equipment during that time, or sells them in a package which includes after-sale service.

One of the company's major strengths is its in-house capabilities: pre-press, platemaking, screen-making, printing and finishing, amongst other operations to ensure end-to-end data and product



Lakshminarayanan Parthasarthy, business unit head, Signode India Wintek Flexo Prints

“Signode India Wintex Flexo Prints has been consuming 100 percent of its waste since 2014. We are now trying to engage with end users to find a solution to recycle liner waste”

About Signode

Signode is a provider of transit packaging systems, including steel and plastic strapping, wrapping, taping, protective packaging and lashing equipment, consumables, tools and accessories.

Signode India, as it is known today, began operations in India in 1982 under Nagarjuna Group as Nagarjuna Signode. In 1986, the company was acquired by ITW and restructured as Signode Packaging Systems. It diversified into pressure-sensitive label printing in 2012 with the acquisition of Wintek Flexo Prints, a company owned by Gururaj Ballarwad which started printing labels in 1996. Signode was again restructured as Signode Industrial Group after an acquisition by The Carlyle Group in 2014. In December 2017, Crown Holdings, a consumer packaging manufacturer, entered into an agreement to acquire Signode Industrial Group Holdings in a cash transaction valued at 3.91 billion USD.

Today, with 88 facilities across the world and eight in India, the company has two dedicated factories for printing pressure-sensitive labels.



The Iwasaki TR2 intermittent offset press enables the company to produce short-run jobs efficiently

security for customers.

Signode India houses high-speed inspection rewinders with 100 percent defect detection systems. Pre-press includes a fully-fledged Esko suite, DuPont systems for platemaking and an Epson printer for artwork approval. It also houses a 3D virtual studio from Esko as well as color management software integrated on all presses. The company's ink kitchen is equipped with an ink mixing unit from Inkmaker where pantone shades are made in-house for various jobs. Some of the array of ancillary equipment used includes plate and anilox cleaning machines, and platemounting units. There is storage space for raw material and finished goods, in a factory which operates highly streamlined production.

Sustainability

The new facility boasts an effluent treatment plant, sewage treatment plant and six rainwater harvesting pits. The company uses recycled water in its gardens and bathrooms. The treatment plant ensures the removal of toxins from wastewater before its discharged in the drain. Signode has even ensured the hot air emission from its machines is split in two different directions, to control temperature build-up in any one part of the factory.

On the production floor, Parthasarthy says the company ensures high efficiency with careful evaluation of waste. 'We perform a weekly analysis of production schedules that brings down running wastages. A team dedicated to job changeovers has reduced this time by 10 to 12 percent. Our key focus in 2020 is to increase optimum equipment efficiency (OEE) and further reduce wastage by two to three percent, which we believe will help us competitively serve our customers.'

The company has in-house targets for sustainability. Working towards achieving the goal, Signode India converts and upcycles all its waste and where possible

tries to use FSC-certified material, as well as substrates made out of post-consumer recycled (PCR) waste. 'We have efficiently converted a 23 micron PCR film with a 23 micron liner. Tension control and die-cutting are two critical aspects of printing on similar substrates. Our customers successfully use these films on PCR cans and other packaging, therefore making the entire package viable for recycling,' explains Parthasarthy.

The new plant in Bengaluru transports all its waste, both liner and matrix, every week to the Silvassa or Rudrapur plant for upcycling it to manufacture corner protection boards for protective packaging of goods including electrical appliances. 'Signode India Wintex Flexo Prints has been consuming 100 percent of its waste since 2014,' says Parthasarthy. 'We are now trying to engage with end-users to find a solution to recycle liner waste.'

Despite these efforts, the ongoing slowdown in the economy has driven the company to cater to wide gamut of companies and change its business model. 'The industry has slowed down, as a result of various factors, and it is worrying. Rural purchasing power has reduced and many local brands have come up, which has reduced the market share of multinational companies, in turn affecting our business. Therefore, we have to look at mid- to short-run jobs while being efficient. With both flexo and intermittent offset press capabilities, we can efficiently produce any run length starting from 2,000sqm on Gallus presses and 1,000sqm on the Iwasaki TR2. Therefore, we are ready to cater to all brands and companies with low and mid-sized volumes,' concludes Parthasarthy.



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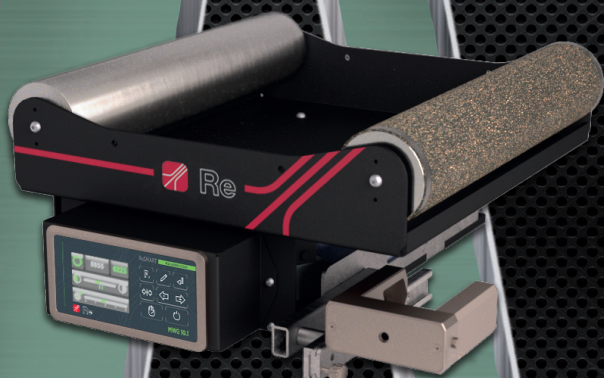
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Building a digital platform for flexibles

Chinese flexible packaging converter KHH has brought together an HP Indigo 20000 with an online sales platform based on groceries and fashion e-commerce ideas to develop a new business model. Yolanda Wang reports

Shenzhen Ken Hung Hing Plastic Products (KHH) became only the second Chinese user of an HP Indigo 20000 press in the flexible package field, and the first user in the south China region, when it began production on the machine in April 2018. The company has since established a fully digital printing operation for the flexible package sector complete with an online ordering platform.

Established in 1999 and located in Longgang District, Shenzhen city, KHH manufactures a wide range of flexible packaging products including bags and packaging films in materials ranging from PE to PP and OPP. The company serves customers both in China and overseas, and covers a wide range of end use applications including food, beverage, pharmaceutical, cosmetics, electronics, electrical appliances and toys.

The company was started in Anliang Triangle Industrial Area in the Longgang District of Shenzhen when it was called Ken Nan King. In 2006 production was expanded and the company moved to Xikeng 1st Industrial Area, Hengtang Town, Longgang District.

KHH installed a fully computer-controlled gravure press, full automatic laminator, slit, creasing machine and bag making machine, all run by an experienced technical team. Already in 2004, KHH had achieved certification to become a member of the Chinese government's TrustPass scheme.

In February 2007, increased capital investment led to the setting up of today's Shenzhen Ken Hung Hing Plastic Products Co. The company achieved ISO9001: 2000 certification in October 2007 and obtained its Shenzhen Municipal Printing production license in 2012, passing the QS food quality standard certification in May 2013. The company focuses strongly on sustainability, and production adheres to RoHS standards.

Why digital?

The internet-dominated era has seen brands facing challenges from a new generation of consumers. The most apparent change in the flexible package sector is a demand for personalized, smaller packages and multiple SKUs, along with an increasingly strict focus on environment protection policies. All this has posed huge challenges to the management models of conventional flexible package enterprises.

The typical orders KHH received six or seven years ago were up to 240 million bags, but recently this has sharply decreased. 'Most Chinese people are not loyal brand customers, plus there is the increasingly fierce price war within the print industry, especially these last couple of years, along with the rising cost of raw materials and the build-up of environmental protection pressures,' says KHH general manager Gong Zhen. 'The quantity of purchase orders and profit rates among flexible package manufacturers are simultaneously dropping as a result. The practical dilemma forced us to look for new ways to develop our business.'

After a period of market research and technical analysis, Gong Zhen realized that there was limited room to grow by relying purely on in-house technical innovation and efficiency improvements.

At this point he started looking at external solutions, one of which was to invest in an HP Indigo 20000 digital press.

After installing the HP Indigo 20000 in April last year, Gong



"The most apparent change in the flexible package sector is a demand for personalized, smaller packages and multiple SKUs, along with an increasingly strict focus on environment protection policies. All this has posed huge challenges to conventional flexible package enterprises"

Zhen found that integrating the process was more complicated than he had originally imagined. 'Even though the HP Indigo 20000 digital printing technology obtained market acceptance and many customers' approval, we still encountered many issues during the integration of this machine with our flexible package production system.'

One issue was the suitability of existing flexible package substrates for digital printing. 'Some had good performance during printing, but problems such as ink stripping, fading and cracking frequently showed themselves in the printed films during the successive finishing process. Compared to label printing, printing accounts for a much smaller proportion in the overall production of flexible packaging. This doesn't mean printing is not important, but there is more than one process involved after the flexible package has been printed, such as lamination and bag making in which the lamination temperature, use of solvents and the process of bag-making will all affect the finished product quality of the flexible package.'

The ElectroInk used by HP digital press is quite different from conventional gravure inks, Gong Zhen points out. 'These differences will not only affect the printing process of the flexible package but



HP Indigo 20000 digital press at Ken Hung Hing



Samples produced on the HP Indigo 20000 at KHH

“We are finding that ‘cool and funny personalized customization’ is most popular with KHH’s target consumer audience”

also directly determines its quality and performance in the following processes.’ KHH now undertakes field tests of all the processes including printing, post-press finishing, lamination and bag-making before the official production of a digital purchase order is undertaken. ‘This means we can take preventative measures or make a new plan to counter any possible issues beforehand.’

From installation of the new digital press to completion of troubleshooting took KHH eight months, from the first sign of emerging problems, to contacting HP engineers and lamination and bag-making suppliers, to the later in-house research, problem solving, then changing materials and retrofitting equipment.

During the trouble-shooting process Gong Zhen says KHH offered constructive advice for the technical improvement of the HP Indigo 20000 based on their years of experience in flexible packaging. ‘We found one issue during non-stop change of ink cartridges during the production. So our senior engineer suggested solving this problem by slightly adjusting the size of outlet of the ink cartridge. Later, we sent this feedback to the HP engineer and the new ink cartridge we bought this year eliminated this issue completely.’

As only the second user of an HP Indigo 20000 digital press in the flexible packaging field and the first user in South China area, Gong Zhen is very proud of this contribution towards improving the equipment.

Online shop

Historically, the flexible package printing industry has not required a high level of responsiveness. But following the

fast-growing importance of the internet in China and the unceasing expansion of e-commerce to all sectors of society, ‘internet + printing’ has become an important new business model.

Explains Gong Zhen: ‘Compared with conventional printing, digital printing greatly lowers the production cost of small orders with a run length less than 500 meters, and meets market demands for short-run, personalization, customization and quick response. Our online shop adds a fast, efficient and low-cost workflow which helps us meet these demands in an automated way.’

Both production and marketing strategies must change if printers are to take full advantage of the possibilities offered by digital printing, says Gong Zhen. Digital production must be fully integrated with a digital workflow from customer order to product delivery.

KHH has learned from both the fashion and groceries e-commerce industries in developing its new sales platform. Called Cloverleaf, it combines both online and offline shops.

In the online shop, users need only seven simple steps to customize their favorite flexible package products – make an online inquiry; choose product; determine the material and specification; submit design/artwork; confirm the order; pay in advance; and then delivery. For one customized bag with one piece of artwork the minimum order is just 200 pieces. All orders are fulfilled within seven days – half the typical lead time of conventional printing.

Another reason for referring to Cloverleaf as the ‘Fashion-grocery platform of flexible packaging’, is because the products supplied by KHH cover such a wide range of end

uses, from snack foods to clothing bags and toy packing bags. Each product can be customized with different images and patterns, even within the same package style. ‘We are pursuing the difference from our competitors rather than always trying to be better than them at what we all already do,’ says Gong Zhen.

As well as direct orders from consumers, KHH also accepts orders from brand owners and designers, typically for exhibition samples, and from its industrial peers. These products have covered snack food, coffee bags, tea bags, nuts and specialty bags.

KHH has successfully applied for patents on flower and plants bags, which has greatly enhanced the added value of its digitally printed flexible packaging products.

‘All the above-mentioned business is developed thanks to the HP Indigo 20000 digital press,’ says Gong Zhen. We are finding that “cool and funny personalized customization” is most popular with KHH’s target audience. We are learning how to resonate with consumers by developing creative packaging concepts and learning how we can market them and produce them in the most effective and fastest ways.

‘The flexibility, efficiency and high quality print of the digital press combined with our years of experience in flexible packaging and bag-making has given us confidence to develop more digital products and build up our brand.’

KHH is now planning to design and build its own online shopping platform. ‘We are looking towards a good future for digital printing in the flexible package sector,’ concludes Gong Zhen. ‘KHH will focus on investment in the digital printing sector.’ Gong Zhen says KHH is considering the purchase of a second digital press.



For more on the Chinese label and packaging market, go to www.labelsandlabeling.com/contributors/yolanda-wang

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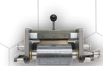
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China's label industry hit by coronavirus

With China increasingly on lock-down over the epidemic, how are the country's label converters responding? Yolanda Wang reports

The outbreak of coronavirus pneumonia has hit China hard and is now spreading around the world. What are the implications for China's label printing industry?

Firstly, before any company can resume work they have to demonstrate they have made preparations to prevent the spread of the epidemic. This includes providing face masks, disinfectant, sanitizer and thermo-detectors. A serious shortage of face masks has led the price to triple in just a few weeks. All this adds to label converters' production costs.

The second issue concerns employees. Most workers do not live locally and are heavily affected by restrictions on public transport. One label converter, Dongguan Sunway, has dispatched company buses to pick up employees directly from their homes. Even if staff do get to work, they may then face a 14-day quarantine period.

Xinxiang Honglian Printing, located in Henan province, resumed work on February 10. 'Today, only employees with a normal body temperature, living in a place without a virus outbreak, and without travel history and contact with Hubei people, are allowed to enter our workshop,' says Huang Changjun, general manager of Honglian. 'This means our current production is only half what it was before the virus outbreak.'

In some cases, label material supply and transportation networks have collapsed. Guangcai Label, a converter located in Guangdong Province, partially resumed work on February 3. More than 90 percent of their products are labels for disinfectant or sanitizers.

'The virus outbreak has triggered an explosive growth in label products for epidemic control and prevention, but the large label material suppliers are short of stocks and have limited access to transportation, meaning our current logistic costs have increased by approximately 50 percent,' says Ji Congri, general manager of Guangcai Label.

The epidemic means people no longer go out to eat, which has had a severe impact on restaurants, hotels and tourism. Label converters supplying these industries have suffered a sharp fall in business.

Label companies which rely on export business have also suffered. Press manufacturer Wanjie, located in Hebei



Chinese converters have resumed work – but at a cost

“Smaller enterprises are struggling and many will not survive the epidemic. But larger companies will quickly occupy this vacant market space, leading to increased consolidation”

Province, books more than 60 percent of its business from overseas, and recently established a European branch in Spain. 'Though many businesses are suspended in China, overseas companies are still working normally,' says general manager Hu Yongjie. 'The epidemic has meant visits by overseas customers along with our business activities in those markets have had to be postponed. We have done our best to follow up and maintain overseas business in the short term, but we are not ruling out the possibility that some urgent international customers may select other suppliers if resumption of work is delayed further.'

Long term impact

What is the longer term impact of the coronavirus epidemic on the label industry?

Firstly, as noted above, the epidemic outbreak triggered huge demand for sterilization and other protective labels,

with many label converters running nonstop during the Chinese New Year holiday to fulfill orders. They also obtained some tax benefits and temporary loan facilities from new government policies.

At the same time, travel restrictions have meant a spike in online shopping. The national mail service delivered 81.25 million parcels from January 24-29 alone, a year-on-year increase of 76.6 percent. Meanwhile, consumers are paying more attention to products conducive to improving immunity, and purchases of healthy foods have increased. These trends have created new markets for labels.

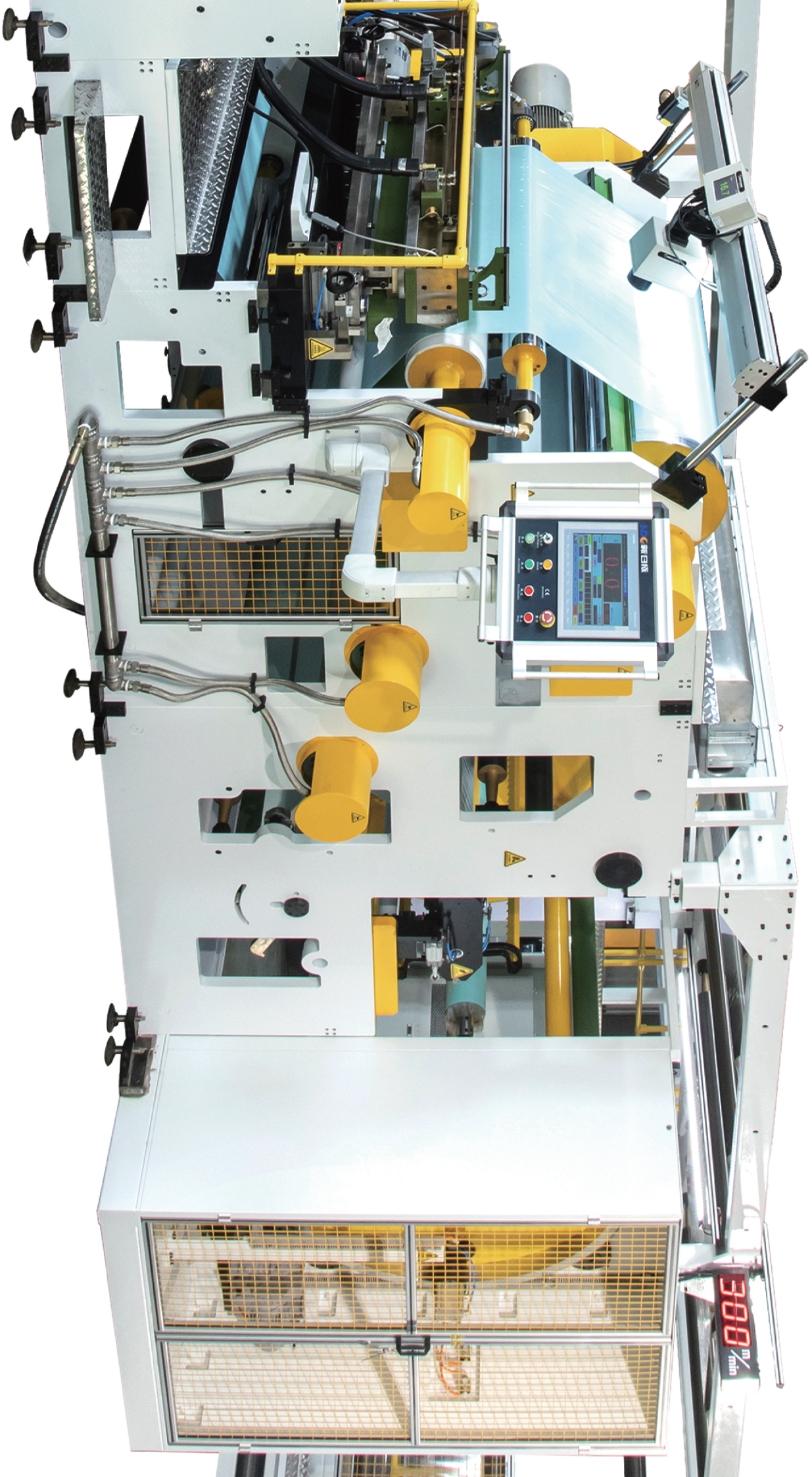
Secondly, the pattern of industrial competition looks set to change. Smaller enterprises are struggling, and many will not survive. But larger companies, with stronger funding and management resources, will occupy this vacant market space, leading to increased consolidation.

Third, although costs have been increased by the epidemic, in reality the label industry has long needed to control costs and enhance production efficiency through digitization and automation.

End user demands have helped accelerate the growth of smart labels in China. Wuhan Huoshenshan Hospital now uses RFID labels in its self-service supermarket. This will spur the development of self-service shops and vending machines based on smart-tags and RFID labels.



For more from Yolanda Wang on the Chinese market, go to www.labelsandlabeling.com/contributors/yolanda-wang



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Minimal label waste – a new way forward

Mike Fairley provides an overview of current linerless technology trends and previews a significant new innovation that offers a minimal waste future

Way back in July 1979 Labels & Labeling printed a news item in which Peter Roman, managing director of Precision Packaging Machinery, spoke at a seminar about the amount of waste and cost generated by pressure-sensitive materials. 'We must consider whether it is possible to have a roll of paper printed completely, then faced with a silicone covering to provide release, and finally coated with an adhesive,' he said. 'Even a thinner type of backing would cost a lot less.'

Today, some 40 plus years on, the industry is still working towards having fully viable, and global, pressure-sensitive solutions that substantially reduce or even eliminate the cost and waste generated by self-adhesive materials, whether through linerless solutions, thinner substrates, minimal matrix waste, new die-cutting technology and enhanced recycling volumes – or various combinations of some or all of these possibilities – and from which all converters can benefit.

It is not difficult to understand why the pressure-sensitive industry needs to provide a new way forward. Currently, less than five percent of the 60 billion square meters of global production of laminates with silicone liners are reused or recycled. That's not sustainable for the future. Brands want to have 60 billion square meters of finished labels, not a waste disposal problem. Label converters will also typically waste an additional five to 10 percent of the original laminate during production and handling.

Additionally, there are all kinds of proposals by national, international, trade and other bodies to reduce overall packaging and food waste by up to 50 percent, to substantially cut plastics waste, and to recycle more. Labels are integral to all these proposals and targets, and the pressures can only intensify. It should also be noted that in some countries the silicone liner is already being taxed as packaging material and it is becoming ever more complicated and costly to dispose of it after usage.

These challenges the brand owners and label and packaging converters face are now being exacerbated by ever-more extreme climate change predictions, the ongoing war on waste, rising carbon emissions, lifecycle analysis programs, as well as the possibility of new or enhanced waste and carbon emission legislation. Retailers and brands are therefore continuously looking to be more efficient, have less downtime on labeling lines, reduce or eliminate waste to landfill, generate lower CO₂ within the supply chain, and to reduce their buying costs. The label industry has to urgently find acceptable answers to all these challenges if it wants a successful long-term future.

Developments

The label industry has of course not stood still over the past 40 years since Roman's predictions. Much has already been done in terms of linerless solutions and thinner materials over the past ten years. Leading label converters now successfully producing linerless labels include groups such as MCC, Coveris, Hub Labels, NSD Labelling, RR Donnelley and Skanem, while current developments and trials look to be close to, or ahead, of the expected challenges to come. That is, focusing on the optimum solutions for high speed labeling – no waste at the brand owner and minimal waste at the



Core Linerless for SAB 'Flying Fish' labels repositions a 'Smart Liner'

“Currently, less than five percent of the 60 billion square meters of global production of laminates with silicone liners are reused or recycled. That's not sustainable”

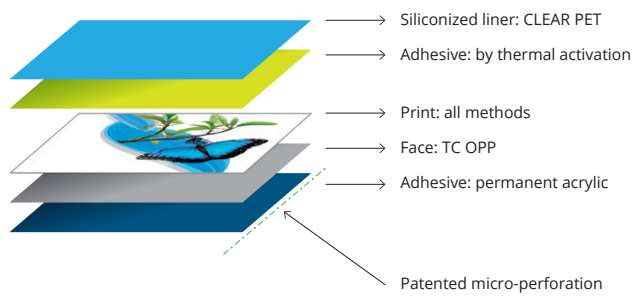
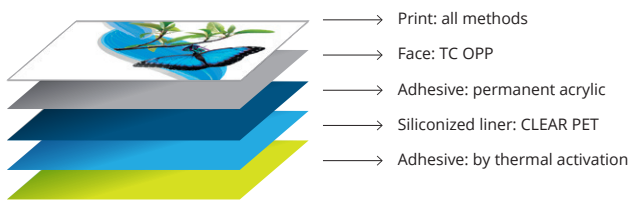
label converter.

To achieve these kinds of savings on a global basis means that the whole label industry supply chain needs to work together, with virtually any label converter being in a position to print, convert and substantially reduce industry waste – essentially to develop a new growth path offering a dramatic reduction in pressure-sensitive industry waste. This new growth path will be discussed later.

To better understand this evolution of linerless technology and look at the latest pressure-sensitive waste reduction developments, Labels & Labeling met with one of the industry's leading waste reduction exponents, Mike Cooper, business development director for Catchpoint, whose long experience as a champion of both linerless technology and of pioneering developments in self-adhesive application machinery make him uniquely placed to discuss this new growth path.

However, before looking ahead with Cooper, it might be useful to have a brief look back at the history of evolving linerless technology over the past 40 years and where we stand today.

Linerless pressure-sensitive labels are, of course, not new. They first came to the fore in the early 1980s when Waddingtons in the United Kingdom developed a technology and coating system (Monoweb) to produce linerless labels which found application in label user companies such as Heinz. They were used with a specially designed applicator system that die-cut and applied the label in one pass on the production line – not the best of solutions, as



Core Linerless Solutions labels transform the siliconized PET liners into a lamination film that makes graphics stand out and provide essential release to unwind the web of labels in high speed applications

The evolution of RR Donnelley

Read a feature from L&L's North America editor Chelsea McDougall on the evolution of RR Donnelley – and its experience with linerless labels – in Labels & Labeling issue 1 or online at www.labelsandlabeling.com/features/evolution-rr-donnelley.

“To achieve these kinds of savings on a global basis means that the whole label industry supply chain needs to work together”

Heinz did not want either the responsibility or the matrix waste.

Today, linerless labels are most commonly found in the form of pressure-sensitive labels for the blank label industry, as well as thermal labels used in print and apply weigh-price label dispensers and applicators for meat, poultry, and seafood packaging. They are also popular in several other market sectors, such as other food and logistics applications, but have generally been rather slower to make a significant impact in the wider prime label markets. These kinds of linerless labels are produced by coating the original materials with a release coating and appropriate adhesive.

The leading producer of equipment for, primarily, linerless logistics labels applications today is ETI Converting Equipment, the developer of Cohesio equipment, which has been working for some years to find solutions to the issue of release liner waste. Its Cohesio press can manufacture pressure-sensitive linerless labels with direct thermal materials right through from the raw material to the finished label product.

The technology offers converters the ability to siliconize, print, adhesive coat, print again and die-cut at speeds up to 500ft/min. A growing global base of label converters now using ETI Cohesio linerless equipment includes RR Donnelley & Sons, which installed a second ETL liner line in May 2019.

Current state of play

So where are we today with linerless decorative labels? Well, there are a number of companies that are able to offer various proprietary linerless technology and applicator systems for both primary and secondary product decoration labels. These companies include Ravenwood Packaging, Ritrama Core Linerless Solutions and Catchpoint licensees.

Ravenwood Packaging is a company that manufactures and sells coating machines to label printers, with applicators sold to retailers and packers, and particularly specializes in solutions for chilled foods. The Ravenwood technology, operating through a licensing system based on patents held by Coveris, provides the

whole linerless supply chain from specialist materials to coating and application equipment for the end user using both a coater (the Comac 500) and a variety of applicators (the Nobac systems). These machines provide a completely linerless labeling workflow in which the vast majority of linerless labels produced are reportedly used in the fresh food market sector.

Today, Ravenwood has well over 1,000 linerless applicator machines installed worldwide, supplied by distributors in Europe, USA, South America and Australia, with millions of linerless labels applied annually.

Then we have Ritrama's Core Linerless Solutions, an innovative sustainable labeling platform developed jointly with its partners Omet, Spilker and ILTI.

The first brand owner to adopt it has been South African Breweries, an ABInBev Group company, which is now successfully using the labeling platform to decorate its beer bottles. Driven by the need for a more sustainable label, the SAB project started back in 2017, went into a pilot phase in 2018, with large-scale production starting in April 2019, followed by a commercial testing and control phase on the company's Flying Fish beer labeling line.

'Ritrama Core Linerless Solutions has a unique conversion process that transforms a waste (PET liner) into a resource (label lamination film)', explains Mike Cooper. 'The 12 micron siliconized PET liner is shifted to protect the image and provide linerless label release from the web of labels in high speed applications, such as the SAB Flying Fish beer labels.'

'This Smart Multifunctional Liner format uses 30 percent less film than the current beer labels thanks to the Catchpoint micro-perforation that does not need essential label stiffness. These labels are the first concrete solution for both brand owners and converters to eliminate waste. No liner, no matrix, lower thickness and reels with much more labels bring several additional benefits like less raw material, improved logistics, and lower CO2.'

High-speed application of this new linerless solution is provided by ILTI, with support from Krones, a leader in high-speed beer labeling systems. SAB has already planned to extend the Core Linerless Solutions labeling platform to its entire product portfolio, expecting a reduction in the group's environment impact by 57 tonnes of waste per year – in South Africa alone.

This is the first high-speed decorative PS labeling system to eliminate major waste along the labels supply chain.

LinerSave initiative

Looking at the evolution of the industry's war on waste, the early sustainability target of seven or eight years ago was the label itself: no waste liner with new inks and eco films. Today, container recycling and re-used resin has become the target, with the industry responding with the development of wash-off adhesives. However, the industry still has a credibility issue, with a huge waste footprint and recycling logistics costs.

'What Catchpoint is now looking to achieve,' expands Mike Cooper, 'is to change the pressure-sensitive industry's logistics by

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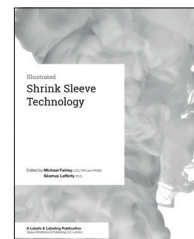
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producing linerless labels direct from the existing supplied laminates, using wash-off adhesives and specified facestocks – all at the label converter plant. This LinerSave initiative will totally eliminate liner waste at the brand's labeling facility, simplify liner collection to significantly drive up recycling rates and encourage linerless solutions to be produced to less demanding specifications.

'Such a solution has huge potential, which could all be delivered by existing laminate capacity. It would increase recycling rates for recycled fiber in glassine, and be able to completely recycle filmic liners back into the same product. It would also provide a financial case for creating an installed base of linerless application capacity to encourage further ongoing development.

'There are obvious benefits for the brand owner from the LinerSave technology. The existing supply chain would not be disrupted, and they can be assured of long-term pressure-sensitive label supply from an industry seen to be dealing with its waste demon. Initially transitioning with back labels provides a low risk for brands. Both existing conventional PS and linerless back labels can be applied on the



Illustration shows both standard labels and the new Liner Save linerless labels printed by OPM Group

“Catchpoint now believes it has developed a successful solution for the complete elimination of the liner, which has been undergoing printed production trials at OPM Group”

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same adapted application control line, with Catchpoint providing the engineering to convert existing PS labeling machines for linerless application.'

But what about the label converter? 'The Linerless LinerSave label can be produced from their same standard PS laminate,' adds Mike Cooper, 'while die-cutting is with the same magnetic cylinder, and many more labels are able to be delivered from the same 300mm OD reel. Liner recovered from tens, or hundreds, of label converters – rather than the brand owner – will transform PS recycling and efficiency. It also potentially halves transport logistics, with double the number of labels in a reel, or smaller lighter reels.'

The ultimate target, however, is PS labels with no liner at all, which requires a solution to two key problems: dispensing a liner-free PS web, and ensuring no blocking occurs when the adhesive comes into contact with the face material.

The laminate community has responded to these challenges with solutions for logistics applications.

Herma has introduced the InNo-Liner with an activated adhesive eliminating any silicone release coating. Herma's integrated system with application offers



The left-hand illustration shows standard PS labels being applied, producing over 500 meters of liner waste from a 300mm OD reel. The right-hand illustration shows Liner Save labels being applied, again from a 300mm OD reel, with no liner waste

"The ultimate target is PS labels with no liner at all"

clean cutting of traded unit labels. Other laminate suppliers have responded to ETI's success with Direct Thermal Linerless in co-operation with a variety of 'Print Apply' machine suppliers with cutting for variable label lengths.

'At the present time, however,' says Mike Cooper, 'these technologies do not

provide the accuracy and speed required for decorative PS labeling, with both ILTI and Krones confirming that cutting is not yet a high-speed alternative. ETI Cohesio has disrupted traditional laminate supply chains for logistics labels, and some decorative label conversions, while Herma has pointed a pathway for laminators to meet these new perspectives through the use of activated adhesive systems.'

Catchpoint now believes it has developed a successful solution for the complete elimination of the liner, which has been undergoing printed production trials at

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Herma won the 2019 German Packaging Award in the sustainability category for its InNo-Liner system

Herma wins packaging award

Self-adhesive materials specialist Herma won the 2019 German Packaging Award in the sustainability category for its InNo-Liner system, helping shipping companies to eliminate liner waste and minimize the CO2 footprint.

The awards are held under the patronage of the Federal Ministry for Economic Affairs and Energy. An independent jury had analyzed and judged submissions from 14 countries. More than 30 innovations from Germany, Switzerland, Spain and Sweden won prizes in the ten categories.

According to the German Federal Association for Parcel and Express Logistics (BIEK), more than ten million shipping labels are used per day in Germany alone. Herma addressed this problem with its linerless InNo-Liner system.

'Unlike in conventional labels, the paper material is not sticky because the adhesive is not activated until later stages,' explained Milos Kojic, Herma's marketing manager. 'Not until the label is dispensed does a precise, purely water-based micro-atomizer activates the adhesive.'

The adhesion is possible due to a special multi-layer adhesive, along with the micro-atomizer, which was specially developed for the system. The linerless system was jointly developed by all three Herma divisions: labeling machines, self-adhesive materials, and labels.

'It is a great honor for all participants to have won this renowned award,' added Kojic. 'We have put our heart and soul into this project right from the start and are very happy that the efforts made by the development team are now paying off.'

“The PS label industry – after almost 40 years of linerless innovation – may now be on the cusp of a significant evolution”

OPM Group in the United Kingdom. This solution uses a special low-cost UV release varnish de-tack system which is deposited as a dry system in-line onto a PS adhesive web. The resulting laminate can be readily wound and rewound without blocking and this secondary layer enables the original liner and release system to be removed, rewound, and returned for recycling. OPM has demonstrated that this technology has the potential to be readily adopted by label converters. Printing and die-cutting to an anvil is the same as currently undertaken, and the labels are wound into finished reels. All the original liner waste is recovered by the printer and returned for recycling. There is no waste at the brand and reduced face and matrix waste at the converter.

'Brands can either activate in-line or be supplied with reels by the printer, with the label face decoration coated with a release varnish,' says Mike Cooper. 'By using a low surface energy belt to carry the labels to dispensing, or the ILTI vacuum control system, we have proved through trials that no-liner labels can be successfully dispensed. The end-user does have to invest in the linerless application equipment. However, Catchpoint's applicator conversion kits provide a healthy return on a modest investment because they are dual function – applying both conventional and linerless labels – for investment flexibility.'

While there is still more work and trials to be undertaken, it already seems that the pressure-sensitive label industry – after almost 40 years of linerless innovation – may now be on the cusp of a significant evolution that will transform the way that labels are produced and, in turn, bring the major environmental and waste savings that the industry, and brand owners, have long been seeking.



For more from Mike Fairley, go to www.labelsandlabeling.com/contributors/michael-fairley



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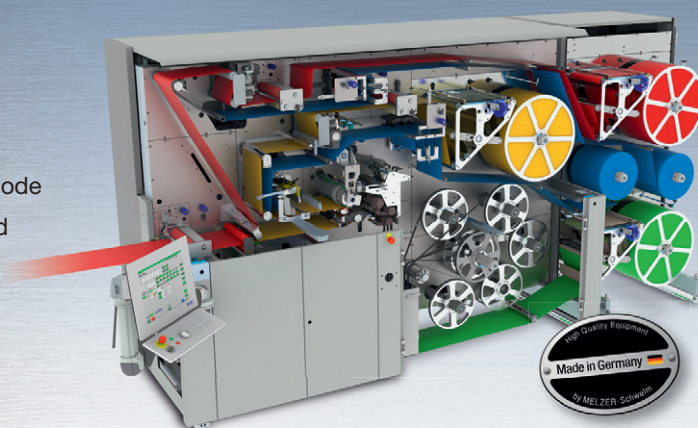


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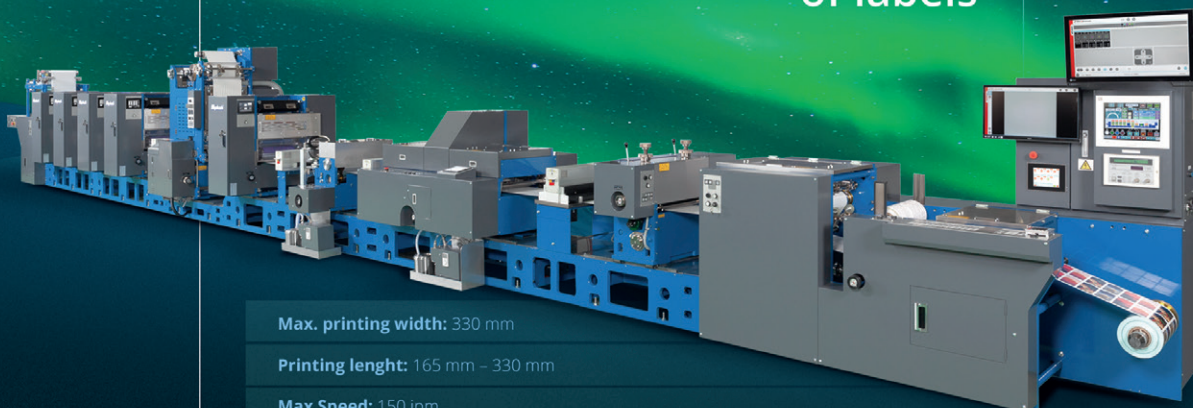
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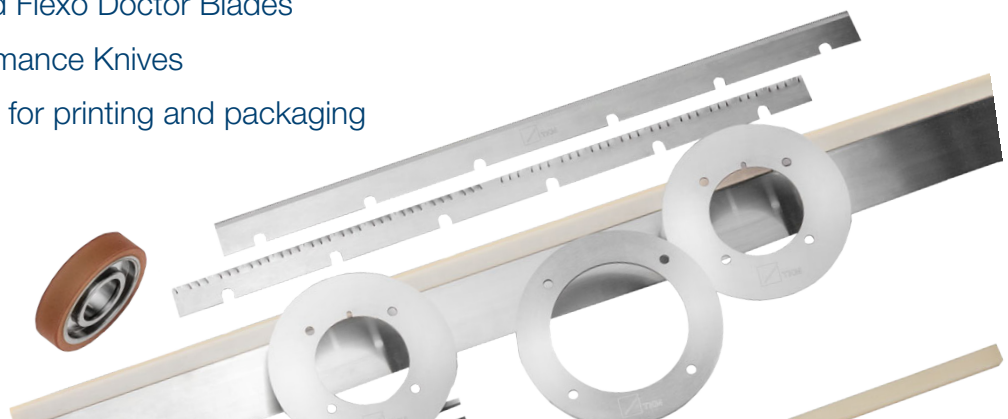
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Smart and intelligent labels

Smart and intelligent label technology covers a wide range of applications from brand protection and logistics to consumer engagement and stock tracking. Tony White reports on the latest developments

Before we can start any discussion about smart and intelligent labels, we need to define what we mean by these terms and the attributes they describe. A simple definition would be that smart labels become active in response to a trigger, like UV radiation or the physical action of filling a container. Intelligent labels, on the other hand, switch an application on or off in response to external stimuli – they can ‘sense’ an action and inform the recipient.

The consultancy experts at Clearmark provide a more in-depth definition of a ‘smart’ label, describing it as an umbrella term for any labeling or coding system that uses technology to add functionality and data beyond a traditional barcode. This includes data-embedded barcodes, RFID, and QR codes and other emerging technologies.

‘Transforming a once single-dimensional barcode into a data-rich source for suppliers, packagers, logistics workers and advertisers, smart labeling can demonstrate the qualities and provenance of products, improve safety and reduce waste by tracking the products through the supply chain,’ says the company.

So what are the main smart label technologies on the market?

Quick Response codes

Quick Response (QR) codes are used for item identification, product tracking and providing marketing information to consumers. They can be read rapidly by a range of devices including smartphones with an inbuilt QR code reader.

QR codes can store a lot more information than traditional barcodes. Where a barcode has a 20 character capacity, a QR code can store over 7,000 characters yet can be read more quickly by machine readers.

Data embedded barcodes

Data embedded barcodes are barcodes with extra functionality over and above simple product identification. Applications include storing information such as the food’s expiry date, batch information and product tracking data. One popular example is the GS1-128 barcode which provides a global standard for exchanging data. This is used by manufacturers to add features like traceability and to trigger a range of automated procedures which ultimately add value for the manufacturer, supermarket and customer.

Radio-frequency Identification

Radio-frequency identification (RFID) labels can be attached to products and can automatically track them through the supply chain using the presence of electromagnetic fields. There are a wide range of applications including brand protection and track and trace.

To conclude our definition, we might say that smart label technologies allow complex information to be conveyed to a machine system or to consumers, retailers and brands.

Time Temperature Indicators (TTI)

Time Temperature Indicators (TTI) can be applied at point of manufacture, and stay with the product throughout the supply chain. If the product has been kept within the recommended storage temperature conditions, the label will change color in line with the expected shelf-life of the product. However, products are often subject to out of specification temperatures due to sub-standard refrigeration units or poor chill chain management,

“PragmatIC is collaborating with a number of research establishments and companies to try and advance this technology to bring a low cost, thin, flexible battery technology that will complement its FlexIC products. One such public collaboration is called FlexiBat which aims to demonstrate a graphene-enhanced battery”



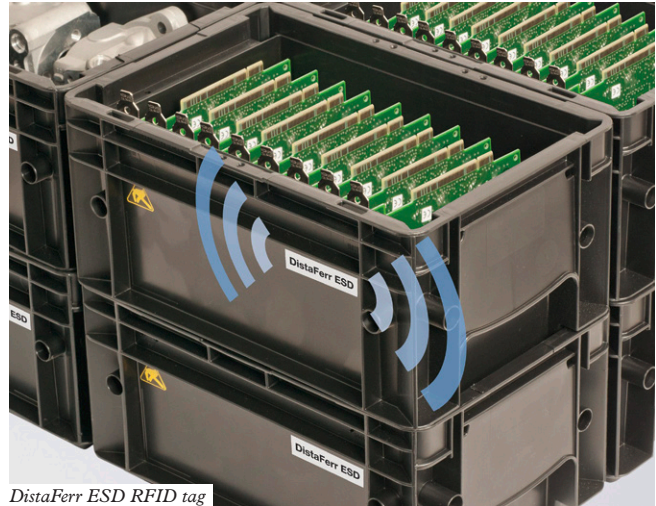
Clearmark QR code



Insignia FreshTag



RFID tag on aluminum



DistaFerr ESD RFID tag

“The experts at the Clearmark consultancy provide a more in-depth definition of a ‘smart’ label, describing it as an umbrella term for any labeling or coding system that uses technology to add functionality and data beyond a traditional barcode. This includes data-embedded barcodes, RFID, and QR codes and other emerging technologies”

such as leaving refrigerated truck doors open.

An example is Insignia Technology's FreshTag labels, which help the supply chain enhance food freshness and quality. Using color changing technology, the quality and freshness of products can be clearly highlighted to businesses and consumers. Other applications include assuring cold chain integrity and revealing tampering or damage to the packaging. The labels change color faster if food has been out of its temperature limits, meaning the labels are more reflective of the true product life than the static date codes.

Insignia also offers after-opening (or 'secondary') shelf life timers for consumers, which automatically start to change color once a pack has been opened, allowing the consumer to make more informed decisions on the freshness of opened food. When the pack of modified atmosphere packaging is opened (for example a pack of ham), the atmosphere around the label changes, triggering the color changing process. The center dot changes color from yellow to purple as the food becomes less fresh. This gives a clear indication of how long the pack has been opened. These labels can be used on a wide range of foods which are packaged under MAP.

RFID-on-metal

Traditionally, RFID has suffered interference problems when tags are attached to metal containers. Items such as foil cosmetic packaging, aluminum cans, metal tools or

electronic goods can create interference between the tag and reader, making it challenging to achieve the performance read rates required in retail. Now Avery Dennison claims to have solved this problem with a technology which also enhances RFID communication on containers holding liquids.

The new tags have been optimized for performance when applied to objects containing metal, foil and liquids, reflecting retailers' growing desire for RFID to play a larger role in enhancing and automating supply chains and retail, especially in the food and beauty segments.

Called on-metal, the new technology uses a unique inlay design and label construction to tackle performance limitations when applied to products that contain metal and liquid. The range features two inlay designs, which vary in size to accommodate required read rates typically beyond three meters.

Francisco Melo, vice president and general manager, global Intelligent Labels at Avery Dennison, explains: 'With the new on-metal RFID solutions, we are removing these barriers, enabling more companies and industries to give everyday items a unique digital identity and digital life.'

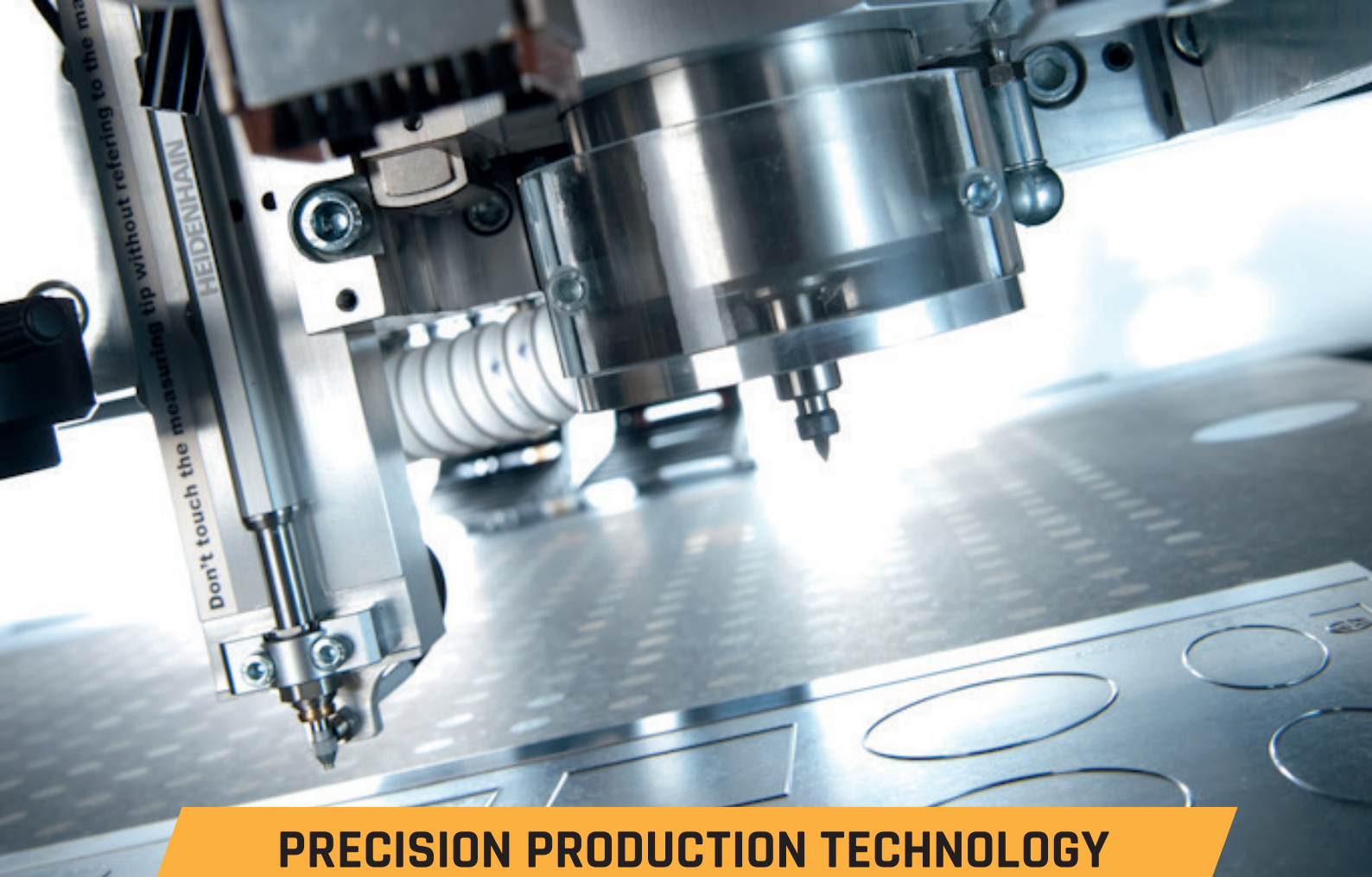
Another company working hard on these kinds of difficult applications is Schreiner ProTech, part of the Schreiner Group.

An issue identified by Schreiner is that specialty labels optimized for use on metal are designed for operation in one of two commonly used frequencies worldwide:

ETSI in Europe or FCC in the NAFTA area and Asia. This means that the label can only be read by one or other of these two frequency bands. It follows that RFID labeled products which are moved between the continents can no longer be read by a universal system.

Schreiner ProTech has developed two new products for optimum data acquisition on metal across all international borders: the ((rfid))-DistaFerr Global and the ((rfid))-DistaFerr Global LongRange. Both labels take the physical properties of metal into account. The integrated dual-band antenna enables the labels to be read by both frequency bands. As a result, they can be utilized in the commonly used frequencies worldwide and reliably function on metallic substrates. The two products are identical in terms of size and design. The only difference is the chip used and the related readable range which varies from three to six meters, depending on the version and frequency band in which the label is being read. In addition, the labels are extremely durable and, due to their minimal size and thickness can be used in a wide range of applications.

For container marking on ESD (Electrostatic Sensitive Device) materials, Schreiner LogiData has expanded its ESD RFID label family with the ((rfid))-DistaFerr ESD, also now available as a LongRange version. This label is designed specifically for all commonly used ESD container versions and antistatic levels and delivers a readable range of about seven meters.



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RFID tag for high temperature environments



“WaveSafe is claimed the first microwave safe UHF RFID technology for item-level tagging of frozen packaged foods. WaveSafe is designed to prevent arcing or heat build-up during microwaving while still delivering accurate read rates for item tracking”

Hostile environment RFID

Two hostile environments for RFID tag technology have been microwave ovens and areas of elevated temperatures.

Avery Dennison has tackled the microwave challenge with its WaveSafe (AD-25Xr6-P) technology for microwavable packaging. Because of the danger of sparking from components in the oven, consumers are normally instructed to remove the RFID tags from food packaging items before microwaving them.

WaveSafe is claimed the first microwave safe UHF RFID

technology for item-level tagging of frozen packaged foods. WaveSafe is designed to prevent arcing or heat build-up during microwaving while still delivering accurate read rates for item tracking.

WaveSafe tags have been used by Sodexo in its SmartFridge product to make users safer by reducing the spark hazards associated with RFID tags on microwavable packages. The company has also been able to simplify their operations, since there is no longer a need to provide warnings about the possible fire risk on food packaging or the pantry's microwave.

'Safety is such a big issue and we take consumer health to heart,' said Darwin Gosal, CEO at CryoWex. 'A few months after conceptualizing SmartChef, we were introduced to WaveSafe which was a great fit for our needs. Our sole focus now is expanding and accelerating the use of SmartFridge globally, which is extremely exciting.'

In terms of survival in hostile thermal environments such as industrial painting or drying processes, the Schreiner group has developed RFID labels capable of withstanding high temperatures while ensuring effective readability across several meters without optical line of sight. The ((rfid))-DistaFerr HighTemp 2 label is resistant to temperatures of up to 230 deg C and can be applied directly onto metal, which makes it particularly suitable for painting and other high-temperature processes, particularly in the automotive industry.

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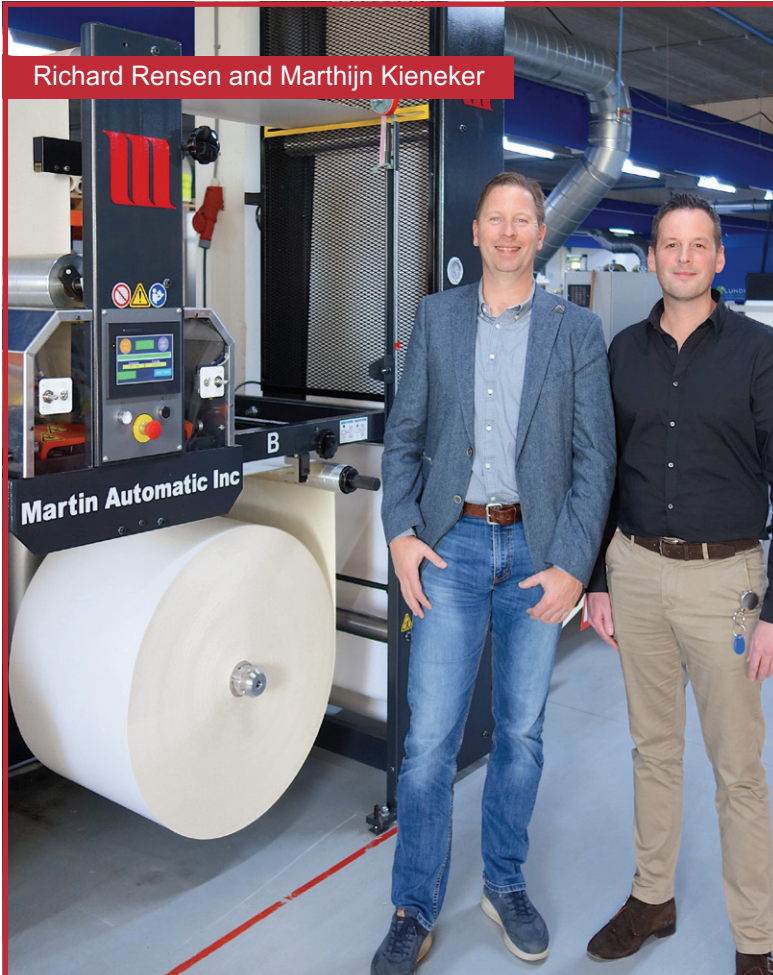
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Smart labels with active electronics have already been widely used in consumer-facing applications such as a flashing bottle for Cola-Cola's Star Wars promotion and Budweiser's 2018 World Cup glasses.

The problem with these, and the ubiquitous singing greetings cards, is that the electronics required can be quite bulky, often driven by the battery format with a limited life span. Although this has not been an issue for marketing gimmicks or a birthday card, it is a problem for more practical applications such as wearable devices, a market that has doubled in size since 2014, according to industry analyst IDTechEx.

The predicted ageing of populations offers a strong driver for wearables, as these are seen as a way to relieve the growing pressures on our healthcare systems. Longer life generally means more complex health issues and use of monitoring systems on-body and on-products could bring significant benefits. For example, self-adhesive skin patches that can monitor wound health or packaging that can track consumption of pharmaceuticals to help improve adherence and outcomes.

There are two requirements to enable technology to be added to billions of everyday pharmaceutical and healthcare products. First is the reduction in cost of the electronics, the second is form factor. Batteries would need to be thinner, smaller and flexible.

PragmatlC is an innovator in this area, delivering low cost flexible integrated circuits (FlexICs) thinner than a human hair and robust enough for embedding into high volume items. But other components are required, such as sensors, perhaps a small display, or maybe the ability to store and retain a small amount of data, to make a healthcare wearable device.



RFID tag for microsavable packs

There are some interesting technologies being developed in displays, as seen for example in the Coca-Cola promotion mentioned above. Current state-of-the-art flexible batteries, such as lithium iron or vacuum deposited lithium batteries are actually quite thick, 0.2-0.7mm, and have relatively low energy densities, in the order of 1-3mAh/cm. They are also quite expensive. All factors that make them unattractive for the healthcare wearables market.

PragmatlC is collaborating with a number of research establishments and companies to try and advance this technology to bring a low cost, thin, flexible battery technology that will complement its FlexIC products. One such public collaboration is called FlexiBat which aims to demonstrate a graphene-enhanced battery.



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“In terms of survival in hostile thermal environments such as industrial painting or drying processes, the Schreiner Group has developed RFID labels capable of withstanding high temperatures while ensuring effective readability across several meters without optical line of sight”

At the same time Stanford University is working on improving the energy density of its stretchable battery, while ETH Zurich has its own ongoing project, and there are researchers working on transparent batteries as well.

Whoever does make flexible batteries into a commercial proposition will be well rewarded, since the potential market goes far beyond healthcare wearables.

A key application is one we have already discussed – replacing traditional ‘best before’ and ‘sell by’ dates on food, drink, and indeed anything that needs to be kept within certain temperature limits from manufacture to consumer.

These smart labels and tags usually require sensors, paired with decision-making logic and a small power source, which would be a

perfect fit for flexible batteries.

The value of the food and beverage packaging market alone was 320bn USD in 2018, forecast to grow to 368bn in 2030. This is bigger than the wearables market referenced earlier. Other potential applications could include consumer goods, toys, games and pharmaceuticals.

Label converter opportunities

Although much of the technology mentioned above is inevitably highly technical and bespoke, converters have a key role in bringing it to market for real-world applications.

Industry expert Mike Fairley, strategic consultant for Labels & Labeling, explains that converters can also develop their own smart label products based around clever use of existing converting technology and commercially available materials and inks.

Among the ways to make labels smarter or more intelligent Fairley lists:

- Building in intelligence during label design
- Using special labelstocks
- Use of special inks and coatings
- Using clever press and converting technology
- Utilizing interactive codes and images

Fairley also speculates on what is in the pipeline for tomorrow’s labels. ‘New developments in nanotechnology will be very important, including nano-coatings nano-sensors, smart dust, microwire, biological encoding and DNA encoding.’

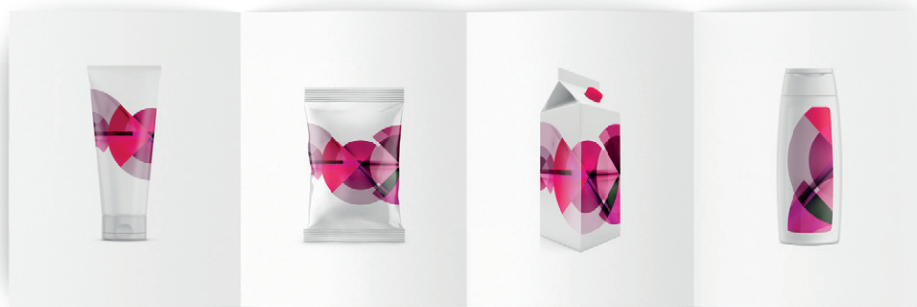
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For more technical features from Tony White, go to www.labelsandlabeling.com/contributors/tony-white

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HOW TO SECURE THE REAL DEAL?

Two thirds of consumers who have unintentionally purchased counterfeit goods have lost their trust in a brand. Modern labeling and printing technologies can come to the rescue, as Piotr Wnuk reports

Trade in counterfeit and pirated goods has risen steadily in recent years – even as overall trade volumes stagnated – and now stands at 3.3 percent of global trade, according to a new report by the OECD and the European Union's Intellectual Property Office.

Fake goods, which infringe on trademarks and copyright, create profits for organized crime at the expense of companies and governments. The value of imported fake goods worldwide last year based on customs seizure data has been estimated at 509 billion USD, up from 461 billion USD in the previous year, accounting for 2.5 percent of world trade. In the European Union, counterfeit trade represented 6.8 percent of imports from non-EU countries, up from 5 percent. To magnify the scale of the problem, these figures do not include domestically produced and consumed fake goods, or pirated products being distributed via the internet.

'Counterfeit trade takes away revenues from firms and governments and feeds other criminal activities. It can also jeopardize consumers' health and safety,' said OECD public governance director Marcos Bonturi, commenting on the report.

Forged items like medical supplies, car parts, toys, food, cosmetics and electrical goods also carry a range of health and safety risks. Examples include ineffective prescription drugs, unsafe dental filling materials, fire hazards from poorly wired electronic goods and sub-standard chemicals extending from lipsticks to baby formula. In a recent survey, nearly 65 percent of consumers said they would lose trust in the original products if they knew it was relatively easy to buy counterfeit goods of that brand. Nearly three quarters of consumers would be less likely to buy products from a brand that is regularly associated with counterfeit goods.

'Brand protection is a complex problem as it encompasses different publics, products and problematics,' says Louis Rouhaud, global marketing director at Polyart. 'Brands are not always ready to pay extra for additional layers of security or



Avery Dennison security tamper-evident label developed for the pharmaceutical market

“Counterfeit trade takes away revenue from firms and governments and feeds other criminal activities. It can also jeopardize consumers’ health and safety”

trust. It is a mix of marketing too: adding a security seal on a fancy organic drink will certainly drive the sales up, though there is no real challenge to the integrity or quality of the product.'

According to Oliver Kay, director of sales and business development at 3D AG, a Swiss specialist in high security applications and finished security labels, brand protection must be a holistic approach encompassing many aspects, from trusted suppliers and stakeholders, to a secure and transparent supply chain and distribution system, to high-quality manufacturing standards, monitoring and incentivizing

of sales channels, minimizing gray market activities and end-consumer empowerment. 'Once all these aspects of brand protection are in place, high-security labels and the packaging itself can play an important role of communicating the authenticity and quality of the brand and the original product,' he says.

Consumers – the biggest challenge?

According to Oliver Kay, consumers underestimate the problems and the negative impact that counterfeits have on the economy, society and their health.

'Consumers simply do not know what a security label is, and they do not know how to differentiate an original product from a counterfeit product,' adds Kay. 'There is also a misconception as to what authentication is. It is a multi-step process that involves physical characteristics of the packaging itself (including security labels), but also "common sense" of the consumer. Security labels are often counterfeited themselves, and consumers don't know how to differentiate an original from a fake.'

'Consumers must be educated and encouraged to use their common sense when determining if a product is an original or not. Security labels and supporting



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Example of a tamper-evident label

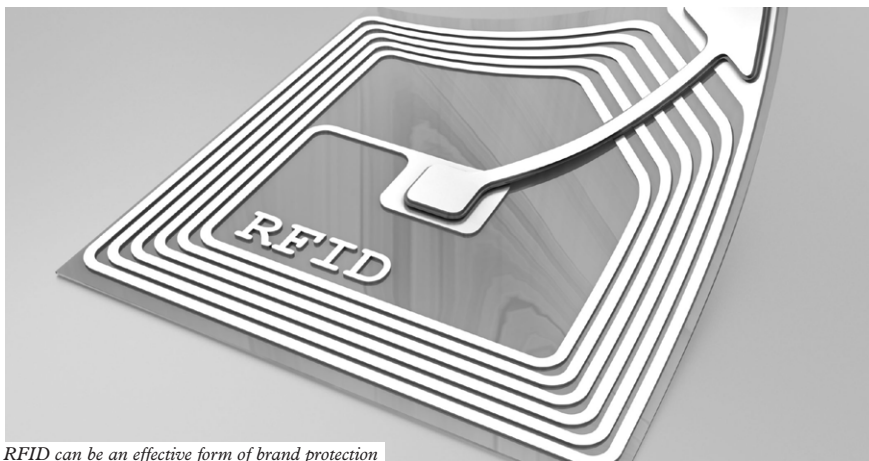
printing with ease, whereas in the past this process would have had to be taken off-line and came with more limits as to what information could be unique,' says Purdef. 'The resolution of printing has also improved, allowing for techniques like microprinting that can aid in preventing counterfeit. Additional technologies are in development from several suppliers, many of which can be incorporated into labels. It is critical to stay aware of these and build layers of protection.'

Xeikon and HP Indigo both offer high-resolution digital printing systems, which can be used as the base for microtext, hidden patterns and guilloches.

'Within our proprietary software – Xeikon X-800 – some unique features are possible, variable patterns, hidden coding and track and trace functionality,' says Jeroen van Bauwel, director of product management at Xeikon Digital Solutions. 'Printers can make use of several anti-counterfeiting techniques at low cost, since most of these techniques are part of the production printing process and don't require extra investments or special expensive fraud detection systems.'

Microtext, particularly when used in conjunction with holograms or other overt security devices, utilizes print down to 1 point or 0,3528mm. This is virtually impossible to copy, duplicate or reproduce and can be used for specific hidden messages or codes introduced into the layout. Invisibility to the naked eye also makes it possible to introduce microtext in linear illustrations or text and other overt layout elements, without the consumer or potential counterfeiter's knowledge. Using this method, covert messages can potentially authenticate the document or packaging by simple visual enlargement of the element with a magnifying glass. In order to further optimize this feature, microtext can also be used as a security raster in an image or design element.

As technology and counterfeiting practices advance, innovative labeling



RFID can be an effective form of brand protection

“The much-heralded move to RFID has not fully happened yet. Businesses have been using more basic technologies like hidden watermarks. The future must be about RFID”

systems that include hard-to-replicate features can help to provide security. Avery Dennison's photoluminescent products, for example, deliver a multicolored pattern which enhances the level of protection offered. Smartphones meanwhile allow consumers and brand protection agents to make use of serial-numbered labels and lean on cloud-based information to verify that the serial number on the label matches the product. This kind of smart technology will increasingly play a factor in providing an added level of security.

'Labels can now be programmed to include information about where the product was sourced, how it was made, and a unique identifier or serial number,' comments Purdef. 'In the food segment, this technology is being used to verify the authenticity of rare and expensive cuts of beef and fish and include information specific to each individual product that describes where it was sourced from. As consumers become more concerned about the authenticity and security of products, or more curious about their journey through the supply chain, more information can be included and accessed through intelligent labeling. Customers can then access that information through their smartphone.'

What to expect?

'Counterfeiting activities can never be fully stopped,' says Kay. 'It's a "cat and mouse" game, but existing and new brand protection technologies will make it much harder for the counterfeiters to produce fake products that look and feel genuine.'

Brands are looking to take back control of their products and uniquely identify every item – but that is not easy to

achieve, as NiceLabel's Moir points out: 'The much-heralded move to RFID has not fully happened yet. Businesses have been using more basic technologies like hidden watermarks. The future must be about RFID, enabled by the unique TID number, and fueled further by centralizing cloud environments.'

Cloud and RFID are developing quickly and in tandem. These are the two leading technologies in this space and are likely to continue to be so in the immediate future. 'Often brands will start with watermarking and move over to cloud and RFID over time,' says Moir. 'Blockchain also has potential, but while there has been much noise around the technology, it is uncertain how it will be applied over the longer term.'

'Blockchain enabled brand protection technologies will develop with great speed when consumers learn the benefits and trust these new developments,' argues Kay. 'Also, a constant evolution of smart phones with better cameras will enable consumers to check the authenticity of products, new brand protection technologies will emerge, and existing ones will improve.'

Engaging with the consumer through smart labels promotes confidence and assurance in a brand. Once the consumer can confirm that the product they are purchasing is legitimate with a valid history, they are likely to purchase from that brand again.



The Label Academy book 'Brand protection, Security Labeling and Packaging' explores the technologies and strategies for optimum product protection mentioned in this article.
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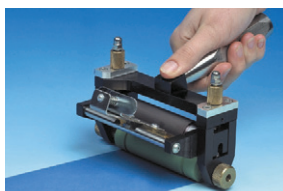
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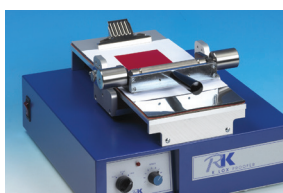
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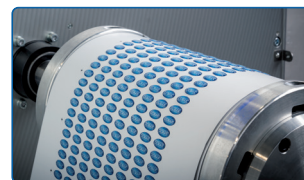
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Ink systems

Different printing processes require specific ink formulations, which each have specific drying/curing requirements. In this extract from the Label Academy book 'Inks, Coatings and Varnishes', Andy Thomas-Emans looks at how inks are classified and their different performance properties

Inks can be classified by the diluting media used, which creates the ink's viscosity characteristics. There are four types of diluents: solvents, water, oil and acrylic monomers. The respective ink's drying mechanism is closely linked to the solubilizing media used (see Figure 1).

Solvent-based inks contain highly flammable solvents. When ink is heated in a drying tunnel, the inks release the solvent (up to 60-70 percent) through evaporation.

Water-based ink contains around 40-50 percent dry content which is not water soluble, which is why the ink film can be made water resistant. When the ink is heated, the solution of water/amine/ammonia – and a small amount of solvent – is evaporated as the ink dries.

Oil is used mostly in offset and letterpress inks, and this type of ink dries using a combination of evaporation and oxidation.

The other major class of inks are UV curable, which cure via a polymerization process that results in a 100 percent solid. The main diluting agent here is acrylic monomer, used in different proportions in different types of UV inks. No solvents evaporate in the drying process, which means, for example, that a flexo UV ink uses approximately 20 percent less ink with the same anilox as water-based or solvent-based inks.

Offset

In offset, the inks start as a paste which is broken down into a film via a series of rollers. A second set of rollers bring in a water solution and both ink and water are applied to the printing plate. The plate surface is either water repellent (phobic) or water accepting (philic). The ink is transferred to a rubber blanket and then to the substrate.

Letterpress

The letterpress principle is similar to offset, in that a paste ink is broken down by a series of rollers to make a consistent film which can be used to ink a plate. The difference is there is no water solution involved. The ink is applied directly to raised dots on the plate, from where the ink is transferred directly to the substrate.

“In modern presses a trend is to use a chambered doctor blade unit. This eliminates the need for an open ink pan. The ink is pumped into a sealed chamber which incorporates two doctor blades”

Flatbed and rotary screen

In flatbed screen, a thinner, more liquid ink is forced through holes in a mesh relating to the image to be printed. With a rotary screen the mesh rotates around a fixed squeegee, but the principle is the same.

Flexo

Flexo starts with a liquid ink, which is poured or pumped into an ink pan. A metering roller transfers a film of ink to the anilox roller, which is engraved with a cell structure designed to hold a defined volume of ink. These cells transfer the ink to raised dots on a flexible plate, which transfers the ink directly to the substrate. An angled doctor blade in contact with the anilox surface removes excess ink outside the cells, allowing a precise amount of ink to be transferred to the plate.

In modern presses a trend is to use a chambered doctor blade unit. This eliminates the need for an open ink pan. The ink is pumped into a sealed chamber which incorporates two doctor blades.

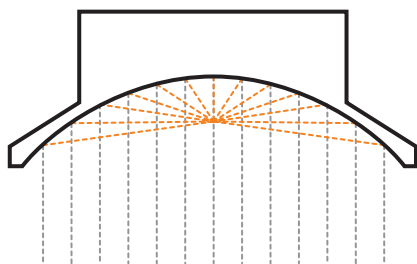
Gravure

The gravure process produces a print from an engraved cylinder and has traditionally been the higher quality process for flexible packaging and shrink sleeve labels. It lays down more ink than flexo, and not only inks but also metallics, release lacquers and cold seal

Print method	Ink type			
	Solvent	Water	Oil	UV
Flexo	✓	✓	–	✓
Letterpress	–	–	✓	✓
Offset	–	–	✓	✓
Screen	✓	–	–	✓
Gravure	✓	✓	–	–
'Digital'	✓ (inkjet)	✓ (inkjet)	✓ (HP Indigo)	✓ (inkjet)

Figure 1: Ink chemistries and print processes

Parabolic reflector



Elliptical reflector

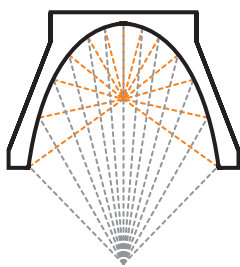


Figure 2: UV lamp reflector configurations

“Inks dry either by evaporation or curing to a solid film. Where solvent or a water-based solution is used as the pigment carrier, up to 80 percent of the ink evaporates during the application and drying process. UV ink by contrast, cures to a 100 percent solid and there is no evaporation”

can be applied. Printing speeds are typically between 120m/min to up to 300m/min and the usual configuration is printing stations in-line.

Solid vs evaporation

Inks dry either by evaporation or curing to a solid film. Where solvent or a water-based solution is used as the pigment carrier, up to 80 percent of the ink evaporates during the application and drying process. UV ink by contrast, cures to a 100 percent solid and there is no evaporation.

In solvent inks a resin or binder is dissolved in the solvent. The function of the binder is to grind and wet the pigment and form it into a homogenous mixture. Additives may be used to enhance the properties of the ink. When the ink is dried on the press using IR or hot air blowers, the solvent evaporates, leaving a dry ink on the substrate.

In water-based ink the resin is not water soluble. It is made water soluble through use of amine or ammonia. When that resin is dissolved the pigment can be ground in to form a film. Once again, different additives can be used to enhance the performance. When the ink dries, both the resin and the amine evaporate – otherwise the print would never be water resistant.

In oil offset-based inks a mineral oil or vegetable oil is used as a diluent and then different types of resins are used. When the ink is heated, the water and ammonia mixture evaporates, the binder particles soften and a dry film is formed. In fact, oil-based inks dry in a combination of ways, not only with heat but also by reaction with oxygen, which is a chemical process.

Pigment-based UV inks contain high viscosity pre-polymers or low viscosity monomers. There are no solvents, and the monomer acts as the diluent.

The ratio of diluent will vary depending on whether it is, for example, a flexo, screen or offset ink because each has a different viscosity.

UV curing process

UV inks are available for the offset, flexo,

letterpress, inkjet and screen processes.

The principle additive in a UV ink is a photoinitiator. When activated, this monomer starts a cross-linking process which turns the ink from a liquid into a solid film. The cross-linking process is activated by exposure to a UV light source.

Unlike water- or solvent-based inks, UV inks can be left in the ink pan without evaporating, though care must be taken to ensure they are not exposed to a UV light source.

Inside the UV lamp is an elliptical or a parabolic reflector which directs the light to the surface of the ink (see Figure 2). The photoinitiators react to the UV light, which starts the polymerization process and dries the ink.

Oxygen at the substrate surface inhibits the cross linking and curing process. This effect can be minimized by introducing an inert gas, typically nitrogen, into the area where curing takes place.

UV LED

The light source for a conventional UV lamp is a mercury-doped lamp which emits radiation across a broad spectrum. With UV LED, the inks are sensitive only to a very narrow wavelength of UV light. While a conventional mercury UV lamp will radiate energy from 220 nanometers (nm) to 400nm, UV LED lamps emit a narrow range of peaks at 385, 395 or 365nm (see Figure 3).

Electron beam

Electron Beam (EB) curing inks are similar to UV inks. They use similar resins and binders and cure from a liquid to a 100 percent solid. The key difference is that EB inks do not require photoinitiators. They cure by bombarding the substrate with electrons, which starts the polymerization process. EB involves printing wet-on-wet with final cure at the end of the press line, whereas UV is wet-on-dry, with inter-station UV curing

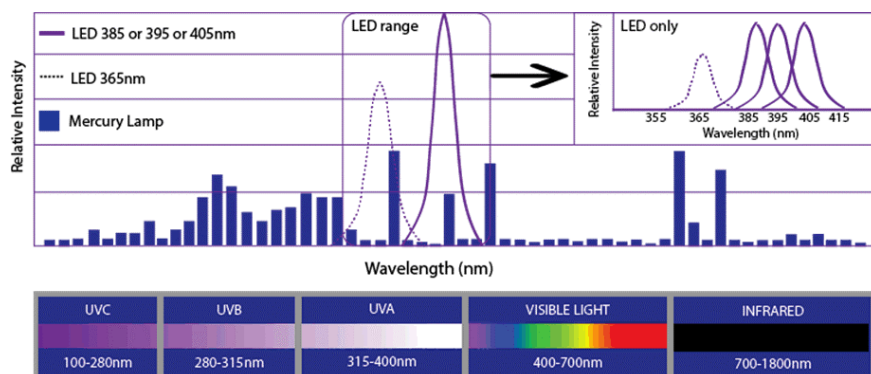


Figure 3: UV LED compared to mercury lamp wavelength. Source: Phoseon

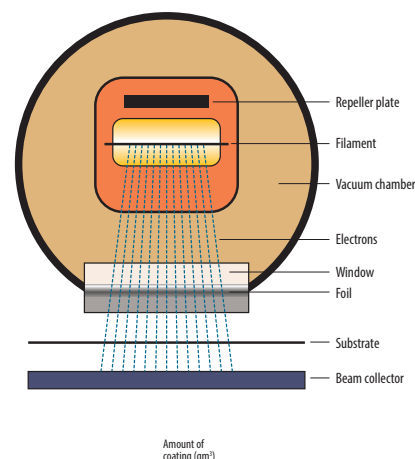


Figure 4: Electron Beam curing unit. Source: Flint Group

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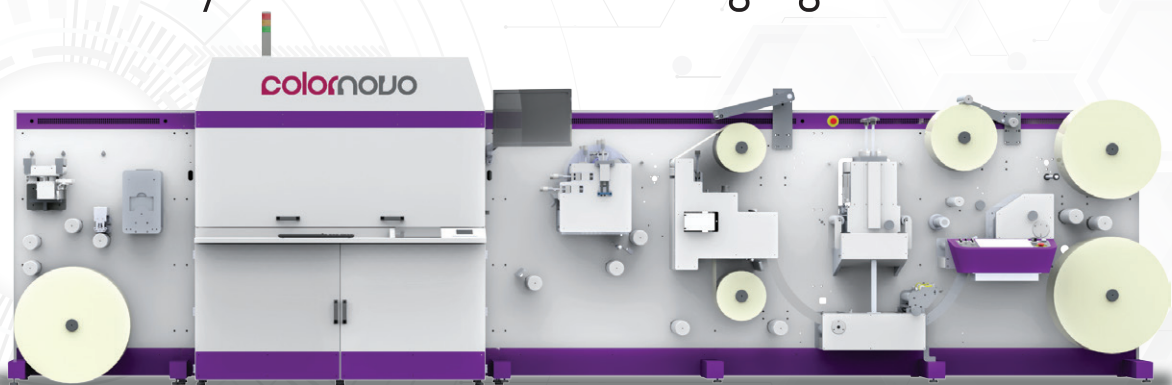
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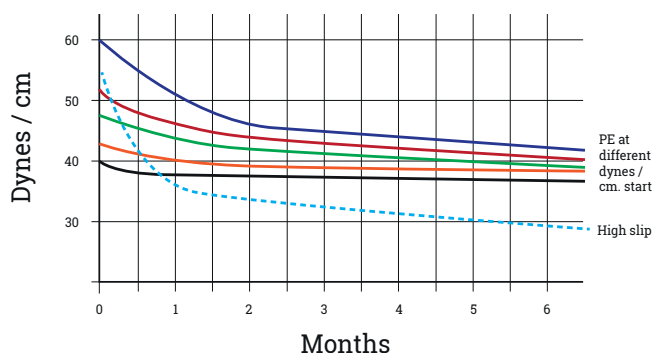


Figure 5: Reduction of surface tension (dyne level) over time

required (see Figure 4).

Combination print requirements

As we noted earlier, narrow web printing is defined by the ability to combine multiple processes in-line. This makes it critical to ensure that subsequent inks will key to the previous decoration or ink layer.

A particular challenge is printing on top of an oil-based ink with a UV ink or coating. Converters also need to be aware of different types of reactive agent or additive used in different ink types. Trying to mix another resin type or water-based ink or coating over UV also adds to the complexity.

Digital inks

The rise of digital label printing over the last four decades, accelerating rapidly over the last four to five years, now makes digital a mainstream narrow web print technology.

There are three main technology streams: dry toner, liquid toner and inkjet, with inkjet in turn sub-divided into the standard ink categories of water-based, solvent-based, UV/UV LED-based, and most recently EB.

Ink adhesion

The most challenging substrates to achieve ink adhesion are synthetics. There is a delicate balance to getting an ink that has

“Narrow web printing is defined by the ability to combine multiple processes in-line. This makes it critical to ensure that subsequent inks will key to the previous decoration or ink layer”

both enough possibility to flow out, or whet out, on different types of surfaces, but also create a strong bond to the substrate.

Films are comprised of several layers, depending on the application, and it is crucial to understand the properties of the surface layer to ensure there is correct ink anchorage. For filmic substrates corona treatment is usually required. The substrate is exposed to an electrode which increases surface tension by changing the polarity of the substrate surface, making it easier for the ink resin to adhere and creating a better bond strength.

Without this the ink will tend to stay in a 'bubble' on the surface.

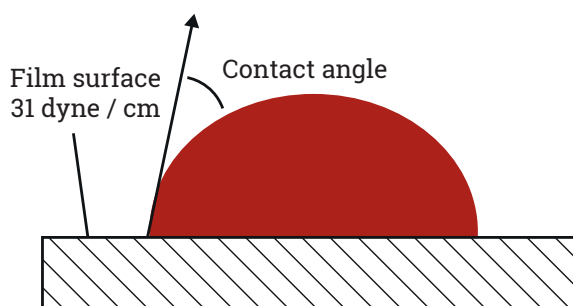
For converters printing on films it is important to have corona treatment in-line, despite the fact the material has already been corona treated by the supplier. The problem is that corona treatment starts to deteriorate – so lose surface tension – over time, due to the 'memory' characteristics of film.

Surface tension is measured in dyne levels, and converters should ideally invest in measuring equipment, which can range from a handheld pen to laboratory scale devices. Achieving surface tension levels recommended by the ink supplier is a critical QA check, but note it is not a guarantee that perfect adhesion will be achieved every time (see Figures 5 and 6).

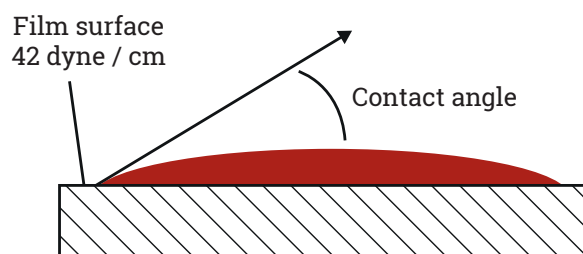
Inkjet

Inkjet accounts for a growing percentage of digital press installations. The chemical composition of inkjet inks is similar to conventional inks, in that the main components are the colorant and carrier fluid. The colorant, again, can be a pigment or a dye and

Low surface energy



High surface energy



Material – basic	Dyn / cm
PP	29
PE-LD	31
PE-HD	32
BOPP	32

Process - application	Dyn / cm
Print - solvent-based ink	40-42
Print - water-based ink	46-48
Coating	44-54
Lamination	46-56

Figure 6: Effect of surface energy on ink deposition



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the carrier fluid may be aqueous, solvent or oil-based.

Digital inkjet inks include the same broad categories as conventional inks:

- Aqueous inks, where the carrier fluid is water. These inks are used in printing onto coated substrates where the water is absorbed quickly into the coating and the dye or pigment is fixed to the surface of the coating to give a sharp defined image. Printing onto label films requires a specialist coating which can be applied by the substrate manufacturer or in- or off-line by the label converter.

- UV inks represent the fastest-growing segment of the narrow web label printing ink market. The curing chemistry is exactly the same as in conventional UV, with ink cured into a solid when photoinitiators interact with a high intensity source of ultraviolet light. Ink chemists have recently made progress in low migration (LM) UV inkjet inks in conjunction with nitrogen-inerted curing systems, where oxygen is excluded from inhibiting the reactive ink components by a nitrogen blanket.

- UV LED inks are also making an impact. LED lamps were used originally for inter-station pinning, to stop the ink drops spreading before final arc-lamp curing to improve print quality. We are now seeing the introduction of fully UV LED cured digital presses. Hybrid digital/flexo presses allow the use of both arc and LED lamps in the same press line. Typically UV LED is used to cure the more opaque conventional inks, such as White and Black.

- Solvent inks use a solvent as their carrier fluid and dry very quickly through evaporation. They are considered environmentally unfriendly but the durability of the final product means they are still used for printing some outside label/POS applications on wide web inkjet printers.

- Electron Beam engines have recently been miniaturized to allow fitting onto a narrow web inkjet press. The EB inks do not require a

“The most challenging substrates to achieve ink adhesion are synthetics. There is a delicate balance to getting an ink that has both enough possibility to flow out, or whet out, on different types of surfaces, but also create a strong bond to the substrate”

photoinitiator and so are considered food safe.

Another class of inkjet liquid media are the so-called ‘functional fluids’, for example where metallic or conductive fluids are printed to form electronic components and circuits. In this case the functional fluid consists of nanometer-size particles of conductive metals such as silver and copper held in suspension in a carrier fluid. Once printed these inks are then sintered, enabling the printing of conductive tracks for electronic components and circuits.

Other functional fluids include coatings such as spot gloss and matte varnishes, which are now available both as in-line and off-line alternatives to flexo plate varnishing (see Figure 7).

Performance requirements

Although inkjet inks are broadly similar chemically to their conventional counterparts, the physical characteristics and performance requirements are totally different.



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Figure 7: Raised image printed by inkjet. Source: Xaar

Inkjet is a non-contact print method where inks are jetted through ultra-fine nozzles which must not become blocked. The ink drops must be controlled at the nozzle, during its flight trajectory and then during landing on the substrate.

With drop-on-demand inkjet systems the printhead works by using a small amount of energy in each nozzle to eject a drop of ink. This breaks the 'meniscus' at each nozzle (the curved surface of the ink formed at the nozzle orifice by surface tension). The drop is held back in the nozzle by a slight negative pressure until the energy pulse is applied.

The ink supply system ensures that the correct negative pressure in the system is maintained, while ensuring that the printhead does not get starved of ink when printing. Too little ink, and gaps will appear in the printing; too much ink, and the nozzle plate might get flooded, causing irregular jetting, again compromising print quality.

The ink supply also filters the ink to minimize the chance of particles clogging the nozzles; it might also de-gas the ink to remove air bubbles, and heat the ink to ensure that it is at the right operating temperature. Ink recirculation printheads will continuously circulate the ink through the printhead to help avoid clogging.

Ink additives provide the specific performance qualities required for non-contact printing, and will include:

- Surfactants to control the surface tension of the ink drop
- Binders formulated to improve the elasticity of the ink
- Dispersants to aid the dispersion of the colourant in the carrier fluid.

Formulation challenges

Challenges which have to be overcome in manufacturing UV inkjet inks include:

- Low viscosity, which limits the use of oligomeric, resinous or multi-functional species in the formulation
- High stability – for example no settlement on storage. Effective dispersion and stabilization technology is of critical importance, because in a low viscosity liquid there is a tendency for the particles to agglomerate, or stick back together. Pigments are also subject to gravitational settlement
- Small particle size (generally less than 1µm), which puts further restrictions on usage of certain pigment classes including metallics and special effects pigments such as thermochromics and piezochromics.

Strict demands are also placed on surface tension values; these should be sufficient to allow appropriate wetting on the print-head face-plate material, while helping meet print quality specifications through ink spread on the media. As the volume of each drop

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Ink news in brief

INX to acquire Ruco Druckfarben

INX International Ink has entered into an agreement to acquire German company Ruco Druckfarben. The transaction is expected to be completed by the end of the first half of 2020.

'Ruco is an established and recognized ink supplier with considerable market experience and technical knowledge. Together with our global reach, product development and raw material sourcing capabilities, the new company will work to strengthen INX's presence in Europe,' said Peter Lockley, president of INX Europe.

Once the transaction is finalized, Moritz Hartmann will take over as sole managing director and will manage the company with the current leadership team. He has been a member of the Ruco Druckfarben management team since 2015.

Toyo Ink appoints new president

Toyo Ink SC Holdings, the parent company of the Toyo Ink Group of Japan, has announced two senior position changes. The board has appointed Satoru Takashima, the current senior executive officer, to serve as the new president and chief operating officer. Katsumi Kitagawa has moved from the presidency into a new role as chairman and group CEO.

Xaar launches fluid evaluation service

Xaar has launched a five-step service for the evaluation of fluids for use in new product development and advanced manufacturing to help companies to establish the suitability of inkjet technology and fluids in new applications without incurring large upfront costs.

To support the new service, Xaar has invested in a dedicated laboratory equipping it with several custom test rigs for sample production and fluid testing including a Notion Systems n.jet 3D printer.

Nazdar appoints OEM business development manager

Nazdar Ink Technologies has appointed Dean Allen as OEM business development manager for EMEA and North America. Based in Nazdar's UK office in Stockport, he will be responsible for developing industrial partnerships.

Allen has extensive sales and marketing experience in print and associated industries throughout the EMEA region. Most recently, he held the position of key account manager for Xaar where he focused on OEM printhead sales. Prior to joining Xaar, Allen spent two years as business development manager (Industrial Packaging) for EFI, focusing primarily on the flexo packaging market.

Resino appoints new CEO

Signe Cederstrøm has been appointed as CEO of Danish ink manufacturer Resino, which specializes in production of inks specifically for the food and packaging industry, including food packaging and sausage casing, but also nappies, toothpaste tubes and other products with high standards for health, food safety, environmental and quality demands. She is taking over from her father, who decided to share the ownership equally between each of his three children.

“Although inkjet inks are broadly similar chemically to their conventional counterparts, the physical characteristics and performance requirements are totally different”

ejected from a piezo DOD print-head is typically under 100 nanograms, these drops are strongly affected by the chemistry of the ink's components.

The sensitivity is such that even additives at low level, such as surfactant, can influence how the drop breaks up, its length of tail (ligament) and its likelihood to form satellites (smaller drops that form from the break-up of the initial drop). In turn, the latter can have a major impact on print quality.

Formulating stable low viscosity white UV inkjet inks can be difficult due to the high density of typical titanium oxide and zinc sulphide pigments.

To achieve good application of inkjet onto a substrate the surface energy is very important. This needs to be achieved either by pre-coating or by corona treatment, in which cases adherence has been demonstrated to be as good as with conventional inks when using rub resistance tests on most substrates used for labels.

Because inkjet inks are chemically similar to conventional inks it should be possible to print on broadly similar substrates without providing additional top coatings. Substrate suppliers are working with inkjet head suppliers to optimize an ever-growing range of inkjet qualified substrates. In practice, however, to maintain a color-managed workflow, pre-coating of UV inkjet substrates can be beneficial.

Electrophotographic inks

The largest installed base of digital presses use the electrophotographic imaging principle, printing with toners, either 'dry' and bonded by heat, or suspended in a liquid carrier. The pioneers of this technology for the narrow web market in the 1990s were Xeikon for dry toner and Indigo for liquid toner. While dry toner-based systems are not strictly 'inks' (having no vehicle/carrier), the Indigo system displays many of the key characteristics of an ink while still being based around the principle of charged particles.

Called by the company 'ElectroInk', the HP Indigo technology involves suspending electrically charged pigment in a mineral oil-based liquid. The particles, 1-2 micron in size, are attracted to the charged areas on a photo-imaging plate (PIP), imaged by laser.

Each color separation is transferred to a blanket, as in litho offset, ensuring the final print maps to the natural contours of the substrate, preserving texture and gloss uniformity. The ink is dried on the thermal blanket, and not on the substrate. This removes heat stress from the substrate, enabling a wide media range to be employed.

The full color image is built up on the blanket before being transferred in one hit onto the substrate, so there are no issues with dot gain or registration.

In order for the ElectroInk to key to the substrate a special primer is required. This can either be pre-coated by the substrate manufacturer or applied off-line or in-line by the converter.



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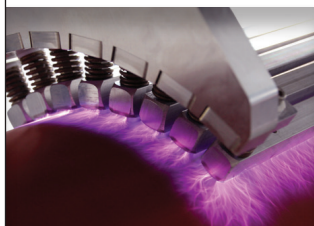
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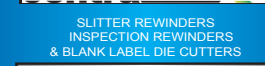


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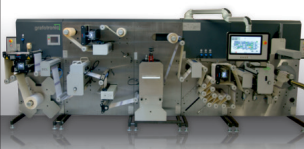
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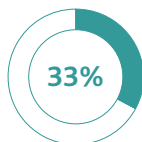
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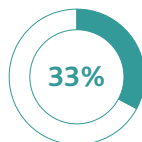
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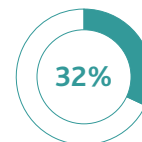
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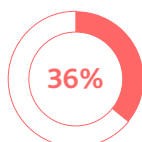


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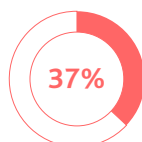


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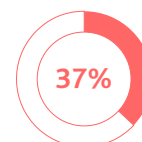
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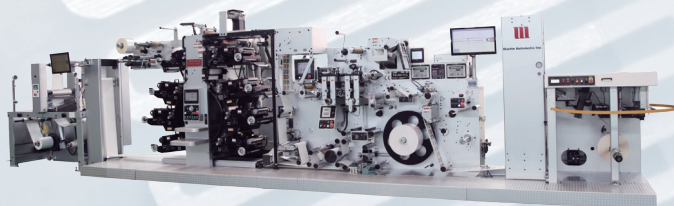


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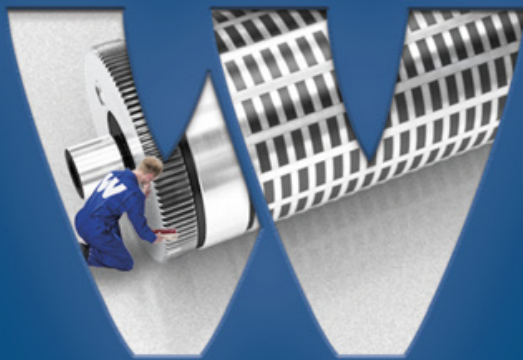
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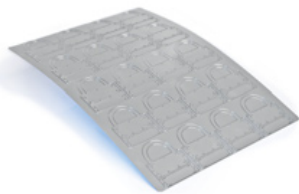




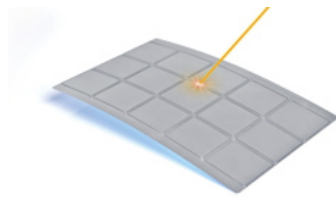
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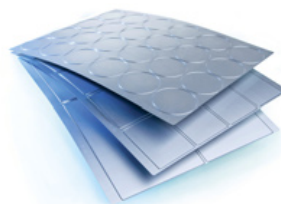
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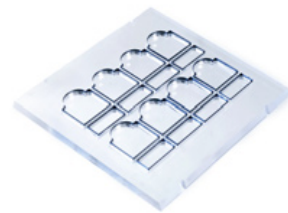
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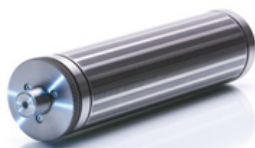
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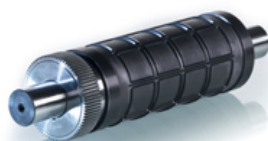
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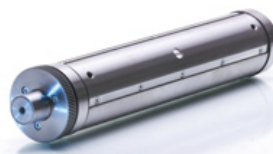
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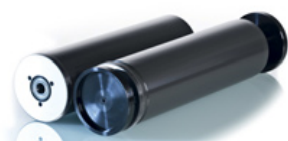
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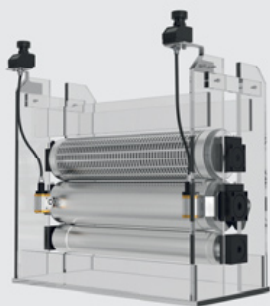


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