ISSUE 2
2014

GLOBAL TECHNOLOGY IN FOCUS

DIGITAL SCREEN AND PAD PRINTING

SPECIALIST printing worldwide

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MESSAGE FROM BRYAN COLLINGS

Welcome to a bumper issue of Specialist Printing Worldwide, the leading international reference source for users of screen and wide format digital printing systems.

With summer approaching fast, the Northern Hemisphere is looking forward to warmer weather and the growing season, and I don't just mean plants.

The drupa Global Trends report, summarised on page 12, confirms what has been a belief in the specialist printing sector for some time now:

There are clear signs that economic conditions are improving. As a consequence the printing industry globally is planning increased investment over the next twelve months. Efficiency gains and the development of new services are driving investment in the industrialised countries. North America is leading the way by gearing up for major transformation with high levels of investment in printing technology, IT and new services. In the emerging countries growing demand is the main driver.

This economic scenario is putting a smile on many producers' faces. None of us like working through a depression and it's good to feel it may be over now. We have to hope that none of the world's current issues ruins our growth expectations. It is a tribute to the strength of our industry that we have seen very few companies failing over the past four years; long may it continue.

Congratulations to the InPrint organisers on their recent successful launch show. We were very pleased to be InPrint's official international journal and exclusive publisher of their show guide. We look forward to future cooperation for mutual benefit.

We now wish the best of success to a sold-out FESPA Digital 2014 and hope to welcome readers and advertisers to our stand (A1-564). And before we know it, we'll be talking about the SGIA 2014 Expo in Las Vegas in October!

If you picked up this issue at a trade event and don't usually receive your own personal copy by post, the only way to receive all issues in the next 12 months is to subscribe now at www.specialistprinting.com for a total of only €55 / $80 / £45.

Happy reading!

Bryan Collings,
Publishing Director,
Specialist Printing Worldwide

SUBSCRIPTIONS: The only way to receive the next 4 issues (covering 12 months) is to have an annual subscription for €55, $80 or £45. Please contact subs@specialistprinting.com or subscribe online at www.specialistprinting.com

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The official opening ceremony

WHAT GOES ON BENEATH

Before the doors opened at the inaugural InPrint exhibition at the Hannover Messe, there was certainly an element of concern and trepidation about visitor numbers and whether those that did turn up would be relevant to the participants' wares. If the interpretation by the many followers to the show's build-up was correct, then this would become evident pretty quickly. But, with the definition of industrial print still being vague in some quarters, it was not the easiest event to quantify in manufacturer terms.

No-one need have worried. After a seemingly quiet start, the aisles soon filled and certainly the majority of visitors were able to relax, knowing that their faith in this exhibition had been justified. Names we have come to know as prolific suppliers in their own sectors, whether these are screen-printing or digital, were interspersed with those who aren't so well known. For these latter players, this is because of the role they play behind the scenes in terms of equipment development and, thus, the methodology used rarely comes to the fore. While some might have commonality across a broader sector of manufacturing, there are companies who have always been involved with print and deposition but, hitherto, haven't had a common playground where they can exhibit what they make or do to a focused audience.

SHIFTING THE EMPHASIS

Familiar to anyone involved in ink-jet are print-heads, inks and software, of course. These three examples make it easier for non-aficionados of industrial printing to relate to the shift in emphasis away from graphic applications and into decorative and functional options. Focusing on the integration of different technologies as a means to an end, not merely on the end itself, perhaps doesn't have the glamour or pizazz of a machine busy churning out production samples but, at InPrint, the emphasis was definitely towards what goes on beneath.

All too often in a graphics' environment there is an unnecessary level of secrecy built in to some of the most obvious components. Quite why on earth manufacturers are struck dumb when enquiries are made about print-heads or curing remains a mystery to me. The difference with the attitude at InPrint consolidated the fact that, because the key audience comprises integrators and systems' specialist, in general most people were far more open about the potential of

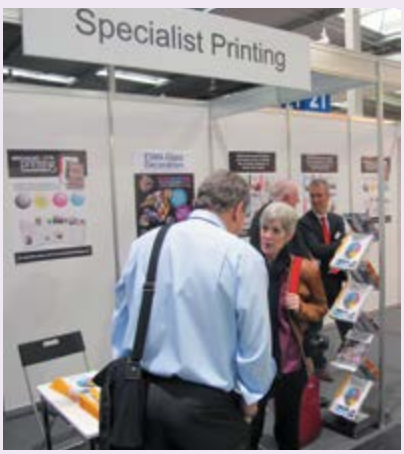
Continued over

The launch of Kiian's Specialty division took place at InPrint

INPRINT 2014 – THE FACTS

- Number of exhibitors: 110
- Net size of show: 3112m²
- Number of visitors: 6995 unique visitors (audited by Deutsche Messe) plus an additional 615 exhibitor staff.
- Next show: November 2015, Munich.

Visit www.inprintshow.com for latest information



Specialist Printing Worldwide was official international journal of InPrint 2014 and exclusive publisher of the show guide

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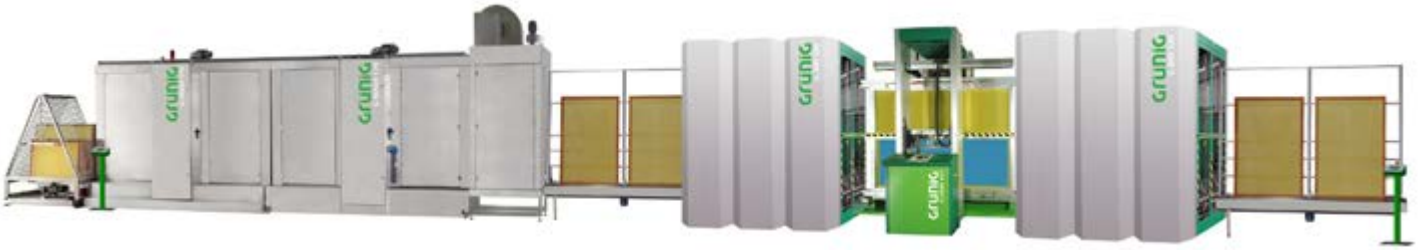

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Judging the Great Innovation Awards was a fascinating element in a busy three days for me. But the part that was particularly gratifying and encouraging was the way in which newer technology specialists challenged existing companies with deep roots in screen-printing, ink manufacture and coating machines. Along with my two fellow judges, we were quick to acknowledge that much of the innovation manifesting itself now involves the adaptation of existing expertise and manufacturing techniques with present-day challenges.

So, having chosen our two finalists, where the winner should have been chosen by the audience, we ended up with an equal vote for Hymmen Industrieanlagen's 2.1m single-pass array and Machines Dubuit's 9150 machine. Both of these established manufacturers showed a thorough understanding of functional application requirements that clearly demonstrated how digital versatility will benefit future production techniques. Likewise, so did Thieme who in my mind would have easily won the bronze had there been one.

What really appealed to me in innovation terms was the fact that it was companies with such strong analogue backgrounds that created the greater impact in the development of key digital techniques that are particularly relevant to the overall foundation of where old meets new. These are no longer disparate conceptual, design and manufacturing principles that compete; instead they can finally prove that they are both contributing hugely to the future of industrial, decorative and functional print and deposition.

The Great Innovation Awards' winner was Hymmen Industrieanlagen with its 2.1m single-pass array with LED curing

Machines Dubuit's 9150 printer was runner-up in the awards

their exhibits and who is using which successfully across a range of application types.

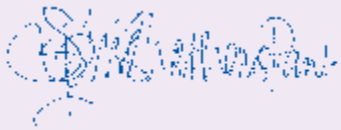
Where exhibitors, in the main, were particularly successful at the Hannover event came in simplifying their manufacturing or production processes so that they captured the attention of passers-by. This was not an event where visitors wanted to see lots of market-ready machines, although there were certainly complete lines on show that catered for specialist areas; instead it was a rare opportunity for new and existing technologies to meet on common ground in a focused environment.

ANALOGUE AND DIGITAL TOGETHER

From my point-of-view this exhibition also provided a marked link between those who have concentrated for generations, and longer, on screen-printing processes and coatings and the more latter-day digital cognoscenti. Removing the oft quoted, and increasingly silly, 'analogue to digital' mantra, and proving that the two technologies can sit together very comfortably across different applications, was endorsed by the common aim of InPrint participants in their quest to find innovative methods of applying their existing technology into new production segments.

Some trade events are having a bit of a rough time at the moment, and it often seems to be forgotten that the key for organisers is targeting the right audience for a specific segment or group of sectors. It's essential that this focus is underpinned by sourcing the right visitors and this is where the InPrint organisation team scored highly. Here's hoping that this particular exhibition will become a regular event on the calendar.

Representing ESMA during the accompanying Functional & Decorative Industrial Print Conference, Peter Buttiens and Robin McMillan presented 'An Introduction to Industrial Printing, the 360° View!'



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

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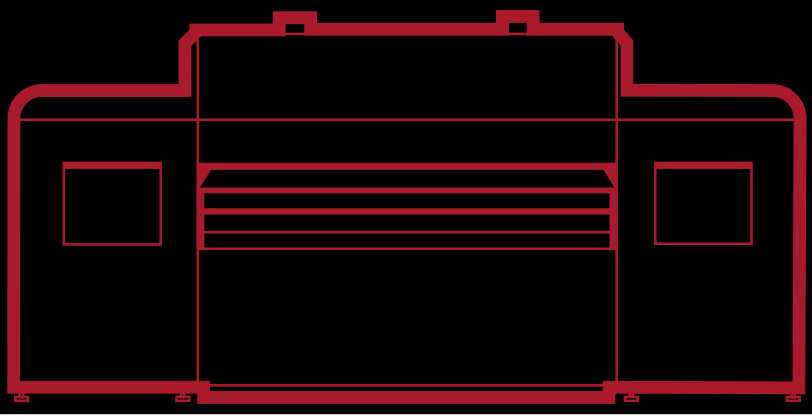

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UK's first major investment in Sakurai LED UV offset presses goes to B&B

Rotherham based B&B Press Ltd has announced a major investment with Sakurai Graphic Systems by ordering the UK's first LED UV offset presses. This investment, well in excess of £1million, will see the first of two presses, a Sakurai Oliver 480SD LED UV four-colour offset press, being installed in late June. This will be followed by a 580SD LED UV five-colour offset press which will go in during the third quarter of this year.

This purchase is the culmination of extensive research by B&B which began last summer and involved many site visits to various manufacturers. It also involved site visits to some of Sakurai's existing LED customers in Japan and tests in the Sakurai showroom in Tokyo. Barry Liversidge, Managing Director of B&B Press, states: "Because the technology is so new, especially here in the UK, we needed to investigate it fully. We are particularly pleased to be making this re-investment with Sakurai with whom we have had an excellent working relationship for more than 25 years."

"We believe, as a carbon neutral company, that this new technology fits perfectly with production requirements in terms of power consumption, savings on coatings, and no mercury lamps," adds Production Director at B&B, Nigel Tolley.

Sakurai's UK Branch Manager, David Ryan says: "This is huge for our respective companies and a great tribute to the longevity of our relationship which in this case endured some extremely tough competition. Hopefully we can move on to develop the hugely exciting opportunities that come with this technology for all. As we now have the first UK LED UV order we are in discussion with Baldwin to showcase the technology in our own showroom where we have made significant investment over the past 12 months." ■

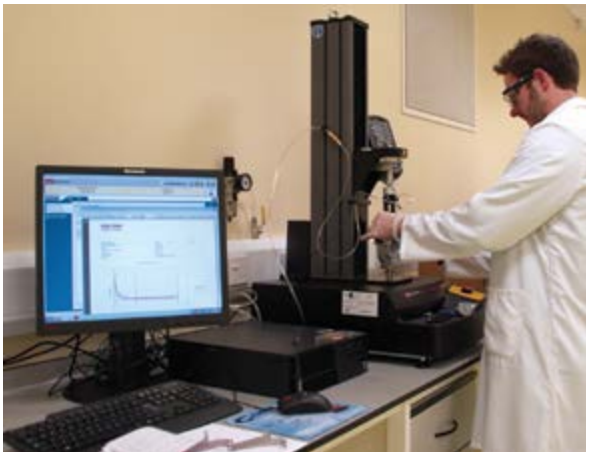
Ricoh opens new UK technical centre for EMEA customers

Ricoh Europe is expanding its ability to support the growing demand for its industrial ink-jet print-heads, used in wide-format graphics, textile and 3D printing, with the launch of a new European Ink Jet Technical Centre. This consolidates a longstanding heritage in the industrial ink-jet market, with Ricoh supplying print-head technology and licensed patents to companies around the world for more than 30 years.

The new centre, based in Telford, UK offers localised technical support for OEM ink-jet innovators across EMEA. It has laboratories for providing internal testing, evaluation and external training, fully equipped to assist European integrators with their design, evaluation and validation of Ricoh's ink-jet components.

Ricoh's technical team will also assess jetting characteristics, component application compatibility and fluid performance – allowing customers to have their fluid tests performed locally. In addition to the technical support and business development teams, chemists as well as mechanical and electrical engineers will be based at the centre to support customer projects. The centre is a new resource specifically for EMEA-based customers and will work in collaboration with Ricoh's global network of technology and component manufacturing facilities to provide responsive local technical support.

"With a large proportion of ink jet technology customers based in EMEA, there was a pressing need to provide the region with localised support," states Graham Kennedy, Business Development Manager, Industrial Print, Ricoh Europe. "Crucially, this allows our clients to realise their ideas quicker and subsequently bring their products to market in a faster and more efficient manner. The establishment of the support centre ensures we are responsive to their needs and complements our existing support facilities throughout the region." ■



The new Ricoh centre is a new resource for EMEA-based customers

Soyang has every surface covered

Soyang Europe has introduced G-Floor, which the company says is set to change traditional perceptions of what is possible in the field of customised flooring. The new media, originally developed in the USA, is based on a high density, clear, flexible PVC substrate, capable of being printed on the underside, using either UV-curable or solvent inks on a wide-format printer.

With a thick wear layer protecting the integrity of the graphic, G-Floor is hygienic, easily installed and repositionable, as well as having excellent load-bearing capability, with low noise and sound absorbing characteristics. The highly effective and hard-wearing grip surface is ideally suited to retail, business and public space applications, with a solid white media option available for surface printing where production capability is limited to four-colour process.

Soyang is also launching another new product called AlumiGraphics. This rugged, aluminium foil base material conforms and holds to the texture of any surface that it is applied to. With its high durability, resistance to heavy pedestrian and rolling vehicle traffic, as well as all types of weather conditions, this revolutionary new product is well positioned to take the sign and graphics market by storm, with its myriad of potential applications in both indoor and outdoor environments. ■

Soyang's new G-Floor flexible PVC substrate

Joint co-operation will target machine builders and OEMs

ColorGATE, n-art-m and Staedtler Mars have agreed on a joint co-operation to serve the industrial printing sector. The three companies are targeting machine builders and OEMs that are looking for experienced and aligned partners for the development of specialised industrial printing systems. Regardless of whether they are only requiring components for a digital printing system or seeking a complete tailor-made solution. The main objective of the cooperation partners is to become the prime address for the target audience in the search for customised solutions "Made in Germany".

"Our target is to jointly develop digital printing solutions for the industrial sector. The customers' requirements are central in this matter," states Arthur Noll, Managing Director of n-art-m. ColorGATE´s Managing Director Thomas Kirschner adds: "From the consultancy, to the concept design, right up to the installation and after sales services, all potential buyers can count on the longstanding experience of all involved cooperation partners." Meanwhile, Jens Reuter, Director Marketing Sales at Staedtler points out: "Tailor-made solutions, which are able to integrate right into an existing production line, are today's requirements in the market, and we are able to deliver such solutions." ■

Bordeaux's new eco-solvent ink for the Espon SureColor S

Tailor-made ink-jet technologies from Bordeaux

Bordeaux Digital Printink is launching new custom-made inks and solutions compatible with most solvent-based wide- and superwide-format digital printers. The mix and match inks claim to be environmentally friendly, support high printing speeds and offer a competitive advantage over OEM counterparts.

"There is a global trend in which printers are shying away from OEM to ink manufacturers that develop compatible inks. We took this trend one step further and invested in the development of specific eco-solvent inks and chips to fit particular printer models," says Moshe Zach, CEO of Bordeaux. "OEM users can enjoy peace of mind when switching from expensive OEM ink to fully compatible Bordeaux inks. I personally endorse our Eco inks to deliver superior results and our customers can start seeing the savings from the first drop."

The company has a new eco-solvent 700ml cartridge with dedicated chip for the Epson SureColor S printer. The solution is mix and match with the original ink, preserving quality and allowing the user to swap from OEM to Bordeaux cartridges quickly, one colour at a time, without requiring any pre- or post preparations. It aims to replace Ultrachrome GS2 ink.

The company also offers 1000ml bags, which provide 40% more ink than OEM cartridges. Used with the Smart Cartridge System, users can accurately monitor ink level and receive real-time ink changing alerts for longer, uninterrupted printing cycles. ■

PressOn's VUTEk QS2-Pro is particularly competent when working with traditionally tricky materials

EFI helps Kent display specialist reduce the numbers and up the output

Since taking delivery of its EFI VUTEk QS2-Pro supplied by CMYUK Digital, Rochester-based PressOn has discovered a surprising wealth of benefits ranging from versatility in productivity through to ease of ownership. The company has now reduced the number of digital platforms in its facility from more than half-a-dozen to just two, with the versatile combination flat-bed and roll-fed UV-curable machine handling the lion's share of output, including work formerly produced on a latex printer.

Joint founding managing director of PressOn, Andy Wilson, comments: "In truth, we hardly know we own the VUTEk QS2-Pro as it works day in, day out completely flawlessly and we can't fault it. Its versatility is unmatched and we can be printing canvas in the morning, polyester at noon, wood at lunchtime, and foamex in the afternoon, plus a lot more in the way of variety, including a large amount of vinyl film."

Such is the versatility of his 2m wide machine that Wilson states many jobs formerly printed using his latex printer have now been migrated very successfully to UV-curable ink, thanks to its greyscale print-heads, excellent adhesion and good flexibility across different surfaces and materials. Installed with Fiery proServer, job processing is fast and efficient, proving the perfect complement for the VUTEk QS2-Pro's effortless production capabilities.

Wilson has pushed his VUTEk QS2-Pro to limits not normally associated with UV-curable technology. He states that the machine is particularly competent when working with traditionally tricky materials, such as gold polymerics, and clear substrates which benefit from the highly opaque white coverage. The inks offer great flexibility with excellent adhesion, making the results easy to cut and route, as well as being suitable for wrapping applications. ■

Trotec Laser adds Tennyson as national sales manager

Kris Tennyson has joined Trotec Laser as National Sales Manager based in the Canton, Michigan, head-quarters. "We are excited about adding Kris to our team," says Warren Knipple, President of Trotec Laser. "With his extensive sales leadership background, he will ensure that we continue our aggressive growth in the sales department and the overall company."

Tennyson was previously in the financial equipment industry and comes to Trotec with more than 20 years of experience in sales management. In his off time, he enjoys being outdoors boating and fishing. He also coaches his son's basketball and baseball teams, and actively volunteers with the Ascend Foundation and the Coats for Kids programme. ■

Kris Tennyson is now National Sales Manager at Trotec Laser

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SAATI reports successful product launches and new strategic alliance

As a leader in the development, manufacturing and commercialisation of advanced technical textiles and chemicals, SAATI has reported a very positive response to new products launched at Fespa London last year.

Saatilene HI-LO (Hi tension - Low Elongation) was introduced as a super high modulus monofilament polyester mesh. "Feedback has been excellent," comments Pietro Giuliani, SAATI's Sales Manager Chemicals EMEA. "The Saatilene HI-LO line of products is a very specific mesh made with special materials and equipment to be used with capillary films or emulsions to provide better quality and resistance. That is what our customers are asking for."

Also launched at Fespa 2013, Saatigraf HSX is a new line of emulsion that complements the Saatilene HI-LO range. "SAATI is a textile company making chemicals and here we really are the only one. It has enabled us to create these lines for both polyester and stainless steel applications," added Giuliani. "We have launched these new products and already have a track record of success."

Reporting similar success for the DCF Super Sharp, a new capillary film, SAATI plans to further expand their ranges to meet customer needs. "These new products were just the start. The range is going to be increased and improved depending on industry requirements. Customers are asking us for more and more sophisticated products and we will continue to expand," concludes Giuliani.

The SAATI stand at the recent InPrint exhibition

Based on a long-term business relationship, SAATI also recently made the decision to enter into an agreement with G Bopp which will serve as the foundation for extended cooperation in defined areas.

While SAATI manufactures synthetic meshes and components for industrial applications, Bopp focuses on precision meshes produced using the finest stainless steel wire and other weavable metals and fabricated customised products. The areas of interest and activities of both companies are complementary, and a contractual agreement was signed in order to exploit the considerable synergies arising from this alliance.

Co-operation will initially focus on defined markets and products related to knowledge and resource sharing, technical developments and joined commercial support. The agreement will enable both companies to provide innovative solutions for new challenging applications, enhancing the entire value proposition of the newly created supply chain. ■

Sun Chemical partners with T+ink and forms T+sun to provide conductive ink solutions

Sun Chemical has teamed up with T+ink to form T+sun, an organisation which will provide conductive ink solutions to make packages and objects communicate, engage customers and manage inventory systems. Drawing from the global resources of Sun Chemical, including the company's electronic materials, packaging and brand protection groups, T+sun will utilise Sun Chemical's global R&D, technical support, manufacturing infrastructure, supply chain, marketing and sales.

T+ink, one of the first emerging companies to commercialise true printed electronics across a variety of industries, including toys, packaging, promotional products, construction and apparel, brings patented technologies that are designed to replace switches, wires, buttons, speakers, lights, sensors, microphones, antennas and batteries with printed ink for touch and motion-activated applications.

"T+ink's technology creates a dynamic opportunity for our customers," says Felipe Mellado, Chief Marketing Officer at Sun Chemical. "The innovation we provide through our own research and development, and through strategic partnerships with T+ink and others, can give our customers a complete solution that enables best-in-class packaging designs worldwide now and in the future."

"This partnership will be on the frontlines of making objects smart and interactive," adds Terry Kaiserman, Chief Technology Officer at T+ink. "T+sun will provide a fundamentally new way for brands to communicate, engage consumers, manage inventory and more. Conductive ink replaces RFID codes at a fraction of the cost and offers more security than QR codes." ■

Riso's new Goccopro QS200 digital screen-maker

Riso introduces its Goccopro QS200 screen-maker

Japanese company Riso Kagaku Corporation (RISO) has launched a new digital screen-maker, the Goccopro QS200, as the high-end version of the Goccopro100 introduced in 2011. This series uses a digital screen-making system in which a thermal print head perforates a specialised, heat-sensitive screen master. This completely dry screen-making method significantly reduces work processes and improves efficiency by saving on time and labour. Unlike conventional screen making systems, the Goccopro uses absolutely no chemicals, emulsions or water. The new Goccopro QS200 now makes it possible to image the A2-width screen master that is the standard in the printing wear industry, and accommodates frames up to 580 x 780mm.

To use the Goccopro QS200, a screen is stretched onto a frame and then set in the machine. An imaged screen is quickly created simply by entering screen-making instructions directly from a computer. The pre-stretch method enables highly accurate alignment when printing using multiple screens. By combining a multi-colour carousel for T-shirt printing and a long printing table, the Goccopro QS200 provides an efficient silk-screen-printing environment which includes the screen making process.

The Goccopro QS200 broadens the scenarios in which screen-printing can be used. A variety of materials including plastic, glass and metal is now easily screen-printed using the Goccopro QS200. Riso is seeking to increase its market share in the professional screen-printing market by catering to a broad range of customer needs, from printing on fabric to printing on prototypes for industrial products, and small-lot printing. ■

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Chris Rogers will expand Esko's success with ArtiosCAD

Esko appoints Chris Rogers to lead growth of ArtiosCAD software

Esko has appointed Chris Rogers as EMEA Business Development Manager for Structural Design. In this role, he will be responsible for expanding Esko's long-term success with ArtiosCAD structural packaging design software, bringing a wealth of experience to his new role.

Prior to joining Esko, Rogers held the position of General Manager at Arden Software, a developer of packaging design and manufacturing process solutions. In that role, he was responsible for the general management of the company, including international sales, marketing, and product development. Prior to his role as General Manager, he served as Arden Software's UK Sales Manager.

Stefan Meire, Esko's EMEA Director Software Sales, comments: "Since its introduction, ArtiosCAD software has been a tremendous success, giving more than 16,000 packaging professionals around the world the tools they need to improve their processes and gain efficiencies. Now, as we seek to build on that success, we are delighted to welcome Chris to our organisation. His industry knowledge and proven track record of success will enable us to expand our structural design business and the use of ArtiosCAD throughout the whole of Europe and particularly with brand owners." ■

Drupa Global Trends report provides analysis of the printing and media sector worldwide.

A two report series entitled 'Drupa Global Trends' and 'Drupa Global Insights' will study for the first time the trends and major changes in the international print and media sector at both global and regional levels. The results will be based on answers provided by a representative panel consisting of leading executives from printers, suppliers and print purchasers from around the world, recruited primarily from the Drupa 2012 visitor and exhibitor database. Messe Düsseldorf, in its role as Drupa organiser, has appointed two independent consulting and market research companies, Printfuture (UK) and Wissler & Partner (Switzerland), to conduct the two report series.

Despite reporting significant regional variations, the 'Drupa Global Trends' report reveals a number of critical – and sometimes surprising – trends that are shared by all economic regions and across print segments for publishing, packaging and commercial. As was to be expected, the report confirmed that the global printing industry's structural transformation is still ongoing, with increasing costs coupled with declining prices and shrinking margins. Three other major findings of the study are more pivotal showing clear signs that economic conditions are improving, in the midst of a transition from a product-driven industry to a service-driven one, with digital printing playing an increasing role in the technology mix deployed.

Among print services providers, 65% produce using both conventional and digital methods and one-third of commercial printers already gain a quarter or more of their turnover from digital printing. But conventional printing (especially sheet-fed offset) continues to be an important pillar for the print sector. Planned investment reflects this point as 29% of all printers say they intend to invest in sheet-fed offset printing. ■

Pad Print Machinery of Vermont announces cJET-24

Pad Print Machinery of Vermont has launched its cJET-24 flat-bed conveyor ink-jet printer, an industrial high-speed device for printing both flat and curved items. It is designed for short-run and long-run industrial printing and supports uni- and bi-directional CMYK plus double white printing.

The cJET-24 is designed for industrial products, personalising souvenirs, customizing gifts, and special promotional items. Suited to high-quality graphics reproduction, it allows the production of any image directly from standard graphic files to the product with no need for intermediate steps. This allows technically proficient wide-format printers to break into new markets without the introduction of new unfamiliar types of printing processes.

"We are an experienced integrator and a valued machine manufacturer to the burgeoning ink-jet market," states Julian Joffe, CEO. "Our engineering team takes pride in the ability to tailor the production process to each customer. We continue to revolutionise the design application process with this new flat-bed conveyor ink-jet printer."

The unit incorporates automatic print-head maintenance including purging, wiping and capping. The three litre ink tanks have liquid level sensor alarms and a smart platen height adjustment system automatically detects and optimises the distance between the print-heads and substrate.

Abby Marsh, Pad Print's Marketing Director adds: "The cJET-24 is everything the fJET-24 has to offer and more. If you demand continuous in-line production, the cJET-24's conveyor system is the perfect solution." ■

Additional appointments at Hollanders signify continued growth

Jacco Aartsen Tuijn

Following the investment strategy implemented by Hollanders Printing Systems at the start of 2013, the company has made additional appointments designed to leverage its position in the digital textile printing segment. Jacco Aartsen Tuijn joins the Eindhoven-based manufacturer as CEO, with Rowan Bloemberg taking the role of marketing manager. Finally, from 1 May, Renate Besselink will be assisting with direct and channel printer sales.

Aartsen Tuijn formerly held sales orientated roles at Océ Nederlands where he worked on key and new accounts and was also responsible for training. His in-depth experience of the digital print market will bring valuable traction to the Hollanders product portfolio which includes the 3.2m ColorBooster XL, the ColorBooster DS double-sided printer and the entry-level ColorBooster 250 which makes its European debut at Fespa Digital 2014. ■

YPS puts customers and applications first in on-line revamp

Your Print Specialists (YPS) has completed the latest update to its brand identity with the launch of a new web presence. The site at www.yourprintspecialists.co.uk has been developed to reflect better the company's capability to supply and assist printers in a cornucopia of markets, including education, retail, and sign and display.

The website, which is fully responsive to meet the needs of users on the move, now makes it simple to identify and register interest in any product from YPS's broad portfolio. Leading on its wide-format digital ink-jet technologies from Mimaki, Epson and Canon, it nevertheless reflects the Newcastle-based supplier's on-going commitment to the crucial ancillary products for this market, as well as consumables for screen and offset litho production.

Particular to YPS's online refresh is the link between products and markets. "For YPS, it's never been about moving boxes; we identify the right equipment and offer continued support for the customer's precise need," observes Garry Brown, Managing Ddirector. "Our new website sets out our stall in a clear and accessible manner by showcasing our heritage across a diversity of application areas." ■

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Kornit Digital's Avalanche Hexa widens the gamut with red and green

For precision colour matching and very fast throughput speeds, Kornit Digital has announced the commercial availability throughout Europe of its Avalanche Hexa six-colour system which features its NeoPigment process that can print direct to multiple fabric types. Bringing a 30% gamut increase as the only system to add red and green to the traditional CMYK palette, and with the inclusion of white ink, this machine has already been welcomed during its beta testing phase. Top fashion and sports licensing printers throughout Europe and the USA have praised its performance and, since its launch in January this year, machines have already been sold to Germany, France and Portugal.

Kornit Digital partnered with top fashion printers throughout Europe, including Blur Impressao Digital Textil of Barcelos, Portugal, during the beta testing phase of the Avalanche Hexa. "The extended colour range of the Avalanche Hexa sparks our creativity," says Mariano Dias, owner of Blur. "It helps us produce really outstanding prints. It is not only the brilliant reds and greens that we get; the Avalanche Hexa produces smooth and saturated colour all over the colour range. Plus, the speed of the system is really amazing."

With its unique inclusion of red and green, plus regular CMYK and white, the Kornit Avalanche Hexa simplifies spot colour handling and colour matching, with users able to reproduce branding and specific shades quickly and accurately. Corporate logos can now have their identities reproduced easily and precisely first time across all fabric types, reducing waste and saving on time and costs.

Regarded as an important addition to Kornit Digital's growing versatile product portfolio, the Avalanche Hexa is designed for fast throughput and superb quality, supporting a fast return on investment for users. It incorporates 20 Dimatix Spectra Polaris print-heads, renowned for their rugged and accurate performance, with 256 nozzles each, optimising production across the overall print area of 60 x 90cm (23.5 x 35 inches). Additionally, this printer includes an integrated humidity system, battery back-up and automatic maintenance procedures for reliability and ink saving efficiencies.

Kornit's innovative NeoPigment process brings users all the benefits of working with pigmented inks without any of the disadvantages, with no pre-treatment being required. The inks are formulated for virtually all types of material and meet the most rigorous environmental regulations, including OekoTex 100 standard and GOTS V3.0. NeoPigment's overall efficiency is complemented by brilliant and intense colours, an excellent 'hand', and long-term durability and washfastness.

"At Kornit we're not surprised to learn that the benefits of the Avalanche Hexa appeal greatly to any print company needing colour accuracy for fashion and branding," states Wilfried Kampe, General Manager of Kornit Digital Europe. "Successful beta testing has shown that this direct-to-garment system offers the speed, quality and the best colours that the market needs, particularly when moving up to an advanced machine or making the transition from conventional screen-printing to the convenience and versatility of digital print."

All of Kornit Digital's direct-to-garment and textile decoration systems are available through its world-wide network of specialist resellers. With a comprehensive portfolio of printers from entry-level through to mass production models, it is the only company that not only designs and builds machines but also develops and manufactures its own ink. ■

The new Kornit Avalanche Hexa widens the gamut with red and green

Kiian Group launches speciality ink business

InPrint 2014 saw the launch of Kiian Specialty as a new business within the Kiian Group. Part of an ongoing growth strategy to align its ink and screen chemical manufacturing businesses, this development is designed to streamline production operations and ensure a clearer and faster route to market for Kiian Group products.

Fabio Festorazzi, CEO of Kiian Group will also assume the role of General Manager for Kiian Specialty. As part of the new development, Frank Jellinek joins as Sales and Marketing Director. A highly experienced ink specialist, Jellinek has an established and proven track record within the speciality chemicals' industry. This includes roles spent at Laporte (later Rockwood Industries) and subsequent global sales and business development positions with Flint Ink and Pemco International.

"The last few years have seen the traditional screen business live in the shadow of the high growth digital ink segment," Jellinek comments. "Now we have a strategic commitment to clearly focus upon building the speciality side of the business in order to achieve the ambitious targets the company has set itself." ■

Fujifilm launches new thermo forming ink for light industrial applications

Fujifilm today announces the launch of a brand new thermo forming UV-curable ink-jet ink, Uvijet KV, aimed at light industrial applications. Continual investment in R&D at its award-winning ink manufacturing plant in Broadstairs, UK, has enabled the company to act on the recognised need for a high quality digital ink targeted at these applications.

Uvijet KV has been designed specifically for use with the company's mid-range flatbed printers, the Acuity Advance Select and Acuity Advance Select HS. The new formulation maintains the high quality, vivid colours and excellent performance expected from a Fujifilm ink, with no compromise to the print speed. Once the printing of a flat plastic sheet is completed, it is removed to a mould where it is heated up to take on the shape of the mould, and then cooled. The ink has elongation properties of 300 to 400% when heated, returning to a 'normal' state when cool. ■

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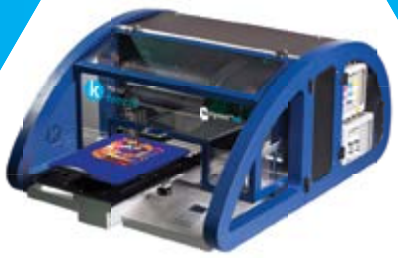

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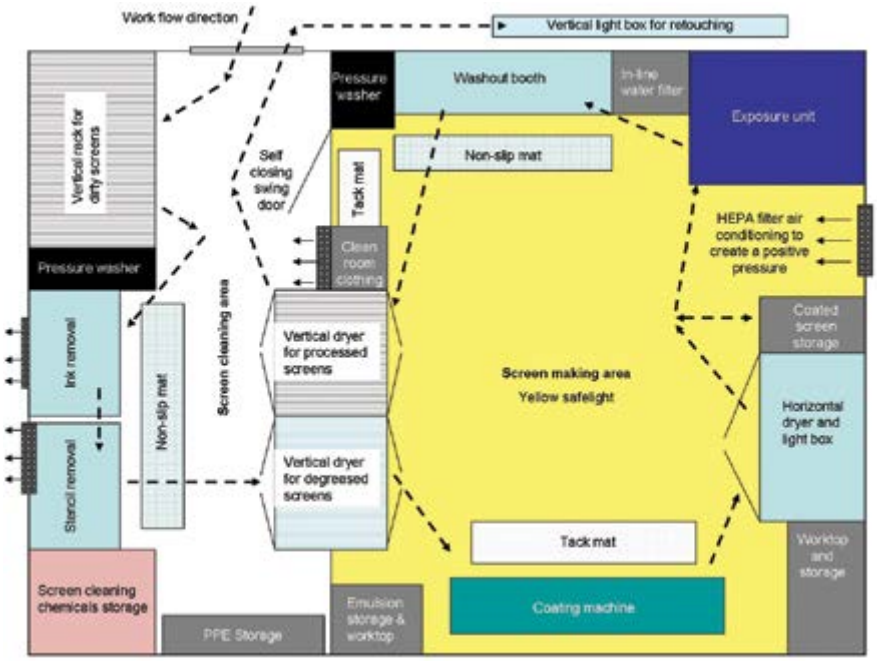
DESIGNING A SCREEN-MAKING FACILITY FOR INDUSTRIAL PRINTING

David Parker produces a useful 'how to' guide

One of the key criteria common throughout industrial screen-printing applications is the need to produce a consistent quality that meets the customer's performance specification. This could range from the legibility of five point text on a medicine ampoule, to the electrical resistance of a 50µ track on a photovoltaic panel. Typically, the screen-printed component of an industrial application is a low cost part of the operation, but if it fails the customer's performance specification, it can have a huge consequential cost.

Whatever the specification you require, a poorly designed screen-making facility can create an expensive, wasteful and sometimes even dangerous bottleneck in a production facility. Screens that are not prepared properly breakdown quickly, as do screens that are not dried or exposed effectively. Cross contamination can lead to rejects, whilst expensive mesh can be destroyed in seconds due to poor storage and handling.

However, with only a modest investment you can easily create a more profitable screen making facility that is safer, effective and efficient with the right design.



The screen making workflow (shown by the dashed arrow), demonstrating how the screens are processed with minimal handling through the department

LAYOUT

The type, size and number of screens you produce have significant influence on the design of the screen making area. For example, making 20 x 3m x 2m screens/day for automotive glass printing will have different equipment and space requirements than making 500 compact disc screens a day. However, the fundamental screen-making process remains constant whatever the application and, therefore, the same work-flow rules apply.

The design covered in this article shows one suggested layout for a manual screen cleaning/making department that predominantly processes direct emulsion and Capillex screens <1m² in size. For example: a membrane touch switch application. If greater throughput is required, many of the following operations may be automated, but that is beyond the scope of this article.

Cleaning booth with good ventilation

The Autotype Brush Pump requires no air or electrical supply

SEPARATE THE AREAS

Ideally the wet, messy screen cleaning area needs to be separated from the clean, dry screen-making area to prevent cross-contamination.

On the left hand side of the plan (Figure 1) is the screen cleaning area, which takes the dirty screens that have been printed, cleans off the ink and stencil and then prepares them ready for the next stencil. This is the wet, messy part of the operation and it is physically separated from the clean, dry area by a wall.

The clean and dry screen-making stage (on the right hand side of Figure 1) starts with a dried degreased screen, which is then coated or stencilled with Capillex film, imaged, processed and then sent out for finishing prior to printing.

The screen-making work-flow (shown by the dashed arrow), demonstrates how screens are processed with minimal handling through the department.

SCREEN CLEANING AND PREPARATION AREA

This area does not need to be yellow safelight as it is easier to inspect a clean screen in white light. The very nature of the process means that it will get wet and dirty in the room, so the floors must be non-slip when wet and the surfaces easy to wash down. Good ventilation for the operator must be provided due to the chemicals used there.

SCREEN STORAGE AND HANDLING AREA

To minimise the risk of screen damage and to improve the work-flow, the dirty screens should be stored vertically in a racking system next to the cleaning booth prior to cleaning. By storing the screens in a rack this reduces the potential for accidental damage which is all too common if the screens are just stacked against a wall.

In many industrial applications there is a standard screen size so the screen racks can be made portable. This allows them to be filled up in the production area and then wheeled into the screen cleaning area ready for cleaning.

SCREEN CLEANING OPERATIONS

In all but the smallest print facilities, the screen cleaning operations should be separated into two areas:

Ink removal area

Ensure there is good ventilation where the operator is using solvents and that you draw away solvent vapours from the operator's face. Installing a simple solvent recirculation system will save you money very quickly. Using special screen cleaning brushes will maximise the efficiency of the cleaners and minimise the potential to damage the mesh. These brushes have chemically resistant fibres that have 'flagged' ends to give good solvent pick up and minimise dripping.

Stencil removal area

The stencil stripping wash-out booth must have a back-light for inspection of the screens during cleaning. The booth must be fitted with both a mains pressure water supply and a pressure washer. This will enable the operator to rinse the chemicals off the screen before blasting it with the pressure gun. Important: never rinse chemicals off the screen with a pressure gun as this will atomise the chemicals which can cross-contaminate cleaned screens, or worse still, be breathed in by the operator.

Top tip: The Autotype Brush Pump is a very simple way to apply stencil stripper to the screen without the need for an electrical or compressed air supply.

The area in front of the cleaning booth will get very wet, so additional non-slip mats or 'duck boards' are a good idea. Screen cleaning chemicals, especially solvents should be stored in a metal cabinet suitable for storing flammable liquids. Ideally these should be raised off the floor slightly to prevent them rusting in this wet environment.

Continued over

Keep SDS/MSDS on display in areas of chemical use

After the screens are cleaned, they should be degreased and rinsed before drying. The water supply used for the final rinse should be filtered using an in-line filter to prevent waterborne contamination being filtered out by the mesh and clogging the mesh openings. Typically these particles of rust or limescale will show up as dark spots in the stencil once the screen has been coated, which will lead to pin-holes.

Top Tip: It is easy to check for waterborne contamination by holding an off-cut of fine mesh (>120/cm) over the hose end and running the water for two minutes. Then carefully inspect the mesh to see if any rust or limescale particles have come through the water supply.

SAFETY

There is no such thing as 'a safe chemical', only safer ones, so the full range of personal protective equipment (PPE) should be easily available for the operators to wear. The PPE must be both effective and comfortable; for example face shields are more comfortable than safety glasses and will protect the whole face from 'blow back' when using a pressure washer. A full-length apron will keep the operator dry when cleaning many screens. Make sure the gloves are fully resistant to the chemicals being used as some protective gloves are not suitable for use with solvents. Always use long gloves when handling corrosive caustic haze removers as they will protect the operator's forearms as well.

Using a mesh as a filter cloth to check for waterborne contamination

It is a good idea to keep separate copies of the current Safety Data Sheets (SDS/MSDS) immediately to hand in the areas of chemical use. Ideally, these should be in wall-mounted document holders as this means they are permanently on display and allow you to locate data quickly.

SCREEN DRYING

The cleaned, degreased screens can be placed vertically in a warm air dryer to dry. If the dryer is built into the wall between the two areas, screens can be loaded in from the screen cleaning area and then accessed from the stencil making area, preventing unnecessary movement in and out of the stencil making area. This will reduce the cross contamination, minimise the potential for damage and subsequently improve operator efficiency.

SCREEN-MAKING AREA

The working environment in the stencil making area should be in yellow safelight and air conditioned to 18 to 22 degrees C and 50 to 55% relative humidity.

The stencil-making area is the clean, dry area where contamination needs to be minimised. A full cleanroom maybe required for some high-end applications, and can be very expensive to install and maintain. However, a 'controlled cleanliness' environment can easily be achieved for minimal cost and adequate for most applications. The key steps to creating a 'controlled cleanliness' environment are as follows:

1 Get rid of any unnecessary clutter as this creates a dust trap.
2 Concrete floors and suspended ceilings can create a lot of dust. Sealing the walls, floor and ceiling will prevent dust being created or retained. Do make sure that whatever method is used complies with any local fire regulations.
3 Use easy clean surfaces and try to reduce the number of areas where dust can accumulate i.e. storage cupboards should not have a gap underneath which is difficult to clean.
4 Reduce unnecessary movement in and out of the room by having load-in/unload-out in-wall dryers.
5 The air coming into the room should be HEPA filtered and ideally at a slightly higher pressure than the screen cleaning room.
6 Tack mats placed by the door and in front of the coating machine remove most loose dust from operator's shoes.
7 Try and reduce clutter being accumulated by providing adequate storage for the essential equipment and consumables.
8 Minimise air movement near to the critical operations such as screen coating (dust is impossible to remove once it is embedded in a wet emulsion coating!).
9 Use only lint-free cleaning wipes.
10 Most contamination comes from people. Cleanroom clothing; especially hair-nets/hoods/caps will have a huge impact on dust reduction.
11 Store the cleanroom clothing as close as possible to the entrance, or create an air-lock where operators can put on the cleanroom clothing before entering the room.
12 The dried degreased screens should be taken straight from the dryer to the coating machine to minimise exposure to airborne contamination.
13 Establish a weekly 'deep cleaning' regime to prevent dirt accumulating.
14 Create a culture of 'keep it clean' so any spills or drips must be cleaned up as soon as they happen.

Top Tip: A simple check to see if your safelights really are safe is to place eight coins in a line on a dry, coated screen that has been left out on a worktop. Remove one coin per hour and after eight hours wash out the screen. If your safelights are completely safe the stencil will wash off completely. However, if any coin images remain visible this means the stencil has been fogged/exposed by your safelights. As each coin represents one hour's exposure, the maximum safe working time can be determined.

COATING

Clean up emulsion spills and drips immediately to avoid a dirty and difficult to clean coating machine. A lot of contamination comes from a build up of dried emulsion accumulating around the rim and lid of the emulsion container therefore ensure you wipe clean after pouring the emulsion into the trough.

Top Tip: If you are using a one-pot emulsion, a dispenser pump fitted to the lid can eliminate the need to repeatedly open the

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A controlled cleanliness environment is easy and inexpensive to achieve

emulsion container pot.

Small variations in the depth of the emulsion in the trough can have a noticeable effect on the amount of emulsion deposited with each coating pass. If ink deposit is critical, then try to maintain the same emulsion depth in the trough for each screen being coated.

Coat slowly to minimise entrapped air; this is especially important when coarse mesh counts are used. The condition of the coating trough edge is critical for good coating quality. Always wipe the trough clean with a damp sponge in-between coating screens – it is much easier to clean off wet emulsion than dried in emulsion!

SCREEN DRYING

Coated emulsion screens must be dried horizontally and print side down, however, Capillex screens can be dried print side up, as the polyester backing film will protect the stencil from drips.

The drier must use warm, dry air <35 degrees C and <40% RH. The wet air should be exhausted out of the dryer, or recirculated through a dehumidifier to remove the moisture. Screens simply won't dry properly in a hot, humid box! Exposing a 'damp' stencil will lead to a very soft, weak stencil that will quickly break down on the press.

Do not leave dried screens in the dryer for longer than necessary; remove to a sealed storage cabinet when dry. Using too hot air temperature >40 degrees C will harden the emulsion making it impossible to washout.

SCREEN EXPOSURE

The UV exposure can either be free standing or a self-contained unit. Selection comes down to the size of screens and minimum line resolution that is required. In order to minimise the light angle entry into the image, the UV source should be positioned as far from the vacuum frame as practical. Ensure the UV bulb is fully compatible with the photochemistry of the stencil, as a mismatched combination can lead to very long exposure times or weak, soft stencils. Important: underexposure is the single biggest cause of stencil breakdown on the press.

Top Tip: Try to minimise unwanted light reflection by painting the walls matt black.

SCREEN DEVELOPING

The washout booth should be fitted with both a high and low pressure water spray to ensure complete washout. If it is not practical to install a pressure washer, then a compressed air boost can provide a good washout spray pressure.

The water supply should be fitted with an in-line filter to remove waterborne contamination. This is especially important if Capillex stencils are being applied to a wet screen. A good backlight is essential for screen inspection, as this is in a yellow safelight area the backlight should be yellow, or if not practical, a white light can be used as long as there is no chance of it fogging other screens waiting to be processed.

An easy clean, non-slip mat should be positioned in front of the washout booth as this area will become wet quite quickly.

SCREEN FINISHING

After the screen has been washed out, the processed screens should be positioned in a vertical screen dryer that is accessible from outside the room ready for re-touching prior to printing. A near-vertical screen inspection light box is the most practical for all but the smallest of screens.

SUMMARY

Designing an efficient and effective screen-making area does not have to be costly and most companies will find that the modest investment required is recouped many times over through the improved productivity. It is also about investing for the future. Safe, clean and efficient work practices cultivate an environment for the operators that will enable them to progressively improve the quality of the screens produced. This has to be a pre-requisite to meeting the ever growing requirements for quality screen-printing.

For more information on 'How to' improve your screen-making go to the 'How to Guides' at: www.macdermidautotype.com ■

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HOW TO EXPOSE THE QUALITY

Alan Buffington details basic screen room training

Spring is the start of the busy season in textile screen-printing with new companies opening their doors and new employees that need to know how to make a screen. This is not just any screen, mind you, but one that will not have excess pinholes, reproduce sharp crisp art details, and avoid premature breakdown on press. So this month's article is an A to Z look at the process to create a durable screen.

PART ONE – SCREEN PREPARATION

1 Cleaning the screen prior to de-hazing

The first step in screen preparation is to analyse the mesh for ghosts caused by ink that shows up in the mesh from a previous print run. If the mesh is new you can skip to Step 2. But, if your screen has a ghost image, read on. Ghosts or fabric stains can create print issues in the next print run. The ink can get caught in the 'creases' of the 'mesh knuckle' and is usually seen best when dark inks are used. Screen image haze can cause pinholes to show up in the emulsion area and can interfere with the next job and leave a remnant of this image in the print.

The easiest way to minimise this issue is to clean the screens immediately after the print run. This can be a difficult procedure to enforce since workers are used to piling up screens laden with inks and sending them off to the reclaiming department. This allows air dry inks to lock up in the open mesh areas as well as plastisol inks, becoming increasingly more difficult to clean as time goes by. Cleaning screens while the inks are still wet will minimise ink from drying in the mesh knuckle creases.

Typically, changing from one job to another on press eliminates any time it seems to wash the screens from a production point of view. Get in the habit of cleaning the image area on screens before sending them off to the reclaiming department. It can be done off press by the same personnel that will do the job in reclaim and their job will be much easier cleaning fresh ink at press than days later. Long print runs, highly pigmented inks, and old mesh that holds onto inks may still need haze remover to clean stained mesh and to remove the ghost.

So what do you clean your screens with? The following chemistries can be found in most shops and, while items like screen openers are helpful on press, they can lock in emulsion making reclaiming difficult. Screen openers, acetone, MEK, lacquer thinner and paint thinners can make screen reclaiming difficult. Screen cleaning chemistry has come a long way to minimise VOCs (volatile organic compounds) found in hot solvent chemistries, as well as common mineral spirits and paint thinners. Newer screen cleaning chemistries are safer and less harmful to the worker, the screen and the environment.

For water base and discharge a five gallon bucket of warm water works well and can be done very quickly on press or as soon as screens are pulled from the press. When companies tell me they have no time to wash the screens after a job has finished on press I point out that screen reclaiming personnel will spend two to three times as much time cleaning the dried ink compared to a worker cleaning wet ink at the press. Typically all that needs to be done is to card out the inks and wash the image area. This practice makes ghost removal in the reclaiming area an occasional job rather than needing to do it on all screens which wastes chemistry and labour.

This illustration shows a screen with haze

2 Reclaiming the screen

Dip tanks help to save emulsion remover and to soften the emulsion for reclaiming. Hardened


Two typical dip tanks


Recommended personal safety equipment

screens for water base and discharge reclaim better with stronger emulsion remover concentrations and many chemical manufacturers like us have additional chemistry to promote haze removal while reclaiming. If you apply emulsion remover to the screen in a sink always reclaim the screens before the emulsion remover can dry on the screen. If you apply emulsion remover and allow it to dry, it may be impossible to reclaim since emulsion remover can lock in the emulsion once it has dried on the stencil.

3 De-hazing

The residual image left by the previous print job can be difficult to remove once the ink has dried in the screen or allowed to stay in the mesh for days. If left in the mesh it can affect the appearance of the next print run. Discharge prints may not show anything in the wet print, yet when cured this previous print image appears within a solid area. Process and simulated process jobs can also be affected. Add to this an increased risk of pinholes and break-down in the ghost area and it is clear the screen is better off with the ghost image removed.

There are two types of haze remover – non-caustic and caustic. Non-caustic is a safe haze remover. It needs to be used as soon as possible after the job has been broken down and the screen reclaimed. It can be applied and left on the screen for ten to 15 minutes, then rinsed prior to using with a pressure washer to remove the ghost image. It works better on softer ghost images where the ink has not completely dried. It can also be used in conjunction with emulsion removers in a dip tank. Check with your supplier for compatible chemistries.

The second type of emulsion remover is a caustic haze remover which requires training

and implementation of safety procedures. Employees must wear eye goggles, and long industrial gloves capable of resisting acid. Avoid typical latex gloves used to mix ink or press work; they aren't capable of resisting this chemical. A large rubber apron and over shoe rubber boots are also recommended. Why? This haze remover is extremely acidic and can cause serious burns, loss of skin, blindness, and well anything human it comes in contact with is going to be burnt badly with corrosive acid. How does cleaning the screen right after the job look now? A lot easier than dealing with this stuff for sure.

So, at some point in all companies, caustic haze remover must be used. The personnel safety protection equipment listed above must be used. Without good gloves, goggles and apron the chance for a nasty chemical burn is quite high. Apply to the ghost area with a soft brush and let it work on the haze for no more than five minutes. Any longer and the acid will also start dissolving the mesh and, each time this product is used, the mesh is affected. After many applications the mesh may become weak and break due to threads that have become too thin to hold tension. After allowing the caustic haze remover to sit for five minutes then rinse it off with a hose. Avoid using the pressure washer in the beginning since it can cause the acid to bounce back onto the worker or nearby screens and work areas. A steady stream of water from a hose is the easiest way to avoid bounce-back of the acid. Once the majority of the acid is rinsed off the pressure washer can be used to help clean the ghost from the mesh.

4 Degreasing the screen

On a recent trip I was amazed to find two of the companies I visited did not use any degreaser! Cost saving was the reason given on why they didn't use it. Not needed, they said. Yet they did put tape on every square inch of the screen except the image, used lots of labour to do it, and then spent more time taking inexpensive brown shipping tape off. This type of tape leaves adhesive residue on the frames which will require more cleaning, more labour, and more chemistry when all they really need to do is degrease the screen well and use a quality emulsion that resists pinholes, fisheyes, and especially break-down with today's new ink systems. The mesh needs to be free of contaminants for the emulsion to bind well to the threads in the mesh; degreasing is far cheaper than covering the screen with tape.

Here are some tips for degreasing. For fine mesh use a sponge or soft brush that won't nick the threads. Make this a dedicated brush or sponge. It shouldn't be used for any other purpose. This is to avoid contamination with other chemistry, dirty screens, dirty sink, etc. Keep it separated from all other processes to preserve the cleaning qualities. Wash both sides of the screen covering the entire area of the mesh. Rinse with a hose to avoid bouncing back contaminants from the sink, or have two sinks, one for reclaiming and one for degreasing to keep contaminants from bouncing onto the screen. Rinse the inside creases where the frame meets the mesh first. Flood the creases with water on all four sides of the inside of the screen to remove any degreaser. Then rinse from the top of the screen down, letting the sheeting action of the stream of water from the hose wash off all degreaser on both sides of the screen.

If you have a second sink dedicated for degreasing you can use a pressure washer to speed up the process. I still like a final rinse with the hose to remove any bounce back contaminants.

DRYING THE SCREEN

To avoid fish-eyes or ribbons it helps to dry the screen horizontally off the floor in a dust free area. Drying the screens in racks off of the floor helps to prevent dust from being blown onto the mesh by a floor fan which later turn into pinholes. If you must dry the screens on the floor it needs to be done in a clean area in a minimal foot traffic area to avoid dust and shop dirt that can be tracked in to the room and blown onto the screens by a fan. Using dedicated drying closets with warm air along with good air movement accelerates the drying process and prevents dust contamination. (Note: if you use the drying cabinet to dry emulsion as well, lower temperature to 26.7 degrees C or 80 degrees F – see notes on drying emulsion below.)

The screen drying area should be maintained with regular mopping and cleaning to prevent the build up of dust and contaminants. On a recent trip I ran into an older shop that had two to three inches of dried emulsion, ink, glitter and dirt on the floor. A shop like this will spend longer blocking out screens, taping out screens and dealing with constant pinholes on press. Almost impossible to fix now, but good cleaning practices could prevent this type of disaster and be far cheaper in the long run.

PART TWO – COATING THE SCREEN

Mixing in the diazo

If the emulsion needs diazo, or if it is being added to increase water resistance, then the first step is to prepare the diazo for mixing into the emulsion. Check with your emulsion manufacturer on how much water to add to the bottle as too much can lower viscosity and too little may increase the viscosity of the emulsion. Add the diazo to the emulsion and stir with a wooden spatula or stir stick. Avoid high-speed drills as they will introduce excess air bubbles into the emulsion. Allow the emulsion to sit for one to two hours after mixing in the diazo to allow time for the air bubbles to escape. Also avoid using a metal spatula as the diazo can be attracted to the

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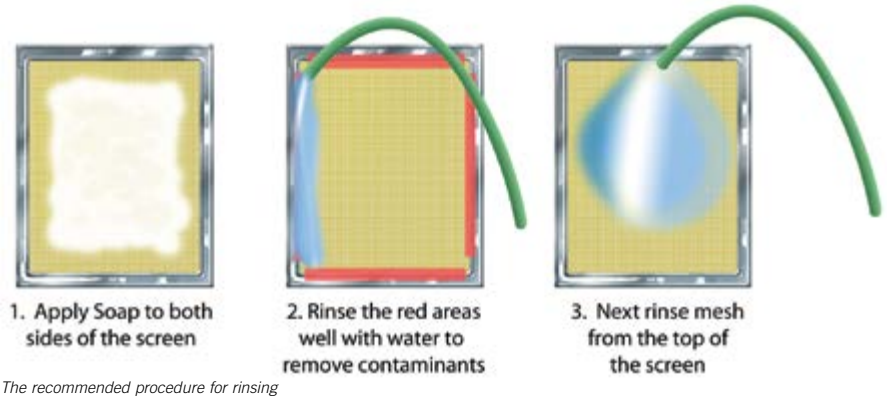

The recommended procedure for rinsing

metal instead of staying suspended in the emulsion. Load the scoop coater to two-thirds of its volume. Coating screens with very little emulsion in the scoop coater can create thin uneven emulsion coatings from screen to screen and affect the exposure process due to varying emulsion thicknesses.

Hand coating

The technique used to coat screens by hand varies tremendously. Some workers want to coat the screens as fast as humanly possible, while others prefer a slow speed with firm pressure. Coating emulsion too fast introduces air bubbles into the emulsion. Quite often slowing down the coating speed eliminates recurring pin-hole issues on press since very few bubbles can be formed with a slow firm coating technique. Placing the end-cap flat against the screen ensures consistent emulsion thicknesses, especially if different workers coat screens during the day or on different shifts.

Which side of the coater to use? Modern hand scoop coaters have a dull and a sharp edge. Typically the dull edge is used to coat coarser mesh where more emulsion is needed. The sharper edge is typically used for higher mesh counts to control the amount of emulsion being coated.

An auto coater machine

Dull edge: mesh below 200 – coat 1:1 to 1:2 depending on viscosity of the emulsion.

Sharp edge: mesh above 200 – coat 1:2 to 2:3.

The scoop coater edge you use and the number of coats you like all depends on how much emulsion over mesh you need for the type of printing you do. If you print simple spot colours like team wear your shop can handle a thicker emulsion coating than a shop that is focused on simulated process half-tone printing. Typically ten to 15% is optimal for spot colour while seven to 10% is better for simulated process. If you can't develop fine tonal values the problem could be excess emulsion thickness, or using an emulsion that cannot resolve fine details. Okay, I do work for Murakami; but in my days as a production manager and owner I used their emulsion to create very durable discharge screens with incredible details. We often achieved non-stop production on our presses, an essential feature that helps to print eight to ten colour discharge prints with 3D foiling techniques. There is nothing worse than losing a screen on a multi-colour discharge job, and nothing better than watching the press run non-stop.

The number of coats or which edge is used can be a personal choice. As long as the resulting coating achieves a ten to 15% EOM (emulsion over mesh) for spot colour and a six to 10% for half-tone work, the edge and number of coats to use can vary depending on the user. The goal is to achieve EOM percentages that create excellent resolution and durability.

What size of coater should be used? The distance from the inside of the screen frame to the end of the coater should be 1-1.5 inches. The reason for this gap is to insure that the face of the coater is in equal contact with the mesh. If the coater is too wide and is within one-quarter to half an inch of the inside of the screen frame it cannot make even contact with the mesh. The result is an emulsion coating that is far thicker in the centre than along the edges. It is difficult to achieve a consistent exposure with an emulsion that varies in thickness. Generally the centre will be under-exposed and lose details. Choose a scoop coater with adequate clearance and use the following tip to seal off the entire bottom of the screen. One trick is to buy a two to three inch coater and use it to fill in the gap on the outside edge with emulsion after the initial coating is done which can be done while the screen is still wet. Water base and discharge jobs benefit from having the entire mesh coated to prevent leaks underneath the tape job.

An example of a screen with too much tape

Automatic coating machines

Compared with hand coating methods, auto coaters have a very consistent slow coating speed. They also have adjustable coater angle as well as being able to coat both sides at once. For large volume shops an auto-coater creates consistently durable screens with consistent EOM properties that can provide maximum exposure times. Notice I said 'maximum' exposure times. This is key for durable screens. Consistent EOM thicknesses are needed to obtain predictable exposure times that completely expose the emulsion and resolve the finest details in the art. This is a major difference between emulsion manufacturers. If you need to under-expose the emulsion to resolve fine details you are also willing to create a weaker screen for production, the area where you need your shop to perform the best.

How long should coated screens dry? This depends on the humidity, temperature, and air movement. Wet humid areas near a wash out sink or spray booth will prevent screens from drying completely. In dry desert-like climates screens can dry in 15 to 20 minutes while the same screen could take an hour in a rainy, humid climate. A moisture meter is the easiest way to know for certain when the screen is ready to shoot. Discharge, HSA, and water-based inks need dry screens prior to

Continued over

exposure. Any moisture in the centre of the emulsion coating will inhibit exposure and the stencil strength will be weaker. Checking coated screens by hand cannot measure interior moisture. For the strongest screens the emulsion has to be dried completely.

Drying cabinets are an excellent tool in today's screen-print shop. With more and more companies using water base, discharge and HSA inks, the need to accelerate the drying process increases. Well dried screens equal stronger exposures and stencil durability. For diazo emulsions, or for emulsions containing diazo as an additive for water resistance, the maximum temperature of the cabinet is 26.7 degrees C (80 degrees F) since diazo can 'dark harden' when stored above this temperature for extended periods. Adding a dehumidifier and increasing air flow will still be better than drying in the ambient temperatures and humidity of the shop where it can be cool in the morning, humid due to rain or fog, or warm and sunny in the afternoon. Drying times are unpredictable in a shop where the temperatures and humidity vary. A drying cabinet helps create predictable exposure times with screens that are dry and expose with consistent durability. If you use pure photopolymers without diazo and print only plastisol the drying cabinet can be heated to 37.7 degrees C (100 degrees F) for accelerated drying. With a dehumidifier and a fan placed off the floor the screens can dry very quickly. Again, if diazo is added to the emulsion keep the temperature of the drying cabinet at 26.7 degrees C (80 degrees F).

EXPOSING THE SCREEN

How opaque is your film image? The opacity of the image on your film determines how much time you can expose for. I read discussion boards where there seems to be a misconception on emulsion exposure. It isn't how fast you can expose a screen; it's how well you expose the emulsion that matters. I can expose a pure photopolymer emulsion on a 5,000 Watt metal halide lamp for ten seconds and get a great image, but I have also created a weak screen in the process. For durable stencils the goal is to give it as much light as possible to expose the emulsion all the way to the squeegee side and not lose details. Murakami emulsion is engineered to accept complete exposure and still develop extremely fine details. Under-exposing to get details will not yield a durable screen.

The reason I mention complete and under-exposure here is due to this. The opacity of the black image on your film determines how long you can expose it. Dark, black, opaque imagery can be exposed completely. Transparent images on film need under-exposure. Too much light on a transparent film image and the artwork can't be washed out since the light has burnt through the image. Sharp line work, crisp half-tones, and strong screens come with proper exposure and strong opaque film.

EXPOSURE TIMES

Every shop needs to perform an exposure calculator test or step test on every mesh they carry, for every coating method, for every emulsion. This is why consistent, predictable coating techniques are important. If all the screens have similar emulsion over mesh measurements then the exposure time will be accurate. On the shirt forums I see companies asking each other what exposure times they use for the same emulsion. Comparing times with another shop that has the same exposure unit and emulsion can often be misleading. The reason? Similar exposure units may have lamps that differ in UV output due to age or the manufacturer chosen for the replacement lamp. Humidity and moisture in the emulsion also affect exposure time. A printer in Phoenix, Arizona, exposing Photocure BLU on a NuArc Tri Light may have a much faster exposure time than a similar company exposing along the coast in California using the same equipment. Exposure times need to be calibrated, not guessed at. A step-test is advised since it uses your film, with your exposure unit, in your environment.

DEVELOPING THE IMAGE

Dip tanks filled with water act like another worker in the screen room to help soften the image area. Submerging an exposed screen for two to three minutes helps soften the image area and makes washout of fine details quick and easy. If you do not have a dip tank just soak the screens on both sides, continue to lightly rinse to help develop or do another chore while the emulsion is softening. Develop with a pressure washer on fan spray. If the emulsion falls off with a pressure washer on fan spray check the exposure times or run a step test again. If the emulsion still falls off check the age of the lamp in your exposure unit, or switch to a stronger emulsion. Pressure washers help develop fine half-tones and details. Develop screens from the bottom of the screen. Wash inside gently at an angle on the inside to remove excess emulsion in the image area or to clean up the image edges only when necessary. Most of the development process should take place spraying the bottom side of the screen.

If there is slime or soft emulsion that comes off when the screen is wiped on the inside then the exposure was not long enough. This is wasted emulsion that is being washed down the drain. The inside of the screen needs to be exposed completely for the stencil to have adequate strength for long runs or use on automatic presses.

POST EXPOSURE

The sun is a great tool for post exposing screens. Placing the screen with the squeegee side towards the sun helps pure photopolymers become completely exposed. Post exposure in the sun also helps create a stronger screen. For dual cures and diazo emulsions it accelerates drying time and provides some post exposure. If the sun is not available the drying cabinet can be used to accelerate drying. For water base, discharge, and HSA inks post exposing the stencil for twice as long as the original time on the exposure unit helps create stronger screens when the sun cannot be used.

HARDENING

For long water base, discharge and HSA print runs it is recommended to harden the emulsion for increased water resistance. Emulsion hardeners work better when placed in the sun or in a drying cabinet. It's the heat that helps out the process of hardening a screen.

TAPING THE SCREEN

Apparently a lot of companies have little confidence in their screen-making capability since many use half a roll of tape to cover every square inch of the screen. This is very costly in terms of the cost of the tape, the labour to remove, and the labour to clean up adhesive that is now stuck to the mesh and frame. Murakami emulsions are pin-hole and fish-eye resistant, and very, very tough. It is possible to use only tape on the inside of the screen, block out on the bottom and decrease tape and labour costs dramatically. Also rounding off the ends of the squeegees prevents them from acting like a knife and cutting a groove into the emulsion. A piece of tape on the inside of the screen along the squeegee corner path helps on long print runs to prevent break through, especially with discharge ink.

For plastisol a commercial block out can be applied to the bottom of the screen. A well degreased mesh with emulsion applied slowly and exposed completely can avoid massive amounts of tape use. For water base, discharge and HSA inks it is recommended to use the water resistant emulsion you used to coat the screen.

Carding the block out or the emulsion around the image area is sufficient on well exposed emulsions. Discharge print runs are better off without a ton of tape that just traps the moisture in the emulsion and causes the stencil to soften faster. With the bottom of the screen exposed to the air this side of the emulsion can stay dry instead of being trapped in a greenhouse affect with ink on one side of the emulsion film, and tape trapping the moisture within the emulsion.

The screen is the pen your company signs its reputation with. No other part of your shop creates the actual product you sell. Choosing the right products for your stencil and creating predictable process controls results in better production yields and quality prints to propel your business.

Expose the quality. ■

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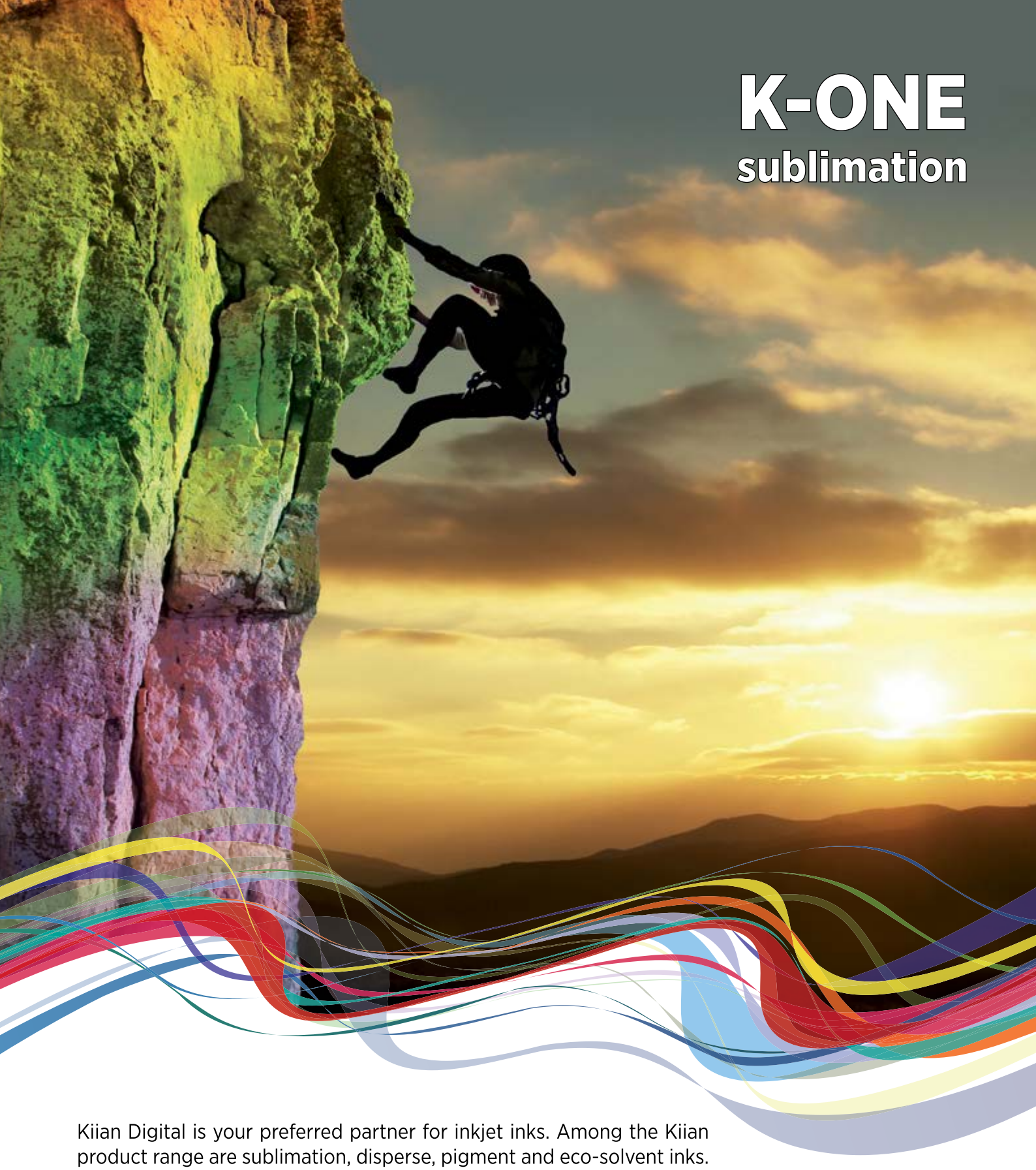

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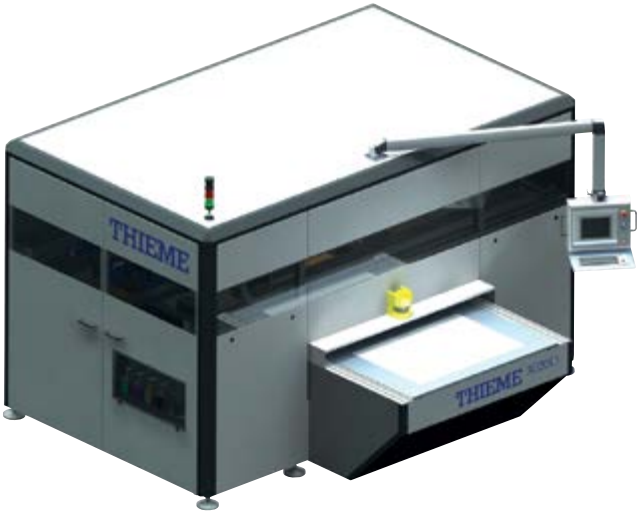
FREEDOM IN CONFIGURATION

Simon Hebding assesses the benefits of an open digital printing platform

Although digital printing systems are now standard for graphic printing, there have not been solutions for specialised customer requirements, particularly in the industrial sector. THIEME intends to close this gap with its newly developed modular printing system which enables both screen- and digital printing solutions. The new system offers the user a high degree of freedom in machine configuration, ink selection, and the ability to procure ink from the market.

The new digital printing system, presented to the public for the first time in November last year, is essentially based on the design of the proven THIEME screen-printing machines. The printing table and material transport system are largely identical, with the primary difference being in the printing mechanism used. This enables THIEME to offer demanding customers an open machine platform which can optionally be equipped with a screen-printing or digital printing mechanism. This approach follows the assessment that digital printing does not replace screen-printing in many applications, but rather supplements it, as every printing technique has its own advantages. A digital printing machine series with the designation THIEME 3000 D has been developed on the basis of this concept.



The new THIEME 3000 D digital printing system combines digital technology with proven machine components

THIEME can provide its open development platform for the validation of additional systems as required

The machine concept was designed not only with high printing technology but also with other machine production parameters. This starts with the printing table, which uses switchable vacuum fields to enable fast and easy format changes –from the size of a matchbox to the front of a house. Different levels of automation are also possible. Along with manual loading of the printing table and unloading by an extract gripper system as provided in the THIEME 3000 D, higher levels of automation extending up to a fully automated printing line can also be achieved with this concept. A great deal of flexibility also exists for the substrates. Systems suited for multi-pass applications make it possible to print on various materials (paper, cardboard, foil, glass, metal, plastic) having thicknesses of up to 50mm.

The standard machine base additionally has the advantage that the usual components for material transport such as stackers, destackers or conveyor systems can also be used without restriction. Moreover, various basic modules can be combined into printing systems configured to a customer's unique specification – extending up to a screen/digital printing hybrid line which links the benefits of both printing technologies.

The new THIEME system offers the user a high degree of freedom in machine configuration, ink selection, and ability to procure ink from the market

HIGH FLEXIBILITY FOR PROCESS DEVELOPMENT

The concept's flexibility continues in the configuration of the digital printing mechanism which was independently developed by THIEME and equipped with Konica-Minolta print-heads. The number and arrangement of these print-heads can be varied, with the maximum achievable printing resolution being 1600 x 2160dpi. The customer is not bound to one supplier for the selection of the ink system, but can choose from various manufacturers among several approved systems. Mankiewicz ink systems, for example, have been tested for various applications and approved by THIEME.

THIEME can provide its open development platform for the validation of additional systems as required so that even the customers' own inks, for example, may be processed. Users are thus granted a high level of flexibility for their own process development. As an additional benefit, the customer does not purchase the approved ink from THIEME, but instead directly from his ink manufacturer.

With this wide range of options, THIEME is responding to diverse quality and productivity requirements, which differ from industry to industry and even from customer to customer. Solutions specially geared to customer needs will be able to be developed in the future – not just for screen-printing, but also for digital printing. THIEME can offer consultation independent of the technology and claim a unique position in the industrial printing market with its flexible machine platform. ■

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FINDING THE PERFECT LOWER PLATEN

Ulrike André describes what drives the most suitable choice

Spring is here and most of us are itching to get out into the fresh air and tackle whatever winter has left behind – in my case a rather mushy, brown-greyish left-over mix of soaked branches and dead leaves. If you are like me, you will endure infomercials and browse the latest store flyers until you have found the perfect tool to help with this job of winter clean-up.

Just as the right tool can make planting a garden easier, the same can be said about finding the right tools to grow your heat printing business. Why would you think any differently about one of the biggest investments you own? Yes, I am referring to your heat press and all its auxiliaries.

Distributors consistently call us to help them find a solution for a difficult custom heat printing job – gloves for a bowling club, plaques in recognition of an achievement, various sports balls, umbrellas and, more recently, shoes. And although it is usually true that you can print anything you can put under a heat press, having the right lower platen can make your job a lot easier.

WHAT'S IN A PLATEN?

For most people, the lower platen is the least of their worries when purchasing a press. It is always the upper platen, the one with the heating mechanisms, that is the star of the show. But the bottom platen also plays a role in making heat printing more productive. When choosing a press, you should consider how the lower platen will perform for you in the long run. It is a good idea to know what the lower platen is made of. How is it attached to the base? Are there inter-changeable shapes available? How easy is it to remove the lower platen? What shapes and sizes of lower platens are available? Are there any other platen accessories available that can help your investment last longer?

You will be surprised how many choices there are and decisions there are to be made. It is well worth the extra research though; the right lower platen can save you a lot of time, frustration and, yes, money.

LOWER PLATEN CONSTRUCTION

The lower platen needs to be made of a sturdy material, robust enough to withstand high pressure without bowing or bending. If the material is too weak, your transfer might not adhere to the substrate due to unevenly distributed pressure and/or cold spots. In addition, the platen should be light enough so it can be easily handled. Aluminium is a popular raw material used to make lower platens. Steel for small platens is also an option. If you are looking for a heat press that can travel with you to shows and sporting events, make sure you consider the make-up of the platen (and heat press) since it will have an effect on the overall weight. You don't want to have to rely on an army of helpers if you don't have to.

QUICK, QUICKER, QUICKEST – EXCHANGING THE LOWER PLATEN

We have enough stress in our lives; why add cumbersome mechanisms to exchange lower platens to that list? Here are some examples of lower platen changing mechanisms available on today's market.

Nuts and bolts: older versions of heat presses require various tools, a second pair of hands and a lot of patience in order to exchange a lower platen. The heat press often has to be moved on its side, exposing the nuts and bolts of the lower platen. Depending on the weight and design of the heat press, two people might be necessary to make the exchange. Time, frustration and money are wasted.

The quick-change pushpin: a huge improvement over the nuts and bolts version, the pushpin simply has to be pulled out, releasing the lower platen. Lift the platen out of its position and remove it. The next lower platen can be inserted and slipped into its designated place. Often the pushpin will snap into place, securing it.

The quick-change lever: possibly the most convenient and easy to use, this version is precise and efficient. Simply move the lever outward, remove the lower platen, insert the new platen, and move the lever back into its initial position – done. The platen is always secure in its place, and there's no fidgeting with tools, or wiggling room for snaps to move into the right position – just open, drop in, exchange, close.

Pay attention to whether the lower platen can only be placed into its allocated slot staying stationary in this initial position or if the mechanism allows for the platen to be turned vertically and horizontally. This could be a great advantage to you, as you can use the platen for adult textiles in the vertical position and for youth textiles when it is moved into the horizontal position.

Continued over

Simple platen exchange

A close-up of a quick-change lever

A sleeve leg platen

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CUSTOMISING YOUR PLATEN

Standard platens are readily available from most heat press manufacturers. Choose from round, rectangular, square, y-shaped platens as well as cap platens; all are available in various sizes. But what will you do if you find yourself being asked to heat apply onto the occasional odd-shaped object – for example a ball, gloves, shoes, a saddle or other odd-shaped objects? Does your heat press manufacturer offer custom platens to accommodate these requests?

Custom platens allow you to set yourself apart and ensure you have a huge advantage over your competitors who might have turned this very customer away.

When it comes to custom platens, if you can draw it – you can have it made. I work for a company that offers this service to their customers at very little additional cost and the feedback has been incredibly positive. In our industry, the personalisation industry, we simply must think about all aspects of what it means to personalise. From head to toe, from heat press to Cad-Cut heat transfer material, from transfers to Cad-Color digital print and cut media – all the way to the function of a heat press and, yes, the shape of the lower platen. All must be customizable.

Having a custom platen made to your specifications might not be as costly as you fear. Contact your heat press manufacturer and ask. The savings the custom platen will bring due to the easy heat application, not to mention the satisfied customer telling their friends about their experience with you, will far exceed any extra cost you might encounter.

The Stahls' Hotronix custom glove platen

The Hotronix Air Fusion quick-change lever

PROTECT YOUR ASSET AND ACCESSORISE

You clean your gardening tools before you put them back into their place, right? Make sure you protect your heat press's lower platen so you can extend its life expectancy while making the heat application process smoother and more enjoyable at the same time. Here is how to do that.

A Quick Slip pad protector is usually made of Teflon material and fits snugly over the silicone rubber padding of your lower platen of your heat press. This Teflon coated pad protector allows you to slide textiles quickly and smoothly over the lower platen – there's no aggravation, and no time lost.

In addition, an upper platen protector protects your upper platen, as the name implies, which usually houses the heating element, from dirt and residue to adhere to.

Both protectors can be wiped down easily with a damp cloth to clean.

The right lower platen can make a job a lot easier

THE LITTLE DETAILS

Personalisation is gaining momentum with every day that passes. We are all trying to make and leave our marks, making our voices heard. Our industry is an exciting one to be working in; there has never been a greater demand for personalisation and there have never been so many heat printing options from which to choose. Making it just a little easier, a little more efficient, a little less frustrating, a little more fun and a lot more profitable by choosing the right tools – I think that is a relatively easy thing to do after seeing which tools are available.

Happy gardening, sowing and reaping – and happy heat printing. ■

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THE EFFECTIVENESS OF IN-LINE FOILING

Harald Gavin describes the production of metallised images onto 3D packaging

Packaging printers have to offer packaging designers options for designing eye-catching decorations that can be printed directly onto 3D packaging. UV-curable inks are excellent for printing solids and half-tones and now there is also a newly developed in-line foiling process that can foil shiny metallised images onto cylindrical 3D packaging, glass bottles and glass drinkware.

Today's automatic multi-colour screen-printing machines can print with accurate colour-to-colour registration onto three-dimensional items, and the use of UV-curable inks for printing onto 3D packaging offers a number of substantial benefits. These printing inks have high opacity and are optimised for either the printing of solids or the printing of half-tones.

Printing of solids: ink evens out quickly to ensure high surface quality.

Printing of half-tones: dots are printed and must keep their shapes. Any variations of dot shapes are seen as colour variation by a human eye.

The resolution achievable with UV-curable inks enables printers to screen-print photo-like images provided screens made with modern mesh are used along with multi-colour screen-printing machines.

LOOKING FOR DIFFERENT SOLUTIONS

However, UV-curable inks have one downside: it is not possible to screen-print shiny metallised images with them. When metallised images are part of the decoration then, depending on the application, printers have to look for different solutions, for example:

- precious-metal thermoplastic inks can be used for printing metallised images directly onto glass hollowware,
- a separate hot stamping machine can be used for stamping metallised images onto cosmetic tubes and jars that are already decorated with UV-curable inks.

Hot stamping machines for tubes can have a camera orientation system that ensures that a hot stamped image is in register with a printed image. A hot stamping unit can be integrated into a screen-printing machine for printing onto plastic jars. But there are problems with the hot stamping process. Hot stamping requires high pressure and is not possible on most plastic bottles; the bottles cannot take the required hot stamping pressure even when compressed air is used to stabilise the bottles' side walls. There is also a limit in image size; it is not possible to hot stamp very large images as too much heat would be required.

High resolution images can be in-line foiled onto extruded tubes

NO HEAT OR HIGH PRESSURE

ISIMAT and KURZ have developed a new process for foiling shiny metallised images onto cylindrical packaging called in-line foiling.

Printing solids onto lip stick caps

Half-tone printing with UV-curable inks (courtesy Rastal)

Creating a customer specific metallised image

Fine lines and small text can be in-line foiled

The process requires neither heat nor high pressure and is suitable for glass and plastic.

An in-line foiling unit can be integrated into a station of an Isimat screen-printing machine. The in-line foiling unit is exchangeable with a screen-printing unit; the station can be utilised for screen-printing when in-line foiling is not required.

In-line foiling:

- Screen-printing an image with UV-curable adhesive
- Bringing the metallised layer of a foil in contact with the adhesive
- Curing the adhesive with UV light
- Over-varnishing the image

An image printed with adhesive in a screen-printing station of a multi-colour screen-printing machine is intrinsically in register with the other colours printed on this machine; therefore the metallised image is in register with the other colours.

The requirement for over-varnishing might be seen as a disadvantage, but over-varnishing can be done with a tinted varnish. This makes it possible to use only silver foil and create metallised images of a specific colour by adding a tint to the varnish.

From left to right: glass in-line foiled with silver foil, glass screen-printed with tinted varnish, and glass with an in-line foiled image that has been over-varnished with a tinted varnish.

EXCELLENT EDGE DEFINITION

In-line foiling only exerts low pressure onto an item during the foiling process; the pressure is similar to the pressure exerted during screen-printing. The resolution in in-line foiling is comparable to the resolution achievable in screen-printing. Edge definition and surface quality are outstanding.

Durability of in-line foiled images tested to date meets industry requirements. In-line foiled metallised images do not deteriorate during 500 cycles in a domestic dishwasher, and in-line foiled images passed contents' durability testing for personal care products.

Production costs for in-line foiled images are low – expensive dies are not needed. An image is defined by the screen used for printing the UV-curable adhesive, and in-line foiling can be done at normal production speed.

In-line foiling is a cost-efficient way to add, in one machine pass, shiny metallised images of customer-specific colours to images printed with UV inks onto 3D packaging, strengthening the competitiveness of direct printing onto 3D packaging. ■

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HOW TO STOP LOSING SALES

Don Copeland emphasises the benefits of adding direct-to-garment to a screen-printing business

Does this sound familiar? You've been sitting on the screens for your biggest customer's last order for four weeks; finally you decided to reclaim them yesterday. Then, first thing this morning, you get a call from that same big customer – and he needs 48 more shirts printed.

What to do? You could tell him "no" and give him a reason to look elsewhere to fill the order. You could let him know that it is going to cost another $120 for setup and you will need a minimum of 72 shirts for the order. If he says "yes" to that, it costs him more than he wants to pay and makes you run a minimum profit job. Nobody wins! You could do what many screen-printers do and accept the order without charging the setup fees – and lose money on the job in order not to upset a "good customer".

None of these scenarios is very appealing, but they happen every day.

How can you address this in such a way that both you and the customer are satisfied? The solution is simple – add a direct-to-garment printer to your business. On top of all the other ways that the direct-to-garment printer can help grow your business, it is especially beneficial for refill orders of screen-printed jobs.

Digitally garment printing a short-run part of a screen-printed order

IMPACT ON CUSTOMERS

Direct-to-garment makes a big impact in the way you handle your customers when they take delivery of their order. When delivering the order to your customer, include a digitally printed version of the shirt – for free! Let the customer know that re-orders can be handled in two ways – they can pay for set-up (at an amount that you share with them at that time) and agree to a minimum order at a set price per garment. Or you will digitally print the fill-ins and small re-orders at a set price/garment digitally with no minimum. They now have an option; you have exposed them

Variable graphic sizes match shirt sizes in the 8-10-12 rule

to a new decoration method they may not have known about, and there are no surprises when they contact you to place their fill-ins and re-orders.

A second way you can use your direct-to-garment printer to keep from losing money or business is to set up a spreadsheet that helps you to lead your customers to the right decision. Most screen-print businesses do not consider screen set-up as a major money maker – in reality, it is a break-even proposition in most cases, one of those "costs of doing business". What if there were a way to save your customer money, while offering them exactly what they want and eliminate the cost of printing films, burning screens and reclaiming them? Once again, enter your digital direct-to-garment printer. A well thought out spreadsheet with cost breakdowns for screen-printing and direct-to-garment, including all associated costs (separations, screens, etc), can help you to guide your customer to the best solution both for you and for them.

A PROFITABLE SOLUTION

Adding direct-to-garment is not about digitally printing jobs that should be screen-printed. It's certainly not about screen-printing jobs that should be digitally printed. It's about offering your customers the best solution at the best price – while remaining profitable yourself.

Now, how can you use you direct-to-garment printer to actually create new business?

There are a number of ways, and this is probably a good topic for another article, but here are a few to start you thinking.

What are the disadvantages of screen-printing? Number one, the costs of set-up are directly associated with the number of colours. Costs on direct-to-garment on the other hand, are associated with size of image, not the number of colours. By encouraging your customers to become more creative with their artwork – using more colours – they will likely begin ordering screen-print jobs with more colours – meaning more profit/shirt for you. Plus, they will keep all of their short run jobs with you as well.

Another disadvantage to screen-printing is the time required to turn around a job. With direct-to-garment printing, as soon as the art-work is done the printing begins. For small orders this can mean delivery a day or two sooner. This translates to happy customers – which translates to more orders.

THE 8-10-12 RULE

A third challenge with screen-printing is that the arwork needs to be "one-size-fits-all". While this may not be an issue on some jobs, on others it can be a challenge. Even if the job is only three colours, it could require as many as nine screens to address shirt sizes ranging from youth to adult 2XL. It's the 8-10-12 rule. On the youth sizes and adult small and extra small you use an eight inch graphic, on adult mediums and larges you will use a 10inch graphic and on adult XL and 2XL garments you will use a 12inch graphic. Direct-to-garment printing is ideal for this.

You may choose to do the whole job direct-to-garment, or simply offer to screen-print the core size image and then digitally print the smaller/larger sizes. Either way, you are offering your customers a choice to fit their needs that likely saves them money and you time.

There are a number of other ways to proactively market your direct to garment – we will address those in a future article. ■

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ADDRESSING THE CHALLENGES OF PRINT-AND-CUT

Thorsten Brandt discusses the laser processing of printed materials

Cutting printed materials never fails to pose a challenge for the user. Be it in terms of print quality, the precision of the cut or keeping the print clean at the cut edge.

Nowadays, exhibition stands, banners, display systems or visual protection – impressive colours and several types of materials have become popular in diverse industries, such as the advertising industry. In order to obtain the perfect effect, it all depends on different components in the processing. Apart from being suitable for the intended use, the high-quality printing and precise and economic processing are very important aspects. Thus, easy handling, automated work processes and high quality results are the demands that today's modern production plants have to face up to. Due to customer requests becoming increasingly individual, however, flexibility is indispensable.

Consequently, Eurolaser has become one of the leading manufacturers of laser systems for non-metals and specialised in the processing of cutting, engraving and marking. Constantly, the company is looking for opportunities to further develop the laser systems in a customer-orientated way. With the use of modern laser technology, all sorts of contours including the finest details can excellently be cut.

The entrepreneurial focus of Eurolaser is not limited solely to system engineering. A whole team of qualified technicians, engineers and application engineers is devoted solely to implementing customer requirements, helping with the selection of systems and software, with optimising work-flow-management and carrying out training and safety training courses on site.

OPTICAL RECOGNITION SYSTEM

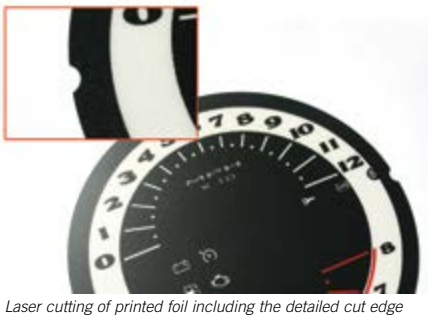
Taking today's customer requirements into consideration, Eurolaser offers an intelligent solution (LaserScout Positionplus), consisting of the usage of a CCD camera used for optical recognition of fiducial marks in combination with evaluation software. Printed as well as embroidered or glued markings can be recognised. Even the recognition of clear patterns is possible. The captured data are used to position the laser beam automatically over the work-piece, so exact processing of the print contour is carried out automatically.

The optical detection system allows an exact cut along the pressure contours. The CCD camera is installed directly in the processing head and plots the machining process for the work piece following the defined fiducial marks. In this way, the actual position and dimensions of the work piece can be recognised exactly. For further processing, they are automatically considered.

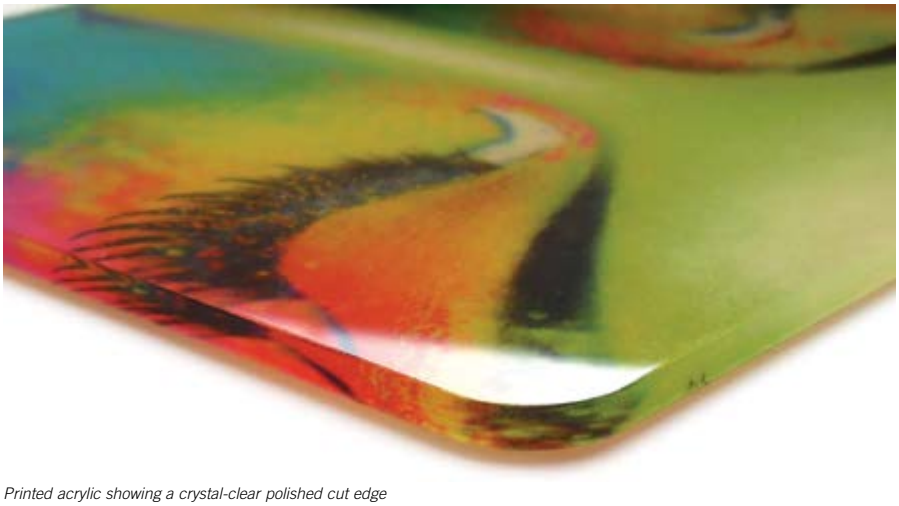
In addition to the camera, Eurolaser offers also the opportunity of using different automation systems to increase the productivity of the laser systems.

Continued over

Laser cutting of printed acrylic



Laser cutting of printed foil including the detailed cut edge



Printed acrylic showing a crystal-clear polished cut edge

Laser cutting of printed textile from Georg + Otto Friedrich with the help of the Camera Recognition System and the Conveyor System

Accurate cut along the print contour

AUTOMATED PROCESSING IN THE TEXTILE INDUSTRY

For the exact cutting of textiles, Eurolaser uses a conveyor system. By using this automatic material feed, textiles can be fed for laser cutting directly from the roll and routed after the cutting process directly to a table extension. With a high degree of connecting accuracy after a material feed cycle, sections, which for all practical purposes are endless, can be produced.

The bale material is fed via an automatic feeding unit. A feeding system edge controller ensures accurate positioning of the material. There is even an option to add a winding unit to the conveyor system. This is used for the even winding of previously processed textiles and this accordingly results in a completely automated cutting process. The combination with the optical recognition system offers the possibility of an automated cutting process even for printed textiles.

In cooperation with one of the leading manufacturers of digitally printable textiles, Georg + Otto Friedrich Wirkwarenfabrik KG, Eurolaser tested textiles on its laser suitability. The company used the material 7096FL-PTX-PES-Decotex, which is mainly used for banners and displays. Beforehand, the material was digitally printed so that the requirements concerning the precise cutting were particularly high.

For printing on polyester fabrics, only transfer printing was a viable option for a long period of time. However, the absence of image penetration during printing, in particular, prevented the use of this method in the printing of flags and banners. Thanks to InkTeX+ treatment of fabrics at Friedrich, it is now possible for digital printers to print directly onto textiles. Thus, the advantages of transfer and direct printing are combined profitably and deliver a great penetration of the image, high edge definition, as well as unique colour brilliance.

The precise further processing of printed textiles is a particular challenge. In order to obtain realistic conditions, the laser tests were carried out directly on printed fabrics – with success. The tests show precise and delicate cuts. Additionally, there is fusion of the cutting edges so that it prevents any work in preparation and/or reworking.

GROWTH MARKET FOR PRINTED ACRYLIC

Digital printing is easily possible using today's technical possibilities. Time after time, acrylic material (Plexiglas) proves to be the ideal material, as this incorporates so many benefits for the advertising industry. In addition to the extensive range of acrylic glass to choose from, it is also readily available all over the world. Acrylic sheets, whether printed or moulded with sandwich printing, can now be processed with a laser with excellent results. High-quality photo prints, back printed onto a one to 10mm thick acrylic glass sheet, are impressive with an above-average brilliance; they create an elegant look, are protected and upgrade every product advertisement many times over. The frameless presentation makes acrylic material photographs almost float against the wall, therefore providing extremely stylish and interesting effects.

In order to utilise these effects and put the photograph into context, the further processing of the acrylic material must be both careful and precise. In cooperation with the Canon Deutschland, the laser suitability of printed acrylic glass was tested. Here, the focus made was more on the ink and not to the material. The quality of the cutting edge was also carefully considered.

By considering the CCD camera system, the results of the test demonstrate that the cutting edge shows no smoke residue, meaning that the white back remains faultless. The laser cut causes no kind of

Position of fiducial marks and the Camera Recognition System

A miniature sample in printed MDF of the Eurolaser event bus

damage to the applied ink. This means the print remains excellent right up to the cut edge. There is no need for polishing or post-processing the cut edge as the laser automatically achieves the desired smooth cut edge in one pass.

Laser cutting is not only a precise possibility for decorative printing but also for industrial printing.

TECHNICAL FOILS AND MEMBRANE SWITCHES

The use of flat control and information panels has become standard across a range of industries throughout the world. Thanks to modern industrial design and compact construction, they meet the ideal requirements for a cost-effective solution in many areas of application. Thus, membrane keyboards are used for high-tech equipment in medical engineering, mobile phones, electrical household appliances, electric teller machines, remote controls and many industrial machines.

The demand for quality and reliability in respect of the keyboard elements is high, and continues to increase. Keyboards must be permanently usable under a particular set of conditions and must overcome external influences, such as humidity or soiling. Flexibility combined with ease of cleaning and a high level of resilience are decisive criteria, which it needs to meet.

This creates ever increasing demands on manufacturers and the processing industry. The extensive range of products and ever shorter delivery times mean that calls for simpler production methods are getting louder all the time.

These requirements are an opportunity for digital printing and also for laser cutting technology. What decisive difference does laser cutting offer?

It is non-contact. Laser jet processing is contact-free. This characteristic alone offers many advantages. Foil remnants cannot adhere to the tool, the material does not need to be fixed in place and there is no danger of squashing or chipping, even if the foil is multi-layered. The thermal process can cause the cut edges to melt, which also acts as a kind of sealing. This creates an automatic protection against soiling without additional expense.

Another material that was considered in the test series in cooperation with the Canon Deutschland was a printed foil made of polyester, also by using the optical recognition system.

The test demonstrates that digital printing is also suitable for industrial production and that the printed films can be cut well by laser. Without the limitations of the five or six colours used in screen-printing, digital printing systems such as the Océ Arizona provide for a range of colour combinations. The test achieved excellent cut edges as well as no peeling of the print in this area. Additionally, there was no blistering visible.

EXTENDED CO-OPERATION

Canon Deutschland and Eurolaser have been working together for quite some time and have now extended this co-operation. The print-and-cut connection is, due to the work-flow, a decisive success factor for manufacturing enterprises.

Thanks to the exchange of experience between Canon and Eurolaser, experts in both companies can extend their expertise in a targeted way and always offer customers the perfect overall solution.

The interrelation of different technologies and the clever linking of the process stages is increasingly becoming a decisive competitive factor. For this reason, the entire process chain is displayed within the context of the joint stand, from digital printing and print finishing to accurate cutting. This know-how is one of the big advantages to meet customer requirements and develop market proven finishing solutions. ■

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DIGITAL PRINTING FOR CERAMICS AND GLASS

Tim Phillips addresses the potential for ink-jet technology in these growing segments

Having made rapid inroads into ceramic tile printing, digital printing is capable of having the same impact in architectural glass decoration and other ceramic and glass applications.

Digital printing using ink-jet technology offers significant benefits across a wide range of industrial applications. These benefits include the ability to introduce new designs and products rapidly, making every design different, depositing onto delicate substrates and textured substrates, and depositing functional materials as well as just colours. In short, digital printing technology allows you to deposit what you want, where you want, when you want.

The changing competitive landscape during the next 20 years or so is predicted to favour smart, agile manufacture using digital fabrication technology over conventional manufacture. This will allow the introduction of new products and change the emphasis of competition away from price and towards convenience and individualisation. This trend favours manufacture close to consumption, leading to a shift in manufacture back to the developed economies.

EMBRACING DIGITAL TECHNOLOGY

So what is driving the adoption of digital technology and conversely, what can hold it back? Figure 1 shows a typical product life cycle with the adoption stages of key example digital applications indicated. Digital ceramic tile printing is showing rapid growth and significant sales, which is expected to continue during the next few years. Out of an estimated 10,000 printing lines worldwide, nearly 20% have converted to digital and 50% are expected to have converted by the end of 2015. Some other key digital markets such as glass printing for architecture, appliance and automotive applications, and ceramic tableware printing, are clearly at an earlier stage. The key question is – why is this?

There are a number of reasons why some industries are slower in adopting digital technology than others. One factor is the strength of market pull: how compelling are the benefits of digital technology in a particular market? On the flipside of this, if the current technology does not deliver the required performance, then adoption will be impeded. This was the case in ceramic tiles for many years, where the maturity of the technology had not reached the point where mass adoption could occur. The third key factor is economics: both global and industry-specific factors may hold back adoption. The last factor is communication: adoption may be slowed if the industry does not understand the benefits that digital adoption will bring.

TECHNOLOGICAL DEVELOPMENTS

What can technology providers do to ensure the fastest possible adoption of technology in markets identified as having potential? There are 'hygiene factors' that need to be in place to allow the benefits of digital to be exploited: most industries will not accept a backward step in speed, quality or reliability in order to gain other benefits. A significant amount of the investment by the ink-jet industry in technology development is to address these hygiene factors. Advances in print-head technology are addressing quality, speed and reliability, ink developments address quality, speed, reliability and image durability, and advances in software make systems easier to use while adding new capabilities.

A digital printing solution consists of a complex set of technologies, as shown in Figure 2, which all need to work together for a reliable result. Two areas of great significance in ceramics are recirculating print-head and ink system technology, along with advanced ink-jet ink formulation.

LEVERAGING THE DIGITAL ADVANTAGE

Consumers ultimately don't buy technology – they buy the results of this technology in the form of printed designs. For décor industries it is the varying images, natural effects, new colour possibilities, greater levels of detail and other design possibilities unlocked by the technology that are the important thing. The benefits are design-led, and failure to understand this is a key factor in slowing adoption, as production companies are regularly focused on reduction in cost, which is often a side benefit of digital printing but is not where the added value is greatest.

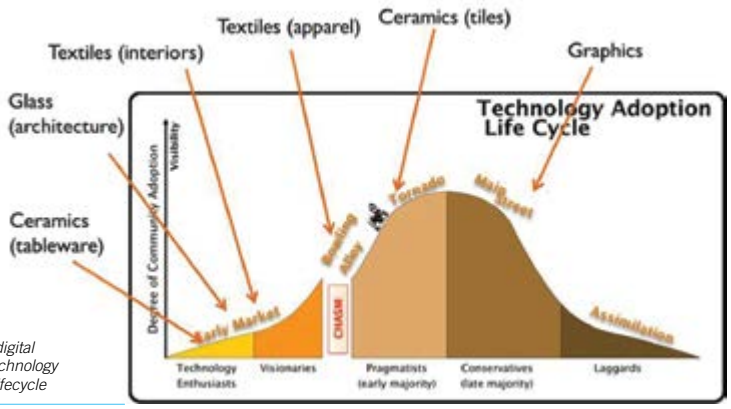

Figure 1: digital printing technology adoption lifecycle

Figure 2: important technologies in a digital ink-jet printing solution.

Figure 3: a high performance ink is vital for reliable system performance.

Technology adopters require a shift in thinking to fully understand and exploit the benefits of digital technology. Manufacturers have many years of experience with existing technology, and design to the strengths (and around the weaknesses) of that technology. The initial approach often shown by a potential adopter of digital is to try and reproduce existing designs, which misses the point (and the opportunity) of adopting a new technology. A paradigm shift in design-led thinking is required by both the industry and the technology supplier for a successful adoption process to occur.

So what does this mean for technology adoption in markets like tableware and glass? In many ways, the technology requirements are similar, as tableware and most glass decoration applications call for high-temperature firing inks with similar issues to those in ceramic tiles. An additional technological requirement in the case of ceramic tableware and automotive glass is the need to cope with curved surfaces, which is an issue for digital printing. In tableware, which is currently decorated with printed decals, a digitally printed decal is possible, but as the decal transfer process itself remains, this reduces the impact of digital.

While technology developments in these areas are progressing, digital adoption has been slow, indicating that market pull is not as strong as in ceramic tiles, where the industry was keen to adopt a technology that allowed new design possibilities, significant inventory reduction and increased yields. The requirement for printed glass is currently much smaller than for tiles, which makes the investment in new technology harder to justify. If digitally printed glass was readily available it may be adopted by consumers more extensively, but this remains to be seen. Tableware remains a significant market which can potentially show all the same benefits as tiles, but currently producers are showing only mild interest in adopting the technology. The expectation is that adoption of digital technology in these adjacent industries to ceramic tiles will remain slow until there is a significant change on either the supply or demand side of the equation.

Figure 4: can the design benefits of digitally printed tiles be transferred to tableware and glass?

CROSSING THE CHASM

It is clear that for digital technology suppliers looking to access new markets with identified potential, there are a number of issues that need to be addressed. Firstly, the hygiene factors need to be in place. Secondly, the true benefits of digital technology for a particular industry need to be understood. Thirdly, the design-led benefits of the technology, and the need for a shift in thinking, need to be communicated to the potential adopters. Only then can the promised potential in new industrial digital markets be realised. ■

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OVERCOMING WHITE INK CHALLENGES

Jerid Hill discusses the purpose of using titanium dioxide in direct-to-garment printing

Direct-to-garment Printing (DtG) is a form of printing that jets ink from a micro-piezo print-head to a finished T-shirt. In the beginning stages of direct-to-garment production, essentially four colors were available – cyan, magenta, yellow and black, otherwise known in the printing industry as CMYK. The CMYK process enabled the user to print virtually any combination of colours onto a T-shirt, bypassing the traditional methods of embellishment, such as screen-printing or the application of transfers.

The inks used in direct-to-garment are an aqueous, or water-based, pigment ink developed specifically for textiles. The inks need to be developed with a low enough viscosity to jet through an ink-jet print-head without clogging the nozzles and high enough to not allow for excessive flow, causing ink to drip from the print-head itself during the printing process. Currently, many systems in the market are utilising the DX5 print head built by Epson. The DX5 micro-piezo print-head has the capabilities for printing variable droplet sizes as small as 1.5 picolitres and as large as 21 picolitres (firing at an 8kHz frequency).

In curing direct-to-garment inks, two factors must be met – evaporation of water and the ability to reach a temperature of 165.5 degrees C (330 degrees F). The inks contain polymers that must 'explode' at this temperature so that they 'grab' the fabric and create a bond. These high temperatures will also evaporate the water in the inks quickly. The lower the viscosity of ink, the more time is needed to lift this excess water. Once the water is completely evaporated and the inks reach the proper temperature, the bond to the fabric is complete.

KEY PLAYERS FOR WHITE INK

Due to the digital textile ink's translucent nature, printing on various colours of textile were originally challenged with colour shifts, with loss of integrity of the intended colour and no opacity on darker textiles. In the early days of direct-to-garment ink manufacturing, there were two key players in this segment of the textile market, Rohm & Haas and El du Pont de Nemours and Company, commonly referred to as DuPont. The race was set to create a white ink for direct-to-garment to enable printing on various fabric colours.

Printing at a maximum droplet size of 21 picolitres would require a high volume of white ink in order for the base layer to remain opaque enough to allow for the colour inks on top to remain vibrant. Since the ink is water-based, the difficulty was in finding a pigment with a high enough refractive index that allowed the white ink to remain bright, even

A bright white under-base allows for vibrant colours

Using water-based digital textile white ink can produce prints that challenge screen-printing

on the darkest textiles. Titanium dioxide was the answer. When used as a pigment, it has one of the highest refractive indexes available and is still safe for use. Titanium dioxide can be found in many items such as paints, plastics, papers, glass and even foods and so its whitening properties are ideal for such an application.

The problem lies in the fact that titanium dioxide is not water soluble but is beneficial because it is water dispersible. When titanium dioxide is in powder form, the particle sizes would need to be small enough to jet through the microscopic size of the ink-jet nozzles and not allow for the particles to be lodged in the jets themselves. Since titanium dioxide is refined from the metal titanium ore, over a short period of time suspension of the particles became not only a serious concern but a very real problem, especially in the early developmental stages.

OVERCOMING PROBLEMS

DuPont was first to market with its product including the application for patents for the use of titanium dioxide in digital textile inks. Unfortunately, it was released before it was ready and the lack of the ability of the liquid to suspend the titanium dioxide particles became apparent in the industry – consumers were plagued with nozzles dropping out, clogging, being deflected and eventually the destruction of the print-head itself.

Shortly thereafter, Rohm & Haas introduced a version of white ink that did not include titanium dioxide. Using Rohm & Haas inks had far fewer issues when printing but there was a major complication that surfaced which would eventually cause them to withdraw from continued development of direct to garment ink altogether. The whites were simply not solid or bright enough. The volume of ink needed for printing an opaque white ink layer is typically six to ten times higher than needed for non-white ink prints and, without titanium dioxide, customers would prefer the DuPont ink set . After Rohm & Haas stopped producing white ink, the company's overall volume of ink sales dropped due to lower ink volumes being needed for a final print and the company's competition continued to win over more customers with their white ink offerings.

The newest challenge for DuPont came in producing a white ink that remained bright enough and held the titanium dioxide particles suspended for a much longer time. Throughout the years, DuPont has patented many ways of doing this and eventually created what is termed a 'soft settle' digital textile ink. Even though the settling takes place, it takes place over a longer time period, allowing daily printing without the print-head nozzles clogging. With this new series of ink, it became apparent there would be more consistent preventative maintenance needed which included a thorough cleaning of the wiper blade and pump/cap assembly (used when the print-head is in its homed position). A shaking or stirring of the ink to keep the titanium dioxide suspended also proved to be effective.

Titanium dioxide absorbs oxygen and gases which also cause the print-head to divert nozzles and even over-heat. Further tests have shown that a removal of oxygen and gases, especially in white ink, reduces the diversion and clogging, and eliminates the overheating problem altogether. Even though in the early stages of white ink development, direct-to-garment printing had a poor reputation, with the further advancements in technology, knowledge and understanding, the direct to garment industry is proving to be a cost effective and profitable alternative to the more traditional processes for embellishment. ■

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CONDUCTING THE BUSINESS ORCHESTRA

Barney Cox explains how the implementation of ERP can swing the baton and keep the operation together.

If the printers, finishing equipment, software, staff and materials used in your business are the instruments you use to create masterpieces for your customers, then you could call ERP the conductor. The ERP is enterprise resource planning, or according to some definitions, electronic resource planning. It is really the master controller at the heart of a business, helping to interact with customers and suppliers and to keep tabs on every stage of the production and administration processes within your company.

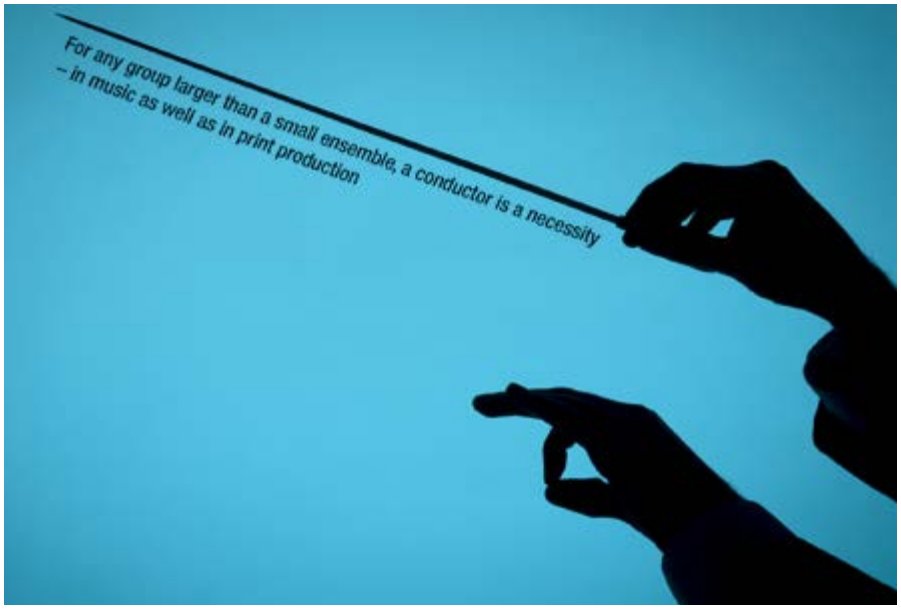
While widely adopted in commercial print, ERP is less widely utilised in the wide-format sector, where companies might be printing big but are relatively small by way of comparison and have more limited budgets for back-office implementation. Also, the needs, processes and even terminology for small- and large-format production are often so different that some ERP systems developed for commercial print houses are simply unsuitable.

But all is not lost for a wide-format company looking for an ERP. RIP developers are increasingly incorporating this functionality into their products, and you may already be using a software package whose functionality can be extended by adding a new module. As wide-format becomes a more significant part of the overall print market, more firms are offering suitably featured and priced products.

For some, ERP is interchangeable with a management information system (MIS) and it is true that, broadly speaking, they speaking do the same thing. The crucial difference is that an ERP system also includes the financial control, whereas an MIS will hand that process over to a standalone accounting package.

As business has become more and more digitised, having an integrated software platform that can sit in the middle of all the processes and help keep the orchestra on time and in tune has become more and more crucial. Everything is needed much more quickly these days – which means keeping on top of multiple tasks all at once. Even the most adept of multi-taskers need a hand prioritising a vast workload; giving the mundane and monotonous over to software allows staff to focus on their core tasks.

Whereas in the past printers were more geared up for producing hundreds or thousands of the same thing, the raison d'être of digital print is the ability to produce low volumes down to a run of one. While digital production technologies make it possible to produce small quantities that have a low overall order value cost-effectively, that introduces another problem – an increase in administration as a percentage of each job.



ERP helps to keep a business in harmony

KEEPING EVERYTHING IN TUNE

Taken to an extreme, it can get to the point where it costs more to realise the order – create an estimate, quote for the job, take it into the system, schedule it, raise an invoice and chase and process payment – than the time and consumables necessary to produce it. That is one crucial reason for investing in an ERP – to reduce, or even eliminate, some of those back-office costs.

But before you even get to the point of using an ERP to streamline administration and cut costs, it has a vital function in allowing you to measure, accurately, the true cost of doing business. Using the analysis tools built into many systems – often a central plank of estimating – the ERP can help you work out how much a process costs to carry out, from the hourly rates of machines and operators through to the outlay for ink and materials.

Having determined these static costs once, an ERP collects real-time information from the factory floor that allows you to keep

a tight rein on your processes and their execution. For example, you can work out if it is taking longer or shorter than you anticipated to turn jobs around using a particular process, or discover where a bottleneck is in your production. Armed with these data you can use an ERP to drive the strategy and performance improvements for your business.

Used effectively, an ERP can produce specific insights into your operation. You could determine whether an operator needs additional training in order to reduce remakes, or identify a star performer whose knowledge could be shared with the rest of the team. It doesn't stop with monitoring staff, though; it can also be used to track the performance of your hardware, software and consumables, which in turn can help guide your investment decisions. Discovering a bottleneck in the laminating department, for example, or finding that a particular ink or substrate is causing production problems might influence how you spend your money.

MANAGING YOUR SOLOISTS

In addition to helping with internal production processes an ERP can help manage customers, too. Customer relationship management (CRM) tools can help all the way from the basics of customer service – reaching the right person for job status updates, or to discuss and resolve issues – through sales and marketing and beyond. A CRM function enables the sales team to keep tabs on their cycle and make sure they don't miss upcoming work, while marketing campaigns can be implemented quickly and effectively and targeted to the most appropriate customers. Beyond that, you can use the tools to identify good and bad customers – the most or least profitable, for example – and what types of business make up your customer base. These data can then be used to hone your sales and marketing activities to attract the right sort of customer.

If you're thinking about implementing a web-to-print system, your method of doing business might be different to your current set-up. Before starting down that road the data from an ERP will enable you to understand what kind of customer you can automate via the web, what products or services you'll offer them and how you'll attract them with Google Adwords, site copy or social media. Once you're ready to take the plunge it's essential that you have a system with its own web-to-print module, or one that integrates happily with a third-party application.

Depending on your approach you may want to offer list-based pricing and simplified template-based artwork creation and submission, or more complicated on-line quoting and artwork submission. In the case of the former, effort spent in your ERP understanding your production costs will ensure that web-sourced jobs provide a profit, not a headache. For the latter, the ERP needs to be able to talk to the web-to-print system, allowing it access to its estimating tools or, in some cases, work harmoniously with a standalone on-line pricing module. Either way, there must be a smooth, seamless transfer of files between this system, via your ERP into production and administration.

In conclusion the right ERP set-up can keep your business in harmony, making for a successful and profitable symphony. Without it, or with the wrong system or even the right system deployed without enough diligence, the risk is a cacophony. ■

This article originally appeared in Caldera's in-house magazine, Gamut.

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The sublimation method offers digital printers flexibility across a broad range of commercial textile applications

THE BENEFITS OF SUBLIMATION INKS

Wolfgang Penc describes how digital textile printing can be produced to perfection

In the rapidly expanding digital textile printing market, sublimation can deliver outstanding results in terms of eco-friendliness, quality and throughput. As an industry pioneer, Marabu offers a portfolio of water-based textile printing inks designed for this application, with solutions for both transfer and direct-to-garment printing.

As with screen-printing, water-based inks are the preferred choice for digital printing on fabrics. Traditional reactive, acid and disperse textile inks require specific pre- and post-treatment processes – which often only textile specialists know how to perform. In graphic digital printing houses these skills are less common. With sublimation inks such as TexaJet DX-SHE and DX-STE from Marabu, post-treatment is much simpler. The sublimation method offers digital printers the flexibility they seek for a broad range of commercial textile applications on pre-treated polyester.

Marabu sublimation inks are suitable for diverse applications

Once the fabrics are printed and have undergone sublimation, they are washable and UV-resistant

SUBLIMATION PRINTING BENEFITS

Sublimation is the physical transition of a substance from a solid to a gas while bypassing the liquid state. This process forms the foundation of sublimation printing, used to diffuse inks onto fabrics. The inks used are not soluble in water. Once the fabrics are printed and have undergone sublimation, they are washable, UV-resistant and free from aggressive solvents and binding agents. This eliminates practically all risk of negative environmental impact. What's more, production costs are relatively low, and the printed textiles are not left with a visible coat as the ink is fully absorbed by the fabric. The sublimation method can be used for both direct-to-garment and transfer printing. In both cases, the ink must be heated to between 170 and 230 degrees C until it forms a gas and diffuses into the fibres of the fabric. For the process to be effective, the substrate used must have sufficient adhesive properties.

DIRECT OR TRANSFER PRINTING

Marabu offers water-based textile printing inks for both applications. TexaJet DX-SHE – a hybrid sublimation ink – is equally suited to transfer and direct printing onto pre-treated polyester fabrics. With the direct-to-garment method, roll-to-roll ink-jet printers are used to apply TexaJet DX-SHE ink directly onto textiles. In a second step, the ink is then heated to temperatures of between 190 and 210 degrees C and set in a sublimation process using a calender. Polyester fabrics, such as flags or large-format textile advertising banners, must then generally be washed as the material is not tightly woven, and residual ink may remain.

PHOTOREALISTIC TRANSFER PRINTS

With transfer printing, the image is first printed onto paper before being transferred to the target material using heat. The advantage of this process is that the paper provides an even, non-permeable surface, resulting in significantly higher image quality. Marabu developed TexaJet DX-STE ink for precisely this application. It is ideal for printing on exceptionally fine paper, and can be used with all major wide-format printers. Transfer paper is highly user friendly as it can be deployed in practically any ink-jet printer. TexaJet DX-STE is particularly well suited for photorealistic results with brilliant, crisp colours.

Marabu sublimation inks can be used for printing on polyester and polyamide (nylon), blended fabrics with a minimum of 60% polyester and rigid and polyester-coated textiles. They are suitable for diverse applications, including for soft signage, banners, flags, sportswear and fine-art prints. Both ink ranges are exceptionally light-fast, able to create highly crisp contours and available in a broad range of colours. Moreover, they are APEO-free and meet all the ink-related requirements for the Oeko-Tex Standard 100. ■

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SIMPLICITY FOR PRODUCTIVITY

Matthias Rosenfelder outlines hollow glass decoration using industrial screen-printing

Gallus offers an end-to-end solution for industrial glass screen-printing that is already widely used for other printing processes – a fully integrated printing system with machine-produced screen-printing plates. This method is based on the industrially reinforced and pre-coated Gallus Screeny G-Line screen-printing plate, a reliable and fast plate loading process using an ingenious frame system.

A fast manufacturing time of just six minutes per print-ready Gallus Screeny G-Line screen-printing plate delivers a time saving of 60 minutes over conventional screen manufacture. This minimises machine downtime and dispenses with the need to manufacture and store screens in advance of printing.

The screen-printing plate ensures a high level of reproducible quality and impresses with perfect electrical conductivity and very homogeneous heat distribution for thermoplastic inks. The screen's reinforcement and encapsulation ensures excellent ink release behaviour.

The Gallus Screeny G-Line is ideal for all thermoplastic, UV, one- and two-component ink systems and for CtS (computer to screen) imaging and integration into digital workflow systems. The spring-mounted plate loading process prevents distortion in the screen-printing plate during the squeegee process, which increases the size of print runs considerably. Compared to conventional screen manufacture, the line offers significant cost benefits and quality improvements when decorating hollow glass.

System benefits include:

- Fewer and simple steps in the prepress stage.
- Higher productivity due to standardisation.
- Flexible blockmaking operations.
- Minimum machine downtimes, creating more productive times.
- No need to manufacture and store screens in advance of printing.

The Gallus Screeny G-Line is setting standards in cost-effectiveness and production reliability for decorating hollow glass using industrial screen-printing.

Conventional screen manufacture	Gallus Screeny G-Line technology
Screen clamping process	
Set clamping system	
Cut fabric	
Apply chemicals	
Use up power, water, etc.	
Clean frame and remove old fabric	
Insert frame into clamping table	
Start clamping process	
Mix adhesive	
Glue fabric	
Dry adhesive	
Cut out frame	
Dispose of excess fabric from clamping process	
Fabric pretreatment / coating	
Set degreasing system	
Set coating system	
Apply chemicals	
Use up power, water, etc.	
Degrease screen	
Dry screen	
Apply photo emulsion	
Dry photo emulsion	
Check screen for dirt	
Imaging	
Perform conventional or CtS imaging	
Develop and dry screen	
Stencil-sealing agent and retouching	
Use up power, water, etc.	
Seal screen edge with stencil-sealing agent	**Imaging**
Retouch pin holes	Perform conventional or CtS imaging
Dry screen	Develop and dry screen
Printing	
	Insert screen printing plate into clamping system
Mask the frame's inside edge with silver adhesive tape	Mask the frame's inside edge with silver adhesive tape
Print	Print
Screen storage and reuse	
Store screen **with** frame	Store screen **without** frame in film folder

Time saving of at least 60 minutes per screen

with consistent and reproducible screen quality

The Gallus Screeny G-Line technology delivers a time saving of 60 minutes per screen compared to conventional screen manufacture.

Screen manufacture takes place in four simple steps in no more than six minutes.

Cost benefits delivered by Gallus Screeny G-Line:	
✓ New level of technology without investment	
✓ Significant time saving in blockmaking	
✓ Reinforcement of precision mesh and uniform electrical conductivity for homogeneous heat distribution on the screen	
✓ Shortest possible machine downtimes	
✓ Fast and simple screen manufacture	
✓ Quality improvement	
✓ Minimisation of waste and ink consumption	
✓ Optimisation of ink flow for printing the finest details	
✓ No need for repeat investments	
✓ Increase in productivity	The following problems are significantly reduced:
✓ Higher print run stability	✓ Ghosting
✓ No frame store necessary	✓ Register problems
✓ Perfect Rz values due to industrial coating	✓ Fabric tears (cleaning, creating new screen)
✓ Multiple reuse	✓ Setup times
✓ Simple handling due to process standardisation	✓ Hue errors
✓ No waste water treatment necessary	✓ Screen manufacturing errors
✓ No fabric cuttings	✓ Complaints

25% cost benefit

The industrially reinforced and pre-coated Gallus Screeny G-Line screen-printing plate offers unbeatable cost benefits and reliability for decorating hollow glass.

The Gallus Group, a partner of Heidelberger Druckmaschinen AG, is a pioneer in label printing and market leader in the development, manufacture, sale and service of reel-fed presses, die-cutters and screen-printing solutions for the industrial production of labels, folding cartons and cardboard products. With a workforce of approximately 600 people, Gallus boasts a broad range of state-of-the-art process technologies and patents that are also extremely useful for applications in other industries. ■

Matthias Rosenfelder is Project Manager New Business at Gallus Ferd. Rüesch

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PROTECTING EMPLOYEES FROM CHEMICAL AGENTS AT WORK

Elaine Campling itemises the reasoning behind safety data sheets

The European Chemicals Agency state that "Safety data sheets (SDS) are the main tool for ensuring that suppliers communicate enough information along the supply chain to allow safe use of their substances and mixtures". However, the European Chemical Agency (ECHA) and other interested parties report that the quality and content of safety data sheets is not always what it should be. This causes confusion for customers and could result in the advertent exposure to chemical substances.

The information provided should help employers to meet their legal duties in protecting employees from chemical agents at work (Directive 98/24/EC). However, employers are not very well equipped to undertake their legal duties without the correct information on the hazard of the mixture and the hazardous properties of constituent substances. It is therefore useful to examine some of the requirements for SDSs, but the focus will generally be on mixtures e.g. products such as printing inks.

It should be noted that extended safety data sheets (ext-SDS) are an important risk management document required for REACH registered substances that are classified as dangerous, or persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB), that are manufactured or imported in quantities of ten tonnes or more/annum. However, due to space limitations and the focus of this report, the information contained will centre on the SDS and not the ext-SDS.

In discussing the requirements for safety data sheets, it is necessary to make reference to a number of European Regulations and Directives:

The Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) Regulation (EC) No 1907/2006 (in particular as amended by Regulation (EU) No. 453/2010 with respect to Safety Data Sheets);

The Classification, Labelling and Packaging of substances and mixtures (CLP) Regulation (EC) No 1272/2008;

The Dangerous Substances Directive (DSD): Directive 67/548/EEC and Dangerous Preparations Directive (DPD): Directive 1999/45/EC.

The information provided is based on the ECHA 'Guidance on the compilation of safety data sheets (Version 2.1 February 2014)'.

WHO MUST PROVIDE A SDS

The duty to provide a safety data sheet is legislated for by the REACH Regulation. According to Article 31 (8) of REACH: "A safety data sheet shall be provided free of charge on paper or electronically no later than the date on which the substance or mixture is first supplied." There is on-going debate concerning the requirements for electronic delivery, but passively making the SDS available on a company website is generally not considered to have fulfilled the legal obligation to 'deliver' the SDS.

The duty to provide a SDS applies at each

stage of the supply chain. Consequently: "The supplier, whether it is the manufacturer, importer, only representative, downstream user or distributor shall be identified" in Section 1 of the SDS, including the full address and telephone number. An e-mail address for a competent person responsible for the SDS must also be provided.

WHEN A SDS IS REQUIRED

A supplier must provide a safety data sheet in the official language of the member state in which the substance or mixture is placed on the market for the following;

- A substance classified as hazardous according to the CLP Regulation;
- A mixture classified as dangerous according to the DPD;
- A PBT or vPvB substance as defined by REACH (Annex XIII);
- A substance included in the candidate list of substances of very high concern.

The supplier must provide the SDS at the very latest when the product is delivered.

From 1 June 2015, mixtures must also be classified and labelled in accordance with the CLP Regulation. The transitional arrangements complicate the legal text and guidance to

some degree, but generally speaking from 1 June 2015, the supplier will need to provide a SDS for substances and mixtures classified as hazardous according to the CLP Regulation. From 1 June 2015 mixtures will no longer be required to be classified to the DPD.

A single safety data sheet may be provided to cover more than one substance or mixture, where the information in the safety data sheet fulfils the requirements for each of those substances or mixtures.

Article 31(3) of REACH specifies the conditions under which an SDS must be supplied on request for a mixture that is not classified as dangerous according to the DPD, but contains:

(a) At least one substance posing a human health or environmental hazard in an individual concentration of ≥ 1 % by weight for non-gaseous mixtures (≥ 0.2 % by volume for gaseous mixtures);
(b) At least one substance that is PBT or vPvB, or is included in the candidate list of substances of very high concern in an individual concentration of ≥ 0.1 % by weight for non-gaseous mixtures;
(c) A substance with community workplace exposure limit.

The text specifying these conditions changes from 1 June 2015 (see CLP Article 59 (2) (b) amendment to REACH Article 31(3)), with the following additional provision (in addition to the above), when the mixture does not meet the criteria for classification as hazardous in accordance with CLP.

A safety data sheet must additionally be provided on request when the following substances are present in the mixture at 0.1% by weight for non-gaseous mixtures at least one substance that is classified as: carcinogenic category 2 or toxic to reproduction category 1A, 1B and 2, skin sensitiser category 1, respiratory sensitiser category 1, or has effects on or via lactation.

THE CONTENT OF THE SDS

The requirements for the compilation of the safety data sheets are specified in Annex II of REACH and covered by the ECHA Guidance, but includes information about the properties of the substance or mixture, its hazards, the instructions for handling, disposal, transport, and exposure control measures. This information is contained within the main body of the safety data sheet or in the annexed exposure scenarios (where applicable).

SDSs should now contain information under 16 obligatory headings and 48 associated sub-headings. Some requirements do not impact on safety to users, or environmental protection, such as the requirement to include the word 'SECTION' for each section headings and it is not possible to cover the information required in each of the sections. However, it is worth reviewing the information that is required in the sections that appear to result in the most inconsistencies of interpretation, Sections 2 and 3 of the SDS.

It is important to note that any information that is required to appear in the SDS cannot be claimed as confidential.

SECTION 2: HAZARDS IDENTIFICATION

2.1 CLASSIFICATION OF THE MIXTURE

The classification according to the DPD must be provided until 1 June 2015. There is no requirement to include the classification according to the CLP Regulation until it must be legally provided i.e. from 1 June 2015.

However, if the mixture is labelled according to the CLP Regulation prior to 1 June 2015, the CLP classification must be provided, along with the classification according to the DPD i.e. both classifications should be clearly identified.

If the classification including hazard statements and risk phrases is not written out in full, reference must be made to section 16, which should contain the full text.

When the SDS is being provided on request for a non-classified mixture, this must be clearly stated.

The most important adverse

Continued over

physicochemical, human health and environmental effects shall be identified consistent with Sections 9 to 12 of the safety data sheet.

2.2 LABEL ELEMENTS

The ECHA Guidance states:

"For mixtures, the label elements indicated in this section may be according to either the DPD or according to the CLP Regulation (where the supplier has chosen to implement CLP labelling earlier than required) until May, 31st 2015. In either case the label elements indicated must be consistent with the corresponding label affixed to the product."

The label elements include the hazard pictograms or symbols. These must be graphically represented, though not necessarily in colour, a graphical reproduction in black and white is permitted.

From 1 June 2015 the label elements presented in this section (and the actual labelling) must be according to the CLP Regulation.

The label elements according to the DPD which are to be included in this sub-section must include at least the following:

Symbol(s);
Indication(s) of danger;
Risk phrase(s);
Safety phrases;
Any additional hazard labelling information

The label elements according to the CLP Regulation must include:

Hazard pictogram(s);
Signal word;
Hazard statement(s);
Precautionary statement(s);
Supplementary hazard information.

If the text of the risk phrases/hazard statements is not set out in full, reference must be made to Section 16, which should contain the full text.

SECTION 2.3 OTHER HAZARDS

If the mixture meets the criteria for PBT or vPvB in accordance with Annex XIII of REACH, this must be identified, along with Information on other hazards which do not result in classification, but may impact the overall hazard of the mixture, such as the formation of air contaminants.

SECTION 3.2: COMPOSITION/ INFORMATION ON INGREDIENTS

The following substances must be identified in this section with the classification:

Prior to 1 June 2015, for a mixture meeting the criteria for classification in accordance with the DPD, substances presenting a health or environmental hazard within the meaning of the DSD and substances presenting a health or environmental hazard within the meaning of CLP, when the substances are present in concentrations equal to or greater than the concentration limits specified within the DPD and CLP Regulation.

From 1 June 2015, substances presenting a health or environmental hazard according to the DSD will no longer be relevant and therefore will not require identification.

Substances with community workplace exposure limits must also be identified if not already listed, along with PBT and vPvB substances and candidate list substances of very high concern, if the concentration is equal to 0.1%.

The substances must currently be identified by the product identifier (index, CAS or EC number) where it is available. This will be a legal requirement from 1 June 2015.

The concentrations of the substances must be listed, either with the exact concentration or concentration range in the mixture. When using a range of percentages, the health and environmental hazards must describe the effects of the highest concentration of each ingredient.

For mixtures that do not meet the criteria for classification according to the DPD (or CLP from 1 June 2015), it is necessary to identify substances that present a health or environmental hazard according the DSD (only until 1 June 2015) and substances that present a health or environmental hazard according to the CLP Regulation, present 1% by weight in non-gaseous mixtures (0.2% by volume in gaseous mixtures).

Substances with community workplace limit, PBT, vPvB substances and candidate list substances of very high concern above 0.1% must also be identified, as for classified mixtures.

For substances identified in Section 3.2, the classification of the substance according the DSD, including the indication of danger, symbol letter(s) and R phrases must be provided, (until 1 June 2015), in addition to the classification of the substance according to CLP Regulation including the hazard class(es), category code(s) and hazard statements.

From 1 June 2015, the classification of the substance according to CLP to include the hazard class(es) and category code(s) and hazard statements will only be required.

As before, the risk phrases/hazard statements do not need to be written out in full in this section, referencing the provision of the full text in Section 16 if only the codes are provided.

If an ingredient has been registered under REACH, the substance will have been assigned a REACH registration number which must be included in this section. Downstream users and distributors are permitted to omit the last four digits of the registration number to avoid disclosing the identity of their supplier.

If an included substance does not meet the classification criteria, the reason for indicating the substance in Subsection 3.2 shall be described, such as 'non-classified vPvB substance' or 'substance with a community workplace exposure limit'.

Suppliers of mixtures may choose to list all substances in the mixture, including substances not meeting the criteria for classification!

REVISIONS TO SDSS AND CONCLUDING REMARKS

Only a couple of the sections have been covered in this report, but these are the sections that arguably appear to be the most problematic.

It is worth noting the conditions under which an SDS must be updated and re-issued, which is specified in Article 31(9) of REACH.

Suppliers shall update the SDS without delay in the following instances:

(a) As soon as new information which may affect the risk management measures, or new information on hazards becomes available;
(b) Once an authorisation has been granted or refused;
(c) Once a restriction has been imposed.

The revised SDS must be provided to all former recipients supplied the substance or mixture within the preceding 12 months.

Revisions must be identified on the first page of the SDS and information on the changes must be given in section 16, if they have not been identified elsewhere in the SDS.

Some trade associations are reported to be surveying the quality and legal conformity of SDSs. Although the quality of SDSs supplied by ESMA members is believed to be very high, ESMA will also clarify what is required with members. The ESMA Health, Safety and Environmental Protection Committee will also put together some guidance for members to ensure that the high standard of legal compliance and 'added value' of the information provided by ESMA members is maintained. ESMA encourages members and customers to seek guidance on any regulatory matter and invites members and customers to seek further clarification on the information that is required to be communicated in the SDS. ■

Elaine Campling is Chairman of ESMA's Health, Safety and Environmental Protection Committee and Product Safety Manager for Fujifilm Specialty Ink Systems

ESMA
Driving Print Excellence

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LARGE DELAWARE SCREEN-PRINTER FUELS RAPID GROWTH

Maximising productivity drives success

MiddletownInk co-owner Megan Haines: "You think it – we print it!"

Fitting a shirt to the V-2000 four-station, four-colour manual press. Left: an infra-red flash cure unit dries items between stations. Back left: the DiGiT athletic numbering system

Established in December 2008 with one four-colour manual screen-printing press, MiddletownInk has grown to become one of the largest screen-printers in Delaware. Offering everything from T-shirts and luxury dress shirts, to baseball caps and briefcases, the company's client roster includes not only sports teams, youth clubs and community groups, but also schools, bands, restaurants and special events. The company even offers an on-line design studio where customers can custom design their own shirts, hats, bags and more, choosing their own colours and adding their own artwork and text before placing their order online.

In April 2012 the company moved to new and larger quarters to accommodate the demands of its rapidly growing business. With a greatly expanded inventory of equipment, some of it acquired from other printers going out of business, the MiddletownInk developed a reputation for being able to turn around jobs too difficult or complex for other screen-printers to handle. "Today, about 90% of our work is done under contract to the industry, with about 20% of that work being for other printers who are in need of an overflow printer or are unable to handle the complexity of the job in a timely manner," says Megan Haines, co-owner with her husband Brian of MiddletownInk. "Our motto is 'You think it – we print it!' and we really try to live up to that by offering a wide range of R&D for more complex items."

The Vastex DiGiT numbering system, attached to the four-station, four-colour manual press

MAXIMISING PRODUCTIVITY

In addition to solving difficult problems, part of the reason for the company's success in the face of an economy that has devastated other screen-printers is its ability to maximise productivity from every piece of equipment in its shop. "Our eight-station, ten-colour automatic press is our main machine for routine jobs like printing T-shirts that are not too difficult; but the unique, time-saving features of our manual equipment allow us to further minimise the turnaround time for speciality jobs, such as the difficult jobs from other screen-printers," continues Haines. "Because we can print more pieces of apparel in less time, we can increase our revenues by taking more orders.

"Our Vastex V-2000 four-station, four-colour manual press is now our speciality press. We use it exclusively to print more complex, higher-margin items like hats, earmuffs, and plumbing valve sleeves. It's equipped with a Vastex 46 x 46cm infra-red flash cure unit that allows us to dry items between stations. We estimate that the ability to dry four-colour items between stations saves us about 20 seconds/item and, because we're able to charge a premium for speciality items, the faster speed translates directly into higher profits."

Haines explains: "To dry items coming off the press, we use an EconoRed I infra-red dryer with a 91.4 cm belt. Its digital temperature controller is accurate to within 0.56 degrees C and its infra-red focusing system minimises electrical power costs."

As stated, the automatic press turns out the high volume production runs at

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The Inkjet Conference™ is an ideal opportunity to connect with technology suppliers, research institutions, integration experts, as well as OEM's from different market sectors in what has become a rapidly growing billion euro business. Showcasing technologies and spotting trends, enabling emerging technologies of printed electronics and functional fluids to learn and partner with those that have been successful in enabling volume adoption of inkjet technology in manufacturing applications

About the academic sponsor

University of Applied Sciences Western Switzerland. (HES-SO)Fribourg

Institute for Printing (iPrint)

The institute iPrint is active in the field of digital printing with a clear focus on inkjet technology. As a research partner to industry, it contributes significantly to technological innovation in terms of processes and methods, instrumental development and advanced materials.

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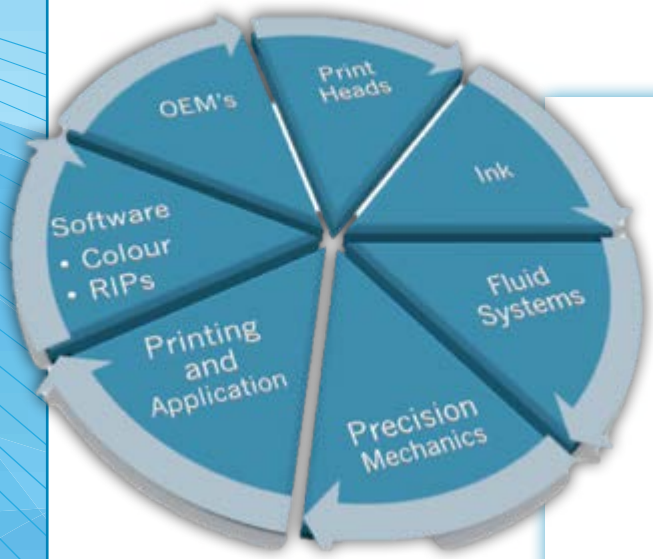

INKJET: The Markets and Applications

Visual Imaging
- Ceramics
- Textile
- Laminates
- Sign and Display
- Commercial Print
- Print
- Labels
- Wallpaper
- Glass

Functional Printing
- Electronics
- Biomedical
- 3D
- Photochromic

Manufacturing
- High Volume application of functional or visual printing in a manufacturing enviroment

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MiddletownInk. "To handle the high rates at which the automatic press operates, we use an EconoRed II infra-red dryer with a 137cm belt, which can dry up to 730 garments/hour," she says. "In addition to its accurate temperature control and infra-red focusing capabilities, it has an exhaust air system that evacuates fumes and moisture quickly."

ATHLETIC NUMBERING SYSTEM BOOSTS PROFITS

The company receives a lot of requests for numbered athletic uniforms but, until it began using the DiGiT numbering system which clamps onto the manual press, it really wasn't all that profitable. "We were using vinyl heat transfer and the cost of storing a huge inventory of numbers was eating us alive," Haines emphasises. "Now athletic numbering makes a significant contribution to our bottom line with the ability to offer a diversity of colours and styles, as well as to our overall volume."

The system speeds numbering by splitting the numbers between two screens – one for the digits 1 through 5, the other for 6 through 0. Each screen has settings to accurately position a single or a two-digit number and to accurately register two-colour numbers. The digits are applied to the garment by hand-operated squeegee.

Two additional settings allow use when either the first or second digit is the narrow number 1. Without these additional settings, too much space would remain between the two digits or the entire two-digit number would be off-centre. The additional settings assure the space between numbers is correct, and two-digit numbers print at the centre of the garment.

"Another advantage of the DiGiT system is that, if a screen should be accidentally damaged, I can quickly and easily burn a new one without having to wait a couple of days to get it done on the outside," says Haines. "We are also getting a lot of requests for PMS colour matching, which is quite easy with the system."

The system accommodates both long and short print runs. "We once filled an order for 4,212 numbered garments for a sports summer camp," she recalls. "We numbered all different kinds of sports apparel – including softball, basketball and soccer."

For higher volume runs, co-owner Brian Haines operates an eight-colour, ten-station automatic press

Keeping pace with the automatic press, MiddletownInk dries garments with an EconoRed II infra-red dryer that has a 137cm wide belt

NOT LIMITED TO APPAREL

A rapidly growing part of MiddletownInk's business is speciality items other than apparel. "One of our customers makes all sorts of promotional items and turns to us for printing because they know we can figure out a way to handle it," Haines comments. "For example, we print on giant natural rubber erasers and we also do valve handle covers. One customer did Chinese take-out food containers as a promotion for a major motion picture and we printed them. Many of the jobs we handle for them are things that have never before been screen-printed. We're sort of their R&D facility."

The rugged construction of the Vastex manual press contributes to this flexibility. "The press has proven itself time and time again in allowing us to print heavy items," states Haines.

Because of their previous experience with screen-printing, neither Brian nor Megan Haines attended entry level classes offered by Vastex but plan to take advantage of advanced courses such as Advanced Art Screen-printing. She adds: "We have recently added oversized and all-over printing using our manual press, which is becoming increasingly popular. We will also be purchasing larger dryers in order to be able to handle water-based inks." ■

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COMBINED FOCUS ON SCREEN-PRINTING

Two businesses fully focused on the provision of systematic, sophisticated and customer-orientated solutions for screen-printing customers

It was in September 2011 that Switzerland's Grünig-Interscreen AG first informed the screen-printing industry of the participation of Marcel Grünig and Andreas Ferndriger in SignTronic AG. The purpose of this initiative was to make the best possible use of both companies' synergies, on the one hand to strengthen market positions and on the other, to offer screen printers systematic, sophisticated and customer-orientated solutions for their problems.

Ultimately, it had been planned for Marcel Grünig and Andreas Ferndriger to progressively take over SignTronic AG in the coming years. To ensure the optimal use of all synergy possibilities and to implement them systematically, however, scheduling of the takeover was accelerated. It was agreed that Messrs Grünig and Ferndriger take over 100% of the share capital of SignTronic AG in June 2013, coinciding with the retirement of former Technical Director, Henk te Brömmelstroet.

It was agreed that both companies would continue to operate as legally independent entities but they would become even more closely connected. Andreas Ferndriger continues as Managing Director of SignTronic AG and Sales and Marketing Director of Grünig-Interscreen AG. Marcel Grünig, Managing Director of Grünig-Interscreen AG, has assumed the technical management of SignTronic AG.

Even though both company head offices at Schwarzenburg and Widnau have been maintained, the goal is to develop a common team spirit and be committed to the same 'screen-printing' objective. All activities will be co-ordinated with regard to streamlining automatic screen preparation. "Our motto is 'the perfect screen' based on the latest CtS direct exposure and automation technology, to give the screen-printing technology an edge over the competition and to meet the various requirements of our customers by offering them customised, holistic solutions" comments Andreas Ferndriger. "We do not doubt that for our customers, partners and staff, this step will have nothing but positive consequences."

PRODUCT INNOVATIONS

In recent months, Grünig-Interscreen has produced many basic parts for SignTronic's StencilMaster STM and has installed several complete screen production projects, described as 'The Lab'. In addition, a series of flexible, modular concepts have been developed to accommodate changing customer requirements, namely the XS-series from Grünig and the STM series from SignTronic.

Specifically, SignTronic has increased its STM portfolio with several product innovations. This includes STM-XS, a front loading concept for small screens and a multiple frame concept, CtS direct exposure with 2400 dpi (HR). STM-1010HR is a recently announced modular unit based on the D-series for smaller screens, offering two resolutions (1270 dpi and 2400 dpi) in a compact machine, offering high quality CtS exposing at a lower price. Also introduced is the STM-TEX series of direct exposing solutions for textile customers, 1270 dpi resolution, from standalone up to fully in-line, step-by-step.

SignTronic has increased its STM portfolio with several product innovations

SignTronic has updated its website to provide customers and partners with extensive information on computer-to-screen technology and automation.

Designed to interact with the website of partner company Grünig-Interscreen, the new website offers a technology overview that covers the technical benefits of various parts of the process. Visitors can also view the company's expansive portfolio, including the new STM-TEX and STM-XS series.

Global customers can benefit from additional services in a support section, including a link to SignTronic's facilities in North America.

Other highlights include a signing-in area that offers exclusive information to the company's partners, and details on industry events where expert members of the team will be present.

Grünig's latest innovation is the creation of an interactive showroom. Both websites share the theme 'The perfect screen' and can be visited at www.signtronic.com and www.grunig.ch ■

The companies' single mission is to provide 'the perfect screen and automation in screen production'

The Grünig and SignTronic area at InPrint 2014

SignTronic recently updated its website to interact with Grünig's website

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NO FRILLS FABRIC: WHERE TRADITION MEETS TECHNOLOGY

Why the mix of quality and environmental criteria is essential in the specialist and screen-printing segments

Daniele De Rosa

A view of Extris's weaving department

Based in a small village called Gironico, near Como in Italy, Extris's factory lies in a natural park that's been created around a small river and among hills that can only be described as sweet. There are no other buildings nearby and, during the holiday season, people come to ride horses, to jog or to ride cross-country on bicycles.

In such an environment, Extris has to pay particular attention to the special sensitivities that nature respects. This is shown by the significant amount of attention that the company's workers give to the external environment during every working day. The success of this empathy was underlined when, in 2013, Extris achieved ISO14001:2004 certification.

On entering the Extris site, there is an ambience where the textile weaving spirit is recalled to the visitors, represented by the many old pictures hanging on the walls. These are rare photographs taken at the beginning of the last century, and show how the textile factories were back then, more than 100 years ago. These image are all from the National Photographic Archive in Florence.

The Extris team is young, with the average age being just 33. The team in the offices as well as in the weaving department is tight-knit, with the ethos that they feel they are working for their customers, and not for an owner. This is the main difference when compared with traditional companies, and the will and determination to make a customer appreciate your work. Up until now, although the company is growing continuously, 73% of orders received leave the plant the same day, regardless of where the final destination is and, currently, Extris serves customers across four different continents.

AMAZING WEAVING AREA

On entering the manufacturing plant the first to be seen are several working areas equipped with custom-made machinery or with highly technical equipment. The weaving area is nothing short of amazing. While the noise might be high, it is spectacular to see all the looms working at high speed in a synchronised effort to produce the finest fabric.

Extris employs Dornier looms, considered to be the best technical machinery for fine fabric weaving. They are more expensive than other brands but the company believes that, thanks to their technology, any customer requirement, even new ones, can be matched.

The finishing area where the plasma treatments are carried out shows a large customised machine which can treat fabrics

The working areas are equipped with custom-made machinery

Extris's fabric during Plasma treatment

Extris CarboNy conductive fabric

up to a maximum width of 3.5m with a very high-tension electrical field that enhances the performances of the stencil.

Moving to the quality control area, Extris uses automatic machines which are able to record a quality map of each single meter of fabric so that customers are guaranteed that what they receive has been checked at a precision standard of 100%. This quality data is then retained in the IT system database for many years.

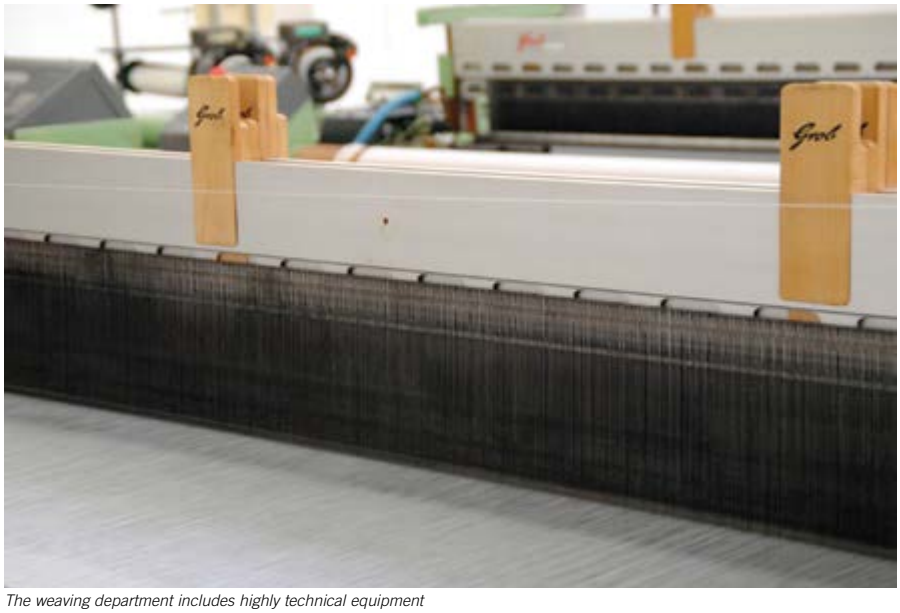
Within the Extris factory the blue collar team is made up from people from three different continents, and they all show the same approach to their jobs which is quality and speed.

THE BACKGROUND TO EXTRIS

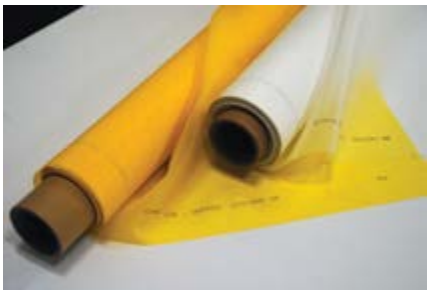
Extris was created in 2008 by Daniele De Rosa, who at that time was already a highly respected and well-known person throughout the screen-printing industry. De Rosa is also a former chairman of ESMA, the European association for specialist printing manufacturers of screen, digital and flexo technology, and in addition to other key developments that took place under his chairmanship, ESMA took the decision to support the launch of *Specialist Printing Worldwide* in 2007. Before that, in 2005 he also promoted the start of the American sister association, NASMA.

De Rosa has always believed that the screen-printing industry or, perhaps a more accurate description, the specialist printing industry, is viable and fertile. This is why, after receiving requests from a few important customers, he invested to create Extris as a new weaver that specialises in the supply of what he calls 'no frills fabric' to the screen-printing industry. This concept is based on De Rosa's observation that, because in today's market screen-printers are tempted by so many different fabrics, each supplier is tempted to sell its product promising marvellous characteristics for their fabrics.

De Rosa believes this isn't always in the best interests of the customer. As a result, he decided to launch his 'no frills fabric', with the intention and meaning that Extris's fabrics are good for the best screen-printing purposes,



The weaving department includes highly technical equipment



Extris's 'no frills fabric'

always kept at an outstanding level for technical content and quality, and they fit exactly the jobs being carried out by end customers. Those using Extris's mesh know they're not paying for mesh characteristics which could be in excess of their requirements.

EUROPEAN WEAVER

Extris entered the screen-printing market as a far smaller company than the other European mesh manufacturers. Thus it has been essential to leverage the company less on size, but more on the fact that it provides a very flexible service with even the ability to produce custom-made fabric boNy mesh, only made possible by Extris weaving a special PA6.6 yarn co-extruded with carbon. The final fabric is conductive and this works very efficiently in special printing jobs where electrostatic effects during printing can ruin the job. Extris, who is a member of the Flock Association of Europe, achieved great results with this fabric in screen-flocking.

As Extris has paid special attention to the environment, so it has for its product portfolio. This has enabled Extris to achieve Oeko-Tex certification for a large percentage of its screen-printing fabric. This confirms that, through Extris mesh, no hazardous chemicals are released onto the object being printed. Today this is particularly important; many of the large corporations using screen-printing technology are looking to assure their customers that the product they sell has not been contaminated by any hazardous chemistry during the manufacturing process. Extris is proud to have been the first weaver in the world to achieve that certification and claims to be the only one to hold it to this day.

All of this attention to detail, highly responsive customer service, product quality and environmental awareness has translated into a continuous, year-on-year, growth. In 2013 Extris grew its sales by 22% and the current year thus far shows pretty similar trends as every month new customers choose to work with this Italian manufacturer, confirming the success of the formula for 'no frills fabric'. ■

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GROWING INTO THE DIGITAL TEXTILE MARKET

Rosaria Pozzoni describes what's needed for success in this expanding segment

As a manufacturer of disperse digital inks for sublimation and direct printing on polyesters and mixes, J-Teck3 is now a well-known name in the segment for digital textile printing, recognised as one of the market leaders as a manufacturer of high quality inks. Founded in 2003 by a team of people with a long and valued experience within the textile and screen-printing fields, the company quickly consolidated its name for formulating, manufacturing and selling its digital textile inks.

J-Teck3 believes its strengths lie in its good ability of developing high quality products that feature innovative characteristics. The company says it was the first to manufacture an environmentally friendly dye sublimation ink free from alkylphenol ethoxylate (APE), developing nano-dot and cluster technologies to make the ink extremely stable and fluid for use within any digital printing machines.

The company started with just three people, and has grown through the years to have a total of 50 by the end of 2013. Situated in the Como lake area in Italy, traditionally an area for high quality textile printing, its success has been based on a group of capable and determined people who, with hard work and ideas, has led a small company to grow into one of the leaders in the digital sublimation market.

When J-Teck3 was founded in 2003, textile digital printing was still at its beginnings, and only really known in Europe, the USA and Australia. Now, more than a decade later, textile digital printing and sublimation, in particular, are experiencing a large and continuous expansion. This doesn't apply just to typical applications like sportswear or visual communication but, also, within industrial segments such as fashion and the automotive industry.

J-Teck3'a head-quarters in Albese con Cassano, Como, Italy

THE IMPORTANCE OF TEAM-WORK

J-Teck3 admits it was very difficult to grow so quickly and, at the same time, maintain the quality standards which it targeted in terms of service, product quality and performance. This was a combined effort and necessitated considerable team-work as all the people in the company contributed both their time and their ideas to overcome the difficulties and find solutions.

In the early days of the company, the market sector was still niche with only a few players. Now that it has developed, many new companies, small and big, are entering the textile digital market every year. J-Teck3 believes that this makes it more difficult now to keep one's position and find new opportunities. But, at the same time, it is also more exciting.

Having built up to a staff of more than 50 people, J-Teck3's output has grown 20 times and, as a market leader, the company is represented worldwide from Brazil to Australia, and from France to Thailand. Today it has a complete range of digital inks for textile and graphic applications which can suit all the

Continued over

The first J-Teck3 team comprised Enrico Grasselli, Rosaria Pozzoni and Italo Mariani

J-Cube RF/KF new dye sublimation digital ink for Ricoh and Kyocera print-heads

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Rosaria Pozzoni with Shao Cen of Shanghai J-Teck at Fespa Asia in Singapore

J-Next Subly is a best-seller among J-Teck's range of sublimation inks for Epson print-heads

digital printers in the market.

The most significant members of staff include Italo Mariani, who is sales director, Enrico Grasselli, technical director, and business operation manager Rosaria Pozzoni. These three were the first to start in the autumn of 2003. Other significant members joined by the end of that, notably one of them being Luca Guggiari, who is manager of J-Teck3's R&D laboratory, J-Lab.

INNOVATIVE PRODUCTS

During the past ten years of activity the company has launched what it believes to be many innovative products. But it states it is almost impossible to detect the most significant one as they are all part of the J-Teck3 history – from J-Eco Subly, Flag and Print, born in 2004 and the first APE-free digital disperse inks through to the last being J-Cube RF/KF digital sublimation ink for Ricoh and Kyocera heads passing through nanodot and cluster technology, and finishing with EPS, a patented system for double-sided printing in digital textile applications.

Focusing only on digital printing, with the motto 'true digital', J-Teck3's best year to date was 2013, having experienced an increasing turnover year-on-year since the company's foundation. During this time, it has constantly taken on opportunities and entered new markets.

However, today's best-seller is J-Next Subly, a digital sublimation ink for Epson DX6 and DX7 print-heads. J-Teck3 says it was the first to develop an ink for the newest version which was launched at Fespa 2011 in Hamburg, with the firm view that competitors arrived only two years later with a similar product.

Currently J-Teck3 is selling all over the world but it says that its biggest territory is Asia. As an international operation with a market that is the world, the company is always looking for new areas and ready to take on any opportunities, particularly where digital textile printing is still new or expanding. As well as Asia, the growth in South America has been rapid during the last three years. Additionally, with trust being the most important factor in relationships between customers and suppliers, J-Teck3 believes that, in order to built a trustful partnership a company must have good products, good service and an open and co-operative mind.

THE IMPORTANCE OF PARTNERSHIPS

During the next five years J-Teck3 has already developed a project through which new investments will be made in terms of production equipment and enlargement of its production site. Another important issue is the development of the R&D sector plus important partnerships with universities and research centres for the study of innovative, eco-friendly products.

As far as digital textile printing is concerned, the company sees that there are still many opportunities to reach as only a minor part of all that is printed with conventional systems has turned to digital. Sublimation printing will continue to grow and develop further in sectors such as textile for fashion and home decoration. This is also due to the advances in many new polyester fabrics now being used more and more in the fashion and garment markets. Their flexibility and versatility is replacing conventional fabrics like silk and cotton.

In conclusion, manufacturers and suppliers have to be very attentive to all market changes and trends. They have to be very good in catching the new feelings and sensations within their reference market in order to adapt to the sudden changes in market direction. A company thinking it has arrived could end up making a big mistake, particularly in the fast and dynamic market of digital printing. ■

The J-Teck3 stand at Fespa, London in June 2013

Rosaria Pozzoni is Business Operation Manager at J-Teck3 Srl

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TESTING CAPABILITIES, DIVERSE MANUFACTURING AND SKILLED WORKFORCE ENSURE PROLONGED SUCCESS FOR DRYING SPECIALIST

Alan Shaw spoke to *Specialist Printing Worldwide* about the company's testing room, history and future outlook

Since introducing its Drying Solutions Centre (DSC) 20 years ago, Natgraph estimates that more than 500 companies from the screen-printing industry have benefited from the testing facility at its Nottingham factory in the UK.

As Europe's largest manufacturer of conveyorised dryers utilising forced air, infra-red energy and ultra-violet radiation, Natgraph operates the DSC as an open resource to carry out drying trials in a dedicated 279 square m (3,000 square foot) area that is equipped with a servo driven Sakurai CYLINDER Press and a Thieme flat-bed semi automatic screen-printing machine to operate with the latest Natgraph drying technology to produce sample prints in real time.

"We have secured countless millions of pounds worth of business from the DSC. We are able to prove individual customers drying processes in that room without question," enthuses Alan Shaw, Commercial Director and founding partner of Natgraph. "Previously, we would go out to existing users to demonstrate potential customers our range. But even the most co-operative user could not stop their production to allow us, for example, to conduct three days of in-depth testing for the benefit of prospective customers. So the advantage of having this facility here means we can really get into the detail and prove the process – then in the vast majority of cases we get an order, so the considerable investment has been most worthwhile".

A recent Natgraph installation resulting from testing at the company's Drying Solutions Centre

TESTING ROOM FACILITIES

The testing room is equipped with a comprehensive combination of drying technology, installed within a purpose built Air Force Dryer by Natgraph. This state-of-the-art dryer has PLC control, operated via a colour touch panel, resulting in finite control of air temperatures, air speeds, infra-red power levels, UV intensity and wavelength as well as cooling with refrigerated air, all of which can be data logged to confirm the optimum dryer specification.

"The DSC has developed over the years and is now a standard industrial specification. There are many options available, so we prepare the dryer in advance of each test with the appropriate technology for that particular application. As we have developed new technology, we have always installed it into our test dryer as a test-bed and to ensure that the most efficient systems are available for our prospective customers to try. It has every control option in there that we can think of. Sometimes companies have booked to be here for three days of testing but, within a few hours, they have the results needed and can confidently order the optimum solution," explains Shaw.

The technology includes pre infra-red energy, 200 degrees C variable, forced air controlled to within 0.1 degree C, combined with adjustable output of infra-red energy, high power ultra-violet radiation in either fully focused and semi focused reflectors (electronic), ambient cooling air and refrigerated cooling air, etc. The air is also filtered to four microns.

A vast selection of independent data logging equipment is available to verify the drying parameters used, so that these figures can then be compared to the results from the subsequently built dryer. "With this analytical equipment, not only can we prove if it is dry, but how it was dried. We've got an extensive library of test reports now; so, when an enquiry comes in, we very often know what needs to be done in different applications across a wide range of industries. But if we haven't already done it, we can certainly do the testing needed," states Shaw.

NEW AND GROUND-BREAKING WAYS

"We are a bespoke manufacturer of the highest quality, high efficiency drying systems that fulfil our customers' individual needs and the DSC is an integral part of our business," adds Rick Mann, Natgraph's Technical Director. "It's been used for some very weird and wonderful jobs! It's not just about existing technologies, it's about new and ground-breaking ways of achieving what is needed. However, we often cannot talk about it because of confidentiality. We've got the flexibility to print on virtually every substrate. And, because we are a complete in-house

Continued over

SPECIALIST printing worldwide

Printing and drying being optimised by testing.

manufacturer, we can make our own parts to adapt the research as necessary".

The DSC formula involves existing or potential customers sending their screen frames complete with stencil, substrates, ink and even squeegee rubber as well as confirmation of the wet film thickness being presently laid down. But, most importantly, is how the print is being tested to confirm it is dry. "We then replicate their existing or required production conditions, so we can then start to improve the drying process" explains Shaw. "And, in some instances, we'll improve the printing as well, particularly if it's a joint project with one of our global partners such as Sakurai or Thieme.

"One customer could not believe how well we were doing, so they sent a chemist, process control guy and a screen-printer over to the DSC – and the result has been numerous repeat orders. They thought the chemistry must be faulty, because the results achieved were so good!"

Natgraph has also worked with ink companies in the DSC, resulting in complete ranges being created there. "We work with substrate manufacturers, too, and co-operate across the board in all areas and are not allied to anyone," comments Shaw. "The DSC is an open resource, completely open to the screen-printing industry. We do charge for people to come and use the room, but we give back a significant portion when they place an order. And, quite often, it's turning into repeat orders because the technology was proven in the DSC and then in practice in the customers' facilities." Another benefit cited is that when the customer is present in the DSC, they are completely focused on the testing at hand and can learn more without the potential distractions of their own environment.

A test dryer at the Drying Solutions Centre

TECHNICAL SOLUTIONS

Celebrating its 35th year, Natgraph has made more than 13,000 pieces of equipment, exporting to in excess of 95 countries across six continents.

Shaw describes the events that brought the founders of the company together in 1979 as 'a series of happy coincidences'. "We were in the right place at the right time, but we have grabbed each and every opportunity since and turned a hobby into an incredibly successful business. We still love providing technical solutions."

Alan Shaw, Chris Preston and Ken

FULL CYCLE PARTNERSHIP

During the summer of 2011, Natgraph started exploring the feasibility of installing a fully automatic Sakurai cylinder screen-printing line at Fascia Graphics, a leading UK industrial graphics manufacturer.

"We're very lucky at Natgraph to be able to travel the world and see many installations where different types of work are being produced," explains Alan Shaw. "We see it working in many different industries but where the processes are very similar. So, after doing some tests in the Drying Solutions Centre, we took Fascia to a willing Italian customer in the same industry that had operated a Sakurai cylinder and Natgraph dryer for two years. And the amazing thing was, I asked them to demonstrate to us some short-run work, thinking it would be 250 sheets – but when we got there, they were doing 35 sheets!"

The three-day trip convinced the Fascia Graphics management team that the proposed Sakurai line was the correct machine for their application. Additionally, a selection of the more sensitive substrates were sent to Japan for Sakurai to design, test and build a special anti-scratch substrate path through the cylinder press.

In March 2012, Fascia Graphics completed the installation of their its Sakurai MS80-SD/Natgraph line and, just 12 months later, a second Sakurai/Natgraph line was installed. The success of the installation paid testament to the combined effort of the three companies to ensure the perfect solution was found and executed.

In February 2014, the process turned full-circle when Shaw approached Fascia Graphics to ask if a potential customer from Brazil could visit the Fascia facility to see if the Sakurai technology would be suitable for his requirements. Based in Sao Paulo, the South American manufacturer produce control panels and industrial graphics for white goods such as washing machines and fridges. After a successful visit he left the UK with a much better idea of how suitable the Sakurai line and Natgraph dryer combination will be.

Paul Bennett, Managing Director at Fascia Graphics says: "Before we visited Italy with Natgraph, we could not be certain that a Sakurai/Natgraph line was the way forward. After our trip to Italy, we were confident enough to invest more than £600,000 into two purpose-built positive-pressure print rooms, and a pair of Sakurai MS80-SDs with Natgraph dryers and Stackers. It was a great privilege to be able to pass on our expertise, experience and knowledge to help another manufacturer in the same way as we were helped. It's great to see two market-leading manufacturers such as Fascia Graphics and Natgraph working together and leading the global marketplace within their fields."

Furmidge were the three founders of Natgraph and remain shareholders and directors today. Shaw's role as Commercial Director involves co-ordinating all sales and marketing activities, while Preston is Production Director with responsibility for all in-house manufacturing. Former Technical Director Furmidge retired in 2012. His successor, Rick Mann, is credited with having been instrumental in the development of Natgraph's range of drying technology during his 30 years with the company.

"Now a shareholder, Rick Mann is an outstanding and unique character. In terms of electrics, electronics, software and mechanics, he is incredible," says Shaw. "So the management team is now younger and more dynamic." Out of the company's 50 employees, more than 15 have been with Natgraph for more than 25 years and over half of them for 20 years. "We have a highly skilled workforce with a diverse range of skills. Due to investment and smart manufacturing, our efficiency is more than double what it is was ten years ago, and we are now investing even more in younger people to ensure the future of the company".

Natgraph's longest and tallest dryers ever being assembled in the company's busy factory

IN-HOUSE MANUFACTURING

Currently enjoying the best-ever year of trading, Shaw attributes the company's longevity and continued success to Natgraph being a complete in-house manufacturer. "We are fairly unique in that we do everything in-house; we buy in flat sheet steel, laser cut, punch, cut, fold, weld, paint, wire, create software, assemble, test, install and train. We thoroughly enjoy manufacturing a technical solution to a problem. We now have over 250 pieces of standard equipment, many of which started out as 'specials'. However, more than half of what leaves our factory is tailored to individual customer needs."

Natgraph's ability to manufacture

Continued over

SPECIALIST printing worldwide

The assembly of Natgraph's longest ever, 30m dryer at 30m

industrial dryers for a wide range of specific applications means its customer base comes from many different sectors, including automotive, credit cards, education, electronics, finishing, glass, graphics, medical and textile. "It's incredibly diverse and that's a great thing" enthuses Shaw. For example, Oberthur and Gemalto, two of the main global producers of credit cards, use Natgraph dryers. "They have both used the Drying Solutions Centre and we have just supplied three systems to Gemalto in Poland, Nigeria and the USA, as well as to Oberthur in France. Periodically, there have been some sectors larger than others for us; but, right now, it is a very broad mix. Our diversity is our strength."

With 45 distributors around the world, Natgraph's geographical coverage is as widespread as its customer base, states Shaw. "China, North America and Germany are very important for us, but we cover a very nice mixture of regions. South America is starting to be important for us and areas of Europe are beginning to come back. We are doing better now in the UK than for many years. Having originally sold our first dryer to a UK company in 1983, the very same dryer is still in production today – in India!" Natgraph itself represents Grünig and CST in the UK, and has worked very closely on flat-bed applications with Thieme for almost 25 years.

A customer from Brazil testing with Natgraph

POSITIVE OUTLOOK

Shaw predicts a continued period of growth for the company, as well as a positive outlook in general for screen-printing. "When printers analyse the profit from digital and offset processes compared to minimal investment required by screen, we believe screen is still worthwhile. There is no end in sight at all for industrial screen-print – in fact, it is growing. There are more and more new installations and the demand for drying a surface coating won't go away. It will change and it will develop, and the facilities in the DSC alongside our expertise and adaptability will ensure our continued success as a specialist manufacturer of conveyorised dryers."

Shaw concludes: "The DSC is a massive investment for us, but well worth it. Other companies have testing rooms but the level of sophistication, the analytical equipment and our knowledge make our capabilities quite unique." ■

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A DATE WITH TOMORROW'S TECHNOLOGY

New London conference will fuel the resurgence in screen-printing

Martyn Hicks, President of Fespa UK Association

The UK's screen-printing sector will get the event it has been demanding when Screen-printing Now is staged over three days in the autumn. A conference including presentations, networking and demonstrations it is to be hosted by the Fespa UK Association and Sakurai Graphic Systems Limited.

Designed to spotlight and share the very latest quality and profit-enhancing developments in the world of screen-print, the event will be held from 30 September to 2 October in London. It will focus on industrial, graphic and textile screen-printing, with industry leaders delivering key note presentations within a packed programme each day.

Screen-printing Now focuses on industrial, graphic and textile sectors

Screen-printing Now is destined to help fuel the resurgence of interest in screen-printing, and will be the only dedicated screen-printing conference to be held in the UK during 2014.

LIVE DEMONSTRATIONS

In addition to hearing from the industry's opinion-formers on their specialist subjects, delegates will also have the opportunity to see live printing demonstrations, meet industry suppliers and engage in valuable networking sessions.

Speakers will be from NJ Screen Prints, DS Smith Multigraphics, Marabu UK, Welsh Centre for Printing and Coating, Sakurai Japan, Natgraph, MacDermid Autotype, G Bopp and Co, Colenso Screen Services and CST GmbH, and others.

The organisers have negotiated a special overnight deal which includes hotel, breakfast and park-and-ride to the venue for just £69.00.

President of Fespa UK Association, Martyn Hicks, comments: "We are constantly being told by our members and others in the industry that screen-printing is far from a dying process, and offers unique solutions. It is actually becoming increasingly important in certain sectors. So, Screen-printing Now is not only a celebration of screen-printing but also an opportunity for a wide range of delegates to discover how the process is accelerating its development to serve future technologies.

INDUSTRIAL, GRAPHIC AND TEXTILE

"With each day dedicated to one of the three main sectors – industrial, graphic, and textile – we are confident the event will provide invaluable insights and information for anyone involved in screen-printing.

"When we were putting this conference together it was clear that there is far greater synergy between the sectors than was first apparent. Textile and industrial are growing rapidly with graphics finding its level. Who would have thought that cylinder presses would make, and are making, a strong comeback?

"Textile is the most exciting area, with outwork previously sub contracted to Asia returning to UK printers and the UK's innovative designers and printers are generating new opportunities for retail," Hicks continues. "Environmentally responsible inks and computer-to-screen linked to multi-station fully automatic machines are invigorating this UK industry.

"The industrial sector's continued development of items that are screen-printed is bewildering and very exciting, especially in the medical sector," Hicks concludes, stressing that it's nonsense to suggest that screen-printing is dying. "My area is graphics but I can see many opportunities for sideways investment. At Screen-printing Now we want to examine the opportunities for continued success." ■

Further information:
web: www.fespauk.com

GOA TO HOST EXHIBITION

Screen Print India 2014 set to attract greater numbers

Screen Print India 2014 exhibition, the path breaking, trend setting event setting benchmarks higher than anyone else has before, will be held at Goa, a unique destination that promises the irresistible combination of business and leisure. Taking place from 18 to 21 September, Screen Print India has always been among the world's leading and Asia's finest exhibitions, attracting delegations from many countries. The strategic innovation of holding the event at Goa has made it a 'must attend' event for exhibitors and visitors from across the globe. Already, the top guns of the industry world-wide have marked the location on their calendars for four full days of fun, frolic, feasting and firming up business ties with old friends while creating new ones.

Devang N Sheth, director at Aditya Expositions, the event organisers, states: "Screen Print India is the country's largest exhibition focused on the screen-printing industry and its applications. SPI 2014 will provide a platform for upgrading the industry standards and achieving this growth through value addition strategies. This edition is not only being held at a world class destination for doing business, but a truly international leisure destination as well. Goa provides the perfect platform for networking and interaction among the screen-printing community, while also providing recreation and rejuvenation."

FOCUSED FOOTFALLS

The event has always attracted focused footfalls that are genuinely interested in exploring business opportunities and new technologies. Like previous editions, this one also has the support of leading industry associations from across India, Asia and the globe. Screen Print India's sustained track record since 1994, boosts its strong credibility factor, and the prestigious nature of the event given its plush venue. Presented by a reputed event organiser in Aditya Exposition (P) of Mumbai, this provides exhibitors and visitors the much-needed confidence. The fact that a show, which has attracted visitors from across the globe, is finally making its debut in Goa is the proverbial cherry on top of the icing on the cake.

Goa's main beaches are its biggest attraction. Arambol, Mandrem, Morjim, Vagator, Anjuna, Baga, Calangute, Sinquerim, Miramar are major beaches in the north with Majorda, Betalbatim, Colva, Benaulim, Varca, Cavelossim and Palolem in the south. The wildlife sanctuaries are worth a visit too – Bondla and Mollem lie in the eastern forested hilly areas of the state. Goa is not only a great holiday escape but also as a holistic health and wellness getaway, a world class medical health and fitness destination, an adventure and eco-tourism hotspot and many more things.

The Screen Print India Show has evolved into a 'preferred' event that the entire screen-printing industry looks forward to. Focusing on screen, textile and digital printing materials and equipment, the show has been providing an ideal platform to connect with every segment of the industry and explore new business prospects. The Screen Print India shows have always highlighted the scope for growth and greater profits in the screen-printing industry and the Goa edition promises all this and more. ■

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MUNICH SET TO HOST BUMPER DIGITAL EVENT

Sell-out show will major on product launches and knowledge hubs

With only a short time until Fespa Digital 2014 opens its doors, organisers have stated that the exhibition floor space is sold out. Close to 450 participants are firmly committed to sharing their product innovations with visitors during the four days of the show which runs from 20 to 23 May at Messe Munich, Germany.

The exhibition space is more than one-fifth larger than Fespa's previous record-breaking digital show in Hamburg in 2011, underlining the event's role as a magnet for the leading international meeting place for wide format printing technology suppliers and buyers.

Based on advance information already received from exhibitors, printers will experience at least 50 brand new product launches at Fespa Digital, with many significant announcements still expected from the major vendors right up to the date of the show. More than 50 additional companies will be part of Fespa Digital 2014 compared with the last edition of the event in Germany in 2011, promising printers from all over the world the most comprehensive overview of wide format digital technology and materials ever presented.

Reflecting Fespa Digital's call to printers to 'dive deeper into digital', Ron Gilboa of Infotrends will deliver a tailored keynote presentation in the digital, fabric and signage hubs on the first day of the show, focusing on existing opportunities, and offering guidance to visitors on how to develop their business.

Print media business expert Ulrich Smets will present in German in all hubs, on a range of topics designed to optimise financial management, including cost calculations, cost advantages of digital v analogue processes, controlling solutions, business planning, credit and bank ratings.

Visit the Specialist Printing Worldwide and ESMA teams on stand A1-564

Busy aisles at a Fespa event

THE HUB CONCEPT

In the digital hub, visitors with an interest in optimising colour reproduction will benefit from four separate workshops from digital colour expert Marco Olivotto. There will be various sessions focused on industrial print, including Wolfgang Mildner of PolyIC, who will address the growth market for printed electronics, and Thomas Struckmeier, owner of Blasé GmbH, a leading German producer of print for industrial applications.

Digital hub delegates can also hear from the buyer's perspective, in a key session delivered by Deutsche Bahn AG's print procurement manager Carola Lammich speaking about the company's strategic approach to print suppliers, highlighting Deutsche Bahn's print requirements and how they are likely to develop, interaction with suppliers and the impact of EU public procurement law on print purchasing.

Visitors on Thursday 22 May can hear from Sanders Group, an expert in printed magnetic products, while Roland Hill of Contravision will also tackle the important topic of intellectual property for printers, advising printers on how to avoid falling foul of copyright legislation. Other sessions will focus on business growth opportunities for printers, including digitally printed interiors, web2print, personalisation, and promotional products. Practical advice on print-head maintenance will be delivered by Fespa technology partner Xaar.

Sessions confirmed in the Fabric Hub include Christopher Bernat of Vapor Apparel, talking about the opportunity to Grow with Sublimation Apparel and Accessories. A second session from Christopher will offer a 'Technology Reality Tour' of Sublimation vs Direct-to-Garment. Turning to home textiles, Thomas Poetz of Printed Interior Decoration will speak in English and German to advise printers on successfully entering the home textile market with inkjet technology.

Sign-makers looking for new opportunities can head to the Signage Hub to hear from Daniel Parisien of Broadsign, with his presentation entitled 'What your mother never told you about digital signage'. His colleague and content marketing specialist Stephanie Gutnik will focus in a separate session on 'How network operators can succeed at selling advertising'.

The Wrap Hub will see pro wrappers compete in the World Wrap Masters 2014, while every visitor will have the chance to try wrapping head-to-head to gain an appreciation of the challenges inherent in the craft. Each day will see a 'tips and tricks' session hosted by expert wrappers, where they share their experience and knowledge with visitors keen to improve their technique. There will also be a variety of items being wrapped – showcasing the versatility of wrapping beyond vehicles.■

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FESPA DIGITAL 2014 Munich

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20th - 23rd May 2014

SHAPING THE COMMUNITY FOR THE FUTURE

Specialist Printing Worldwide talks to Lascelle Barrow, President of Fespa

Lascelle Barrow, President of Fespa

Specialist Printing Worldwide: What do you see as the key trends which will shape the Fespa community in the next decade?
Lascelle Barrow: The speed of change in the way that we communicate and the way that we are communicated to has changed so radically that realistically we are living in a 'communication revolution'. That's not a slow evolution but an exposition of new ways for brands to engage with us wherever we are. This affects all of us in our personal and business lives, all day and every day. These communications channels are described as 'analogue' and 'digital' to differentiate them essentially as 'old' and 'new' technologies. Fespa as a community needs to understand that it bridges the 'old' and 'new'; that it has the opportunity by developing and educating to combine them as a powerful and integrated communications channel for brands.

SPW: Which technologies do you believe will be most influential in the sector going forward?
LB: Digital printing still has the opportunity to develop and change how graphics are produced and used. Obviously faster, better quality and more cost effective digital presses will allow the technology to grow, but a better understanding of how brands might use the potential it offers is the most growth opportunity. Brands understand more and more about us, what we do, how we think and what we think. Digital printing offers a perfect opportunity to selectively change communications to best suit the mood, mission and mindset we all have as we make purchasing decisions.

FESPA
profit for purpose

Fespa's message of profit for purpose

SPW: Has digital print reached maturity, or is there still scope for meaningful innovation?
LB: Digital printing is still an exciting and developing technology; it is by no means fully matured and is still capable of significant change and improvement. Over the standard 'better, faster and cheaper' mantra lies the opportunity to create much larger and impact-full graphics, embracing new materials which truly 'disrupt' the marketing landscape.

SPW: As a print business owner, what are your primary concerns for the future?
LB: My business is in point-of-sale print, so my concerns are for my customers – how they will be affected by the continuing drive toward online shopping and hence the number and types of outlet they will have in the future.

SPW: Also, will print continue to be the most cost effective means for them to communicate with their customers in-store.
LB: These concerns are mirrored in other areas of print, where the internet and use of electronic communications either directly affects the viability of our print customers themselves or the most cost effective means for them to communicate with their customers. Examples are direct mail, transactional print and annual reports.

SPW: And what do you see as the biggest opportunities?
LB: Offering marketers the opportunity to deliver 'new digital' communications using all technologies at our disposal to create a truly all-encompassing message through every channel.

SPW: What is the key thing the printing sector must do to establish its value in the future marketing mix?
LB: That print can be seen and understood without any device, gadget, screen or interaction. That you can see, feel, smell and treasure print as an object of desire. That, because it provides a unique opportunity to engage us everywhere and at any time, it complements more selective digital channels rather than competes with them.

SPW: How will the ongoing development of emerging markets impact the global Fespa community?
LB: These new markets will have new concerns and issues and we will want Fespa to be the forum at which these concerns and issues are expressed and addressed.

New markets will not develop just like the old, because technology has moved on since the older markets started to develop; so the emerging markets will get to jump several generations of development in print as they have in everything else. (An example is the leap to mobile phone bypassing the landline stage of development.)

If Fespa is to be relevant to them they will need representation in the structures of Fespa and in due course seats on the board.

SPW: How will FESPA as an organisation adapt to this?
LB: Fespa will need to adapt to recognise the growth in these new markets, to ensure that we receive proper representation from the players on the ground in our management structures, and that we address the concerns of those developing markets. This will mean new blood and new ideas which will keep our organisation fresh and vibrant.

SPW: What role will the trade association and umbrella federation play in the light of changing business practices?
LB: Fespa is an unusual umbrella trade association since through its exhibition side it generates the income to help support and develop the national trade associations, rather than be a drain on their resources.

I see Fespa continuing to maintain a strong commercial focus, and so long as it does, it will continue to support the associations and their members around the world

SPW: How will Fespa (organisation and events) remain relevant – and increase its value – in a digitally connected business environment?
LB: Despite the digital revolution I expect there to be a continuing place for exhibitions. Face-to-face contact and physical networking will always remain important, especially where big decisions are to be made.

What we may need to do, and will do, is take our exhibitions to new and developing markets to make sure that Fespa remains a global player in this industry.

SPW: What new services will Fespa need to offer to meet its members future needs?
LB: We will need to listen more and broaden our contacts with the membership (our customers) and respond to their wants and needs. I want new and exciting ideas to bubble up from the national associations and form a part of our future service to the members

SPW: What skills/strengths will make Fespa fit for the future?
LB: The key skills will be the ability to listen to our members and our markets and to adapt to what the future requires. Luckily, printers have been known for their adaptability over the centuries. ■

This article originally appeared as a blog at www.fespa.com

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FESPA RETURNS TO GERMANY FOR 2015 EVENT IN COLOGNE

In 2015 Fespa will return to Germany in 2015, staging its flagship screen-plus-digital-plus textile exhibition at the Cologne exhibition centre (Koelnmesse) from 18 to 22 May. The event will occupy a minimum of three of the exhibition centre's new pillar-less halls.

Launching the show to exhibitors this week, Fespa has ambitions to host more than 700 exhibiting suppliers from screen-, textile and digital printing in Cologne and expects the show to be the largest in Fespa history.

"The decision to host Fespa in Cologne next year, following this year's Fespa Digital 2014 event in Munich, reflects the significance of our visitor audience from northern and central Europe, and the DACH region in particular," explains Fespa CEO Neil Felton. "As Germany's fourth city, Cologne offers us an excellent contemporary exhibition venue in a city which is easily accessible by road, rail and air from many of Europe's key economic areas."

Koelnmesse stages approximately 75 international exhibitions and 2000 conferences with over a third of a million visitors. Cologne is served by Köln-Bonn and Düsseldorf airports, with direct routes to hundreds of world cities, putting the city within two hours' flying time of most European capitals. ICE train routes also bring visitors into the centre of Cologne from many other German and European cities in a few hours. ■

MEXICO CONNECTS WITH PRINT INNOVATION

Leading global manufacturers line up behind seventh edition

Organisers say that Fespa Mexico 2014 is gaining momentum, with 84% of the event allocated six months out from the show. The 2014 event will be the seventh edition of the regional show, taking place from 21 to 23 August at Centro Banamex, Mexico City.

Leading global manufacturers who have already reserved space include Agfa, Canon, Epson, HP, Fujifilm and Konica Minolta. Local distributors Celupal, DT Tec, Grupo Roma, MYM, Sagaro and Tubelite have also confirmed their largest participation ever at a Fespa Mexico event.


This year Fespa Mexico anticipates record numbers from Central American countries

Armando Quireza from Sagaró stated after the 2013 edition: "Fespa is the leading exhibition in the market with the largest audience and visitor profile, which is just what we want. Year on year we gain more and more sales leads."

This was supported by other exhibitors including Sebastian Saidman, DT Tec, who said: "Fespa is the biggest exhibition for graphic arts equipment in Mexico." Also commenting was Alberto Corral from HP: "For HP it is very important to participate in Fespa. It is a forum for us to do business."

CONNECTING WITH PRINT INNOVATION

The campaign theme for Fespa Mexico 2014 is 'Connecting with Print Innovation'. The event will showcase the latest industry news, product innovation and content-led features to help printers extend their business. Lorraine Harrow, Fespa Marketing Manager explains the campaign puzzle imagery: "The puzzle pieces signify how printers can keep adding pieces – print applications, solutions or new technologies – to their businesses to develop their own set of services and a niche in the market. At the centre of this is the Fespa Mexico event where print solution providers can source ideas and equipment, connecting with print innovation."

Michael Ryan, Group Exhibition Manager, comments: "Mexico is recognised as one of the leading emerging economies in the world. The continual development of Fespa Mexico reflects the optimism of this market. Exhibitors are enthusiastic about committing to the event; 84% of the entire exhibition space has already been allocated and we are targeting our largest number of exhibitors, which will make the 2014 event the most significant to date.

"In 2013, we saw more international manufacturers at the show, especially from the digital printing, textile printing and screen-printing markets, which was met with an increase in visitors from Central America. This year we are anticipating record numbers from Central American countries including Panama, Guatemala, El Salvador and Honduras."

Fespa will announce more details on its educational visitor features in April, the content of which will allow printers to explore the industry landscape and make Fespa Mexico 2014 an unmissable event for the Mexican print community.

Visitor registration for Fespa Mexico 2014 is open, and entry to the event will continue to be free. ■

Further information:
web: www.fespamexico.com

CHANGING THE BUSINESS LANDSCAPE

Michael Robertson explains the growing importance of automation

Michael Robertson

Each year a select group of CEOs and senior managers from leading USA and Canadian graphic imaging companies meet for an in-depth educational program and industry analysis. This group is known as SPIRE. SPIRE is an entity within SGIA and that has been meeting regularly for more than 25 years. The membership of SPIRE evolves and changes to best represent the business landscape.

SPIRE provides all participants with a great opportunity to learn about key issues and opportunities in the SGIA marketplace.

At this year's meeting, the effect of automation was one of the key points of discussion. We've all seen how the move from analogue to digital has brought automation to imaging. The leading graphics producers are producing more graphics with less labour than ever before. However, the discussion wasn't about automation during printing production – but instead, it was about the pre- and post-print steps where added automation can further streamline the overall process.

We heard about examples of 'dark' pre-press. This is an automated process in which high-quality images are being submitted via the Internet for print production, and the images aren't seen by anyone at the production facility until they are coming off the output device. These are pre-press systems where the customer – again, requiring a high-quality image – can expect to get the results they want without added image manipulation from an additional operator. Advances in post-production – cutting and package creation that are managed in-line with less employee intervention – were also discussed.

SPIRE also explored automation and efficiencies that should be applied to Management Information Systems (MIS). The challenges are great, due to the diversity of the products and services offered by graphic imagers. But maximising MIS capability will be important as automation of the production process changes the competition points among graphics producers. Advanced MIS capabilities also are expected to play an increasingly important role as graphic imagers expand customer support.

In today's marketplace, automation is helping the larger graphics producers serve more of the marketplace. With automated production, they can successfully take on jobs that once would have been too small. And with automation, they are able to improve their competitive position through cost savings as well as state-of-the-art capability. Investing in the latest technology can be expensive, but it's required to be at the top of the production curve.

Staying on the leading edge of the technology curve is a real challenge for mid-size and small graphic producers. Many mid-size companies are changing their business model to serve niche markets and partner with other graphic producers. Automation throughout this process will most likely add to the differentiation between large, well-funded companies and smaller ones.

Automation will continue to change most, if not all, aspects of business – and redefine the way graphic imagers compete. ■

Michael E Robertson is President & CEO, Specialty Graphic Imaging Association, SGIA

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