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SOPHIE SAYS...

2. The views of Sophie Matthews-Paul, Specialist Printing Worldwide's editorial consultant

PRE PRESS

4. Why screen room equipment determines quality
Richard Greaves discovers more on a visit to a specialist manufacturing facility

8. The identification of screen-printing faults
Tricia McAulay examines the causes of common problems

ON PRESS

12. Dye sublimation transfer print for the fashion and textile industry
Roger Leber outlines the opportunities for new small production runs

14. The skill of integrating printing into complex manufacturing processes.
Norbert Burzynski outlines combining screen and digital for industrial applications

16. A printer's guide to UL labelling
Kim Hensley discusses benefits of choosing pre-approved ink-substrate combinations

18. From the past to the present with digital ceramic tile decoration
Gillian Ewers answers the question of where we go from here

24. UV measuring in direct container printing
Karlheinz Mohn describes how specialist products can assist in this production segment

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OVERALL TECHNOLOGY

26. Substrate effect on screen-printed flexible circuitry accuracy
A capability study returns a newly designed PET substrate

28. An industry sector still waiting to happen
Ruth Zach explores whether the textile digital printing revolution is just around the corner

30. Are your data assets backed-up properly?
Chuck Nall runs through the most important aspects of protecting your most valuable data

COMPANY FOCUS

32. A quarter of a century's growth lies behind proven achievement
Robert Marshall looks at the solid backbone that has led to success in the world of routing

IN BRIEF

36. A round-up of news and new technology

EVENTS

44. GlassPrint 2015
46. InPrint 2015
48. FESPA Digital 2016
49. FESPA China 2015
50. Advanced Functional & Industrial Printing (AFIP) 2016
52. Fabric Printing Now 2015
53. Direct Container Print (DCP) 2015
54. SPI 2016/ASGA India 2016

FOCUS ON FESPA

55. A decade of digital dedication
Lynda Sutton looks back at how digital wide-format technology has grown since 2006

FOCUS ON SGIA

56. Charting the course for the future
Ford Bowers looks forward to his term in a presidential role

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WELCOME

Bryan Collings

Change is one of the rare predictable consistencies that often improves and sometimes disrupts our daily lives. It keeps us on our toes, striving for the next challenge and evolving, both as individuals and businesses.

Although predicting and anticipating change can often require the use of a crystal ball, evolving technologies remain the core of our industry and *Specialist Printing Worldwide's* mission continues to be to spread the very latest technical and educational knowledge to users of screen and wide format digital printing systems throughout the industrial, graphic and textile sectors.

Wherever you are in the world, I'm sure you will find the content in the following pages useful to your businesses. If you're not a current subscriber, this could be your opportunity for positive change… the only way to receive the next four issues (covering 12 months) is to subscribe now at www.specialistprinting.com. After all, some changes are definitely for the better!

Ever-changing technology will no doubt be on show at FESPA Digital 2016, following hot in the footsteps of some very interesting developments introduced at the recent SGIA and InPrint shows. Our team look forward to welcoming visitors to stand number T150 in hall 7 at FESPA Digital.

This issue also details the technical information covered at the record-breaking GlassPrint 2015, staged alongside the inaugural Direct Container Printing event. Anyone involved in the fast-growing glass decoration sector that missed GlassPrint can register their interest in future events at www.glassprint.org

One last important change to note is Ford Bowers taking over from Michael Robertson as CEO and President at the SGIA, one of our sponsoring associations. Ford's first article for us can be found on page 56. We wish him the best of luck and offer sincere thanks to Michael for all his support over the years.

Bryan Collings, Publishing Director, Specialist Printing Worldwide

BRINGING AUTOMATION TO THE FORE

Sophie Matthews-Paul considers a potential trend for this year

Without a shadow of doubt, this is going to be a year that will be heavy with exhibitions as well as the established round of annual conferences that cover just about every topic involved in print. As is customary in January I recently made the pilgrimage to Las Vegas for EFI Connect and, although this is an event hosted by one manufacturer, I usually come away with a pretty accurate foresight into forthcoming trends.

With its main foot in the graphic arts sector the company is now demonstrating moves into textile, and this follows its existing presence in the ceramics sector. Such clear disparity in end processes shows how today there really are no limits in market shift, and there is little to prevent a specialist in one area from adding a new set of skills in another. The end result might still be a printed product, but the methodology and techniques involved can be vastly different. True, there are crossover points in areas such as labelling and packaging, and there are various players involved with this type of production. However, as yet, there aren't that many which have successfully encompassed industrial applications within a portfolio that also includes a comprehensive collection of essential software including a digital front-end and productivity suites that are geared towards slicker and more efficient business working. And much of this is based on automation in one guise or another.

As a result, it seems that this year could well be one where greater awareness of automation across all print processes will become increasingly apparent. Certainly, according to EFI, streamlining is now ever more important along with the reduction of touch points and human intervention. Ergo, the idea is that the less we interfere the better and this should lead to greater efficiency via improved integration.

With remarkably few exceptions, every area of print — whether it's commercial, industrial or functional and regardless of its analogue or digital techniques — relies on software. There is endless talk around the topics of efficiency and profitability yet, minus the right programs to generate data these days, it is nigh on impossible to function without leaning pretty heavily on technology even if it's just to create the original file that's destined to be output as a job

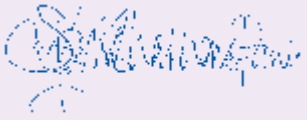
It's a little uncanny how EFI manages to chart its predictions so early in the year and announce these at its annual conference and, while automation isn't exactly new, it certainly looks as though it's going to be on the agenda for many users across the different print segments. Without a more hands-off approach the fastest and most efficient output device can't be taken up a level in productivity terms and this is particularly true where mass customisation is brought into play and in industrial environments where manufacturing processes are reliant on the integration of quick and reliable printing elements.

These same criteria also apply with wide-format, packaging, labelling and general web and cut-sheet print. Machines can be made to run more quickly, but the faster they go the more labour-intensive they can become as the human element is still required at various points within the total production process. Adding automation into the overall workflow can take many forms, whether it's a physical operation such as loading and stacking or more of a behind-the-scenes scenario where processing and file handling, plus administrative tasks, add to speedier throughput and end results.

With every new device introduced to the market, and there are certain to be many this year with both FESPA and Drupa on the cards, comes the need for slicker and less error-prone software to act as the driver. By ridding users of time-consuming workflow tasks there is, more often than not, the greater opportunity for accommodating more versatile application types as well as reducing the manual element associated with every printed job. Automation covers all bases and is often the hidden ingredient that enables technologies to continue on their growth paths by offering seamless capabilities for end users.

All too often we tend to take this element of background "grunt work" for granted but, for many years, it has been a key component in digital front ends and associated workflow processes. This year I wouldn't be surprised to see automation across all processes get the overall recognition it deserves and become a key influencer in development and growth across the board.

CEO Guy Gecht opens EFI Connect 2016 with a Star Wars theme



Sophie Matthews-Paul is an independent analyst and editorial consultant to Specialist Printing Worldwide

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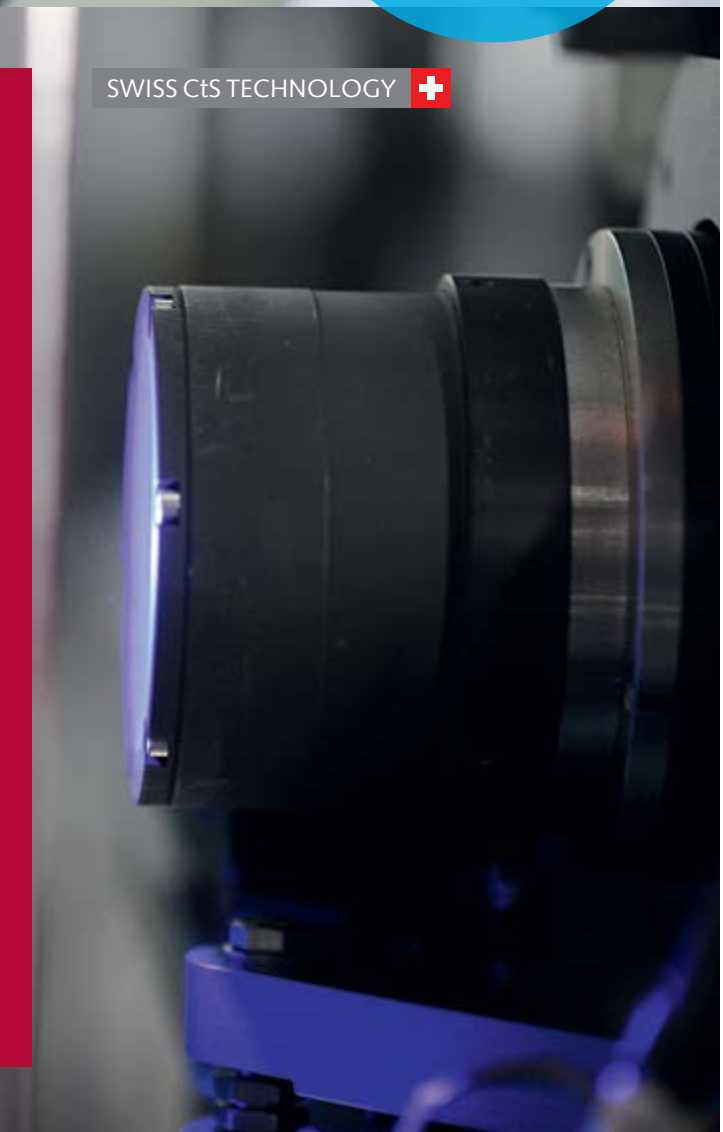

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WHY SCREEN ROOM EQUIPMENT DETERMINES QUALITY

Richard Greaves discovers more on a visit to a specialist manufacturing facility

Douthitt has been a manufacturer of high quality platemaking, graphic exposure and, more recently computer-to-screen systems, since 1919. Mark Diehl has been with Douthitt for more than 30 years and currently serves as its managing director. His brother, John, is the sales manager. I visited with them to talk about the Douthitt philosophy of graphic reproduction quality.

For many companies, they are forced by short term goals to buy equipment based on price rather than results. The best work rarely comes from using the least expensive products.

Working with superior long-term results adds to the company bottom line because every step of the process moves smoothly through the shop. Imagine a magic spell over your entire company and suddenly, everything is perfect and every process is 100%. Too much of a company's activities are wasted correcting things that could have been done right the first time. Inferior equipment or the combination of labour intensive steps to compensate for jobs that don't run smoothly slows down the printing output. Scrap and wasted time are lost forever.

NO FRANTIC HAND-TO-MOUTH METHODS

Screen room equipment determines screen quality. Douthitt has always made and represented equipment that understood the most desirable methods of making screens that are consistent, reproduce images accurately, survive long runs and reclaim screen mesh so you can recycle the screen quickly. The company has resisted the frantic hand-to-mouth methods that can be exciting at first glance – but many of the 'short cut' methods of screen makers in a hurry create inferior screens.

When you draw vacuum, there's a tendency for the blanket to initially seal along the surface of the screen frame. There's a bleed line rope shipped with every vacuum frame that helps air escape from inside the frame and goes along the rope to the vacuum valve. This should be placed over the top side of your screen and into a non-printing area near the centre of the frame and the vacuum will pull tightly in the centre where your image is.

A bleed line rope is shipped with every vacuum frame

MAKING THE BEST CONTACT

The best contact results only start to happen after you can see your blanket has drawn down around your frame at 18 inches of vacuum. The last thin slice of space of air trapped between your glass, positive and stencil can take another one to two minutes. You can be sure you have the best contact when you see the rainbow colouring like an oil slick under the glass – called Newton Rings that signal complete contact. Screen makers with closed exposing units, common in smaller shops, never get the chance to see the positive pushed up against the glass.

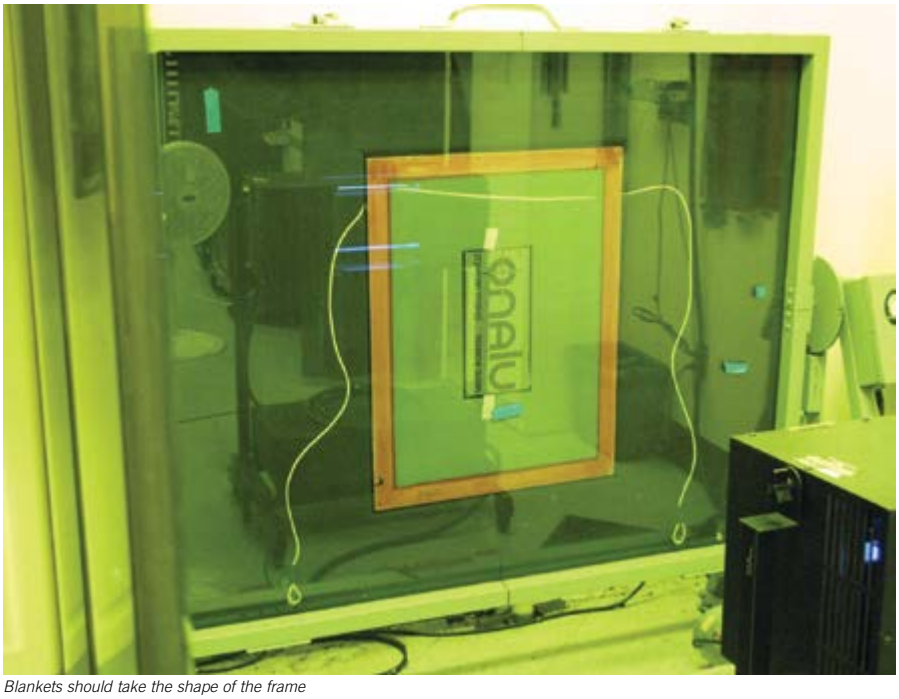
The best blanket will be flexible so it can take the shape of the frame and not move as it tightens down. Indirect stencils or offset plates require a completely different blanket that has built in stiffness so there's a uniform force pushing the film and positive against the glass. Flexible blankets allow too many pockets of air for consistent contact with indirect films.

THE PURPOSE OF EXPOSURE

Exposure is what screen makers provide that changes the stencil from something that dissolves in water, into something that doesn't. That stencil should be a durable, high-quality image while allowing the mesh to be easily reclaimed when the job is finished. Under curing it can open up more fine detail, but it usually makes the stencil less durable and harder to reclaim. Complete stencil cure with water or solvent resistance requires the UV energy used to excite the sensitiser that has to move all the way through the stencil to the inside of the screen because we can only expose from one side and can't flip the screen like a pancake.

Continued over

Unlike a pancake, screens can't be flipped to expose both sides



Blankets should take the shape of the frame

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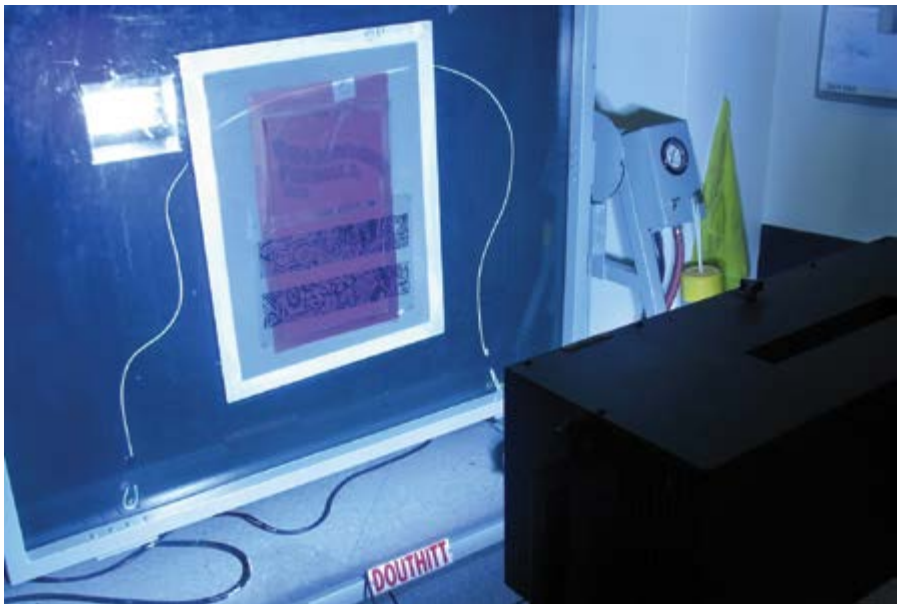

Exposure of the stencil

LIGHT SCATTER REDUCTION

The best depth of cure comes from an intense metal halide lamp with a parabolic reflector designed to direct invisible UV light energy straight at the stencil and minimise light scatter. Reducing light scatter controls the reproduction of the image you want to print. Douthitt is a master distributor for Olec exposure equipment because it doesn't want to limit a company's choices of stencil material.

Each different thickness of mesh and coating requires a different volume of UV energy for stencil cure, so an integrator consistently measures and controls exposure as the lamp heats up and progressively ages throughout its life. When installing a new bulb, you can calibrate the integrator so 60 units of UV light equals 60 seconds. For example, as time goes on, you'll find that it takes 90 seconds to output 60 units and you can monitor and predict when you need to replace your lamp.

Symptoms of under cure will occur on the squeegee side of the screen because water will start to dissolve the raw stencil. As a test, blot the inside of your screen with newspaper or a clean rag and see if stencil colour shows up. All the workarounds for under cure are real time consumers.

WORKING WITH POSITIVES

The positive is meant to mask and protect the image area from all UV energy. If the image area has a surface cure, is 'crusty' and won't easily dissolve with water, it means your positive failed to stop invisible UV energy from reaching the image area, like a bad raincoat, or your storage area is not UV light safe. Many shops resort to using a pressure washer to speed the process up and all that force on an improperly cured stencil will undoubtedly cause other troubles.

Your new job is to judge if your positive completely stops UV energy. Before exposure, tape a thin coin or a piece of reflective aluminium foil to the stencil. No UV energy will get past them. As you develop the stencil, compare how both areas dissolve. The patch of stencil you covered with a guaranteed UV stopper should wash out like a dream.

Positives should stop invisible UV energy from reaching the image area

COMPUTER-TO-SCREEN BENEFITS

The most enabling equipment for the screen room is computer-to-screen. It encourages companies to embrace a complete digital workflow and eliminates dozens of small labour steps that accumulate into a more dynamic automated system.

The elimination of positives and their filing is the most obvious. A space saving vertical high resolution waxjet images any stencil you choose with better opacity than films. No vacuum or glass speeds the screen room throughput. Larger screens for graphic or industrial printing can eliminate exposure lamps altogether with imaging equipment like the SignTronics CtS direct exposure technology based on an exposure head that directly cures your stencil.

At Douthitt the philosophy is to eliminate the limitations of traditional screen making equipment. ■

Richard Greaves represents Greaves Enterprises

Douthitt's computer-to-screen automates workflow

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THE IDENTIFICATION OF SCREEN-PRINTING FAULTS

Tricia McAulay examines the causes of common problems

Like every screen-printer, I sometimes see faults in my prints. To fix them I need to find the root cause. My favourite resource for finding the root cause is a set of 'reference prints' I made some years ago, under the wise tuition of Bill Appleton. These prints are very special because I deliberately created a poor set up to induce the common type of faults you achieve when things go wrong.

I can't give you a copy of my prints, but I can give you the next best thing which are pictures of many of those print faults, along with the explanation of what I deliberately did wrong to induce them. In no way is this a comprehensive guide to all screen-printing faults but, hopefully, you will find this a useful and practical guide for some of your own problem solving' techniques.

THE TEST PRINTS

We used a variety of images for the test prints and in particular an image from the Serilor Log test suite. This was chosen as it's very challenging to print.

In addition to the faults marked up in the test print (Figure 1), we also included the following faults for reference – tape marks on the positive, a thumb print in the drying filler, filler breakdown, coating lines in the emulsion from using a nicked trough, flooding, filling in, etc, which all help to build up the reference library of faults.

THE CONSEQUENCES OF CHOOSING THE WRONG STENCIL

To demonstrate what can happen when you choose the wrong stencil for high quality printing, we deliberately combined a high Rz (10µ) stencil with a high squeegee pressure.

You can easily see the massive dot gain that was induced by flooding as shown (Figure 2).

When this print is compared with one taken from a low Rz stencil film, using the same press settings as above, the flooding disappears and the dot reproduction is far more accurate to the film positive (Figure 3).

WRONG MESH TENSION

Slur occurs from a slack mesh, or too large a squeegee drag.

The two examples in the print (Figures 4 and 5) show different types of print slur that can occur. However, the root cause is the same.

The squeegee direction is from right to left and, because the mesh is too slack and/or the squeegee pressure is too large, the squeegee 'drags' the mesh along creating the slur directly connected to the main image. In extreme cases, as shown (Figure 4), the squeegee actually judders up and down, taking the stencil with it and also prints a 'light ghost' of the image.

TOO FINE A MESH

Here you can see the effects of using too fine a mesh for the ink used (Figure 6). The ink particles are larger than the mesh openings which leads to classic sieving where particles actually start to block the mesh holes.

Note that the particles aren't extremely large. But, if a hole is less than 3 x the width of the particles, then the mesh can block very

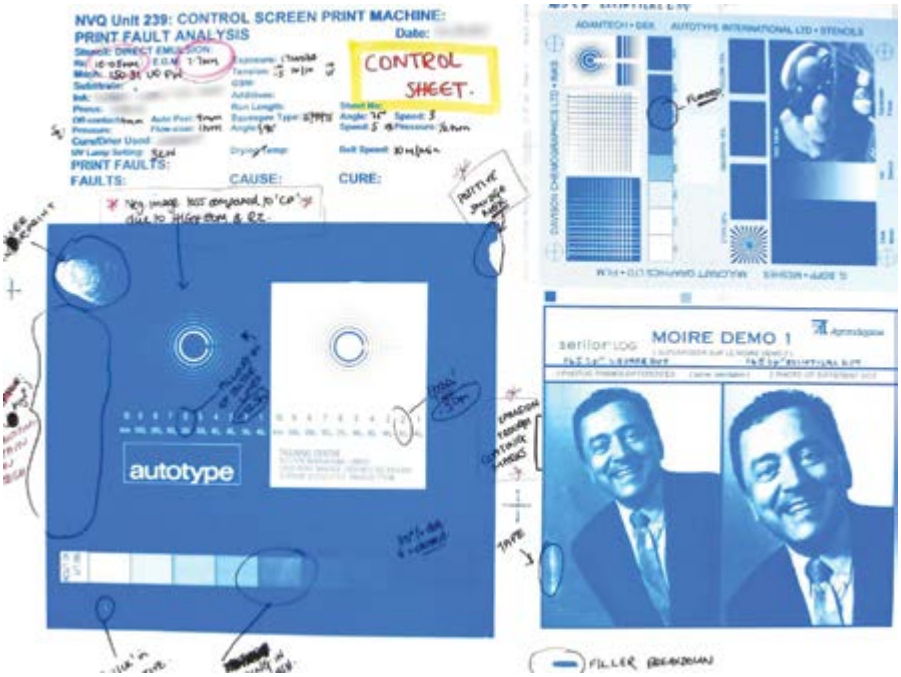

Figure 1: Test print showing faults marked up

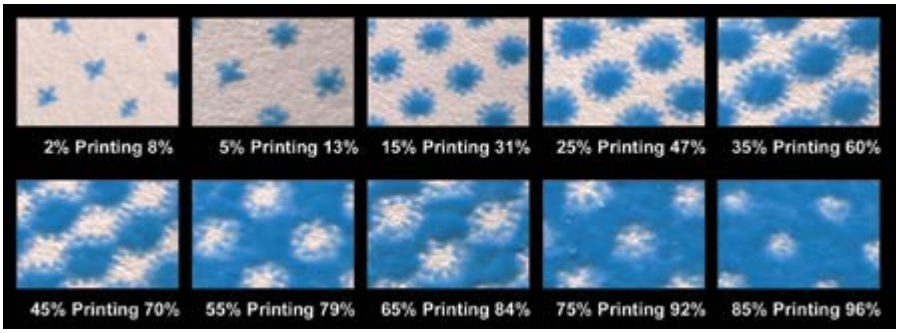

Figure 2: Dot gain

Figure 3: Good dot reproduction

Figure 4: Print showing ink slur on the left side of the image

quickly. Caution, you can also get a very similar effect to this if the ink dries in.

INK DRYING-IN

To show the effects of ink drying-in (Figure 7), we used an ink with no added retarder and deliberately paused after the flood stroke before printing. Naturally the ink had dried-in, blocking some of the mesh openings, giving

Figure 5: Print showing ink slur and squeegee judder

the classic drying-in pattern. Drying–in problems are often more prevalent in the image at the start of the print stroke. This is because the ink that has remained in the mesh after the print, has had longer to dry-in before it was re-flooded.

WRONG INK – TOO MUCH VISCOUS DRAG (WITH A LARGE OFF CONTACT)

Viscous drag can be a problem when printing large block areas or negative images. To demonstrate this we deactivated the automatic lift-off and used a very viscous (non-reduced) ink. During the start and middle of the print stroke, the drag on the mesh from the viscous ink was so large that it caused the mesh to release slowly from the print.

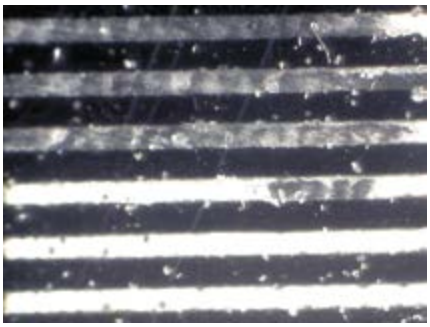

Figure 6: Print showing mesh blocked by ink particles

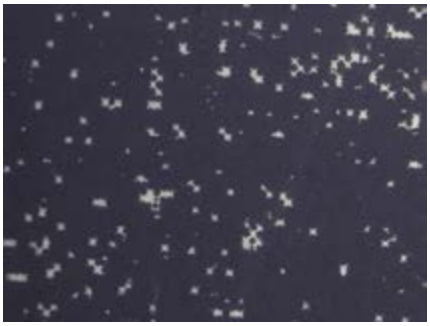

Figure 7: Incomplete print due to ink drying-in problems

Major problems occur if the mesh sticks and then releases too violently as the ink can literally fly off in all directions. You can see how these ink particles actually landed several millimetres away from the edge of a solid

Continued over

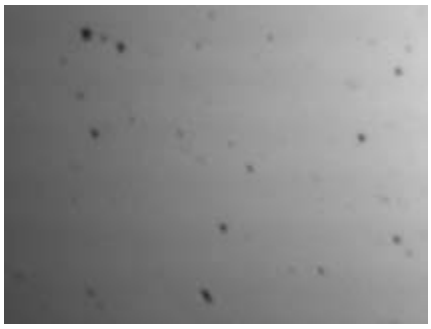

Figure 8: Ink spatter

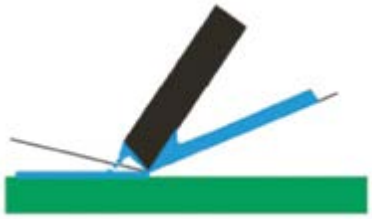

Figure 9: Schematic of squeegee showing how ink teardrops are formed

printed block (Figure 8).

This problem would be exacerbated by using a viscoelastic ('stringy/tacky') ink but this would not give individual drops like these, but produce 'cobweb' strings (an effect that is far worse on static prone substrates).

TEARDROPS

Although these were very easy to see on the print, it was impossible to get a good photo of them (Figure 9).

You've probably seen them yourself, random blobs of ink, a few millimetres in diameter, which are often seen in a line in the print direction.

In our test, we induced them by using a tacky/sticky ink and a worn squeegee blade. This combination meant that during the squeegee stroke, ink built up on the wrong side of the squeegee – partly through hydroplaning and partly because viscoelastic inks naturally 'climb' under shear. After a while, there was enough ink build-up on the squeegee that it dropped off and fell through the mesh onto the print – giving the characteristic teardrop shape.

DIRTY SCREENS

The screen used for this test was deliberately cleaned poorly, to leave a very noticeable ghost image on the mesh (Figure 10).

Under the microscope, the ghost image in the mesh can be seen as patches of unprinted ink and, when we printed that screen, there was a corresponding ghost image clearly visible in the print. Interestingly, in this test we also saw that mesh-marking was especially prevalent – almost as if the ghost image magnified this effect. Ghost image interference effects are most prominent when printing transparent or pastel colours.

DUST

To demonstrate this problem (Figure 11), we contaminated a screen during printing with

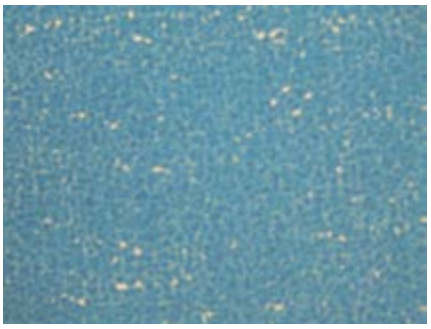

Figure 10: Image blocked by ghost image on mesh

some dust particles and, not surprisingly, created what are often called 'hickies'. I doubt if this effect would be appreciated by the customer! For practical advice and tips on how to avoid contamination, read the 'How to guide - cleanroom working' on www.macdermidautotype.com

ORANGE PEEL

Hard to photograph but easy to spot with the naked eye, there are many causes of orange peel but basically these come down to the fact that the ink is generally unstable during drying. We induced an orange peel effect by printing two incompatible inks one on top of the other

Using the wrong, or too much, solvent thinner or retarder is another way. The cause of this type of orange peel is interesting and is sometimes called the Marangoni effect. As the more-volatile solvent evaporates it leaves behind a solvent mix with a different surface tension. Ink flows from high to low surface tension so you start to get instabilities. These instabilities work in three dimensions and you start to get regular cells where solvent is rising in one point and sinking in another. Under the right (or wrong) conditions these cells can form perfect hexagons – the classic mark of the extreme Marangoni effect.

The cure is either gentler drying, more compatible solvents (less difference in volatility = less difference in surface tension) or a more effective surface active agent which swamps the differences in surface energy.

BELT MARKS

Again this is a problem that's easily visible on the print, but hard to show in a photograph. You see a broad regular pattern on the print that coincides with the pattern of the belt that conveys your prints through the oven. This has occurred typically because either the oven temperature is too hot and causes the substrate to distort or through differential drying of the ink film on the belt. So it is important to check your oven temperature before each job.

REGISTRATION PROBLEMS

I am sure that every printer has seen these at some point.

For our experiment, we used extreme climatic changes to induce our mis-registration test, by deliberately drying out

Figure 11: Dust contamination causing 'hickies' in print

(<5% RH) a print on paper before printing the second image on top of it. The dried out print actually shrank by 2mm over a 400mm print (0.5%). The test was repeated but, instead of drying out, we humidified the print (>90%RH) and it actually expanded by 1mm (0.25%).

Such gross mis-registration is easy to spot; however, doing this test was a reminder that for precision printing, exact equilibration of the substrate between prints is of great importance. For paper, the effect of water is well-known. But the effects on plastic substrates are less well documented. The complete version of 'How to be a great screen printer' e-book contains a section about precision printing requirements for plastic substrates (download instructions below).

SUMMARY

Screen printing is a complex process and this list of print faults is in no way exhaustive; however, the creation of this 'fault reference' library has helped us with our internal problem solving and also it makes a great training aid for new employees.

Why not collect examples of print faults when they arise in your production? Documenting a brief description of the root cause and the actions that you took to solve them could form the basis of your own reference library to help you troubleshoot in the future.

If you found this article useful you can read more in 'How to be a great screen printer' e-book available to download from www.macdermidautotype.com

This article is the first in a series taken from the e-book. Tricia McAulay talks from her own experience about identifying many typical screen printing print faults, their root causes and solutions. She is responsible for evaluating the print capabilities of speciality hard-coated materials manufactured for film insert moulding and membrane touch switch applications and has more than 30 years of hands-on screen-printing experience. ■

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DYE SUBLIMATION TRANSFER PRINT FOR THE FASHION AND TEXTILE INDUSTRY

Roger Leber outlines the opportunities for new small production runs

For the dying or printing of polyester or polyester mix fabrics, the textile industry has long been using sublimation printing. Recently digital ink-jet printing has opened completely new possibilities as well as competitive advantages. How does sublimation transfer work, which special features does it offer and how does Sihl sets standards in this sector with its Sublicolor product series, with the current ten specialised papers?

Sublimation printing is an indirect printing process. Using sublimation ink-jet inks the image is printed on a special transfer paper and, with heat, the image is transferred to the fabric. The term sublimation describes the direct transition from a solid to a gaseous state – this happens without the usual in-between liquid state. When heat is used for this process, one refers to thermo-sublimation. This is a process that has been being used for a long time in the textile industry. The actual process starts with the printing of a preferably cheap, special paper. Until recently this was done using traditional gravure printing – simple transfer papers printed with standard printing patterns and graphical elements.

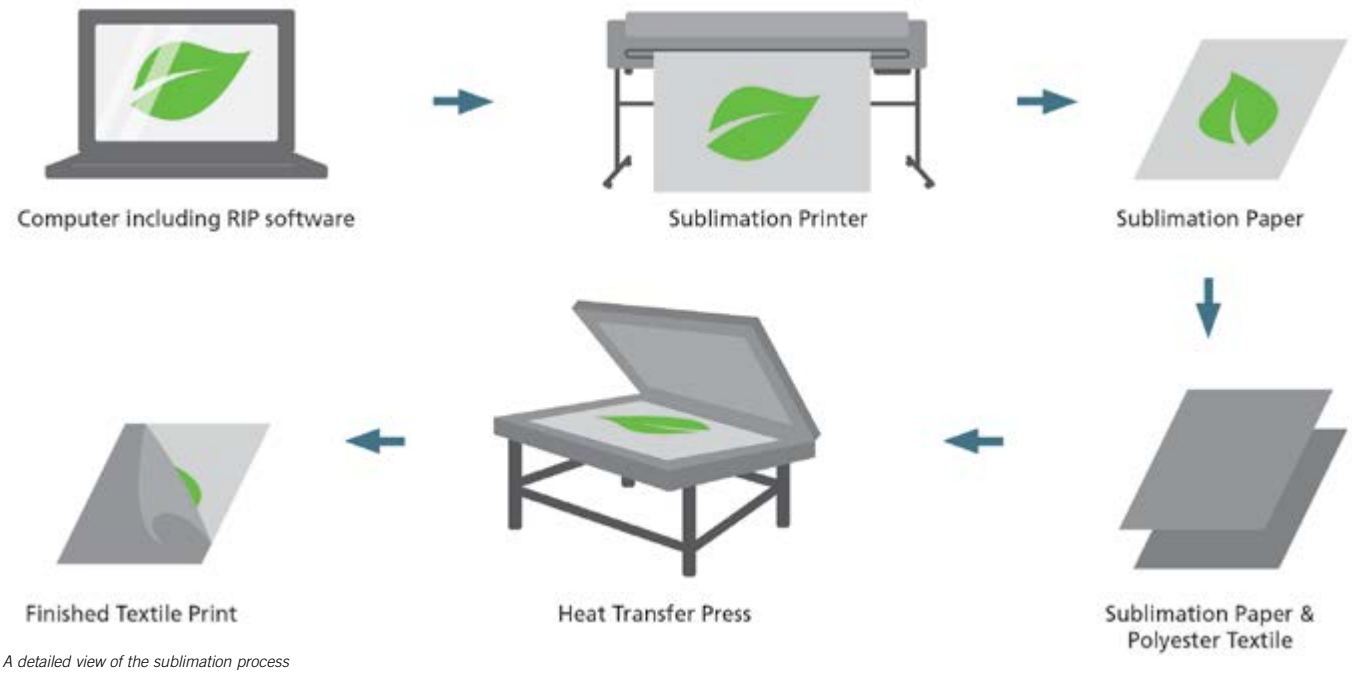
Due to the significant set up costs, this was only worth implementing with large production runs. Therefore this technique was mostly found in the mass production of products, for example the manufacturing of decorative fabrics. At the beginning of the nineties wide-format digital systems, using dye sublimation colours, were being used to produce sample prints and small production runs. Initially this was implemented with the help of electrostatic process, with a change to the newer ink-jet technique later. However, due to the long printing times, this process was only used for sample prints and short runs. This has fundamentally changed in recent years because modern ink-jet printers are much quicker and have become more efficient, offering a very interesting, high quality alternative to gravure printing.

The wide product collection of special transfer papers in the Sihl Sublicolor series – optimised for dye sublimation to various fabrics and hard substrates –accelerating the market penetration of this modern technology.

THE VALUE OF THE TRANSFER MEDIA DETERMINES THE QUALITY

Patterns, decorations and graphical elements are mirror-printed on to the transfer media, such as paper. For this purpose, base papers and similar papers with different coatings ranging from 70 to 140gsm are typically used. The final print quality of the image on the fabric depends mostly on the coating and features of the specialised papers, whereby the thicker papers generally absorb more colour. Important for smooth printing production is the excellent flatness and reduced wet cockling of the printing media. The optimal flatness is achieved on the one hand through a barrier in the Sihl papers, which hinders wet cockling – the ink penetration of the base paper is inhibited. While, on the other hand, the back coating guarantees the superb flatness. This generally counteracts the tendency the paper has to curl at the edges, therefore avoiding the chance of the print-heads touching the paper. Another important factor is the high optical density of the printed image.

Originally one would use cheap CAD papers which, although they are print compatible, tend to retain a lot of the ink on the transfer paper during the sublimation process. This led to only a small amount of colour on the fabric, leading to faint, hazy looking prints. Similarly, standard transfer papers absorb a large amount of the ink during the sublimation process in the hot calender – the transfer press equipment with temperatures around 170 to 200 degrees C



A detailed view of the sublimation process

– which also leads to dull, blurred print results.

Today, these simple, matt papers have been made redundant due to the high requirements of customers and the increasing competition. The innovative Sihl papers, from the Diatec Group, have been optimised in exactly this area and offer outstanding print quality with excellent contour definition and a wide colour gamut. Thanks to the pigmented porous coating on a special, low porosity base paper, they are particularly efficient. In addition to this, these papers are compatible with all standard printing systems and allow short printing times.

COLOUR PIGMENTS REACT WHEN EXPOSED TO HEAT

Together with the fabric or textile, the printed paper is laid in the hot calender: Textiles or fabric are made of polyester or mixed polyester (> 60%). The heat aids the reaction of the colour pigments. The polyester opens its pores, allowing the gaseous form of the colour pigment to diffuse into the synthetic fibres. The colour pigments fuse securely to the synthetic polyester fibres, creating a lightfast image, resistant to water and weather – making the colour and the fibres as one. The impression of the dying, together with the outstanding durability and washing resistance are the greatest strengths of this technique as the high resistance to UV rays prevents premature bleaching of the colours.

Additionally the prints are very scratchproof and remain colour intensive and brilliant, even after long periods of time. Thick fabrics dyed using this technology produce one-sided images, whereas the finer and more transparent the fabrics, the more the image will go through. The printing only works on light or white coloured fabrics or hard substrates, which have a polyester coating or polyester enamel. However, the dying/printing of dark coloured or black substrates need a special transfer media; T-shirt transfer medias are most commonly found on the market. Here, the image is printed on a white, film-like coating and then also using heat, transferred to the fabric.

Among others, applications can be found in the field of fashion, sport, clothing, advertising, home textiles, interior design and promotional items. Relevant examples are flags, banners, roll-ups, functional sportswear, shoes, advertising articles, ceramic tiles, carpet tiles and mugs – just to name a few. If transfer material, printing technology and processing fit together perfectly the relatively new technology of sublimation thermo-transfer can set new standards in terms of productivity, quality and durability. The Sihl Sublicolor products represent a high competence in development, production and service, leading to a marked increase in productivity and competiveness.

WIDE PRODUCT PORTFOLIO FOR VARIOUS APPLICATIONS

With these innovative Sihl Sublicolor papers, the customer has the pick of different printing products for various requirements. Currently the media collection includes ten papers with differentiating individual product features. These are divided into five product categories of Premium, Universal, Sports, Superdry and Envogue. They are characterised by their versatile, individual possibilities for fast and demanding production and delivery of printed fabrics with manageable costs.

Thanks to the special coating, optimised to meet the needs of sublimation printing and the outstanding processing properties, all the Sihl Subicolor products provide a good solution for standard dye sublimation printers and inks. Thus, increasing, not only the productivity but, at the same time, the print quality during the printing process is significantly increased. The user not only profits from the benefits of the Sihl Sublicolor but they also gain the competitive advantage on an expanding market. Sihl, as a solution partner for the dye sublimation transfer printing segment, has years of extensive experience, expertise and competence and, thanks to a strong sales network with great customer proximity, can offer fast and efficient delivery.

OUTSTANDING PERFORMANCE

The Sihl Sublicolor product family represents the perfect solution for the implementation of ideas and applications in industrial, fashion and sports sectors. Easy handling, high transfer rates and quick processing contribute to the performance of these specialised products. The high optical density coupled with the razor-sharp detailed reproduction of lines and graphical elements allow for excellent print results, as well as high colour intensity and brilliance. The smooth, reliable production is ensured by the excellent flatness of the paper. These properties lead to users seeing an enormous increase in performance with dye sublimation printing.

PRINT MEDIA FOR DIVERSE INDIVIDUAL SOLUTIONS

Depending on print media the Sihl Sublicolor series offers various solutions for dye sublimation to polyester or polyester-mix fabrics. The Premium group, or the so-called entry-level, includes sublimation papers for transfer printing in standard conditions. Examples for the transfer to polyester materials include flags, banners, cups, promotional items and related products. These papers can be printed using standard aqueous based sublimation inks (Sihl SubliColor Premium Paper 65 matt, 85 matt and 105 matt papers).

The all-rounder papers with excellent drying times and extremely high colour transfer rates can be found in the group Universal with Sihl Sublicolor Universal Paper 70 matt and 90 matt. The structure of these papers allows more ink to be transferred to the fabric, thus making better ink utilisation possible, reducing costs. The papers are characterised by their easy handling and excellent performance and are particularly suited to applications such as interior design, advertising aids, soft signage, and for hard substrates. The reduced wet cockling ensures excellent flatness.

The Sports sublimation papers are specifically for the printing of elastic fabrics (stretch) found in sportswear. They offer a specially developed heat-activated adhesive. The image sticks accurately and securely to the fabric during the transfer process reducing the chance of undesired effects like ghosting or blurred lines. In a flat-bed press it is often the case that the transfer media can slip upon opening the unit and, because the paper is still hot, the sublimation of the ink is still in process which leads to the smudging or ghosting of the image. And as the transfer paper is attached to the fabric, stabilising it, shrinkage is kept to a low.

With the Sihl Sublicolor Sports Paper 70 matt and 90 matt papers the waste rates are reduced to an absolute minimum. For the current high speed industrial printers from Reggiani, MS-Italy, Durst or Mimaki, which print using Kyocera or Ricoh print-heads with inks that contain high glycol percentages, Sihl offers the latest generation of Superdry papers for dye sublimation. The coating has to be able to immobilise the glycol found in the ink to avoid smudging and offset of the colour pigments – namely the transfer of the inks to the reverse of the paper – because the glycol is hydroscopic and has a high boiling point. The Superdry coating ensures an optimal fixation of the ink.

The Sihl Sublicolor SuperDry Paper 75 matt and 95 matt are distinguished with their very quick ink absorption and fixation, as well as their excellent contour definition, reduced wet cockling and excellent flatness. Still in the development stage is the ultra-light Sublicolor Envogue Paper light 39 matt, particularly suited to use in industrial high-speed printers. Despite its low weight it is quick drying and immobilises the ink after printing, which is imperative during high speed printing and roll to roll processing to prevent the deposition of ink onto the reverse of the fabric. The coating guarantees an excellent run through the printers and later during transfer. Despite its light-weight the base paper is high strength with a high stiffness. The ink transfer is also very fast with this paper. ■

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THE SKILL OF INTEGRATING PRINTING INTO COMPLEX MANUFACTURING PROCESSES

Norbert Burzynski outlines combining screen and digital for industrial applications

Digital printing is becoming increasingly common in industrial applications – on a wide range of materials including glass, metal, wood, plastics and plastic sheet, polymer films, textiles and melamine. Ink-jet printing ensures fully reproducible results and makes it possible to frequently switch designs from project to project, without the need for costly and time-consuming machine changeover. This type of printing poses unique challenges due to the huge variety and complexity of the forms, substrates and surface finishes involved.

However, some applications and requirements usually implemented by screen-printing are beyond the capabilities of digital printing. These include excellent coverage, controlled coating thicknesses, very high chemical and mechanical resistance, special-purpose inks and special effects (such as pearlescent, metallic, bronze, mirror or luminescent). It may be necessary to combine screen-printing with digital printing methods to meet these needs.

ELECTRONIC CONTROL AND OPERATING EQUIPMENT

An application segment of growing importance is input devices, such as membrane switches and capacitive touch panels made from glass or plastic. These have become an essential feature of electronic control and operating equipment – and not just in the automotive sector.

Marabu, a leading manufacturer of printing inks, is highly skilled at integrating printing into complex manufacturing processes. Its solutions leverage the respective benefits of screen, pad and digital printing.

The company has developed a combined screen and digital printing solution for the manufacture of input devices. The design can be printed on surfaces such as coated films and glass or plastic panels with suitable Marabu ink-jet inks (in CMYK plus light shades) – without the need for time-consuming traditional pre-press stages. Depending on coverage and durability requirements, a suitable ink for the blocking layer is applied using screen-printing. The following proven Marabu printing inks can be employed – Ultra Glass UVGL on glass and solvent-based Mara Switch MSW or UV-curable Ultra Switch UVSW on films and plastic panels.

An application segment of growing importance is input devices, such as membrane switches and capacitive touch panels made from glass or plastic

Marabu combines screen and digital printing for the manufacture of input devices

ELIMINATING EXPENSIVE PRE-PRESS

When it comes to multi-colour designs, digital printing eliminates the expensive and time-consuming process of screen making. Standard formats are easy to customise – when creating multilingual keyboard layouts, for example. Screen-printing's main advantages are outstanding ink adhesion, coverage, and durability. Moreover, the ink for the white blocking layer can be changed over rapidly to accommodate diverse substrates and printing parameters. Combining the two printing methods enables manufacturers to intelligently exploit their respective technical and cost benefits. It makes production processes faster, easier to customise, and less expensive – without compromising on quality.

Tests on glass in conjunction with various pre- and post-treatments and primers are currently under way at Marabu's in-house Print Center. The findings will enable Marabu to recommend the best inks for customers' applications and to tailor cost-efficient combined solutions to requirements. ■

Norbert Burzynski is Director Print Center at Marabu

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A PRINTER'S GUIDE TO UL LABELLING

Kim Hensley discusses benefits of choosing pre-approved ink-substrate combinations

From electrical appliances to safety equipment and more, there are thousands of products that require permanent marking or labelling of specific safety-related information, such as hazards, warnings, cautions, installation instructions, product classifications and electrical ratings.

With end-use applications that often face extreme or harsh conditions, these product labels must meet specific UL testing and certification standards to ensure high quality labelling that will last the life of the product. Specifically, for those in the printing industry, the UL standard surrounding successful long-term print legibility of the end label is highly dependent on the combination of ink and substrate chosen.

Fortunately, there are label material suppliers out there who help make a printer's job easier by working directly with UL to test and certify a number of inks and substrates in advance to produce pre-approved combinations in 'off-the-shelf' product form.

UL labels acknowledge that the labelled product is in compliance with an industry performance standard and deem it safe to use.

UL AT A GLANCE

For more than 40 years, UL has been providing certification, testing and training services to the label industry to ensure delivery of compliant labels that meet individual project specifications and the demands of the global marketplace. UL is one of the most recognised, independent conformity-assessment providers in the world.

According to the organisation, the well-known 'UL Mark' is the single most accepted Certification Mark in the United States – appearing on 22 billion products from 71,000 manufacturers annually. UL notes it evaluates more than 100,000 products annually and has customers in 113 countries. There are 159 UL testing facilities worldwide and UL employees can be found in 44 countries.

TESTING, RECOGNITION AND MARKS

When marking and labelling systems are tested by UL, a number of factors are considered, such as label curling, wrinkling, shrinkage, loss

Mactac's UL-approved films have successfully passed all UL approval requirements

Some components are intended for use in manufacture but cannot bear the UL symbol, so use a special 'UL Recognized Component' mark

UL labels must demonstrate significant characteristics such as legibility retention, resistance to defacement and adhesion to the surface of the product

of adhesion, resistance to defacement and legibility, as previously mentioned.

UL tests against these factors by exposing labels to various environmental conditions, such as high humidity, water, elevated temperatures, sunlight or chemical agents. The testing standard used is known as ANSI (American National Standards Institute)/UL 969 and, for a label to be certified, it must pass four primary components:

1) Visual examination to ensure there is no edge lift.
2) Legibility to ensure there is no print or ribbon smear.
3) Defacement to ensure there is no abrasion or edge lift when the label is scraped with a blade.
4) Adhesion to ensure there is no peel when exposed to varying extreme temperatures.

When a label passes UL testing, it becomes a UL Recognized Component, UL Listed or UL Classified label/product and can then bear a UL Mark. UL Marks have specific meanings and significance, but there are two types of UL Service: Type R and Type L.

With Type R Marks, the manufacturer submits the layout of the proposed Mark for review and upon receiving an authorisation stamp from UL, provides the stamped UL Mark layout to the supplier or customer for printing.

With Type L Marks, labels must be processed through a UL Label Center and are strictly controlled, requiring written authorisation from UL with detailed specifics. These labels may only be produced as authorised, in quantities specified, and ordered to print by the UL Label Center.

THE BENEFITS OF PRE-APPROVAL

With UL certified labels, printers have peace of mind that performance requirements – specifically legibility – are met. However, the steps and resources required to complete the UL label approval process can be both challenging and time-consuming, which is why many printers find great benefit in working with a label material supplier who has already tested and certified a number of inks and substrates with UL.

When ink and substrate combinations have been tested in advance, materials and ink systems are granted recognised component status and are securely stored in the label material supplier's UL file. This file can then be easily accessed and readily available to printers when it comes time to process the print job.

Because of this, printers (and converters and OEMs) can bypass the need to determine the parameters for the end-user requirements. This includes items like identifying the substrate for the application, outlining the conditions that need to be met, determining how the label will be printed and what label constructions – material, ink, adhesive and liner – will meet necessary requirements, and so on.

Additionally, while the cost for UL testing varies depending on the product and the scope of the UL evaluation, on average, each test can cost several thousands of dollars.

FILE ADOPTION

So, how exactly can printers obtain the pre-approved files they need? File adoption.

Through this simple and easy process, printers can adopt any UL-certified durable product for UL-recognised label applications and receive approval for the flexo inks, digital inks and thermal transfer ribbon.

No additional UL testing is required as the process involves a simple paper transfer. Additionally, file adoption requires limited resources, streamlines market entry, reduces production wait times, shortens the UL qualification process, eliminates excessive testing and/or re-testing, and more.

In the printing industry, it's no secret that efficiencies related to cost and production are key to successful business operations and, unfortunately, the printing of UL labels can certainly pose a challenge in both areas. However, working with a label material supplier who has already done the legwork for you is sure to save valuable time and money. ■

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FROM THE PAST TO THE PRESENT WITH DIGITAL CERAMIC TILE DECORATION

Gillian Ewers answers the question of where we go from here

Ink-jet printing has revolutionised ceramic tile decoration over a relatively short time. This is an amazing achievement for an industry that, for many years, traditionally produced either plain or unsophisticated patterned tiles using screen-printing and had little use even for computers.

Digital printing was not an instant hit even though the potential was recognised. The first ink-jet ceramic decoration printers appeared around 2000, and these early printers suffered from poor reliability with blocked or deviant nozzles causing unwanted white and dark lines. The printers required frequent maintenance to clear blocked nozzles making them unsuitable for full-scale production and print-heads had to be replaced repeatedly at high costs. In addition, the images were very grainy and not very attractive.

It was in 2007 when Xaar released the Xaar 1001 print-head that the market really began to take off. The unique, patented TF Technology in the Xaar 1001 meant that the printers could run for extended periods of time. This is because the high flow rate of ink past the back of the nozzle during drop ejection ensured that any particles or air were removed from the printing nozzle and the ink was jetted reliably. As a result, ceramic tile producers could take advantage of the benefits of digital printing which were so significant that the printer could pay for itself in around six months.

WASTE REDUCTION

One immediate advantage was the reduction in waste – digital printing is a non-contact decoration technique so there is no tile breakage. The next advantage is that the minimum batch size became one, so that the changeover or set up of new designs had no waste of materials or time, therefore zero cost. In comparison, traditional methods require new screens, or roller sleeves, for each design changeover, plus the time and effort to check the colour consistency. The result of this was the resultant inventory reduction which was the primary financial driver for mass conversion to digital.

The next digital advantage was the increase in creativity it gave tile designers. Before digital ink-jet printing took over, a great level of skill was required to produce the most attractive and highest quality tiles. The Italians and Spanish were held up as the specialists who could create fantastic designs, but the cost of producing these tiles was very high. The Xaar 1001 introduced greyscale printing to the industry (early printers offered only large drop binary printing). With its small drop size of six picolitres*, high native resolution of 360 npi (nozzles per inch) and eight grey levels, the apparent resolution of the Xaar 1001 was equivalent to more than 1000 dpi, which appears lifelike to the human eye. Digital printing also removed the high level of pattern repetition, which had previously been dictated by the size of the roller sleeve or screen. Now designs are only limited only to the size of memory in the printer's electronic sub-system; a whole room could be laid with individually patterned tiles.

NON-CONTACT BENEFITS

In addition, as digital ink-jet printing was non-contact, relief or texture could now be added to individual tiles, giving them a profile just like with the natural materials. Digital ink-jet printing with the Xaar 1001 meant that tiles became indistinguishable from natural materials, for example marble and stone. All these advances were available to everyone who had a digital inkjet printer; everyone could produce 'Italian tiles' time and time again – the process was repeatable.

None of this would have happened without one other element – the open ink model used in the ceramic tile market. This means that the ink is bought independently of the printer manufacturer and tile manufacturers are free to purchase their ink from the most competitive source and change that ink as often as is commercially attractive.

Xaar supports this open ink model by working directly with ink partners to ensure their inks work to maximum capability in its print-heads. In addition, Xaar engineers provide carefully tuned waveforms that jet the ink reliably and accurately. The open ink model has provided sufficient competitive pressure to reduce the price of digital inks in the ceramic market and this has been a significant contributor to the adoption of digital printing in ceramic tile production.

So, with all these positive factors, we have seen a rapid take up of digital ink-jet tile decoration since 2007. The revolution began in Europe where the majority of production lines are now converted to digital, but it rapidly spread to other large production areas, such as China, India and now Brazil, Iran and Turkey.

During this time Xaar has expanded its print-head family, by offering the Xaar 1001 GS12 in 2012, which is a larger drop version (twelve picolitre smallest drop) of the original Xaar 1001 GS6 (six picolitre smallest drop). The larger drop increased the amount of colour that could be achieved and has been perfect

Continued over

The winning tile of the Tecnargilla 2014 Design Awards used the new Xaar 001 print-head to jet Colorobbia inks

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Items shown in the above image are purely for illustration purposes.
***Primer may be needed for certain applications.**

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A tile printed with metallic inks by the TecnoFerrari Vivajet S4 using Xaar 1002 GS12 print-heads

for floor tiles, where deep, rich browns or dark stone colours are preferred. Alternatively the Xaar 1001 GS12 can be used to increase the speed of printing whilst still achieving the same level of colour as the Xaar 1001 GS6.

THE ALL-NEW XAAR 1002

More recently, in March 2014, Xaar released the all-new Xaar 1002 family of print-heads incorporating multiple innovative technology features, drawing on Xaar's many years in the ceramics industry to improve drop volume uniformity and drop placement accuracy for an even higher quality printed image. The Xaar 1002 print-heads feature 1000 Optimised Geometry nozzles that can jet and place drops with the highest precision on the market. As a result, the new print-heads produce the smooth tones and solid areas needed to replicate natural materials that are stunning replications of the real thing.

At Xaar we expect that the conversion of production lines to digital decoration will continue as it offers such great rewards. But what are the next challenges? Where else can digital ink-jet technology provide benefits? Leading ceramic tile manufacturers are also looking for ways in which they can add differentiation to their products again.

At Xaar we see a future where the whole of the production line is digital – with multiple printers linked to a common command and control centre.

STRUCTURE AND RELIEF

The first of these printers will be used to add the structure to a flat tile body. The present technique is an expensive process and, if we could do this digitally, we could change the relief pattern on every tile, in the same way that the coloured decorative pattern can be changed on every tile using digital ink-jet printing today. Bringing digital technology to this area of ceramic tile production would further reduce the set-up costs and time and we predict it would increase the number of tiles produced with structure.

This technique is also required in another emerging area of ceramic tile manufacture – large, thin tiles. These tiles are manufactured by extruding the base material, rather than by pressing it. Digital ink-jet printing could be used to add structure or texture to these tiles as it is an additive, non-contact process. This would increase the attractiveness and natural look of these tiles at the same time as avoiding breakage of the thinner, less robust tiles.

Such a digital printer would need to be significantly different from the digital tile decoration printers used today. The present digital ink-jet printers put down on average between two and eight gsm of coloured ink. To add structure (relief) to a tile would require hundreds of grammes per square metre; in addition the particle size would be significantly larger than that used today. The new Xaar 001 print-head will achieve these goals by jetting drops in the nanolitre not picolitre range. It will have a drop size of between 70 and 180 nanolitres, ie a factor of 1,000 greater than that of the present drop-on-demand print-heads.

A printer capable of this level of fluid laydown could also be used in other applications, for example applying the engobe and glaze to the tile body. Using digital technology in these applications could reduce the amount of fluid used and allow further creativity to mix effects on a tile. In the future a large volume digital printing technique could also be used to add technical coatings to tiles, for example non-slip, antibacterial, water repellent or other coatings. Tiles could also become more functional, for example embedding conductive elements to make sensors for alarms, lighting or other systems.

CERAMIC INK-JET INK COLOURSPACE

At Xaar we have also been looking at what can be done to improve the decorative patterning of tiles. One of the challenges during the uptake in digital ink-jet printing was that a new type of digital ink had to be developed. Previously with screen-printing, colour had been applied in pastes with large particle sizes, putting down up to 50 or 100 gsm (rotary and flat screen respectively) of material onto the ceramic tile before firing. The drop-on-demand ink-jet print-heads have internal dimensions measured in tens of microns, which meant that the pigments for digital printing had to be delivered in a liquid and that the particle size had to be carefully controlled to avoid particles blocking the channels and nozzles in the print-heads. So the particle size and amount of pigment being deposited had an impact on the range of colours that could be achieved.

Ceramic inks cannot use the same pigments as those used in other digital ink-jet applications – ceramic tiles are subject to very high temperatures during the firing process, up to 1,200 degrees C, in order to fuse the glass frit in the glaze to the body of the tile. Therefore the pigments used in digital ink-jet decoration of ceramic tiles have to be capable of withstanding these high temperatures. The only pigments that will not be destroyed by such a process are inorganic ones, for example metal oxides.

Traditional roller, or flat, screen-printing inks (pastes) contain high concentrations of solids, made up of inorganic pigments and frits, suspended in either mineral oil or glycols. So how does this compare with the inks that were developed for digital ink-jet application of pigments to ceramic tiles? Well, the carrier fluids are generally the same – oil or glycol – both for traditional and digital ink-jet ceramic

Continued over

The Xaar 1002 printhead family

COOLER ENGINES BOOST PROFITS

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inks. The choice of carrier fluid enables the surface tension and viscosity of the ceramic ink to be carefully controlled, which is important to ensure reliable printing or jetting of the ink, both for traditional and digital 'inks'. The significant difference between traditional and digital inks is the particle size allowed and the concentration of solids in the inks. I mentioned earlier that traditional inks were pastes; the carrier fluid is generally of the order of 10 to 15% by weight, the pigment 20 to 40 % and the rest is mostly made up by frit, with smaller amounts of other materials to adjust surface tension and inhibit agglomeration, etc. Digital inks are liquids, still with high pigment loadings of more than 20% and more by weight, but without the high frit loading.

The particle size in digital inks is dictated by the internal dimensions of the print-head. Drop-on-demand print-heads from Xaar and other manufacturers have dimensions that are tens of micro-meters, as they eject drops with volumes from as little as six picolitres. The reduction in particle size affects the colour space that can be achieved with digital inks. In some cases when pigments are ground to this small size they lose the majority of their ability to reflect light; alternatively some can be destroyed by the melting process in the kiln. All this makes it a challenge for ink manufacturers to find pigments that have good colour and are non-toxic.

MORE COLOUR WITH INK-JET

So what can be done? The final colour achieved by digital printing can be improved by two methods. The first is increasing the amount of ink that is put down by the printing process. The Xaar 1002 GS6 printhead has six to 42 picolitre drops and can place these in a 360 x 360 dpi grid when running at approximately 25 m/minute. If we calculate the weight of fluid laid down when running at 100% of the largest available drop size, with an ink of 1.2 g/cm3 density we can conclude that this will put down approximately ten gsm per ink colour. So if there are five colours used on the tile, the maximum weight will be 50 gsm for this print-head. Needless to say, when printing a ceramic image, it is not a 100% full coverage with all colours, so the laydown with a real image will be less than this, but it is all lower than what can be achieved with traditional ceramic screen printing pastes.

This is why Xaar introduced the Xaar 1001 GS12 in 2012. With twelve to 84 picolitre drops it was capable of laying down up to 20 gsm per colour, significantly improving the colour that could be achieved. There is always a trade-off to be made of course; larger drops are more visible to the eye and can make the printed image appear grainier. This is why the Xaar 1001 GS6 (now Xaar 1002 GS6) remains a popular print-head when fine detail is required in wall tiles where they are often viewed from a closer range.

Tile printed glossy white glaze and Smalticeram inks by the TecnoFerrari Vivajet S4 using Xaar 1002 GS40 printheads

This principle can be extended even further. Recently printers became available with the new Xaar 1002 GS40 which will have drop sizes ranging from 40 to 160 picolitres. This will further extend the laydown to up to 40 gsm per colour which is close to the capability of rotary screen-printers. Xaar predicts this will have a significant impact on the colour gamut that can be achieved. Again, though, this will come with large drops – so it will not replace the need for the Xaar 1002 GS6 or GS12, merely complement them, offering enhancements in colour where required.

It is likely that this large drop print-head will also be used to add decorative glazes to tiles, replacing the single roller printer sometimes used to add these after the decoration stage of the production line. Either this could be added as one or two extra print-bars to an existing machine, with perhaps a gloss glaze in one and a matt glaze in the other, or as a stand-alone machine in order to allow the colours to dry first. Removing this last roller machine would bring all the usual digital benefits to that area – reduction in set up time and costs, ability to change the glaze effect as often as you want, and of course enhance the range of creative effects that can be achieved on the tile – for example, more of the fusion tiles, where natural materials are mixed with modern overprints. Moving into this year, Xaar will release a further print-head in its Xaar 1002 family which will be capable of laying down more than 100 gsm on a tile.

THE RELEVANCE OF PARTICLE SIZE

If it's easy, then why hasn't it already happened? But of course it isn't that easy! We know that digital ceramic inks are already heavily loaded and have a tendency to sediment. If we can increase the particle size, then the tendency to sediment also increases. If we then have to reduce the concentration of the pigment in the ink to regain stability, we could be back to the same point at which we started. There is a significant amount of work to do to get the correct balance of particle size, carrier fluid, additives to achieve the viscosity, surface tension and drop velocities required to accomplish stable and reliable jetting of inks. Xaar's TF Technology will be vital in all of this. The constant circulation of the inks through the print-head and the ink systems is critical if we increase particle size and ink volumes. The flow-rate may also have an impact on the fluid behaviour and TF Technology delivers not only the highest flow rate, but also the widest range of flow-rates to accommodate techniques such as shear-thinning if required.

In summary I have outlined the Xaar roadmap for ceramics for the near future. The new members of the Xaar 1002 family available now and throughout the year will be simple to add for Xaar's existing printer partners as they will be capable of being driven by the same Xaar electronics and software that are available today. This will ensure that they will be rapidly available and can even be added to existing printers where there are available print-bars. These new print-heads form part of our continuing investment in R&D aimed at driving Xaar's vision of digitalising the entire deposition process in the ceramic tile production line. ■

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UV MEASURING IN DIRECT CONTAINER PRINTING

Karlheinz Mohn describes how specialist products can assist in this production segment

These days there are two different ways of using UV lights for the drying process – medium pressure mercury lamps and UV-LED (Light Emitting Diodes). Both technologies are very different and need varying recipes of the UV-colour system. The physical parameters of UV power (intensity) and UV energy (dose), as well as the emitted light wavelength, can be determined for both technologies and are, therefore, comparable.

Under the irradiation of a strong UV light source the process of the perimeter feed hardening of UV coating or UV colour system runs as follows – the UV radiation releases a chemical reaction. The photoinitiators and other UV-reactive parts respond to other components of the colour and result in linking up the coating (drying process of the colour).

DIRECT CONTAINER PRINTING REQUIREMENTS

In practice, the measurement of the UV dose is implemented and, usually, the UV-output is measured for a special amount of time, generally during a continuous process. The accompanying process control of the UV light allows for the main elimination of the uncompleted curing and, therefore, reduces waste. This is especially important for direct container printing technology as this application is mainly used for printing on to high end products.

The adapter which is needed to use the UV integrator with a printing machine or a UV dryer is part of the supply. It is constructed according to customer demands, and one or more additional adapters can be ordered optionally.

With the Aktiprint UV-Integrator CE Full-UV, Technigraf now offers a practicable and user-friendly solution for this technology. The novel integrator is very easy to use and shows the measured UV dose in a display. Due to a measuring range from 250 to 410nm the CE Full-UV can be used for all medium pressure mercury lamps. The UV-Integrator CE is calibrated according to DIN EN ISO/IEC 17025 and, therefore, fulfils the requirements of modern quality management systems. An integrated heat shield is an additional feature of the UV-Integrator CE Full-UV.

LOW COST OF OWNERSHIP

The Aktiprint UV-Integrator CE is a special UV measuring instrument which claims to meet the demands of direct container printing, combined with low costs of ownership (only involving re-calibration expenditure). Furthermore a UV-LED sensor is available to allow the process control of UV-LED systems.

By 2015 Technigraf had already launched new UV measuring instruments such as the Aktiprint UV-Integrator Full-UV and the Aktiprint UV-Integrator LED-UV (see the article in *Specialist Printing Worldwide*, Issue 3/2015). Now, the company has introduced a new product to the market for use in direct container printing. The resulting Aktiprint UV-Integrator CE Full-UV is a measuring instrument for this type of specialist application.

Technigraf's Aktiprint UV-Integrator Full-UV

Technigraf is a small to medium sized enterprise with 50 years of experience in the ultraviolet light sector (UV). The company manufactures equipment for the generation of UV light for graphic and industrial printing applications. Three product groups define its portfolio. These comprise exposure units, UV curing systems and UV measurement equipment. In the past five decades the products have gained a good reputation for quality and stability. ■

Karlheinz Mohn is Managing Director of Technigraf

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SUBSTRATE EFFECT ON SCREEN-PRINTED FLEXIBLE CIRCUITRY ACCURACY

A capability study returns a newly designed PET substrate

In computer science they say "garbage in, garbage out" referring to a logical process wherein poor quality input can only produce poor quality results. We can relate to this in screen-printing. Processing a job using even one poor-quality intermediate (jagged film positive, or a homemade exposure unit, or expired ink) cannot be expected to produce ideal finished results, regardless if all other intermediate hardware and consumables are of the highest calibre.

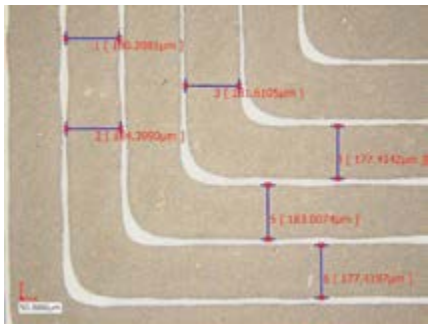

Figure 1: 100µm Ag lines/spaces on standard treated PET, 89% max spread

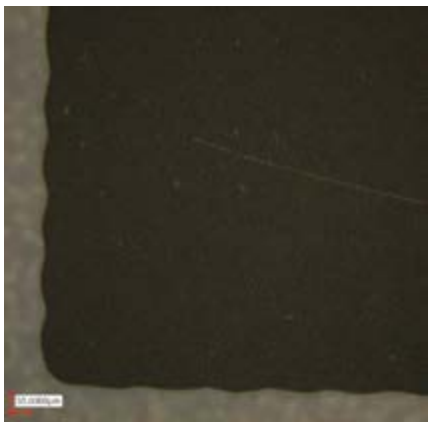

Figure 2: 50µm Ag lines/spaces on standard treated PET (complete shorting)

Professionals in flexible printed electronics realise this dilemma and are willing to invest in high-performance materials and equipment in order to yield high-quality screen-printed circuitry. Beginning with an engineer-designed digital CAD rendering, a high resolution film positive is processed from an $80,000 plotter. That photo tool image must be replicated with a high quality polymer stencil via a finely tuned and focused $10,000 exposure system. This photopolymer stencil layer is supported by a high-strength, low-elongation, metal alloy mesh, perhaps stretched trampoline-style by one of a handful of capable individuals, with a completed cost somewhere to the tune of $200/square ft.

Once we bring that prepared screen to press, we expect our company's most talented $30/hour press operator to load $1,000/kg silver conductive ink into our $120,000 screen-printing press and immediately begin turning out high-quality conductive circuitry printouts … on a flexible polyester material provided by the lowest bidder at nearly $0.25/square-foot.

"BEAT IT INTO SUBMISSION"

In spite of his best efforts, knowledge and experience, inevitably the press operator must still "beat it into submission". He has a multitude of variables to control on press alone – off contact, down stop, squeegee hardness, squeegee angle, squeegee pressure, squeegee speed, to name the primaries. And, it seems, even repeating the same job under the same set-up never produces exactly the same results without first torqueing down on more knobs, twisting dials, cussing and kicking something. In many cases, the original artwork must be modified and the process starts over, delaying the time of delivery to the customer and creating wasted time and material.

A year-long study was conducted by a small group of progressive printed electronics' professionals. It consisted of a flexible circuit fabricator (GM Nameplate), a photo stencil manufacturer (Chromaline) and a conductive ink manufacturer (Engineered Materials Systems). The goal was to screen-print the narrowest, most accurate conductive line possible in a typical production environment using commercially available, cost-conscience materials.

In spite of using a precision photo tool (25,000 dpi), a capillary film capable of copying that image on high open area mesh (400 tpi, 0.0007" diameter stainless), a rheology-optimised silver paste and a master press operator, it was the interfacial compatibility between the silver paste and the substrate material that made the most significant impact on the final print quality.

Beginning with a photo plot of alternating 100µm (±2 µm) lines and spaces, using an industry standard print treated polyester produced an average printed line width of 179µm (range of 164-189µm). (Figure 1.) The silver paste flowed as designed, to transfer from squeegee side to substrate, during the print stroke; however, the surface tension of the substrate was unable to assist in retaining the ink flow to within the intended print width.

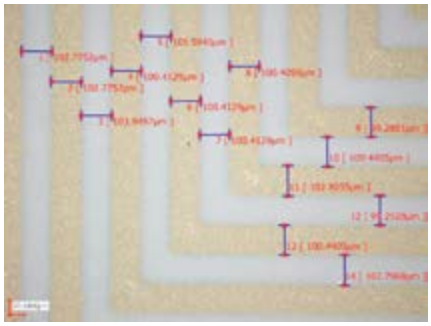

Figure 3: 100µm Ag lines/spaces on coated PET, 9% max spread

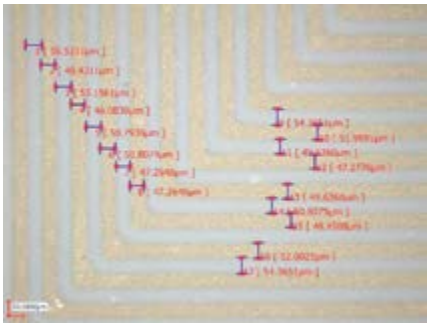

Figure 4: 50µm Ag lines/spaces on coated PET, 8% max spread

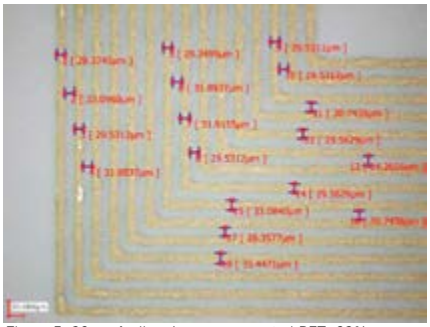

Figure 5: 30µm Ag lines/spaces on coated PET, 23% max spread

Reducing the line and space widths down to 50µm produced complete shorting, (Figure 2.) All printed lines spread at least 100%, revealing the limitations of line and space fineness on standard treated PET. Typically with these results, artwork must be adjusted, screen remade/reordered and the job reran.

Considering that the trend in many electronic devices is to either make it smaller and/or higher density of functionality in the same space, forward-thinking manufacturers may begrudgingly be forced to move to more expensive, less productive processes in lieu of screen-printing. But still, those doing today's work may strive towards continuous improvement – to produce higher quality flexible circuitry with lower rejection rates.

SUBSTRATE, REDESIGNED

Slightly refined printed line quality was found when substituting in an 'etched' PET with increased surface roughness. However, to significantly improve the quality of the printed trace, a new flexible substrate was engineered to provide interfacial compatibility as well as to inhibit paste spread. Utilising a pre-stabilised polyester carrier, a surface coating was formulated to receive the silver particles while absorbing the paste's solvents, preventing lateral spreading along the surface.

Substituting this newly created coated substrate in for the standard PET, while maintaining all other variables unchanged, produced dramatically improved results. Reprinting the 100µm lines and spaces now achieved a maximum spread of only 9% (range of 96-109µm) from the original artwork dimension. (Figure 3.)

This substrate's ability to restrict paste flow allowed further reduction in printed line width while maintaining accuracy and conductance. Comparing the same 50µm line and space features as before, the coated PET now permits higher density of trace features without shorting. (Figure 4.) Calculations over several prints yielded an average trace width of 49.1µm; 44-54µm range.

This study answered our initial goal – using non-exotic, commercially available equipment and materials, alternating 30µm line and space features could be screen-printed with reasonable accuracy and consistency. Again, utilising the coated PET substrate, the final print produced an average line width of 30.8µm, with a range of 26-37µm. (Figure 5.) Note: all printed results shown here used the same ink and stencil.

CONCLUSION

Whether it is qualifying capabilities for next generation flexible circuitry, or achieving greater throughput and latitude for your press operator, a single variable introduced into the process can either create opportunities or obstacles. In this study, despite investing in high quality stencil materials, ink and equipment, plus an experienced press operator, choosing a low-cost substrate caused press set-up difficulties and prevented intended results. The development of a new type of flexible polyester-based media enabled greatly improved printed line accuracy when all other aspects were optimised. Quality in; quality out. ■

Photos courtesy of Engineered Materials Systems, Inc

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AN INDUSTRY SECTOR STILL WAITING TO HAPPEN

Ruth Zach explores whether the textile digital printing revolution is just around the corner

Any veteran printer can spurt out the advantages of digital printing over traditional printing and can discuss, with passion, the unsurpassable quality and colour variety, the absence of plates and the ability to print short runs easily without any preparation. Then how come the adoption of digital printing technology is still slow in many industries?

The graphic arts sector, signage and packaging industries are examples of those which adopted digital printing technologies alongside traditional printing. Yet, some sectors are very slow to adapt to digital in spite of its advantages. These sectors are likely to be high volume printing industries such as paper and industrial surfaces of all kinds and textile. These industries are reluctant to hop on the bandwagon usually due to each application's particular drawbacks. But in most cases manufacturers are simply oblivious to the availability of digital printing's advantages and capabilities also for high volume industries.

TRADITIONAL METHODS

In the textile industry, the majority of printing is done using a traditional analogue method but there is a growing interest for digital printing on textiles. This demand may have emanated from dye sublimation printing on polyester, achieved easily with a simple digital printer usually with the addition of a transfer paper. But the demand may have emanated from the textile industry's latent acknowledgment of digital printing capabilities.

Dye sublimation proved perfect for short runs on polyester and is used mainly for banners and flags. However, the mass of textile printing is still in clothing and home textile which are still battling the fabric restrictions limiting the printing onto a single type of fabric, mainly cotton or viscose, but also blended fabrics such as the common poly-cotton or viscose-spandex fabric blends.

Nevertheless, with all the available diversity the textile industry shares the same barriers. The large variety of fabric types, whether natural such as cotton, wool or silk, and man-made fabrics such as polyester and blended fabrics which require different types of inks as well as the need for pre and/or post treatment makes it difficult for the textile industry to turn to digital printing. Any textile printer manufacturer would tell you that in order for textile printing to become digitised, these processes of numerous inks and fabric treatments must be simplified.

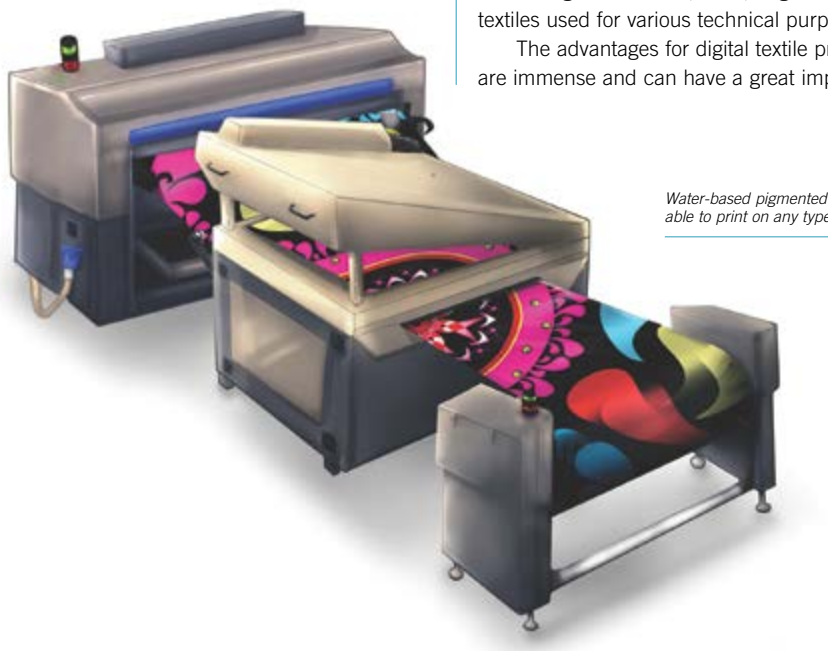
GREAT DIVERSITY

While textile is still about clothing and home-use textiles, the textile industry as a whole is one of the largest printing industries in the world with great diversity. Textile printing is also used in industrial textiles which include hundreds of types of textiles for many industries such as automotive, upholstery, outdoor gear, protective clothing, agro-textiles used in agriculture and, even, engineering textiles used for various technical purposes.

The advantages for digital textile printing are immense and can have a great impact on the textile market as a whole. Today, a major drawback for mass textile printing is the design. Digital printing enables higher colour definition with short design time which is not possible with traditional printing. Furthermore, printing can be done in short runs at low investment cost both in capital equipment and in materials, fabrics and inks.

Another advantage of textile digital printing, which is receiving higher profile attention among manufacturers, consumers and environmentalists, is the substantial lower cost of production in terms of electricity and water consumption of more than 30% savings on electricity costs and almost 95% in terms of water consumption.

Savings on stock with the ability to print on demand in small quantities is an additional advantage. This is a great benefit for the fashion industry and especially for small designer collections requiring high quality printing on unique fabrics.



Water-based pigmented inks are able to print on any type of fabric

THE ANSWER LIES IN THE INK

The fabrics being used in the textile printing industry are so diverse that there could be thousands of textile types used. Some are from a natural source, some are man-made, some are coated and others may be pre-treated or post-treated depending on its final application or manufacturing procedures. So how can you simplify the printing process? The answer lies in the ink.

In the current situation in order to print on different types of textiles, whether analogue or digital, you would need different types of inks. Each ink is suitable for different types of fabric. On top of the printing quality, the printer must ensure the stability of the ink on the fabric including wash and rub resistance as well as non-fading qualities essential for long term use.

The inks used for printing on textiles are divided into two types, these being dye or pigmented, and all are based on water as the main carrier. With dye inks there needs to be a distinct affinity between the fabric type and the ink that is used for the print, because different inks do not adhere to specific fabric types. Cotton and silk fabrics require reactive dye inks while silk and nylon require acid dye ink. Polyester requires disperse dyes such as used in sublimation printing. This type of ink specification restricts the industry's ability to provide effective printing solutions and limits the ability to print on blended fabrics.

Pigmented inks, however, as opposed to dyes, are suitable for many types of fabric printing. In fact, a small number of manufacturers now offer pigment water-based ink for digital textile printing which is suitable for a large array of fabrics. One ink for all fabrics is the newest revolution for the textile market since it takes textile printing into the digital era.

THE BENEFITS OF PIGMENTED INKS

The ability to print on a large amount of fabrics is achievable because of the way pigment ink printing is made. Instead of penetrating the fabric and binding to it as dyes do, the pigments bind to the top layer of the fabric only in a micron thick layer. This allows the print to be done on virtually all types of fabric, providing the correct pre-treatment is done. The thickness of the layer and its bind to the fabric determine the feel of the end result, where a thick layer will result in the loss of the fabric's natural feel.

There are a number of high reputation ink manufacturers who offer uniform water-based pigmented inks for all fabrics. Although they all boast of their truly remarkable innovation, there are still some parameters which differentiate one manufacturer from another, especially print quality, the variety of fabrics that can be printed on and the technical attributes of the final result.

One of the newest water-based pigmented ink capable of printing on all fabrics worth noting is the Velvet Jet ink, whose manufacturer is able to provide better adherence to the largest amount of fabric types than any other competitor. Velvet Jet ink has been tested on cotton, polyester, silk, rayon, viscose, and many other fabrics, as well as different blends of these fabrics, all with outstanding print results. The fact that the ink binds perfectly to all fabrics ensures high print quality and uniform colour coverage, without colour shifts or shading.

BONDING WITH THE FABRIC

The bond to the fabric is achieved by the ink composition and features and by the pre-treatment process, referred to as Optimizer by Velvet Jet. The optimiser can be applied by the user to the fabric in a simple procedure using a padder or purchase fabrics already pre-treated. The optimiser enhances the bond between the ink and the fabric providing unmatched ink characteristics.

With all standard ISO tests, the Velvet Jet ink scores very high on all the parameters required for printing on textile. Velvet Jet scored the highest marks for wash fastness and rub resistance (5/5) and 7/8 for colour-fastness which ranks the product as paramount among its competitors. The Velvet Jet ink displayed very impressive results even when printed on non-treated fabrics, and customers may want to try both treated and non-treated fabrics in order to decide on the right process for them.

In addition to the large variety of standard clothing fabrics, Velvet Jet was also tested on leather and synthetic leather (PU) and produced the same quality print results. This opens new markets for use with textile ink apart from garments. The home décor and furnishing industries can now produce custom made and limited addition lines in an effort to stand out from the competition.

The textile digital printing scene is warming up and presents a challenging solution for the industry. If the pigmented water-based ink would live up to the standards it has set forth, the textile industry would be another of many industries that the digital printing revolution has infused with new opportunities. Designers, textile manufacturers and digital textile printer manufacturers all have a lot to look forward to since they will be entering a new era in textile printing that could shake the textile industry to the core. ■

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ARE YOUR DATA ASSETS BACKED-UP PROPERLY?

Chuck Nall runs through the most important aspects of protecting your most valuable data

The most important assets screen and digital printing firms possess is neither the latest equipment nor a building. Some might answer it is financial and billing records and, while they are important, the single most important asset a screen and digital printing firm possesses is the inventory and archive of art and separations complied over the life of your business.

Why is this the most important asset? Buildings and equipment can be replaced rapidly, yet the thousands of hours of artwork cannot be replaced speedily, leaving customers with the unfortunate problem of extended lead times for orders. Normally these orders were previously quickly turned around. Now these files may take hours to duplicate, which might be impossible to duplicate precisely – will your company be able to charge adequately for the duplicated art? Some customers will simply move on.

INEVITABLE FAILURES

By now everyone knows that computers and hard drives fail and you have some sort of back-up hard drive and storage for every device. This is better than nothing but, if your business encounters a physical disaster like flood, fire or earthquake, your business will likely lose the physical backups along with the building loss.

There are three basic rules for data that cannot be easily replaced (this includes financial as well as art and separations). First is to automate backups. This will allow you not to think about backups, while they are done. This is particularly useful for review of version changes. Redit6 and Time Machine for Apple Macintosh machines are respected software for this. This is the first line of protection. Neither of these is great for a 'full system' restore but is quite useful for quick recovery of documents lost to power outages or simply a version review.

Second in your plan will be a back-up designed to clone each computer hard drive. These should be done nightly. Again these are automated and no thinking is required. These types of back-up are designed for complete computer or hard drive failures. In the computer world the axiom is: "It's not if your computer will fail, but rather when it will fail." Be prepared! If you have many computers (say, more than six) this can easily be done by creating a server on site and automating a 2am back-up of all devices. In your server setting you will also copy the complete back-up to protect from server failure. This is probably best done by an outside firm, but can easily be maintained once it is set-up properly.

THE PERILS OF DATA LOSS

Most companies have portions of both of these strategies running, and depending if your company has experienced data loss will depend on how automated and complete your two 'on-site' backup strategies are. If you have suffered from data loss the more serious you will have become.

The third strategy protects you from physical damage such as fire, flood or any other acts of *force majeure*. These back-ups are done automatically to off-site or cloud facilities. They are both useful for version retrieval, complete data loss or replacement due to theft or physical building damage. There are many firms that offer off-site or cloud back-up services, such as Dell, Google, Amazon Cloud Services, Carbonite or CrashPlan.

Plans vary in price and, since art files are quite large, you will need to study what is the best insurance for the price for your company. Once you have selected the ease of use and affordability of your off-site partner you need to understand that, depending on your Internet connection speed of your business, the initial back-up may take several weeks to complete. Another consideration before selecting an off site partner is whether it offers full hard drive replacement (seeded drive). This service ships a full hard drive in hours from request. This is very useful and much faster than downloading 100s of Gigabytes of replacement data which could take many hours. In choosing an off-site back-up partner you will need to balance ease of use, price, your Internet speed and ease and speed of data retrieval – all of which are unique to every business.

DON'T WAIT FOR FAILURE

Do not wait until you have experienced a complete loss of data or loss of a good regular customer until you complete your back-up strategy. A complete data recovery plan is three parts:

1) automatic hourly or version changes back-up on each computer primarily for version retrieval (on-site),
2) automatic and complete full daily back-up of each computer to protect from complete computer or hard drive failure (on-site), and
3) remote backup (off-site) to protect from physical damage to your building site.

Of course some of these strategies are better than simply waiting for data loss to occur, but all three will protect your company from data loss of your company's most important asset. Art assets are near impossible to replace in their exact form and certainly twenty years of digital art cannot be replicated in two weeks.

Backup often, completely and off-site. ■

Chuck Nall works in sales at Easiway Systems

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A QUARTER OF A CENTURY'S GROWTH LIES BEHIND PROVEN ACHIEVEMENT

Robert Marshall looks at the solid backbone that has led to success in the world of routing

AXYZ International is a leading global manufacturer of CNC router systems and CNC knife systems. Designed and built at its state of the art factory in Canada, the company's CNC routers are supplied and supported through a global network of sales and support offices and authorised dealers. With more than 366,918 standard machine configurations, AXYZ specialises in matching machinery to customer's unique needs and budgets.

All types of manufacturing operations are profiting from AXYZ technology developed during its 25 years in the industry. These include aluminium composites, signs and graphics, wood-working, plastic fabrication, point-of-purchase, metal fabrication, solid surface and many more.

FROM THEN TO NOW

Founded in 1990, AXYZ International was initially set up as a service company, installing and repairing several brands of CNC routers. It wasn't until 1994 that it started to manufacture its own CNC routers having relocated to a new headquarters in Burlington, Canada. Production was slow at the beginning but the sales and service force rapidly grew, establishing a global reach with additional offices in Quebec and the UK.

By 1999, AXYZ had opened an office in Poland, enhancing its global reach. In 2001, it had already sold 1,000 machines, and as such expanded its UK sales and support office. Three years later, AXYZ had sold 2,000 machines and opened offices in India and the USA. Further growth saw AXYZ acquire Pacer Systems in the UK and Camtech International based in Calgary in 2006 and 2007. Soon after, AXYZ launched its ground-breaking A2MC Machine Controller, taking its CNC machines to the next level.

AXYZ International's UK headquarters is based in Telford, UK

By 2010, AXYZ had eleven offices around the world including Burlington, Montreal, Calgary, Vancouver, Los Angeles, Cincinnati, Atlanta, Wolverhampton, Nottingham, India and Poland. The same year saw AXYZ sell its 4,000th series machine which went to a customer in Edmonton, Alberta. Four years later, it was quite fitting that the company celebrated 20 years of manufacturing with the sale of the 5,000th AXYZ machine.

AXYZ continue to expand having recently built new, purpose-designed premises in Telford, UK, launched a new hybrid machine system called the Trident Series and opened a new sales and support office in Tampa, Florida.

AXYZ International has now established itself as a world leader in providing versatile, configurable and revolutionary high

Continued over


An AXYZ series CNC router cutting acrylic

Cutting aluminium with an AXYZ series CNC router

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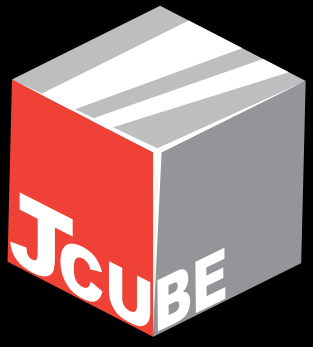

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The current AXYZ series CNC router

performance CNC routing, engraving and knife cutting solutions. However, exponential growth throughout a 25-year period wasn't achieved on a whim – AXYZ firmly believed in three key principles. These were being fast, flexible and direct and, as yet, this philosophy has not steered the company wrong.

FAST

AXYZ has changed the whole concept of speed, especially when delivering a customised machine. Back in the 1990s it could have been as much as thirty weeks or longer to build and deliver a machine. In 2015, with its exceptional manufacturing processes, AXYZ offers the shortest manufacturing lead times in the industry, averaging four to six weeks.

All AXYZ CNC router systems are engineered, manufactured and delivered to meet your exacting timescales, and one might ask how this can be achieved. Right from the beginning customers will notice a systematic approach to finding the right solution, and a thorough assessment of organisational needs formulates a customised solution. A clear work-flow means that the state-of-the-art machine building facility, aided by unique manufacturing processes, is able to build the system as quickly and efficiently as possible.

The new system is then delivered and installed by a factory trained AXYZ engineer, followed by a custom training programme tailored to the machine's unique configuration.

FLEXIBLE

One of the greatest strengths of AXYZ International is the ability to configure a machine to suit almost any specific manufacturing need from one-off projects to high volume manufacturing. The ingenuity of its manufacturing and engineering departments allows for ultimate freedom. The ability to produce its own machine controller has made the impossible possible, passing the benefits onto both new and existing customers.

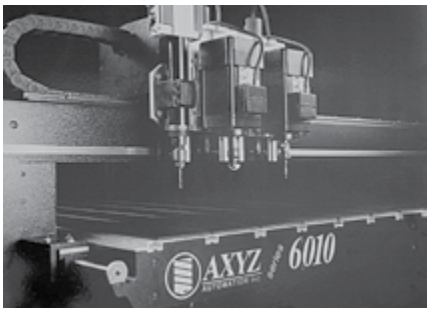
With that said, AXYZ offers a range of configurations to meet almost any application requirement. Despite this flexibility, the company's refined processes have ensured there is no compromise on quality.

Starting with process areas, AXYZ offers its most compact full-size machine, the AXYZ 2000 Series. Perfect for customers with limited workshop space, the 2000 series offers a processing width of 711mm, whilst the largest standard machine, the 10000 Series, offers a huge 3270mm wide process area, all of which can be specified up to 15m long.

It's not only the bed size which users have the luxury of choosing, they can specify a single, double or even triple-head carriage to manage multiple operations. Considering the range of cutting heads that can be used – routing spindles, knife units, drills and more, and all the ways in which they can be arranged on the machine either with or without an automatic tool changer, and all the other optional features – the possibilities are almost endless.

Having said that, the engineering department is continuously working on new developments, and there is always something new around the corner.

AXYZ International's headquarters is based in Burlington, Canada.



The very first version of the AXYZ series CNC router

DIRECT

The AXYZ International team believes it's crucial for on-going success to keep in touch with its clients. So much so, there are sales and support offices in Canada, the USA, the UK, Poland and India, enabling the company to interact directly with more than 90% of its customers.

Direct contact be it physically, via the phone or the web, makes it not only easy to visit, research and purchase a CNC router, but it ensures that the after-sales service is more approachable and invariably better. Each of the company's eleven locations have dedicated sales representatives who have the skills and knowledge to provide individual, bespoke product demonstrations, to ease the customer's mind and answer questions in a convenient location, close by. The after-sales service department operating under the CNCRoutershop brand has factory trained engineers on hand in each location ready to respond, whilst the 24/7 on-line store provides spare parts, software and online support, which means users are in direct contact with the factory.

IN CONCLUSION

With more than 25 years of experience, AXYZ International is a trustworthy partner that strives to provide the right solution for long-term success. ■

Robert Marshall is VP Market Development at AXYZ International

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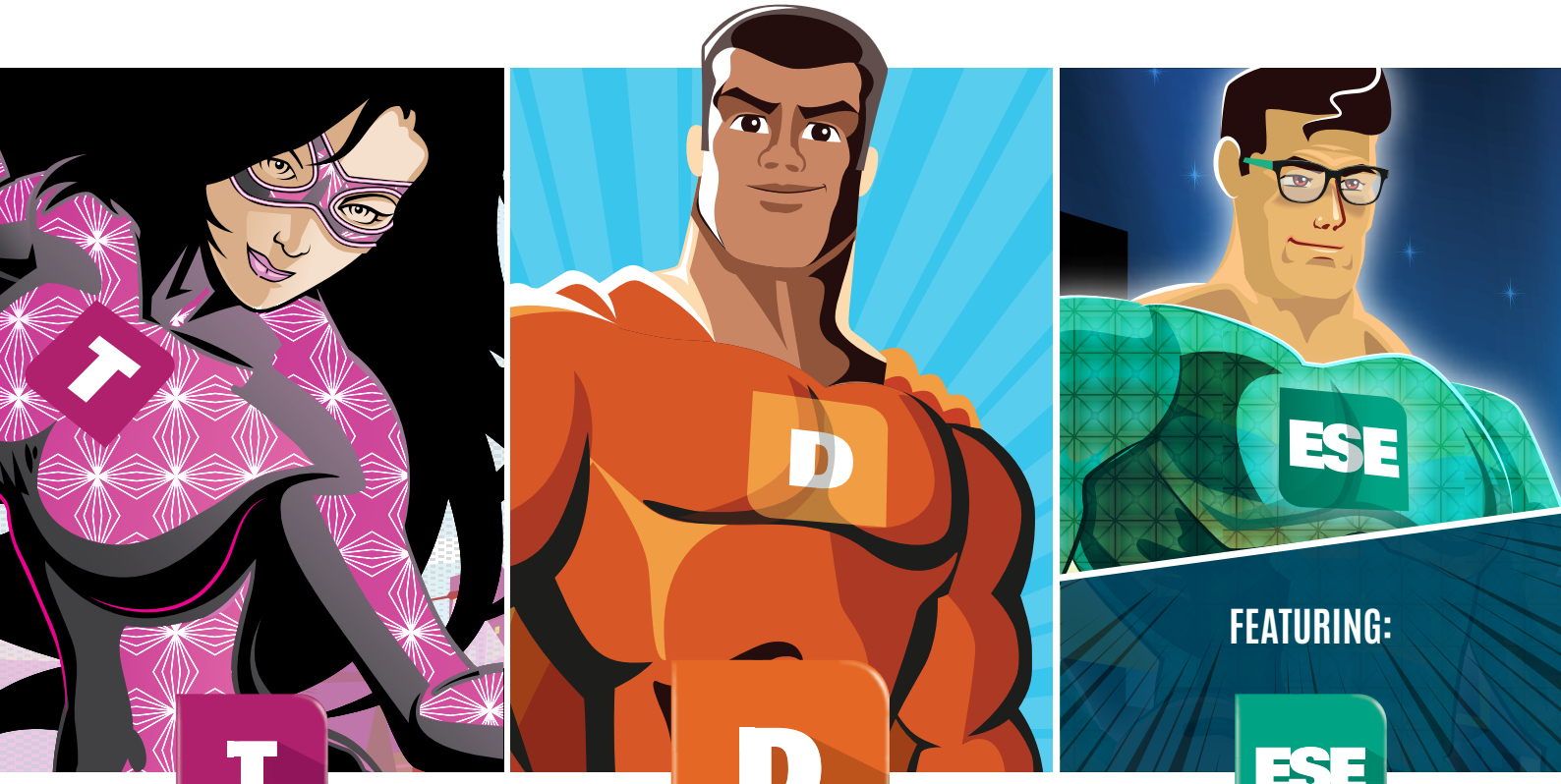

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IMI Europe announces new ownership and plans for the future

After 17 years of running successful ink-jet conferences and courses, Mike Willis has stepped down as Managing Director of IMI Europe and sold a majority share of the company in a transaction that closed on 31 December 2015. Willis will become Chairman with an advisory role in the company and retain a minority stake in IMI Europe.

"After many years of running IMI Europe, as well as my consultancy company Pivotal Resources, it is time for me to take a less active role in running conferences and have some more time to myself," Willis comments. "We intend to continue to grow and develop the company but it is time for someone younger to take over the main activities."

Dr Tim Phillips, formerly of Xennia Technology and Sensient, will take over as Managing Director and majority owner of IMI Europe.

"This is an extremely exciting opportunity for me," adds Phillips. "I am very pleased to take on the challenge as I have had the ambition to own and run a company for many years. IMI Europe is an excellent business which I believe will benefit from the new ideas and energy which I bring. We have already launched one new event, the Inkjet Ink Development Conference in Lausanne, April 2016 and will announce further plans for growth in the future."

Phillips is also launching Catenary Solutions Limited, a technology marketing consultancy, offering expertise in commercialising technology products, drawing from 24 years of experience of business development and marketing roles in global technology companies. ■

Dr Tim Phillips (left) with Mike Willis

New ValueJet 1624X from Mutoh offers useful ink choices

Mutoh Belgium has introduced a 1.65m wide single-head piezo drop-on-demand sign and display printer. Designated the ValueJet 1624X the new 1624X printer is the successor of the company's best-selling ValueJet 1624 printer introduced in 2011.

Delivering sellable production speeds at 720 x 720dpi up to 20.5 square m/hour, the VJ-1624X integrates Mutoh's industry-leading Intelligent Interweaving (i²) and new revolutionary DropMaster print automation technology. Other novelties are a newly designed motorised take-up system for rolls up to 30 kg and Eco Ultra litre ink bags.

The VJ-1624X printer can be configured with Mutoh Eco Ultra or Universal Mild Solvent (UMS) inks and is targeted at long term outdoor and indoor sign and display applications. These include posters, banners, backlit signage, wall coverings, point-of-sale displays, fine art reproductions, vehicle graphics, stickers and much more. For the UMS formulation, Mutoh recently obtained a pan European Indoor Air Comfort Certificate, which makes the inks ideally suited for the production of indoor deco prints. ■

Mutoh Belgium's ValueJet 1624X joins the company's wide-format portfolio

Azon's new Mirage ups production potential for direct-to-garment printing

Azon states that its high volume 600 x 800mm format Mirage direct-to-garment printer allows users to print on a wide range of materials such as silk, cotton, polyester and other fabrics. T-shirts, sleeves, jeans, caps, aprons, sheets, dresses, and cloth panels are among the finished garments which can be produced.

This advanced, fully automated system includes specially designed dual platens with dimensions of 300 x 500mm for printing on different colours of garment and samples, thus increasing the productivity and profitability of this machine. They are easily changeable for a single, wider table.

A maximum resolution of 1440dpi is complemented by fixation of the inks to the garment via heat press, with time and temperature depending on whether the garment is printed with white ink. Those using only with colour layers have an average time and temperature of 25 seconds at 180 degrees C; for colour and white layers the estimated time and temperature is 90 seconds at 160 degrees C. With fixation time half that achieved previously, multiple garment production prints can be obtained that are highly durable and washable without colour fading. It delivers beautiful full colour garment on a scalable printable field area.

The new improved LCD touch screen, larger 220ml ink cartridges and the new sophisticated software Azon RIP are just some of the new features this machine offers. Unlike the previous generation with a belt system, this machine has implemented a servo motor and ball screw system, enabling forward-backward movement of the printed object with maximum accuracy. Azon says its Mirage delivers faster production, more flexibility and high efficiency when producing the desired result. ■

Azon's new Mirage carries many refinements

Automated solutions from Zünd increase productivity levels

Zünd says it has further automated material off-load with a new UR robot that picks and stacks cut materials, and which helps users increase productivity while reducing labour costs. This type of robot does not require caging and relieves the operator of mindless, repetitive tasks. In contrast to its larger cousins working behind glass and safety fencing in automobile factories or other large manufacturing plants, the UR robot is lightweight, flexible, and can be easily moved as well as reprogrammed for new tasks.

The robot can work non-stop, with great precision, and is designed for meeting the demands of ever-changing production schedules and decreasing run lengths. By integrating the UR robot with its digital cutting systems, Zünd can now offer customers a highly productive, yet cost-effective automation solution for cutting parts and separating them from waste. The robot takes care of stacking parts effectively, reliably, and without the use of bridging.

While the system continues cutting, the cut parts are automatically stacked and can be removed without interrupting production. The combination of a high-performance Zünd cutting system with automatic sheet feeder, automatic touchless file retrieval via QR-code, and a collaborative robot off-loading parts from a cutter extension, creates a completely automated production workflow. This frees up personnel for performing more challenging and value-creating tasks.

For customers who previously resorted to traditional die-cutting for their medium-length production runs, the UR robot represents a very economically attractive alternative. Its compact build, comparatively low capital and operating costs result in a very quick ROI, claims Zünd.

The new collaborative robot does not require a safety cage

The Zünd ARC increases routing productivity

With the new automatic bit changer ARC, the company has developed yet another automation tool for the sign and display industry. This new feature makes high-volume routing, polishing, and engraving more economical, reliable, and user-friendly than ever before. The ARC actively supports the user in keeping mistakes to a minimum. With delivery times being continually shortened and the diversity of required materials demanding such a wide selection of different routing, polishing, and engraving bits, manual bit changes become increasingly tedious and error prone. Mistakes tend to cause unnecessary down-time and can even necessitate costly machine repairs. With the ARC, tool handling is greatly simplified and the potential for faulty bit changes all but eliminated.

The ARC also simplifies bit management. The user can make sure he always has the most commonly used bits available in the magazine and, because of distance tracking, is always aware of how long each bit has been in operation. At the same time, the ARC also increases cut quality and the longevity of each bit, since the user can easily assign one or more bits to specific materials.

Bits that are used exclusively for routing acrylic, for example, have a significantly longer life expectancy than those that are used to switch back and forth between different materials. For best results, a router bit that was used for processing wood products should never be used for processing acrylics since it will not be able to maintain the edge quality generally required for acrylics applications.

The ARC magazine can accommodate eight router bits with a shaft diameter of 6mm. Positions 7 and 8 can be used for shaping bits with a cutting diameter of up to 10mm, such as the V-grooving bit R141. With a couple of extra brackets, the magazine set-up can be quickly changed to accommodate regular bits in all positions, including 7 and 8. An integrated cleaning station is located at the top of the magazine; using compressed air, the system ensures each bit is cleaned and ready to go before returning it to its designated slot in the magazine. ■

EFI declares victory in patent litigation

EFI has announced victory in a patent lawsuit filed against it in June 2013. Componex, Inc sued Electronics For Imaging (EFI) alleging infringement of two patents – these being US$6,113,059 and US$6,685,076. But EFI maintained from the start that the lawsuit was meritless and, in October 2014, a Wisconsin federal district court agreed.

The court invalidated one of the two patents and found that EFI did not infringe the other. The court then entered judgment entirely in EFI's favour and ordered Componex to pay some of EFI's costs. In October 2015, the Federal Circuit Court of Appeals rejected Componex's appeal in a one-word opinion.

"At EFI we are proud to bring innovative solutions to our customers at competitive prices," says EFI General Counsel Alex Grab. "Componex chose a different path. Rather than responding to lower prices from its competitors, Componex filed a meritless lawsuit against one of its own customers, us. We are pleased that the courts agreed with our positions, and will continue to defend ourselves vigorously against anyone who chooses litigation over competition in the market." ■

Coherent adds longer life and lower operating costs in its latest META CO_2 laser solution

Coherent has announced the newest addition to its META family, the M1.5C laser machine tool. Utilising the same sealed, pulsed CO_2 system as the M2C, the M1.5C offers manufacturers and artisans a lower cost solution while delivering the same flexibility and ease of use as the other field proven META machines.

This 150W laser delivers a longer life (30k hours) and a lower operating cost compared with flowing gas lasers typically available in this power and price range. Suitable for processing a broad variety of organic materials such as wood, acrylic, polymerised substrates, leather, rubber, plastics, and flexible circuit materials, the M1.5C delivers both an engraving and a cutting capability.

As in all Coherent META machine, the M1.5C offers the same easy to use HMI and CAM software as well as several options to increase the capabilities for both application specific needs (such as vision alignment) and productivity (pallet automation).

Suitable for industrial production, R&D facilities, and lifestyle businesses, the small footprint and Class I laser safety of the M1.5C make it a very productive addition to a wide variety of settings. Upgrade possibilities will also be available for this product line should the need arise for more power, enabling the user to get into production at a lower cost and move up to the next power level without replacing the machine as their needs increase in the future. Coherent states its new CO_2 laser machine offers flexibility, capability, ease-of-use and productivity in a compact package. ■

Coherent's new M1.5C is suitable for any graphics' shop

Kiian Digital new ink portfolio includes quick dry option for Panasonic print-heads

The new range of industrial inks from Kiian Digital has bright colours which the company says enables a wide colour gamut and quick drying, optimising production time. It chose the 2015 SGIA Expo in Atlanta last November to launch its new portfolio which is designed for Panasonic print-heads.

Designated Digistar Sublisonic this is a dye-sublimation transfer ink portfolio, compatible with Panasonic printheads. Kiian also showcased its range of water-based inks for Epson print-heads, including the Digistar Hi-Pro dye-sublimation transfer ink which prints onto light- and low-coated papers at high speeds with reliable output. This series now includes blue and orange to increase the number of colours that can be reproduced.

Kiian Digital states that its product portfolio complies with the most important textile standards approved by the worldwide textile system. ■

Kiian's new portfolio now includes inks for Panasonic print-heads

Low cost tabletop screen-printing presses join Vastex's product line

New from Vastex is its V-100 line of low cost tabletop screen-printing presses from one to four stations and one to four colours. These units are purpose-built for garment printing, overflow printing, and production in restricted spaces such as spare rooms and mobile shops.

Quality results are achieved by retaining critical components from the company's commercial and industrial models. They include no-warp steel pallets, screen off-contact and level adjustments, rotor detent for positive engagement of pallets, and three-point bearing locks for providing pinpoint registration of print-heads to pallets and allowing 'all-heads-down' printing.

Compared with the company's commercial and industrial presses, the V-100 presses are characterised by lighter-duty construction, tabletop-only configuration, omission of quick registration micros, limited pallet choices, increased use of fasteners versus welds, and shipping of units disassembled in multiple cartons. The approximate assembly time is two to four hours.

The V-100-11 one-station, single-colour base model is expandable, allowing the addition of individual pallet stations and print heads as needs grow, while the V-100-44 model is configured as new with four pallet stations and four print heads. Units with multiple stations and colours allow 'all-heads-down' printing using screens up to 50cm wide, maximising productivity when printing registered spot and process colours, or multiple one- and two-colour jobs simultaneously.

Options include neck guides and rubber tops for the included pallets, and a variety of specialised pallets for long sleeves, trouser legs, caps, umbrellas, koozies and other textiles and hard goods.

Other Vastex equipment performance-matched to V-100 presses includes: VRS-Lite Pin Registration Systems, E-100 Tabletop Screen Exposers, D-100 Tabletop Conveyor Dryers and DRI-CAB Screen Drying Cabinets which can also serve as stands for tabletop equipment.

The company also manufactures commercial and industrial lines of equipment encompassing numerous models of screen-printing presses, infra-red conveyor dryers, flash cure units, exposing units, screen drying cabinets, washout booths and complete shops packaged according to desired capacity, range of printing capabilities, available floor space and budget. ■

The V-100 line of low-cost tabletop screen-printing presses from Vastex

Roland DG premières two new machines at European event

Roland DG used Viscom Düsseldorf to unveil two brand-new printers designated the SolJet EJ-640 eco-solvent, wide-format printer and the Texart XT-640 sublimation printer. Presented for the first time at a European fair, the company says that visitor reactions were very positive and the new ink, Eco-Sol Max 3, also received good reviews from the attending Roland customers.

The SolJet EJ-640 was launched a few days before the start of the exhibition, and is developed for the production of large volumes of high quality prints. For this purpose the printer is equipped with two staggered print-heads and has a built-in triple heating system. The device is solidly built and uses the new EJ ink in one litre cartridges (available in configurations with four or seven colours). Roland DS says that the EJ-640 guarantees low cost use and high productivity.

The new Roland DG EJ-640 wide-format printer

On the first day of Viscom Düsseldorf, Roland DG also announced the launch of the Texart XT-640 sublimation printer. This was designed specifically to create colourful fashion and sports wear. The printer has two print-heads and a workable print speed of 41 square m/hour. The printer works with Texart ink that was developed especially for textile printing and has bright, lively colours and deep, rich black hues. The orange and violet inks expand the colour spectrum and add exceptional red, orange, deep blue and purple hues. The addition of light cyan and light magenta produces subtle nuances, good skin tones and fine details.

The advantages of the new Eco-Sol Max 3 ink includes the fact that it dries more quickly, is available in larger cartridges, has a lower ink price and offers overall better performance. Not only delivered with the new printers, users of many older model Roland printers can also use the ink. A simple conversion of the device is all that is needed, and full instructions are available on Roland DG's website. The required conversion kit is currently free which means that Roland DG is making the newest developments available to its existing customers, which has resulted in positive reaction. ■

CMA Perfect Photo opens the doors to photographers wanting cost-effective high-end papers

In a new move to satisfy the growing demand for high-end photographic prints CMA Imaging has introduced its Perfect Photo portfolio of superior quality papers that covers all popular sizes. The new product family meets the demands of the professional, semi-professional and enthusiast market where users strive for consistent colour and black and white fidelity.

The CMA Perfect Photo portfolio has been developed with total product and coating stability to match requirements for consistency and colour accuracy. Ideal for desktop and wide-format ink-jet printers, the papers have been developed to incorporate CMA Imaging's on-going policy of providing the most exacting quality standards for today's photographic, proofing and printing requirements, guaranteeing accurate output across all devices.

Pierre–Alain Brugger, heads up the consultancy and R&D side for CMA Imaging. "I was formerly with Ilford in Switzerland, and I've designed various special layers and coatings for photographic, proofing and printing papers during my 30 years of experience," he explains. "My expertise has meant that CMA Imaging is positioned ideally to develop the next generation of photo papers."

The products have been developed for use on all aqueous-based ink-jet printers using dye and pigmented inks. The bright white surface gives universal compatibility, guaranteeing consistent results regardless of output device.

CMA Perfect Photo papers complement CMA Color Cloud remote profiling software which will bring an added dimension to users requiring the best performance from their printer or media. The new portfolio joins CMA Perfect Trans which emulates Duratrans yet is designed for ink-jet production and carries full environmental and recyclable properties.

"The demand for photographic prints continues to grow across all sizes of printers, so our legacy in this sector has put CMA Imaging in the ideal position of bringing a product to market that satisfies the needs of home and studio users, plus professional photolabs," states Mark Sanderson, Managing Director of CMA Imaging. "Our new CMA Perfect Photo range also continues our philosophy of providing cost-effective high value papers that are in-line with today's needs for consistency and quality — essential for everyone that prints photographs and expects superior results."

CMA Imaging's FSC and PEFC certified papers combine responsibility for promoting the reduction in chemical and consumable waste by lowering costs and improving throughput. The company supports reforest action by planting a tree for every roll sold, and it partners with those who are able to maintain its key criteria for adding value while enhancing environmental principles throughout all sectors of the printing and photographic industries. ■

CMA Perfect Photo papers produce accurate output across all devices

Multiple Avalanche 1000 systems have been supplied to Merch by Amazon

Kornit Digital ships multiple Avalanche 1000 systems for Amazon's print-on-demand service

Kornit Digital has confirmed that its flagship high-productivity system, the Avalanche 1000, has been chosen for the on-demand production of promotional textiles as part of Amazon's recently announced Merch by Amazon programme.

Amazon's Texas-based facility has been a long-term Kornit user as part of Woot, which is an Internet based retail program that offers daily deals on products including printed textiles. This facility has utilised other Kornit direct-to-garment printing systems for several years, and added multiple new Avalanche 1000 units during 2015 to support Merch by Amazon.

Kornit will build additional Avalanche 1000 systems that will handle the outlet's growing needs. The agreement also includes onsite support by Kornit Digital's field service professionals, ensuring continuous production in multiple shifts.

Sarel Ashkenazy, Kornit's Executive VP of Sales comments: "State-of-the-art mass customisation means benefiting from the economies of scale while providing a personalised, high-quality product to every single customer. Kornit has a reputation and solid expertise in this field, based on its vast worldwide installed base. Amazon has been a leader in e-commerce for decades, and we are honoured to be chosen as a technology partner for Merch by Amazon." ■

Phoseon introduces its highest power air-cooled UV LED curing solution

Ideal for single-pass printing and area curing applications, Phoseon has introduced the FireJetT FJ240 UV LED curing solution which it states is its highest UV power air-cooled light array. Providing an additional 33% of UV power compared with existing FireJet products, the new solution is available in 75/150/225/300mm window lengths with 40mm width and peak irradiance up to 8W/cm.

Stacy Fender, Vice President of Worldwide Sales at Phoseon Technology says: "The new FireJet delivers the highest amount of UV radiant power in an air-cooled solution, offering customers increased production and higher yields. The FireJet family of products comes in a scalable form factor to accommodate various curing lengths, allowing customers ease of installation and low maintenance." ■

SAATI acquires SPT Sales & Marketing shares from Remco-Chemie

The management of SAATI SpA has announced the acquisition of the shares of SPT Sales & Marketing GmbH, based in Heidelberg/ Germany from Remco-Chemie Rentzsch GmbH, also based in the same location. The transaction was signed on 5 November 2015 by Paolo Parrini, Managing Director of SAATI Deutschland and Jochen Rentzsch, shareholder and Managing Director of Remco-Chemie Rentzsch.

Parrini stated that the acquisition shows the commitment of SAATI to the screen-printing market and strengthens the position of the globally operating SAATI Group and its printing division. "Our focus on screenprinting is clearly visible with this important transaction. We believe in this industry and its global potential, the acquisition contributing to the overall excellency of SAATI."

Rentzsch was equally pleased with the transaction, since the group will enjoy the benefit of a long-term partnership agreement with SAATI. "The potential for production growth and synergies in procurement of raw materials in combination with our core business coatings and varnishes has enormous benefits," Jochen Rentzsch.

With this acquisition, SAATI now features the brands SAATI Chemicals, Foteco and Remco as its product portfolio for screen printing consumables.

SPT Sales & Marketing GmbH's situation remains unchanged in many aspects. It continues to operate from its headquarters in Heidelberg, being adjacent to Rentzsch Group and, therefore, ideally located for the supply chain. Management of SPT remains the same, as does the area of operation, being Europe, Middle East and Africa. "We are proud to be part of SAATI. The acquisition by SAATI shows a farsighted vision of the screen printing industry," comments Ralf Roschlau, SPT's Managing Director, thanking at the same time his previous shareholders Rentzsch for their support over the past years. "I also realise the great potential we now have as SPT, being the owners of the Remco brand, formulation and know-how – and enjoying the benefit of being part of the big player SAATI in the screen-printing world." ■

Sensient says it has set new standard for reactive dye digital textile inks

Sensient Imaging Technologies SA has launched an Ultra Black version of its Sensient Xennia Amethyst which joines its range of digital textile inks. It is designed for high performance production printing of cotton and viscose apparel and homeware textiles, and is compatible with major high production digital textile printing machines.

The company says that, for several years, Sensient Xennia Amethyst has been the benchmark for colour performance and printing reliability in the industry. The new Ultra Black ink is a premium addition to the series designed for textile printers looking for the ultimate in rich, deep blacks while retaining the well-known advantages of Sensient Xennia Amethyst in production reliability and print-head life.

"Sensient Xennia Amethyst is the market leader for digital printing of cotton and viscose textiles," claims Dr Simon Daplyn, Sensient Product Manager for Textile Inks. "The new Amethyst Ultra Black extends that lead. Benchmark testing against other inks available in the industry demonstrates a clear and distinct advantage for Amethyst Ultra Black in colour depth and richness. This allows textile printers to add a new dimension in jet black design elements and stunning contrast with the bright Amethyst colours already being used by those looking for ultimate performance."

Daplyn adds: "With the recent combination of Xennia Technology and Sensient, we have a wide ranging portfolio of high performance products and, we believe, the best innovation team in the industry. Our development focus is on creative ultimate value for our customers, and we will be releasing further innovations in the next weeks and months." ■

GLASSPRINT 2015

With many attendees hailing it as the best in the GlassPrint series yet, the GlassPrint 2015 conference and exhibition was staged last November and presented the latest decoration trends and developments to the international audience that gathered in Düsseldorf, Germany

Staged for the sixth time, a record attendance of approximately 200 glassmakers, glass decorators, end users and suppliers visited from 26 different countries, not only from throughout mainland Europe and the UK but also from long distance destinations such as Canada, China, Japan, Korea, Kuwait and the USA.

EXPANDED CONFERENCE PROGRAMME

The two day programme provided delegates with a series of technical conference presentations and networking opportunities to discover the latest advanced technologies for printing onto architectural, automotive and hollow glass with digital and screen applications.

Five additional keynote addresses were made, covering the flat and hollow sectors. Adeline Farrelly, Secretary General of FEVE outlined competitiveness, challenges and opportunities for the European glass packaging industry, while Cédric Janssens, Public Affairs Advisor at Glass for Europe, presented 'EU policy reform on energy efficiency in buildings'. Later, Timo Feuerbach of VDMA Glass Technology Forum reflected the equipment manufacturers' view on Glass Industry 4.0.

On behalf of Bundesverband Glasindustrie eV, Birgit Horn, Project Director at Messe Düsseldorf, examined the current situation and trends in the German glass industry, as well as providing an update on glasstec 2016. In recognition of its importance on the global glass events calendar, GlassPrint 2015 was powered by glasstec.

GlassPrint 2015 attracted a record audience

GLASSPRINT LIVE

For the first time, a GlassPrint LIVE panel discussion was added to the programme, with a specially selected panel of glass decoration experts answering questions from the audience about topical issues. Representing key hollow and flat glass manufacturers, decorators and brand owners, panelists included: Simone Baratta (R&D and Innovation Manager at Bormioli Luigi), Olivier Dangmann (Innovation Manager – O-I Europe), Alvise Cavallari (Packaging Innovation Manager at Nestlé), Martin Hehl-Heinz (Technical Director R&D at SAHM) and Carsten Schwabe (Global Innovation and New Business for flat glass at SCHOTT). The moderator was Sun Chemical's Robin McMillan in his role as Chairman of ESMA's Technical Exchange Committee.

TECHNICAL PRESENTATIONS

Technical experts working for various companies in the glass decoration sector that delivered an expanded series of presentations demonstrating processes and ideas to add extra value to the end product included:

- Digital decoration of glass bottles in mass production for the beverage industry… challenges and solutions (Curvink).
- Digital flat glass printing versus screenprinting - Advantages and limitations (Durst).
- Digital printing hollow glass: The path from theory to realisation (FERMAC).

Birgit Horn, Project Director at Messe Düsseldorf, gave keynote presentations covering glasstec 2016 and market information from BV Glas

The GlassPrint LIVE panel comprised (from left to right): Carsten Schwabe (SCHOTT), Martin Hehl-Heinz (SAHM), Olivier Dangmann (O-I), Alvise Cavallari (Nestlé), Simone Baratta (Bormioli Luigi) and Robin McMillan (moderator)

ATTENDEE FEEDBACK

Feedback from delegates and exhibitors from GlassPrint 2015 includes:

- "Meeting in one place all the major players in glass printing was very valuable for our business." **Alvise Cavallari, Nestlé (Switzerland)**
- "There was a lot of important information for me." **Satoshi Kashiwabara, AGC Glass Group (Japan)**
- "A very interesting conference, allowing for a great deal of networking. Really good presentations that covered a wide range of topics…" **Rosie Langridge, Allied Glass (UK)**
- "The presentations as well as the exhibition were very useful to learn about new technologies and products in the glass printing industry." **Yves Lallemand, Schott (France)**
- "As a glass decorator, GlassPrint 2015 was a key event for us." **Gérard Monney, Univerre Pro Uva SA (Switzerland)**
- "GlassPrint 2015 provided an important possibility to meet the most important experts in glass decoration and have an overview on future scenarios." **Simone Baratta, Bormioli Luigi (Italy)**
- "The conference was a great place to meet colleagues and get a true understanding of the future of glass printing and the trials and tribulations of all glass printing techniques." **Brian McDonald, Universal Packaging (Canada)**
- "The show has evolved into an important event that perfectly complements glasstec in the biannual calendar." **Dr Christian Maas, KBA-Kammann (Germany)**
- "It was one of the best GlassPrint events since they started. We got exactly the contacts we expected." **Patrick Brunner / Roland Drach, Sefar (Switzerland)**
- "Very interesting market study of the development of flat and container glass printing." **Stefanie Schumann, Canon (Germany)**
- "A varied programme and high attendance - this is THE event in Europe for the glass industry." **Debbie Thorp, Global Inkjet Systems (UK)**
- "Very good event… very helpful for our business." **Marc Hueske, LPKF SolarQuipment (Germany)**
- "Very good conference, with the possibility to have very good discussions." **Alexandra Cordes, FERRO (Germany)**
- "Excellently organised and well-attended conference." **Stefan Zaeh, Proell (Germany)**

- New trends and developments of organic applications in the glass industry (FERRO).
- Inkjet printing and glass (Global Inkjet Printing Systems).
- Specifying and selecting a UV curing system (Integration Technology).
- Metalising reinvented (ISIMAT).
- Trends in container glass print inspection (KBA-Kammann).
- UV roller coating onto glass in combination with UV digital printing (Marabu).
- The transparent picture (Ormo Print).
- Glass-IMD/FIM – Screenprinting inks and adhesion promoters for glass backmoulding (Pröll).
- 100 parts per minute - Challenges in UV curing with printing onto hollow glass (RUCO).
- How process standardisation can increase hollow glass printing efficiency (Sefar).
- Screen technology and automation (Sign-Tronic AG / Grünig-Interscreen).
- Computer-to-screen concept and blue diodes solution (SRS).
- Innovation and decoration (Stölzle Glass Group).

Anyone who missed GlassPrint 2015 and would benefit from viewing the presentations should contact sales@glassworldwide.co.uk to learn how to purchase the download code.

Flat and hollow keynote presentations were made by representatives of European glass trade organisations

The programme included networking opportunities in the sold-out exhibition area

SOLD-OUT EXHIBITION

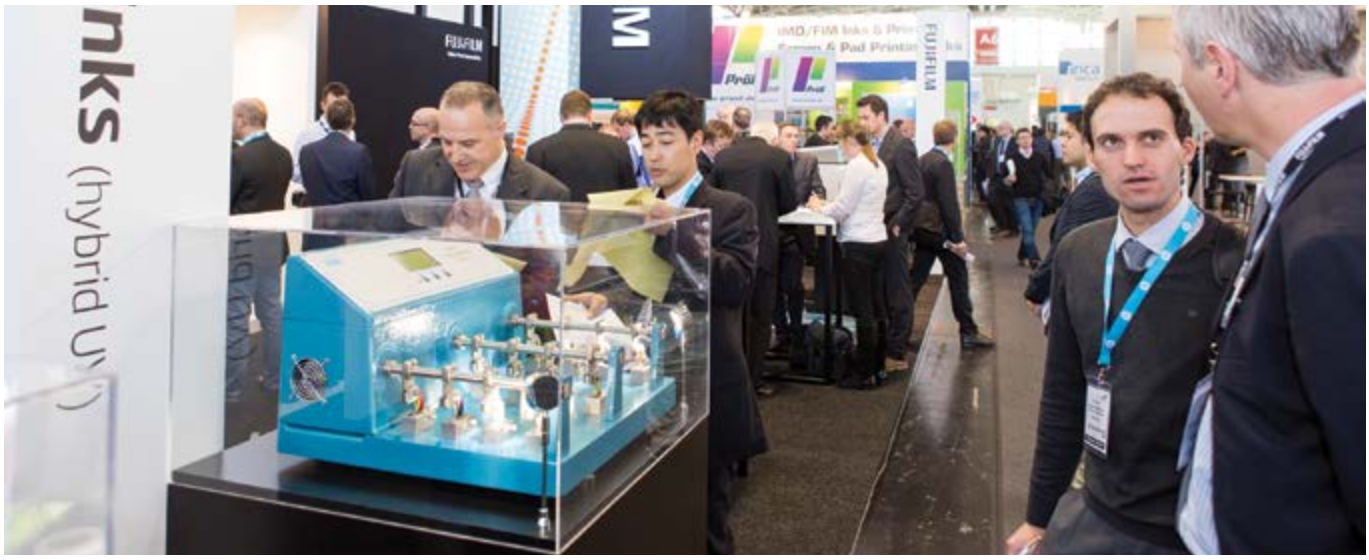
The conference programme was supported by intervals dedicated to the accompanying sold-out tabletop exhibition area and at the end of the first day, delegates benefited from networking with their peers and suppliers during an evening dinner. Exhibitors who displayed the latest developments in inks, pre-press technology, printing equipment and supplies included: Canon, Curvink, Dr Hönle, Durst, Encres Dubuit, ESC, ESMA, Fermac, FERRO, Gallus Ferd Rüesch, Glass Global, *Glass Worldwide*, glasstec/Messe Düsseldorf, Global Inkjet Systems, Grünig-Interscreen, Integration Technology, ISIMAT, KBA-Kammann, KIWO (Kissel + Wolf), LPKF Solar Equipment, Machines Dubuit, Marabu, Ormo Print/University of Munich, Peyer Graphic, Pröll, RUCO, Sefar, SignTronic, *Specialist Printing Worldwide,* SRS, Sun Chemical, Tecno 5, Tiger Coatings, TILL, Tiflex and Uviterno.

SPONSORS AND ORGANISERS

GlassPrint was jointly organised by Chameleon Business Media, publisher of *Glass Worldwide* and *Specialist Printing Worldwide* magazines and by ESMA, a European association for specialist printing manufacturers of screen, digital and flexo technology. As well as being powered by glasstec, GlassPrint 2015 was sponsored by Deutsche Glastechnische Gesellschaft (DGG), glassglobal.com, GPD, SGCDpro and the SGIA.

After confirming its status as Europe's leading event for glass decoration, the organisers are already planning to repeat GlassPrint in 2017; details on the location and dates will appear in future issues of *Specialist Printing Worldwide* and interested parties can register their interest at www.glassprint.org. The March/April 2016 issue of *Glass Worldwide* will include the Annual ESMA Glass Publication 2016, the guide to glass decoration. To subscribe, visit www.glassworldwide.co.uk. ■

Further information:
web: www.glassprint.org



Visitors came from various manufacturing industries and printing sectors

MUNICH OFFERS UNIQUE TECHNOLOGY PLATFORM FOR THE INDUSTRIAL PRINT SECTOR

Second edition of specialist event confirms anticipated growth

Following three successful show and conference days, the second InPrint event closed its doors after a total of 3,400 visitors from 68 countries came to the Munich Trade Fair Centre. During the show they were able to learn about cutting-edge technology, components and services for speciality, screen, digital, ink-jet and 3D printing with three fields of application – functional, decorative and packaging – proving to be the centre of interest throughout the show.

In line with the exhibition's target, the programme of more than 60 conference sessions, that took place on two stages directly on the show floor, also gathered crowds of visitors. Attracting a strong selection of innovative entries, the Great Innovations Award 2015 went to the Italian company Kuei for its inventive Haptink, a specially formulated haptic ink that creates a 3D printed effect for wood decoration.

In addition to its own buoyant attendee numbers, a further 1,324 visitors of the co-located Productronica show made use of the offer to visit both shows with one combined ticket. During InPrint 2015, 150 companies from 16 countries showcased their products and services across 5,500 net square m in hall A6. Compared to the InPrint premiere show in 2014, the number of exhibitors and visitors plus the total net exhibition space have grown by one third.

A VARIED PROGRAMME

The conference offered a varied programme that was structured in line with the three focal points of the show. The sessions comprised speeches giving an overview on industry developments and panel discussions, as well as precise investigations of certain topics and Tech Talks.

Frazer Chesterman, InPrint founder and co-organiser sums up: "What we have seen from the 2014 show to 2015 is a rapid development and evolution of the market. Featured were larger exhibition stands, refined messaging, more machines, different inks and coatings and amazing technological innovation across a diverse range of applications.

"Clearly, the InPrint show continues to reflect this market evolution," Chesterman continues. "When I spoke to exhibitors, I heard the same comments over and over again – that this event delivers a unique audience of visitors looking for customised system and technology solutions from both manufacturing and print sectors."

Gary Barnes, Marketing Manager for Industrial Inkjet at Fujifilm was very pleased with the outcome of the talks he and his colleagues had on-site: "We have seen a significant increase in lead numbers since the previous show. A diverse range of companies and a large variety of industry sectors have come through, and the quality of the visitors at our stand was high.

POSITIVE EXHIBITOR FEEDBACK

"At InPrint, we see potential customers that we see nowhere else," adds Barnes. For us it is the only show where we put the total capability of Fuji's ink-jet range on display together, and all our three sectors have been doing well. We've already signed up for the next year – so see you in Milan."

Roberto Zinser, Channel Manager Wide Format Direct Sales at Canon Germany also perceived strong progress: "At InPrint 2015 in Munich, we noticed a considerable increase in the number of high-level talks and new business contacts compared to the year before. It is fantastic to see how digital in packaging, decorative and functional printing is really picking up speed.

"The InPrint show has become a valuable

Conference sessions took place on two stages directly on the show floor

platform with respect to an exchange of experiences and know-how between visitors and exhibitors. This show allows us not only to communicate our practical experiences and application results, but also to get new inspiration and ideas from visitors at the same time," he states. "We will certainly miss InPrint round here next year, but are happy for our Italian colleagues and clients and are looking forward to welcoming InPrint back to Germany in 2017."

"At InPrint 2015, we saw a continuation at a higher level of InPrint 2014, which showed diversified leads coming across many industries," comments Friedrich Goldner, Director New Business Development at Marabu. "This is what makes InPrint so special. The people visiting us came with specific production challenges and improvements in mind. And there were all kinds of directions – there were people from the screen world who had not thought of using digital in combination. And there were people from the screen side who didn't know that there is a UV ink that would give them performance advantages.

"We also had a good number of leads for glass for interior and for packaging as well as many requests for industrial inkjet applications," confirms Goldner. "The show was of a higher quality and more complete with new people looking at new industrial solutions from the manufacturing world, suggesting to us at Marabu that the target of the show was being achieved."

AN INTERNATIONAL COMMUNITY

Some 56% of the visitors came from within Germany. At the same time, the majority of the companies who exhibited at the show, 54%, are located abroad. Individually, Germany, Great Britain, Italy and Switzerland were represented most strongly among the exhibiting countries at the show. Looking at the nationalities of the visitors, Germany, Italy, Austria, Great Britain, Switzerland, France, The Netherlands, Poland, the USA and Japan led the list of 65 countries.

Once more, there was a considerable proportion of decision makers among the visitors who came from various manufacturing industries, from the industrial printing sector and from traditional printing companies. The majority came from executive management or from research and development. Other job functions included sales, marketing, public relations, operations, purchasing, procurement and contract buyers as well as those involved with education and training. Of those visitors working in manufacturing industries, most came from the mechanical engineering segment, followed by plastics, electronics and the automotive areas as well as additive manufacturing and 3D. The visitors from the printing sector work mainly in the segments digital print, ink-jet and screen-printing.

MAIN AREAS OF INTEREST

Functional print was named by 65% of the visitors as their main area of interest at InPrint. More than half were additionally interested in decorative printing and more than one third in packaging printing as well as in additive manufacturing and 3D. Taking a closer look, most attendees chose to visit InPrint in order to find out about printing machines and systems. Other main areas of interest were ink, fluids and chemicals, materials and substrates, print-heads, screens and other special components as well as integrated and customised parts.

"InPrint is now firmly established as a show that is playing a role in assisting the development of industrial printing," explains Marcus Timson, InPrint co-founder and organiser. "Exhibitors reported visitors of a very high calibre, the show networking areas were full and the two conference theatres well

Many visitors had specific production challenges and improvements in mind

attended suggesting that advanced technical knowledge exchange is essential. Functional printing was of the highest interest for visitors, and as we shift our attention towards Milan, we expect to see an increase in interest for decorative printing. For InPrint 2015, the international attendance grew and we expect this to continue into the future as InPrint becomes a truly European event."

MILAN FOLLOWS MUNICH

From 15 to 17 November 2016 the InPrint show will take place in Milan, Italy, at the MiCo (Milano Congressi), located closely to the city centre. The choice of location came in direct response to demand from the market for a dedicated forum for industrial print technology in Italy. Lombardy itself is a major centre for innovation in industrial technology, chemistry and manufacturing and the Milan region has a distinguished reputation for leadership in design and engineering. InPrint 2017 will return to Germany. ■

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TEN YEARS OF DIGITAL GROWTH CEMENTS EVENT'S POLE CALENDAR POSITION

Amsterdam edition hosts celebratory decade for digital print

FESPA Digital 2016 which returns to Amsterdam from 8 to 11 March will be the tenth anniversary edition of FESPA's digital-focused exhibition. Organisers say it will reflect the astonishing development and diversification of digital print in the intervening decade.

This year's event will be the most focused for speciality printers, embracing signage and graphics, digitally printed textiles and decorative applications. The 2016 edition will cover the largest floor space of any event in the digital show's history. Some 450 exhibitors will occupy 42,000 square m over seven halls at the RAI Exhibition Centre, representing growth of 159% from the very first edition in 2006.

During ten years, this event has blossomed from a modest launch exhibition to a content-rich, market leading showcase that offers the visitor Europe's most comprehensive showcase of digital wide-format print technology. Today, this is combined with the chance to explore digital textile exhibits under the FESPA Textile banner, to understand opportunities in signage at the co-located European Sign Expo, and to be inspired by the Printeriors showcase and supporting conference addressing the growing market for digitally printed interior décor.

"Back in 2005, FESPA had the vision and foresight to recognise how digital wide format technology would revolutionise the speciality print world. The event was launched in 2006 to give printers a focused forum in which to explore these then-revolutionary technologies," states Roz McGuinness, Divisional Director, FESPA. "Fast forward to 2016, and the change we have witnessed has been seismic. The market for digital wide-format production technologies and the scope of digital applications has developed far beyond the expectations that existed a decade ago, and the market's evolution continues, as the growth and diversification of the event and its visitor audience testifies."

Specialist Printing Worldwide and ESMA will exhibit jointly on number T150 in Hall 7

New exhibitors continue to join the FESPA Digital line-up, reflecting the dynamism of the market and recognising the event's place as the leading launch platform for digital wide format innovations.

Ricoh is one of these new additions to the exhibitor portfolio for 2016. Showcasing its latest software and hardware technologies, Huib Kolen, Manager Business Development at Ricoh Nederland, comments: "We have taken the initiative to exhibit at FESPA Digital 2016 as we see the value of actively participating in such a well-known event which attracts a strong audience from the wide-format industry. Ricoh has been one of the pioneers in the market since starting in print-head technology more than 30 years ago, and in more recent years we have been exploring the wide format and signage markets as areas of growth with the introduction of the Pro L4100 latex large-format printer series. We are looking forward to introducing our products and networking with a large number of customers and prospects."

Other first-time exhibitors for FESPA Digital 2016 include AT Graphix, ATS Colore Digital, CWT Tools, Ex-cel Plastics, FH-Union UK, Impronta Gadget, Luscher Tschudi, Provis and Pals Print, who all view FESPA Digital 2016 as the main event of 2016.

McGuinness continues: "This level of interest from new entrants to the market demonstrates the strength of FESPA's reputation in the speciality print sector, while the sponsorship support of HP, Durst, Mimaki and Hexis underlines how the industry's established brand leaders see the value of aligning themselves with FESPA. Celebrating the event's tenth anniversary in its launch city of Amsterdam is exciting, and we're spellbound to see what new developments will emerge at this year's show to take the FESPA community forward into another decade of digital."■

Digital growth has been significant during the past decade


New exhibitors boost the attendance of existing participants

Further information:
web: www.fespa.com

ANOTHER SUCCESS FOR SHANGHAI EXPO

Textile printing shows business growth across China

FESPA China 2015, which took place last October in partnership with CSGIA at the Shanghai New International Expo Centre, Shanghai proved to be yet another success, with 9,447 unique visitors attending during the three day period. Visitor data showed that nearly 50% of those who attended were the main decision-makers for their businesses, demonstrating the high calibre of attendee that the event attracts.

With 357 exhibitors, this year's event was 14% bigger than the inaugural FESPA China 2013 in Shanghai, with new products and technology across digital, screen and textile wide-format printing on show. Some 10% of attendees returned on multiple days, with significant interest shown by overseas visitors as well as Chinese print service providers. Additionally, 12% of visitors came from outside mainland China, including Taiwan, Hong Kong, Australia, New Zealand, Russia, Turkey, Korea, India, Japan, Thailand and Malaysia among others, with 81 countries in total represented.

The post-show survey highlighted that 54% of respondents in the region are involved in textile printing. This was backed up by the level of interest shown in the 'Opportunity and New Dream' forum and textile-focused conference sessions which took place on 22 October in both Chinese and English. Visitors attended to hear from businesses such as Ningbo Shenzhou Knitting Co Ltd, Southtec Fine Chemical and Watts Polyurethane.

KEY TO BUSINESS SUCCESS

Highlighting opportunities for expansion and diversification as key to business success is high on FESPA's agenda, and Ole Solskin, World Wrap Masters Judge held popular demonstrations on the potential of vehicle wrap as a lucrative new opportunity for print service providers in this region. In addition,

Charlie Taublieb attracted visitors wanting to screen-print their own T-shirt designs

Neil Felton, CEO of FESPA

the T-shirt screen-printing workshops, run by President of Taublieb Consulting and screen print guru, Charlie Taublieb brought in large numbers of visitors wanting to learn the latest techniques and screen-print their own T-shirt designs.

"FESPA China 2015 was our third event in China and second in Shanghai and was once again a vibrant, buzzing exhibition showcasing the latest technologies and solutions, and providing an excellent business platform for local and international companies," comments Roz McGuinness, FESPA Divisional Director. "The feedback we've had so far from exhibitors and visitors alike has been extremely positive, particularly the many opportunities for knowledge sharing. We always endeavour to meet the requirements of today's printers and inspire them with opportunities for growth and diversification, and are delighted that we have achieved this once again."

NEW BUSINESS GENERATION

William Barker, Sales Manager, Watts Urethane Products Ltd states: "As we expected, FESPA China & CSGIA 2015 was a real success. It pulled in many international visitors from around the world, and we had the opportunity to meet with current customers as well as generating new business. We will certainly be back." Additionally, Benoit Lombard, Director for Asia-Pacific, Chemic comments: "FESPA Shanghai has been a great success for us with many international visitors and potential distributors – exactly what we were looking for."■

Further information:
web: www.fespa.com

ENDORSING INDUSTRIAL PRINT AS A PROCESS IN ITS OWN RIGHT

Specialist conference details the broadening opportunities for functional applications

Printed electronics, conductive inks, in-mould decoration and film insert moulding are just a few of the application examples of screen and digital printing that will be showcased during the upcoming edition of Advanced Functional and Industrial Printing. The ESMA conference returns to Radisson Blu Scandinavia hotel in Düsseldorf on 2 and 3 March 2016.

AFIP emerged from the Membrane Switch Symposium which took place for the first time in 2008. The concept evolved into a conference with the broadest view on industrial and functional print capabilities which, during the last editions in 2011 and 2013, brought together in total more than 300 printers, manufacturers, engineers and materials suppliers.

The two days of presentations will cover a vast remit of industrial topics that showcase the integration of print into manufacturing processes

KEYNOTE BY SMITHERS PIRA

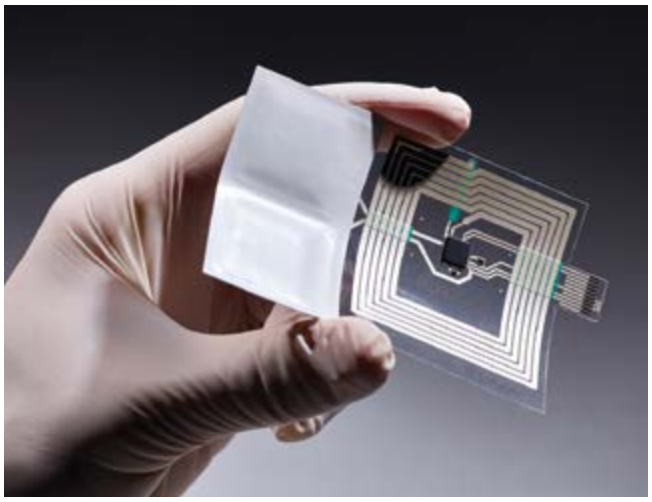
While highlighting the potential of different print technologies, the 2016 event will include the keynote speech by Smithers Pira's Sean Smyth on 'Adoption of Digital Printing in Functional Decoration'. His talk will focus on the rapidly emerging use of printing-for-profit in novel areas and on the key trends that are driving business opportunities in niche (such as electronic circuits) and more mainstream (including architectural glass and home décor) applications. This will capitalise on Smithers Pira's exclusive data for these segments, drawing on research used to produce their latest report 'The Future of Functional and Industrial Print to 2020'.

"Real-world experiences, and how the functional and industrial print sector is changing, are not widely known and understood," states Smyth. "The sector offers enormous opportunities to a beleaguered commercial printing sector, and events like the AFIP 2016 conference provide a platform to promote and explore these," Talking about real-world examples, another keynote speech, from Wim Christiaens will deliver insights on the future of printed electronics based on Quad Industries's recent and successful business cases, among others from the healthcare area.

TWO DAYS OF TECHNICAL PRESENTATIONS

The variety of presentations during AFIP 2016 will reach from washable conductive inks, functional coatings, flexible keyboards to the latest printed batteries, radar sensors and

Table-top exhibits are an important element of conferences and open the door to networking opportunities



Fully integrated temp logging label, manufactured by Quad Industries, is one of the keynotes at AFIP 2016

combinations of FIM/IMD for automotive or home appliances. Pit Teunissen from Holst Centre will demonstrate the advancements in flexible printed electronics devices – from concept, up to pilot production and industrial volumes. Fons Put from the Flemish Innovation Centre for Graphic Communication will present fluorescence engineering in print production. German specialist in stencils, KIWO, will hold a presentation on resists and their application examples for partial-etching, sandblasting and surface protection. Intrinsiq Materials will introduce low-cost nanoparticle-based ink-jet inks and screen-print pastes. Along with Specialist Printing Worldwide as official event journal, other speakers and supporters of the conference represent Agfa, CST, Fimor, Fujifilm Dimatix, Global Inkjet Systems, Grünig/Signtronic, Heraeus Noblelight, MacDermid Autotype, Natgraph, Nor-Cote, Printcolor, Pröll, PVF, Sefar, and Sun Chemical.

AN INVITATION FOR A FACTORY TOUR

Next to the conference part, a table-top area will reflect the current potential of screen and digital print technologies and will provide the visitors with the optimal solution for their applications. One of the exhibiting companies, CST GmbH from the nearby Krefeld, invites all attendees for a factory tour in the afternoon of 1 March. The participants will witness the state-of-the-art screen imaging equipment in operation. Furthermore, the tour includes the engraving facility of Kesper Druckwalzen, as well as AKK with its manufacturing of machinery for the creation of embossing forms, mould structures, three-dimensional printing and 2D and 3D scanning devices.

TAKING PRINTING BUSINESS TO INDUSTRIAL LEVEL

"The AFIP conference presents industrial printing as a process rather than as a product. A process which helps to optimise production, take it to new efficiency levels, but also to reduce energy consumption, create less waste and lower the carbon foot print," explains Peter Buttiens from the ESMA association, the conference organisers. "By showcasing industrial production areas that increasingly integrate printing in their manufacturing process, AFIP also gives an insight into opportunities that open for all those who consider upgrading their conventional printing business models. Many have already taken the first step to employ print as a process, more will follow very soon."

More details on the conference agenda and delegate registration are available at www.afip2016.org ■

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FABRIC PRINTING EVENT DEEMED A HUGE SUCCESS

Key messages include the importance of growth opportunities

Organisers state that the most important fabric printing event in the UK of 2015 year received a unanimous thumbs-up from enthusiastic delegates and exhibitors.

Fabric Printing Now, staged by FESPA UK Association, was held over two days at the Textile Centre of Excellence. It took place at the end of October and fully lived up to expectations, delivering a packed programme of 17 enlightening presentations, plus valuable networking opportunities.

Highlights of the event were numerous and some of the key messages to emerge over the two days included how printing onto textiles opened up a huge range of opportunities for print service providers and that, to be successful, it is necessary to learn as much as possible about the techniques applied and equipment available on the market.

Networking in the exhibition area of Fabric Printing Now

INNOVATION SKILLS IN YOUNG PEOPLE

There was also the strong message that there is a massive untapped resource of design and innovation skills in young people and that they should use them, Likewise, managing change is a key factor in a successful business and, overall, the market is huge and growing.

In addition to presentations from leading names in the sector, Fabric Printing Now also looked to build links between academia and the industry. There were contributions from The Textile Centre of Excellence along with Dr Kate Wells from the University of Derby and Trevor Lambourne of the University of Leeds.

Peter Kiddell of FESPA UK Association commented: "We have had some wonderful feedback, and firmly believe that the presentations and the face-to-face interactions that took place during the event will help drive innovation and prove highly beneficial to those who attended."

THE ROUTE TO SERIOUS OPPORTUNITIES

One of the delegates, Anka Bimbalova, of Six Colors Sarl, travelled all the way from Bulgaria and considered her trip highly worthwhile:

"I run a sports garment printing business and a distribution company. I decided to attend as I saw a number of serious companies from the textile printing industry would be there as lecturers and sponsors. It was good to see so many exhibitors of interesting new products and technological innovations.

"I was also able to make very positive contacts with potential customers and suppliers," continued Bimbalova. "The venue for the event was impressive and the way FESPA UK organised it makes me confident I will attend future initiatives of this type."

A short video reviewing the event can be seen by visiting www.fespauk.com ■

Delegates listen to one of the presenters, Debbie McKeegan of Digetex Group

Stewart Bell of MTEX Technologies addresses the first day audience

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THE GREAT POTENTIAL OF DIRECT PLASTIC DECORATION

Two-day conference concentrates on digital and screen-printing solutions

More than 120 attendees gathered in Düsseldorf for the premiere Direct Container Print conference where they discovered the value of screen and digital solutions for direct-to-shape print. Held on 23 and 24 November 2015, this ESMA event featured 17 presentations and laid solid grounds for the continuation of this well-received concept. Delegates and exhibitors actively discussed the implementation of new technologies and their impact on food and beverage, personal care, beauty and household packaging decoration markets.

DCP 2015 opened with the insights into a real case scenario of applying Krones DecoType technology for replacing the labelling machines directly at the bottler's facilities. Now the bottler can and may become a printer himself, as it was heard in several other presentations, which also addressed the possible future conversion in the supply chain of the customer and the relocation of services. Delegates could witness the advances of digital printing to meet short run and customisation demands.

"After tile, textile, label and 3D printing, direct decoration is the next big independent market for drop-on-demand ink-jet which offers technical evolution and growth," commented Sven Kerpe from Markem-Imaje.

The programme included networking opportunities in the table-top exhibition area

DCP Live panellists included representatives of brands (SAB Miller), container (Albéa), machine (Polytype) and ink (Agfa, Marabu) manufacturers and was moderated by K-Flow's Oliver Kammann in his role of ESMA Chairman

SCREEN-PRINTING IS ALIVE AND WELL

Nevertheless, screen-printing is alive and well as proven by the presentations from Sefar, SRS and Isimat who introduced their innovative InLine foiling concept for metallic glossy effects. As long as quality remains the key to enter mass applications in such sectors as cosmetic packaging, traditional print techniques or hybrid solutions have still a lot to offer.

Approaching the end-user requirements and the impact of customisation and premierisation trends became the topics of the live panel discussion on conference day two. Representatives of brands (SAB Miller), container (Albéa), machine (Polytype) and ink (Agfa, Marabu) manufacturers engaged into a lively dialogue with the audience, delivering a comprehensive perspective on all steps of the production and marketing process.

The video of this special session is now available online at www.dcp2015.org/dcp-live-panel-video-registration. As an integral part of the packaging decoration, marketing and brand strategies were also thoroughly explained in another keynote presentation by Gateway 3D.

The inaugural DCP attracted 120 attendees

READY TO EMBRACE NEW TECHNOLOGIES

Direct Container Print 2015 showed the readiness of the packaging industry to embrace new opportunities in order to address the growing market and customer expectations. Technology will use the next couple of years to reach the demands in terms of speed, personalisation and ultimate quality.

"It has been a valuable niche conference which will surely grow a lot over the next couple of years. The topic will surge in its importance across industries, markets, and value chains," predicted Peter Jenkner from Actega.

By gathering the key players from both supplier and user ends, DCP has contributed to the foundation of new approaches in the plastic packaging sector. Their implementation in future and existing business models will follow very soon, so ESMA is looking forward to the next conference in 2017 with the media support of *Specialist Printing Worldwide.*
For all those who have missed the first conference on the disruptive power of direct-to-shape printing, the presentation PDFs are now available for purchase at www.esma.com/shop/dcp2015 ■

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ASIA'S BIGGEST BRANDS AND DELEGATES LOOK SET TO CONVERGE IN MUMBAI

India's leading industry event combines with new sublimation expo

This year's Screen Print India show offers a rare opportunity to interact with the biggest and best screen-printing brands from across Asia as well as association heads with delegations from key countries within the region. In a unique show of support, ASGA, which usually only officially supported exhibitions in China, is supporting this dedicated B2B platform and has been facilitating greater awareness and informal networking for over two decades. The international factor in the forthcoming exhibition has become even stronger with the ASGA Board Meeting to be held in Mumbai, just a day after.

The SPI 2016/ASGA India 2016 show will be held from 6 to 8 May 2016 at Bombay Exhibition Centre, Mumbai. The credibility factor is evident from the fact that national associations from across the globe like SGIA (USA), SGAI and IPAMA have pledged their support, with many more to follow. Being held bi-annually in Mumbai since its inception two decades ago, this international exhibition on screen, textile and digital printing had made its North India debut in 2013, Goa debut in 2014 and even forayed overseas with Screen Print Vietnam in 2015.

RAISING BENCHMARKS

After raising benchmarks higher than any exhibition held in India has ever achieved before, with a combination of business and leisure, after making an impact with its world class stature in the Far East, Screen Print India now returns to its home base, Mumbai. The Screen Print India exhibition made its debut in 1994 and has been going strong during the past 22 years. The show has become bigger in size, wider in scope as it now also includes textile printing and digital printing, and greater in significance for everyone connected with the screen-printing industry.

Responding to feedback received from exhibitors, visitors and supporting associations, the event is being held during the summer period. This will make it possible for more people to exhibit and visit. The venue will once again make it possible to have large and heavy running machines on display during the show. Many will be able to combine business with leisure, combining this with a company or family outing.

EXTENDING THE SUBLIMATION CONCEPT

A special pavilion on sublimation had been one of the key attractions at the previous Screen Print India exhibition held in Mumbai during 2012. This year, the sublimation concept will be provided with its own special event adjacent with Sublimation Ideas Expo making its debut alongside SPI 2016/ASGA India Members of this niche printing segment will now have their own dedicated, interactive platform where they can share key developments of the sublimation, digital and gifting industry.

Sublimation Ideas Expo 2016 will provide a focused interface where printers who are already into the process, as well as those planning to explore the various opportunities it offers, can directly meet providers of machines, input materials and even substrates for creating gifting and promotional items. With the promotional products industry witnessing positive developments, many printers are planning to diversify into sublimation and open up a new segment in their portfolio of services offered to clients. The leading players as well as new entrants from within India and overseas will gather at Sublimation Ideas Expo 2016 to map out strategies and join hands in order to grow their businesses together.

SHOWCASING INNOVATION

Innovative ideas and concepts would be showcased while new technology developments will also be on display. There will be more than enough reasons to make Sublimation Ideas Expo 2016 a must-attend event. It will be a truly memorable debut of an expo that has been conceptualised keeping in mind the changing dynamics of the printing market and considering the need to offer new avenues to printers enabling them to expand their repertoire. The exhibitors and visitors at Sublimation Ideas Expo 2016 will find it an excellent opportunity for networking and tapping new profit sources.

Continuing its traditions, SPI 2016 will attract visitors from across India as well as delegations from countries across the globe with focused footfalls that are genuinely interested in exploring business opportunities and new technologies. Screen Print India consciously strives to ensure participants and visitors are updated with the latest screen-printing industry developments through co-operation with various regional, national and international associations.

Screen Print India returns to Mumbai for 2016

The Screen Print India shows have always highlighted the scope for growth and greater profits in the screen-printing industry. Visitor profiles will comprise leading industrial screen-printers, technicians, consultants, professionals, entrepreneurs, products or service providers to end-users who are employing screen-printing, textile printing and digital printing as a substantial part of their process. Leading brands have consistently shown confidence in an established platform.

The exhibitor profile at Screen Print India 2016 will encompass technology drivers, knowledge transferees, manufacturers, distributors, dealers, service providers and allied, contributing to any process of screen-printing, textile printing and digital printing.

Screen Print India's sustained track record since 1994 and the prestigious nature of the event given its plush venue complement the fact that it is presented by reputed event organiser Aditya Exposition (P) Ltd of Mumbai, providing exhibitors and visitors much-needed confidence. ■

Further information:
web: www.screenprintindia.com

A DECADE OF DIGITAL DEDICATION

Lynda Sutton looks back at how digital wide-format technology has grown since 2006

Lynda Sutton

Ten years ago FESPA launched its dedicated exhibition – FESPA Digital 2006 – which was to focus on emerging digital technologies in the signage and graphics market. Taking place in Amsterdam, the event played host to 234 exhibitors and attracted an attendance of 9,317 individual visitors. Since then, in its most recent iteration – FESPA Digital 2014 in Munich – it hosted 536 exhibitors and saw a total attendance of 16,766. This represents an increase of 129% and 80% respectively since 2006.

This growth has also been mirrored by the same as in the digital printing market, with its overall global market share set to more than double from its 9.5% in 2008[1] to 19.7% by 2018. This is hardly surprising when you consider the number of commercial printers expanding into wide-format or the fact that almost 50% of respondents to The World Wide Survey 4 in 2013 saw digital printing as the key to their future success[2]. Indeed, two years later, print businesses surveyed in FESPA's Print Census reported a CAGR of 7% revenue growth for digital wide-format print from 2007 to 2015[3].

BUOYANT BUSINESSES

Even amidst the maelstrom of the global financial crisis of 2007 and 2008, wide-format print service providers remained optimistic. If you look back at the 2007 and 2009 versions of The World Wide Survey, respondents rated their optimism for the industry at 7.1 and then 7.2 on a scale of one to ten[4]. This positive outlook was proved correct as the industry weathered the economic storm particularly well compared with other areas of the industry, driven in part by how digital print's flexibility enabled many to explore alternative applications and revenue streams.

If print businesses' intentions to invest in new equipment are an indicator of market health, this is definitely a sector that is on the rise. In 2010[5], 37.4% had such plans, by 2012 this had risen to 47%[6] and in 2015 more than 50% of print businesses indicated their intent to buy digital wide format printing equipment[7].

BROADENING MARKETS

The technologies that feature in purchase plans are telling, too. In 2012, 40% of respondents had plans to buy a UV-curable ink-jet printer and no other technology was in the plans of more than 13% of respondents[8]. In 2015, however, purchasing plans were far more mixed, dominated by UV-curable printers (27%) and textile printers (21%), with solvent printers (17%), eco-solvent printers (16%) and latex printers (14%) also featuring[9].

The reasons for these investments have changed too. While the most common objectives for investments in 2012 were speed, ability to print onto uncoated materials and access to special colours or capabilities[10], by 2015 most investments (45%) were being planned with a view to moving into new markets.

In part, this diversification was necessitated by challenges that arose during the recession in the late 2000s. However, developments in wide-format digital print technology have also been a major driver in this broadening of markets, with wide-format digital print now being used in ways that may not even have been imagined back in 2006.

Throughout the first ten years of FESPA Digital we have not only witnessed, but also been part of, the exciting digital developments changing the face of the wide-format print industry. We have evolved our event portfolio to reflect this, introducing the Digital Textile Conference in 2008 to educate the market about wide-format digital print for textile applications, and more recently launching Printeriors to cater to the growing printed interiors market. Now, as we look ahead to celebrating the tenth anniversary of FESPA Digital in Amsterdam in 2016, we look forward to continuing to support the industry in shaping the exciting future of wide-format digital print. ■

Lynda Sutton is Marketing Manager at FESPA

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1 Smithers Pira. March 2014. Briefing: The Current State of the European Printing Market - Part Two
2 FESPA & InfoTrends. September 2013. The World Wide Survey 4
3 FESPA. May 2015. FESPA Print Census
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INDEX TO DISPLAY ADVERTISERS

AFIP 2016 .... Front Cover, 30 & Inside Back Cover
AXYZ International 29
BELTRON GmbH 36
Bordeaux Digital PrintInk Ltd 41
Caldera 49
Chromaline Screen Print Products ..... Front Cover and Inside Front Cover
Coherent Inc 27
Douthitt Corporation 5
Easiway Systems 17
EFI 21
Encres Dubuit 24
ESMA ..... Front Cover, 30 & Inside Back Cover
EXTRIS 11
FESPA Digital 2016 35
Fimor 11
Gallus Ferd Ruesch AG 37
Grünig-Interscreen AG 3
Inkcups Now Corporation 31
J-Teck3 Srl 33
K-Flow GmbH 9
MacDermid Autotype Ltd 25
Marabu GmbH & Co KG 51
Murakami 15
Natgraph Ltd 43
Phoseon Technology 7
Premier Textiles Ltd 23
Roland DG Benelux nv 19
Screen Print India 2016 42
Sefar AG 31
Sensient Imaging Technologies ..... Outside Back Cover
SignTronic AG 3
Sihl AG 39
TECHNIGRAF GmbH 47
Zünd Systemtechnik AG 23

CHARTING THE COURSE FOR THE FUTURE

Specialty Graphic Imaging Association

Ford Bowers looks forward to his term in a presidential role

Ford Bowers

Before introducing myself and looking ahead to 2016, it is appropriate to take a look back at the speciality graphics arena and acknowledge the changes and chances that have brought both difficulties and opportunities to many in our industry. Over the past 15 years we have seen many disruptions and disturbances in the business cycle:

- Terrorism and natural disasters (leading to the cancelling of the SGIA Expos)
- Bubbles bursting and markets melting
- Tremendous change in technology (both hard and soft), which have altered the very landscape of our community, customers and suppliers.

Against this backdrop, the outgoing President and CEO of the Specialty Graphic Imaging Association, Michael Robertson, has charted a prescient course to preserve the health of an Association that serves many, maintaining a cohesive sense of what the SGIA community represents, and navigating a complex set of dynamics to accommodate changes at all levels of our industry. With the current strength of the market and overall confidence we seem to see everywhere as of late, it is easy to forget that the past decade and a half has been a critical time for the specialty graphics industry. We are therefore grateful that Mike has worked tirelessly to support the community and his farsighted stewardship is much appreciated.

"DON'T SCREW IT UP."

So, with some trepidation, I assume the role of President and CEO on 1 February, 2016. While it is difficult to assume leadership in times of trouble, perhaps just as daunting is to assume that mantle when things are going well. (The constant refrain "Don't screw it up!" echoes in my head.) My background is in operations and I am "from the industry" in that I have worked in one of its segments – point-of-purchase/retail – for the past nine years.

I have been attending SGIA events for that time, serving on its committees for the past five years, as well as its board of directors for three. In a community as diverse as ours, however, there is always something to learn about the evolving technology and R&D within specific sectors of the industry, such as garment decoration and apparel printing, industrial and electronic printing, and fleet and vehicle graphics, to name a few. For me, then, it will be a hectic and full year.

For the industry at large, it will likely be no less hectic. Change, primarily the result of continuous, vigorous innovation, is affecting our industry on a tectonic scale. The barriers and distinctions that have traditionally separated one kind of printer from another are rapidly dissolving, inviting traditional commercial, flexographic, and package printers to step into markets where screen and digital technologies have dominated. At the same time, this cross-over is offering traditional wide-format graphic producers the chance to find new markets and opportunities for revenue growth.

AN EXPLOSION OF AUTOMATION AND INTEGRATION

Technology is getting more sophisticated; there has been a veritable explosion of software automation and integration advances, while speed and quality advances in digital hardware, inks and their delivery methods – as well as substrate developments – are expanding customer solutions and creating decision points on strategic direction at a much more rapid pace.

Sustainability, once perceived as a cottage industry term, can no longer be simply dismissed as a fad or a niche selling point. The buying patterns and behaviours of customers are changing to take advantage of all of these advances, forcing would-be competitors to institutionalise a constant change management effort into their erstwhile, laidback management approach.

For those who embrace the creative disruption that flows from innovation – the very process that drives economic growth – the opportunities to thrive in such an environment are limited only to imagination and effort.

If this is the new norm for our industry, it should be no less so for the Association that represents it. To that end, I invite your thoughts on how to serve the speciality imaging industry more fully, and to create an even stronger sense of community. Perhaps a year from now we can compare notes to see how all of us have fared. Please send your comments and observations to me at ford@sgia.org ■

Ford Bowers is President & CEO of Specialty Graphic Imaging Association (SGIA)

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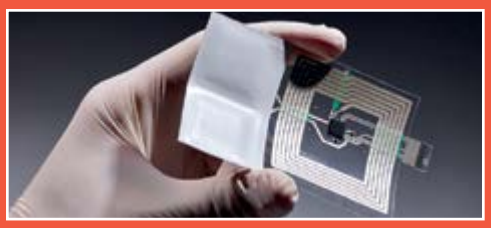

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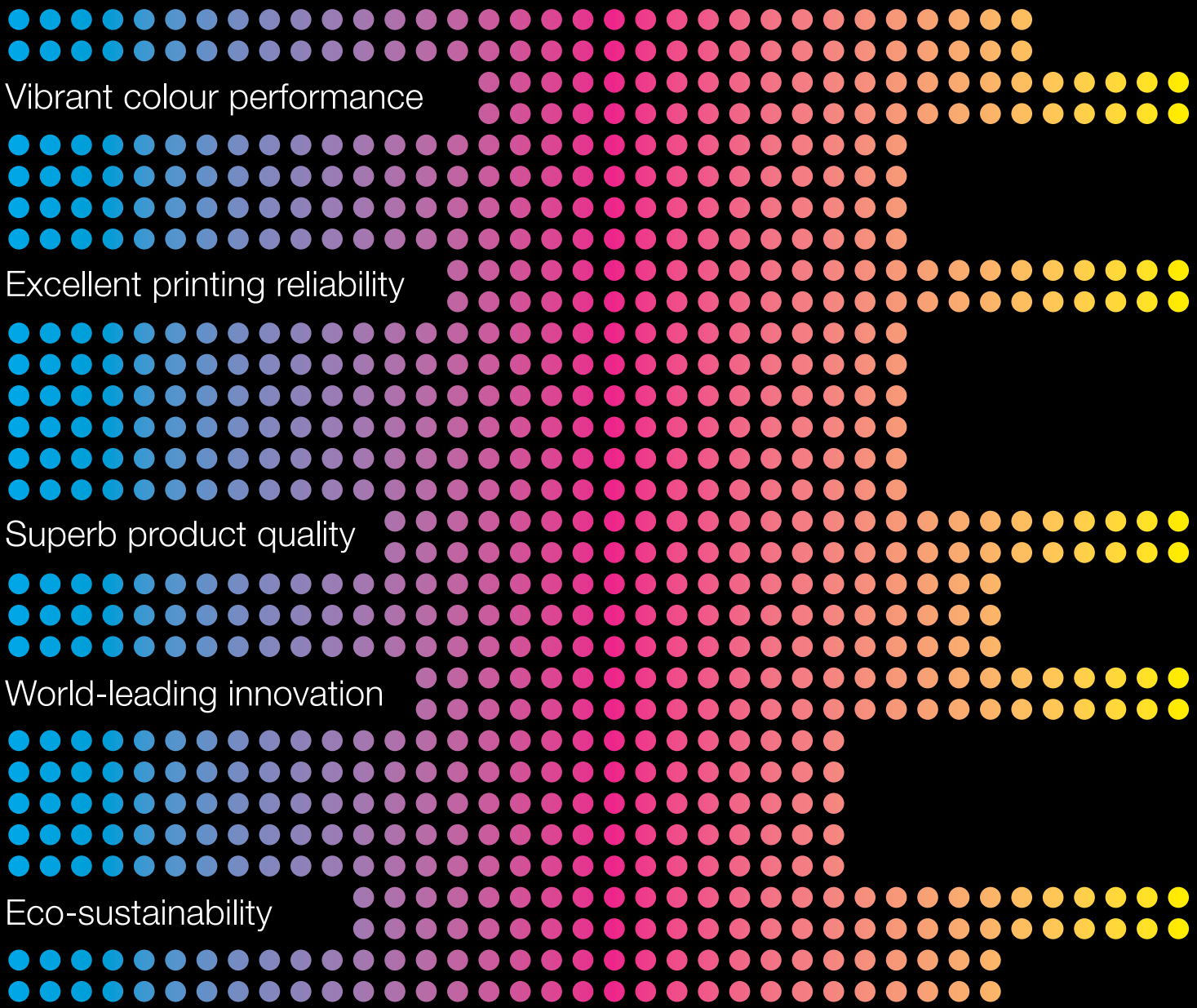

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