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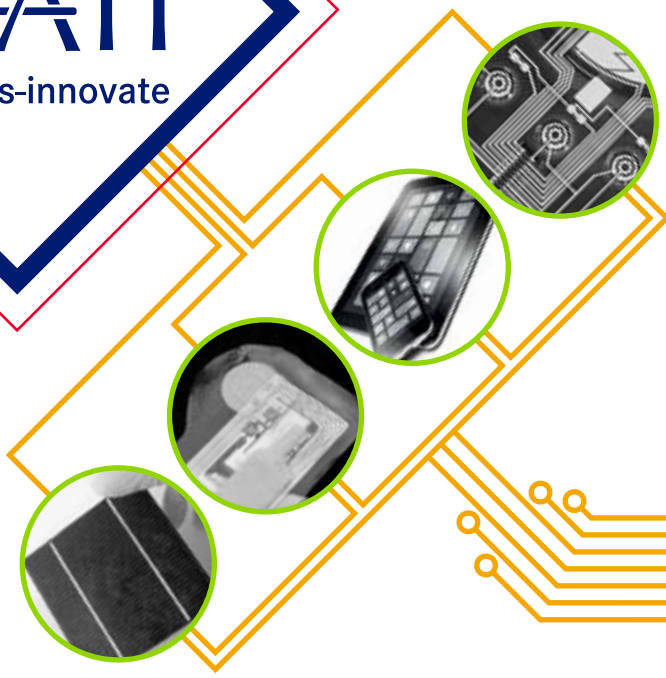

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WELCOME

When I attended the SGIA Expo in Orlando during the launch year of *Specialist Printing Worldwide* in 2007, SGIA and NASMA had just come on board as sponsors of the magazine to complement the support already in place from ESMA and other European trade associations. Ten years on, we are very proud that *Specialist Printing Worldwide* is well established as required reading throughout not only Europe and North America, but across every continent.

We look forward to meeting readers and advertisers alike at the SGIA Expo in October in New Orleans, before we turn our attention to a busy season of events in Europe. Our events section on pages 54–60 previews a number of international conferences and exhibitions, including GlassPrint 2017 that will take place in November alongside Direct Container Print 2017. Anyone involved in the decoration of glass or plastic will benefit greatly from attending these two conferences… but with early bird registrations having reached record levels, I strongly recommend booking your place as soon as possible to avoid disappointment.

As always, the main body of this issue is technical content aimed at assisting users of digital and screen printing systems. Well done to our team of editorial experts and technical contributors for compiling such a high quality blend of articles in the following pages, in part filling the big shoes of our long-time editorial consultant, Sophie Matthews-Paul. As she continues to battle health issues, we send all best wishes to Sophie and hope she agrees that this issue lives up to our reputation of being the premium provider of educational material throughout the industrial, graphic and textile sectors.

If you picked up this issue at one of the autumn events and don't currently receive your own copy by post, visit www.specialistprinting.com to order your subscription. Selected articles can also be downloaded free of charge on the website.

Bryan Collings, Publishing Director, Specialist Printing Worldwide

PROACTIVE PROBLEM SOLVING

Alan Buffington identifies areas where apparel companies can take pre-emptive action to stop problems arising

Screen-printing a T-shirt seems straight forward enough. Sell/Create Art/Separate/ Shoot Screens/Setup/Print/Deliver. For the most part in the beginning of a small company, one person may control all aspects. Many apparel companies start off as a small manual shop only to grow into large print corporations with many employees. The problem solving skills needed to grow to this stage happen many times a day for the owner/operator.

As the art and prints become more and more complex, tasks need to be delegated to new employees. Often the owner's screen printing knowledge kept the small shop presses going, but add new personnel, automatic presses, a myriad of supplies and procedures and a growing company can be forced to problem solve process issues when mistakes are made. Big mistakes often result in reactive problem solving to make sure it doesn't happen again, but maybe the mistake could have been preventable with a proactive approach to growth.

As a company grows, department heads and new employee performance can determine future growth, or business decline. SOP (Standard Operating Procedure), best practices, and basic skill set training are needed to prepare workers for the inevitable challenges. During peak seasons new employees may be enlisted in areas they have little knowledge of. They may not realise you need to peel the print away from the pallet gently to avoid distortion, or avoid shirt snap back where the wet ink leaves a ghost elsewhere on the shirt fabric. Supplies are often bought on a low price basis when there may be better products that outperform and provide better hourly press yields due to durability. Shops often get caught in a cycle of reactive problem solving when issues occur and ignore the need to proactively prevent issues that eat away at profits. Fixing a sinking ship requires knowing why it is leaking before it leaves the dock since fixing the leaks on the open ocean may be too late to save it.

PERSONNEL

With the speed of today's presses a worker who isn't paying attention can create many rejects. To clean the rejects may require excessive use of spot remover on a long run, plus the labour to spray them out, if it is plastisol. If the shirt was printed with water-based inks and can't be cleaned the price tag goes up to replace the shirts, the press time, labour, and supplies to reprint them. So how do we typically problem solve issues like this?

The screen, your most valuable tool

Sure you can have tear down meetings to find the cause, point out proper techniques, move personnel around, and hope that it won't happen again. But no amount of problem solving after the rejects are printed will minimise the costs of the mistake. It might prevent a future mistake but it didn't prevent the mistake in question. Over a year many mistakes can severely impact profits and jeopardise the company's future.

Problem solving can be pro-active, or re-active. One costs little and the other can lose a customer, miss a deadline, lower profits, or affect company morale. The problem-solving meetings and employee training need to be moved up to the day the new hire walks in. This applies as well to the supplies and materials you choose to use. Training new hires and cross training current employees is a great tool that prevents costly mistakes. A best practices training session helps the worker to start with skills that contribute to the workflow. The other benefit of training new hires before they hit the floor is you can see if the new employee has a passion to learn.

Of all the problem-solving traits an employee can have, learning best practices and remembering them is key to productivity. Too often what is learned on Friday is forgotten by Monday. Test the new worker on what they learned in training to see what they have absorbed. We often held training on Friday for new employees and then held an unannounced pop quiz Monday morning to test how much they remembered. Pre-training will be far less costly than pushing somebody onto the production floor and having them learn by trial and error. Initial work efforts should be observed by the production manager since other press workers have too much responsibility to produce quality product. One mis-pulled shirt is not that expensive. A production manager or leadman demonstrating the process with a new hire or for a current employee moving to a new position in production helps them see technique that may be difficult to explain in a conference room.

Quite often new inexperienced workers have to work their way up the ladder in a print shop. Ours started in the screen reclaiming area. We figured if you couldn't deal with cleaning messy screens you probably wouldn't like keeping an expensive press clean either. Cleaning screens is where many of us paid our dues to get a job in the screen room or to become a press operator with better paychecks. There does come a day however when someone calls in sick and the nearest able body is moved to the press. It is at this precise moment that the initial training becomes a wise investment. As a production manager or owner you can have some confidence in their efforts. He or she will know that water-based prints need to be laid out flat to cure well, before it becomes a curing issue. The worker will know how to inspect the print for pinholes or threads that are blocking the image. A trained worker has more confidence and can focus on great prints and take pride in their work because this is visually rewarding industry. Cross training of all employees begins before they have to perform a specific job and can avoid very costly mistakes. Just knowing how cut and sew material was laid out on the cutting table is important. Is it face

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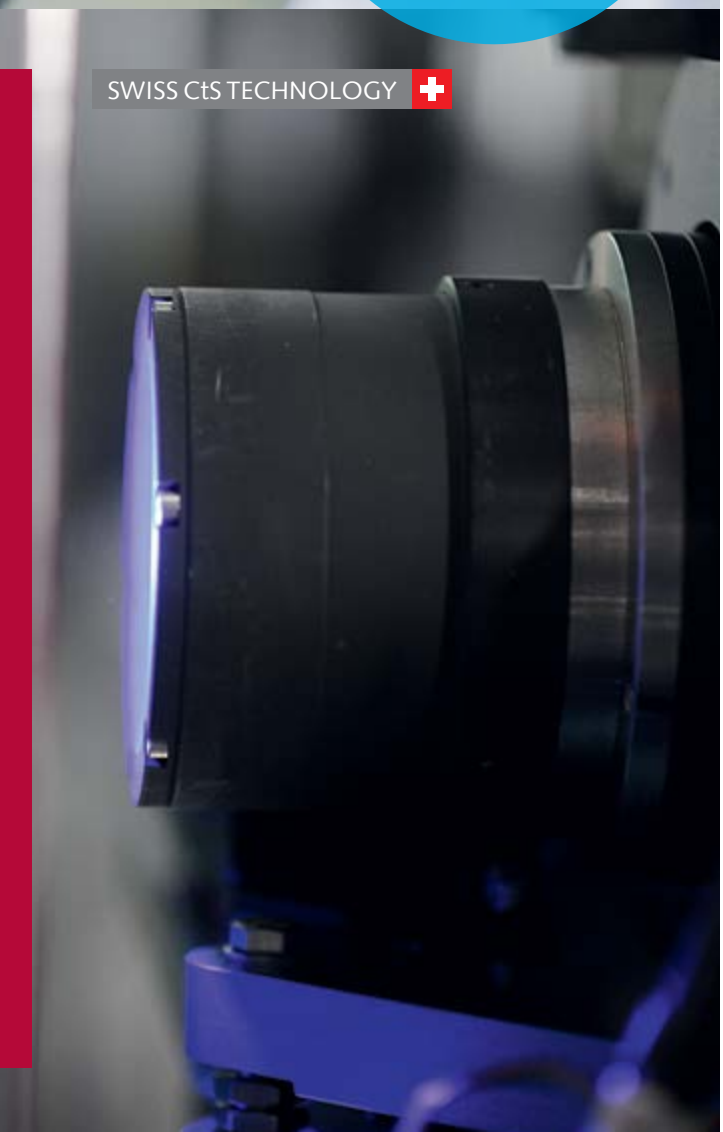

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to face, or face up? If the loader doesn't know how it was cut they may not understand the subtle differences in the fabric and print half on the wrong side.

PRINT QUALITY IS EVERYONE'S JOB

Any job starts with sales. Well trained sales staff help support the art department with specific art specifications for the art department to efficiently prepare art for production that will have little issue on press. Art departments deal with art resolution/colours/print size/layout and design every day and have no forgiveness with sales people who don't provide art they can work with. Give them a 72dpi jpeg 14-colour sim process job and sales will need to re-contact the customer and impact on time delivery. Sales has to know the exact parameters the art department needs before accepting art from a customer. I highly recommend that new sales people sit in on the art dept/production meetings once a week to understand how art and production require specific art file formats from the customer. When sales begins to see the design process in action they can proactively advise their customers to create a better product by slight modifications to the art, or to include or outline fonts, the number of colors, the exact final print size because they know the limitations of the process and what creates the best product. It always amazed me that if the print stroke was 18 inches, sales felt we could squeeze another half inch into the print without realising the physical limitations of the press.

The art department often is in a vice between sales and production. Not only do they deal with less than perfect art from sales, they deal with the engineering of the print. Holding daily meetings between the art department and production manager is a never ending learning loop since T-shirt art can vary so much. These meetings help eliminate troublesome jobs through proactive problem solving. A production manager has a mental image of his press' capabilities, the need for cool down stations, or when to use a flattening screen, what meshes to use, what inks will work. Artists on the other hand see a computer screen in RGB with wonderful transparency that may not be reproducible on press, or fine reversed out line art that water base inks will fill in during printing and eliminate. Production is aware of gutter lines needed on a plastisol solid white base plate to hold a spot color overprint in place to prevent ghosting and migration of the inks.

Production and Art departments are the print engineers of the company and both need to know each other's limitations and share valuable input for the job to run smoothly. When sales staff are also included in the engineering discussions their sales will move through the shop much smoother and customer sign offs on samples becomes much easier.

When your customer is a large fashion house who is supplying the art, they may be unaware of the print limitations that are well known by your staff. It can help to include their designer in the pre-press meetings so that any changes that are needed can be approved immediately, or the merchandiser's design process improved with a little print engineering knowledge. Skype is a wonderful tool to include distant customers either at the end of the pre-press meeting for changes needed or as part of the print engineering team to accelerate quality sampling that can be approved.

As a production manager I found that sitting down with the art department when a new job landed to be the best problem solving time. Once the design is on the press and the print is a muddy mess, the corrections are expensive. Press downtime, more separation work, more screens, a sequence change, modify the inks etc., are costly time consuming tasks. While some of this is unavoidable, a great percentage of production fixes can be proactively problem solved before expensive shirts, press time, and labour gets wasted.

THE SCREEN, YOUR MOST VALUABLE TOOL

Next in line after the art department is the screen making department. Do they know how to make durable screens? This last statement deserves a declarative statement. The quality of your screens determines your success. The best screens don't break down; they hold register, they reproduce the art as good as it can be done anywhere in the industry, and they are a huge part of how profitable and successful you are. From the materials you use to the way you make screens affects your company's future and requires making them the best they can be. Creating a blueprint for your screen room is a key to proactive problem solving downline on press. The result of fine tuning the screen making process is achieving better sales numbers and customer satisfaction. Major clothing lines depend on your prints selling quickly at retail to get reorders or to gain confidence with their clients to get larger orders on the next grouping of prints. Your print quality is in the public eye and is your business card for your future work and your customer's sales at retail.

SCREEN ROOM SPACE

Provide enough space to get the job done correctly. As a company grows so should the screen room. Quality screens need ample space to dry completely after coating or drying cabinets that can accelerate drying. Screen storage needs to be separated from water sources like wash out sinks and wet reclaimed screens to avoid high humidity that can affect how durable the exposed screen can be.
A screen room built for the initial manual print shop will not do the job well when you add on a couple of automatic presses. The only solution for the worker in a tiny screen room is to speed things up to make sure jobs are ready. Small screen rooms cause water base and discharge screens to be exposed that aren't dried completely and screen breakdown follows. Proactive problem solving here means adding a new screen room(s) as you grow, or expanding existing ones. When a shop grows to have 12 or more automatics a second screen room or an expanded one with an additional exposure unit can provide the needed space and time for drying and avoid bottlenecks in a single screen room with only one exposure unit.

EXPOSURE LIGHT

The quality of the light used to expose the screen determines your screen strength. The variety of exposure systems today requires careful analysis with on press performance evaluation based on the inks you use and the type of printing you do. The key is to obtain durable screens by completely exposing the screen for the correct amount of time regardless of the system and then to make sure the stencil performs on press.

EXPOSURE

As mentioned the exposure must be complete. You can get an image on a screen with under exposure and sacrifice screen durability. While the screen room worker loves the details he can see with underexposure, the print run will expose the weakness of the screen with breakdown, especially on water based inks. The exposure must be long enough with quality light to maximise the durability of the emulsion. To achieve proper exposure times the company needs to blueprint how to obtain them. Run step tests on every mesh count, standardise coating technique, get a thickness gauge to measure EOM to help standardise coating technique, use a moisture meter to know the exact drying times for each mesh, use a hardness scale on each exposure to validate the exposure and subsequent stencil durability. Too often screen room personnel gauge dryness by touch to know when the screen is dry enough to shoot. The screen may feel dry but you cannot feel the emulsion that is right next to the mesh. It could be like jello and not expose well and de-laminate off the screen when 5–10 more

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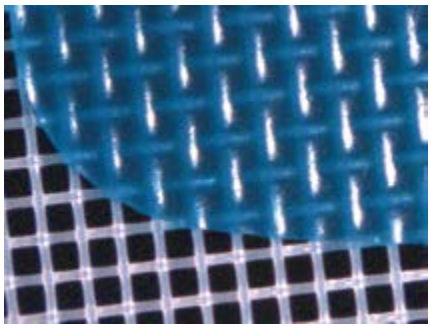

Screen mesh and emulsion

minutes more drying time could make a longer lasting screen. Document your process since the process may change under winter and summer conditions in your shop. You may have shorter times when it is hot and dry and longer times when it is cold and wet if you do not control the ambient conditions of your screen room.

"It is easier to prevent bad habits than to break them." Benjamin Franklin

SCREEN ROOM ENVIRONMENT

Maintaining 35–50% humidity is one of the best proactive problem solving tasks you can do. A dehumidifier works wonders to keep humidity constant and less affected by ambient weather conditions like a rainy day or fog that can affect screen durability. So does controlling temperature. A screen room with good humidity, 35–50% and 72–78F [22–26 degrees C] temps will always produce a predictable screen. A screen room with high humidity and hot temperatures in the summer and low humidity and cold weather in the winter will have a hard time making predictable and more importantly: durable screens year round.

AN AUTOMATIC COATER

This is a wise investment as a shop grows since it provides consistent emulsion over mesh measurements which creates predictable exposure times and proactively creates stronger screens. Document your process since emulsion over mesh may vary on different meshes. Settings, speed and pressure may be different on different mesh counts and thread diameters.

MESH

Mesh deserves more scrutiny in your screen room blueprint. The default problem solving method for poorly performing mesh basically involves throwing your arms in the air and yelling for a new screen when you realise the print can't be registered, or the tension is so low it is lifting ink off when printed wet on wet. Meanwhile your workers and press sit idle while you pay them due to poor quality mesh. Some areas to consider:

Print quality – quality mesh allows you to push the limits of your print. Dot on Dot register of a 65-line halftone simulated process is far easier with quality mesh and can consistently reproduce the prints from the beginning of the run to the end of the run. Your print quality is your business card. The better it is, the easier it becomes to land new business.

If you run multiple shifts it is worth the peace of mind to pay a bit more for a mesh that holds register and performs well while key administrative personnel are at home.

Screens made with quality mesh that are stored for future jobs, hold register when set up again. Re-orders are a golden profit centre, but to retain the customer the prints have to be as good as the initial prints. High quality mesh excels at repeatability without headaches.

Quality mesh retains tensions better and can print more jobs and usable screen life on static frames and eliminates costly labour on screens that can be re-tensioned.

Production yields improve when screens stay in register and less time is spent fixing registration allowing presses to hit higher hourly yields.

EMULSION

Your emulsion choice should be based on its performance on press and not on press. If you are a production manager look at your floor and you will find that the press that isn't running is often due to stencil breakdown. The employees are waiting for a new screen for their discharge job and the cost is far more than the savings of an inexpensive emulsion. Unfortunately this becomes the accepted norm of start/stop/start when obtaining consistent production often comes down to product choices.

Some questions to ask about the emulsion you choose. Does it resist all the ink systems you use? Does it have great resolution at full exposure? Is it durable? Does it reclaim easily on all mesh counts, especially on high mesh counts that cost more? Does it need to be hardened? Does it form an excellent print gasket to prevent dot gain?

As Benjamin Franklin said: *"The bitterness of poor quality remains long after the sweetness of low price is forgotten."*

You may have a great customer whose orders become less and less when they see prints that have lost key halftone values that made their product stand out, all due to choosing an emulsion on price rather than performance. If your customer provides shirts for water base prints and reject rates climb the chargebacks and loss of confidence can be expensive. They may move business elsewhere, or worse return questionable print runs. Performance and dependability matter on press, the main tool that helps production meet deadlines and produce a quality product. Proactively choosing a high performing emulsion keeps the presses humming with top quality prints.

Product support is also a key to better production yields. Price alone isn't the best decision making process. Proactive problem solving in a large print shop requires the support of knowledgeable suppliers who can help workers and owners get the most out of the product. Too many times a product is chosen on price but the quality can't be proven on press. Owners and busy Production managers may have distanced themselves from the supplies used and live with the headaches of underperforming products or processes and reactively solve press issues rather than proactively researching the best solution. 'Expose the Quality' is a mantra I use for screen making since it makes companies successful, more productive and proactively prevents problems before they occur.

Think about the pre-flight checks an airline flight crew performs on their plane before taking off. Sure a major aircraft manufacturer built it with incredible engineering and qualified all components and yes the airline also has mechanics that do periodic maintenance and inspection to keep the aircraft certified. However co-pilots and pilots run through a series of checks before every flight. Even with all the engineering of their plane and mechanical support they proactively run their inspection routine since they have no opportunity in the air to do reactive problem solving. Crashing is not an option. Your company needs to adopt this proactive attitude to make sure the prints will run with little breakdown of the emulsion and with mesh that produces perfect prints. Owners and production managers are the pilots of your shop and like flying a plane crashing is not an option on press. ■

Alan Buffington works in Technical Sales at Murakami Screen USA

Problem solving is best done on the ground

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SIX STEPS TO MAXIMISE YOUR POTENTIAL

Jan De Roeck reveals key areas every business should evaluate to identify waste and create opportunity for operational efficiency gains

Jan De Roeck, Director of Solutions Management at Esko

Not so long ago, attention automatically defaulted to capital investment when print production capacity came under pressure. The print runs in the early days were very long almost without exception; and as a consequence, printing press uptime was high. Questions focused on how newer and faster equipment could increase capacity. When volumes were large and margins good, that was a profitable choice.

Fast forward to today, and a very different print production landscape requires a fundamentally different approach to investment and operation. Brand owners today drive an ever-growing demand for very short runs of many design variants in a fast turnaround cycle. With most businesses having a workflow optimised for few but very long runs, one can see an efficiency conflict arising; and a review of business and production processes becomes a necessity. While increasingly affordable capital equipment should also be considered, it is by no means the only option for forward-thinking companies.

WHERE DO YOU CREATE THE MOST WASTE IN YOUR WORKFLOW?

Before making equipment investments, businesses should honestly assess every element of the operation, from order intake to final delivery and invoicing. Introducing efficiencies to better deal with short runs requires a close look at every step in the workflow to see where improvements, and ultimately savings, can be achieved. A fresh and unbiased review of the workflow will reveal opportunities to cut costs, shrink cycle time, and minimise errors and defects. But it must take into consideration the entire workflow; the last thing a company needs is to increase efficiencies in one area in a manner that only creates bottlenecks in another. And once an efficient workflow is in place, capacity can then be assessed to determine if further equipment investments are required. In most cases, streamlining workflow increases capacity!

Asking yourself the question, "Where do I create waste in my processes?" is a great way to start considering a fresh approach to your production workflow. Every step of the process – from order entry and prepress to delivery – can generate waste, especially when customer demands are changing: what was the most optimal workflow in the past today may generate lots of resource wastage. Certain sub-processes today may slow down production, create delays and rework, and increase the potential for rejects and equipment idle time.

There are a number of steps in a typical workflow, from design, estimating and customer approval to prepress, printing, cutting and packing. And every stage can be improved. To simplify the process, Esko has highlighted six areas every business should evaluate to discover potential areas of improvement. In this discussion with Jan De Roeck, Esko's Director of Solutions Management, we touch on all six.

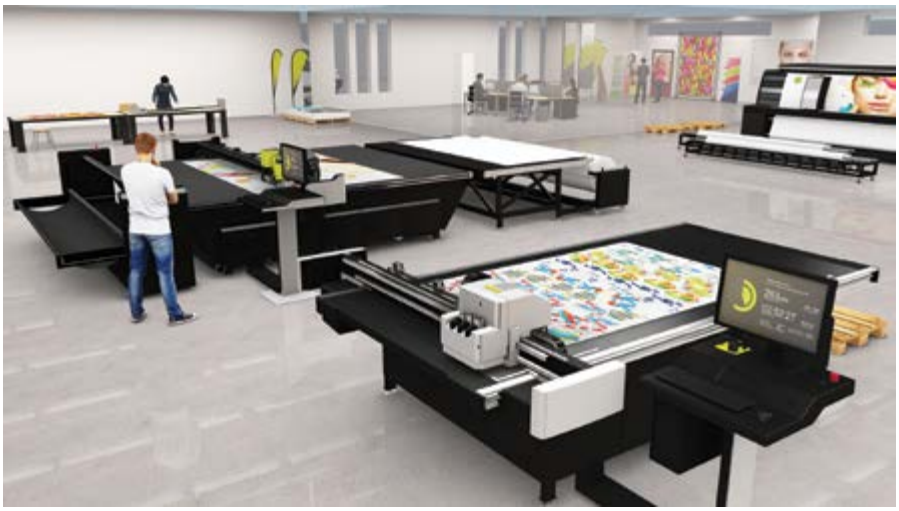
1. SHORTENING APPROVAL CYCLES

De Roeck explains: "The approval process can take a long time because designs are often presented in several iterations until the customer is 100% satisfied. By implementing 3D rendering of the display designs before any physical mock-ups are made, cycle times can be significantly reduced. Moreover, this capability can be an integrated function of a fully automated workflow, including communication with the customer."

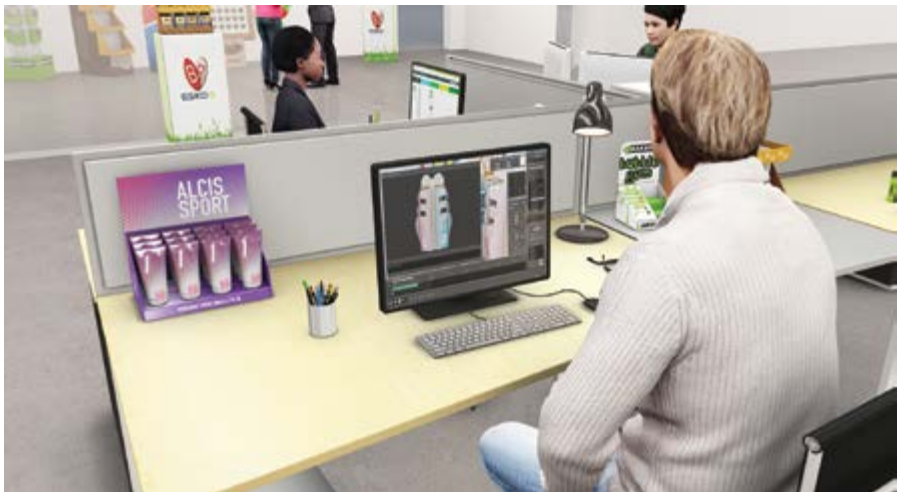
Implementation of advanced workflow automation solutions that can efficiently prepare files with limited human intervention is definitely an opportunity for waste reduction. Such automated workflows, integrated with web-based customer collaboration and approval tools, enable a more efficient supply chain and improve interaction among design agencies, print providers and customers. No two workflows are the same; and the methods for moving a file from design to shipment will vary from one company to the next, so companies should be seeking workflow solutions that are flexible enough to adjust to their specific needs.

2. PREVENTING ERRORS IN GRAPHICAL FILES

De Roeck says, "Signage or display designs can arrive from many different sources in various formats with a variety of individual components. They must be checked, corrected and nested on the right substrate prior to moving them to print to avoid delays



Esko's Device Manager estimates jobs, helps to load balance among Kongsberg cutting tables, and gives production staff clear visibility into the status of finishing devices from the comfort of their offices



Obtaining approval using 3D communication saves time and mock-up costs, enabling a more efficient supply chain and improves interaction among design agencies, print providers and customers

and extra costs, as well as waste that occurs when inaccurate files reach the press. Unfortunately, manual checks often create a bottleneck and waste valuable time during the prepress process."

Automated preflighting is fast, helps to avoid expensive rejects and can reduce design errors by 70%. With Esko Automation Engine and i-cut Suite, all graphic files can be automatically converted to PDF and moved through prepress using an editor where needed for consistent quality and fewer rejects. Standardising the prepress step on a completely automatic basis eliminates capacity constraints making it easier to take on more volume.

Holland & Crosby, based in Canada, invested in two Esko Kongsberg C64 finishing tables to keep pace with its high-speed flatbed printers. It also uses Esko's i-cut suite and Esko's Automation Engine to refine the system so it can preflight jobs faster and more efficiently. Scott Crosby, VP of Sales and Marketing for Holland & Crosby, says, "Printing used to be our primary bottleneck, but then we got bogged down with preflighting, finishing, distribution, and getting our orders out on time. We're still trying to improve our workflow, and Automation Engine and the i-cut suite are helping."

For complex 3D POP displays, the ArtiosCAD Display Store offers downloadable POP designs

3. IMPORTANCE OF CAD DESIGN SKILLS

De Roeck comments, "A lack of structural design skills can be a major area of waste. Customer opportunities are sometimes turned down because the display is too complex to design and produce."

Design time can be cut by up to 90% by using CAD software and templates, and to simplify the process, Esko offers QuickBox, an i-cut Production Console option with 15,000 parametric packaging design templates that can be used as a base for even the most complex designs, ready to use. For the more complex 3D POP displays, ArtiosCAD Display Store is an ideal solution. And for companies that have in-house CAD talent, ArtiosCAD gives them all the tools they need to be more efficient.

An example is Impulse Graphic and Display Solutions, a Canadian company that chose Esko's Automation Engine to help it reduce operator time as well as automate step and repeat layouts for its printers and Kongsberg cutting tables. The company also invested in Esko ArtiosCAD to add structural design capabilities to its services. Alexander Cachia, President of Impulse, states, "We wanted to customise our workflow based on the scope of our work and take advantage of Esko software tools that tied into prepress. With the implementation of Esko ArtiosCAD, we can create structural designs in 2D or 3D and link those files to Automation Engine for output to our printers and to the Kongsberg tables. This makes the prepress operation very seamless and efficient."

4. IMPROVING PRODUCTION CONTROL

De Roeck asks, "How often does the delta between the price on the customer quote and the actual production cost eat away your entire margin? How often do you have to ask your staff to put in extra effort to get that rush job out on time? Knowing exactly how long a job will take, including setup time, and understanding when to best interject a rush

Continued over

Six areas every business should evaluate to identify waste and create opportunity for operational efficiency gains

job in an existing job queue for production devices is essential. Lack of transparency in the workload of departments and devices hurts your flexibility, and ultimately, your bottom line."

Device Manager is Esko's answer to help businesses achieve more control on the shop floor by helping tackle key shop floor waste areas. It estimates jobs, helps to load balance among Kongsberg cutting tables, and gives production staff clear visibility into the status of finishing devices from the comfort of their offices. Additionally, Device Manager generates reports and keeps history logs so you can measure non-value added time and build a more LEAN process.

5. CUTTING TABLE EFFICIENCIES

De Roeck explains, "Operating a cutting table can be a complex manual task. Job set-up can easily take up to 30 minutes and result in hours of equipment idle time, especially when many short-run jobs, sometimes hundreds, must be processed each day. Finding the right cutting or creasing tool for a given material is not always easy, and quality often depends on the skill level of individual operators. To compensate for rejects, some companies even add a few percentage points of over-production to each job, resulting in less competitive pricing and a negative impact on the bottom line."

Simplified cutting tables make operation fast and easy for a 10% increase in throughput and reduced errors. Esko's Shared Resources technology, part of i-cut Production Console, also enables consistent production by analysing the incoming cut file and automating table set up and tool choices.

UK-based Data Image Group Ltd has reduced lead times, intelligently managed short production runs, reduced material waste, and optimised equipment output following its investment in Esko's Kongsberg C automated robotic production solution with a Kongsberg Robotic Cell. Robert Farfort, Director at Data Image Group, explains, "Automation in our finishing department is really important to the future of our business. By automating loading and unloading of materials, we gain greater efficiencies from our cutting operation."

Data Image Group also uses Esko's Device Manager to monitor job status in real time as well as managing and prioritising queues for all connected devices.

With the Esko ArtiosCAD, companies can create structural designs in 2D or 3D and link those files to Automation Engine for output to their printers and to the Kongsberg tables

6. THE DIFFICULT LAST MILE

De Roeck states, "The packing department is typically the last step in the shop floor workflow, and consequences of waste earlier in the process will ultimately end up there. Slight modifications to the product and to the production flow on the way, typically undocumented, may lead to inadequate and inefficient packing of finished products. In the worst case, this impacts the ability to quickly and accurately assemble and/or install designs and displays at their final destinations, exposing your business to the risk of important damage claims, a real source of waste."

Shipping efficiency can be improved with boxes that perfectly fit the finished products. Solutions include QuickBox, part of part of the i-cut Production Console; or Cape palletisation software for larger production runs.

CONNECTED WORKFLOWS ARE THE ANSWER TO CHANGING PRODUCTION DEMAND

Taking the time to evaluate the steps outlined above will help companies make better decisions about investments in production equipment. When properly implemented, regardless of the number of steps or the intricacies involved, the entire workflow is connected. This allows businesses to keep tabs on the overall production workflow rather than addressing single points of constraint.

Today's customers demand finished products, produced in a timely and cost-efficient fashion, and this trend will only accelerate as the market becomes more competitive. A fresh approach to the production workflow creates room for printer and converters to develop consultative relationships with clients that extend beyond print, getting them into the conversation much further upstream in order to design with finishing in mind to eliminate waste. In this way, signs or display designs can be optimised for maximum performance and minimal waste.

De Roeck concludes, "The key to workflow efficiency is to identify all areas of waste and standardise processes to eliminate that waste. Esko solutions help convert waste into value-added time every step of the way. Identifying waste in individual processes is not difficult, but understanding each step of a workflow and how they perform as a chain can often be complex. Esko is dedicated to helping businesses work through these complexities to remain competitive in a dynamic marketplace." ■

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CHOOSING THE RIGHT EXPOSURE SYSTEM

David Parker takes a look at the importance of exposure in producing high quality screens

PART ONE:
CHOOSING THE RIGHT EXPOSURE SYSTEM

Exposure is one of the most important steps in screen making and will directly affect the quality of the print and press life of the stencil. Choosing the right exposure system is equally important, so the first part of this 'How to Guide' will provide you with essential advice helping you select the best system that meets your requirements.

FACTORS TO CONSIDER

Quality of the UV light: Diazo, Dual Cure and Photopolymer photostencils are only sensitive to Ultra Violet (UV) light with a wavelength from 320 to 430 nanometres. It is very important to select a light source that has a spectral output in this range. You should also avoid light sources that produce large amounts of Infrared (IR) as this heat energy will quickly cause the stencils to fuse. If in doubt, check the spectral output with the equipment manufacturer to ensure that it is compatible.

Power of the light: for conventional contact exposure, choose the most powerful lamp you can. The more powerful the lamp, the further it can be positioned away from the stencil.

Top tip: The UV output from all bulbs reduces with use, therefore always replace the bulb regularly in accordance with the manufacturer's recommendations.

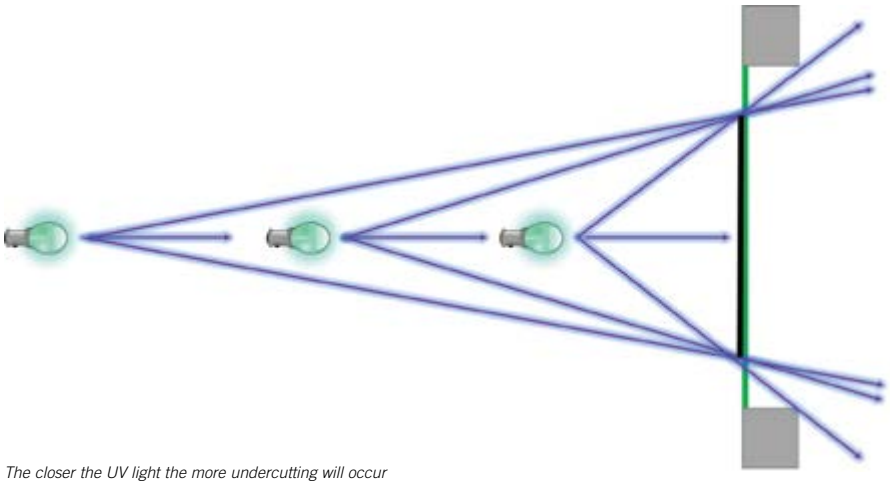
Distance from the stencil: the distance from the lamp to the stencil has a big impact on exposure time, as the light intensity will reduce very quickly the further it has to travel. For example a stencil requiring a 30-second exposure at a 1m distance would increase to 900 seconds if positioned at a 2m distance. Importantly, the further away you can position the light source from the screen, the less undercutting you get at the image edges.

Angle of the light: ideally the light should enter the stencil at an angle of 90 degrees to the positive as this will give no undercutting of the image. Be aware though that the closer the lamp is to the image, the more acute the angle will become at the edges of the image. Ultimately, the size of the screen and the quality of the print you require will determine the optimum distance you should use.

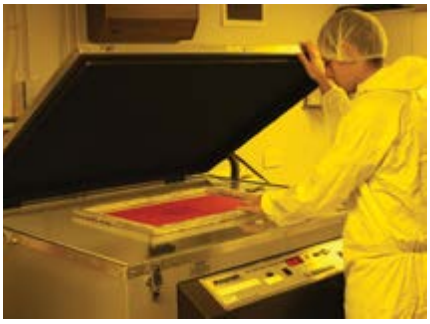
THE BEST COMPROMISE

A good combination for conventional contact exposure of Diazo and Dual Cure stencils, of up to one square metre in size, is a 5kw metal halide with a Gallium Iodide doped 'Diazo' bulb (365, 405 & 418nm output) positioned at a distance of 1.5m. For screens bigger than one square metre, a more powerful lamp at a greater distance may be required.

If you only use photopolymer stencils, a specific 'Photopolymer' Iron Iodide doped bulb can be used, as this emits a shorter wavelength than a Gallium Iodide 'Diazo' bulb. A 'Photopolymer' bulb typically has an enhanced output at 360 to 380nm. If you use a variety of Diazo, Dual Cure and Photopolymer stencils, then a 'universal' bulb is the best compromise.



The closer the UV light the more undercutting will occur



A self contained screen exposure unit

OTHER POINTS TO CONSIDER

Mesh: dyed (anti-halation) mesh will stop a lot of the light reflection/refraction during exposure providing a better resolution and definition at optimum exposure. However, you may need to increase your exposure time by as much as 100% compared to white mesh.

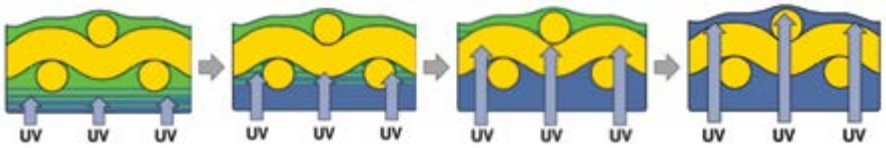
Vacuum frames: it is essential that the exposure frame gives you perfect contact between the film positive and the stencil, so a good vacuum and seal is very important.

Top tip: If you use a free standing exposure system, paint the walls black to reduce unwanted reflections that could cause undercutting.

Film positives: the quality of the positive you use will have a significant effect on the quality of the final print as any pixilation or imperfections on the image will be reproduced by the stencil. We recommend using quality Lith film positives for very high resolution applications and to make sure the emulsion is in perfect contact with the stencil, otherwise you will lose resolution.

Take care when using low cost ink-jet or laser printer positives as these often have

Paint the walls black to reduce unwanted reflections



This image shows how the emulsion progressively changes colour as the sensitiser reacts with the UV light

Use the factors on the Exposure Calculator to work out the optimum exposure

quite a low UV/Blue density and the stencils will need to be under exposed to prevent burn through.

Top tip: Make sure that you do not overload ink jet film positives to increase their UV density as this may result in them sticking to the stencil during vacuuming.

COMPUTER TO SCREEN

There are two main Computer to Screen (CTS) processes that are used today in screen printing: (i) direct digital exposure of the screen using UV light and (ii) digital imaging of a UV resist directly onto the screen followed by a blanket UV exposure.

Within these groups there are several different types of CTS systems including laser exposure, Digital Mirror Device/LED, inkjet and even laser ablation, each one has its own advantages and disadvantages. The choice of which system you select will depend on the size of the screens, the number of screens required per hour, the print detail and the durability required from those screens.

It is also important to match your choice of photostencil with your CTS system to get the optimum result. In general, most Diazo or Dual Cure photostencils can be used for small to medium sized CTS applications, however for large screens an ultra-fast projection speed photopolymer emulsion will probably be required.

SUMMARY

There is no universal exposure system that will suit all screen printing applications, as the requirements for producing stencils for a touch screen application are quite different from those for printing giant flags or banners. Carefully consider all of the above factors before making your choice, as exposure is the most important step in determining the quality and durability of the screens being produced.

PART TWO:
HOW TO DETERMINE OPTIMUM EXPOSURE

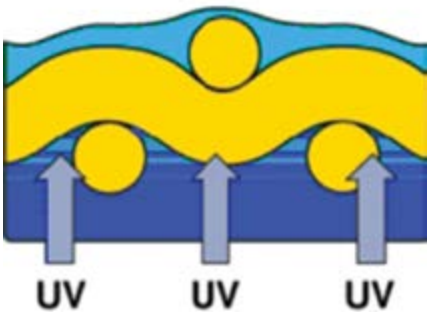
If your stencils break down quickly on the press, or give a poor quality print, it is probably due to incorrect exposure. Part two of this guide provides essential advice on how to determine the correct exposure with direct photostencils (Direct emulsions and Capillary films).

THE IMPORTANCE OF CORRECT EXPOSURE

All photostencils rely on Ultra Violet (UV) light to harden them. Therefore, it stands to reason that if you do not expose the stencil to enough UV light then it will not harden sufficiently to give you the print life you require. However, if you give it too much exposure to UV light, then you will not reproduce the fine detail.

Continued over

Use a white light box to examine the stencil



Progressive hardening of a photopolymer emulsion

A perfectly exposed stencil is one where you have hardened all the emulsion without losing any of the detail you wish to print.

DIAZO OR PHOTOPOLYMER SENSITISED PHOTOSTENCILS:

There are two main methods used for determining the exposure time for direct photostencils:

1. DETERMINING OPTIMUM EXPOSURE WITH DIAZO AND DIAZO/DUAL CURE PHOTOSTENCILS

One of the benefits of a Diazo sensitiser is that when it reacts to UV light, it changes colour and loses its yellow hue. It is this colour change that is the key to determining optimum exposure. All you need to do is to increase the exposure time until the stencil stops changing colour, as this is the point where all of the sensitiser has been used up.

THE AUTOTYPE EXPOSURE CALCULATOR

The Autotype Exposure Calculator is an invaluable tool to determine optimum exposure as it will allow you to compare multiple exposures in one go. The four grey filters on this high quality photographic film positive absorb a controlled amount of the UV light to give the equivalent of 0.25, 0.33, 0.5 and 0.7 of the 1.0 full exposure; in just one step. To use the Exposure Calculator you expose the stencil, process the screen as normal and then examine the screen in white light to choose the exposure factor where the colour change stops.

THROUGH-CURE

A less accurate method of exposure determination is to look at the degree of through-cure of the stencil; simply process the screen and then after washout, rub your finger on the wet stencil on the squeegee side. If the emulsion is soft and easily removed it has not been exposed and the screen is significantly under-exposed.

2. DETERMINING OPTIMUM EXPOSURE WITH PHOTOPOLYMER STENCILS

Under-exposed Photopolymer stencils are also weak and will quickly break down, so it is important to try to maximise the exposure time without compromising the detail you need to print. It is actually a lot harder to determine the optimum exposure with a Photopolymer stencil than with a Diazo as there is no obvious colour change to help guide you.

Typically the optimum exposure is determined by looking at a combination of resolution and through-cure. Use the Autotype Exposure Calculator for your test exposure and then whilst the stencil is still wet after washout, look for through-cure on the squeegee side. You can either use your finger to gauge softness, or try putting a sheet of unprinted newspaper on the squeegee side and seeing if it sticks to the soft emulsion. The optimum exposure (with respect to print durability) is where all the emulsion has been hardened by the UV light and is not soft on the squeegee side.

Next, dry the test screen and check the resolution to make sure it will print the detail that you need. You can refer to the working instructions for the Autotype Exposure Calculator to identify what line width the stencil is resolving at each exposure factor and then check this against your film positive.

Top tip: Always try to make the test exposure 1.5 to 2.0 times higher than the optimum as you want this test stencil to show the effects of both under and over-exposure on the stencil's adhesion and resolution.

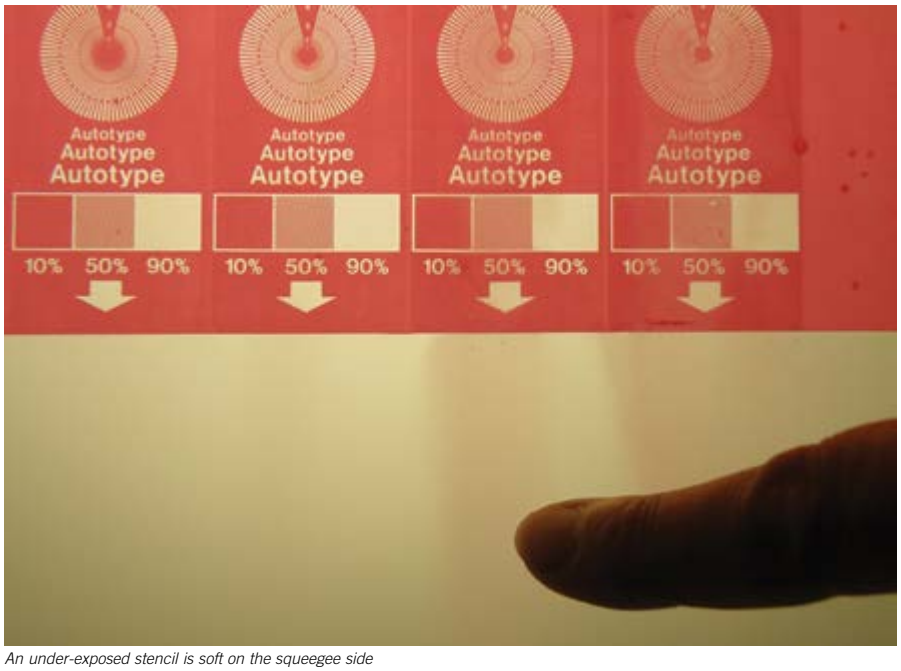
21-STEP GREY SCALE (STEP WEDGE)

It is actually quite difficult to use a 21-step Grey Scale (0.15 density) as a means to determine exposure with either Diazo or Photopolymer stencils. Very small variations in either the washout water temperature or pressure will influence the result giving a false reading. Step wedges can, however, be a useful tool to pick up process drift.

Top tip: In our experience, most stencils are given too little, rather than too much exposure. Increasing the exposure time slightly can often save you time by not having to 'spot out' pinholes caused by minute particles of dust and dirt on the positive.

CONCLUSION

More screens fail due to exposure related problems than any other cause, so it is worth spending a few minutes optimising the exposure time whenever you change your process and it should be the first thing you look at if there is a problem. For more 'How to Guides' to Stencil Making go to macdermid.com/autotype ■



An under-exposed stencil is soft on the squeegee side

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HOW TO AVOID A DRAINING EXPERIENCE

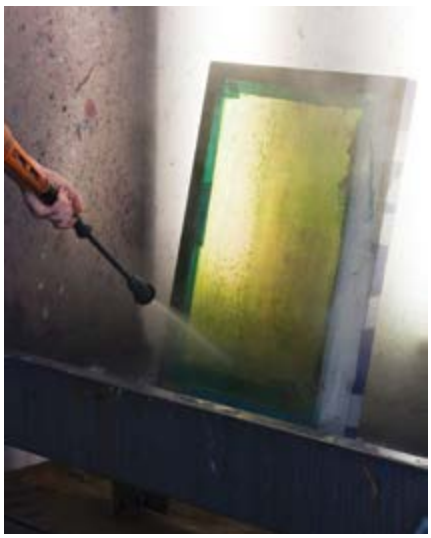
Chuck Nall considers the importance and practicalities of filtration in the screen printing process

Should wastewater be filtered? During screen cleaning and reclaiming, the ink and emulsion that is removed from the screen is headed for the drain. This leads to many potential problems including: clogged drains, septic system issues or fines from a governing municipal district.

Many screen printers are fortunate to have avoided these challenges, however it is something that should be explored. Filtration isn't just a 'feel-good' notion but actually a proactive preventive maintenance strategy. How? When drainage stops due to clogged plumbing, unnecessary repair costs are incurred and even more costly, production losses.

WATCH YOUR WASTE

Wastewater is essentially dirty, used water. In a screen printing operation this wastewater includes water, the chemicals used to clean the ink and emulsion off of the screens, and the ink and emulsion itself. The drain of a washout booth or sink leads to the plumbing infrastructure of the facility, and then into a city sewer system or into a private septic system. In the process of screen cleaning and reclaiming, the ink and emulsion removed from any screens or tools is on the pathway to your drain and plumbing infrastructure. This is problematic for the plumbing in the facility, the city sewer system and/or a septic system. Ink and emulsion break down into large enough pieces and particles to be considered solids. These solids are sticky and can gather together to combine large masses and clog drains, pipes, and intricate passageways in sewer and septic systems. If the solids are filtered out of the wastewater before the water reaches the drain these problems are avoided.



Filtration is a proactive preventative maintenance strategy helping to reduce clogged plumbing, unnecessary repair costs and production losses

CHOOSING THE RIGHT SIZE

A water filtration system simply catches or filters out the solids in a filter medium-a fine physical barrier, allowing minimal ink and emulsion to make their way down the drain and waterways. There are many different filtration systems on the market. Because the objective in water filtration in screen printing shops is usually to gather solids before the wastewater makes its way to a water treatment facility, or septic holding tank, a single phase unit is adequate. However, there are units available that have six or more filter phases, ultimately filtering the solids down to smaller and smaller allowable sizes. There are pros and cons to the different units.

Easiway Systems offers an EDF series that comes in two sizes depending on the volume of screens cleaned. This is an easy to use, gravity-driven, single-stage unit that sits under the washout booth or sink. The solids are caught in a mesh sock that is available in different sizes. The filtered wastewater gathers in a holding tank below the filter sock, and can simply be pumped out with a sump pump or emptied to a nearby floor drain with a hose. This solution costs the printer $500.00 [£381.00]. To clean the filter when it becomes full with ink and emulsion solids it can be removed, left to dry and the solids can then be put into the trash. The operating costs are low and the initial investment is not too steep given the costly drain, plumbing and septic systems problems it prevents.

POWER OF PREVENTION

Who should implement water filtration? This is not a solution that only pertains to large printers or small printers. Any screen printing operation will benefit from some type of water filtration unit. The larger volume of screens cleaned dictates a stronger need/benefit, however any ink and emulsion that can be prevented from going down the drain is positive. The age of the plumbing infrastructure in the facility, and waterways in the municipal area are also contributing factors to the likelihood solids in the wastewater could cause problems. One bill from a plumber or fine from the municipality easily makes the insurance of a drain filtration unit worth it.

The need for filtration begins with a complete acknowledgement of products being purchased and used in your processes and ends with a comprehensive plan to reduce all waste of the finished and depleted products

WHAT ABOUT THE CHEMISTRY?

Ink and emulsion should not go down the drain for reasons that pertain them not breaking down into small enough solids. The cleaning chemistry that is used may or may not be able to go down the drain based on other properties; such as flash point. It is always best practice in any operation to educate all employees on the safety data sheets on all products being used. These valuable documents will guide the user on proper safety equipment, storage, handling and very importantly disposal requirement. In addition to the SDSs (safety data sheet), each municipal district has its own guidelines, requirements and laws governing wastewater. It is a good idea to be educated on what these rules and regulations are.

Water filtration of screen cleaning and reclaiming has become a reality for all size screen printing operations for both efficiency and legal reasons. Research and education are key. ■

Chuck Nall works in sales at Easiway Systems

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SOFT SIGNS AND BEYOND

Sophie Matthews-Paul asks why digital textile printing has not yet reached its full potential

For new and existing users of digital textile printing, today's technologies should now be considered as valuable assets in terms of productivity and profitability. After a slow start within the display market, the soft signage trend is gaining increasing traction with its ability to provide robust, reliable high-quality applications that cover a wealth of areas that extend beyond the production of flags, banners and displays. In many areas of digital print technology, there is a noticeable shift away from mainstream production to niche areas as print service providers seek greater profitability and strong margins.

Digital textile printing has not yet reached its full potential both for interior and exterior applications, and it is generally agreed that the reasons are two-fold. First, there is the increased learning curve essential to get the best results possible from the process while, secondly, for industrial strength environments, the printer manufacturer's experience of the fabric sector is of vital importance.

Display graphics printed on a textile- or fabric-based substrate

TODAY'S DIGITAL DYE-SUBLIMATION PRINTERS ARE BETTER THAN EVER

From a manufacturing standpoint, digital textile machines suitable for soft-sign production have evolved from two principal channels. The first follows on and complements existing technologies using ink formulations that are already employed in the industry. These include aqueous-based, solvent-based, UV-curable and, more recently, latex chemistries.

Companies already making machines for one or more of these markets have, in some cases, been able to modify existing platforms to accept the idiosyncrasies of dye sublimation, resulting in a selection of wide-format printers that claim to be suitable for production in this industry segment. Following the initial demand for low-end and mid-range engines that have been revised to accept printing to transfer papers, some machine producers have concentrated on conversions for their dye-sublimation units that have served a purpose for entry-level machines and for those where high throughput levels are not necessarily among the key criteria for their users. Production environments are driven by necessity and there is certainly good reason for many print service providers to move into digital textile printing by investing in a solution from a manufacturer with a high reputation in other ink technologies. The longevity of the system and its convenience in use, however, can depend on the dexterity of the operator and the quality of influencing factors, such as the dyes themselves, the carrier papers, and the heat press or calender.

1.8m and 3.4m-wide aqueous-based soft signage printer models

The second type of manufacturer tends to be an organisation that carries a good level of textile experience, either through analogue association that can transition to digital or via individuals seeing a market gap and starting independent development of production machines. These specialists only concentrate on one technology rather than adding on fabric printing to existing ink chemistry options. In common with the evolution of other digital printing engines, there is a clear dichotomy between small enterprises that have decided to produce their own machines and those businesses with long-term experience in the fabric industry involving the use of cylinder and flatbed screen-printing presses who want to make the move to inkjet printing. This falls in-line with market trends for shorter runs, customisation and variable data printing, and print-on-demand applications. As a result, platforms tend to be robust and built for

performance. While initial investment inevitably is higher, for businesses who want to transition significant workloads to dye sublimation, overall the return on investment is positive and the lifecycle of the equipment is greater than on an inexpensive unit.

FINDING THE RIGHT COMBINATION

With all manufacturers there is a common factor that lies in the specific software requirements needed for dye-sublimation printing, and which carry their own idiosyncrasies primarily because of the ink behaviour and the materials involved. Productivity and RIP options carry greater complexity than merely adding a different set of profiles. Ergo, considerations include dot gain, specific screening algorithms, and settings that take into account the saturation during the print operation, whether via transfer paper or as direct print. They must also allow for the temperature variations within the fixation process and the reaction during the actual sublimation. As a result, optimum output results from the use of the right software that is designed for the textile work and the handling of solid colours and gradients must be configured for dye sublimation. This means that typical errors can be avoided, such as lack of saturation and edge bleed that can result from incorrect pre-press settings but don't become apparent before the job has been calendered.

It should be noted that, since the earliest days of digital textile printing, there has been mixed success from available machines and the efficacy of the print engine and its calendering counterpart. But, although overall improvement in technology has been common with nearly all ink-jet technologies, good dye sublimation still remains the province of products offered by only a few manufacturers. Given the length of time this process has been available on the market, print service providers have often been left confused by much of what has been available in terms of machine options, and it is only in recent years that established textile printing providers have fine-tuned the development of their digital equipment to broaden the appeal to display producers and sign makers. These improvements are now reflected by the manufacturers that sell direct to end customers as well as by reseller channels.

The EFI Reggiani series of digital fabric printers have been especially designed for established textile and soft signage producers looking to aggressively develop and drive more profitability with industry-leading image quality and higher-volume capacity. The unique sticky belt technology, which never needs to be replaced due to stretching or deformity, enables consistent hold-down and movement of a wide range of textile materials at a high rate of speed.

With high image quality, high-volume capacity, and the ability to handle both direct and transfer applications, the EFI VUTEk FabriVU series of digital fabric printers includes a range of models designed for print providers looking to add soft signage to their offering and those that want to expand their existing soft signage production capabilities. ■

Footnote: EFI and EFI VUTEk are registered trademarks of Electronics For Imaging, Inc.

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SIGN OF THE TIMES

Don Copeland considers the options for small to mid-format UV printing for signage

UV printing used to mean supersized flatbed printers printing 4' x 8' or larger and taking up as much space as a large car. Most of these printers had fairly minimal travel in regard to the depth of items they could print and were not really geared to short run production. Over the past five years or so we have seen an influx of small to mid-format UV printers with print areas ranging from 10" x 12" to 45" x 30" with the ability to print items from a few inches tall to almost a foot tall.

Initially these small to mid-format printers were looked at as digital replacements to pad printers – printing on items for the ad specialties marketplace. Items like pens, rulers, letter openers and other 'give away' goodies were the traditional recipients of the ink jetted by these machines in the early days, and still are a decent percentage of the marketplace. However, two traditional segments of the print industry are now looking to UV printing more and more. The trophy and awards industry was an early adopter and will be the subject of a future article. For this article I will focus on the sign industry and its awakening to the small to mid-format UV world.

SIZING UP THE JOB

When we think about full colour signage these days our thoughts immediately go to large format eco-solvent printers that print onto ink-receptive vinyl which is then applied to the sign blank itself. While this seems relatively straightforward it is a bit more involved that it sounds. There is a lot of demand for full colour, inexpensive, corrugated plastic/CoroplastTM signs which are typically 24" x 18" and two sided. The process to do these signs currently involves printing on vinyl with a large format eco-solvent printer, allowing the print to dry (typically overnight), laminating the print (for longer lasting durability) and then mounting the print to the sign blank. On average this will cost anywhere from 40 cents to a dollar (USD) [£0.31 to £0.76] per square foot for materials plus the cost of labour. Short orders for these signs can be a small as one up to a dozen, but, given the somewhat temporary nature of the signs it is difficult to charge enough to make this a money maker for your business.

Enter the mid-format UV printers. A mid-format printer would be one that can handle a 24" x 18" or larger. With these printers you simply load the sign blank into the machine, print directly to the substrate, turn over, print the second side and your sign is done! It is not unrealistic to produce a dozen, two-sided 24" x 18" signs per hour at a cost of 20–30 cents [£0.15–£0.23] per square foot. Not only are your material costs lower, your labour costs are radically reduced as the print times for the eco-solvent printer and the UV printer will be similar, as will the artwork/computer time – so all of the labour associated with laminating and mounting the print to the blanks is eliminated.

Secondly, the prints are immediately ready for delivery as there is no drying time or 'gassing out' time for UV prints like there is for eco-solvent prints. Quicker turnaround time means happier customers and also frees up labour to focus on additional work for your shop. What used to be a low profit, 'hate to do it, but have to do it' segment of your business can now become a true profit centre.

Parking sign on printer

The finished sign

Magnetic sign being printed

Straight off the press

MAGNETIC MODIFICATIONS

While we are on the subject of signage, two additional types of signs come to mind that are perfect for UV printing. Magnetic signs are an inexpensive option to many small service-related businesses to identify their company vehicles without the expense of direct application or even a vehicle wrap. Historically these signs were done with cut vinyl and limited to one or two colours. Now, more often than not, they are done with large format eco-solvent printers in very much the same methods described above for corrugated plastic signs. While magnetic signs generally offer a little better profit to the shop, the associated costs of materials and labour are still significantly higher than when direct printed with a mid-format UV printer. Again, lower costs of materials, lower cost of labor = more profits and quicker turnaround.

OUTDOOR INSTRUCTIONS

A final area of signage that lends itself well to mid-format UV printing is metal parking signs for small businesses. Often times these signs have reflective bases and thus are not practical to use the methods mentioned above for corrugated plastic or magnetic signs. To preserve the reflective nature of the sign the image would need to be not only printed and laminated but then loaded also kiss cut and weeded prior to mounting – adding a whole extra layer of difficulty and labour to the process. With a small or mid-format UV printer utilising white ink, it is easy to quickly print full colour graphics onto pre-fabricated reflective (or non-reflective) sign blanks – once again, quickly, easily and with less material costs and radically lower labour costs. Examples of these signs would be customer parking, employee of the month parking, 'To Go' parking for restaurants (great application for full colour images) and any other special application parking or directional signage.

Coroplast signs on printer

There are numerous other sign specific applications for small to mid-format UV printers. The few we have addressed here are simply the low hanging fruit for your UV printer. UV printers are not going to replace large format eco-solvent printers, but they are certainly a more efficient and cost effective way to generate great looking output for your customers. Simply put, a small to mid-format UV printer will reduce your costs of materials and labour, shorten your turnaround times and produce high quality prints for your customers. You can charge less, make better profit margins and offer same day service – that is a win-win situation in anyone's book! ■

Finished Coro signs

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inLINE FOILING on oval plastic bottles – high-sheen metallic images complement images printed with UV inks

Tinted varnishes on silver foil create custom colours

inLINE FOILING on square plastic bottles – foiling around corners is possible provided the corner radii are not too small

MAKING PACKAGING STAND OUT FROM THE CROWD

Robert Kovacevic explains the challenge of adapting inLINE FOILING for foil printing onto plastic bottles and jars

ISIMAT GmbH Siebdruckmaschinen and Leonhard Kurz Stiftung & Co. KG have successfully transposed inLINE FOILING from foil printing onto glass bottles to foil printing onto plastic tubes. An inLINE FOILING unit is now available for ISIMAT's hybrid tube printer, TH9, a tube printing machine with screen printing, flexo printing and varnishing stations.

Tube decoration with foil printing, flexo printing and screen printing can now be done in a single machine pass; complementing screen/flexo printed images with multi-colour metallic images has become economical. Packaging designers can choose from a wide range of possible combinations – the stations of a TH9 are interchangeable. The first TH9 with inLINE FOILING unit has been in production since summer 2015; today TH9s are in production in the Americas, Europe and Asia.

SHELF APPEAL

Packaging designers like to add foil printed metallic images to tube decorations because inLINE FOILING on tubes delivers metallic images with high sheen, surface quality, durability, and scuff resistance.

The success of inLINE FOILING in tube decoration raised demand for inLINE FOILING on plastic bottles and jars – the possibility to design multi-colour metallic images for complete families of cosmetic products.

NEW DEVELOPMENTS

The ISIMAT-KURZ development team was tasked with finding a way of adapting inLINE FOILING for foil printing onto plastic bottles and jars – to push the limits of what can be done. This presented several challenges; because different types of plastic are used in bottle production, bottles can have different shapes and thin walls, and bottles can have pitted surfaces that reduce the sheen of foiled printed metallic images.

To overcome these challenges KURZ adapted foils and adhesives for use on different types of plastic and ISIMAT developed a new inLINE FOILING unit with a cylindrical platen. The new unit makes it possible to foil print onto round, square and oval items. Compressed air is used to stabilise thin walled bottles during inLINE FOILING and thick layers of screen-printed adhesives maintain the high sheen of foil printed images on lightly pitted surfaces.

Developments are continuing to further increase the range of shapes and materials that can be foil printed with multi-colour metallic images. Experience gained during the development process benefits new customers who can be thoroughly trained in inLINE FOILING before they start production. ■

Robert Kovacevic is Director of Sales and Marketing at ISIMAT

Footnote: inLINE FOILING is a registered trademark of ISIMAT GmbH Siebdruckmaschinen and Leonhard Kurz Stiftung & Co. KG

INLINE FOILING

Traditionally, metallic images are hot-stamped onto cosmetic tubes. But hot stamping is a separate production step: printed tubes have to pass through a hot-stamping machine. The high pressure required for hot stamping makes it impractical to integrate a hot-stamping unit into a tube printing machine.

Developed by ISIMAT Siebdruckmaschinen and Leonhard Kurz Stiftung & Co., inLINE FOILING for foil printing of multi-colour metallic images onto cylindrical glass items is a cold process; the pressure required is comparable to the pressure exerted on a tube by a screen during screen printing; this made it possible to adapt the process for foil printing onto tubes.

A UV-curable adhesive is screen printed onto tubes; this defines the metallic images. A special platen in an inLINE FOLING unit brings a metallic foil into contact with the adhesive, the foil's metallic particles stick to the adhesive, and the adhesive is UV-cured.

It is possible to use silver foil when a custom colour is required. Over-printing silver metallic images with tinted varnish(es) changes silver to custom colour(s).

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THE TIME FOR COMPROMISE IS OVER

Mark Lawn discusses filling the gap in the wide-format output device market

The wide-format graphics arts market is exciting and dynamic, and from my perspective it's moving faster than ever before, with enormous revenue opportunities coming from new substrates and creative applications that are redefining expectations of print.

Production volumes are growing year on year, with combined wide-format print volumes across latex, eco-solvent and UV roll-to-roll printing technologies forecast to increase from 1 billion square metres to over 1.6 billion square metres by 2020, according to research from IT Strategies[1].

In parallel, customer expectations are such that turnaround times are shorter than ever. Data from InfoTrends[2] shows that more than 60% of jobs need to be turned around in less than 48 hours, with 41% required the same day. As a result, increasing productivity has become an important driver for wide-format PSPs (print service providers) to invest in new technology.

At Canon, we maintain an ongoing dialogue with customers worldwide, which shapes the approach we take to our programme of continuous technology innovation. Some time ago, through these customer discussions, we identified a notable gap in the wide-format output device market. At the top end, 3.2m UV and latex systems are high speed, robust and heavy duty and offer customers 'industrial' productivity – but they come with a price tag to match.

At the other end of the spectrum is a profusion of low-volume, 64" (1.6m) latex and eco-solvent systems. These are easy to use and represent a much lower investment, but they're also comparatively slow. In addition, evaporative processes make these technologies fundamentally unsuitable for heat-sensitive media, creating challenges with certain applications. In between these two options, there was no solution that blended the benefits of both.

WHEN EVERYTHING GELS

For us it was clear that there was an opportunity for Canon – by delivering radically innovative technology – to fill this gap in the roll-to-roll market and simultaneously meet customers' productivity requirements and their expectations of quality and applications diversity. We set out to develop a technology solution that would put an end to the compromises PSPs had to make when choosing between latex, eco-solvent or conventional UV solutions. The result is Canon UVgel technology and the Océ Colorado 1640, the first roll-to-roll printer built on this technology platform.

The precise Canon UVgel dot delivers sharp images for excellent output quality

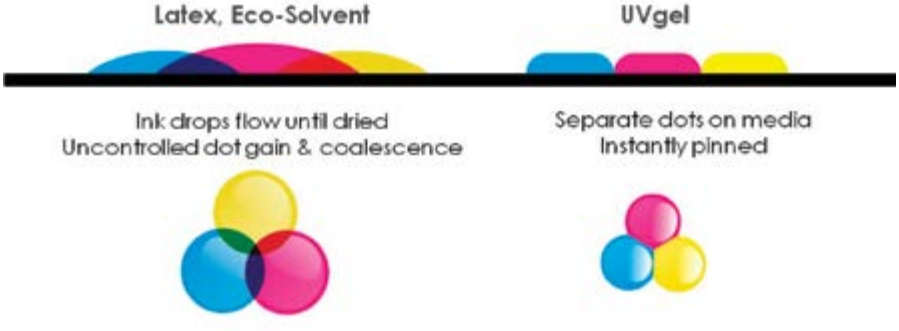
Canon UVgel technology brings together an entirely new print-head, ink, media platen and curing system. In combination, these deliver the advantages of prevailing UV, latex and eco-solvent printer technologies, while resolving many of their inherent issues.

The key to UVgel technology is that it uses an ink that is essentially a gel. Developed according to UV curing principles, it stays in the gel consistency until it reaches the print-head, where it is heated up to the point that it becomes liquid. As the jetted liquid drops make contact with the media, which is maintained at a constant 28 degrees C by the temperature-controlled platen, the drops return to their gel state and are immediately 'pinned' to the media. This instant pinning prevents dot gain and coalescence between drops, and the output is instantly dry. In contrast to evaporative ink technologies, Canon UVgel offers extremely precise dot control and highly repeatable and colour-consistent images.

After the image swathe is formed, it is fully cured by the LED UV cold-curing system. This operates independently of the printing carriage and gantry, allowing the individual ink drops time to settle and ensuring perfect uniformity across the image. By eliminating the need for immediate curing, productivity is substantially improved compared with conventional UV, because curing no longer limits print speed.

There is another key benefit to this. As the curing system uses LED UV technology, no heat is generated, which means that media distortion, even of highly heat-sensitive media, is negligible. With UVgel technology, PSPs can significantly expand their portfolio to a wide range of both outdoor and indoor applications, including wall coverings, which require high geometric accuracy.

Continued over



Canon UVgel technology minimises dot gain and coalescence

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The Océ Colorado 1640 printer is the first to incorporate Canon UVgel technology

The Océ Colorado 1640's heavy duty media drawer holds two rolls of the same or different media types

AUTOMATED ASSISTANCE

While the Océ Colorado 1640 can print at up to 159m²/hr – up to five times faster than other devices on the market – we all know that high productivity is about more than speed. You can have a fast output device, but if it requires constant operator intervention to maintain performance, productivity suffers. With the development of UVgel and the Océ Colorado 1640, we looked holistically at all factors impacting productivity and built in an unprecedented level of automation.

There are two common potential issues on all roll-to-roll devices – failing print-head nozzles and media step accuracy. We've resolved both issues through automated features in the UVgel technology and the Océ Colorado 1640. Most prevailing devices use a camera-based system to detect print-head faults such as 'nozzle outs', but this is not ideal as it only identifies quality defects after a flawed print has already been produced. To optimise productivity the key is to detect nozzle failure before it happens. To address this, we developed Piezo Acoustic Integrated Technology (PAINT), which continuously monitors the status of every print head nozzle using sound waves to detect blockages. PAINT can predict whether nozzles are going to misfire before they actually do and without the need to fire droplets, so minimising ink wastage. If a faulty nozzle is detected, that nozzle is automatically switched off and replaced by neighbouring ones, without any operator intervention. Nozzle replacement can be delayed until the next time the machine is down for maintenance.

Media step accuracy can also affect the print quality, and consequently productivity, of a roll-to-roll device. During every pass, the carriage moves across the width of the media and prints the image. The media then advances a step, which has to be done in precise increments for the next pass to be printed exactly where it should be. Canon UVgel technology features a robust and reliable media handling system incorporating optical monitoring to automatically correct the media advance for precise step control.

A further level of automation is provided by the dual-roll capability of the Océ Colorado 1640. This not only decreases the time required to load media, but also enables operators to switch media quickly when producing mixed applications. The heavy duty media drawer holds two rolls of the same or different media types, and both rolls can be fed into the device without the operator's assistance.

Mark Lawn, pictured with the Océ Colorado 1640 printer at the FESPA 2017 launch

ECONOMIC ADVANTAGE

As well as increasing revenues through its unsurpassed levels of productivity, automation, output quality and applications versatility, Canon UVgel technology also delivers a lower total cost of ownership, accelerating return on investment. PSPs are able to produce more finished jobs from a single Océ Colorado device without increasing staffing costs, resulting in a faster return on their capital investment. The printer also requires less operator maintenance, freeing up time for other tasks. Plus, Canon UVgel technology reduces ink consumption by up to 40% compared with prevailing technologies, while the low-temperature system gives PSPs the option of choosing less expensive substrates, depending on the demands of the customer application.

We're confident that Canon UVgel technology is going to change the wide-format graphics industry for good, and the global response to the new product when it was launched at FESPA 2017 and ISA International Sign Expo earlier this year suggests that the market shares our enthusiasm. The new technology raises the bar substantially across the four areas that are mission critical for PSPs – productivity, quality, applications versatility and total cost of ownership. UVgel gives signage and graphics producers a new level of capability which will help them to evolve in profitable new directions by unleashing the potential of print. ■

Mark Lawn is Director, Graphic & Communications Group at Canon Europe

[1] IT Strategies WF InkJet Graphics Summary 2015
[2] Wide Format Printing Critical Element in the Communications Mix, InfoTrends 2013

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NEW LEADS FOR LED

Jennifer Heathcote examines automotive and transportation applications for LED curing

The automotive and transportation industry faces several design, engineering, and manufacturing challenges over the coming years. Many of these have to do with better global stewardship driving further reductions in waste and energy consumption at assembly and supplier plants. For each of these challenges, many new manufacturing processes will likely need to be developed.

While conventional ultraviolet (UV) curing through the use of microwave and arc lamps has been used in automotive and transportation production processes for decades, UV LED curing is relatively new. However, UV LED technology is [becoming] much more mainstream as significant equipment and formulation advances are enabling the technology to quickly penetrate a growing range of applications. This is primarily driven by the fact that UV LED technology offers numerous performance, operating, and environmental benefits and is considered an enabling technology that lends its use to curing inks, adhesives, and coatings on a greater range of heat sensitive materials while delivering superior overall process and quality control.

ECONOMIC AND ENVIRONMENTAL ADVANTAGES

Some of the biggest advantages of using UV LED involve the reduction in heat transfer to the parts and substrates when curing inks, coating, and adhesives. This is particularly important as the automotive and transport industry shifts to more diverse plastic materials, lighter metallic alloys, and carbon fibres for reducing vehicle weight. Dissimilar and often heat sensitive materials which cannot be welded are often bonded though the use of structural adhesives, many of which can be formulated to cure with UV LEDs.

As manufacturers continue to strive for reductions in their carbon footprint by reducing waste and energy consumption, eliminating the use of thermal ovens and reducing overall scrap are high priorities. UV LED curing systems not only draw less power than conventional UV systems and thermal ovens, they also eliminate the need for exhaust, require less floor space, and have no consumables. In addition, because the output of UV LED technology is consistent and repeatable over time, the end result is better process control and reduced scrap.

Finally, like all UV curing technologies, UV formulations contain no solvent or water-based carrier than must be flashed off. The inks, coatings, and adhesives quickly crosslink to form a polymeric material that is fully cured when removed from the UV light.

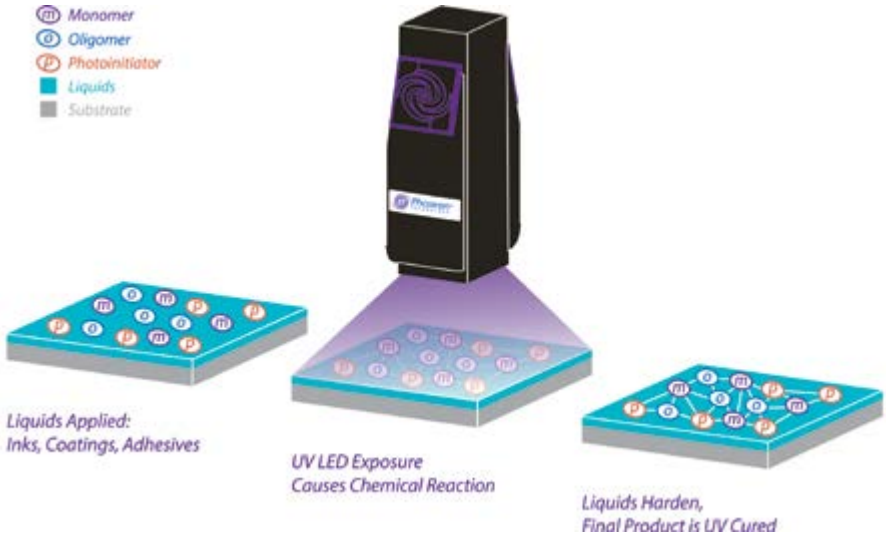
EXTENDING THE RANGE

Most of the UV LED formulation work over the past 10 years has been in the areas of inks, adhesives, and over protective varnishes (OPV). Many coatings companies are now starting to evaluate UV LED curing systems for use in curing b-stage (gel), functional, and hard coat chemistry. The fact that there is dedicated attention being given to UV LED coating formulations suggests that the latest improvements in the technology are making it more viable for use in more demanding applications.

FireJet FJ200 225mm air-cooled UV LED lamp

In addition, the success that UV equipment suppliers have achieved in designing and producing powerful and efficient UV LED curing systems in short head lengths (<700mm) is now being transferred to the design and production of mid and wide curing lengths (700 to 3,600mm). Today, companies are producing both continuous length longer heads as well as scalable heads that can be configured to span any range of curing widths or be arranged in various

FireJet FJ100 air-cooled UV LED lamp



Overview of the LED curing process

orientations around a part flow path. Since many commercial UV LED applications still require the UV LED head to be positioned relatively close to the cure surface to maximise peak irradiance while also maintaining a high energy density, it is necessary to optimise both the source design and the chemistry for properly exposing and curing the complicated 3D part profiles that are so common in the automotive and transportation industry.

Based on current interest and development activity, it is anticipated that LED curing solutions will be developed and expanded for many applications within the automotive and transportation markets such as:

- Screen printed in-mould-decorating substrates for interior vehicle assemblies
- Structural bonding adhesives for similar and dissimilar materials
- Light optically cured adhesives (LOCA) for electronic assemblies such as radio and navigation consoles
- Conformal coatings
- Sealants, encapsulants and potting of assemblies and wire harnesses and cables
- Printed appliques
- Photoresist masks
- Printed unique IDs, logos, and markings on glass
- Touch-up materials used in automotive refinish
- Hard coats for in-mould-decorating substrates for interior vehicle assemblies
- Coatings for mirrors, headlights, tail lights, reflectors and lenses
- Physical Vapor Deposition (PVD) on plastic parts

Today, the bulleted list of applications predominantly uses conventional curing systems, but businesses are starting to invest time and resources into developing UV LED solutions for their respective automotive and transportation customers. Many of these will ultimately be for new applications not previously done with UV.

BENEFITS FOR END USERS

All of this development is primarily being driven by end users and their need for less heat transfer to the substrate, a smaller carbon footprint and overall operating cost, reductions in scrap, and improvements in process control. While it is likely that various automotive and transportation applications may not yet be viable for LED, there are several end users and formulators that are successfully pursuing development in a growing number of areas. In addition, UV applications that were never possible with conventional arc or microwave systems due to the large degree of heat transfer are becoming possible with LED, thus expanding the total UV curing market.

Over the next few years, the UV industry will continue to plug away within the technology development network one application and one market at a time, learning more and more as it anticipates the next big UV LED application breakthrough. Much of this work will actually be driven by the end users who see the value in converting to UV LED technology. As a result, automotive and transportation companies should start by benchmarking where UV LED technology is today, where it is headed, and how it could possibly address various process needs. It would also be beneficial to increase direct collaboration with UV LED equipment suppliers and formulators in order to influence where UV LED development efforts are being focused. Only by working together can we efficiently and successfully drive solutions to address the industry's manufacturing challenges of the coming decade. ■

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A printed and moulded structural electronic component (courtesy of TaktoTek)

SCREEN PRINTING THE THIRD INDUSTRIAL REVOLUTION

Ross Balfour explains how the industrialisation of screen printing is transforming our way of life

Since its infancy hundreds of years ago, until widespread adoption in the mid/late 20th century, screen printing has been used primarily to create media for communication or decoration. This includes signs, displays, serigraphs and T-shirts, etc. However, the versatility of the process and wide scope of materials that can be pushed through a stencil has gradually enabled screen printing to expand into applications where other printing processes cannot venture.

Screen printing has since been industrialised and gradually automated to the point where it is now a highly efficient and productive additive-manufacturing process, used for the mass production of electronics. The ability to accurately deposit precise patterns of functional materials has established screen printing as a key process that's widely used in the creation of new technology for our modern world. Products manufactured by screen printing deliver convenience, features and performance that most of us take for granted, and would now be lost without.

TRANSFORMING GLASS

Take glass as one example of a substrate that has been transformed. Glass in its basic form provides transparent protection from the elements. Yet screen printing has revolutionised glass into a highly functional material. Automotive rear windows provide defogging/defrosting capabilities because of printed electrodes that provide the heater grid.

Glass can also be printed with embedded RF shielding, or antennas for communication. Glass screens can be made touch-sensitive, courtesy of a capacitive field, generated by screen printed perimeter electrodes, which works in conjunction with an underlying interactive display. Then just begin to think about how much screen printing has contributed to advanced technologies that we use every day, and their impact on how we live and work with increased productivity.

NEW WAVE TECHNOLOGY

Keyboards and keypads sit atop screen printed membrane switches, attached to rigid screen printed circuit boards (PCB). Yet both of these very mature technologies are now being overtaken by a new wave of multifunctional screen printed components, including both flexible and structural electronics. These new electronics have various built-in features, including capacitive touch sensing and switching, proximity or force sensing and even lighting functions.

Flexible electronics are light-weight, pliable, formable, bendable, bondable, foldable and sometimes even stretchable. In-Mould Structural Electronics (IMSE) offer the benefits of sleek design with no moving parts, plus rapid customisation from film-based additive manufacturing. Both flexible and structural approaches allow for material and component reduction, saving space and reducing weight. Flexible and structural components are rapidly being adopted in mass manufacturing of Automobiles, Appliances, Medical Devices and Consumer Electronics, etc.

During the manufacture of electronics, multiple materials are printed. These include conductive inks or firing pastes, resistive inks, dielectric inks, encapsulants for sealing, conductive adhesives for bonding and chip attachment, electroluminescent inks for lighting, piezoelectric and piezoresistive inks for generating power, and sensing applied forces. These various materials are combined by screen printing, and then used in conjunction with bonded chips and other electronics components. Some of these components, such as MLCC (multi-layer ceramic capacitors), are themselves manufactured by screen printing. The items manufactured include a wide array of sensors (medical diagnostic, environmental monitoring and for biometric measurements), antennas (RF, NFC and energy harvesting), even flexible printed batteries. Printed batteries are providing power for smart labels, smart cards, ID tags and other wearables, medical devices, and just about anything else that will eventually be connected to the Internet of Things.

Continued over

A flexible roll up piano

Examples of wearable flexible electronics

Combining various screen printed sensors, antennas and batteries, with flexible connectors and electronics has allowed completely new applications, technologies, industries and markets to spring up. A good example of this is the wearable electronics market, now also including E-textiles, E-skin, and even powered transdermal patches for enhanced delivery of topical medications, etc.

PRINTING SOLAR CELLS

On an industrial scale screen printing is nowhere more evident than in the fast growing field of renewable energy. Photovoltaic energy generation, more prosaically known as Solar, is driven by solar cells that are basically crystalline silicon wafers, with silver electrodes, that are 'metallised' by screen printing. A typical solar panel contains 72 of these cells connected together and can generate approximately 300W output.

Just this year, 2017 global installations of solar electrical generating capacity will add another 80GW to the already installed base which comprised of utility-scale, industrial & residential systems. More than half was installed just in China and India, and the additional amount is growing every year.

Just to put this in perspective, the 80 billion new watts of solar power installed in 2017 are derived from approx. 20 billion screen printed solar cells. The combined power output of these cells should contribute enough electricity to serve 40–60 million homes and is also equivalent to the power output of approximately eighty utility-scale coal-fired power plants or nuclear reactors, that no longer need to be built.

If these power plants were built to consume coal, it would be at a combined rate of 60,000 tons per hour. This is equivalent to 220,000 tons [199580 tonnes] of CO_2 released every hour, and we shouldn't forget the 600 tons [544 tonnes] each of sulphur dioxide and nitrogen oxides that come with the CO_2, that contribute to acid rain and smog. A coal burning power plant also emits smaller amounts of just about every element in the periodic table, including mercury and the radioactive elements. In fact, a coal burning power plant emits more radiation than a properly functioning nuclear one.

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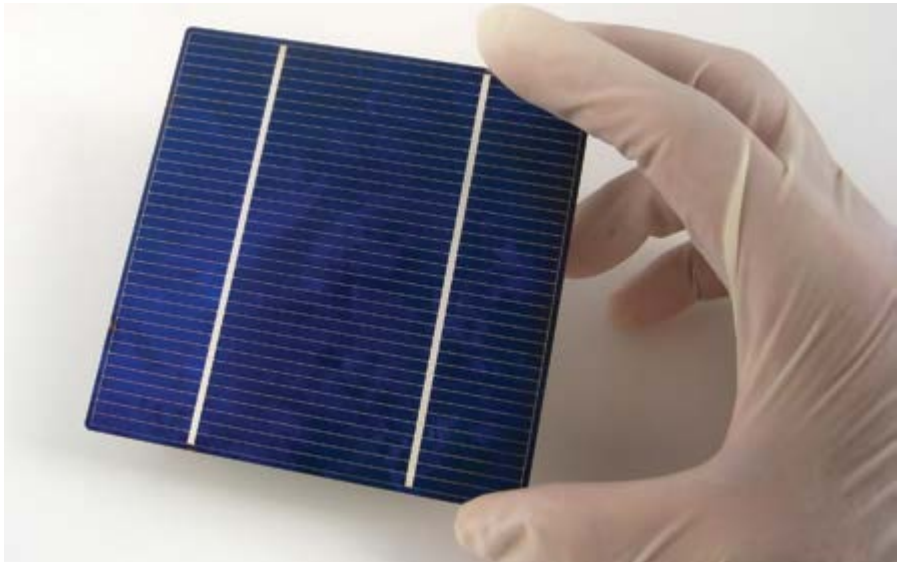


Solar cell with screen printed finger electrodes to collect and transfer DC current.

SENSE OF TOUCH

In addition to solar cells, billions of glucose sensors and touch screens are also screen printed per year. According to IDTechEx reports, 98% of printed electronics are produced by screen printing, and this view is confirmed by all the major manufacturers of conductive inks. Whilst there are copper or carbon based inks, or organic and transparent conductive inks that are used for specialty applications, the vast majority of printed electronics still rely on the use of silver-based conductive inks. The global value of silver ink consumed each year now exceeds $3 billion.

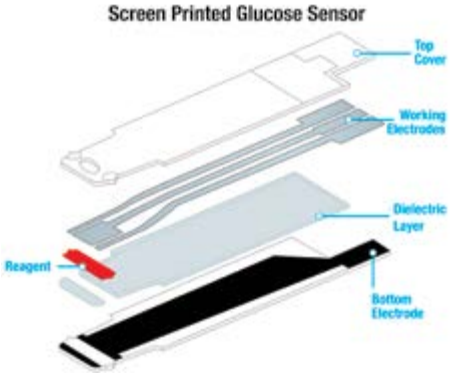
The industrialisation of screen printing to produce electronics means that conductive inks are now the largest use for silver, and this accounts for the consumption of almost 40% of silver mined every year. Firing pastes for solar cell manufacturing consume the most silver by far, followed by glucose sensors and capacitive touch screens, as the next highest volume segments. Printed seat heaters for automotive use are a distant fourth.

The mass production of billions of disposable glucose sensors every year relies heavily on screen printing, since multiple steps are used to deposit electrodes, dielectric layers, adhesives for assembly, and even the reagents themselves, in order to make a functional device.

The overall list of sensor types produced by screen printing is staggering. It includes a wide array of products for automotive use, including sensors to indicate seat occupancy and fluid level sensing, as well as environmental monitoring. Printed force sensors can detect pressure or strain and are now widely used for many industrial applications, as well as being used to manufacture musical instruments. Screen printed electrodes also form the basis of a wide array of sensors used to monitor temperature or humidity, or for gas and chemical analysis. Many of these are low cost and even disposable.

The ability to incorporate printed sensors with printed antennas, and even flexible printed batteries has advanced the development of wearable medical devices for remote patient monitoring. These include patches that can transmit vital signs or record ECG, as well as more prosaic examples that include sensors to monitor sweat for metabolites and electrolytes in fitness measurement, or biomarkers for stress measurement. In fact, we are in the midst of a digital healthcare revolution. From

A 30 MW power solar power facility



Layout of a typical glucose sensor

connected platforms that transmit vital health data in real-time, to Internet of Things-enabled devices that allow for remote patient monitoring, medicine has never been more connected thanks to screen printing.

In the consumer market, fitness trackers are a good example of a flexible printed electronics product reaching mass market status, with many millions sold every year.

SMALLER AND SMARTER

Out of all the different electronic applications for screen printing, one of the biggest and most technically demanding is the production of electrodes used in capacitive touch screens for smartphones.

Miniaturisation requirements for hand held devices have now driven printed line and space widths well below 50 microns in order to shrink the bezel around the screen and maximise the display area.

State-of-the-art screen printing can now print lines and spaces down to 20–25 microns, though this is probably approaching the practical limit of the technology for mass production. Even as further miniaturisation continues to shrink these dimensions, it is likely that screen printing will still have a place as the preferred method to precisely deposit the conductive ink. Individual electrodes can be further defined by an additional step of laser engraving.

According to research firm IDC, smartphone shipments in Q1 2017 numbered 347 million, and were up 4.3% from the prior year. It's estimated that 40% of the world population now has access to a smartphone, and this number is typically as high as 70% in Europe and US Smartphones with screen printed touch screens are now by far the number one way that people connect with each other, that consumers connect to the internet, and on to the outside world.

THIRD INDUSTRIAL REVOLUTION

It is a well accepted theory that three main factors drove both the first and second industrial revolutions, and that a third revolution is now well underway. These three drivers interact with each other in unexpected and synergistic ways, to encourage innovation and growth, and

Continued over

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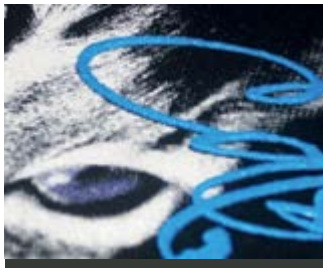

FASHION

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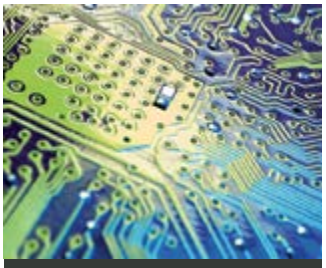

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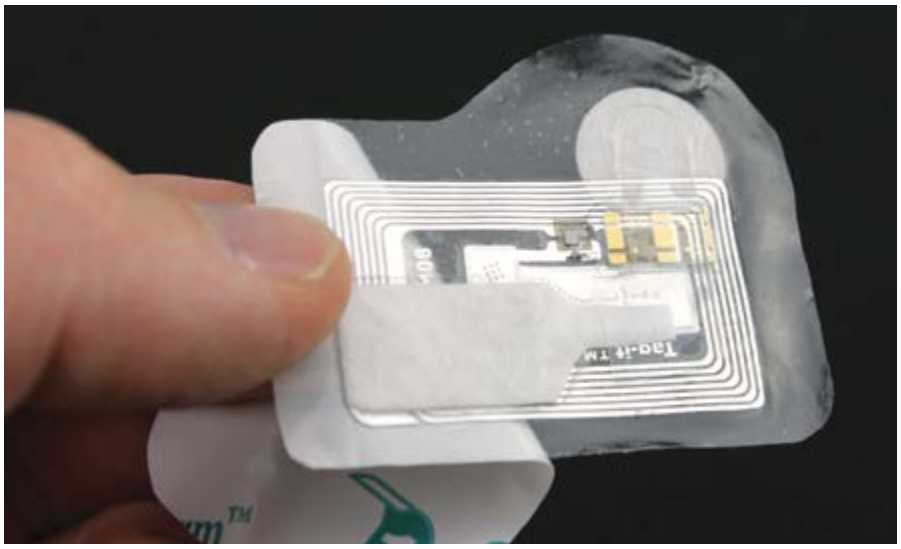
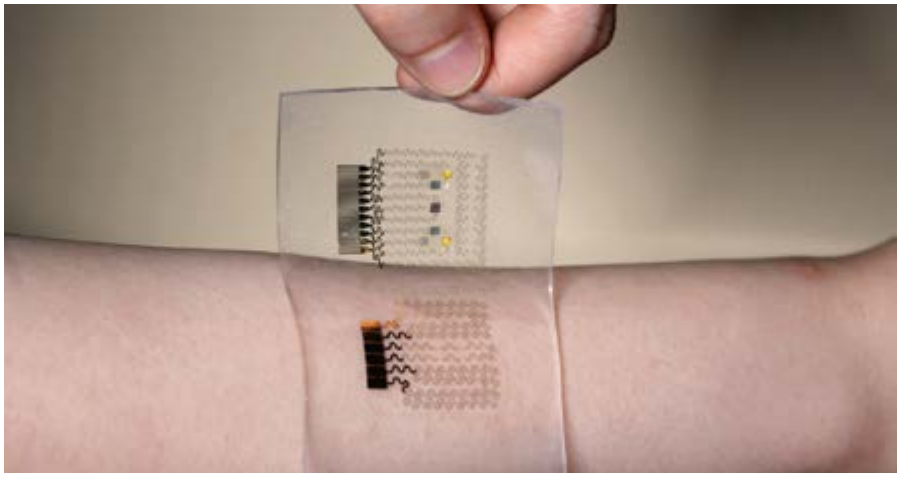


Wearable vital signs monitor

generate wealth. The key factors are a new energy source, a new communication system and a new financial system.

The first industrial revolution started in the UK in the late 1700s. It was driven by a transition from wood to coal as a higher density energy source, which led to steam-powered boats and trains, and the industrialisation of textiles and other industries. The new communication system was the widespread distribution of mass-produced newspapers and books, which improved literacy and education. The new financial system was based on Stock Exchanges, and these generated the finances required to support development.



Wearable sensor to measure glucose in sweat

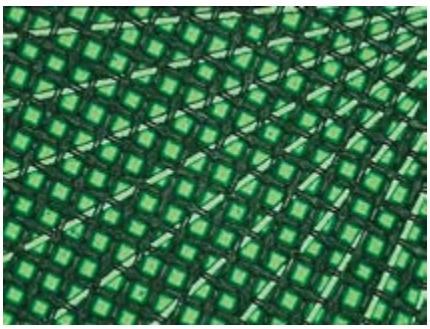
Capacitive electrode pattern printed onto film

The second industrial revolution, with roots in the US in the late 1800s, used oil and recently discovered electricity as the new power sources. Electricity also enabled the telegraph, the telephone, and eventually radio and television as new methods of long-distance communication. Limited Liability Corporations were introduced as a new way of financing investment and growth with reduced risk.

In the case of the Third Industrial Revolution, that's really now a global phenomenon, the new energy source is renewable, but predominantly solar power. The new communication system is the internet, which was developed for document sharing and emails, but rapidly advanced to video chats and more kinds of social media and business interactions than I can begin to list. The new finance system, based on convenience and easy access, is an extension of Electronic Funds Transfer (EFT), that's been energised with new mobile applications. These include smartcards, and peer-to-peer payment systems like PayPal, Google Wallet, Apple Pay and a slew of other Apps that link payment systems to bank accounts. These are usually accessed via NFC, or camera based barcode readers, or online, but in any case mainly via touchscreen-enabled devices. After centuries of bartering, then coins, and then banknotes, currency has gone digital. However, if you still prefer good old fashioned cash, then a touch screen ATM allows you to travel all around the world with instant access to your money, in local currency.

If we accept the three tenets of revolution mentioned above, then we shouldn't ignore the contribution now being made to each by the humble process of pushing some 'ink' through a mesh and stencil with a squeegee. The fact is, we wouldn't be where we are today without the cost-effective, mass-produced technology that's delivered by an old process that used to be known as silk-screen printing. ■

Ross Balfour is Global Technical and R&D Director – Chemicals



Screen printing stencil with 20-micron resolution

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A WHITER SHADE OF PALE

ESMA
Driving Print Excellence

Gabriele Heller discusses the classification of titanium dioxide

In November 2015, the French Anses – Agence nationale de sécurité sanitaire, de l'alimentation, de l'environnement et du travail – provided the European Chemicals Agency (ECHA) with a proposal for a harmonised classification of titanium dioxide as an inhalative carcinogen (Carc. 1B – H350i).

Titanium dioxide is the white pigment used in manufacturing white ink shades, but also in high opaque coloured shades. Due to the high opacity and the high degree of whiteness, there is no alternative white pigment available with similar technical properties.

On 8 June 2017, the Committee for Risk Assessment (RAC) of the European Chemicals Agency ECHA published its recommendation on the subject. It suggests a harmonised classification of titanium dioxide as Carcinogen, Category 2 ('suspected human carcinogen'), thus opposing the French proposal.

DEFENCE

The industry, however, considers any classification of titanium dioxide as carcinogen to be neither justified nor appropriate, for the following reasons:

When establishing the REACH registration dossier back in 2010, comprehensive evaluation of all available scientific data had been carried out, leading to the conclusion that titanium dioxide doesn't need to be classified as hazardous according to the criteria of the CLP regulation.

The French proposal is based on a so-called 'lung overload study' in rats. It is a known fact that exposing rats to high amounts of any kind of dusty materials causes tumours to grow in the lungs of the testing animals. Humans, however, don't react this way when exposed to inert dust.

In most of the EU member states occupational workplace exposure limits for dust have been established.

Epidemiological studies performed over several decades in about 24,000 workers at 18 production sites also showed no negative effects on the health caused by exposure to titanium dioxide.

Although the supposed carcinogenic properties of the product are related to dust inhalation, a classification as Carc. Cat, 2 will result in the same classification of all products containing TiO_2 in amounts exceeding 1%. This is also the case for liquid and paste products like printing inks, despite the fact that from such products no dust inhalation of the TiO_2 contained can occur. This problem results from the hazard-based classification requirements of CLP regulation not taking into account whether there is indeed a risk. As, however, no dust inhalation is possible from liquid and paste products, labelling of this kind of products as Carc. Cat. 2 doesn't make sense and is misleading the customers.

Titanium dioxide is a so-called 'inert dust'. As rats respond with tumour building when exposed to any kind of inert dust, it can be expected that other dusty materials, although chemically inert, will be classified the same way in the future.

OTHER CONSEQUENCES

Although a Carc. Cat. 2 classification, as opposed to a Carc. Cat. 1B, is not considered to be a substance of very high concern (SVHC) and thus will not appear on the candidate list and finally on Annex XIV of REACH regulation ('Authorisation List'), there are still other consequences to be considered:

Legal requirements resulting from this classification (labelling, documentation, plant engineering…) will have to be complied with by EU manufacturers of titanium dioxide and mixtures containing the substance, thus leading to competitive disadvantages compared to producers outside of the EU.

Printing on 'sensitive' products like toys or food contact material will no longer be possible with inks containing titanium dioxide, as the use of carcinogenic substances in manufacturing such products is not allowed – no matter of which category the substance is classified.

Customers trying to achieve a 'green' image usually exclude the use of 'critical' substances in products delivered to them. Thus it is to be expected that such customers will put pressure on their suppliers to substitute titanium dioxide in the products delivered to them.

Substitution, however, in many cases will not be possible as there is no other white pigment available providing similar technical properties (opacity, whiteness, brightness…).

Now it is up to the EU commission to decide whether it considers the proposal to be appropriate. ■

Gabriele Heller is Chairman of ESMA's Health, Safety and Environmental Protection Committee and Senior Manager Product Safety at Marabu

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DIGITAL CUTTING COMPLETES OFFSET WORKFLOW

Installing a digital cutting system to produce painting blankets and prototypes proved an economic investment for a global offset leader

Nico Valiani, Managing Director of Valiani

The presence of a digital cutting system like the Valiani Maximus V 160 cutter in KBA's demo centre may seem unusual. Yet at its Radebeul factory in Germany, where KBA produces offset machines like the Rapida 106, the Valiani Maximus V 160 has become an essential tool in its showroom.

The reason is quickly explained: to remain competitive, on medium and long runs, publishers must aim to reduce start-up and down times. After bringing the preparation of printing plates in house by using CTPs, KBA then confronted its other bottlenecks one by one. Among these was the preparation of spot painting blankets, generally entrusted to external companies.

Made from a polymer, the blankets are almost always unique pieces and require an accurate cut which will allow perfect alignment of the part to be printed. To do this, KBA had been looking for a solution that would ensure maximum precision of incision whilst being compact and easy to handle.

The Valiani Maximus V 160 was chosen for its ability to cut and crease even tapered paper and cardboard, attributes which make it an extraordinarily effective tool for producing prototypes, and up to medium production runs, of boxes.

Francesco Morelli, Valiani technician, and Davide Nenci, Sales Manager, Policrom Screens with the Valiani Maximus V 160 installed at the KBA demo centre in Radebeul

A look at the operator screen of the Maximus V, equipped with registration pin code.

OPTIONAL EXTRAS

The latest addition to the Valiani range, the Maximus V has the same build quality and precision that has been key to the success of the Italian machine builder. The work surface, completely aluminium, is available in four sizes (1.230 x 820, 1.230 x 1.630, 1.265 x 1.660, 1.230 x 2.520mm) and is ideal for small to medium-sized high quality packaging production runs, and vertical applications such as strip plates. It is also able to handle rigid materials with a maximum thickness of 5mm, such as paper, plain and corrugated cardboard, Forex, PVC and vinyl. The Maximus V has two independent tool holders, both featuring Valiani's patented, magnetic, rapid change system. The combination of fixed and angled cutting blades allows the cutter to perform incisions, cut and punch materials with the highest precision, while the nine different creasing tools (optional) further extend the range of application possibilities for printing and packaging.

INTERVIEW WITH NICO VALIANI, MANAGING DIRECTOR OF VALIANI SRL

What sparked KBA's interest in your cutting machines.

NV: The opportunity to work with KBA came about during the drupa 2016 exhibition. Various partners of ours including Ricoh, Konica Minolta and Policrom Screens had our machines on their exhibition stands. Policrom produces printing materials and plates. The KBA staff, already Policrom customers, noticed the cut quality, versatility and compactness of our systems. A few weeks later they asked if they could visit our factory to test their materials on our cutting solutions. After conducting some very thorough tests on materials supplied by Policrom they realised that the results were exactly what they were looking for. Then we started developing a Maximus V 160 of a size suitable for KBA.

So, you custom built a machine specifically for KBA?

NV: We concentrated on optimising the worktable. During the initial testing with KBA technicians we lacked a couple of centimetres of working area in respect to the size required by the German company. As with our other machines everything is designed and manufactured in-house and so we decided to design and build a larger variant of this machine. The new version measures 1,265mm x 1,660mm and we decided to make it an option available to all customers. Now clients who wish to match their offset printer with a machine for cutting painting blankets know that Valiani has a solution optimised for this specific use.

What benefits can a Valiani cutter offer an offset publisher?

NV: For an investment, far below the sum a publisher spends on hardware today, they can acquire a multifaceted solution that can dramatically reduce the time of preparing painting blankets and thereby gaining competiveness. The precision that our systems offer is exactly that required for high quality printing. But let's not forget that Valiani cutting machines are primarily designed to offer excellent results when cutting, half cutting, creasing and digital punching, typical when cutting low and medium sized boxes, folders and other types of high complexity printed material. Our machines will also add value to cutting paper, cardboard, corrugated cardboard, plastic flute board, vinyl and many other materials. Here the answer to a practical need results in a real profit. ■

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HOW A MANUAL PRESS TRANSFORMED A HOBBY INTO A HIGH-WATTAGE BUSINESS

Mark Vasilantone demonstrates how clever investment proves key to successful growth

It seems fitting that Hi Voltage Productions, Mike Ritchey's aptly named printing business, occupies a former 465square m electric power station. Everything about the print shop exudes energy, from colourful rock and roll artwork and memorabilia adorning the walls to a restored pinball machine from the sixties. But the main attraction in this eclectic warehouse is Ritchey's collection of screen-printing equipment – the heart and soul of his business and a testament to how far he has come since his days as a bicycle courier in San Francisco.

"I started out as a motorcycle messenger, and that exposed me to the colourful, fun side of life," says Ritchey. "There was a lot of tattoo, bicycle, and hot-rod culture, and everyone wanted T-shirts. The only printing shops around were big shops that didn't want to deal with a dozen of this or two-dozen of that."

Ritchey began dabbling in T-shirt printing, reading books on the topic and honing his craft with hand-me-down equipment from friends in the business. Initially, printing was "just for fun" – an outlet for his creative talents alongside his love for tinkering (he built his first press out of wooden boards attached to a work table) and building custom choppers and low riders.

After the eight-colour/eight-station upgrade to the V2000HD press multiple jobs can be run simultaneously with different size pallets

But, as his customer base began to grow, he knew it was time to take his business to the next level. Disheartened by ever-increasing rental rates, he and his wife Tracy left their small shop in San Francisco and moved to their current warehouse in Harrisburg, Pennsylvania, the birthplace of Hi Voltage Productions.

MODULAR PRESS ANSWERS CALL FOR HIGHER OUTPUT

While Ritchey retained many of his West Coast clients, his business began to expand nationally. "Our customers are everybody," he says. "Rock and roll bands, theatre groups, car clubs, bars. Everyone wants T-shirts."

In addition to running an automatic press he purchased from a friend, Ritchey used an old six-colour/four-station manual press from his days in San Francisco. Business was

Continued over

Mike Ritchey fits a shirt onto a sleeve pallet of his V2000HD eight-colour/eight-station press

Prints a single-colour image onto a sleeve tacked onto a V2-Series sleeve pallet

booming, but Ritchey's out-dated printing equipment couldn't keep up with demand and began to falter. "I used to do four dozen pieces and, suddenly, we had requests for 1,200 of this and 1,500 of that," he says. "I was running older presses that weren't very well calibrated, or expandable in any way. We'd be here until three in the morning, and there'd be a lot of swearing because one print would come out perfect and all of a sudden the registration would wander off, and the next print would be off an eighth of an inch."

On the advice of a friend, Ritchey visited Vastex's showroom in Allentown, Pennsylvania, where he purchased a six-colour/six-station V2000HD manual press. "It was incredible," he recalls. "We brought it back in a cargo van and set it up in 40 minutes." With his new Vastex press up-and-running alongside his automatic press and his older manual press, he was able to meet last-minute job requests without pulling all-nighters.

"Anything under 150 pieces we'll run on the V2000HD because it's so fast," he says. "I can be set up and printing in ten minutes, and almost finished with the job by the time the automatic's set up."

Within a year, Ritchey upgraded the V2000HD to an eight- colour/eight-station press. "I love the fact that the equipment grows with you and is truly upgradeable," he adds. "I switched the press out to an eight-by-eight in two hours, and it was easy."

Adding two more arms and pallets upped his output and allowed him to run multiple jobs simultaneously – both on the V2000HD itself, which runs two or three jobs simultaneously, as well as in conjunction with his other two screen-printing presses. "With three presses, we are bouncing around from one to another," he states. "It really helps production because I don't have to wait for a press to be available to put the next job on."

SPOT-ON REGISTRATION RENDERS REPRODUCIBLE RESULTS

While Ritchey is impressed with the V2000HD's structural soundness (he says the pallets are strong enough to sit on or use as a ladder), the high point for him is the press's registration. "It's unbelievably quick to register, and the registration is impeccable," he says. "I can register a simulated process in eight minutes, which would take me an hour on the other presses, and the registration would wander."

The six-way levelling and off-contact knobs allow him to adjust the print-heads incrementally for repeatable accuracy. "We do a lot of art prints for bands, and they want crazy graphics. If we didn't have perfect registration they would look terrible."

With the V2000HD manual press, Ritchey produces quality prints from the start. "I lock in the screens, set the registration, and the print looks awesome on the very first test run," he explains. "In the old days, we'd burn through test material, doing print after print, trying to adjust the registration and wondering why it was an eighth of an inch off."

Locking the print-head into a registration gate ready for printing

Loading garments onto the 76cm wide belt of the EconoRed II 30 infrared dryer

VERSATILE DRYERS REGULATE TEMPERATURE, BOOST PROFITS

Having upgraded his press, Ritchey soon realised that he needed a better dryer. "We had this awesome press, and we were really cranking out the work, but our 40-year-old dryer couldn't keep up," he adds.

Ritchey returned to Vastex and purchased an EconoRed II 30 infra-red conveyor dryer with a 76cm wide belt. The unit's compact size makes it easy to wheel around the crowded warehouse floor. He is also impressed with the digital PID temperature controller, which is accurate to +/-0.5 degrees C (+/-1 degrees F). "My last dryer didn't have digital technology, so the temperature would be 10 degrees C one way or 20 degrees C the other way," he notes. "We were either under-curing shirts or burning them."

The EconoRed dryer has adjustable belt-to-heater height to accommodate bulky items like hoodies, and is equipped with an exhaust system that cools the outer cabinet while evacuating moisture and fumes. Typically, Ritchey cures 150 to 200 T-shirts an hour on the EconoRed II 30 – although he has cured as many as 350 T-shirts an hour.

With the upswing in production, Ritchey still needed to 'turn up the heat', so he bought a second Vastex dryer – the DB-30. This is a compact conveyor dryer with a 76cm belt that cures up to 130 pieces an hour. "The DB-30 is the perfect secondary dryer for small shops," he acknowledges. "With just one dryer, we could only run two presses at one time, and there were plenty of times I'd have to go to my office and wait for the dryer to become available."

The second dryer paid for itself in a week and a half and has increased Ritchey's productivity by 30%. "With two dryers I can run all three presses at the same time," he says. "That's where the profits lie."

Ritchey doesn't plan to stop there. He hopes to replace his old six-colour/four-station manual press with a six-colour/six-station V2000HD in the near future, bumping up production another 15 to 20%. "Any printer will tell you when your presses are spinning you're making money," he says. "Vastex's machines took me to the next level without breaking the bank." ■

Mark Vasilantone is President of Vastex International

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A PASSION FOR SPEED AND PERFORMANCE

Bruce Ridge interviews Academy member, Rich Hoffman, CEO and Owner of M&R Sales and Service

Rich Hoffman, CEO M&R Sales and Service and Academy Member

The Academy of Screen and Digital Printing Technologies is comprised of professionals that have dedicated a large part of their career to the education, development, and innovation to the industry. This following interview is intended to help you see the contributions that Academy member Rich Hoffman has made and continues to make to the screen and digital printing industry.

BR: When you started M&R Sales and Service, did you have a mentor in the industry?
RH: Not really. What I did do was to identify a need in the industry. I had been working at Advanced Process Supply as an equipment service technician, and noticed there was a real need for service and equipment for the smaller textile printer. So M&R began as an equipment service provider and then later a machine manufacturer.

BR: Providing excellent service was and is the foundation of M&R Sales and Service?
RH: No question. When I began the business, I was a service technician traveling to textile print shops all across the country to repair and service machines. It was very apparent that the large equipment companies, Advanced and Precision were only focused on the largest of accounts.

BR: You have said that 85% of the machines you make are for textile printing. Has the split always been that way between graphics and textile equipment?
RH: That's correct. It was 75% textile and 25% graphic before digital equipment became widely available. Now our business is 85% textile screen printing and 15% graphic screen printing. I expect the ratio of sales between our textile and graphic screen printing equipment to remain fairly static in the near term because digital graphic printers are still unable to handle the wide range of textile materials that screen printing can. What is changing for M&R is our position in the digital graphic printing market due to our acquisition of Novus Imaging. Going forward, we expect digital graphic printing to account for a significant portion of equipment sales.

BR: A lot of the textile printing has gone outside of the USA. Has the equipment gone outside of the USA as well?
RH: Yes, we currently export 45% of our product and we have equipment in every country that has screen printing. Asia is a huge market place for us. Vietnam, Cambodia, and Indonesia are growing by leaps and bounds.

BR: That is interesting as it is commonly thought that we mainly import from Asia. How do you sell into these markets?
RH: That is quite easy. Number one, I need to be price competitive, which I am. I do that with automation. What I have determined is what a Chinese manufacturer does in one hour with one of his employees, I need to do in three minutes, and I need to do it better. This can be done, if you invest properly. You must invest in automation, in your people, and you must motivate your people to want to beat the competition and be the best.

BR: One of the unique things about your business is the large amount of Polish workers. How did that come about?
RH: Yes that is correct. About 70% of our engineers and 75% of our manufacturing staff are Polish. This came about because my original business partner was Polish and Chicago has the second largest concentration of Polish people outside of Poland. This is an educated work force with at least two years of university education which is mandatory in Poland.

BR: The screen printing industry really grew in the mid 1980s with automatic textile machines and then in the late 90s with UV inline machines. How do you see the screen industry developing in the next 10–15 years?
RH: I think it will continue on a growth path. We all have a tendency to look back and think things were better back then. But I don't think that is true. I am a certified auto mechanic. And among the car guys, there is a big nostalgic look at cars from the late 60s and how great they were. Car companies today make retro versions of those cars. We all think those were the greatest days for cars. And in screen printing, many people look back at those times past as the greatest times for screen printing. But quite honestly, that isn't true. The great days are today and tomorrow. When I look at screen printing today as compared to the 80s, there is substantially more printing going on today than back then. There are substantially more machines, and more ink being sold today than in the past. Today IS the heyday of screen printing, and tomorrow will continue to be.

Let me address this with a textile example. Back then, if you could get 300 pieces per hour off of your machine in an eight-hour shift, you were in the money. Since then, M&R and other manufacturers (but primarily M&R) have taken the industry standard to 550–600 pieces per hour in an eight-hour shift. And if you aren't doing that, there is something wrong.

BR: You have a great history as a professional racer, and have raced motorcycles, stock cars, drag racers, and off-road racing in Baja. How has your passion for speed and performance influenced the equipment you make?
RH: Well quite honestly some of the design of cars has crept into the design of screen printing equipment. I'll give you an example. If you go to our Amscomatic machines (shirt folding machine) you will find a serpentine belt and an idler pulley identical to what you would find on any current car today. One belt drives everything.

Other applications like forged steel castings. We have used that same technology in our machines primarily to get the same type of durability we expect in today's cars. This provides our machines with key components that have lifetime durability in them.

BR: What about the speed?
RH: The competitiveness and the timing of racing holds true here at M&R. When I am racing a vehicle off road, many times that race is won by a matter of seconds. There are 1,000-mile races that have been won by a matter of seconds. I did this type of racing professionally for 11 years. I preferred off-road racing in Baja where just finishing the race was an accomplishment. Winning the race is extreme. That is what I like about it the most.

The team work aspect of racing is a big part of running a business. The camaraderie is amazing. We currently have 53 field technicians that travel throughout the world to service our equipment. Every four or five years we take the technicians out to the desert to set up a driving experience to build that same type of team camaraderie with our technicians.

BR: I am very impressed with the M&R website. I know you spend time on the forums. How does that help you better manage the business at M&R?
RH: On the website, the technology that is available is second to none. That is where markets are going. We have gone paperless at M&R in the last few years thanks to the efforts of my wife. We have sales central, service central, parts.mrprint.com, and the mrprint.com website. All of those are enlightening to everyone internally at the company. We can do things today that were only dreamed of 10 years ago.

Currently all of our sales people carry an iPad. There is an MRprint app. If they get on the app they can access 30 years of company data. The customers, the machines they have, service reports, history, comments and any notes ever made.

BR: What type of resources does it take to maintain that type of website or app?
RH: We have our own MIS department and Advertising department. We have four people that work just on the website. Our new website was developed and built by our in-house team and we're working to continuously add new features for our customers and dealers.

BR: You obviously keep in touch with the website daily as I know you participate in the forums in somewhat of an anonymous manner. How has this helped you to keep in touch with your customers?
RH: Most of the forums have a tremendous amount of small printers on them looking for solutions to their problems. They may have very basic questions. This gives you an opportunity to plant the seed of knowledge in the small printer. If you do not help the small company grow, you will not grow as a company.

My being on these forums is to help the printers. I am not there to sell our product, or bash competitors. The goal is to provide education and help the printer.

M&R continues to provide training. Most business owners say they do not have the time to train their people. We have three full trainers on staff, and one person that does just equipment maintenance training. Since 1988 we have had a class here in Chicago that is presented four times a year on how to maintain and repair their M&R equipment. This covers both textile and graphic machines. This class is full each time. Training for free.

BR: It is my perception that many graphic screen printers do not maintain their equipment. Do you have the same perception?
RH: We have the same perception. We frequently see printing facilities where the equipment that is making them money is covered with lint or dirt, has not been greased or oiled, nor have any replacement parts that result in a slower running machine.

One way we have changed this is that in 2015, we programmed preventative maintenance reminders into all of our textile presses that show up as alerts on the operator's panel. These reminders to change oil, grease bearings, etc. will come up on the screen when maintenance is required and will need to be dismissed in order to continue printing.

BR: M&R is still a huge presence at industry trade shows. How do you see trade shows changing for your business?
RH: One of the things that is a negative of the industry is the proliferation of trade shows. There used to be four to six trade shows a year in the USA for example. You would attract people to the show by offering a show special. So attendees would have a reward to attend and buy at the show. Today there are so many shows, I don't know what 'special' is from what show. We currently do 18 shows a year which includes shows outside the USA. The shows now overlap and we are in a situation where we need to hold back sending the latest equipment to one show because it is at another show. This isn't just overwhelming for us as exhibitors, but it is also for attendees who cannot afford to go to more than one show a year anyway.

BR: What are some of your favourite printing-related websites you like to visit?
RH: I do go to a lot of forums; theshirtboard.com is [a] non-biased group that started their website at the same time as I started forums.mrprint.com. I support them and they have grown tremendously. M&R participates on the t-shirtforum.com. I like the Digismith forum.

Occasionally I get in a conversation and ask for their phone number to save time typing out an answer. So I call them. And they are usually surprised to hear the CEO is calling them with technical advice. You can be the smallest start-up printer or the largest company and we are going to treat you the same. This type of contact lets them know the commitment we have to printers and this industry. ■

This interview was conducted by Bruce Ridge, Director of Technical Service, Nazdar Ink Technologies. Bruce has been a member of the Academy of Screen and Digital Technologies since 2004. Updated from an article originally printed in the SGIA Journal *and reprinted with permission, this is the first in a series of interviews of Academy members intended to acknowledge the work members have done to further the development of our industry.*

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SIGN OF THE TIMES

Ford Bowers examines current trends and conditions in the sign and graphics segment

Ford Bowers, President & CEO of SGIA

SGIA recently finished tabulating the findings of its 2017 Specialty Graphic Industry Survey. The survey was conducted during spring of this year, and 189 US sign and graphics producers participated in the survey. The findings present a unique view of the thoughts, concerns and decisions of today's graphics professionals. While the full findings of the survey will be posted on SGIA.org, the purpose of this short article is to address a few high points of our findings, and to provide a bit of insight.

The rise of digital technology has been profound in the sign and graphics segment, as evidenced by the 83% of companies that classify themselves as either entirely digital or primarily digital. While there is still much analogue printing done within the segment, analogue-only operations – for instance, those using only screen printing – have become rare indeed. In fact, this year's survey showed 0% of companies self-identified as analogue only. Technologies and processes used by more than 20% of our respondents are dye-sublimation, dry toner, custom or commercial-printing-focused inkjet solutions and screen printing.

The purchase of equipment – often an indication that companies have either cash on hand or certainty of a favorable pipeline of work – has been strong in the sign and graphics segment. In the last year, nearly 50% of companies made a production equipment purchase of between $50,000 and $500,000. While the most purchased item was software (RIP, colour management, production management), the most-purchased types of digital presses were roll-to-roll latex ink-based printers (purchased last year by nearly 11% of companies), UV-curable hybrid systems and UV flatbeds. Four percent of companies purchased graphic/industrial screen printing presses. The most purchased finishing technology was cutting/trimming/routing/die-cutting equipment.

ADDING VALUE

While printing for retail applications has been, and will continue to be, a strong vertical market for the segment, recent SGIA reports have shown a softening of the retail vertical and a strengthening of the corporate branding vertical. The causes of this change may be two-fold. The first is that brick-and-mortar retail is not the robust opportunity it once was. In the US, amid rising consumer use of online shopping, some retailers are closing stores and minimising their locations. This results in smaller ad buys across many channels, including ours. Non-retail entities are increasingly using display graphics and printing to convey their corporate messages or build name recognition, and our segment is a direct beneficiary of this change.

While there is much diversity in the types of end products this segment produces, the top three product areas are banners/soft signage/flags, window graphics, and retail graphics/POP. Banners and soft signage increased significantly in the past year, which may reflect the strong increase in companies using dye-sublimation technology for soft signage and other fabric-based applications. Of the 15 product areas included in our survey, 13 of them are served by more than 50% of companies, which indicates an ongoing amount of saturation.

Median 2016 sales growth for US sign and graphics companies was 8%, and 69% of companies reported positive growth. 68% reported increased sales; 72% reported increased production; and, 41% reported hiring additional staff. The price for products sold remained mostly firm, but did demonstrate a slight shift toward increase. Industry confidence was strong, with more than 63% viewing it as positive. Confidence in the US economy was somewhat less positive, at 48%.

CONTROLLING WORKFORCE AND COSTS

The challenges facing today's sign and graphics industry include downward pressure on prices and finding new customers. Of concern to many companies is the challenge of recruiting and keeping qualified employees. The US labour force is near 'peak employment,' and the job market in many areas has become quite competitive. On the production side, a continued move toward automation and simplified technology interface has resulted in a segment that is less of a craft and more a manufacturing process among many. Career production jobs – the classic job of 'pressman' comes to mind in this example – are fewer, and the workforce of many companies in the segment demonstrates this change.

To bolster their businesses in production, more than half of companies are working to reduce operating costs, institute lean manufacturing strategies and add new product lines. Controlling costs and increasing efficiency are essential to turning a profit in this competitive industry. To strengthen their management and sales efforts, more than 60% are increasing Internet presence, developing new markets and improving their customer service efforts.

In the many hours I've invested in conversation with imaging business owners, I've learned that those who can keep of firm hold in the present, while maintaining a keen eye toward the future – be it markets, technology, business conditions or other factors – are those who operate at or near the top. New players are entering the sign and graphics segment, bringing increased competition, a re-blurring of the lines between print disciplines and communities, and technology/opportunity-driven industry convergence. ■

Ford Bowers is President & CEO of SGIA

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JAPAN - USA - CHINA - SINGAPORE - KOREA - TAIWAN - EUROPE

Sun Chemical partners with KBA-MetalPrint

Focusing predominantly on the three-piece can market, the partnership will see Sun Chemical provide KBA-MetalPrint with its Daicure 5LM UV ink series and SunTrio Daimetal and Toba series, along with with the MetalStar 3 and Mailänder 280 metal decorating press starter kits.

Sun Chemical will also be on hand to deliver technical support and advice to KBA-MetalPrint customers, and the companies will work together to optimise customer installations from both the technical and application related sides of the business.

Combining the specialist knowledge and expertise of both companies will aid the development of printing inks for the metal decorating industry, while Sun Chemical will be able to help drive such developments forward with the backing of a global systems provider to the metal packaging industry.

The partnership also encompasses marketing activity, including upcoming trade fairs and customer events.

"We believe that the partnership with KBA-MetalPrint is a great opportunity to benefit from mutual support and to work on joint R&D projects that will result in making the metal packaging industry more competitive and efficient," commented Iñaki Llona, Global Champion Metal Deco Inks. "Both companies have a shared view of updating the technology for printing on metal in line with advances in other market segments, and both have parallel experiences that can be adapted for our industry." ■

East Coast Sales Manager Rick Christian

Easiway Systems welcomes Rick Christian

Rick Christian has been appointed East Coast Regional Sales Manager at Easiway Systems. In this role, Mr Christian's responsibilities will be to manage and grow Easiway's customer base in the Eastern Region of the United States.

For the past 14 years, Mr Christian served as NorCote's East Coast Sales Manager. Prior to that he worked in sales for major East Coast screen printing distributors. His credentials include a Masters Degree in International Business, as well as his broad understanding of screen product distribution.

"Rick's work ethic, experience and industry knowledge make him a great addition to the Easiway Sales Team," commented John Schluter, President of Easiway Systems. ■

Vastex introduces LittleRed X3-D infrared dryer

The new multi-purpose LittleRed X3-D infrared dryer from Vastex International is capable of curing direct-to-garment (DTG) printed textiles as well as plastisol, water-based and discharge-printed garments at higher rates than possible with conventional dryer designs, according to Mark Vasilantone, President of the company.

The 76cm model features a high-powered pre-heating zone that sends ink temperatures past 150 degrees C within the first several centimetres of conveyor travel. Rapid preheating maximises the distance and time over which the ink is accurately maintained at its optimum curing temperature, allowing increased conveyor belt speeds and dryer output.

"By dramatically reducing pre-heat time, the X3-D exposes printed garments to efficient at-cure temperatures through approximately 90% of the 10cm long heating chamber," says Mr. Vasilantone.

The dryer's three 61cm wide heaters (8300W @ 240V total wattage) are digitally-controlled and height-adjustable to maximise curing efficiency as garments are conveyed through the drying chamber, providing the precision-thermal-profiling needed to match curing conditions to the drying characteristics of each ink type, particularly difficult-to-cure inkjet-printed white ink.

As a result, it can cure over 360+ plastisol-printed garments/h, 100+ water-based or discharge-printed garments/h, and at four-minute dwell time, 38+ garments/h inkjet printed with digital white ink.

The dryer is configured with a 224cm long x 76cm wide conveyor belt and 104cm long heating chamber, and features a 10.8cm targeted exhaust system as standard to rapidly remove moisture and air contaminates from the heating chamber, as well as cool the skin and controls.

The conveyor belt is continuously centred by a roller belt tracking system, and is driven at precisely controlled speeds to vary dwell time in single-chamber units from 30 seconds to four minutes, and up to eight minutes in dual chamber models, which are particularly suited for Kornit DTG printers and high capacity screen printers.

LittleRed X3-D models with 137cm wide conveyor belts will be introduced in the autumn of 2017. ■

The 76cm LittleRed X3-D is the latest addition to the LittleRed dryer line

Marabu develops Digital Cold Peel

Using a 'cold peel' concept for digital textile transfer printing, Marabu's new Texa Jet DX-DTE ink system replaces the process and multicolour print in traditional textile transfer applications.

The pigmented resin digital printing ink combines the advantages of traditional and digital transfer printing in a single application so that in the CMYK procedure, the motive is digitally printed onto a special coated foil – without any complex pre-press steps. Only the white barrier layer or the application of adhesives are performed in screen printing. The final patches are then transferred with a heat press. As the patch layer is thin, soft handling is possible to enhance the wearing comfort of the printed T-shirts.

The products are printed on a Mutoh ValueJet 628 digital printer, enabling small or intermediate orders to be prepared cost-effectively. Additional advantages include wash resistance and the highly resolved designs in shining colours. The new ink system can be combined with all conventional screen printing transfer inks.

A beginner's packet contains printer, software, ink, and foil and can be ordered from Mutoh branches. ■

A thin patch layer makes for more comfortable printed T-shirts

The products are printed on a Mutoh ValueJet 628 for extra economy

Gallus gears up for Labelexpo 2017

Under the banner "Gallus Screeny – easy to use, fast to print", the supplier will demonstrate that rotary screen printing speed no longer needs to be a limiting factor in label printing. By selecting the right system components, the company will show how users can significantly accelerate screen/flexographic combination printing without having to trade this off against quality. A Gallus Labelmaster equipped with Gallus Screeny speedprinting components will endeavour to prove this by producing labels at speeds aimed at setting new benchmarks.

Gallus' screen printing department will also be teaming up with Heidelberg to showcase the new Phoenix UV LED direct platesetter with a versatile exposure system that allows high-quality printing formes to be produced for screen, flexo, offset and letterpress printing. For Screeny customers the device represents a key element in process-oriented screen manufacturing. ■

Zünd advances with Design Centre 3.1

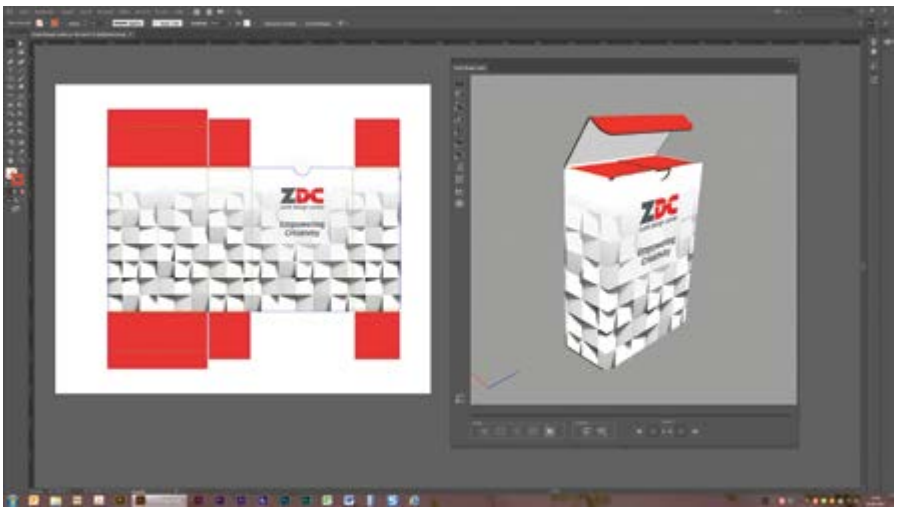
Version 3.1 of Zünd's Design Centre ZDC Illustrator Plug-in features visual and technological improvements that make the program even more comprehensive and easy to use.

The updated ZDC user interface has new icons to make working with the program more efficient and help keep the toolbar tidy. The upgrades will also facilitate finding functions that may only be used sporadically.

ZDC lets the user create packaging and displays with just a few clicks. The program is built around a library of parametric design templates that can be changed and scaled as needed. Until this latest release, templates were available for folding carton and corrugated, PVC, PP, and foam board. Version 3.1 now also offers templates for MDF. Another addition is the ability to import an unlimited number of objects in .obj format, inserting them in a newly created design and viewing it in 3D preview.

Zünd has also simplified automatic file retrieval, allowing QR-codes to be created in a separate layer. All the user has to do is enter the name of the job and the desired position, and ZDC will automatically generate the corresponding QR-code. In addition, the user now has the option to save designs as favourites, providing a shortcut to commonly used designs.

ZDC 3.1 is available as upgrade immediately and at no additional cost to existing users. ■



ZDC 3.1 allows the user to create packaging and displays with just a few clicks

Top Value Fabrics acquires Pacific Coast Fabrics

The acquisition expands Top Value Fabrics (TVF)'s product offerings and strengthens its West Coast distribution network for printable textiles.

"We are delighted to welcome Pacific Coast Fabrics to the TVF team," said Chris Fredericks, President of Top Value Fabrics. "While integration planning is underway and to make this easy for our customers, both companies will operate with business as usual through the transition. As of November 1, 2017, we will unite and operate as one Top Value Fabrics."

Pacific Coast Fabrics was established in 1995 in Gardena, California by Cal-Pacific Dyeing & Finishing Corporation executives Brian Vieweg and Michael Sanders who formed a new company to supply high quality textile goods.

"It's rewarding to have built our company, and to have this incredible opportunity to keep doing all we do for our customers along with the support and resources of a stronger, combined company with TVF," said Mr Vieweg, Vice President. "We're excited for our team to join together with TVF's team as we deliver even more options for our customers and even greater innovation for the industry."

TVF is headquartered in Carmel, Indiana, and opened its West Coast Sales and Distribution Centre in Carson, California in 1987. Combined, the companies contract manufacture and source fabrics and media worldwide, both domestically and in international locations from Asia to Europe.

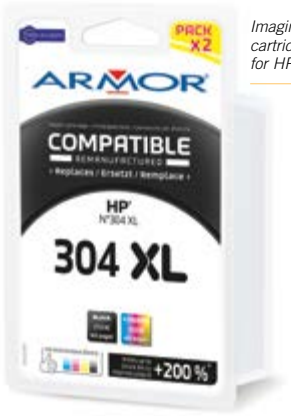
"TVF enjoys a strong partnership with Aurich Textiles, and our customers appreciate the platform the Aurich products provide," explained Jeff Nonte, Print Media Director for Top Value Fabrics. "We also recognise the benefit for customers in adding PCF's line of Georg + Otto Friedrich Textiles through their own strong partnership, so we have made the strategic decision to continue offering both lines. Bringing these textiles together with our additional lines of fabrics, vinyl and mesh offers printers an unprecedented selection of media options that help them achieve exceptional print quality," he concluded. ■

Armor remanufactures ink for HP and Brother

Launched in June 2017, Armor's new HP 304 XL black cartridges are compatible with the all-in-one Inkjet models, the HP Deskjet 3720, 3730 and 3732. The range is available in cartons, blisters and bi-packs (Black + 3 Colours). The remanufactured cartridges are designed to offer long-life print quality at reduced cost thanks to the pigment ink which provides greater resistance to light and to humidity during printing.

Principally aimed at SMEs and microbusinesses, Armor's remanufactured Brother LC 223 cartridges can also be used with a wide range of other BROTHER printers: DCP J 4120 DW, J 562 DW, MFC-J 1100 Series, 1140 W, 1150 DW, 1170 DW, 1180 DWT, 4420 DW, 4425 DW, 4620 DW, 4625 DW, 480 DW, 5320 DW, 5600 Series, 5620 DW, 5625 DW, 5720 DW, 680 DW, 880 DW.

Armor cartridges for the LC 223 series include ink level control and are available separately (Black, Cyan, Magenta or Yellow) and in multipacks (Black + Colours). ■



Imagink cartridge for HP

Imagink cartridge for Brother

Riso completes development of Goccopro QS2536

The worldwide product launch of Goccopro QS2536, the top-end model in Riso's Goccopro series of digital screen makers, was scheduled for September 1, 2017.

Utilising Riso's Dry Thermal Screen Making System which uses no water or chemicals, the Goccopro QS2536 adopts a newly developed line thermal head with high perforation density of 1,200dpi. Screen making temperature and time are controlled according to each original, delicately expressing the gradation of originals such as photos and ensuring high consistency in solid colors.

The Goccopro QS2536 can be used in combination with an increasing range of Riso Digital Screen Masters. The mesh can be chosen according to application as well as for a wide range of materials, including cloth, plastic, glass and metal, enabling highly precise screen making and beautifully detailed printing.

The Goccopro QS2536 has the largest screen size of the Goccopro series, handling large-sized standard 25" x 36" frames that can be installed on automatic T-shirt printers.

Riso is aiming to expand the market for its device, targeting demand for printing in the garment industry, mainly in the United States, as well as demand for marking (name-printing), primarily in Japan and Europe. ■

Goccopro QS2536 is a high-precision, high-resolution digital screen maker supporting large-sized frames (25" x 36")

Dynamesh rebranded as NBC Meshtec Americas

To reflect integration with its parent company after 27 years of doing business, Dynamesh Inc, a US subsidiary of Japan's NBC Meshtec Inc, has changed its name to NBC Meshtec Americas Inc. The rebranding was officialised on 30 June 2017.

Concurrent with this change, Mitsuhiro Shinoda of NBC Japan has taken over as President of NBC Meshtec Americas, inheriting the role that Shinya Yamasaki, the existing president, filled for over five years.

Dynamesh Inc. was established in 1990 as the sole US distributor of NBC mesh, and became a wholly-owned subsidiary of NBC Meshtec Inc. in 2001. Although the Dynamesh brand is well established and recognised within the US screen printing industry as the sole distributor of NBC mesh, in other markets such as the filtration mesh and moulded filter industry, or in the international screen printing arena, the NBC Meshtec brand is more well known. It is hoped that this rebranding will help establish a unified corporate identity for these two international companies and increase the brand awareness of NBC Meshtec products within the United States.

Mr Yamasaki will return to Japan to reassume his previous position as Sales Manager of the NBC Meshtec Inc. Screen Printing Applications Department. He told Dynamesh's customers: "I would like to take this opportunity to express my sincere appreciation for your generous support, kindness and the courtesy you have extended to me and Dynamesh."

Expressing his confidence in Mr. Shinoda, who previously worked in the R&D and Screen Printing Laboratory of NBC Japan, before being promoted to the Screen Printing Applications Sales Department, Mr Yamasaki said: "I am very confident that he will work hard with our talented employees, and that our customers will continue to be delighted by our top-quality products and dedicated service." ■

Dynamesh Inc, a US subsidiary of Japan's NBC Meshtec Inc, has changed its name to NBC Meshtec Americas Inc.

Kiian Digital's Digitar Hi-Pro ink gains eco passport

Having been awarded Eco Passport certification, which tests for contaminants, impurities and restricted substances, Kiian Digital's Digitar Hi-Pro sublimation transfer ink can be used in the production of sustainable textiles and those required to achieve Standard 100 by Oeko-Tex.

"Kiian Digital, once again, demonstrates the dedication to develop its product portfolio with respect for the environment," stated Marco Girola, Marketing Specialist at JK Group – which includes Kian Digital. "The Eco Passport enables customers to meet the criteria of sustainable textile production, he added."

"This is a differential for those who choose the Kiian Digital brand," explained Alessandra Borghi, Kiian Digital's Sales Director. "The certifications also increase the chances for printers to become partners for the leading brands who are asking – as integral part of their supply agreement – the compliance credentials of products used in their processes minimising health and environmental risks."

Digistar Hi-Pro's certification number is: 17EP00002.

Kiian Digital product portfolio is tested for: Nike RSL (Restricted Substance List); Adidas A01 (Restricted Substance List); Clear To Wear (Restricted Substance List); and Eco Passport. ■

Folex brings out instant-drying gloss vinyl

SIVN, a permanent self-adhesive vinyl with a glossy nanoporous coating surface is Folex's answer to lack of water resistance commonly found with glossy vinyl adhesive grades for water-based inks.

The glossy surface of Folex's new vinyl offers a photo quality, shiny effect and due to its nano coating, absorbs the water-based inks directly into the coating layer. Nano technology also gives the printed image a high level of water resistance, making it suitable for signage, labels POS and POP.

The vinyl's ink-receptive coating is suitable for water-based pigment and dye inks and its highly absorbent coating structure allows instant drying performance, enabling the film to be printed roll to roll. Post lamination is not required for a glossy finish.

SIVN is offered in a PVC face film thickness version of 0.130 mm with a permanent acrylic adhesive and paper release liner. The new vinyl is available in 430mm, 610mm, 914mm, 1067mm, 1270mm, 1370mm and 1520mm widths in 20m lengths. ■

Textile Printing Now conference date confirmed

FESPA UK Association has announced that the 2017 Textile Printing Now conference will take place at The Textile Centre of Excellence in Huddersfield on 21 November.

The conference will examine the full range of textile printing, coating and surface modification techniques – both analogue and digital – and will introduce concepts that delegates may not have previously considered, to inspire them into business-improving initiatives.

Supported by FESPA, the conference represents part of its Profit-for-Purpose programme, in which profits are re-invested into supporting the print community.

"The Conference is intended as a spectacular celebration of textile printing and will point the way towards a very bright future for this vibrant sector," said Peter Kiddell, Director at FESPA UK. ■

Imagink quadruples capacity with Durst Rho P10 200

End-to-end marketing communications solutions provider Imagink purchased a Durst Rho P10 200 6c + W inkjet printer as part of a £325,000 investment to refresh its customer-centric approach.

Last November the company launched an online ordering service for clients. "Using their PCs or their mobile phones they can order point of sale, no matter where they are, for next day delivery," explained Managing Director Mike Saunders. The new service the company to compete on costs but not on time, he continued, and required a hardware investment to address the problem.

Imagink tested the Durst Rho P10 200 6c + W at Durst's Austrian headquarters prior to installation. Now in situ, the printer has already made an impact at the company. "We have a regular job that took three-and-a-half days on two systems and the Durst completed it in one shift. It has quadrupled our capacity," recounted Mr Saunders. "Now we can do everything on a single shift which has made savings on our overtime wage. Our wage expenditure is down between 10% and 15% and we have taken on two additional sales staff.

"I was surprised at its ease of use and the quick set up times," he continued. 'We can now offer the faster turnaround times our competitors offer. It is difficult to put a figure on return on investment but it has positively impacted our speed, quality and the range of sizes we can offer. We can now print from business cards to a size of 2m x 4m (if available in the size), in one piece and up to 10mm in thickness."

"We had three roll-fed solutions with white ink and the Durst was our only flatbed solution offering the white ink so we have been picking up additional work due to quality on the white opaqueness," revealed Mr Saunders. "It has been a good asset to have." ■

Durst's RhoP10-200 has impressed Imagink

New headquarters for GIS

Following a decade of expansion, GIS has moved to larger premises at Edinburgh House within St John's Innovation Park, doubling capacity to 10,000 sq. ft.

Founded in 2006, GIS now employs over 50 people. The company started with one office at St John's Innovation Centre, occupying additional offices as it grew, and then relocated to The Jeffrey's Building following global expansion in 2012. The new premises will enable further innovation in software, electronics and machine control services for inkjet system builders and OEM integrators.

GIS' new address is: GIS – Global Inkjet Systems Ltd, Edinburgh House, St John's Innovation Park, Cowley Road, Cambridge CB4 0DS. The company's telephone number and email addresses remain the same.

"We now have the space to recruit more staff, run more projects in parallel, expand production, and improve training facilities," said Nick Geddes, Managing Director. "The teams are enjoying the new space – it's an exciting milestone for the company as we continue to grow."

The company has also taken the opportunity to update its logo with a more modern look and feel to create a stronger brand and identity.

Later this year, GIS will launch a family of products on a new high-speed, lower cost platform. ■

The GIS team celebrate their expanded facilities at Edinburgh House

GLASSPRINT 2017 – ADVANCED SOLUTIONS FOR GLASS DECORATION

As Europe's only dedicated event for glass decoration, the seventh GlassPrint conference and exhibition returns to Düsseldorf, Germany on 29–30 November 2017.

With early bird delegate registrations reaching record levels, the organisers anticipate the largest GlassPrint event yet this November. Glassmakers, decorators, end users and brand owners considering attending are recommended to book their places as soon as possible due to limited space at the hotel venue. GlassPrint 2017 follows the 2015 event, which was recognised as an outstanding success by over 200 attendees from Europe, North America, Asia and the Middle East.

Jointly organised by the publishers of *Specialist Printing Worldwide* and ESMA, GlassPrint 2017 will take place immediately after the Direct Container Print conference at the easily accessible Radisson Blu Scandinavia Hotel in Düsseldorf. The two-day programme will offer a series of technical conference presentations and networking opportunities to discover the latest advanced technologies for printing onto all types of glass.

In addition to technical content, keynote addresses will be delivered by industry figureheads representing major European flat and hollow glass trade associations, including FEVE, Glass for Europe and BV Glas.

TECHNICAL PROGRAMME

Technical papers covering the latest digital and screen technologies will include:

- '3D-Printing of glass now possible' (KIT - Karlsruhe Institute of Technology).
- 'Digital printing opens a new way of marketing glass bottles' (Curvink/TILL).
- 'Flat and hollow glass screen printing market: Key industry trends, technologies and geographic markets etc' (Smithers Pira).
- 'How to verify compliance to food contact and REACH regulations' (Stazione Sperimentale del Vetro/SSV).
- 'Digital glass gilding technology for decoration' (Heraeus).
- 'Achieving perfect results printing directly on bottles with a scalable and easy-to-use industrial systems for screen printing' (Gallus).
- 'Decoration of architectural glass using inkjet printing' (Tiger Coatings).
- 'How to benefit from Cloud Computing and Industry 4.0 as a glass printer' (KBA Kammann).
- 'Screen printing – The importance of a perfect screen' (Grunig/SignTronic).
- 'The value of glass decoration' (FERRO).
- 'Screen printing of hollow and flat glass: Latest developments, advantages of organic inks, effects for the beverage industry' (Marabu).
- Atmospheric pressure plasma for patterned inkjet printing and coating on glass' (University of Applied Sciences Western Switzerland).
- 'Ink development which can be tempered up to 1000°C…. compared with other ceramic inks can be printed with a resolution of 1440 dpi' (Ormo Print).
- 'Novel transparent inks for highly efficient light diffuser glass devices' (EPTAINKS in co-operation with Saint-Gobain).
- Is the glass world still a "glass decorated world"… or is it more? Glass is a high-tech functional part of the process' (SAATI).

Exhibitors will cover the latest developments in inks, pre-press technology, printing equipment and supplies

Visit the website for the latest conference schedule and programme.

Following its introduction in 2015, a specially selected panel of glass decoration experts will join together again for the GlassPrint LIVE open forum session. Answering topical questions from the audience, previous panellists have included senior personnel from Bormioli Luigi, O-I, Nestlé, SAHM and SCHOTT.

EXHIBITION

The conference programme will be supported by intervals dedicated to the accompanying tabletop exhibition area and at the end of the first day, delegates will benefit from networking with their peers and suppliers during an evening dinner.

GlassPrint 2015 attracted a record audience of approximately 200 international glassmakers, glass decorators, end-users, brand owners and leading suppliers

Exhibitors displaying the latest developments in inks, pre-press technology, printing equipment and supplies will include ColorGATE, EPTAINKS, ESC Europa-Siebdruckmaschinen-Centrum, Fermac, FERRO, Gallus, Glass Global, Global Inkjet Systems, Grünig-Interscreen, Heraeus, ISIMAT, KBA KAMMANN, KIWO – Kissel + Wolf, Lüscher Technologies, Marabu, Messe Düsseldorf/glasstec 2018, Mimaki, Ormo Print/Munich University of Applied Sciences, Peyer Graphic, Pröll, RK Siebdrucktechnik, RUCO Druckfarben, SAATI, Sefar, SignTronic, Sun Chemical, Tecno5, TIGER Coatings, University of Applied Sciences Western Switzerland and uviterno.

REGISTRATION

An online delegate registration fee of only €595 includes full access to the conference programme, GlassPrint LIVE session and tabletop exhibition, as well as lunches and networking dinner. In recognition of its importance on the global glass event calendar, GlassPrint is powered by glasstec and sponsored by glassglobal.com, Deutsche Glastechnische Gesellschaft (DGG), SGCDpro and the SGIA. ■

Further information:
Chameleon Business Media Ltd, Forest Row, UK
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email: sales@glassworldwide.co.uk
web: www.glassprint.org

INPRINT 2017

The exhibition for Industrial Print Technology, InPrint 2017 will take place from 14–16 November 2017 in Hall A6 of the Munich Trade Fair Centre in Germany.

As of July, a total of 118 exhibitors from 17 countries had already confirmed their participation at the trade fair. The main theme of this year's event is 'Creating value with individualised products', to reflect the trend towards adding value to products by means of individualisation.

Speciality, screen, digital and inkjet print are the four key areas of InPrint, which will showcase the latest applications and equipment for industrial printing on metal, plastics, textile, glass, ceramics, wood and other surfaces.

A total of 4,724 trade visitors from 65 countries travelled to Munich for InPrint 2015

INTEGRATING PRINTING SOLUTIONS

"The customer demand for individualised products at attractive prices is growing continuously," says Nicola Hamann, Managing Director at the organisers of InPrint, Mack Brooks Exhibitions. "Manufacturers and finishers of items such as drinks bottles, cosmetics, packaging and clothing as well as flooring, wall cladding and interior decoration are increasingly investing in the integration of industrial printing into their manufacturing processes.

"However, a lot of companies are lacking practical approaches in industrial print, the printing on different materials and finishing processes," adds Ms Hamann. "This is where InPrint is positioned as a specialised trade exhibition, since the show is offering its visitors the unique opportunity to get insights into possible applications of industrial print and have the option to exchange knowledge and solutions with other industry experts. Companies considering the integration of a printing process into their manufacturing system or needing practical solutions for integrated printing processes can discover methods, ideas and partners for the implementation of industrial printing technologies at InPrint 2017."

VISITOR INFORMATION

The InPrint visitor brochure has recently been published in English and German and can now be requested via the show website. 'InPrint News', the bilingual online newsletter is published monthly in the run up to the show and includes recent news about the exhibition and the industry. The newsletter can be requested free of charge via the website.

InPrint 2017 takes place in Hall A6 of the Munich Trade Fair Centre in Germany. The exhibition centre is easily accessible via Munich's public transport system. For the duration of the exhibition, regular shuttle buses will run between Munich Airport and the show grounds. Admission for visitors will

be via the Entrance East. InPrint 2017 is again co-located with productronica, the world's leading exhibition for electronics development and production.

From 14–16 November 2017, InPrint is open from 9.00 to 17:00. Ticket pre-sale starts from September via the online ticket shop – tickets are available online at favourable prices. Alternatively, tickets can be purchased on-site during all three exhibition days.

EXHIBITORS

The range of exhibits companies are presenting at InPrint 2017 includes printing machinery and systems, components and special parts, print-head technology, drying and curing equipment/UV technology, screen, digital and speciality printing inks, primers and liquid coatings as well as software solutions.

Companies exhibiting at this year's show include: Agfa Graphics, ARMOR Industrial Inks, CALDERA, CEFLA, ColorGATE, DPS Innovations, MACHINES DUBUIT, EFI, EPTANOVA, ESC, Fujifilm, GEW, Global Inkjet Systems, Grünig, Dr. Hönle AG, Heidelberger Druckmaschinen, Heraeus Noblelight, HP Specialty Printing Systems, Hymmen, Impression Technology, Inca, InkTec, INX Digital, Lüscher Technologies, Marabu, Mimaki, Nazdar, Norcote, Omso, Phoseon, Pröll, RUCO, SEIKO, Sensient, SignTronic, *Specialist Printing Worldwide,* SPS, Sun Chemical – SunJet, TECHNIGRAF, THIEME, TIGER Coatings, uviterno, WIFAG-Polytype Technologies and Xaar.

Exhibitors participating at InPrint 2017 for the first time are, amongst others: DECOSYSTEM from Italy, Graph-Tech from Switzerland, HP Specialty Printing Systems from Germany, Sandvik Process Systems from Sweden and Van Dam Machine Europe from the Netherlands. A regularly updated exhibitor list is also accessible via the show website. ■

InPrint offers visitors insights into possible applications of industrial print

A regularly updated exhibitor list is available on the InPrint website

DATES AND VENUE CONFIRMED FOR INPRINT ITALY 2018

InPrint Italy 2018 will take place in the South Hall of the MiCo Milano Congressi exhibition centre in Milan from 20 to 22 November 2018.

Fujifilm, Kyocera, Mimaki, Ricoh, Staedtler and Xaar have already confirmed their participation.

Commenting on the launch of InPrint Italy 2018, Exhibition Director Olivia Griscelli said: "We received very positive feedback from the first InPrint Italy show in Milan, so we are pleased to be returning next year."

Further information:
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email: germany@inprintshow.com
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DCP 2017 – UNLEASHING THE POTENTIAL OF DIRECT TO SHAPE CONTAINER DECORATION

Building on the successful launch two years ago, the Direct Container Print (DCP) conference returns to the Radisson Blu Scandinavia Hotel in Düsseldorf from 27–28 November 2017.

Organised by ESMA with media support from *Specialist Printing Worldwide*, this event brings together key industry players who discuss the latest achievements in direct-to-object decoration from the perspective of machine manufacturers, ink suppliers, colour management experts and curing systems providers.

Delegates – printers, designers, packaging manufacturers and brand owners – are offered a comprehensive look into technologies suitable for different applications. "It is our goal to demonstrate and explain technical opportunities which respond to the specifics of such distinct and demanding markets as food and beverages, personal care, cosmetics or pharmaceuticals," says Peter Buttiens, CEO of ESMA. "During DCP, we will discuss aspects ranging from food safe inks, to adaptable or standalone printing systems, handling variable data and mass customisation techniques."

The conference programme will feature 18 presentations and a tabletop exhibition with the following companies already confirmed: ColorGATE, Gallus, Global Inkjet Systems, Hapa, Heidelberg, Integration Technology, ISIMAT, KBA KAMMANN, Lüscher, Marabu, Mimaki, OMSO, Polytype, RKS, RUCO, Sefar, Sun Chemical and UViterno.

The DCP conference was launched in 2015

Keynote speeches will complete the agenda with a holistic view of the supply chain, presenting trends in packaging and challenges faced by the brand owners. Christopher Waterhouse, Chairman of The Packaging Society and Managing Director of iDi Pac, will talk about direct container print opportunities across pharma packaging and Sami Mulari from Alexander Watson Associates (AWA) will assess whether direct digital printing is a threat or rather an opportunity for the label industry. All delegates to DCP 2017 can purchase the latest AWA report on 'Direct digital print technologies for container product decoration' at a special price of €400. ■

Conference delegates from 2015

DIRECT CONTAINER PRINT CONFERENCE
DCP 2017
27-28 November 2017
Düsseldorf, Germany
WWW.DCP2017.ORG

Further information:
ESMA, Sint-Joris-Winge, Belgium
tel: +32 16 894 353
email: info@esma.com
web: www.dcp2017.org

ESTABLISHED BRAND EXTENDS FOOTPRINT FURTHER

Following the success of Screen Print India, the debut edition of Screen Print Bangladesh takes place this November

With a sustained track record that has seen it extend globally since 2013, the next chapter in the Screen Print India series commences with the debut edition of Screen Print Bangladesh, which will be held from November 26–28, 2017 at ICCB, Dhaka, with co-located events Sublimating Ideas Expo and Sign Expo.

This three-day international show will cover a wide range of segments such as screen printing, textile printing, digital printing, sign printing and sublimation printing.

Continuing the traditions of the parent brand, the show is aimed at visitors from across Asia as well as delegations from countries across the globe; focused footfalls that are genuinely interested in exploring business opportunities and new technologies.

WHY BANGLADESH?

Bangladesh is the third most-populated country in South Asia (after India and Pakistan) and an abundant supply of labour has made it the world's second largest exporter of ready-made garments (RMG) after China. Garment exports and hefty remittances (mainly from the Middle East) are the key drivers of its economy. Bangladesh's textiles and garments sector is vital to its economy, providing almost four million jobs and accounting for over 80% of its exports. Garment products are shipped mostly to the US and EU.

Bangladesh Investment Development Authority (BIDA), formerly Bangladesh Board of Investment, is the principal investment promotion agency, which aims to accelerate economic development with FDI. The textile and garment sector is a major FDI recipient. The Bangladeshi government is keen to attract more FDI and has set out an ambitious plan to build 100 special economic zones (SEZs) by 2030. Bangladesh's cumulative FDI was US$13.8 billion [£10.5 billion] as at end-September 2016, with a year-on-year change of 9.4%.

It is widely believed that the screen printing industry has tremendous potential, hence the need to tap that potential and grow in tandem with the industry. Networking on a formal and informal level, keeping oneself updated on the latest developments, joining hands with new business partners, attending knowledge seminars are all crucial steps that Screen Print Bangladesh 2017 seeks to provide, and more. ■

Further information:
web: www.screenprintbangladesh.com

2017 SGIA EXPO

The latest edition of the Specialty Graphic Imaging Association (SGIA) Expo already features a sold-out show floor.

Taking place in New Orleans from 10–12 October, over 540 companies plan to exhibit at the 2017 SGIA Expo – the largest trade show for print technology in North America. Products on the sold-out floor will include everything from screen mesh and dye sublimation ink to grand-format digital printers and textiles.

"We're wall-to-wall with exhibitors who will show the latest technologies for graphics, garments, signs, digital textile, installation, printed electronics and industrial printing," said Ford Bowers, SGIA President and CEO. "The SGIA Expo floor is the place to find the newest products and techniques serving your markets."

LEARNING OPPORTUNITIES ABOUND

The 2017 SGIA Expo features over 40 educational sessions led by industry experts. The sessions fall into four tracks: Graphics and Sign, Garment Decoration, Industrial Imaging and Business Management. With an Expo + Education Pass, visitors don't have to choose between the Expo floor and the education sessions. Non-members can join SGIA during registration to take advantage of the Expo + Education Pass, or pay $99 [£75] for it ($115 [£87] starting 13 September).

"The Expo + Education Pass makes education at the Expo flexible and affordable. It opens up all the regular education sessions to attendees," said Dan Marx, Director of Industry Content, Specialty Graphic Imaging Association (SGIA). "Attendees can adjust their educational plans on site, because they're not required to pre-select sessions."

The pass does not cover the following special conferences and events: Wide Format 101: Four Steps to Profitability; Your Business: Prepare for Success; Printed Electronics Symposium; Wrap Like a Pro Training; SGIA Sustainability Luncheon; Women in Print Alliance Breakfast.

The 2017 trade show floor is sold out

"There are no restrictions on what or where you learn at the SGIA Expo," commented Mr Marx. "Everywhere you turn, there's an educational opportunity."

BE PREPARED

"Year after year, the SGIA Expo brings the imaging industry together to explore opportunities and technologies, to master techniques and new ideas. But this year, the buzz is beginning early," Mr Bowers noted.

Hotel reservations are outpacing 2016 bookings, he added. "Activity in a hotel block is a good indicator of attendance," he said. "The pace at which rooms are being reserved just reinforces that the industry is excited about the 2017 SGIA Expo." ■

Further information:
web: www.sgiaexpo.org


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www.compressuvprinter.com