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MESSAGE FROM BRYAN COLLINGS

As another year draws to a close, I would like to sincerely thank our global subscribers, advertisers, editorial contributors, industry associations and event organisers for their support in 2013. Their backing has helped us further establish *Specialist Printing Worldwide* as the leading international reference source for users of screen and wide format digital printing systems.

I can honestly say that our content this year has generated unprecedented levels of response. Many readers have told me that information from our articles has genuinely helped them by providing practical solutions to the challenges they face. Others have contacted me to dispute information we've published about products or an author's personal view about the future of certain processes.

With most world regions expecting at least a moderate pick-up in activity in 2014, this magazine's aim will be to continue to provide a neutral platform that presents printers throughout the industrial, graphic and textile sectors with balanced viewpoints and technical information to assist with their current activities and help position their businesses for a prosperous future.

We are very grateful for feedback received and certainly take it all on board as we strive to improve the magazine even further. Indeed, it is certainly very encouraging for us (and reassuring for our advertisers!) to receive such high levels of response from throughout the world.

As I write, we have just staged another successful GlassPrint conference with one of our sponsors, ESMA. If you missed it and are involved in any area of glass decoration, you can sign up at www.glassprint.org to be kept informed about future events. In addition to the technical content in this issue, we also feature an extended round-up of all the other recent industry events.

On behalf of the team, I wish you all a very happy, healthy and prosperous 2014. Don't forget, if you would like to receive all copies of *Specialist Printing Worldwide* next year, the ***ONLY*** way is to subscribe now at www.specialistprinting.com

Bryan Collings, Publishing Director, Specialist Printing Worldwide

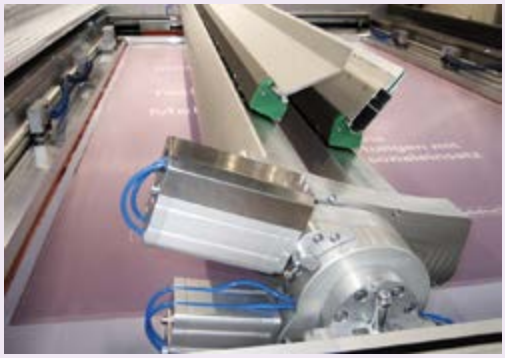
SCREEN-PRINTING OR DIGITAL? IT'S NOT 'EITHER/OR'; IT'S BOTH

Why analogue will continue to champion many production processes

In the relentless march forward of digital technology, and the proclamations that it will take over the world in all areas and not just in print, it is all too easy to overlook or, even, forget the influence of analogue processes and production methods. In the area for specialist as well as more general applications, screen-printing still reigns supreme with its versatility and highly forgiving manner in which it can be used with all manner of materials in a variety of forms and with little limitation as to the type of ink or fluid which is being used.

With all this talk of digital, and the insistence by some manufacturers that their aims seem to be to convert those using analogue processes across to new technologies, it is hardly surprising that in many walks of life screen-printing has become something of a forgotten methodology. This is a spectacularly sorry state of affairs and one that should be remedied in order to ensure that the screen process maintains its place as a key technique in many applications across all industry sectors.

A few years ago Fespa brought out its Sensations book which, in reality, was more of a bulky folder in that it contained a wealth of wonderful examples that demonstrated where screen-printing scored over other production processes.



Few of the criticisms levelled at ink-jet were ever a problem with screen-printing

The marvels of ink-jet and other digital technology have challenged successfully some of the examples displayed in these pages but, when it comes to speciality inks and textures, there is no alternative to the screen process. And nor is there likely to be for the foreseeable future in many of the sectors where consistent production is necessary or where a specific type of finish or effect is required.

SCREEN-PRINTING MEMORIES

This refrain that digital can take over the world sits tidily now that we occupy a world which is governed by smaller and smaller chips and a kind of sophistication our forbears would never have comprehended. We no longer have proponents of screen-printing among the populace; mention it to most people and they're likely to remember Andy Warhol's colourful rendition of Marilyn Munroe whenever the process is mentioned, rather than any of the notable individuals who have been responsible for fine-tuning a basic methodology and honing it for use in commercial and industrial environments.

It is, perhaps, true that discussing or describing the screen process is less likely to generate the same aura of excitement as waxing lyrical about the latest in technological prowess. Talking of the incumbent equipment is not as topical as computerised wizardry, and thread counts tend not to encourage the same levels of rapt enthusiasm as print-head capabilities, nozzles and greyscale versus binary droplets. But it is fair to say that, everywhere you turn these days, there is information pouring forth about the latest ink-jet printers and their capabilities. Conversely, away from the pages of Specialist Printing Worldwide, there is precious little information to be gleaned about the benefits of the screen process unless you happen to know where to look.

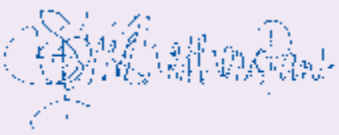
One of my many mantras has always been that end users aren't very bothered about the way their jobs have been produced so long as they are fit for purpose. Applications can be output using analogue or digital techniques, or by children with wax crayons, as long as the end result does what it says on the tin, was generated on time and priced accurately. Buyers of print rarely comment about output quality and functionality unless both are spectacularly bad, were delivered late or cost far more than the original quote.

THE RELIABILITY OF THE SCREEN PROCESS

In terms of digital print, the problems that tended to become idiosyncratic within the process have largely been overcome. We no longer accept that banding, poor adhesion, lack of durability, poor colour matching and other unwanted artefacts go with the territory. Curiously, few of the criticisms levelled at ink-jet production were ever a problem encountered with screen-printing and its reliability has always been taken for granted.

A colleague likened screen-printing to cooking on an Aga whereas digital print could be compared to preparing sumptuous and tasty offerings using the latest microwave or heat induction technology. It is nothing to do with Luddite tendencies that the older tried and tested methods are often preferable when seeking the best result, and arguments for advanced culinary options fall a little flat when the end product is considered.

So, when considering the screen process versus digital printing it is wise to appreciate that this is not a case for 'either/or' but one where both techniques apply in today's production environments, and that newer processes will not supersede those which have been established for generations. Where screen-printing might be usurped by ink-jet in some environments, it is a given that new applications will surface that lend themselves perfectly to analogue methodology, proving the importance and relevance of this process in a world that is continually driven by technology.



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

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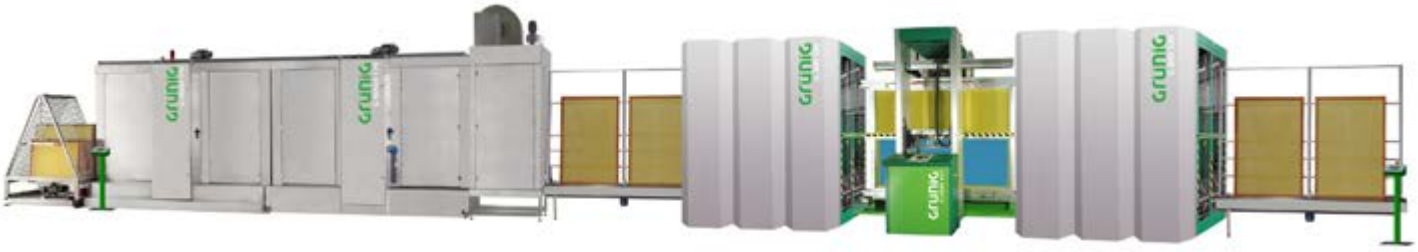

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Hollanders adds 3.2m double-sided textile printing with the ColorBooster DS-320

Double-sided textile printing with the Hollanders ColorBooster DS-320

Based on its successful established digital textile printing technology Hollanders has announced world-wide availability of its innovative double-sided system that caters for demand from companies that need to be able to produce duplexed applications in a single pass. Designated the ColorBooster DS-320, this machine is the first of its kind that prints simultaneously onto both sides of the media with either the same or a different image, making it ideal for the production of flags, banners and front- and back-lit displays.

The ColorBooster DS-320 uses high energy disperse inks for excellent gamut and vibrant results, and is ideal for printing direct to spun polyesters, flags and banner materials. Constructed to the extremely high standards which have become the signature of all Hollanders equipment, this double-sided system incorporates two print engines and an integrated fixation unit, and is designed for industrial-level production in 24/7 working environments where unattended operation is desired.

Offering consistently high quality results with excellent UV resistance, in duplex mode throughput speeds of up to 72 square m/hour can be achieved. The ColorBooster DS-320 also includes on-board climate control so that operation is not affected by the ambient environment or fluctuating external temperatures, and it has full remote support.

"The textile printing market has become ever more demanding and we have been able to address higher productivity and greater versatility with the new ColorBooster DS-320," states Roland Biemans, marketing and communications manager at Hollanders Printing Systems, confirming that this latest machine is the result of continued research to determine the capabilities and requirements of machines needed by specialist production companies. "Double-sided applications have been time consuming and labour intensive until now, but the arrival of this new machine means that anyone needing to print direct to both sides of the media can now achieve this as an automated process. This opens new doors to flag and banner specialists, and simplifies the generation of front- and back-lit posters and displays."

The ColorBooster DS-320 is the newest addition to the growing portfolio of digital textile printers and finishing solutions manufactured by Hollanders. The flagship 3.2m ColorBooster XL is also joined by the 2.5m entry-level ColorBooster 250 which will ship at the start of next year. ■

New scalable technology builds on Epson quality

New from Epson is PrecisionCore which builds on its longstanding reputation for output quality, at the speeds required for industrial and commercial printing. The technology will also be extended into the company's office printing range.

At a press conference at Labelexpo Europe, a premier label industry exhibition, global president, Minoru Usui explained how Epson combined years of technical expertise with recent breakthroughs in piezo material and high-precision MEMS manufacturing to create an innovative new print chip. The new PrecisionCore chip delivers commercial-grade performance in a compact, modular form, and enables Epson to scale the technology from single-pass industrial presses to work-group and desk-top printers.

PrecisionCore technology extends Epson's high-performance thin-film piezo (TFP) print technology, currently used in its wide-format printers, to deliver customers flexible industrial and business printing solutions with superior colour, print quality, and output durability on the widest range of media for everything from business documents, photography and signage, to commercial labels, packaging, and textiles.

"PrecisionCore represents a leap forward in printing performance," says Usui. "We continue to deliver outstanding quality thanks to superior dot control, and have introduced an original new system to ensure reliability. At the same time, scalability allows us to fully leverage our historical strengths of ink flexibility and print-head durability." ■

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Durst's latest Rho 1012 wide-format printer

Durst's Rho 1012 with Variodrop makes its début

The latest Durst Rho 1012 had its first showing at SGIA Expo, and is claimed to be the most productive 12 picolitre ink-jet printer in its class with a resolution of 1,000 dpi at speeds up to 490 square m/hour. With the addition of Durst's own Variodrop technology, enhancements to the image quality means that it is capable of excellent results at even faster printing modes.

Since its introduction, Durst says the Rho 1012 has set the quality standard for high-end industrial productivity and, with the inclusion of Variodrop technology, solid areas are even smoother. In addition, Variodrop overcomes some of the errors which can occur with greyscale printing alone because it relies very strongly on accuracy of drop placement and this can be affected by the uniformity of velocity of drops. Any variations of the print-heads' working conditions could lead to a mismatch of different greyscale level drop velocities leading to drop placement inaccuracy.

The Variodrop on the Rho 1012 changes the drop size from 12 to 20 picolitres and, even at the larger drop size, solid colours are smoother and have an improved colour gamut. Variodrop is an adjustable binary mode which uses multi-pulsing for drop size modulation. It combines two voltage pulses in such a way that the second pulse pumps precise dosage amounts of ink into the droplet before it detaches from the nozzle plate, without forming any satellites. Compared to the often uneven droplets formed from a not well tuned greyscale waveform, the double pulse drop shape is perfectly uniform and its placement is always evenly spaced with Variodrop.

Like other Durst inkjet printers, the Rho 1012 is upgradable in the field. This means that the new Variodrop technology can be added to existing customers' printers.

The Rho 1012 has a host of features such as left and right registration which enables parallel printing of boards side by side and mechanical two point pin registration for perfect front and reverse side printing. Printing options include fast media change from rigid to roll and options for roll-to-sheet or roll-to-roll printing. Ink options include light colours and Process Colour Addition (PCA). ■

Sakurai reports strong attendance and multiple press orders at open house

Sakurai USA recently hosted one of its most successful open house events to date, which attracted representatives from more than 60 companies, as well as Sakurai dealers, agents and industry suppliers to its Corporate Headquarters in Schaumburg, Illinois.

"We were very pleased at the level of interest and enthusiasm across our entire product line of offset and screen press systems and ancillary equipment," says David Rose, General Manager of Sakurai USA, Inc. "Customers were in a buying mode and multiple firm orders were accepted for both offset and cylinder screen presses during the two-day run of our open house, which was remarkable in today's still challenging economy."

Highlighting the Sakurai open house were live demonstrations of two sheet-fed offset presses, including a Sakurai 6-color 675SDC with coater, and a four-color 80SD Series, with both presses operating at 15,000 impressions/hour. In addition, Sakurai conducted live demonstrations of two cylinder screen presses running special effects printing and spot coating on a Maestro 102AII and printed electronics on a MS-80SD with its industry first optical registration system.

"An added benefit of a successful Open House was that we solidified relationships with our customers as well as with the Sakurai's dealers in attendance," Rose adds. "In addition, we have expanded our authorised dealer network to now offer coverage and service in all 50 states."

Also participating in the open house to lend his support and welcome guests was Ryuta Sakurai, President of Sakurai USA, Inc and Sakurai Graphic Systems Japan. ■

21st century technology enables historic reproduction at Greystone Mansion

Sawgrass and L'Esperance Design, a West Hollywood based interior design firm, have announced their collaboration in a custom wall covering project in the Grand Entry at the Greystone Mansion during November as part of the Design House International showcase. L'Esperance Design accurately recreated the wall covering found in the historic 18th century Italian estate Tenuta Berroni in Tenuta, Italy, then partnered with Sawgrass to digitally print the design using Sawgrass M-XTR pigment inks and speciality finished fabrics.

The Grand Entry at Greystone Mansion includes more than 80 square m of wall space, with 'X' foot ceilings. In developing the concept, designers Paul L'Esperance and Daelen Cory sought the technological expertise of Sawgrass to bring the entire project to fruition. "Accurate colour and superb quality and detail were critical to achieve the required three-dimensional effect and remain true to the original wall covering found in the Berroni estate," says Cory. "Sawgrass was instrumental in bringing this historical reproduction halfway around the world, and achieving something that truly transforms interior design as we know it."

"Designers are starting to find new opportunities for interior design utilising digital textile printing technology," states John Ingraham, director of marketing at Sawgrass. "L'Esperance Design stands at the forefront of innovation by applying digital technologies to achieve their vision for the Greystone Mansion project. Digital textile printing techniques for the wall coverings result in exceptional quality print output while saving both time and money over traditional printing methods. Designers can quickly create a unique, high quality look for commercial and private interiors." ■

Sawgrass expertise in use on Greystone Mansion's wall coverings

VFP's Uvicard is getting ahead in the market for industrial inks

Uvicard, an ink dried by UV, has been developed by VFP for plastic cards, particularly bank cards. This is an innovation which has changed the game in the market for screen-printing inks, where solvent inks have been mostly used until now.

Developed by VFP's R&D service, the Uvicard ink has a greatly reduced environmental impact. It has high added technical value, which meets the requirements of industrialists in terms of quality, and can be used on all types of PVC, from the thickest to the very thinnest (down to 150 microns), whether it is white, transparent or coloured. Numerous colours are available plus white, pearl, metallic and basic shades.

"Its composition was specially designed to give it excellent adhesion on PVC and optimal adhesion on the overlay," says Lucie Tibiletti, Chemical Engineer at VFP. "The overlay peel tests, carried out under the ISO 10373 standard, showed resistance going up to 12 Newtons. It also has remarkable stability of twelve months, including for metallic colours."

VFP says its ink also has numerous practical advantages. Ready to use, it does not require any additives. The media can be stacked immediately after printing because drying is immediate. With its almost-nil rate of evaporation, the ink does not dry in the screen; pauses during production are therefore possible, without it being necessary to clean the screen on resumption. The composition of the ink remains constant during the process, ensuring the fidelity of the colours. Lastly, Uvicard accepts the majority of offset inks for overprinting.

Introduced to the market in 2010, Uvicard is the fruit of VFP's strategic investment in R&D. "We are also counting on Uvicard to establish our development abroad," states Arnaud Maquinghen, VFP's Chief Executive Officer. "Currently, more than 35% of our revenue comes from exports and we would like this figure to reach 50% by 2015." ■

New Cambridge office for Phoseon

Phoseon Technology's Cambridge premises

Phoseon Technology has expanded its world-wide sales efforts by opening a new office in Cambridge, UK. With its UV LED curing systems installed in countries around the world, the continued growth in Western Europe further improves the company's global market share.

"Phoseon's European presence has been around for more than a decade, and the company is well positioned to support our customers and expand our presence in the world-wide printing, coating and adhesive markets," states Rob Karsten, Director of Sales and Marketing in EMEA. "This new office will support the growing markets and better serve new and existing customers." Karsten has managed sales and marketing in Europe since Phoseon was founded and will continue to head the efforts from the new office.

While bringing the three-tiered benefits of UV LED curing (advanced capabilities, operating economics, and environmental advantages), Phoseon's products add additional capability with superior performance, integrated control, and outstanding reliability for customer's tough curing environments. ■

New mobile pallet rack from Vastex International

Mark Vasilantone, president of Vastex International, has announced the new VP-Cruiser Mobile Pallet Rack for organising, storing and relocating screen-printing pallets. Constructed from heavy-gauge carbon steel with a durable industrial finish, it has a wide base with four castors, allowing pallets to be rolled to screen-printing presses for rapid removal and insertion of pallets.

"The new rack eliminates walking to and from storage areas each time a pallet is removed and inserted, allows ergonomic cleaning of pallets off press, and consolidates pallets in one location with minimal usage of shop space," explains Vasilantone.

The unit can be outfitted with up to twelve Model 11-02-005-0 holders for pallets of V-2000HD series screen-printing presses, or up to 18 Model 11-02-006-0 holders for pallets of V-1000 series screen-printing presses, as well as pallets of other presses. VP-Cruiser racks of either configuration can be assembled in less than one hour, and come with a one-year warranty.

The company offers more than 20 types of pallets in a range of sizes for screen printing on T-shirts, hoodies, long sleeves, pant legs, caps/brims, umbrellas, koozies, signage and hard goods.

The VP-Cruiser Mobile Pallet Rack with twelve model 11-02-005-0 holders

Vastex also manufactures heavy-duty manual screen-printing presses for starting shops to high-volume commercial printers, screen registration systems, infrared conveyor dryers, flash cure units, screen exposing units, screen drying cabinets, washout booths and complete screen-printing shop systems, and offers a comprehensive range of training classes for entry level, intermediate and advanced screen-printers. ■

Marabu North America's ClearShield Wall Armor offers Type II certification

When applied to digitally printed wall coverings, Marabu North America's ClearShield Wall Armor offers a Type II certified solution for commercial applications. In addition to being compatible with latex, eco-solvent and UV-curable inks, it provides all of the protection necessary for this certification including stain resistance, scratch resistance, adhesion and fire retardancy.

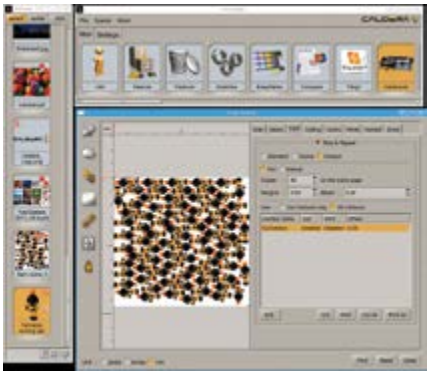
"We strive to consistently introduce inventive products that create a better solution for our customers and open up new markets," says Marabu North America General Manager, Bob Keller. "ClearShield Wall Armor allows for a whole array of digitally printed wall coverings to be used in commercial spaces that previously have not been possible." ■

Seven new accessories for Brother's GT-3 printers

Brother used SGIA Expo to launch seven new accessories and enhancements for its popular GT-3 Series of digital garment printers. These new options include DTG Pre-Treat Paper by Neenah Paper, exclusively for Brother GT-3 printers, inventory solution software by nVentory Studio, CADLink's Digital Factory Apparel Brother Edition software, business tools software from Inksoft, print ready artwork by Clipartboom.com, CPSIA compliance certification, and web-based printing solutions.

"Since the introduction of the GT-3 Series, we've continued to make updates that delight our customers and provide solutions to help make them more competitive," says Peter Holland, Senior Director and General Manager for the Industrial Products Division at Brother International Corporation. "Now we are rolling out seven new reasons for our customers and prospects to become GT-3 users with these new and enhanced accessories making the enhanced GT-3 Series an excellent option for startups or for those looking to expand to the convenience of digital printing. Brother brings superior product support and training, intuitive, durable machine design, capability for unique applications and day-to-day reliable operation. Coupled with the generous promotions we are currently running, this is the time for anyone who might be considering direct to garment technology to make the GT-3 Series the natural choice for their business." ■

Brother has launched new accessories for its GT-3 digital garment printers



True Shape Nesting is new to Caldera 9.20

Caldera puts colour and error prevention at forefront of latest RIP release

Caldera has announced the commercial availability of version 9.20 of its RIP software, with updates including advanced pre-flighting, colour management enhancements, True Shape Nesting and a new Image Bar interface enabling quick access to documents.

Colour management is at the forefront of the new release, with v9.20 including EasyMedia as standard for the first time and giving users cloud access to the Caldera ICC profile library. The new pre-flight option checks for compatibility against a number of standards and rules, including PDF/X, PDF/A, PDF/VT, image resolution, fonts and ICC profiles, and returns a simple red or green light report. The pre-flight process can be initiated either manually, and applied to one file, or automatically to all files in a specified Hotfolder.

For VisualRIP+ and GrandRIP+ users, the Preflight tool will produce a web report for the operator, as well as an enriched PDF file highlighting any issues. Preflight also integrates with Flow+, sending reports to the MIS manager, and with Caldera WebShop to show a simple file status to the end user.

In v9.20, Caldera also features a True Shape Nesting tool, which will help print shop managers maximise their resources with more efficient placement of images on media. As requested by Caldera's users, True Shape Nesting uses the actual contours of an image, ignoring any blank space or bounding boxes, to nest images together in a way that minimises media waste when cut. In addition, the tool will help users save ink by eliminating any need to print beyond the cut contours.

Caldera has also updated its Process Standard Verifier to allow businesses to calibrate and verify their prints according to the G7 standard. Adding to the existing standards verification tools for Fogra Process Standard Digital, the latest enhancement to this tool will help Caldera users prepare for G7 certification.

In addition, a new Image Bar feature will act as a document tray, giving users easy access and instant visuals as well as keyword filtering, to save time when searching for specific files. ■

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Employing more than 180 people, Kammann Maschinenbau is headquartered at Bad Oeynhausen.

German screen printing machinery specialist acquired

Koenig & Bauer has acquired 85% of Kammann Maschinenbau GmbH, with Kammann's two Managing Directors Matthias Graf and Dr Christian Maas continuing to hold the remaining 15% stake. Bad Oeynhausen, Germany-based Kammann offers equipment for the decoration of hollow containers made from glass, plastic and metal. Along with screen-printing, the company's precise and flexible transport systems can be equipped with hot stamping, digital printing and decorating processes. Kammann was founded in 1955 and has 175 employees. In 2012, annual sales of over €30 million were generated. ■

EXTRIS's participation at Turkish event endorses accreditation

Italian manufacturer of screen-printing mesh EXTRIS, which now has ISO9001 certification, has completed participation in the first edition of Fespa Eurasia held in October. The company was the only European mesh manufacturer to be present at the show in Istanbul, and presented its range of screen-printing fabrics to a large number of professional visitors.

Visitors admired the range of Suprex fabrics from EXTRIS with representation not only from Turkey but from 15 countries including North Africa, the Middle East and the Far East. European visitors also showed interest, particularly those from Eastern European countries that traditionally follow trends in Turkey.

Based near Como in the heart of the Italian textile area, EXTRIS produces special fabrics for screen-printing, for precision filtration and for industrial applications where high accuracy textile micronets are needed. The quality system at the company's plant is certified according to ISO9001: 2008; EXTRIS understand it is the first company in its sector in Italy to achieve this accreditation. ■

ColorGate upgrades its RIP software to version 8

Starting with version 8, the Adobe PDF Print Engine (APPE) will become a permanent feature of all ColorGate RIP software solutions. Advantages include predictable print results, automated PDF work-flow and optimised colour reproduction.

ColorGate RIP software solutions are based on a modular architecture which can be extended when needed. To create tailor-made RIP software ColorGate is including Output Management Sets (OMS) to make it fully scalable and to feature specific printer drivers, APPE and optional Ink Saver Module.

ColorGate says its customers have been using the Ink Saver Technology successfully for many years, reducing ink usage by up to 30% without any visible loss of quality, which means a reduction in the total printing costs. Ink savings are available for CMYK, light-colour half-tone printing systems as well as for multi-colour systems. Therefore, ColorGATE strongly recommends the standard equipment of an OMS with the Ink Saver Technology for an environmentally conscious, eco-friendly and cost effective production.

Additionally, Manufacturer Editions will be continued with version 8 and Special Editions will be updated and enhanced for markets such as packaging and industrial printing.

ColorGate is offering a special loyalty promotion to its existing customers, who will receive access to the Value Pack 1 at a reduced rate. This is a full-fledged software maintenance and support solution. Productionserver version 7 users can upgrade with a discount of up to 70% (compared to a regular upgrade purchase). Owners of version 6, 5 or 4 of Productionserver will receive an upgrade to version 7 until the roll-out of version 8. ■

ColorGate has upgraded its software to version 8

Ultraflex introduces Woodstock-themed products

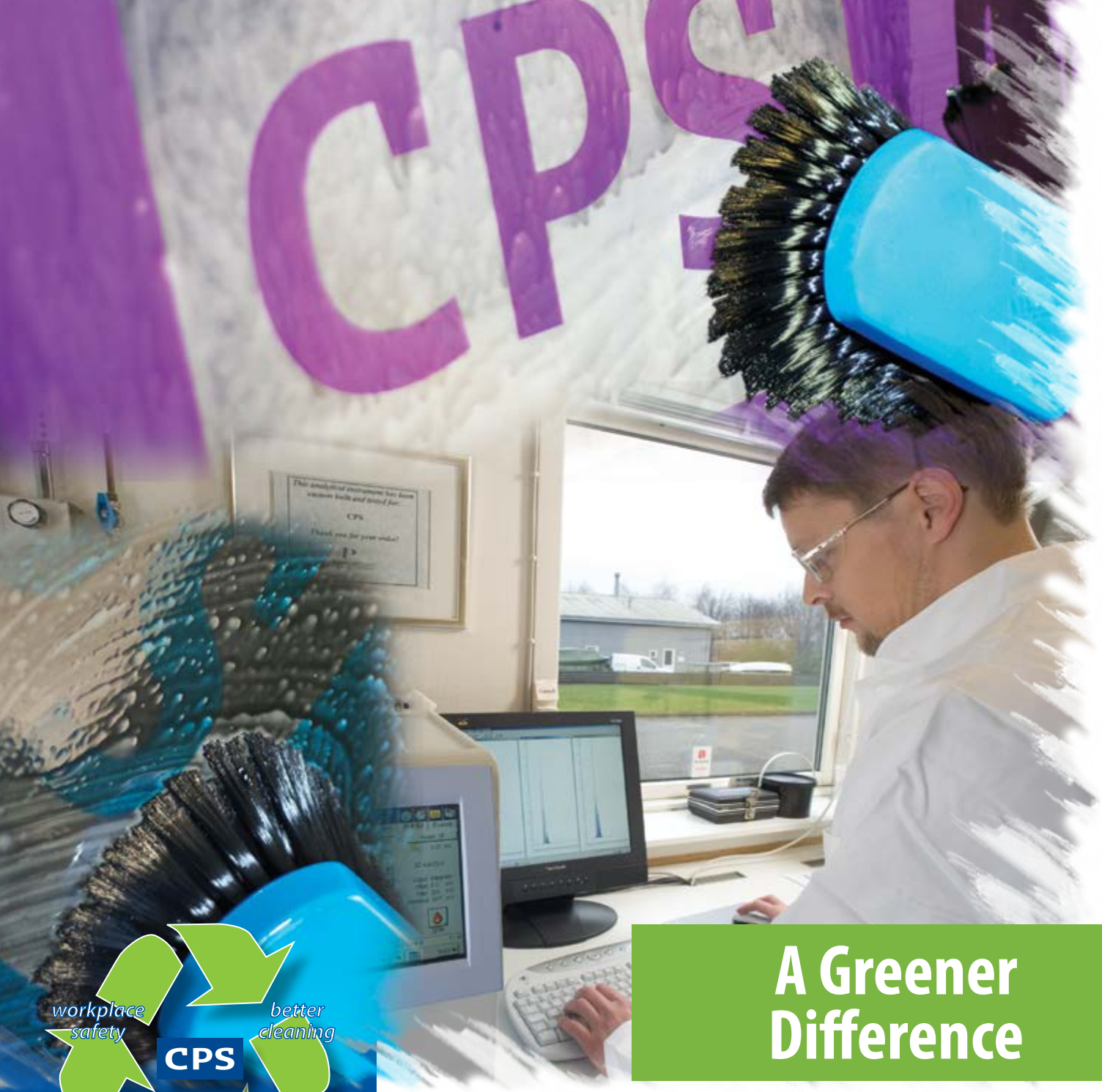
Ultraflex showcased new products in a Woodstock themed booth at SGIA Expo which included Ultima Supreme-R, a premium front-lit vinyl coated substrate designed for extreme outdoor applications. It offers both a smooth print surface and class-leading strength and durability making it one of the most versatile front-lit grand format medias on the market. It is REACH compliant, FR rated, and available up to 5m wide.

Strip Mesh Pro LTX is a latex compatible mesh with easy to remove liner and ideal for outdoor banners, building wraps, fence mesh, pole and boulevard banners, making it suitable for graphics in high wind areas. It is compatible with solvent, eco-solvent, latex and UV-curable inks, screen-printable and available up to 3.2m wide.

SuperSmooth PET GreyBack is a non-curling front-lit banner with a grey back and super-smooth print surface suitable for pop-up, roll-up, X displays, and an array of other close viewing, indoor applications. It is available in a matte finish up to 3.2m wide.

A canvas composed polyester cotton blend with an acrylic-gesso top coating, True Canvas Giclée 65/35 can be folded and stretched without cracking and provides a uniform low-glare finish. Designed to offer crisp detail and rich tonal range, it is designed for fine resolution art reproduction as well as art décor applications and is compatible with eco-solvent, latex, and UV-curable inks and available in both matte and gloss finishes in a range of sizes. ■

Ultraflex adds to its portfolio of materials



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Trotec opens new zero energy head-quarters in Marchtrenk

After a construction period of only ten months, the new Trotec head-quarters was inaugurated on 18 October in Marchtrenk. The board welcomed representatives from politics, religion and economy as well as the Trodat and Trotec staff for the opening of the zero energy building.

The guests congratulated Trotec on this important milestone in the company's history. Members of the management team, Michael Peduzzi, Peter Homann and Andreas Penz explained the success story of Trotec, the construction phase, and provided an extremely positive outlook to the future. Penz, CEO of Trotec, thanked the Trotec team for its outstanding contribution and underlined the clear commitment to manufacturing in Upper Austria.

Trotec innovates in laser engraving, cutting and marking and is constantly setting new standards. These were also set with the new head-quarters as the basic concept and the shape of the building were designed according to the teachings of Feng Shui. The focus of the project team was to provide an excellent working environment for the 100 employees in Marchtrenk and, as the building can be expanded, it is ready for future growth of Trotec.

The construction is divided into four buildings and has a total of 5,200 square m, with 50% allocated for offices, R & D and sales, 30% for production and 20% for warehousing and shipping

With no CO2 emissions, heating and cooling of the building core is provided by surface heating and cooling systems. This technology, in conjunction with optimum thermal insulation ensures a low heating and cooling demand and low temperature fluctuations so the building is energy self-sufficient. ■

Trotec's new zero energy head-quarters in Marchtrenk

Mimaki opens Turkish technical centre

Mimaki has opened the doors of its new technical centre in Istanbul, Turkey, which will act as a training and technical hub for the European, Middle Eastern and African regions. It will primarily serve the textile and apparel market, but will also provide support across the breadth of Mimaki's product line.

The centre was established to address explosive growth in the Turkish market as well as to facilitate continued expansion of Mimaki's reach in Turkey, the Middle East and Africa. It will provide training and technical support for customers, distributors and dealers in those regions. In addition, the facility houses a 550 square m showroom that displays the entire range of Mimaki solutions for the sign, graphics, industrial products and textile and apparel industries.

"Since ancient times, Turkey has been a key producer of cotton and wool," explains Mike Horsten, General Manager Marketing of Mimaki EMEA. "That heritage continues through today, with the vibrant Turkish textile and apparel industry comprising about one-third of Turkey's exports. This is generating significant demand for digital textile printing using solutions such as the Mimaki TS500-1800 high-speed transfer printer. The centre will also feature a new direct-to-textile printer powered by Mimaki's 500 series engine that utilises a belt feeding system."

Adding to the line-up on display at the centre, Mimaki will also be showcasing the high speed, high quality, JFX500-2131 UV-curable flat-bed printer.

"Istanbul has long been the bridge between Europe and Asia," adds Arjen Evertse, Manager of the Mimaki Technical Centre.

Mimaki's new technical centre in Istanbul, Turkey

"Placing the technical centre here provides us with a unique opportunity to strengthen the bridge between our technology and our customers from three different continents. It also offers an excellent opportunity to be closer to our network of dealers and distributors in this region, providing them with more personal support. We are very excited about making this wonderful resource available here in Istanbul." ■

Trelleborg launches high performance Solventless Roller Head Line

Developed to revolutionise the process of coating rubber compounds on various textile substrates, the Solventless Roller Head Line is the latest innovation from Trelleborg's printing blankets' operation, representing a sustainable solution for manufacturing its printing blankets.

The new Solventless Roller Head Line has been developed not only to deliver cutting-edge double coated rubber substrates, but also to provide the right rubber viscosity to do so, without the need for solvents.

Biagio Montano, HSE, Maintenance and Technical Manager for Europe at Trelleborg Coated Systems, comments: "At Trelleborg, we invest significant time, effort and resource into the development of new technologies to further improve the printing process in everything from print quality through to environmental impact.

"As such, we developed a solution that promises to revolutionise the rubber coating process on various substrates. Removing several stages of the production process, the new Solventless Roller Head Line promises to not only increase speed of production and improve product quality on delivery, but importantly, is also solvent-free and so provides a much more environmentally-friendly solution."

The new Solventless Roller Head Line is part of a wider programme to significantly reduce the environmental impact of operations at the headquarters of Trelleborg's Coated Systems business area in Lodi Vecchio, Italy. Other initiatives include the installation of new electrical power and thermal central units, a new resin pavement and a new low energy consumption lighting system.

Designed to considerably simplify the process of coating rubber compounds across a number of textile substrates, Trelleborg's innovative solventless Roller Head Line consists of a Roller Head which provides a 3m wide, up to 5mm thick rubber product.

In addition, the Roller Head Line also boasts a 3.5m three roll calender – the largest of its kind currently on the market. This forms a smooth sheet of rubber providing a more uniform thickness, which, under the right temperature and pressure, can double the rubber and substrate, completely eliminating the use of solvents.

The new process simplifies the production process considerably: decreasing the number of steps from 19 to just eleven, including removing the need to wind and unwind units for the final product at the end of the line. ■

Trelleborg's new solventless Roller Head Line

THE UNIQUE ADVANTAGES OF SCREEN-PRINTING

Dr Nadine Wilhelms explains how, with their versatile application possibilities, printed electronics can be manufactured using different printing processes

For some time now, there has been enormous market growth in printed electronics. Thus, according to IDTechEx, a research and consulting organisation, great potential for this technology is predicted in the coming years. The application areas are very diverse, for example, they range from printed energy sources such as batteries and solar cells, electrical components such as transistors, diodes and resistors through to displays, OLEDs, sensors and antennas.

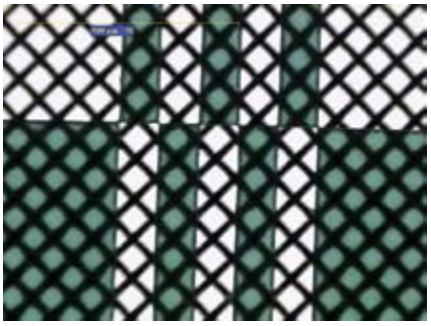
Printed electronics make high demands on the printing process. Thus, for example, high resolution and edge sharpness in combination with a uniform lay-down and virtually no blemishes are essential. The methods currently employed such as ink-jet, aerosol jet, flexographic and screen-printing meet these criteria in varying degrees. Both flat-bed and rotary screen-printing are used in the field of printed electronics. While screen-printing might not always reach the highest resolution of other technologies, such as photolithography or ink-jet, screen-printing offers significant advantages in terms of processing speed.

FINE LINE WIDTHS

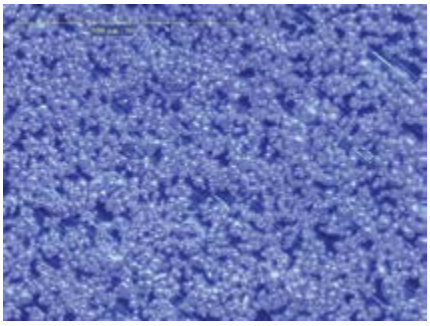
However, now it is possible to reach printable resolutions of 30µm – and indeed, even as low as 20µm, according to reports from Japan. On the one hand, this degree of fineness depends on the mesh size available and on the other, a high-resolution photoemulsion, such as Azocol Z 170. With this photoemulsion, line widths as fine as 20µm are consistently possible. By selecting the appropriate mesh size, it is also possible to vary the lay-down thickness. Greater lay-down thicknesses (depending on the mesh) than with other methods, can therefore be achieved with screen-printing.

Printable media such as conductive inks, pastes and adhesives must also meet a number of requirements. Good printability, with a curing process which should be both reliable and as fast as possible, should result in high conductivity. Furthermore, the print media consistency may be required to fulfil certain environmental influences such as temperature or humidity. In frequent use as electrically conductive filler materials are:

- metallic (nano) particles such as silver, copper and nickel
- metal-plated particles



Line widths as fine as 20µm are consistently possible with Azocol Z 170 photoemulsion



Microscopic picture of metal-plated particles

- carbon fibres
- conductive polymer materials

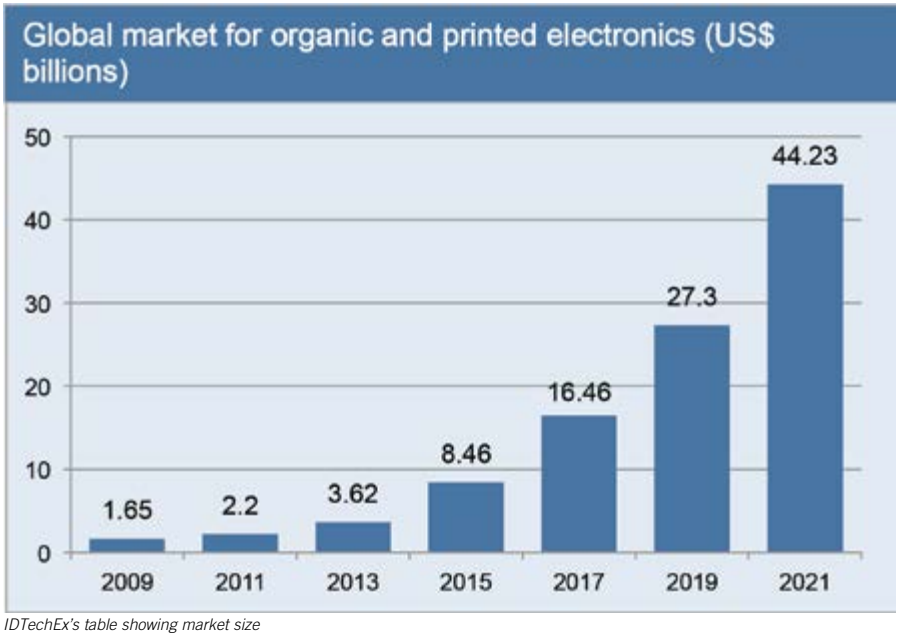
ADVANTAGE OF HIGHER VISCOSITY

Particle sizes in screen-printing are usually printed in the nano to micrometre range. When metallic, conductive particles are added to the print medium, this may also lead to increased viscosity. Since the particles have a relatively high density, it can easily cause them to settle down to the bottom. But these higher viscosities, which can be processed by screen-printing, thus become an advantage, since the settling down behaviour of the particles can be positively influenced. While settling down of fillers cannot be completely avoided, the conductive print media can be stirred well before use and are therefore easy to process in screen-printing.

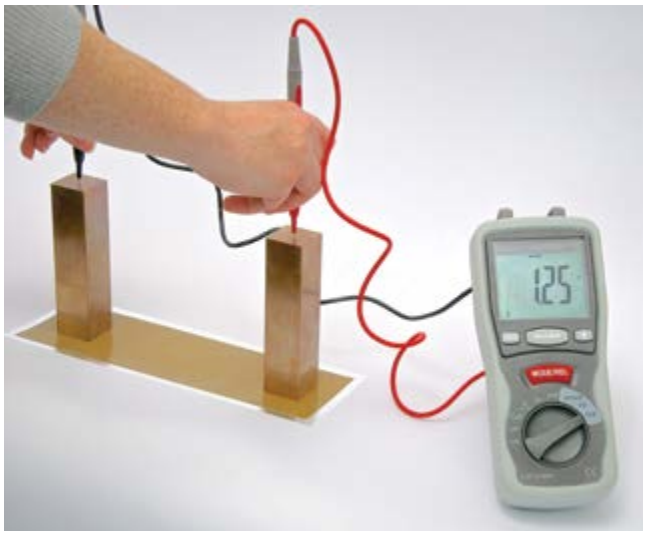
The development of electrographic adhesives (screen-printable, pressure-sensitive adhesives) is an example to illustrate the great potential of printed electronics. Kissel + Wolf has succeeded in developing Mecoprint Conduct 710 UV, a functional electrographic adhesive. This can be used, for example, in the manufacture of self-adhesive products for the automotive and electronics industries.

HIGH ELECTRICAL CONDUCTIVITY

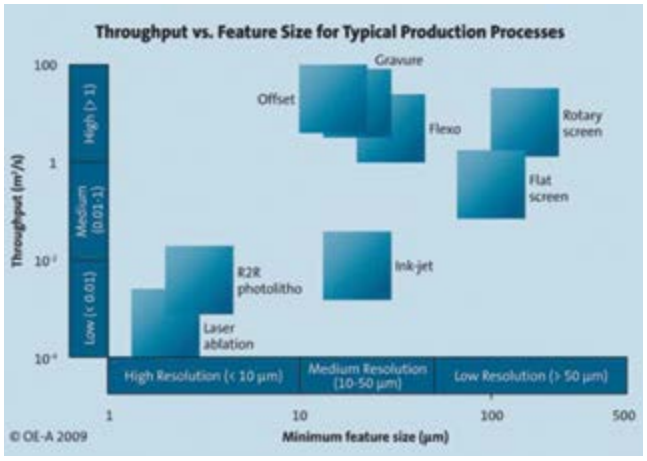
Mecoprint Conduct 710 UV is characterised primarily by very high electrical conductivity



IDTechEx's table showing market size



Measuring the resistance of a conductive adhesive



Screen-printing might not always reach the highest resolution but it offers significant advantages in terms of processing speed

combined with good adhesion to aluminium, for example. Furthermore, this one-component UV acrylate enables efficient solvent-free processing at low temperatures with very short curing times and low consumption. Such electrographic adhesives may be used, for example, as a viable alternative to electrically conductive adhesive tapes.

Complicated and bothersome process stages now in use, such as die-cutting, adhesive tape application and tape excess waste collection, can therefore be eliminated. With screen-printing, the electrographic adhesive is only printed, where it is actually needed. Potential applications of electrographic adhesives are, for example, electromagnetic shielding, membrane keyboards, optical displays, panel inserts and electrical appliances.

What does the future hold for screen-printing in the growing field of printed electronics? With its high efficiency and technical precision, combined with new electrographic media, screen-printing will help spearhead new applications and thus open up new markets. ■

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TURNING COLOUR DISAGREEMENTS INTO SALES OPPORTUNITIES

Mike Ruff discusses the importance of colour policies

Mike Ruff

If you print for clients that really care about raster image colour, there is no doubt that you have had them question the accuracy of your CMYK print results. How did that go? Did you damage the relationship? Or, worse, did you lose the client? As a consultant to graphic producers I have been asked many times to come in after the damage is done.

I believe it is a lot more fun to prevent this from happening in the first place. In this article I will document five principles of minimising the chances of print rejects and optimizing situations when a client rejects a print result due to colour.

PRINCIPLE 1: DOCUMENT YOUR COLOUR CONTROL POLICIES

One common thread of print production facilities that are known for world-class colour printing is they not only produce accurate colour, they have documentation that supports it. Management thinker Peter Drucker is often quoted as saying that: "You can't manage what you can't measure". You have no defence of your colour output results unless the target is defined, measured and tracked. With a clearly defined colour target that can be numerically verified, you can quantify progress and adjust your process to produce the desired outcome. Without clear objectives, you're stuck in a constant state of guessing and opinion.

Colour result acceptance is not just a signature by a manager that thinks the color is good in his or her opinion. 'Good' must be defined. 'How good' is defined by numeric tolerances. Set your tolerance standard realistically but tight enough to support the quality reputation you want to build.

Colour documentation begins with a standard policy for files before they enter the workflow. Colour management policies determine rules of how file colours are managed in documents that are incoming and what you expect of submitted files. If this is not defined and verified during the pre-flighting phase of your workflow, you will always have unexpected colour results and you will be dealing with client colour issues.

Colour policy can be customised to your equipment and work-flow as long as you communicate to the creators and submitter of the files. Colour policy may start before you receive files from clients. You should train your clients to build and save files correctly. Policy must be followed as you manage files internally. Colour policy will deal with what embedded profiles should be and how they are handled. How fonts are to be handled. What creation latitude is allowed like TAC, point size, reverse type, colour builds and what file format is accepted. How transparencies are handled and how print aims are verified. What information is needed and if a visual proof is required and if you require a standard colour wedge for checking before going to press. (SeeFigure 1: ISO 12647-7 proofing colour wedge.) If these policies are violated, it puts you at risk of not being able to verify your aim points. Colour policy is critical in having confidence in the file that goes into the printing work-flow.

PRINCIPLE 2: BE CONFIDENT IN YOUR AIM POINTS

Surprisingly, our consultants report regularly that print production personnel are very lax in the selection of a data set as their target. There can be more than one data set in a screen-print or wide-format digital work-flow because of the array of substrates we print on. The CGATS Committee introduced seven data sets this year that are now the ANSI (American Print Standards Institute) CGATS 21 Part 1 and 2. The data sets are also in the new proposed ISO/DIS15339 that is being discussed and voted on in the ISO TC/130 meetings. (See Figure 2)

Figure 2 is a colour gamut plot of the seven data sets in CGATS 21-2. The most familiar data sets are SWOP #5 and sheet-fed offset is #6. You may be wondering: "What is #7?" Seven was created for large gamut devices that can go beyond sheet-fed offset. What we found was some digital devices and screen-printing inks can hit #7. Also some can go beyond #7. There is an expanded 'super gamut' #8 in beta now. These are measureable data sets you can check your output against.

THE POWER OF G7 IN BECOMING CONFIDENT IN YOUR AIM POINTS

You probably will hear some colour management professionals claim that you can't just keep expanding the colour gamut of printing because your memory colours, like flesh-tones in four-color process printing, will over-saturate and look unnatural. But these CRPC data sets contain the G7 methodology maintaining a neutral tonal curve adjusted to the ink values and substrate colour. We can be confident that the grey balance target neutral print density curve in the data set will produce the most accurate visual reproduction possible based on substrate and colour set. Although the gamuts are different, they have a common visual appearance. It is because all of the new data sets of CGATS 21 Part 2 use the G7 neutral grey methodology to balance the greys no matter what the substrate or solid colours are. The NPDC curve can be plotted and adjusted to the substrate documenting the exact aim points with pass fail tolerances you can use to document indisputable evidence of your print accuracy.

PRINCIPLE 3: PROOFING

Proofing today is hard proofs or accurate soft proofing. Setting up good proofing in your print facility will save you a lot more than it will cost you. With the improvement of colour management software and the good quality digital proofing printers today, inexpensive digital proofing can provide a proof of what a digital file looks like in a controlled print work-flow.

Accurate soft proofing starts with an

Continued over

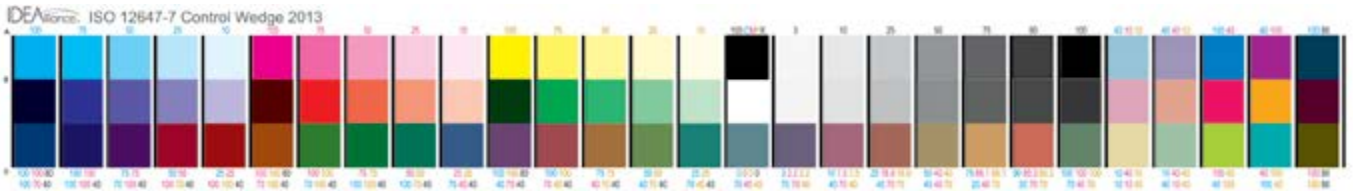

Figure 1: ISO 12647-7 proofing colour wedge

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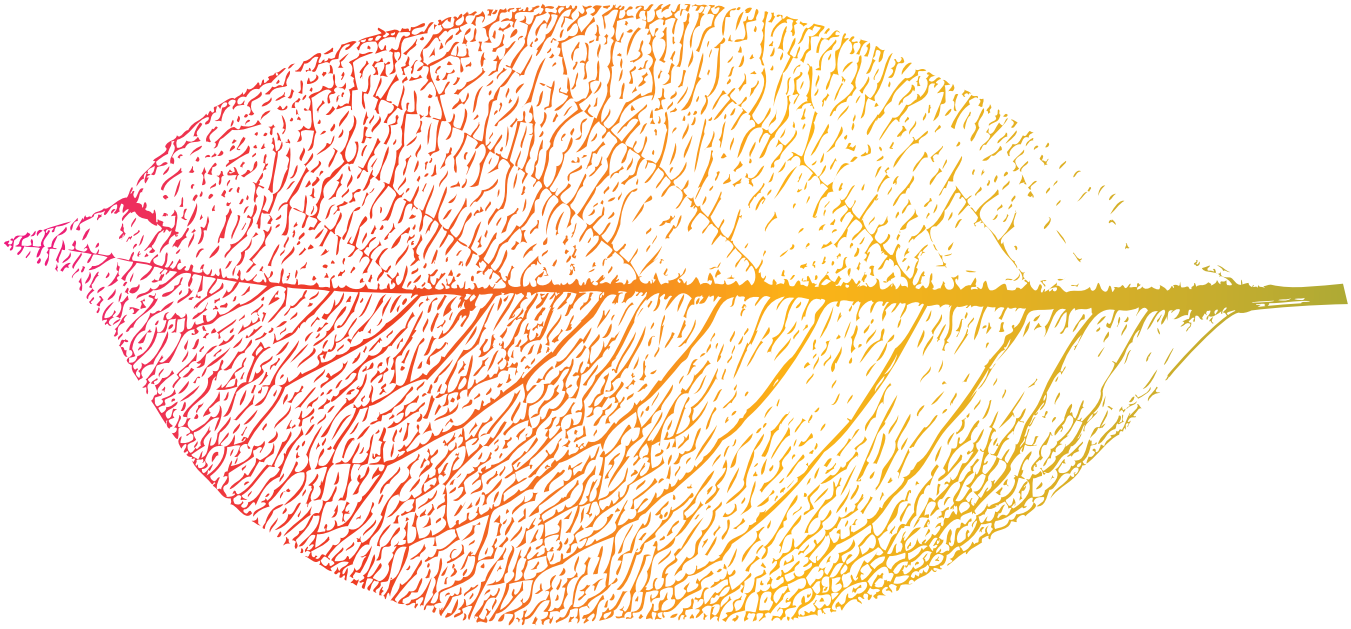

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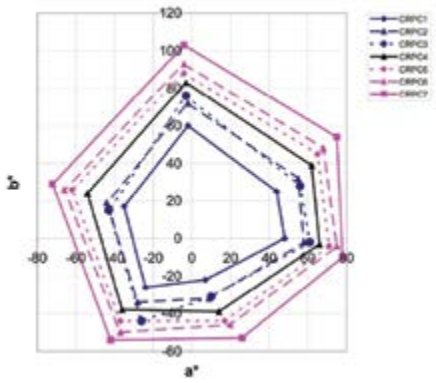


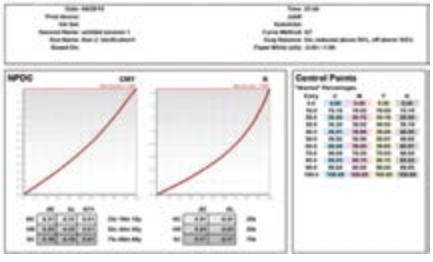
Figure 2: a colour gamut plot of the seven data sets in CGATS 21-2

Figure 3: different light sources affect viewing results

accurate monitor. The price was dramatically reduced this year by competition that was introduced at Print13 and SGIA 2013. BenQ introduced an accurate monitor and software for as little as $1,000. You will need to be trained in assigning correct monitor profiles based on what your target dataset and incoming files are, but this is a good first step. Be sure your clients get to see and understand what an accurate monitor is and what it does.

PRINCIPLE 4: PRINTING TO THE TARGET

Colour management is loosely used in our industry. First of all colour management is not: "Print it and then make changes to the file or the RIP until we like it". Colour management is "knowing what we are going to get before we send the file". The only way that can be accomplished is through the preparation of Principles 1, 2 and 3. If you don't do these first, you will struggle here and you won't know why. But now that we are at the printing part, let's assume you have set the colour policy, you have picked the correct data set and you have pre-flighted and proofed accurately. Now you must make sure your printing is calibrated to the numbers. Principle 5 is verification of print results.



A calibration run report

CRPC	Name	Typical use
1	Universal ColdsetNews	Small gamut printing (newsprint)
2	Universal HeatsetNews	Moderate gamut printing on improved newsprint type paper
3	Universal PremUncoated	Utility printing on a matt uncoated type paper
4	Universal SuperCal	General printing on super-calendared paper
5	Universal PubCoated	Typical publication printing
6	Universal PremCoated	Large gamut (typically commercial) printing
7	Universal Extra Large	Extra large gamut printing processes

Characterised reference printing conditions: typical uses

PRINCIPLE 5: VERIFICATION OF PRINT RESULTS

In four-colour process printing, we can verify the file, we can verify the proof and we also can verify the press whether it be digital or screen. With low cost spectrophotometers, inexpensive verification software and good consulting services that are available today, there is no reason to verify colour without measured data. I am not saying that you shouldn't look at the print visually. I am saying to document the numbers and check them back to a known intent. Then look at the results but be absolutely sure you are viewing your prints in correct lighting.

World class colour production facilities that deal with the best clients in the world have managing visual print result assessment under control. They will not allow a client to reject or ask for colour moves because of poor lighting conditions. The new ISO Standard for colour viewing is ISO 3664: 2009. I suggest getting a lighting expert that deals with large-format lighting equipment help develop a light booth, light wall for larger prints or even a lighting program in a room or production area that eliminates colour disasters. The photograph in figure 3 is one I took at the Print13 show. The proofs in the light box are all numerically the same on the same substrate printed on the same device. In other words I am saying they are exactly alike. But notice the difference in the different lighting results. What is even more terrifying is these are lighting sources in the photograph may be how your customers are viewing your print results.

The first print is accurate D50 lighting. The second print is D65, daylight and the third print is common incandescent lighting. Do you see the potential for disagreement here? If you are printing colour for the top clients in the world there is no room for lighting errors. You may have all your processes in perfect colour managed condition but the client may assume you are out of control if you do not set up a correct viewing area and learn to trust what you see in it. Then make sure your client understands this important principle.

TURNING COLOUR DISAGREEMENTS INTO SALES OPPORTUNITIES

When you know your colour control policy and you know your documentation is in place. You know your colour target and grey balance aim points. You have invested in accurate monitors and good proofing equipment. You have dealt with lighting and printed to the numbers, you will naturally be prepared to deal with colour disagreements with confidence. This part will become very easy for you because you know that you are on target. This is not an opportunity to win an argument. Look at a client that rejects you colour result as an opportunity to solidify your superiority in a very controlled colour work-flow.

Here is an example of a potential colour disagreement. You know that you know. You accept a project, pre-flight it, proof it, print it, verify it but the client says: "The colour is not correct". What do you do? Think of this as an 'opportunity' to build this relationship. Do not say: "Oh, but I can prove that the colour is correct." To turn this into a positive experience, say: "Mr or Mrs Client, I want you to know that our most important objective is to make sure you are satisfied with our print result. But let me explain how we manage the colour." We leave nothing to chance. We control the file, the prepress, the colour management, the conversion from file to RIP. I can show you that we have documented and measured every step. We are confident that this is an accurate representation of your file. But don't despair. If you don't like it, we can change it, but what we want you to know is that this represents your file very accurately. We are confident that, in the future, we can prevent these surprises and when you send us a file, you will know that we have printed it accurately."

If you notice, this dialogue left no opportunity for the situation to get negative. Occasionally you may have to make a decision to reprint a job or not reprint depending on the financial cost, but you have made it clear that you print accurately and you can back it up with facts and documentation. If your client is a serious buyer, and is really serious about colour, they will return again and again because you have instilled an unshakeable trust in your documented print results. ■

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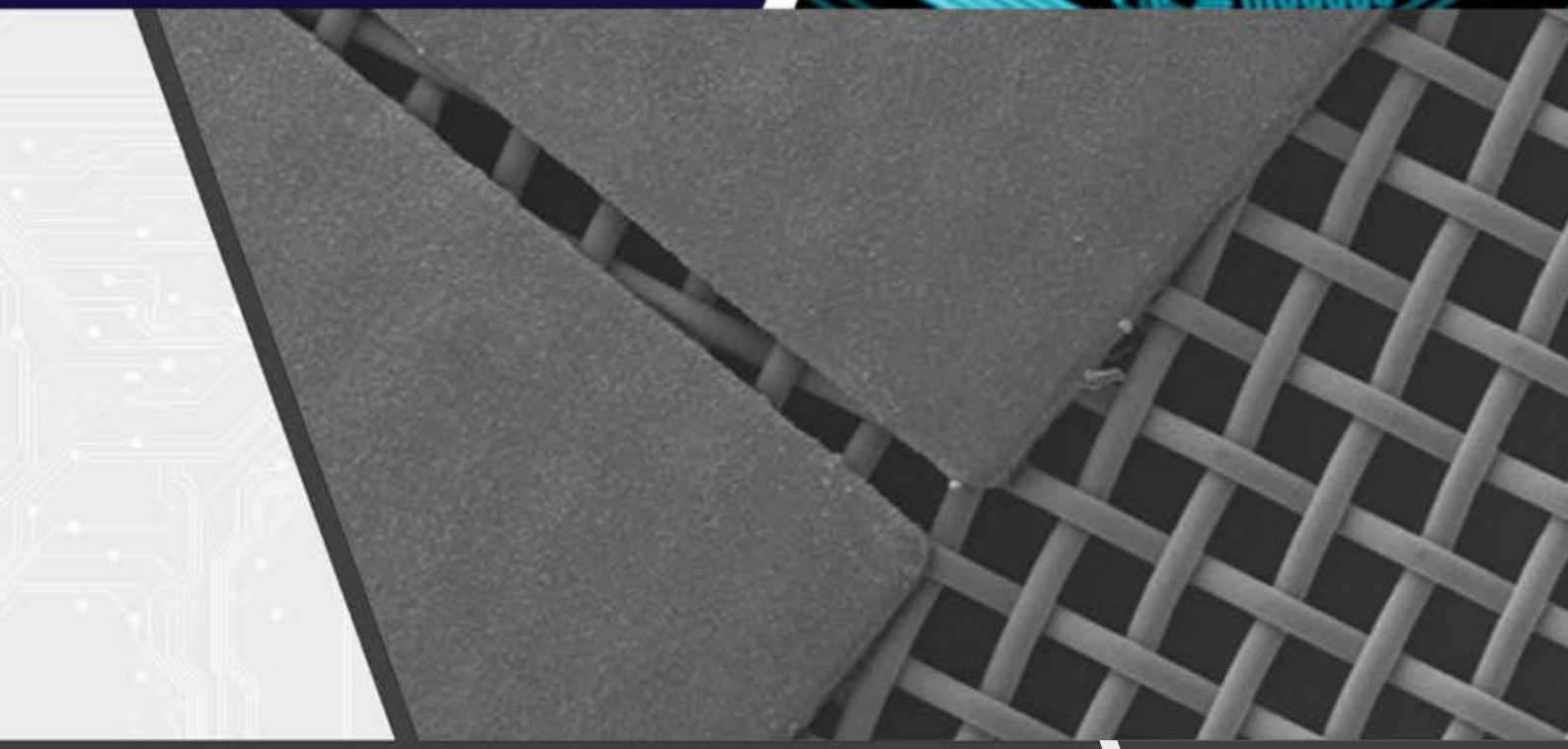
ALPHA™

MICRO-LINE SCREEN PRINT PRODUCTS



First is Best.

The IKONICS® Corporation, through its Chromaline® Screen Print Products division, is proud to announce the introduction of **ALPHA**™ micro-line screen print products.

ALPHA E-20, dual cure emulsion, is engineered specifically to meet the demands of extremely fine-line resolution and durability needed in industrial applications such as the printed circuit board, flat panel display and other electronics printing industries. ALPHA simply has no competitive peers.

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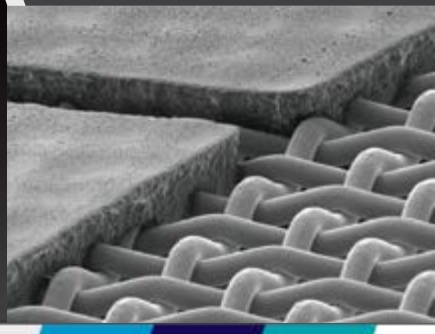
Alpha™ E-20 emulsion at 200 x Magnification on 500 calendared stainless steel, mesh of 20 micron lines and spaces. Microphotography supplied by Chromaline Labs™.

Alpha™ E-20 emulsion at 400 x Magnification on 400 stainless steel mesh. Microphotography supplied by Chromaline Labs™.



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YOU GET WHAT YOU PAY FOR

Cheaper isn't necessarily the least expensive

The defining characteristic of a lasting cliché is the thread of truth that winds through it. To note: "You get what you pay for," a phrase echoed the world over by sellers and hawkers and hucksters hoping to convince a given consumer to spend more for his wares than those competitive offerings presented at a discount, is one of the most enduring clichés throughout the corporate lexicon. And yet, as stated, the reason the cliché endures is that it's mostly true.

In the vast arena of businesses that identify themselves, either fully or in part, as screen-printers – from the guy cranking out T-shirts in his garage, to the multinational, industrial manufacturing operation producing printed electronics for the booming consumer electronics market – there are as many legitimate business models as there are entrepreneurs to employ them. As always, there's no single template for success.

In some models, low cost and low price is the primary competitive lever. In others, precision and highest quality is paramount. And, despite the cacophony of producers claiming to inhabit both of those realms – highest quality and lowest cost/price – that combination is rare, indeed.

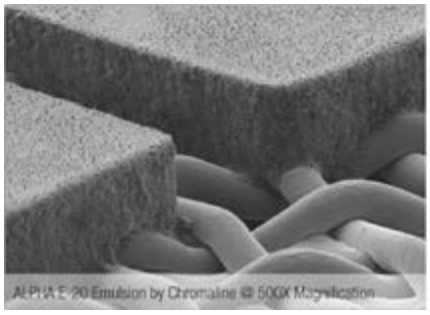
So it is, our featured cliché lives on.

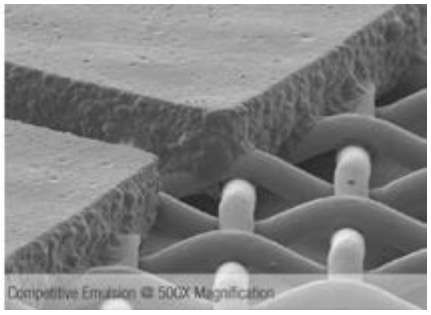
"You get what you pay for" is not only a truism, it is practically instructive as well. For screen-printers employing a business model based on producing functionally, competitively better end products, acknowledging that "You get what you pay for" can be the difference between disciplined optimism and misguided, self-rationalising Pollyanna-ism.

According to Technical Sales Representative, John Bejar, of Chromaline Screen Print Products, a primary challenge in engaging those working the production end of a given screen-print operation is tying that component to the business end of the operation.

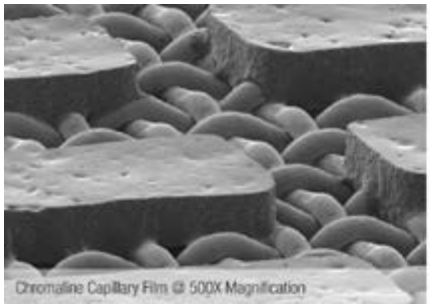
"It's important to consider every situation in the context of its own business environment. A lot of people in charge of the production end of the business simply see a bucket of emulsion as a necessary consumable. They just see a bucket. But if you take the time to actually show the production team how this particular emulsion is going to improve production efficiency, then they'll do the math right there, intuitively and you've moved from selling to educating. And that's where you want to be. Not talking about price, but about production."

Like most organisations manufacturing consumables for the screen-printing industry, Chromaline Screen Print Products produces product lines to accommodate consumers throughout the price spectrum. But, as Bejar further explains, no matter how price sensitive a given production manager might be, cheaper isn't always least expensive.

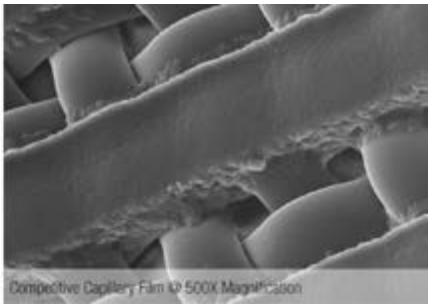




Alpha E-20 emulsion, by Chromaline, on 400 stainless steel mesh, magnified 500X. Note the exceptionally distinct edges, clean spaces and overall stencil uniformity compared to the competitive emulsion at right, shown at identical magnification on identical mesh. In applications where fine tolerances are in place, the less clean stencil at right would likely be disqualified or, worse, lead to the scrapping of the finished job.



Chromaline capillary film magnified 500X, demonstrating exceptionally smooth edge walls and clean adherence to 400 stainless steel mesh, resulting in optimally fine prints, print-run uniformity and greatest-possible resolution. In applications such as printed electronics, such consistent resolution is paramount, ensuring predictable conductivity in the finished product.



A competitive capillary film at identical magnification and mesh, indicating inferior edge quality and mesh integration, compromising print quality and, ultimately, the performance of the finished product.

HIGHLY ENGINEERED MEANS THE MOST EFFICIENT

"When it comes to products used in the production of stencils – namely photo-emulsions and capillary films – it is often the case that the more highly engineered products translate to the most efficient. And, since the stencil materials are such a small component of the screen-printing process, considering mesh, frame, screen chemicals, ink, etc, even paying twice or three times as much for a truly better emulsion can actually reduce the cost of the overall project."

Bejar sums up his points: "The price of using an inferior product is more expensive than the cost of using a superior one." Ken Hegman, Vice President of North American Sales at Chromaline, concurs.

"John's points are well-made," Hegman says. "If you save $30.00 on a gallon of emulsion and then have your stencil break down or not reclaim well, or if you have to coat the screen four times instead of once … Or, worse, if your print job comes off poorly, that $30.00 turns from 'savings' to 'bad business decision' pretty quick."

Hegman's team specialises in educating screen makers and printers – and here's the important piece – in the context of their given business situation. That is, Bejar and his peers may recommend one emulsion in one situation and a completely different product in a shop a mile away doing the same sort of work. And rarely does price enter the conversation except in the context of the entire print job, as a whole.

"It just doesn't make sense to discuss the different elements of a project in a piecemeal way," Bejar insists. "It all has to come together in an integrated way, for maximum productivity. Otherwise, it'd be like a NASCAR team captain only paying attention to the tyres. Good tyres are important, yes, but not if the steering wheel doesn't work. And the cost of the tyres is just one piece of the system, the cost, for which, must always be considered, in total." ■

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FROM FLEXO TO DIGITAL

Roy Burton looks at the benefits for the label printing sector

In many industries, over the past few years, the small order market has become an important fresh income stream with many new businesses appearing to satisfy this growing demand. Sadly this has also meant that companies that had set out their stall to satisfy traditional bulk orders found themselves in a position where this market was not a viable one for them to enter. The equipment they had on-site was just not fit for this particular purpose and so they found themselves missing out on a growing and lucrative market.

The flexo/label industry was no different in this aspect and, during the past few years, it has found itself in the same position as other businesses but the reaction, it has to be said, was and still is positive. Companies such as Impression Technology Europe (ITE), Rapid and Compress saw the potential of this market and so began the technical revolution that has resulted in advancements of digital label technology for short and medium run applications.

Thankfully for the industry these manufacturers have worked closely together to develop machinery specifically aimed at the different demands of this market while maintaining the ability to satisfy the larger demands of bulk order markets. It has also meant that machines have been developed that not only complement the market but also each other, meaning that a complete small footprint production plant can now be easily assembled.

BREAKING THE 'TRADITION' BARRIER

In most industries the 'tradition' barrier is hard to break through and flexo was no different. It was sluggish to spot the new and growing market and so the first to enter this arena were the small entrepreneurial label users looking for an economic way to produce short runs of labels. But what is it that specifically made this possible? The answer lies in a single word – digital.

Digital technology made the uneconomical economical and the unviable viable and the fact that all of the machines that satisfy this market are digital is the secret to the growth of this market. Driven from standard PC-based label printing machines such as those from Rapid and Compress mean that you can print one label for the same unit cost as 1,000. It also means that, if you are printing 1,000 labels, each one can be unique allowing the label to carry, for instance, individual tracking or stock information.

The method of digital printing is different from the standard flexo production techniques and this could have presented a hurdle but, as with most things digital, once the rules are set the operation is simple. The Rapid X1 for instance is a table-top aqueous dye-based ink-jet printer which uses the Memjet in-line print-head. But its operation is, mostly, controlled from a computer so the actual learning curve for the machine is quite shallow. The X1 is, as described here, small but don't let the diminutive dimensions influence your thoughts where productivity and quality are concerned. The X1 and machines like it can produce photographic quality finished labels at the rate of up to 18m/minute. With machines like this now easily available, entering into this lucrative part of the market is much simpler for label producers whatever their current production environment.

Rapid X1 table-top digital ink-jet label printer

OPENING UP THE MARKET

A worry for established large flexo producers is the fact that this type of technology opens up the market to small start-up businesses thus reducing the market for them but this could not be further from the truth. It is a fact that some of the larger users of labels also produce smaller product lines that may be more specialised. The influx of this type of machinery makes it easy for the label printer to economically produce the shorter runs that their established client is looking for. The alternative is to send them to another producer and nobody would really willingly want that. Small digital machines give all users the opportunity to expand their market and add new income streams to their business.

Another variant of this type of printer is the digital LED dry toner type such as Compress LP4. As with the Rapid X1 these machines are aimed at the same market but this type of technology offers variants that may prove more attractive to some. For instance with LED dry toner there is no nozzle redundancy so the last print is exactly the same quality as the first albeit that is has a 'different' look and finish. An everyday comparison here would be between the print produced from a standard office ink-jet printer and an office colour laser printer. Both prints are good but different, so it would be up to the individual as to which suits better.

A close up of the toner cartridges in the Compress LP4

THE CHALLENGE OF FINISHING

Printing is one thing of course but what about finishing; has that been considered? The short answer is 'yes'; but the work that has gone into designing and developing sympathetic machinery deserves more of an explanation. The technical differences with machines for slitting, cutting, unwinding and rewinding were not the same as they were with the printers. The challenge was to make this machinery fit the footprint desired for this area of the industry without compromising output quality and productivity and machines such as the Eclipse LF3 satisfied the demands made on it with ease and efficiency. The dimensions of the machine make it fit easily with the small printers; but these digital cutters offer so much more than that. Digitally controlled blades offer fast accurate cutting irrespective of the shape or design of the label. When changing over to the next job there is no switching of blades or dyes; just a simple reprogramming on the computer make the machine not only more flexible but more efficient and productive.

Eclipse LF3 cutter/slitter shown with lamination roll

Digital offers many advantages over standard production techniques, irrelevant to the size of orders. The machines described here may work in the bulk order arena but it is clear that they have been designed and developed with the small order market in mind. Development, however, is not a static thing and the LF3 cutter, for instance, has already spawned a bigger version with the LF330 which will be able to handle web widths up to 350mm. This brings digital technology into the larger supply markets giving the same techniques and advantages as those seen by the small order market. According to Smithers Pira the global label market, valued at $34.3 billion in 2012, is set to grow to $43.4 billion by 2017 and the digital share is forecast to rise from 3.00% to 7.2% in the same period. By embracing digital technology a share of that market is open to you. ■

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GAME-CHANGING TECHNOLOGIES FOR LARGE-FORMAT OFFSET AND FLEXO CONVERTERS

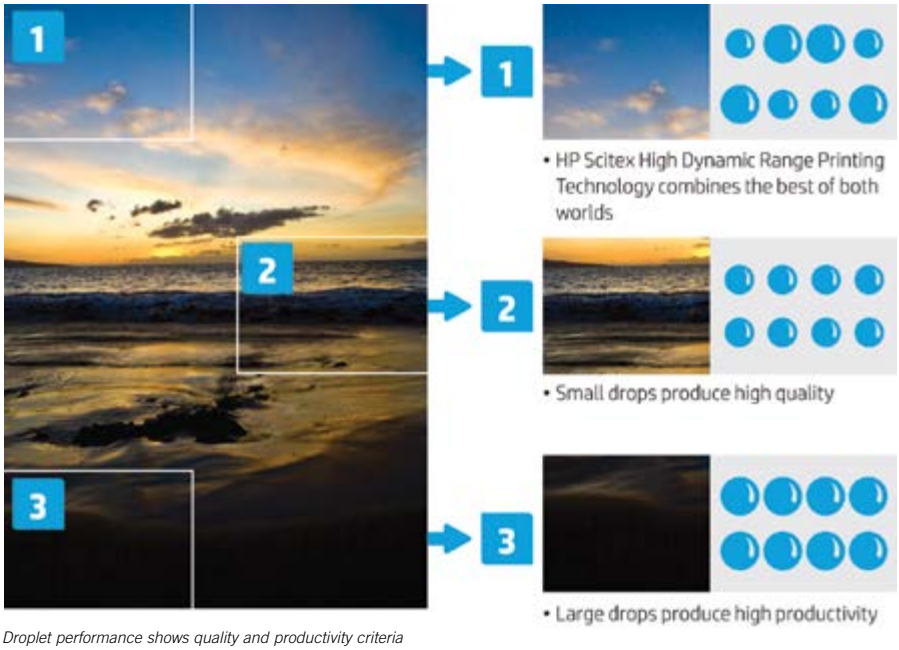
Eviatar Halevi explains the need for higher quality

The launch of the HP Scitex FB10000 Industrial Press marked a step-change in the digital options available to large format converters facing demands for shorter runs, faster turnarounds and special versions for specific markets. Through a combination of innovative technologies, a new level of print quality, production throughput, versatility and competitive cost-effectiveness is available to large format converters, especially in the packaging and point-of-purchase and point-of-sale display sectors.

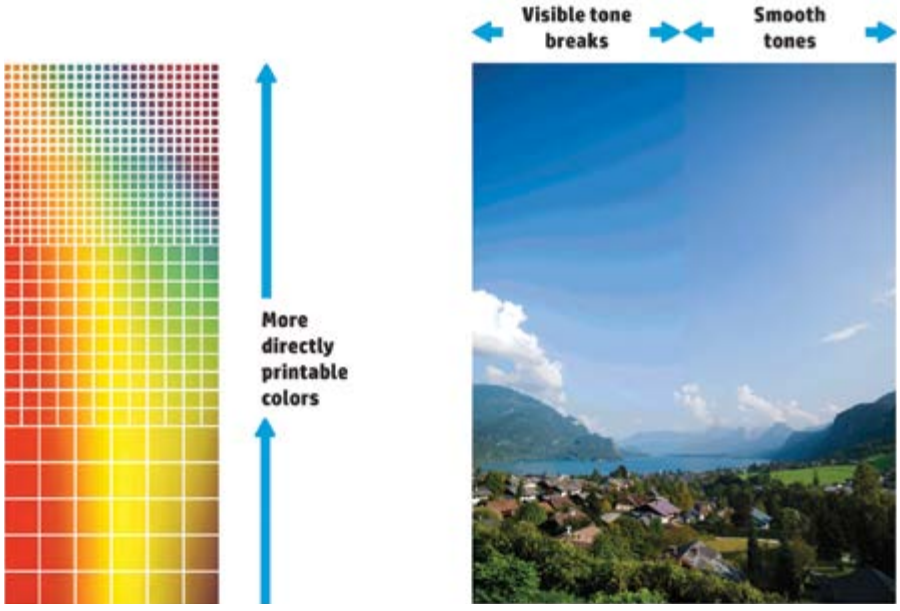
While the HP Scitex FB7600 successfully accelerated the migration from screen to digital, a solution was needed to offer the benefits of digital to flexo and offset converters. These large-format converters were facing the same production demands and pressures on margins as screen-printers, but without a digital press that could offer the requisite quality.

The HP Scitex FB10000 Industrial Press was the result of a total re-engineering of the technologies employed. The revolutionary X2 print-heads found in FB7XXX-series presses were further developed; new ink was formulated and the press itself was the result of a 'blank sheet' research and development process. As a result, the HP Scitex FB10000 Industrial Press functions as a whole system working together to support an unparalleled precision in dot placement to achieve a new level of image quality.

Among the goals for the new press were enhanced colour and tone variations, smoother transitions from light to dark, and improved image quality for fine detail and small type sizes. While these features were critical to approximate offset quality, it was also imperative that the press had substrate versatility, and that the cost/copy was attractive to offset and flexo converters. Meeting these objectives was necessary to help converters improve margins and enable them to add services by being able to accommodate the shorter runs and fast-turnarounds demanded by customers.



Droplet performance shows quality and productivity criteria



Higher numbers of grey levels produce fine gamut resolution for subtle shading

INCREASING THE QUALITY OF INK-JET

Ink-jet presses use a half-toning technique known as stochastic screening (or frequency modulation/FM screening) that randomly places dots in the addressable area to avoid unwanted patterns. This random dot placement gives an average density that produces the desired colour. A standard industrial grade ink-jet press utilises a single drop size delivering only one grey level of dot. This is a binary operation with either one drop or no drop delivered (0,1). This binary drop size scheme is forcing a trade-off between productivity and print quality. A press utilising small drops can reach the required print quality level but will need to operate at lower productivity levels. Alternatively, a press utilising a bigger drop can deliver the required productivity levels but will naturally sacrifice

Continued over

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print quality and will not be able to resolve fine details.

New HP Scitex High Dynamic Range Printing Technology addresses these issues and takes large format ink-jet printing to a new level. The HP Scitex FB10000 Industrial Press uses HDR300 print-heads (the latest iteration of the revolutionary X2 print-head) with 50% more nozzles than found in HP Scitex FB7XXX-series presses (192 v 128 per head). The second major development in the HDR300 print-head is its ability to print variable sized dots.

Unlike the binary operation where one drop or no drop is produced, each nozzle of the HDR300 print-head is capable of delivering three drop sizes, 15, 30 or 45 picolitres. So, instead of a binary (0,1) drop, it is a dynamic drop (0, 1, 2, 3) yielding dots of different sizes and saturations and expanding the number of grey levels.

Creating the variable drop size is achieved by ejecting one, two or three 15 picolitre drops from the nozzle. When more than one 15 picolitre drop is ejected, they merge in the space between the print-head and the substrate to form a spherical drop that will form a perfect dot.

At a system level, four grey levels/colour generated on both light and dark colours yields a total of 16 grey levels/colour generated on a printing grid of 600 dots/inch. This is equivalent to having 256 levels on a printing grid of 150 dots per/which is what offset normally yields on large-format graphics.

Fine detail and readable text and barcodes down to four points can be printed, as well as images with smooth colour and tone transitions. The versatility of HDR printing technology gives converters speed and quality flexibility in the printing of graphics for both near and distant viewing.

Given the precision necessary to fire variable drops at up to 24,000 drops/ second/ nozzle, the HP Scitex FB10000 Industrial Press has a re-engineered vacuum table to hold media flat from corner to corner, to ensure an even and accurate distance between the print-head and the substrate. Compared to previous designs, it is stiffer, flatter and has up to five times the vacuum level. To give better substrate control, the vacuum level is adjustable to accommodate media from thin paper to 25mm thick board.

The HP Scitex FB10000

The new HP HDR240 Scitex Ink was specially formulated for use with HDR300 print-heads. The ink is UV-curable and can print on a wide range of substrates including acrylics, foam PVC, PVC sheets, polystyrene (HIPS), fluted PP, polycarbonate, polyethylene, polypropylene, synthetic paper, SAV, paper, foamboard, corrugated board, compressed cardboard and others (1).

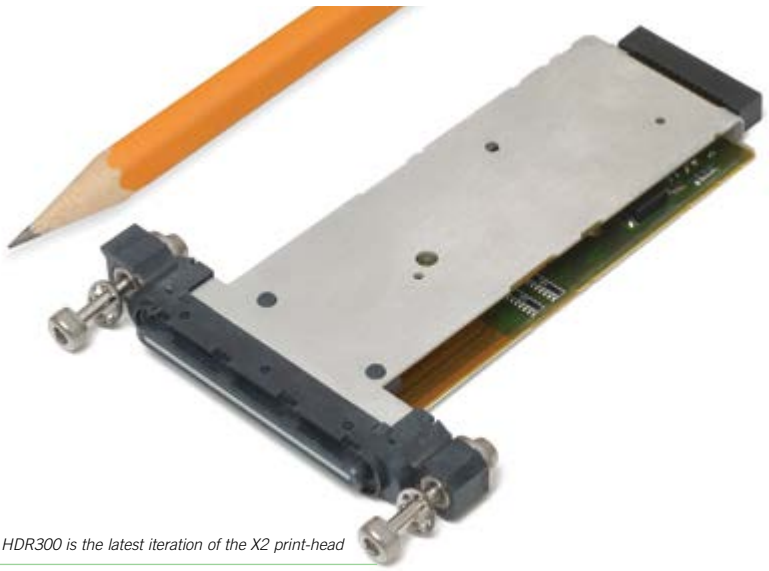
CREATING THE COMPETITIVE ADVANTAGE

While the most evident development of the HP Scitex FB10000 Industrial Press is the print quality of the variable drop size, this single innovation would not function on its own. Having control of the development and practical integration of the whole process is what has resulted in the advanced capabilities of the HP Scitex FB10000 Industrial Press. The print-heads, inks, vacuum table and the myriad systems that orchestrate their function and performance are what make the press a major advancement in ink-jet printing technology.

The characteristics of the speed of the HP Scitex FB10000 Industrial Press (up to 625 square m/hour/125 sheets (2)) and its level of print quality make it an attractive and cost-effective proposition for converters handling volumes from 20,000 to 100,000 square m/ month. Their customers will also appreciate the flexibility the press can give them to manage just-in-time production. By combining high-quality printing with 16 grey levels with the ability to produce 1,000 B1 sheets in less than two hours (3), the HP Scitex FB10000 Industrial Press can meet turnaround and quality expectations while delivering cost-effective operation.

The wide-format converting market for packaging, POP/POS displays and related applications remains vibrant, reflecting the creativity required for retail sales as well as the practical requirements of product identification and protection during shipping and distribution. Increased competitiveness along the chain demand speed and flexibility of response and product quality, and HP HDR printing technology offers converters the means to meet these demands and differentiate their services.

(1) For limitations and further details please refer to hp.com/go/mediasolutionslocator
(2) 160 x 320cm; 63 x 126in
(3) At 625 square m/hour (6,727square ft/ hour) on 160 x 320cm (63 x 126inch) sheets, including a full loading and unloading cycle. Compared to digital presses of comparable speed and price in the market as of January 2013. Performance according to stated technical specifications as of commercial availability of the HP Scitex FB10000 Industrial Press. ■



The HDR300 is the latest iteration of the X2 print-head

Eviatar Halevi is Director of Technology at HP Scitex Industrial Printing

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UV-CURABLE INK-JET INKS AND THE GROWTH OF DIGITAL FOOD PACKAGING

Frank L Schelfaut explains the important role played by low migration formulations

All printing technologies used for primary food package printing are confronted with the issue of preventing contaminating or tainting substances from the printing process to reach the package content – food or beverage. This also applies to UV-curable ink-jet, which is increasingly being used for this application.

Since UV ink-jet inks must comply with limitations regarding viscosity other methods must be sought to completely cure the inks and to keep low molecular weight components within the polymer matrix of the cured ink.

FUTURE TRENDS IN PACKAGE PRINTING

As packaging converters have also become print service providers, and package design has evolved as a marketing tool for brand owners, the demand for digital package printing has grown substantially since it allows for differentiation and customisation in short-runs – two important assets in the competition for maximum visibility on the shelves.

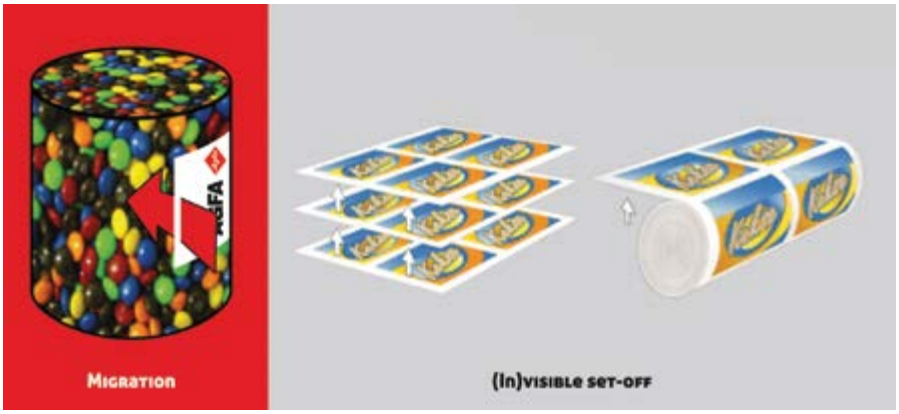
Looking at the trends of printing worldwide, everyone has the feeling that the volume of printed products targeted at consumers is declining year after year. However, the commercial value of package printing is gaining importance. Due to its high degree of versatility and the potential of printing variable data on several substrates, digital package printing is rapidly closing the gap with conventional printing techniques and moving into mainstream technology. The highest growth rate is observed in the food and beverages segment.

Since the food and beverage sector counts for more than 50% of all packed products, it is clear that much of the R&D efforts in digital package printing will be devoted to the specific requirements in this end-use segment. Contamination or tainting of the packaged food, and in particular the safety of the packaging printing process, is obviously one of the most important solicitudes.

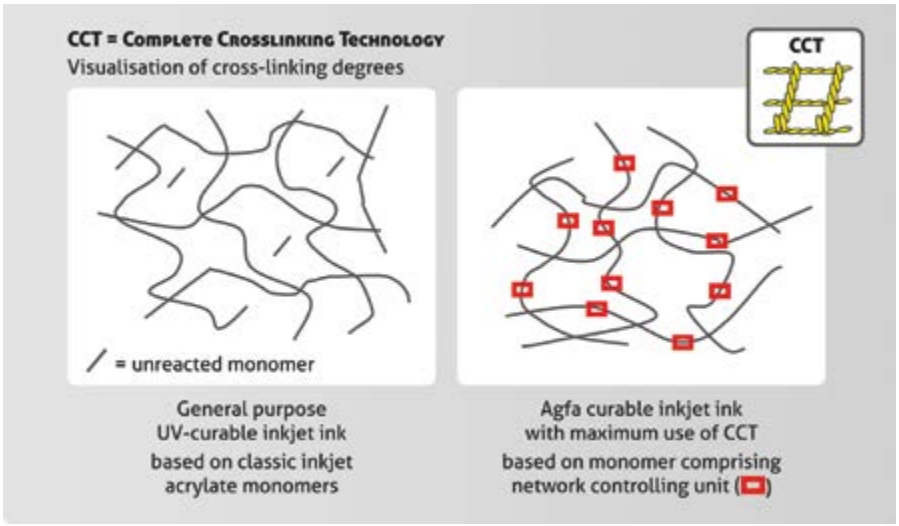
FOOD SAFETY AND PACKAGING

Before considering the package printing technologies in relation to food safety it should be emphasised that contamination or tainting of food and beverages is mostly relevant to primary packaging – the package or wrap that is in immediate contact with the product inside. The target application is the so-called indirect food packaging printing, i.e. printing on the outside of the packaging substrate. Food contamination by ink compounds can occur in several ways, the most important being migration and set-off. Migration means that ink compounds reach the food product by diffusion through the packaging substrate. Set-off means that ink compounds from the printed layer are transferred to the food-product facing side of the substrate. Set-off can occur when the prints are stacked or rolled up, prior to being used in the package conversion process.

In fact, all measures with respect to the printing on primary packaging materials are just one element of a multi-faceted food safety practice, which starts at the responsibility of brand owners, packaging companies and/or converters to define all relevant parameters of the package design. Food-safe packaging thereby results from a risk assessment that takes into account the food properties, the expected shelf life, the storage conditions and the potential of contamination from all possible sources. The fact that all stakeholders in the product and package chain are becoming increasingly conscientious about the food safety and packaging aspects is seen as a very positive evolution.



What can go wrong?



Agfa's low migration ink technology

BARRIER SUBSTRATES

In the first place, converters will select the adequate substrates and other materials in compliance with the packaging specifications provided by the food industry. The barrier is usually intended to prevent both, penetration of substances from outside and quality loss (taste or smell) of the packaged product inside.

Glass and metal foils typically have a high barrier quality towards ink compounds. When the printed package substrate is stored – as a stack of sheets or rolled up – prior to being used in the conversion process, contamination of the food-facing side remains possible through set-off so other measures need to be taken to eliminate this source of contamination.

FUNCTIONAL BARRIER LAYERS

A method that is often used in conventional and toner-based digital food package printing is by containment of the printed ink or toner in-between two barrier layers – one on top of the package substrate and one other that is laminated over the printed surface. In order to be effective, the latter must be applied in-line before the printed sheets come off the press.

LOW MIGRATION INKS

A third – and obvious – possibility is to develop low migration inks but, although the term is widely used in a generic sense, Low Migration (LM) inks as such do not exist. An ink formulation for printing on the outside of primary packaging can only contribute to safe food packaging if the necessary precautions have been taken. Also the conditions of the printing process and the application are extremely important, especially in the case of UV-curable inks.

Moreover, the qualification of any solution (whether LM ink or other measures) that claims to be a remedy against migration of ink substances doesn't mean much unless proven in advance. Therefore, the use of migration testing is indispensible during the process of implementing a packaging solution to identify food safety risk from inks, packaging material and process, and is therefore part of the acceptance procedure.

A key figure in the allowable level of migration and/or set-off for ink compounds is 10µg (microgram)/6 dm² (6 dm² is the typical surface area of packaging material for 1 kg of food) per ink compound. This ratio of 10µg/1 kg of food is also described as 10ppb and is the rule-of-thumb for the allowable migration limit for an ink compound in the majority of legislations, but this limit can be higher, when substantiated by sufficient toxicological data.

UV INK-JET IN FOOD PACKAGE PRINTING

In its current status ink-jet printing for the packaging segment mainly focuses on the printing of labels, whose safety risk is at the level of secondary packaging. When moving into primary packaging, many primary food-packaging substrates require the use of UV-curable inks.

Analogue printing techniques are based on inks having viscosities ranging from medium (flexo) to very high (offset). Therefore, the UV inks for the traditional printing processes contain high amounts of oligomers and pre-polymers, along with a lower-molecular weight monomer that is used as the so-called diluent for fine-tuning the viscosity.

For UV ink-jet, however, the demand for high ink-jet throughput speeds at the highest possible resolution has led to the design of sophisticated print nozzles that require low ink viscosities. This requirement is a limiting factor in the selection of viscosity-related ink components and a particular constraint to the choice of polymerisable compounds. In primary food package printing the use of low-molecular weight monomers increases the risk of migration to the food. Migration, however, is not restricted to unreacted monomers but may also involve photo initiators and some additives in the UV ink-jet ink.

MIGRATION OF UV INK-JET INK COMPONENTS

Standard UV-curable ink-jet inks (as used in wide-format printers for the sign and display market) are developed to deliver good image quality, high colour gamut and physical properties of the cured inks such as adhesion, scratch resistance and solvent resistance. However, they are not developed for food packaging printing.

The curing degree of standard UV ink-jet inks is typically between 80 and 95% and sufficient for the required specifications in non-food applications. However, the use of inks with low-molecular weight compounds and other substances or by-products – all prone to migration – may involve risks in applications where food safety is concerned, especially if the degree of ink curing is far from complete.

In order to preserve the advantages of UV ink-jet printing over other digital technologies, a focused development of fundamental solutions for the migration problem in primary food packaging is required to obtain specific Low Migration (LM) UV ink-jet ink formulations.

COMPLETE CROSSLINKING TECHNOLOGY

Using high-purity ink compounds that do not contain by-products – which are typically low in molecular weight and thus prone to migration – is one first step towards LM ink-jet inks, but this is not enough.

Agfa Graphics has developed and patented a specific ink technology, denoted as the Complete Crosslinking technology (CCT). By controlling the reactivity of polymerisable compounds, combined with photoinitiators suited for low migration, the polymerisation kinetics can be monitored to obtain a degree of crosslinking that is nearly 100% complete.

With the increasing demand for low-viscosity UV ink-jet inks that can be used successfully and with good jetting properties in the newest generation of high-speed and high-resolution print heads, the CCT technology is an elegant solution for low migration UV ink formulations that can be safely applied in the most demanding segment of food packaging. ■

For more information on the LM inks technology please visit www.agfagraphics.com/inks and download the complete White Paper

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SIMULATED TACKLE TWILL PRINTING USING THICK FILM

Alan Buffington steps through the creation of an effective embellishment technique

Thick film stencils can open up creative print techniques that can enhance standard graphics and provide new print offerings for your customers. Murakami Thick Film has film thicknesses ranging from 100 to 1,000 microns to cover many special effect print techniques. The art below will be used to create a print to simulate tackle twill embellishment using thick films (Figure 1).

Textile usage for special effects:

- High density ink – these are making a comeback. Thick Film by Murakami creates the sharpest ink edge and details possible in a thick stencil. More on how to achieve special affects printing later in the article.
- Gels – typically used as an overprint, great gel prints exhibit a glass-like domed effect over underlying prints or to create an adhesive base for glitter dusting techniques or foil applications.
- Puff Ink – from the common 3D raised puff to suede, leather and blister puffs, these inks take a common print and can turn it into a multi-level textured print with more sales appeal.
- Glitters – too often a 25 mesh screen is coated with very little emulsion thickness. Ink deposition and coverage are improved with a thicker ink well to transfer a more continuous coating of glitter ink.

Tackle twill, for those not familiar with the embellishment technique, uses twill fabric cut in the shape of the design and then sewn onto the apparel with either a zig-zag overlock style stitch or a thicker thread chain stitch. The tackle twill style art shown here was built in Adobe Illustrator on separate layers. The chain stitch is a dashed line stroke applied to a path while the zig-zag stitch was a custom brush created with a sample of the zig-zag stitch. Tight curves and corners were built by hand to improve the custom brush results so the zig-zag appeared more thread-like and followed the tight corners as an embroidery artist would design. It is also possible to simulate the tufts of chenille embroidery with blister puff and textured art to mimic the bumpy look of the chenille.

A thick film stencil can be created much faster than using an emulsion to build the stencil layer by layer using coat and dry techniques. We offer Aquasol HS emulsion (Figure 2) to create thick stencils that can be coated wet onto wet to achieve a 350 to 400 micron stencil. However, some of the special print techniques we will discuss here print better with Murakami Thick Film (Figure 3). How could they be different? The brief explanation deals with the sharpness of the printing edge of the emulsion shoulder and the sharp vertical sidewall that only Murakami Thick Film can achieve.

Figure 1

ART CONSIDERATIONS

The artwork must be created with art wide enough in the detail areas that the art will be printable after screen development. The rule of thumb is to have artwork in the detail area no thinner than the thickness of the thick film or emulsion thickness you are going to use on the screen. This allows for easier control of the print on press since it is very difficult to print art that is thinner than the film thickness since the narrow channels cannot clear ink easily with typical squeegee pressure. Once squeegee pressure is increased to clear the narrow details in the design, the other solid or wider areas of the print will not maintain sharp square corners or a flat surface when using high density inks. The goal of the art department is to create art that prints well at minimal squeegee pressure over the entire image. So, keeping the thinnest art and details equal to the film thickness assures these areas will print well (Figure 4).

Figure 4 shows the 'M' from the art in figure 1 printed in different sizes on the same set of screens. The smaller print loses the zig-zag overlock stitch typical of a simulated tackle twill embellishment. The larger version shows the minimum art size necessary to show off this finer stitch. The chain stitch shows up as well and can be used on the smaller versions. If the art contains many letters or elements that need a zig-zag style stitch it is advisable to use a thinner line and greater spacing to keep the negative space open to simulate thread (Figure 5).

Using high density screens along with simulated stitching can give quite a realistic effect. The high density screens provide dimensional thickness like fabric; puff inks through simple 110 screens simulate thread quite well, and stacking the art can achieve more dimensionality. On my first attempt I used a 400 micron screen for both blues but found that the light blue printed through a 110 mesh offered more control and less elevation difference so that the gold zig-zag stitch could print cleaner over the lower elevation.

Mesh Considerations: S mesh requires far

Continued over

Figure 2: Aquasol HS 350 Microns

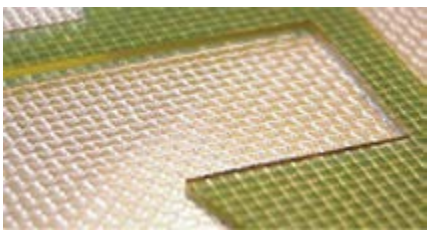


Figure 3: Murakami Thick Film 400 Microns

J-Teck 3 s.r.l. Via per Montorfano, 68/70 -22023- Albese con Cassano (Co) - Italy
Tel. +39 031 428102 - Fax +39 031 4290102 www.j-teck3.com e-mail: info@j-teck3.com

Figure 4

Figure 5

less squeegee pressure when printing high density inks than typical T threads. The mesh count chosen will depend on the type of inks used. The print example in this article uses Smartmesh from Murakami.

TACKLE TWILL EXAMPLE IN THIS ARTICLE

Real tackle twill embellishment is quite an expensive process whereas the look can be simulated very well with high density inks. The key is to simulate the dimensional thickness of the twill fabric as well as simulating the thread stitch to make it appear it was sewn on. The key separation technique is to stack the high density prints. In this print the light blue base is a solid print beneath the medium blue centre, but there are holes in this art so that it appears the white chain stitch sewing has punched a hole in the fabric. This allows the white puff ink to appear like it would if sewn.

AUTOMATIC PRESS SET-UP

Head 1: Medium blue base – 400 micron Murakami Thick Film with 80LX - S Mesh
Head 2: Flash
Head 3: Cool
Head 4: Light blue high density – 150 Murakami Thick Film with 110 - S Mesh
Head 5: Flash
Head 6: Cool
Head 7: Zig-zag stitch detail – Aquasol HV with 160-S Smartmesh
Head 8: Flash
Head 9: Cool
Head 10: Chain stitch detail – Aquasol HV with 110T Smartmesh
Three flashes is the maximum number of flashes to prevent the pallets from getting too hot and curing the ink in the screen. Notice that each flash has a cool-down station next to it. This is to minimise the hot tack that can develop right after a flash unit.

MESH RECOMMENDATIONS

Glitters – 25/S (larger openings) or 25/T (for higher tensions)
Gels – 60/T, 80/S, 80/SS, 110/S
Puff ink – 80/S, 110/T, 135/S, 150/S, 160T
High density – 80/S, 110/S

MURAKAMI THICK FILM RECOMMENDATIONS

100 to 250 micron thickness: satin gel overprints, puff ink, glitter applications, suede and leather surfaces using speciality puff inks.

250 to 350 micron thickness: detailed high density prints, glossy gel overprints, puff with more loft, suede leather look, glitters, gel as an adhesive for glitter dusting.

350 to 400 micron thickness: 400 micron thick film is commonly used as an upper limit for high density inks. It is easier to stack two high density prints when trying to achieve thicker high density prints with square sharp ink edges. Murakami Thick Film above 400 microns requires artwork to be quite solid with minimal details to transfer the ink. Other 400 micron film uses include high-domed gloss gel, thick glitter deposits, suede puff, and leather patch underbase.

MURAKAMI THICK FILM USAGE INSTRUCTIONS

Creating a Murakami Thick Film stencil is quite easy. We have a video on the web at http://www.youtube.com/watch?v=ztM4O6clX1w that shows the following process as well.
The basic technique:

1 Build up board (Figure 6) – it is crucial to have a very smooth board that is smaller than the inside of the screen frame and yet larger than the Thick Film being adhered.
2 To adhere the Film to the screen (Figure 7): peel printed plastic off of the Thick Film and place the emulsion side up onto the build up board.
3 Preparation (Figure 8): Place 5.08cm (2 inches) masking tape on the inside of

Continued over

Figure 6

Figure 7

Figure 8

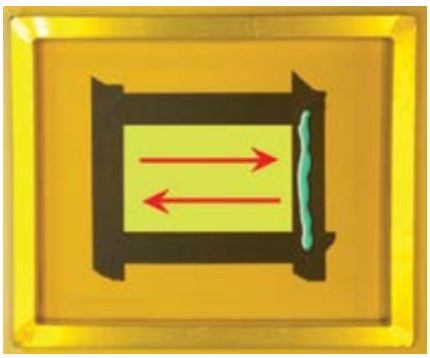


Figure 9

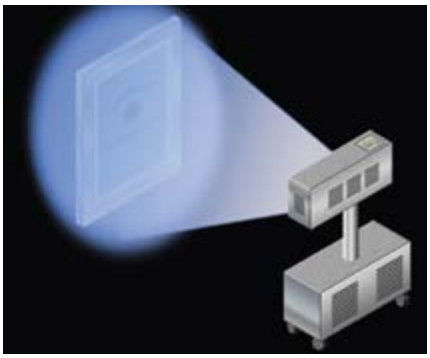


Figure 10

the screen along the edges of the Murakami Thick Film. This prevents excess emulsion drips along the edges of the film.

4 Adhering the film (Figure 9): pour a small bead of One Pot Sol C onto the tape and with a 70 durometer squeegee make two passes across the film to adhere it. When you are done adhering the film with the emulsion carefully peel off masking tape and avoid dripping emulsion onto the thick film area.

5 Drying the screen: place screen in front of a fan to dry (avoid excessive heat in a drying cabinet). Once the adhering emulsion is dry and, depending on the ambient outdoor humidity at your location, you can either leave the clear protective plastic on or peel it off before coating the inside of the screen. In hot humid conditions like those found in the tropics it is advisable to peel the plastic before coating the inside of the screen to obtain quicker drying times. For cooler, drier areas the protective plastic can be left on until the entire screen is dry.

6 Coat the inside of the screen: with your scoop coater, coat twice on the inside of the screen with One Pot Sol C emulsion to complete the adhering process of the thick film and to block out the surrounding area.

7 Force dry again using a fan at ambient room temperatures. Excessive heat in a screen drying oven is to be avoided. A drying room at 26.6 degrees C (80 degrees F) with dehumidifiers set to 35% helps accelerate the drying process.

EXPOSING THICK FILM

The type of exposure lamp you use will determine exposure times. The best stencils use the following exposure processes.

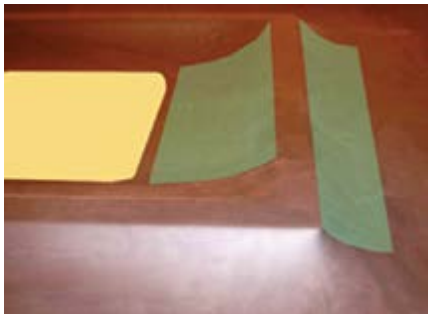
1 Wattage: strong multi-spectral 5kW exposure lamps work better. Basically stronger lamps with good multi-spectral wavelength output will produce the strongest, sharpest stencils. Low wattage exposure units and fluorescent exposure systems can still expose the film but times will be far longer, often three to five times longer for 1k units and nine times longer for fluorescents. Perform a step test on a strip of Thick Film adhered to a screen to determine exposure times.
Step test article: http://murakamiscreen.com/step-test-to-determine-proper-exposure-times/ (Figure 10)

2 Exposure time: a 5kW lamp with a fresh bulb will expose the film at 1.5 minutes/100 microns. A 400 micron film then would need a six minute exposure. This time can vary depending on distance from light source to the Thick Film, the age of the bulb, the spectral output of the lamp, and the d-max of the film. If you use light units for exposure you can test how many units this would be by noting the number of units in one minute and multiply this number by six for the units setting for a 400 micron sheet of Murakami Thick Film.

3 D-max: is the image's ability to block UV light and this is crucial for long exposures. If the black image doesn't block the exposing light well you can flash or burn through the black image area and partially expose the thick film. This can make wash-out difficult and affect the edge quality of the stencil. Weak film sources like vellum, or light transparent images on ink-jet film have a low d-max reading. You can use two sheets of imaged vellum stacked on top of each other for stronger black images, use toner enhancer spray, or adjust RIP controls for ink jet images to gain better d-max. Improving the black density is often the best fix to prevent burn through in the image area.

4 Exposing: strong vacuum blanket draw-down helps to maintain intimate contact of the film positive to the Murakami Thick Film to prevent undercutting of the image and loss of details and resolution. When the vacuum blanket draw-down is complete, try moving the screen. The screen should not move at all. If you can move the screen while the vacuum blanket is drawn down you may have a leak that needs repair or you may need to replace the vacuum blanket (Figure 11).

5 Caution: computer-to-screen ink-jet or thermal wax imaging systems need to have an adequate 'platen gap' between the print-head and Murakami Thick Film to prevent the head from hitting the raised film on the bottom of the screen.



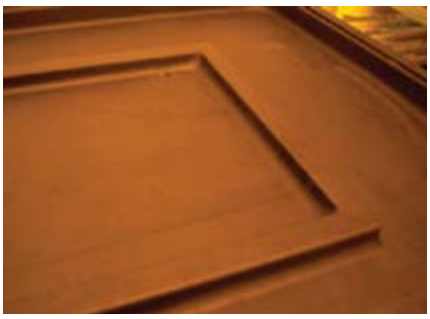


Figure 11

DEVELOPING THICK FILM

1 Wet both sides of the screen with water or place in a water dip tank for a couple of minutes to soften the film and adhering emulsion.

2 Use a pressure washer on fan spray setting to begin developing the image. Pressure washer development is recommended. Weak water streams will not perform well. The stronger, finer spray of a low PSI pressure washer develops the image better.

3 At a distance of 30 to 45cm (12 to 18 inches) move the pressure washer wand back and forth to begin washing away layers of the thick film. Occasionally spray the inside of the image area at an angle to take off softened emulsion on the squeegee side as well. Never spray at a 90 degree angle with the pressure washer on the squeegee

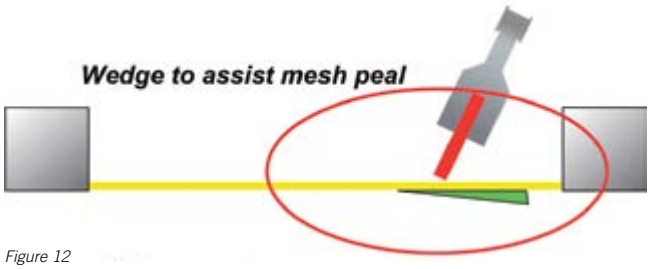


Figure 12

Figure 13

side. Only gently rinse with an angled spray on the inside.

4 As the thick film melts and washes off you can wash out details by moving the wand a little closer to the image, just remember to keep the pressure wand moving. When the image starts to open up you can work the edges and then finish with an angled spray on the inside of the screen to remove any film or emulsion that is hanging onto the image edges. If you see the thick film peeling off of the screen it is a sign that your exposure times are not long enough, or strong enough. Increase times or replace the bulb to ensure proper exposure.

Usage: you can cut the film to fit the image size you will be printing. It is advisable to allow 3.8 to 5.08cm (1.5 to 2 inches) of Thick Film above and below the art. The squeegee needs a run on and run off section of film so it can adjust to the gain in height caused by the film and maintain even squeegee contact as it prints the image. The film should also be as wide as the squeegee being used to maintain constant even contact during the print process. Screen mesh peel and ink release are improved with a border of Thick Film after the squeegee has printed the image.

One trick to get immediate separation of mesh and ink is to place some thin chipboard 2.54 to 5.08cm (1 to 2 inches) past the image that the squeegee can finish the print stroke and ride up onto the wedge of chipboard. For high density prints this speeds up the release of the ink since the mesh lifts off immediately as the squeegee rides up onto the chipboard allowing the mesh to raise up instantly and separate from the ink film. This creates immediate release of the ink that normally would not take place until the pallet drops or the screen lifts away from the pallet depending on what automatic press you use (Figure 12).

Typically an automatic press will wait for all squeegee strokes to finish before lowering the shirt pallets or raising the screens. A wedge helps accelerate the separation of the screen and thick film from the ink deposit. This helps preserve edge quality and provide a uniform ink deposit on the shirt that will show good edge quality and consistent ink thickness when the ink is cured (Figure 13).

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BRINGING INK-JET TECHNOLOGY TO THE THERMOFORMING MARKET

Sophie Matthews-Paul looks at the potential for digitally printed applications

In the constant quest to develop new applications for wide-format ink-jet production most technologies relate to printed results that are, to all intents and purposes, flat or, perhaps, only mildly shaped or curved. In the field of UV-curable printers, one principle challenge has been to ensure that ink chemistries are able to provide the best adhesion across all materials, be they rigid or roll-fed. But perhaps it was inevitable that demand would arise for moving away from printing direct to flat surfaces and onto more variable structures.

One of the key processes when producing shaped applications is thermoforming which, as its name implies, involves using a combination of pressure and heat to give the precise tolerances required in the end product. The moulds employed can be either 'male' or 'female' according to the convex or concave design parameters, and the thermoplastics are heated to make them pliable so that they can be shaped accurately and effectively.

Thermoforming is one of the oldest methods of shaping plastic materials. It has long proved to be an effective way in which to produce non-flat structures but, in terms of incorporating digital print, UV-curable inks haven't retained the ability to be stretched and elongated under the necessary deep draw conditions. Many typical applications are not related to a printed product, with screen-printing proving to be an effective method of decoration when it has been required, along with post-production application of decals or air-brushing.

SPECIALIST APPLICATIONS

Not surprisingly, the demand for specialist production, shorter runs and the ability to print direct to the material prior to its forming has brought with it the need to remove labour-intensive methodology and processes which often relied heavily on manual skills. But the ink-jet formulations required for successful thermoforming need to be able to supersede the limitations of existing chemistries, and generate reliable durable results and effective cost savings.

EFI has combined its wide-format printer and ink knowledge to develop a UV-curable solution that is able to transform thermoforming into a digital ink-jet solution, and the intention is that will provide significant benefits to a host of different industry sectors. As well as being able to produce custom formed signs, tested applications include packaging and point-of-purchase displays, with other options including vending panels, promotional products and automotive goods. Additional areas where there is a strong market for this process include the marking of white goods and household appliances, plus industrial and general products and equipment where decoration needs to be applied to non-flat products.

Formerly using UV-curable chemistry in digital applications for thermoforming was not successful because the inks were unable to tolerate the heat and pressure that are both key elements of the forming process. EFI's development has proven to be effective on a variety of the most commonly used thermoplastic materials including PETG, styrene, polycarbonate, acrylic and PVC, plus derivatives and compound substrates.

EFI's thermoforming technology in practical use

HIGH ELONGATION UV-CURABLE INK

This has been achieved by developing a high-elongation UV-curable ink specifically for deep draw thermoforming so that formed applications can be produced successfully without any cracking or loss of adhesion. To do this, the marriage of the ink with the substrate must result in the ability for the application to withstand the heat forming process and, also, to be suitable for cutting or routing without any chipping. Additionally, the finish once formed must retain the correct opacity and retention of hue on the most irregular of surfaces.

The inks cure via two x 300 Watt mercury arc lamps, with an immediate adhesion of 95% from the curing unit being augmented by a final adhesion taking place within four hours after the initial polymerisation. Once cured completely, the result is a very flexible ink film which is fully formable, containing the required elongation performance and characteristics that also maintain the right adhesion and opacity. This also resists ingress of moisture or water, enabling the production of durable graphics.

The extension of the existing hybrid 3.2m VUTEk GS3250 platform to the GS3250 Pro-TF has resulted in a combination of ink and printer which should offer assurance for users who want to produce thermoformed jobs – greater than might be possible using non-related manufacturers' components. Like other engines in the series, it has the benefits of greyscale up to 1,000dpi for high output quality and low ink consumption, an eight-colour, plus white, ink-set and the option for Fast-4. Well-established as a UV-curable platform that is used by digital production specialists world-wide, its fast throughput speeds and quick change-over from rigid sheets to flexible materials have made it a popular platform for reliable and durable results.

The EFI VUTEk GS3250 Pro-TF wide-format thermoforming printer

Not all printing businesses want to get involved in the actual thermoforming process, preferring to work with a specialist company, and it is a prerequisite that both production operations need to understand the criteria and methodology. From a design perspective, allowance needs to be given to the appearance of the final formed product to make sure that distortion of text and graphics is accounted for and that the overall appearance is not compromised.

It's anticipated that there is a huge potential market for digitally thermoformed applications in the wide-format sector, and EFI's research and development should quickly be realised in this area. As a useful counterpart to analogue methods, ink-jet is now able to complement and enhance the packaging and industrial arenas where three-dimensional production has been popular for many years. ■

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SEIZING OPPORTUNITIES IN DIGITAL TEXTILE PRINTING

Kevin Myers considers how to leverage specialist inks and advanced printing equipment to penetrate high-growth sectors

Over the past decade, digital printing has emerged as a viable means of industrial textile printing. The latest digital textile printers overcome the technology's early deficiencies to offer speeds in excess of 2,000 square m/hour. They also raise the bar for versatility and reliability. At the same time, the development of cost-effective specialist inks is supporting the growth of new applications from fashion apparel to home textiles, technical textiles, and beyond.

Taking advantage of these rapid technological advances, mills and non-traditional players world-wide are now successfully using digital printing to produce higher value fabrics and meet stricter environmental targets. Fast, flexible and cost-competitive over short runs, digital printing offers considerable design and production advantages. It is also a very clean process that minimises waste and substantially reduces water and energy consumption.

Even so, only 2% of the world's printed textiles are digitally printed today.

Mills are understandably cautious about adopting the new technology, given the investment required and the need to adapt workflows, re-train staff, and revise business plans. Deciding whether to invest in digital printing and, if so, when and how to make the transition, remain key issues. What mix of traditional screen-printing and digital printing equipment will best meet current and future demand? What combination of digital printer, print-heads and inks will deliver the applications needed? How can existing fixing and washing equipment be incorporated into new digital production lines?

To answer these questions requires global market insight, local expertise and presence, and deep technical knowledge. A technology partner should be able to demonstrate these capabilities. It is particularly important today that print-head and machine manufacturers and ink suppliers work together to deliver integrated solutions. For example, inks need to be certified by the print-head manufacturer for chemical compatibility with the print-head. This certification provides an additional runability assurance, with the risk of damage increasing with non-certified inks.

PREMIUM AUTOMOTIVE INTERIORS

One sector of great potential for digital textile printing is automotive interiors, with China as the world's largest producer of cars and commercial vehicles since 2009. Indeed, the Chinese market is driving the global automotive industry, with auto sales expected to nearly double by 2019 from the 15.8 million vehicles sold in China in 2012.

Serving the auto market, a new range of ink types has been developed specifically for digital printing of specialist automotive textiles for seats, panels, headliners and seat belts. With these new Terasil XKS HL inks, mills can create a woven pattern on polyester substrate to create a more premium look suitable for high-end vehicles. This avoids the cost and inconvenience of a lengthy yarn dyeing and weaving process and is substantially more environmentally friendly. Since the process is very flexible, being fast and cost-effective to change over, it also permits the automaker to customise vehicle interiors to more closely reflect consumer trends.

The new Terasil XKS HL inks are available in eight colours, five of which are new additions to the range, including Terasil Jet Black XKS HL 2001. This new black is a breakthrough for the automotive interiors' industry, incorporating a mix of patented Huntsman dyes to achieve a rich and intense

A new range of ink types has been developed specifically for digital printing of specialist automotive textiles


Huntsman Textile Effects leverages on specialist inks and advanced digital printing equipment to penetrate high-growth sectors

black for the first time. Where traditional black inks were low-intensity, it offers an incredible depth of colour and very high light- and heat-fastness.

The Terasil XKS HL disperse inks have five new dye chromophores to provide the highest possible fastness to heat and light while improving metamerism against a given standard. Furthermore, these new inks are engineered to fade on tone, so that fabrics continue to look good after years of exposure to bright sunlight. All the TERASIL® XKS HL inks meet the stringent FAKRA light fastness requirements of the major automotive producers and can also be used to print outdoor furnishings and signage.

Developed in close cooperation with Kyocera for the Kyocera KJ4B industrial printhead, the Terasil XKS HL inks have been fully tested by Kyocera and are now undergoing certification. The drop speeds generated by the Kyocera print-head help the Terasil XKS HL inks penetrate the polyester fibres to achieve the high standard of abrasion resistance demanded by the automotive sector.

This ink and print-head combination is currently being used successfully in machines such as Reggiani Macchine's ReNoir. This digital textile printer is capable of processing specialist automotive textiles at up to 400 square m/hour, as well as other technical textiles and the full range of substrates, from cotton, silk and polyester to polyamide, nylon and leather.

BRIGHT SWIMWEAR DESIGNS

The swimwear sector, which is projected to be worth US$19.8 billion by 2018, has already recognised the potential for digital printing. Swimwear designers commonly produce a large number of collections each season, making use of intricate designs, bright colours and images that must be scaled to the size of the garment. The ability of digital printers to offer cost-effective short runs and deliver high quality meets their requirements.

The Lanaset/Eriofast XKS range of acid inks for polyamide (PA) and PA/Lycra fibres has been available internationally for around 18 months. The inks were developed for Kyocera print-heads and machines such as the new MS-JPK printers, enabling high-quality digital printing on polyamide fabrics at high speed to improve cost effectiveness.

At the request of customers, we have now extended this ink range to provide the bright fluorescent colours popular with swimwear buyers. The Lanaset Flavine XKS and Lanaset Rhodamine XKS inks have been approved by Kyocera and are already in use at various mills, particularly in Asia. The colour gamut and vivid designs achievable by digital printing with the eight-colour Lanaset swimwear system are unparalleled.

PARTNERSHIP FOCUS

As technical breakthroughs continue to redefine the possibilities for digital printing and help make more applications commercially viable, we expect annual growth rates of around 20% over the next five years, propelling digital printing to a more than 5% share of the total printed textiles market by 2018. By that time, digital printing will sit alongside screen-based printing in both established and emerging markets, commanding a greater share of the action in a range of sectors, including apparel and home textiles.

We are already seeing increasing interest and investment in digital printing by traditional mills in China, India, Indonesia, Pakistan and Brazil – with a profound impact on mill operations. Enabling much greater customisation, digital printing changes the way textile products are designed, produced and distributed. In turn, this demands that mills also change the way they work with their customers, suppliers and technology providers. More than ever before, partnership is vital to success. ■

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NEW DIMENSIONS IN FINISHING SUPERWIDE-FORMAT MATERIALS

Tom Naess describes why there's no need to choose between size and productivity

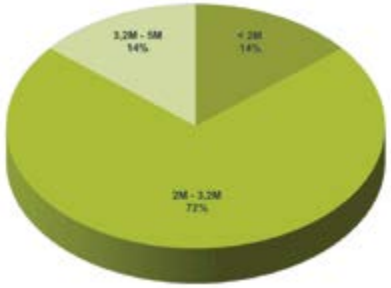
Anyone involved in wide-format digital printing knows the market has changed. Larger digital printers are taking on jobs with greater volumes, often on a wide variety of substrates, and customers require ever faster turnaround times.

Every year, the total wide-format industrial inkjet printer market expands by about 3,000 units, and all of the popular types of printers are experiencing fast growth. Flat-bed printers, primarily used with sheets of substrate, usually print 2 to 2.2m in width. Roll-to-roll printers accommodate rolls of flexible materials from 2 to 5m in width, while hybrid printers can print both sheets and roll-to-roll materials from 2 to 5m. In general, about 14% of printers work with materials less than 2m, 72% with materials ranging from 2 to 3.2m wide, and 14% with materials from 3.2 to 5m wide.

CHANGING FINISHING NEEDS

Sign manufacturing and display businesses installing finishing equipment, like cutting tables as part of their operation, are not a particularly new phenomenon. In the earliest days of working with rigid substrates, routers and milling machines were used for industrial and decorative production processes. This was complemented by easy-to-use software that enables vector shapes and outlines to be interpreted easily into accurate cutting paths for a variety of applications.

In-house finishing departments utilising digital finishing systems tend to be more profitable and – just as important to the customer – can handle very short turnaround times, thus adding greater value. Studies indicate that 70% of all digital jobs must be fulfilled within two days. While standard finishers are certainly beneficial for wide-format printing, a 3.2m width cutter allows access to an additional 55% of digital print jobs. What applications are they producing? For the most part, sheets and rolls of corrugated, synthetic sheets, vinyl, PVC banner and textiles.



Printer widths most commonly used by wide-format printers (all printing technologies)

The Kongsberg C64 model of Esko's new Kongsberg C platform works with 3.21 x 3.2m wide materials

With this wide variety of substrates, Esko conducted a user survey to check if having both milling and cutting capabilities on the same finishing machine would be helpful. On a scale from 1: not helpful to 5: very helpful, the average score was 4.7 – in other words, the availability of broader finishing flexibility was particularly desired.

The current market situation demands wider digital finishing equipment, at least 3.2m. It needs to be versatile, able to work with both sheets and rolls, and process a wide range of substrates for an extensive variety of applications. And, given the need to process jobs very quickly, finishing equipment needs to be productive – the faster, the better.

GETTING TO A MORE VERSATILE, LARGER FINISHING SYSTEM

There are several digital finishing tables on that market that certainly handle wide materials, but physical challenges make it

Continued over

Esko's new Kongsberg C Series is a fully featured superwide-format digital finishing system

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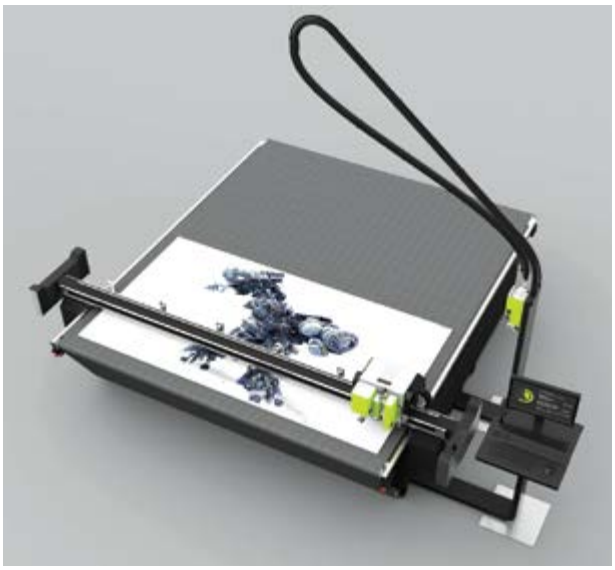


Looking down on the Esko Kongsberg C system

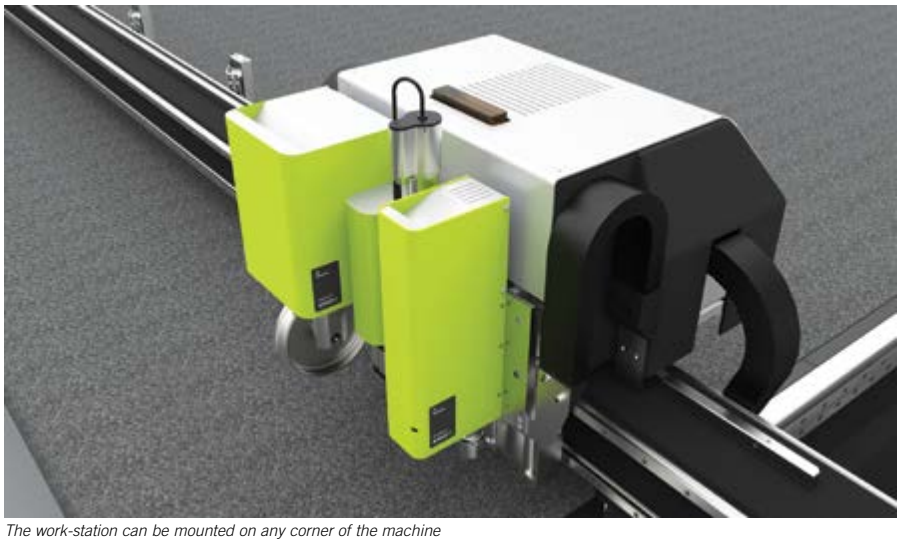
difficult for these tables to work quickly and do more than just cutting. The finishing precision in cutting and milling is also challenging. The limiting factor there may be the traverse bar that spans the entire width of the table. If it is not strong, rigid and stable, it can bend while the machine is cutting or milling due to the extreme torque. When that happens, at the least the cutting is not accurate and milling is impossible. At worst, the beam can bend over time.

Acknowledging that wide-format digital printing continues to rapidly escalate productivity that requires faster turnaround times on an ever-increasing variety of larger materials, Esko introduced a completely new Kongsberg digital finishing system, the Kongsberg C. The first model, the Kongsberg C64, was demonstrated at the recent 2013 SGIA Expo.

Kongsberg C systems are the first fully-featured superwide-format digital finishing systems. They are not scaled up from a light-duty finishing table, but are a completely re-engineered platform, and are designed for 24/7 production and semi-industrial environments. Along with substantial flexibility, the wider format perfectly fits 3.2m wide-format printers, working with wide rolls as well as wide sheets. The C64 model works with 3.21 x 3.2m materials. Also available is the smaller Kongsberg C60 which accommodates 3.2 x 1.6m sizes. Covering more than 3m across the table is a unique, extremely rigid, carbon-composite traverse beam that assures excellent precision and supports high speed, fast acceleration, high quality creasing and powerful 3kW milling capabilities.

Because of the strength and rigidity of the traverse beam, there is no fear of bending, nor loss of quality. Consequently, the Kongsberg C is able to consistently produce high quality finishing results, with no left/right/middle variances due to traverse bending. It delivers the same performance every time, even on the most demanding materials or the most complex jobs. There is no inconsistency, even from one side of the table to the other. Unlike other superwide finishers, it does not decelerate with demanding materials so it handles all jobs without sacrificing quality or throughput. Thanks to its robust design, the Kongsberg C is capable of working with the widest variety of materials of any superwide finisher – from paper and textiles to corrugated up to triple-wall thickness (unique to the Kongsberg C), fluted board, plastics, aluminum composites, and more. The Kongsberg C also has a very high throughput because it does not have to compensate for a weak traverse beam. As this beam is not susceptible to extensive torque, the machine is the only superwide finisher on the market today that can offer a 3kW continuous duty high-performance milling unit.

In summary, with the wider format, power and strength there's no need to choose between size and productivity. The Kongsberg C offers both and eliminates the necessity for customers to invest in different digital finishers devices for different applications. With the Kongsberg C, one machine fits all production needs – rolls, sheets, corrugated, milling – offering a more effective and smaller footprint solution than having to own multiple systems and a larger footprint on the plant floor.



The work-station can be mounted on any corner of the machine

VERSATILITY FOR TODAY'S PRODUCTION REQUIREMENTS

The newly developed system has not only been re-engineered; the design has also been reworked to apply to the highest standards of industrial design and meet operator needs for ergonomics and safety. The system runs with far less noise than other systems and, for a machine so large, the Kongsberg C is also very easy to use. This is apparent in the new, simple interface and the ease of replacing interchangeable tools on the table.

A new work-station can be mounted on any corner of the machine. The manoeuvring concept places an integrated joystick and operator panel on the traverse which can be situated on either side of the table. In fact, to make it easier for another operator, a second panel can be added. Just like with all Kongsberg models, Esko's i-cut Vision camera system allows to read multiple registration marks and correct skew and distortion in the media. The table can be upgraded to fit production needs with additional tooling, a conveyer feed system, roll feeder unit and more. For easy loading and unloading, the new conveyor option can be manually jogged in both directions.

Kongsberg tables have always been developed to offer precision drafting and cutting systems for specific market requirements, from industrial to sign and display, and packaging. The strength and reliability of today's systems are testimony to the decades of research and development, resulting in highly sophisticated cutting solutions which have been perfected over many generations of machine manufacturing. With the need to match even wider formats, the Kongsberg C appears ready to lay claim as the leading super-wide system. ■

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UNDERSTANDING THE SEVESO III DIRECTIVE

Elaine Campling evaluates the background, the scope and the latest revisions

The new Seveso III Directive on the control of major-accident hazards involving dangerous substances entered into force on the 13 August 2012 and requires national transposition by 31 May 2015 for implementation on 1 June 2015.

A revision to the directive was necessary to align the hazard classification criteria with changes to EU legislation on the classification, labelling and packaging of substances and mixtures (Regulation EC No.1272/2008), the CLP Regulation implementing the UN GHS criteria.

The original Seveso Directive was prompted by the accident at a chemical plant in Seveso, Italy in 1976, when significant quantities of dioxin was released as an unwanted by-product from a runaway chemical reaction, causing significant environmental contamination. More than 600 people were evacuated following the incident due to health concerns. Council Directive 82/501/EEC was enacted in 1982 on the major accident hazards of certain industrial activities and became more commonly known as the Seveso Directive.

Subsequent amendments to the Seveso Directive (largely to broaden the scope) were made in 1987 (87/216/EEC) and in 1988 (88/610/EEC), following further chemical release, in particular, the tragic chemical incident in Bhopal in 1984 involving methyl isocyanates, which is widely reported as resulting in the loss of thousands of human lives. A warehouse fire in Basel in 1986 resulted in extensive environmental pollution, when fire-fighting water containing mercury and organophosphate pesticides polluted the River Rhine.

A complete revision followed in 1996 with the adoption of the Seveso II Directive (96/82/EC), with the addition of new named substances, changes to existing named substances and generic categories, including revised qualifying quantities and changes to the aggregation rule (see below). Additional requirements were included relating to safety management systems and emergency planning, following analysis of major accidents within the community. Provision for information exchange and land use policy and planning was also a feature of the revision in an attempt to reduce the risk of domino effects between neighbouring sites, and also the effects of a chemical accident on residential and ecological communities. Seveso II was further extended by Directive 2003/105/EC, following further industrial accidents and studies relating to carcinogens.

SCOPE

An establishment is in scope of the directive when substances are present in quantities equal to or in excess of the qualifying thresholds set out in Parts 1 and 2 of Annex I to the directive.

Part 1 is a list of generic hazard categories, now following the classification criteria of the CLP Regulation, but was previously based on the risk phrases of the DSD/DPD*, which the CLP Regulation repeals.

Part 2 is a list of named substances.

There are two thresholds, lower tier and top tier based on the quantities held on site, which define the extent of compliance activities. The requirements for top tier sites are extensive and are reported to involve quite substantial cost to establishments with top tier status, particularly in member states where Competent Authority charging systems are more expensive.

The quantities to be considered are the maximum quantities present, or likely to be present at any one time, and include the potential for chemicals to be produced during chemical reaction, whether planned or otherwise. In the case of substances or mixtures falling within more than one hazard category, the lowest threshold is to be applied.

An establishment may still be in scope even if the thresholds are not reached for any named substance or individual generic category, due to the requirement to aggregate similar hazard categories. Thus, for example, substances with a physical hazard classification are aggregated using a partial fraction calculation. This is performed by adding together the resultant values obtained from the division of the quantity of each category, divided by the threshold limit for that category. If the aggregate value is greater than 1, the establishment is in scope.

THE NEW DIRECTIVE

The timing of the implementation of Seveso III is not so good for mixture manufacturers, since the 1 June 2015 implementation deadline coincides with the deadline for compliance to the CLP Regulation. Many organisations will be heavily burdened with trying to arrive at accurate classifications for their mixtures i.e. products such as printing inks to a very different system of classification, which is more complex and judgement based. It is very likely that for most organisations new software systems will be installed, which will require extensive testing and validation.

Some organisations will be newly brought into scope of Seveso, as a consequence of the difference in the classification criteria of the CLP Regulation, or due to the inclusion of further named substances in Part 2 and broadening of scope to the generic categories in Part 1. Other sites may transgress to top tier status. It is likely that a significant number of organisations with current Seveso status will be required to re-notify due to the changes in scope impacting on their chemical inventories. Some top tiers sites will also be required to revise safety reports to align with Annex 1.

The new directive strengthens the public information disclosure requirements and sharing of information with neighbouring sites. Although there is some provision concerning confidentiality of information, this has raised obvious significant concern within industry particularly related to site security and commercial confidentiality.

Although there is also some provision in the directive to exempt individual substances, industry opinion is that an opportunity was missed to change the scope from exceeding qualifying thresholds to a more risk based assessment of an establishment e.g. organisations that are in scope due to the storage of small pack sizes that are unlikely to result in significant environmental release – there is no pack size relaxation in the requirements, as permitted by other regulation e.g. limited quantity derogation within transport regulation.

Some organisations are in scope due to the presence of substances in mixtures and may not have any pure substances on site, or conduct any manufacturing or processing activities. An organisation may be out of scope with significant quantities of a pure substance on site, just below the qualifying threshold, whilst another organisation is in scope with smaller quantities of the substance present in product formulations due to classification limits for substances in mixtures being exceeded. This has not been addressed by the revision.

For ink manufacturers and similar industries, the Dangerous to the Environment qualifying thresholds have been particularly problematic. The lower tier qualifying limit for toxic to aquatic organisms is 200 tonnes and 500 for top tier status. With some necessary ingredients of printing ink formulations classified as aquatic toxicants, many printing ink companies are in scope. This is in part due to the substances on site, but also due to the content of these substances in their ink products above concentration limit for classification, which are typically contained in five litre quantities. The control measures that a particular organisation may have implemented, such as bunding of storage areas to prevent environmental release is not relevant, only the quantity on site.

There is no doubt that it is vitally important to protect human health and environment from the accidental release of chemicals. However, in keeping with other health, safety and environmental legislation, a risk based approach would be more relevant, especially since it is likely that many more substances and therefore mixtures will be classified as hazardous under the CLP Regulation due to differences in the classification criteria. Many more organisations may come into scope and lower tier sites may cross the top tier thresholds, which will have significant economic impact.

The directive is yet to be transposed into national legislation, but there is a reported lack of consistency in the way individual member states interpret Seveso and in turn, the way individual national Competent Authorities enforce the legislation. Some member state Competent Authorities are said to charge only nominal inspection and management fees and help their industries to comply with their national legislation, while others impose high fees, which impact significantly on business, in the UK for example. Member states should work together to achieve consistency of interpretation and application. ■

**Dangerous Substances Directive (67/548/EEC)/ Dangerous Preparations Directive (1999/45/EC).*

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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SOURCING SUITABLE UV SOLUTIONS FOR GLASS TECHNOLOGY

Guust de Jong outlines the available options

Coming from the sector for UV screen-printing equipment, TECHNIGRAF has developed a strong position in finishing glass technology, offering a large range of UV solutions. A good example is its VARIOCOP S Combi and the popular AKTICOP series. In two- and three-dimensional finishing of glass components and products this means there is a selection of solutions that can be adapted to customers' industrial needs.

For flat glass the AKTIPRINT G offers a solution for medium to large glass panels, either for the UV curing of lacquer or for UV sensitive ink and colours, available for one- and two-sided processes. The AKTIPRINT B is a container/moulded parts UV dryer and can be adapted to various sizes.

The focus is to include solutions for energy saving as well as heat reduction, and AKTIPRINT G and B equipment both have electronic steering of lamp output ensuring a perfect match to the irradiance necessary for an optimal curing result. Additional inlet and outlet control is also available, ensuring efficient use of energy.

The spectra of ultra-violet can be adapted from standard mercury to high efficient gallium UVA as well as iron doted UVB lamps, depending on the photon activation and sensitivity in the substrates used.

HIGH KNOWLEDGE LEVELS

TECHNIGRAF offers service assistance with its own staff, ensuring high levels of knowledge regarding the installation and application of UV equipment installed.

As well as its wide range of medium pressure UV lamp solutions, TECHNIGRAF also offers LED UV options. One of the other core places where UV dryers are used is in laboratory installations. The AKTIPRINT Mini and electronic series are to be found in laboratories around the globe and are well appreciated by scientists for their ease of use and reproductive test results, in combination with TECHNIGRAF UV Integrator measuring equipment.

TECHNIGRAF was founded in 1965 by Walter Stumpe and, in 2012, the company was taken over by Claus-F Drews and Guust de Jong.

As General Manager, Drews has had more than 25 years experience at MAN Roland and now brings Technigraf to new standards of technology while de Jong has worked at Philips Lighting for more than 25 years and is a specialist in UVA, UVB and UVC as well as in specialist lighting applications. He is responsible for the portfolio and expansion of international business.

TECHNIGRAF's VARIOCOP S Combi exposure unit

FULL INTEGRATION

TECHNIGRAF is a fully integrated company with in-house engineering and design, CNC as well as forming technology for parts, housing, frame, optics, UV glass and of course the entire electrical manufacturing part of UV equipment.

The range of standard products is available at short notice, but custom designed solutions can also be processed in very short lead times as TECHNIGRAF controls its in-house process. For projects, contact with customers is from base design to after service and offers a reliable UV polymerisation process. As a result, customers around the globe are served with equipment which is adapted to local parameters and standards. ■

Guust de Jong is responsible for the portfolio and expansion of international business at TECHNIGRAF.

The AKTIPRINT G is suitable for the UV curing of lacquer or for UV sensitive ink and colours

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BUMPER ORLANDO EXPO FOR SGIA

Sessions and receptions complement busy show

This year's SGIA Expo was held in Orlando at the Orange County Convention Center and showcased the most innovative technologies in the speciality imaging marketplace. According to organisers, exhibitors and visitors alike, the event was an unprecedented success. As an exhibition with a truly international flavour, it's now agreed that this event provides a key opportunity not only to see and have demonstrated new equipment and technologies but, also is an ideal networking opportunity which is also proving to be a valuable aspect for all trade show attendees.

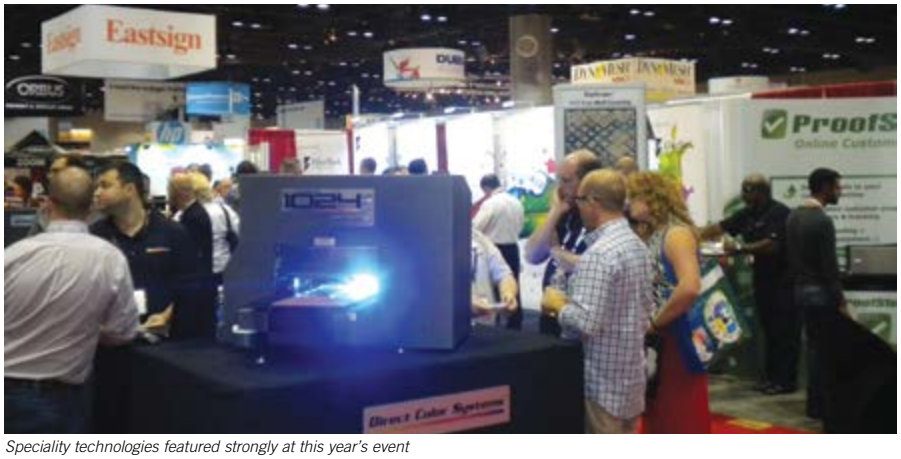
Reports state that some 22,400 people registered to attend the expo, which featured 534 exhibitors and was 100% sold out, according to the organisers. Among the visitors it was interesting to note that higher numbers of sign-makers turned out this year and came to Orlando but, of more relevance perhaps to the direction in which the industry is moving, there was a significant increase in print companies from the offset litho sector.

Apart from the United States, the country break-down was also revealing, with Canadian visitors showing the highest representation, followed by Mexico, China, Colombia and Brazil. Proving popular were the latest wide-format ink-jet technology as well as digitally printed textiles, and the most up-to-date garment decoration techniques.

The exhibitors provided attendees with full information about new equipment, and the opportunities which can be generated. Complementing the activity on the show floor, there were more than 40 educational sessions, and seven networking receptions. Additionally, this year saw the first-ever co-location with the Industrial Fabrics Association International Expo, offering attendees of both shows the chance to see new opportunities, in action.

SGIA Expo in Orlando hosted 534 exhibitors and 22,400 visitors

The seven Expo-exclusive Zones included new additions for 2013 with the Strategic Sustainable Solutions Zone and the Digital Textile Printing Zone giving attendees the opportunity to benefit from a wealth of knowledge available across the full spectrum of speciality imaging. There were industry experts on-hand to give informative presentations, lead instructional and fascinating demonstrations and answer questions. These doyens included Charlie Taublieb of Taublieb Consulting and Lon Winters of GraphicElephants.com, both in the Screen Printed Apparel Training Zone). Syd Northup of Gans Ink and Supply Co was in the Color Management & Workflow Solutions Zone and John Carthey of Corporate Installations featured in the PDAA Graphics Application Zone).



Speciality technologies featured strongly at this year's event

There were more than 40 expert-led education sessions spanning two days, and organisers say that they reached record levels of seminar attendance, confirming that the potential to learn at the SGIA Expo is at an all-time high. Topics ranged from 'Color Matching Secrets for Screen Printed Apparel' to 'How to Select Your First (or Next) Wide-Format Printer' and "Industrial Inkjet Technologies: State of the Art". This educational programme provided all attendees with the information essential to help graphics producers, garment decorators and professional installers take their businesses to the next level.

The consensus on this year's SGIA Expo is that has easily succeeded in its intention to lead the way into areas where speciality technologies are used, with wide-format now being complemented by other specialist sectors. Reports state that there was a sense of positivity through the show as innovative business ideas merged along with entrepreneurial spirit and creative solutions. This can only be achieved through the community having the right blend of experience and drive, together with a strong customer base, so that opportunities presented by the newest technologies can be maximised.

Next year the SGIA Expo moves back to Las Vegas with, currently, some 80% of the show already being sold out. Once again the event takes place in the Las Vegas Convention Center and runs from 22 to 24 October 2014. ■

Further information:
web: www.sgia.org

FESPA EURASIA

Exhibition attracts pan regional decision makers audience from 98 countries

Fespa Eurasia, which took place for the first time in Istanbul, Turkey from 3 to 5 October 2013, says it has set a new standard for wide-format printing and signage events in Turkey. An international audience of almost 7,000 individual senior decision makers travelled to the launch event from more than 98 countries. 26% of visitors travelled to the event from outside Turkey, with the most significant visitor groups coming from Bulgaria, Iran, Greece, Russia, Pakistan and Ukraine. Notable visitor groups also attended from the UK and Germany.

Fespa Eurasia Exhibition Manager, Michael Ryan comments: "Our visitor statistics give a very clear picture of the high calibre of the audience at Fespa Eurasia. There were 6,784 individual visitors at the event over three days, a figure which excludes exhibitor personnel and multiple visits; this made for busy stands and a lively launch event buzz. With many individuals also attending for more than one day, there was a lot of opportunity for the industry to exchange knowledge and discuss the latest innovations. For 73% of visitors their visit to Fespa Eurasia was their first time attending a Fespa exhibition, reinforcing our goal to reach new audiences, by taking the Fespa brand into developing markets."

He continues: "Our registration data revealed the audience to be investment ready – 68% of visitors were business owners or senior directors with overall purchasing responsibility. Indications are that the average budget for investment in wide-format printing equipment or materials in the next twelve months for visitors to the show was €225,550 Euros, with 44% of visitors planning to invest within six months. These are positive signals for Fespa, for Turkey, and for the wider Eurasia region."

The dynamism of the region's textile and garment printing industry was reflected in the high level of interest in textile printing equipment and consumables, and the enthusiastic visitor response to the Garment Central workshops demonstrating garment decoration and screen-printing.

Based on the strength of the participant responses to Fespa Eurasia 2013, it has confirmed that the second edition of the event will take place at CNR Expo, Istanbul, Turkey from 27 to 29 October 2014. ■

Garment Central was a popular attraction

FESPA MEXICO

Interest is positive after last year's record breaking event

Fespa Mexico 2013 welcomed 8,314 visitors through its doors from 15 to 17 August, 50% of which were in senior company positions and 44% had final decision making power. Some 125 exhibitors demonstrated products across the 11,000 square m floor plan, with the event taking place at the Centro Banamex, Mexico City. 13.5% of the total 125 exhibitors were new to Fespa Mexico 2013 and overall 13% of returning exhibitors increased their floor-space.

The theme for Fespa Mexico 2013 was 'discover a new world of print', which was designed to empower print service providers to seek out new business opportunities at the show, where they could explore new products, technologies and market trends to develop business solutions. Regular Fespa Mexico visitor, Leonel Mendez, MITA, commented on the show: "I come every year to stay up to date with the technologies in printing. There is always something new."

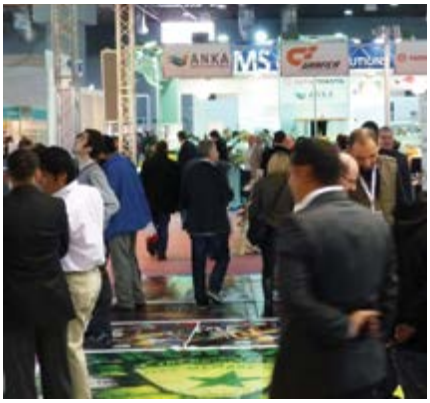
Fespa Mexico Exhibition Manager, Michael Ryan states: "This year's show was a tremendous success and we're delighted to continue the positive interest after last year's record breaking year. It's great to see the enthusiasm in the market is still here and the feedback we're receiving from exhibitors is extremely positive. The success of the show is represented through 60% re-bookings for next year's event."

Exhibitor Juan Jose Lozano, Papelerías Lozano Hermanos adds: "Fespa is the gateway to promote our wide-format printing products in Mexico. Today, Fespa is one of the most important events and we consider it the leading exhibition in our market."

The show was host to feature favourites including Wrap Professional, sponsored by Avery Dennison, which saw 32 vehicle decorators battle for this year's champion title and prizes. First place went to Miguel Ángel Gallardo from High Media Graphics (HMG), who was runner-up in the 2012 edition. Garment Central proved to be a popular attraction offering eight completely free sessions during the exhibition covering garment decoration techniques, while the conference provided daily sessions from design to colour management to digital signage.

Edsel Lonza, Sales Manager, Xaar Latin America, representing FESPA's Global Technology Partner, Xaar, says: "This was a very productive show for Xaar in an extremely buoyant market. We had positive discussions with the leading local resellers and distributors who are looking to assemble specialist wide format graphics printers in Mexico and who need to rely on a leading print-head supplier who has a local presence and can provide expert technical service and support."

Fespa Mexico 2014 will take place from 21 to 23 August 2014 at the Centro Banamex in Mexico City. ■



There were 6,784 individual visitors at the inaugural event

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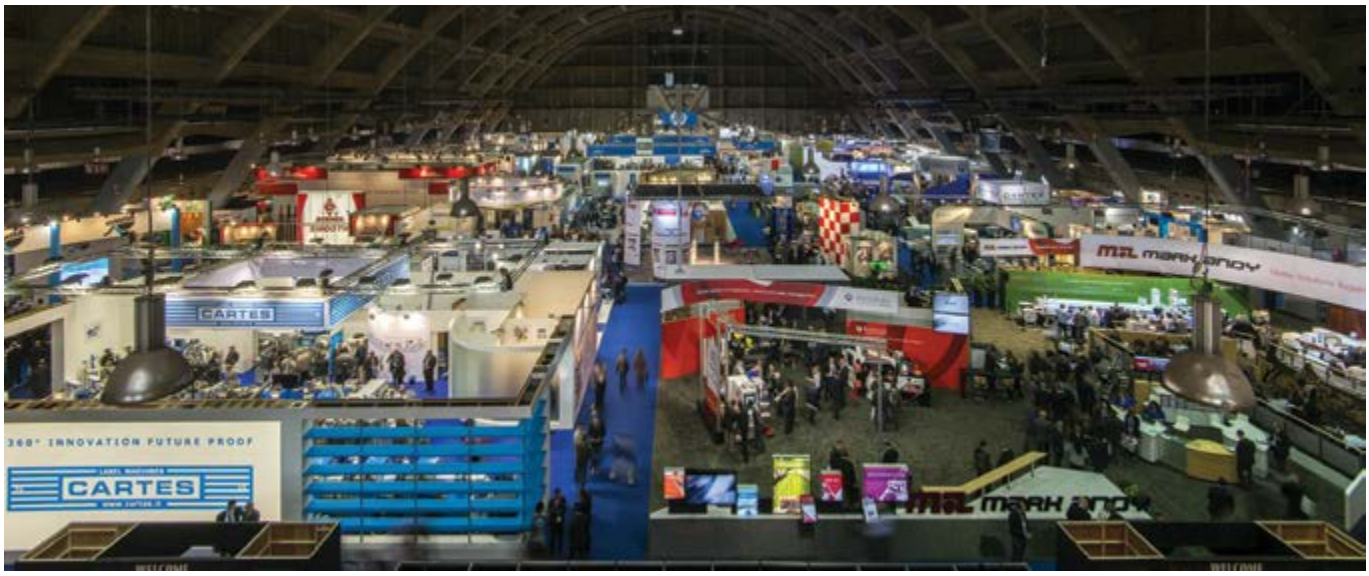

Labelexpo Europe occupied its largest ever show floor size

GROWING MARKET OPTIMISM SHINES THROUGH AT LABELEXPO EUROPE

Largest edition yet at Brussels Expo

Labelexpo Europe 2013 has reported its largest ever edition with record-breaking attendance figures. The show, which took place from 24 to 27 September, covered seven of Brussels Expo's exhibition halls for the first time and attracted 31,795 visitors (up 11% on 2011) from 158 countries (up from 123 in 2011) and just under 600 exhibitors (up from 550 in 2011). Underlining the show's importance to what is the fastest growing sector of the wider print industry, Labelexpo Europe occupied 31,000 square m, its largest show floor size in its 33 year history.

As the label and package printing industry's major platform for product launches, Labelexpo Europe 2013 saw the unveiling of more than 150 new products including presses, ancillaries and consumables. Big launches included Epson's Sure PrecisionCore technology and its Surepress L-6304 UV ink-jet label press, Mark Andy's award-winning Pro-LED flexo curing system, Ritrama's Core Linerless Solutions and Screen's Truepress Jet L350UV single-pass ink-jet press.

The Gallus stand at Labelexpo Europe 2013

Numerous market leading exhibitors increased their presence at 2013's event including Avery Dennison, Durst, EFI, Gallus, HP Indigo, Mark Andy, MPS, Nilpeter, UPM Raflatac and Xeikon. By the end of the show, 86% of the space had already been rebooked for the 2015 edition – the highest ever on-site rebook rate.

FEATURE AREAS

Labelexpo Europe 2013 also welcomed the successful debut of several new busy feature areas. The Package Printing Workshop showcased the opportunities both digital and conventional printing can bring to folding carton, lid laminate and stand-up pouch decoration. The Inkjet Trail put the different available ink-jet technologies under the spotlight and compared their results when producing identical label designs on the same label stocks.

Lisa Milburn, managing director of Labelexpo Global Series remarks: "With the

Eurozone now out of recession, confidence and optimism is beginning to return to wider global industry and converters are starting to invest in their businesses again. This year's Labelexpo Europe is without doubt another world-class event. Seeing our manufacturers and suppliers making sales here confirms that Labelexpo Europe is the best-selling platform in the label and package printing industry with printers prepared to spend high on capital equipment."

Milburn concludes: "Continued innovation across the various product groups and strong, sustainable growth in demand across the labelling and package printing market are being translated into sizeable order books. We've again had excellent feedback from exhibitors underlining that Labelexpo Europe is the show to secure significant sales with numerous reports of many presses being sold."

Duncan Ferguson, Epson Europe, states: "Epson had the busiest Labelexpo Europe yet, with more than double the leads taken compared with 2011. The announcement of Precision Core technology coupled with the new SurePress L-6034VW digital label press created huge interest. Many orders were taken for products at the show, including the SurePress L-4033AW digital label press and SureColor SC-S70600 wide-format printer."

LABEL INDUSTRY "MELTING POT"

Christof Naier of Gallus comments: "Once more Labelexpo Europe was the melting point of the label industry for four days and proved itself as the number one exhibition worldwide and a must-see for every label printer. For Gallus it was an excellent show. In total we were holding 61 live demonstrations with more than 30 percent more visitors compared to 2011. Sales of digital and conventional equipment at Labelexpo have already reached high double-digit and numerous highly promising leads came with active projects."

Phoseon Technology's Stacy Hoge adds: "UV LED curing technology was a hot topic at Labelexpo Europe this year. Our high amount of booth traffic from OEMs, ink suppliers and end users interested in UV LED curing technology was really impressive. UV LED for digital ink-jet has been gaining world-wide adoption for several years; there were more than 15 stands running UV LED for digital ink-jet at the show. The advancements in UV LED for flexographic printing were also quite impressive. The live flexo presses running UV LED at Labelexpo prove that it is a viable technology for flexographic printing today."

Jeanette DesJardins of Spartanics says: "Labelexpo Europe 2013 in Brussels was an overwhelming success. This year, we were honoured to have the opportunity to share our 50th anniversary celebration with the thousands of visitors. By the conclusion of the show, Spartanics had educated hundreds of show visitors on the benefits of laser die-cutting and how it makes sense for their bottom line, as well as, successfully qualified over 200 plus leads."

Finally, Jonathan Sexton of Sun Chemical comments: "Sun Chemical had an extremely successful show at this year's Labelexpo Europe 2013 with 40% more leads compared to Labelexpo Europe 2011. At this year's show we displayed all of our different capabilities for the narrow web label and packaging market on the stand, which resulted in more visitors on the stand at one time than we've ever had at a Labelexpo show. Labelexpo Europe was also the launch pad for our new product, SolarFlex Neutron White, which generated great customer interest generating more than 100 inquiries. The geographical breadth of visitors to our stand from more than 70 countries means that we will also be looking to extend even further our reach in narrow web into developing regions." ■

Further information:
web: www.labelexpo-europe.com

INPRINT 2014 WILL SHOW NEW DESIGN CAPABILITY, NEW PRODUCTION POTENTIAL AND NEW MARKET CREATION

Digital ink-jet is enhancing, not replacing, traditional industrial print processes

Industrial ink-jet is quietly revolutionising manufacturing print. Quiet, because we, at InPrint, do not believe that analogue technology needs to fear it. Why? Because, according to our research, digital print technology is complementing and not displacing analogue production by creating new value.

It is a fact that digital print technology enables shorter run manufacture, mass customisation and more flexible production alternatives. The revolution with ink-jet at its core is enabling printing, deposition and advance manufacturing possibilities that never previously existed.

Analogue processes however, still remain the most efficient, precise and durable for many mainstream applications in mass manufacturing. Ink-jet won't replace screen-printing in terms of the production quality for tablet production, for example.

But digital ink-jet technology is most certainly making its presence felt. Clive Ayling, General Manager of TTP Meteor explains: "Digital is most certainly enlivening markets but I don't believe it is replacing the traditional technologies. But it is providing value that didn't exist before."

And for some markets such as ceramic and textile, it has significantly enhanced production that was otherwise contracting due to the fact that production was shifting east to where the cost of production was significantly lower. Indeed, without the introduction of the new ink-jet technology, due to the considerable competition from Asia and other rising economies that have a lower cost production and greater economies of scale, these industries could have all but disappeared from Europe.

The ability that digital technology has to mass customise production is incredibly compelling. As Mark Hanley, President of IT Strategies and InPrint Ambassador points out in the InPrint White Paper: "Ink-jet and digital printing technology in general carries with it the long-term promise of true customised print based on fully variable data input. This is what analogue print will never be able to do."

This is where digital is contributing to production, but the shift is more constructive as opposed to destructive, as we have witnessed in relation to the graphic print production sector where digital technology has almost entirely replaced analogue technology.

NEW DESIGN

A key part of this quiet revolution is in design. As Roberto Zinser and Ed Lensen from Canon explain: "We are seeing from our customers the creation of new designs they would never have been able to achieve before the invention of ink-jet. This goes from something as seemingly small as the width of a line on a control system for an electronic device. It means designers have new possibilities, meaning it is creating new value and the potential is hugely exciting."

Tim Phillips of Xennia agrees: "Ink-jet in a number of different application areas is liberating designers to try things never previously possible with traditional processes, such as gravure. The risk of getting it wrong when the mistake is so costly, dramatically reduces innovation. The advantage of ink-jet is that it is reducing this risk whilst opening up a sea of new creative potential for a designer, whether it is textile, ceramics, glass, wood plastics, lamination or other decorative applications."

So ink-jet is creating new potential for industrial product design. This could mean that a very small change to the way something is printed means a design feature is enabled. And this is where ink-jet has a considerable contribution to make.

Xaar's Mark Alexander

Canon's Roberto Zinser

And, with digital printing, the speed from design to production has also increased. An idea can reach production reality far quicker, especially so for smaller run output using industrial ink-jet.

NEW PRODUCTION

Take a look at the fashion industry. Alessandra Borghi, Commercial Director for digital textile ink manufacturer Kiian, explains the change for textile production. "For retailers like Zara, they need to be able to respond to fashion tastes far more locally, and in line with a constantly evolving landscape. So mass production, that is quite slow to respond, and

Tim Phillips of Xennia

Frazer Chesterman (left) and Marcus Timson, organisers of InPrint 2014

that has a general approach, doesn't provide retailers with the local style or the response time they need. There is no point in having huge stock inventory of low cost production textile, when fashion has moved on and nobody is buying a particular production line. Fast fashion requires fast design and production and digital textile production is increasingly being moved closer to the retail markets they are designed for, meaning better sales, a huge reduction in stock inventory, whilst minimising risk and cost."

The market for mass manufactured clothes remains intact. So it is not to the detriment of analogue processes, because it is creating new need. It is creating new market formation, but not purely at the expense of the traditional technology. The industrial print market is valued as a $100 billion industry and there is, therefore, plenty of scope and space for new developments.

Hanley continues: "In the long run digital print only finds a place where it does something analogue print cannot. Sometimes that is a direct feature of the technology where, say, screen-print quality standards can be exceeded, or sometimes it is more of an indirect feature as where digital print as a component of an integrated digital factory enables a 30% cost reduction in manufacturing. In this sense no-one buys digital print to substitute analogue print technology whose reason for existence is cost leadership against digital, where the cost is significantly higher when compared to analogue."

Alessandra Borghi, Commercial Director of Kiian

Surface imaging has, up to now, been the most visible example of growth ink-jet is making for industrial print. But it is also making inroads into direct printing onto curved plastic and glass surfaces. In Germany companies such as Till, Hinterkopf and Kammann have developed machines to service this demand and, in France, Machines Dubuit, Cyan-Tec in the UK, and INX Digital in Italy are developing technologies that enable printing onto curved surfaces whether this is plastic, glass, or metal.

THE VALUE OF VERSIONING

For printing onto consumer goods, this enables versioning never previously possible. The technology is already being used to help promotion, increase the effectiveness of coding and stock control as well as more localised design and communication on the product itself as opposed to purely printing onto labels.

And companies within Germany are leading the way – Till, for example caused quite a stir at Drinktec with its curved printing solution that deploys Xaar heads.

Mark Alexander, Xaar, and InPrint Ambassador continues: "Direct-to-shape ink-jet printing is generating significant interest from brand owners, in particular, because it has the potential to add value in a number of ways. The ability to eliminate the hidden print costs of traditionally printed labels, such as the label itself, over-runs, waste and logistics makes this a compelling financial proposition. In addition, brands can be much more creative than they can with traditional print or labels; for example, printing onto grooved and ridged areas that are not suitable for labels. Added to this, direct-to-shape printing enables mass customisation, product localisation and fast-response marketing campaigns – such as printing the football scores at the end of a match on a beer bottle which is sold in the bar to fans after the game."

But, with the attention placed upon decorative printing, it is also clear that ink-jet is making inroads into the functional printing sector, as Hanley explains: "Whilst it is clear that ink-jet is making gains in terms of decorative surface imaging, there are clear innovations within functional print where ink-jet is being introduced into the decoration and function of white goods. Whilst it is still early in the innovation cycle, the technology may well provide manufacturers with additional value in terms of technology that assists personalisation, helps effective prototyping and could also be integrated into the manufacturing line."

NEW MARKET CREATION

With this amount of innovation, it should come as no surprise that new market creation is forming and will continue to develop as digital ink-jet continues to develop in its flexibility, speed and quality.

New business is forming out of digital ink-jet's role within the manufacturing sector. IT Strategies rates the growth of ink-jet within the industrial sector to be $20 billion in ten years. This means that, within industrial supply chains within multiple industries, we will see growth by creating new value, and new companies will form to cater for this demand, that provide speciality services, fulfilling new roles in the supply chain.

But this development will not automatically mean that analogue processes will stop having a place in industrial print. We believe the bulk of industrial printing will remain in the hands of analogue processes, such is the size and, of course, the high technical level of demand for production.

Digital ink-jet is certainly carving out a role for itself within manufacturing, and it is most certainly here to stay.

Visiting InPrint 2014 in Hannover on 8 to 10 April 2014 will provide the answers for those either looking to enhance and improve their production performance or looking to access new technology to supplement and improve production whether speciality, digital ink-jet or 3D printing. ■

Further information:
web: www.inprintshow.com

SPI 2013 MAINTAINS ITS SUCCESS STORY

The eleventh edition makes a winning debut in New Delhi

When a B2B exhibition pulls in focused industry visitors at Mumbai for two decades, there are bound to be requests from other parts of the country for it to take place there, too. Responding to this overwhelming demand, after ten successful editions in Mumbai, Screen Print India made its way to the NSIC Exhibition Complex, Okhla, New Delhi where it took place from 19 to 22 September.

Screen Print India 2013 ensured that exhibitors reached out to a focused audience and obtained maximum mileage. The four-day event attracted around 2,500 visitors from across India, and delegations from countries across the globe also visited the event. These were focused visitors, genuinely interested in exploring business opportunities and new technologies.

The fact that it was inaugurated by A K Sinha, Directorate of Printing, Govt of India, underlined the fact that it was a reputed exhibition with a well-established pedigree. Vimlesh Arora, SGAI office bearer and Managing Director, J N Arora & Company (P) Ltd and Rajeev Arora, Chairman J N Arora & Co (P) Ltd. were the other dignitaries at the inauguration ceremony, along with Virendra Malik of Sumi Publications.

Devang N Sheth, Director of Aditya Expositions, the event organisers, extended a warm welcome. "Screen Print India is the country's largest exhibition focused on the screen-printing industry and its applications. SPI 2013 provided a platform for upgrading the industry standards and achieving this growth through value addition strategies. As per the benchmark set by the previous exhibitions, this edition too had all the top guns of the printing industry participating," he states.

Visitors endorsed the move to New Delhi

Leading brands and associations endorsed the show's move to New Delhi

In his message to the those gathered at the inauguration, Anil Brahmbhatt, President, Screenprinting and Graphics Association of India, shared: "As a dedicated national industry representative body, Screenprinting and Graphics Association of India (SGAI) has always partnered with events that further its basic objective – to increase awareness about the latest technologies, equipment, and input materials among the screen-printing fraternity. This is why we have always supported the Screen Print India show."

Providing the icing on the cake was the presence of leading brands and associations, who have endorsed the same confidence in the name – Screen Print India – in a new city. J N Arora & Company (P) Ltd, a leading north Indian supplier of screen-printing materials, was the Platinum sponsor and the event was supported by SGAI, DPA and NIPA.

The exhibitor profile at Screen Print India 2013 encompassed technology drivers, knowledge transferees, manufacturers, distributors, dealers, service providers and allied companies, contributing to all processes incorprating screen-printing, textile printing and digital printing, with leading brands giving confidence in an established platform.

The venue was selected because of its capacity to accommodate more exhibitors and visitors. SPI 2013 highlighted the scope for growth and greater profits in the screen-printing industry. It also proved to be an excellent medium for all to gain insights into the latest technologies and machinery that can be utilised in this direction. ■

New technologies were embraced at the event

Screen Print India 2013 exhibitors were able to reach out to a focused audience

Further information:
web: www.screenprintindia.com/spi2013/

BRINGING THE NEXT WAVE OF PROFITABILITY

SGIA's Product of the Year Competition features strong entries

Michael Robertson

There are 101 Products entered in the 2013 SGIA Product of the Year Competition this year. The products are entered in 22 categories, and include:

- Flat-bed printers
- Roll-to-roll printers
- Various media types
- Inks
- Finishing equipment, and much more

Visiting the Product of the Year Competition display in the Golden Image and Product of the Year Gallery serves as a showcase for some of the key developments by manufacturers that will contribute to the ongoing success of the community. The competition underscores the great work being done in research and development and product development to give the printing and imaging community the tools and products they need to continue to bring value and new opportunity to their customers. Every year we see game-changing technology being introduced and awarded in the competition.

For reference, some recent Product of the Year winners include:

HP Latex Printing Technologies – The water-based formulations of HP's latex inks reduce environmental impact of printing. Sustainable solutions are eagerly sought after by print buyers in several markets, and latex inks help the speciality imaging community address the sustainability needs of their customers.

Durst Rho P10 250 – This ink-jet printer allows for printing on a wide range of rigid and roll media, which provides users a high level of versatility. This device brings a combination of speed, versatility and image quality desired by the specialty imaging community.

Visual Magnetic's InvisiLock – Invisilock works well in a number of applications, but the retail sector is a particularly good fit for this product. To keep customers interested and engaged, retailers are changing their environmental experience more frequently. InvisiLock is a magnetic mounting solution that allows for quick and easy graphic changes.

Roland DGA Corporation's metallic inks – The addition of metallic inks to full-colour digital imaging capabilities opened doors for specialty imagers competing with traditional printing technologies. Digitally applied metallic inks are suited to many products. However, metallic inks are proving to be especially valued for point-of-purchase applications.

Pacific Coast Fabric's Deko-Green – A printable fabric made from 100% recycled soda bottles, this fabric is well suited to several digital imaging applications including dye sublimation, dispersion, UV-curable and latex inks. Imaged fabrics are a fast growing market for speciality imagers and this product helps add value for print buyers.

Colex Imaging's Fotoba Dreamcut XLD – This production cutter introduced a new level of automation, helping speciality imagers compete in several markets. As digital printers become faster, and more types of media are imaged, graphic imagers need finishing technologies such as this, which match print production output.

EFI's VUTEk GS3250LX – An industrial-grade grand-format printer that employs 'cool cure' LED-curing technology. LED-curing technology reduces the cost of operation and helps graphic producers provide sustainable solutions for their customers.

These are just a few of the Product of the Year winners from recent years. All of the participants in the annual competition are to be congratulated for helping the speciality imaging community evolve, grow and maximise opportunities.

The Product of the Year Competition is held annually at the SGIA Expo. This year we can expect to see an exciting array of entries bringing new opportunities to the community.

For more information on the Product of the Year winners use Keyword: POY at SGIA.org. ■

Michael E Robertson is President & CEO of Specialty Graphic Imaging Association (SGIA)

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THE 360 DEGREE VIEW ON INTERIORS

Building bridges between industries and the world of print

ESMA has always been a helping hand to build bridges between different industries and the printing world. Industrial printing opened gateways to a lot of different niche markets, from glass to printed electronics and functional printing. The next step has now been made with printed interior decoration.

ESMA has already been involved in decoration through printing via screen-printing in automotive applications, glass decoration and house hold appliances. But, with the growing potential of digital ink-jet, the world of printed interior decoration has opened new frontiers for the printing world.

The world for interior decoration is changing rapidly and is asking for more than standard products. Colourful design and images are an enrichment for interior designers and the limitation is endless. Certain environments are stimulating these new styles such as restaurants, bars, hotels, offices and public spaces. A dynamic design can anticipate all kinds of benefits which are normally not available.

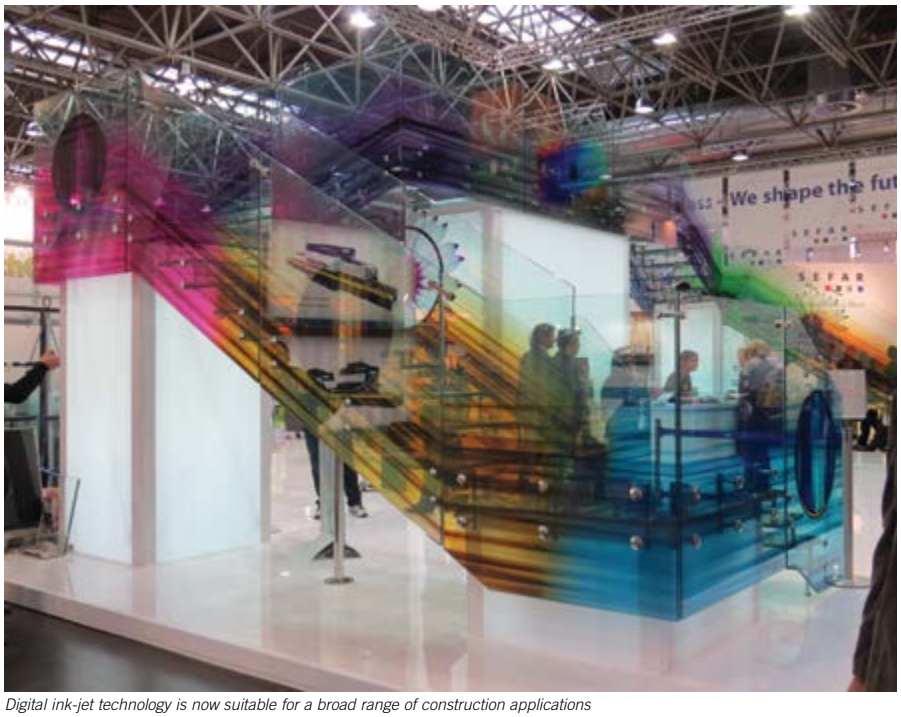
The construction or building world is a very conservative environment but one which is always looking for new trends. ESMA believes it can build a bridge between the interior design world and the solutions from the printing world. Currently, designs are becoming more trendy; but they are always a mass production product and the freedom of design in size, colours and materials is bringing the ultimate experience for integration in a total design.

ESMA's approach is a 360 degree view on the subject, not only for textiles, home textiles but also for ceramics, glass, wooden panels, laminate floors, tiles, carpet, wallpaper, upholstery and many more applications. Digital ink-jet technology has evolved in such a way that applications are feasible with the right requirements for the construction world.

To promote all possible applications within PID, a special website has been developed with an overview of all current applications with links to suppliers, printers and images of samples. The overview is on a European scale and is motivating as many companies as possible.

ESMA has launched also its first conference on 26 and 27 November 2014 in Düsseldorf. This conference gives a state of the art overview of equipment, materials and printing solutions in 16 presentations. Four keynote speakers will bring more information on business models, trends and market information on the subject of interior design. ■

Peter Buttiens is CEO of ESMA



Digital ink-jet technology is now suitable for a broad range of construction applications

There are limitless opportunities for interior designers

A special website has been developed that shows all current applications

ESMA believes it can build a bridge between interior design world and the printing world

ESMA
Driving Print Excellence

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The use of a triple durometer squeegee helps prevent dot gain, extends squeegee life and generates immediate savings on consumables through better control of squeegee pressure and angle. serilor®TXS3 is indicated for heavy deposit textile ink deposits. It is also well suited in printing water base and discharge inks where thread saturation of the substrate is called for.

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