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2011

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## MESSAGE FROM BRYAN COLLINGS

**With 2011 well underway, I am pleased to announce that the very positive feedback reported in our last issue from exhibitors at SGIA '10 on the strengthening North American market is further reaffirmed in this issue. On page 52 you can read about NASMA's latest meeting which reflects the views of 20 senior executives and owners from leading manufacturers in that region.**

The market recovery has been strongest in consumable supplies, but many machinery manufacturers are also reporting stronger sales. The same scenario also applies in Europe and is being reflected in stronger marketing spend by companies as they seek to hold onto and, hopefully, increase their market share.

The Process Information Centre on the Specialist Printing Worldwide website http://www.specialistprinting.com is still attracting favourable comments from our readers who will be pleased to find a new entry relating to a focus on Stencil Making Equipment and prepared by Grünig. With other companies working on buttons that will go live over the next few months, do keep an eye on the site.

This is a good time to give you a reminder that ESMA have their 'two in one event' in March in Düsseldorf, covering Advanced Functional Printing and a Membrane Switch Symposium. You can see more about the exciting programme of speakers on page 44. The event is well supported and seats are going fast so I recommend you making your reservation as soon as possible.

Lastly, if you value this magazine, as many global readers consistently tell us they do, the only way to receive the next four copies (a year's supply), is to subscribe at www.specialistprinting.com/sub_form.htm for a total of only €55, $80 or £45. More details on page 51.

Bryan Collings, Publishing Director,
*Specialist Printing Worldwide*

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## Dutch sticker producer moves into promotional market

*Stickerkoning's fleet of Mimaki equipment*

Following its initial start in 1986 under the name of 'Roaty zeefdruk', Stickerkoning now works with eleven Mimaki printers and cutting plotters supplied by the company's regular dealer Igepa. The addition of the desktop flat-bed UJF-3042 now enables owner Ron Vermeulen to continue with the expansion of his company into the promotional product sector.

Long delivery times and relatively high prices charged by Stickerkoning's suppliers were the deciding factor for the digital production of promotional articles. Vermeulen explains: "The delivery times offered by pen manufacturers and their suppliers are still long as a result of the start-up time required for pad printing. The UJF-3042 not only enables me to print the articles myself, but also to do it quicker.

Stickerkoning did not have to go out and search for customers as it was already trading pens and lighters via www.pennenkoning.nl. "The format of the average flatbed exceeds our requirements when printing promotional material," states Vermeulen. "Furthermore, the cost of a larger flatbed is at least three times what we paid for the UJF-3042. I also considered the advantages of Mimaki's UV LED print technology of major importance. I wanted to keep the heat generated on the material during the hardening of the ink as low as possible."

Stickerkoning was established in 1986 as a screen-printing business and, in 2006 Stickerkoning went digital. The Mimaki JV3 and CG cutting plotter, acquired in 2006, were exchanged in 2007 for the newly launched JV33. Reflecting further growth in sticker production another, three JV33 printers followed within two years, as did a JV5, which was mainly intended for photographic images printed at high speed. ■

## Loss of screen-printing pioneer

*Charles Tibbetts*

Former President of TW Graphics Group, Charles Tibbetts, passed away in November 2010, after a stubborn confrontation with cancer.

Before retiring as President of TW Graphics Group, Tibbetts was one of the leaders of the evolution of screen-printing from petroleum-based technology toward a more ecologically-friendly water-based technology.He was recognized by the Screen Printing and Graphic Imaging Association International for his many contributions.

Known affectionately as Chuck, Tibbetts was a fifth generation Californian, born in Eagle Rock in 1923, and remained in southern California throughout his life. His achievements included being a World War II Veteran, a D-Day survivor (Omaha Beach) and the proud holder of the Military Order of the Purple Heart and from being awarded two bronze stars. He graduated from Occidental College after service under the GI Bill and was a member of the Squires Club of Los Angeles.

Chairman of US Contest and Records Board, and United States Delegate to *Federation Aeronautique International*, Tibbetts travelled extensively and helped document the achievements of the Unites States space programme from 1957 through 1991. He was aboard the B-52 flight that established the Okinawa-to-Spain world record for unrefuelled straight-line distance flight in January 1962. ■

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## Marabu offers bright UV future for membrane switches

Ink manufacturer Marabu has introduced Ultraswitch UVSW, an ink based on innovative UV raw materials which overcomes the limits formerly encountered when using UV-curable inks for membrane switches. The new product fulfils the highest technical and optical requirements for front panels, membrane switches and other operational controls.

As an extremely elastic ink film, Ultraswitch UVSW provides simple post-processing. The adhesive-resistant ink film guarantees the bonding with the common spacer materials without dissolving the ink film.

For decorative function of the operational controls, UVSW scores with brilliant colours as well as an unlimited mesh opening, making it ideal for the smallest fonts and outlines.

UVSW can be combined with Marabu's solvent-based ink series for membrane switches Maraswitch MSW and Marastar SR. This is most important if opaque keyboard elements come into play. For these blocking layers the use of the corresponding MSW or SR products is recommended. Residual solvents in the multi- layered ink film and the risk of subsequent delamination should be excluded through (circulating) air-drying.

The Marabu UVSW range is available in 1kg unit in basic, high opacity and transparent options.

Ultraswitch UVSW912 offers a transparent, high gloss window varnish for printing onto structured PET foils, whilst Ultraswitch UVSW 912 is an anti-glare window varnish. These products feature first class chemical resistance and a streak-free appearance. ■


*Marabu's new Ultraswitch UVSW ink*

## EFI's Rastek is the right move forward for Coloursonic

*EFI's Rastek H650 in use at Coloursonic*

London based Coloursonic has invested in an EFI Rastek H650 UV-curable flat-bed printer, supplied by YPS Print Supplies. The company produces one-offs and low volume print runs for a wide variety of end users, including artists and photographers.

Experience gained from using different types of wide-format printer led Coloursonic to the decision that a dedicated flat-bed machine with a vacuum bed, that can also handle roll-fed jobs, was the best route forward. After thorough investigation of the market for UV-curable solutions which fitted the required price bracket, the EFI Rastek H650 was chosen because of its robust construction and high quality output.

Michaela Chandler, director of Coloursonic, states: "The idea of a solidly built flat-bed printer which featured a strong vacuum table appealed; many of the substrates we use need careful handling and probably wouldn't produce such good results in a typical hybrid machine."

Garry Brown, managing director of YPS comments: "Coloursonic is a great example of a company which needed excellent quality and all the versatility of a flat-bed printer without a huge price tag. Since we installed the EFI Rastek H650, it has performed flawlessly producing a vast variety of high quality prints on a wealth of different materials." ■

*Guido de Jong moves up at Avery Dennison*

## Avery Dennison appoints global services manager

Avery Dennison has appointed Guido de Jong to the strategic new post of Global Services Manager for its Graphics and Reflective Products Division. Based in Hazerswoude, The Netherlands, de Jong is briefed to develop a global platform of value-added services for converters, end users, brand owners and designers that will enhance their understanding of the possibilities of self-adhesive graphics, initiate creative thinking, and help to establish an ongoing dialogue on topics of common interest.

Prior to joining Avery Dennison in 2002, de Jong's career included postings as product designer for an international design agency, and manager of the product development department at 3M Filtration Products Europe. He has a master's degree in industrial design from the Technical University in Delft.

In his most recent position within Avery Dennison as Technical Services Manager, Graphics and Reflective Products Europe de Jong was responsible for the customer care department, technical support, and customer training and workshops. With his team in Hazerswoude, he also developed the online Avery Graphics Academy, launched this summer. ■

## New ribbons for Summa's DC4

Three new ribbons have been introduced by Summa for its DC4 thermal transfer printer, with the additions being matte silver, matte gold and rose holographic.

The rose holographic ribbon has an impression in the shape of a rose and can be used in combination with all other DC colours. Creating special effects in prints, Summa says the holographic ribbon offers unlimited creative possibilities. The matte silver and matte gold ribbons are particularly suitable for the creation of decals and serial number labels and, when used in combination with doming, they give brilliant results.

The DC4 is Summa's thermal transfer printer with a built-in contour cutting system. Using thermal transfer technology, the this machine offers a dry transfer printing process that uses heat and pressure to create a durable bond between the resin-based inks and the media. The resin inks are supplied on ribbons containing densely packed pigments suspended in a solid plastic carrier to offer highly abrasion resistant images. Output is suitable for long-term UV and water resistance with an outdoor durability up to five years without lamination. Additionally, thermal transfer printing produces no fumes at all, creates no mess and doesn't require daily maintenance nor the use of cleaning chemicals. ■

*Arnaud Maquinghen*

## New General Director for Tripette & Renaud Image

Arnaud Maquinghen has joined Tripette & Renaud Group as General Director of its subsidiary Tripette & Renaud Image.

This part of the group specialises in designing and making UV-curable inks and varnishes (mainly under its VFP brand) as well as promoting solutions for large and superwide-format digital printing.

With 25 years of experience in these fields, Maquinghen brings new dynamism to Tripette & Renaud Image and is determined to continue the growth it has enjoyed in recent years. ■

*Peter Detzner, third from the right, receives the Dr Eberle Innovation Award from Ernst Pfister, Minister for the Economy of the State of Baden-Wuerttemberg, second from the right*

## Prestigious innovation award for Isimat

Specialist printing machine manufacturer Isimat has received the Dr Eberle Innovation Award for its dynamic roller positioning system which is incorporated into the flexo printing stations of the company's new TH8130. The patent pending DRP system moves the flexo unit so the gap between flexo plate roller and mandrel is kept constant during a mandrel rotation and enables the printing of photographic quality images onto flexible tubes.

The 26th annual Dr Eberle Innovation Award was presented to the winners at a ceremony on 24th November 2010 in Stuttgart. It is sponsored by the State of Baden-Wuerttemberg, Germany and is for small and medium size enterprises.

Isimat's hybrid printing machine, the TH8130, is for tube decoration and features flexo and screen-printing units. Five TH8130 systems have been sold since its launch in November 2009, when the first two machines were introduced to tube manufacturers from 13 countries in four continents. ■

# SCREEN CLEANING THROUGH THE AGES

## With cost and environmental implications affecting cleaning and reclamation of screens, John Schluter outlines a fast and efficient alternative to conventional methods

**A common thread among screen-printers through the ages has been the necessity to clean (remove ink) and/or reclaim (remove both ink and stencil) the screen at the end of the printing process. Screen-printing has developed and matured over the past century, resulting in stable screen frames, photo developable stencils, and higher quality mesh. The economics of re-using the screen has made this a necessity. This need has come to an apex throughout Asia, Europe, and the Americas over the past twenty years.**

40 years ago, in the 1970s, the most common screen cleaning and reclaiming methods involved low-grade, hazardous solvents for ink removal (aromatics and hydrocarbon solvent blends), while emulsion and film reclaiming was accomplished with sodium metaperiodate crystals dissolved in water or common sodium hypochlorite, household bleach. Mesh stains were commonly removed with an additional application of one or the other, or both combined. Environmental issues were non-existent.

The cleaning and reclaiming processes at this time were primarily manual, involving scrubbing with cloth towels and scrub brushes. At this point in history, screen frames were evolving from wood to aluminium, where adhesive was used to adhere the mesh. Retensionable frames were also developing a following in the screen-printing area of the electronics industry. Finer mesh counts were being embraced, new emulsions were being developed, and industry in the USA and Europe was facing environmental challenges.

Europe reacted to the environmental pressure on screen-printing in the 1970s and 1980s by developing professionally engineered screen cleaning and reclaiming machinery. This equipment (Svecia, Gruenig, Zentner, Moeller) re-circulated the ink cleaning solvents and sometimes incorporated water rinsing between the stages. From this time, to the present, the average results of these machines were screens free of ink and stencil. What remained, typically, was an ink stain in the print area. These stains were removed manually, which added dramatic cost and inefficiency to the model.

### CHEMICAL INNOVATION

The USA reacted to environmental pressure not through equipment design, but through chemical innovation. Companies such as Easiway, CCI and ICC began producing screen cleaning and reclaiming chemistry which dramatically improved on the hazards of conventionally used products. Ink degradents (high flash-point solvents which allow solubilised ink to be rinsed with water), high flash, less hazardous on-press cleaners and a multitude of caustic, mesh stain removers hit the United States market in the 80s and 90s. Dozens of other firms came from nowhere and capitalised on the 'green' movement. Many of these products cosmetically appeared safer, but realistically embraced a new generation of hazards. The United States and European consumer at this time was relatively unsophisticated and rarely looked beyond claims of biodegradability.

At this time in the United States (1980s), a small percentage of the screen-printing community were reclaiming their screens with a unique, relatively fast and somewhat inexpensive method. This method involved dipping the screens into a heated immersion tank full of a mixture of water, glycol solvents and an alkaline additive. This mixture would effectively loosen everything on the mesh so the result was a steaming, fully cleaned, stain-free screen when it was pulled from the tank (soak times were about ten minutes). Multiple screens could be soaked simultaneously, providing a quick and relatively low cost process. This process was employed by thousands of printers in the United States, because it directly addressed the primary needs of speed and cost. The hazards were contained in the tank, similar to the hazards in the European machines being contained in the equipment's chemical reservoirs. The dipping process suffered a speedy demise with the growing advent of aluminium frames. Aluminium reacted violently with the chemicals.

Environmental pressure in Europe and North America increased through the 1990s. In the United States, California led the change by outlawing certain chemicals, redefining omissions of MSDS information and ultimately mandating and regulating VOC (volatile organic compounds) air emissions. Europe reacted similarly via REACH legislation aimed at the entire European Union. Chemical manufacturers in North America and Europe responded with warm and fuzzy concoctions of soy esters and citrus by-products which fuelled the desire for compliant, organic, green products for removing ink, emulsion and stains. Some of these products worked, many did not, but universally they all contributed to a much higher cost to clean printing screens.

### ESCALATING OIL PRICES

The new millennium brought challenges to many areas of screen-printing. Many were caused by the dramatic escalation of the cost of oil. This worldwide event wreaked havoc and singularly drove up the cost of the screen emulsion, ink and the solvents designed to clean ink. The subsequent result in Europe and North America was a horribly expensive process to re-use mesh. The effects of oil cost increases were felt equally in Asia and Latin America where gasoline was commonly used. The cost of gas quintupled in Latin America during this period which opened the market to change. Asian printers were contracting for more printing with the West and consequently feeling some pressure from the West to give attention to personal hazards and environmental destruction.

In 1999, Easiway Systems originated and began marketing a series of products labelled 'One Steps'. This name referred to the fact that these products removed ink and emulsion or film from the printing screen at the same time in 'One Step'. These products were quickly adapted for use in dipping systems with the results being nothing short of phenomenal.

At this time, standard screen cleaning and reclaiming processes were manual with a minimum of four products (ink removal


*A typical dip tank used in the reclaiming process*


*Svecia in-line screen reclaiming machine (Up North Trading Company in Lakeville, MN USA) using 'One Step' technology*

solvent, emulsion remover, stain remover and degreaser). Typical chemical cost for a 1.2 x 1.2m (4 x 4ft) screen were $2.00 to $3.00 USD (€1.50 to €2.50). One man could reclaim five of these screens in one hour. The automatic machinery was faster, but typically used more chemistry resulting in a cost that could easily double the amount.

The 'One Step' chemistry allowed an individual to process dozens of screens in an hour, at a cost of pennies per screen. This new process would simply and efficiently dissolve the ink and emulsion on the screen following a two or three minute dip (the solution in the dipping tank is one part chemical mixed with five parts water). Following immersion in the tank, the screens are rinsed with high pressure water. If a stain exists an additional product is applied and rinsed with water.

This system addressed all the needs of printers in North America. Surfactant and detergent technology was incorporated in lieu of solvents, making the products affordably priced. Health and safety concerns are dealt with by limited human exposure, coupled with safer detergent characteristics. Cost issues are dramatically reduced by the number of required chemicals and more importantly, the amounts consumed.

Tens of thousands of printers adopted this method in North America during the past five years. Dozens of copies of the original products have been developed by all the United States and European Manufacturers.

Interestingly, as a result of the escalation in gasoline prices, this method of reclaiming screens is less expensive and certainly quicker than the use of gasoline and bleach. The Latin American and Asian markets are beginning to accept this process.

During the past two years this technology has nudged into the arena of automation. Equipment manufacturing firms (INPRO, M&R, Rhino and others) have developed machinery to accommodate 'One Step' cleaners. The result has been a dramatic reduction in air emissions, elimination of serious hazards (caustic haze removers, highly acidic emulsion removers), massive cost reduction in chemical usage and overall costs. Water base, water reducible technology has finally come of age. ■

***John Schluter is President of Easiway Systems***

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# CAN 'GREEN' WORK FOR YOU?

## With a choice of screen cleaning methods in use today, Todd Smith discusses options for less harmful methods

**Let's face it 'green' is in, and everywhere you look someone is claiming to offer a viable solution or product to accomplish the task at hand without sacrificing performance. The demands in our market for these products are no different than in any other industry. In past years, many people have heard of 'green' chemistry that has fallen short of our expectations and needs.**

Technologies in chemistry have changed over the past few years which allow us many ways to achieve a clean screen without harming our environment. Today screen cleaning can be accomplished using these 'green' chemistries from reputable companies such as Kor-Chem, Inc. Although chemistries have reached a higher level of success, there are still a few basic rules of thumb to remember in screen cleaning.

- Ink management
- Proper area for cleaning
- Correct chemicals and usage of them
- Adequate storage in a humidity controlled and dust free environment after cleaning

There are several methods to clean your screens; some processes use as few as two steps while others incorporate as many as four steps. In the past, we have found that most if not all two step processes were lacking the ability to perform either one or both of their intended tasks. Using the right combinations of chemistry we have been able to accomplish the intended purposes and efficiently produce clean screens.

The first step in all examples below is ink management. Always remove all excess ink and place in acceptable container for reuse or disposal. If the screen is to be stored for further use a 'green' alternative press wash can be applied to clean out ink residues before storage. Here are some examples of common screen reclaim processes that effectively and consistently produce great results.

The first two step process is most common in textile printing:

- Screens are placed into a washout booth while an ink/emulsion remover product is applied by spraying and brushing product onto both sides of the screen starting from the print side.
- Starting again from the print side, use a high pressure water rinse on both sides spraying from the bottom to top of the screen to remove all traces of ink and emulsion
- Next apply a non-caustic stain remover/ degreaser on both sides, brush the entire screen including the frame to remove any ink residue left behind then high pressure rinse bottom to top again.
- The last step is very crucial. Using a garden hose or equivalent rinse the screen from the top to the bottom this time using a good volume of water to rinse away any left-over chemicals or residues especially where the mesh meets the frame.

*A clean screen with no staining present*

- Screens should now be stored in a humidity controlled environment for drying prior to coating and reuse.

The second two step process is less labour intensive which will help keep cost down and speed up production:

- Use a dip tank which has been pre-filled with an ink/emulsion remover product that has been diluted with water to the

*Proper ink management prior to cleaning*


*Ink removed from the screen*

*Emulsion removed from half of the screen*

manufacturer's specific ratio. The screens are now placed in the tank for a soak time of three to ten minutes depending on ink residue and/or emulsion build-up due to higher or lower mesh counts.

- After the proper soak time the screens are removed and placed in the washout booth to apply a high pressure water rinse without the need for brushing. Starting the rinse again from the print side working bottom to top.
- Next apply the non caustic stain remover/degreaser and rinse as in the above example followed by proper drying and storage techniques.

The third option is very common in both textile and graphic printing. Using this three step process will increase cost overall, but is still very efficient:

- Screens are placed into a washout booth while an ink remover product is applied by spraying and brushing product onto both sides of the screen starting from the print side.
- Starting again from the print side, use a high pressure water rinse on both sides spraying from the bottom to top of the screen to remove all traces of ink.
- Next apply an emulsion remover which can be mixed from a concentrate or a ready-to-use product onto both sides of the screen by spraying and brushing. Then again, using a high pressure water rinse, work from bottom to top again.
- Next the non-caustic stain remover/degreaser is applied and rinsed as in above example followed by proper drying and storage techniques.

The fourth and final method requires four steps with four different chemicals. This process is seen primarily in the graphics printing industry rather than in the textile industry. Even though this process is the most costly in labour and chemistry, many shops find it necessary to use due to today's graphic inks requiring a near perfect screen before the next printing job. Even with the increase in chemical usage and labour cost, this option is much less expensive when compared to the cost of re-meshing a screen.

- Screens are placed into a washout booth while an ink remover product is applied by spraying and brushing product onto both sides of the screen starting from the print side.
- Starting again from the print side use a high pressure water rinse on both sides spraying from the bottom to top of the screen to remove all traces of ink.
- Next apply an emulsion remover which can be mixed from a concentrate or a ready to use product onto both sides of the screen by spraying and brushing. Then again, using a high pressure water rinse, work from bottom to top again.
- Next a caustic haze remover is applied to both sides of the screen using a brush or sometimes an emulsion coating tool. After a dwell time, which varies from five to ten minutes, use a high pressure water rinse on both sides spraying from the bottom to the top of the screen to remove any ghost left behind from printing.
- Now a separate degreaser is applied using a brush or sponge to both sides of the screen. Once again, using a garden hose or equivalent, rinse the screen from top to the bottom this time using a good volume of water to rinse any left over chemicals or residues away, especially where the mesh meets the frame.

If you follow all directions and steps in your chosen method you will be successful in cleaning your screens. This is always very important as a properly cleaned and coated screen should give you very few, if any, break-downs on press that can cost you hundreds in down time compared to the pennies in prep time. Remember, give 'green' a try. ■

***Todd Smith is Regional Sales Manager at Kor-Chem***

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# COLOUR MANAGED PRINT-AND-CUT CAN REAP DIVIDENDS FOR PACKAGING

## The benefits of specialist UV-curable ink-jet production for proofing and prototyping are explained by Brett Newman


*Roland DG's 1.37m VersaUV print-and-cut machine*

**The familiarity of ink-jet with wide-format is now an accepted production method particularly in the display market where short runs are becoming ever more essential for bringing variety and fast turn-round to end applications. However, increasingly there is a move towards the benefits of digital output for proofing and prototyping and its advantages are proving to be significant for many types of final printed output.**

Using wide-format ink-jet devices for proofing all types of printed production has been commonplace for many years; no-one can deny its efficiency when it comes to providing lost cost, fast visuals for signing off by clients and pre-press departments. However, there are areas where simply using an aqueous-based device and an approximation in terms of colour and layout simply isn't sufficient. This is particularly true within the sector of the industry in which specialist materials are to be used for the final production run.

For proofing and prototyping within the packaging industry it is becoming increasingly important that accuracy extends not only into the printed element but, also, in the ability to check that cutting, creasing and folding are precisely positioned. This is essential when assessing the finished product which could well be a high volume application, and which requires the manufacture of cutting dies or formes for the main production process. An error in the proofing stage can be an expensive and time consuming mistake during the print run.

### GETTING IT RIGHT FIRST TIME

Similarly, early prototypes and visuals can often involve manual cutting and folding which, by its very nature, is prone to error and also a labour intensive, skilled process. Consistency of creasing is vital when working on the final assembled design of a carton or package and, increasingly, there is demand to automate this element of proofing. By getting it right at the early stages of the development of the job, a correct end result should be guaranteed.

Prototyping and proofing for both packaging and labelling isn't just down to the ability to print, cut and crease trial materials in order to produce samples and output for ongoing volume production. With the types of media used in both of these areas, the need to be able to proof either to a final substrate, or an accurate simulation which contains the properties within it, is now possible using ink-jet methods.

When Roland developed its VersaUV LEC UV-curable printer it was clear from the start that the machine and its integrated technology would both benefit the proofing industries. This platform was developed to incorporate flexible ink with both white ink and clear varnish and, whilst it has been successful within the market for short runs of finished products, this solution has also become viable and attractive for the flexo, gravure and offset sectors which need an accurate option for providing proofs and prototypes onto the actual materials being used in the overall print run.

*Continued over*


*Cutting and creasing simplify prototyping*

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*High opacity UV-curable white ink is a feature of the VersaUV*

Additionally, a colour managed workflow is essential when providing the type of proofing required for the labelling and packaging sectors. The accuracy of corporate and spot colours are vital and must be consistent across all types of media and surface; but, when using a standard aqueous-based printer, whilst specific profiles can be incorporated into proofing, it often isn't possible to emulate the final substrate to the right standards.

## COLOUR MANAGEMENT PARTNERSHIPS

Thus, Roland has achieved working partnerships with developers of established colour management software solutions in order to simplify the production of accurate press-ready proofs and mock-ups. Integrating the VersaUV's capabilities with specialist suppliers such as CGS, EFI, FourPees and GMG now means that offset, flexo and gravure print companies can produce precise colour matching across most types of material. This capability can be brought seamlessly into an existing workflow with a resulting visual match, both locally and at remote stations.

Using colour management which is centrally controlled, users of the VersaUV can have a consistency which is optimised to the colour space of the output device. In practice, however, where proofing and prototyping are involved, a matched result cannot emulate the finished print precisely if it can only output onto paper or a limited type of materials. Before committing to high volumes, therefore, print companies whose output is not on standard stock lack the accuracy and 'feel' of the proofed product and have to use a best guess approach when using digital ink-jet means for this purpose.

Finding the correct profile to provide the right appearance on a proofing material and the end substrate without a properly colour-managed workflow is nigh on impossible. Being able to proof via a controlled software option to the end material using the right ink-jet printer removes the margin for error by providing accurate results and the correct finished look and feel of the end material. This method of working involves the creation of specific profiles for a broad range of media and surface coatings but, once defined, these profiles can be saved and re-used for consistency in quality and repeatability, thereby saving man hours and costs.

## ESSENTIAL ACCURACY

Because the Roland VersaUV units are able to work with materials with thicknesses of up to 1mm, the ability to proof and prototype typical packaging materials is simplified by using an ink-jet process and flexible UV-curable inks. The ability to output at up to 1440 x 1440 dpi also matches the quality required by offset and gravure printers who need to be able to generate sharp and accurate graphics plus crisp and precise text before committing a job to print.

Many of these applications need to be output to specialist materials, such as metallics and synthetic papers and cards, foils, BOPP, polycarbonates and PE film which, formerly, have been difficult to simulate on an ink-jet printer. Roland's UV-curable technology also makes it possible to output direct to these products, plus traditionally difficult products such as leather and suede, and the LED curing incorporated into the system enables tricky and sensitive surfaces to be handled without damage to the coating or to the media.

Similarly, the inclusion of white ink and clear varnish enables accurate labelling and packaging proofs to be created, with special finishes, textures and effects. The flexible UV-curable ink incorporated into the Roland VersaUV means that it can even be used for tactile finishes; with Braille increasingly being incorporated into packaging and labels, the ability to proof and prototype applications which include this essential element enables touch to be added to visual benefits during proofing.

Tactile elements are created by outputting multiple layers of the clear varnish. Because of the accuracy of the dots produced from the VersaUV's print-head technology, precision droplets result in Braille and other raised elements being clearly identifiable. Other textures can also be generated, and Roland VersaWorks RIP incorporates a comprehensive library of special effects.

Roland's VersaUV ink-jet printer was initially introduced as a 76cm (30 inch) device, incorporating precision contour cutting capabilities and long life LED curing. As the company's first production unit with flexible UV-curable CMYK + white ink and clear varnish, its use as a solution for short-run labels, decals, stickers and specialist signs and displays was quickly augmented by interest from the proofing and packaging sectors. During 2010 the company decided to bring to market a 1.37m (54 inch) model of the machine, designated the LEC-540, which is now attracting companies wanting to create larger prototypes in a single piece, or step-and-repeat and nested jobs, complete with cutting and creasing.

Partnerships with colour management specialists has resulted in a seamless workflow and a subsequent increase in use by printing companies and proofing specialists who want the economics, time savings and ease of use available from an ink-jet device. This is also signifying a move away from conventional proofing method to a more environmentally friendly alternative, with lower levels of energy and waste.

Printers concerned that their proofing options cannot be matched using ink-jet processes can now benefit from colour accurate, precision matched output. Investment levels in this UV-curable technology are modest and overall time savings are complemented by the combination of printing, cutting and creasing in a unit with a small foot-print and low running costs. ■

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# PUTTING TECHNICAL PRODUCTION TO THE TEST

## Sophie Matthews-Paul explains why the latest ink-jet developments are set to challenge wide-format LED printing

*Sophie Matthews-Paul, Editorial Consultant of Specialist Printing Worldwide.*

**The arguments between LED and ink-jet printing in the technical wide-format arena have resulted in general impasse until now because, quite simply, the legacy of this kind of toner-based system has become rooted as the *de facto* standard in its industry sector. Ink-jet was never considered a viable alternative because of its lack of speed and line quality but these disadvantages have now been countered successfully by the HP Designjet T7100 which is able to output 165 A1 sheets/hour consistently and flawlessly.**

The perceived strengths of LED (light emitting diode) printing technology have been speed and reliability but the introduction of HP's Designjet T7100 now brings a reliable, low-cost and fast alternative to market. By using the company's latest ink-jet technology, the relative simplicity of the machine's configuration removes the complexities involved when running a toner-based system. Significantly, power consumption is reduced because there are fewer electrically driven elements and, of increasing importance, there is also no ozone generated from the high voltages which are applied to the corona wires when charging the paper.

There are several important factors behind HP's key to success in the technical wide-format printer market and it is inevitable that the company's advanced ink-jet technologies would come to challenge the more traditional print methods in the technical arena. The main principle has been to meet the same, if not better, throughput speeds of LED production without compromising image quality or consistency during the printing process.

### COMPARISONS

When comparing these two technologies, wide-format LED printing has maintained its position in the technical sectors because, as a toner based system, there has been no other solution thus far which provides the same speed, quality and size quotient. The process uses an array of light emitting diodes to produce the image as a series of electrical charges which contain the toner particles. These are transferred to the paper as photoconductor charged pixels and the media surface is charged via a set of corona wires so that the toner is discharged and fused to become a finished print.

*The HP Designjet T7100*


*Ink-jet is a low maintenance, contact-free method to transfer the ink via a printhead*

In comparison, ink-jet printing is a relatively logical and simple process and is one which has been fined-tuned to make it a standard output method for high quality colour and monochrome across many printing and technical industry sectors. It uses a low maintenance, contact-free method to transfer the ink via a printhead and its nozzles onto a given media surface without the need for complex elements and continuously moving rollers or drums.

Using ink-jet technology, the cartridges are clean and closed, passing ink to the printhead in a pressurised, sealed environment. The position of the nozzles within the print-head are determined so that the ink is jetted onto the material in precisely the right location, and this is achieved by scanning the print-head along the paper before the droplet is fired and the ink is fixed onto the media surface.

### CHALLENGES

The reason that HP can now successfully challenge the high-speed demands of LED production lies with the company's scaleable printhead technology. A cruicial element within the new Designjet T7100, the formula and practical use of this high quality thermal head has already been well proven in other products with the company's portfolio. Its diversity is now acknowledged in machines including the Z family of Designjet printers, HP Photokiosk and the more demanding requirements found in the T200 and T300 web presses.

High speeds and excellent reliability are boosted by the incorporation of HP's

proprietary Double Swath Technology which increases the speed of throughput by reducing the numbers of scans per sheet. These high rates need to be extremely accurate, and this is achieved by the company's Optical Media Advance Sensor which follows the movement of the media and automatically adjusts and corrects the moving paper to remove unwanted artifacts.

Typical failures with LED printers are that even the slightest scratch to the photoreceptor or a failed diode within the writing head can lead to the appearance of vertical white lines. Toner is reliant on its ability to be contained within the transfer system and background noise can be caused by its migration away from the area which is being printed. This, and a worn photoreceptor, can cause unwanted ghosting on subsequent sheets.

Because of the complexities inherent in LED printers, the horizontal resolution is fixed and the speed of the device is determined by the rate at which the diode array can flash during the printing process. A failed LED in the writing allows for no compromise and will be evident in the end print, requiring a maintenance visit for replacement.

## INK-JET BENEFITS

Conversely, using HP's scalable printheads and Double Swath Technology, there are fewer moving parts, a lower electrical requirement, and consequent higher reliability essential for unattended and remote printing. Because the engine which drives the ink to the media is contained within the printhead itself, this becomes a user-replaceable component which can be changed easily and quickly thus removing expensive and time consuming maintenance procedures. It is also important to note that a failed nozzle in the head can be addressed and corrected via the optical drop detector without compromising output quality, thereby eliminating waste prints.

HP's scalable printhead technology for high speed technical applications is noted for its reliability and the fact that every element required lies within the head itself. It is not reliant on a series of electrically charged processes in order to transfer ink onto the paper. There is a packing density of 1,200 nozzles/inch and precision drop directionality which maintains crisp, clear lines even at the highest throughput speeds.

Combined with the company's Double Swath Technology, the number of scans for an A1 landscape mode image is typically only 14, enabling a sheet of this size to be printed in 15.5 seconds. This also generates high levels of optical density, crucial for blacks, with the Designjet T7100 being optimised to enhance page processing and drying times with minimal delay between pages.

## CONCLUSION

In conclusion, the use of LEDs in technical wide-format printing has provided a method of generating high-speed output using a technique which is similar to laser production but at a lower cost, particularly in larger printing machines. Prior to the HP Designjet T7100 there has been no true ink-jet equivalent for this market sector that can provide fast, quality throughput with the added necessities of reliability, low running costs and ease of use.

By incorporating its established scalable print-head technology in conjunction with Double Swath Technology and Optical Media Advance Sensor, HP has brought a viable and attractive solution to the technical market. Fast, sustained printing performance is complemented by a clean, dust and ozone free solution which, over long-term use, should increase high quality production throughput, prove cost-effective and reduce maintenance and down-time. ■

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# THE FUTURE FOR CURING

## In their second of two features, Laura Maybaum and Bea Purcell investigate the payback period for LED curing screen-printing inks

**In the first part of this article we compared LED curing to medium-pressure mercury vapour curing of UV screen-printing inks. The advantages to LED curing include lower heat emission, reduced energy consumption, elimination of the use and disposal of mercury bulbs, and elimination of ozone emissions. All of these benefits are attractive, both economically and environmentally.**

Recent technology advancements have been implemented in initial field testing that prove LED curing to be suitable to meet current production levels for nameplate and point-of-sale graphic applications. This success is just starting to push press manufacturers to incorporate LED curing as part of their presses, and accurate return on investment (ROI) formulas, or payback periods, have only just begun to be fine-tuned and balanced against costs to retrofit presses or build into new presses.

There are three areas of concern that remain. First, a total package is not readily available to source; lamp manufacturers and press manufacturers are just starting to team up. Second, LED curing lamps are relatively expensive, so the upfront cost to implement them is a major hurdle. And third, printers are not as readily inclined to invest in screen-printing equipment due to the changes in the economy and more persuasive needs to invest in digital printing equipment. Despite these obstacles, screen-printers have begun to evaluate the benefits and payback period of adopting LED curing in screen-printing.

To justify the move into LED curing, a general method for calculating the ROI in purchasing an LED curing system is needed. This article outlines some of the aspects to consider in calculating the ROI and provide examples for different scenarios. The values included are estimations based on general usage conversations; however, this information is considered reasonable and a good source for initial review of implementing LED curing. Please note that only a ten year scenario has been considered; it is very likely that LED curing lamps last well past ten years of use.

### CASE 1: 6-STATION IN-LINE PRESS WITH 2-LAMPS PER STATION USING 1.22M (48 INCH) BULBS

Diagram 1 shows the electrical supply for a 6-station in-line press using mercury vapour lamps

The electrical usage for an in-line press includes the requirement for the press beds and the UV lamps and is set-up as a standalone electrical source. Because it is separate from the building electrical, it should be relatively easy for a printer to isolate the electrical pull from this standalone station. For this case study, it is estimated that 80% of the energy goes to the UV light stations to power and cool the bulbs. The remaining 20% of the energy is used to run the press beds.

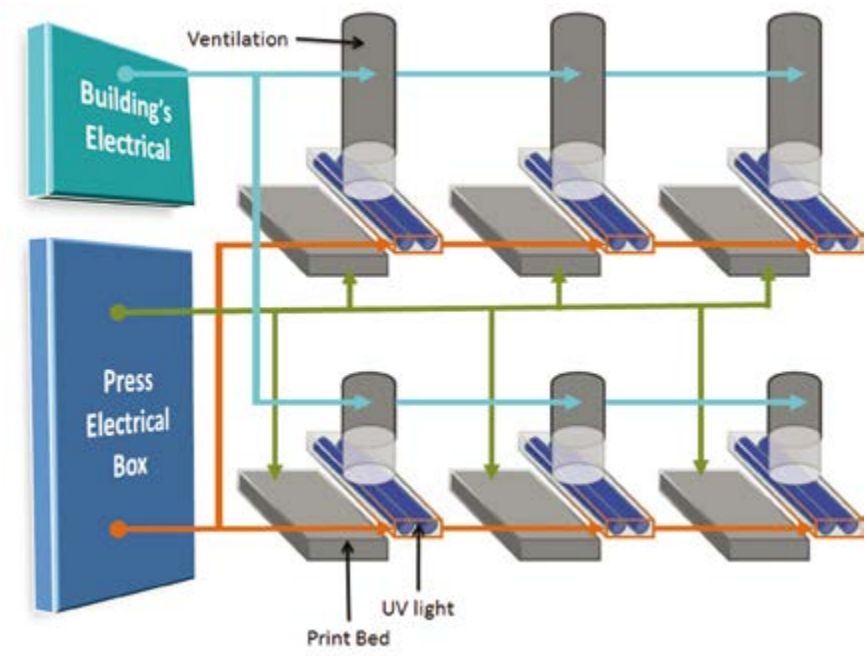


*Diagram 1: the electrical supply for a 6-station in-line press using mercury vapour lamps*

The following example shows the monthly bill to be $15,000 with 80% allocated for the UV lamps and 20% for the press beds.

| PRESS'S ELECTRICAL: TOTAL MONTHLY BILL | $15,000 |
|---|---|
| Estimated % for UV output stations | 80% |
| Estimated % for press beds | 20% |

Each of the UV lamp stations requires ventilation. The electrical for the total building (minus the electrical for the press) is $5,000 monthly with an estimated 5% used for running the ventilation for six print stations. In addition, these ventilation stations displace a significant amount of air in the building, which affects the press electrical consumption. Air displacement costs in relation to the building's consumption are 15% in the winter and 25% in the summer. For this case study, winter is six months and summer is six months.

| BUILDING'S ELECTRICAL: TOTAL MONTHLY BILL (MINUS PRESS) | $5,000 |
|---|---|
| Estimated % for ventilation | 5% |
| Estimated % for air displacement: winter (6 months) | 15.0% |
| Estimated % for air displacement: summer (6 months) | 25.0% |

Typically, mercury vapour lamps have 2,000 hours of useable life. For an eight-hour shift running five days a week, the annual working hours are 2,080. For this case study, it is assumed the bulbs are changed out annually. For a six-station press with two lamps at each station, 12 bulbs would need to be replaced. This assumes the bulbs are changed within their normal 2000-hour life and are not prematurely changed due to damage or mis-use. The additional cost for the properly disposed mercury vapour lamps has been included; a fee is estimated for each.

| BULB MAINTENANCE | |
|---|---|
| Number of bulbs per year | 12 |
| Cost per bulb + transportation | $550 |
| Disposal fee per bulb + transportation | $100 |

Although the reflectors are not replaced as often as the bulbs, their cost can be significant and should be considered as part of the cost. We assume that the reflectors are replaced every two years due to damage and use.

| REFLECTOR MAINTENANCE | |
|---|---|
| Number of reflectors | 12 |
| Reflector replacement | $1,500 |
| Average number of years for reflector replacement | 2.00 |

The total annual cost is $223,800 as outlined over:

*Continued over*

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| 6-HEAD IN-LINE PRESS: CURRENT | | MONTHLY COST | ANNUAL COST |
|---|---|---|---|
| **Press electrical: total monthly bill** | **$15,000** | | |
| Estimated % for UV output stations | 80% | $12,000 | $144,000 |
| Estimated % for press beds | 20% | $3,000 | $36,000 |
| **Building electrical: total monthly bill (minus press)** | **$5,000** | | |
| Estimated % for ventilation | 5% | $250 | $3,000 |
| Estimated % for air displacement: winter (6 months) | 15.0% | $750 | $9,000 |
| Estimated % for air displacement: summer (6 months) | 25.0% | $1,250 | $15,000 |
| **Bulb maintenance** | | | |
| Number of bulbs per year | 12 | | |
| Cost per bulb + transportation | $550 | | $6,600 |
| Disposal fee per bulb + transportation | $100 | | $1,200 |
| **Reflector maintenance** | | | |
| Number of reflectors | 12 | | |
| Reflector replacement | $1,500 | | |
| Average number of years for reflector replacement | 2.00 | | $9,000 |
| **TOTAL ANNUAL COST** | | | **$223,800** |

Replacing two mercury vapour lamps with one LED lamp is estimated to cost $7,000 for every 10cm (4 inches). The lamps can be chained together, so width is not an issue. The following outlines the estimated costs of $504,000 to retro-fit six 1.22m (48 inch) LED lamps. With additional costs for a water cooling system and installation, costs would be approximately $535,000.

| COST PER UV CURING STATION | | | |
|---|---|---|---|
| Cost per 10cm/4" of LED lamp | $7,000 | | |
| Length of each bulb | 1.22m/48" | | |
| Total cost per head | | $84,000 | |
| Number of print heads | | 6 | |
| Total for conversion of all print heads | | | $504,000 |
| Water cooling system | | | $6,000 |
| Installation costs | | | $25,000 |
| **TOTAL INITIAL COST** | | | **$535,000** |

An initial cost of $535,000 is significant for any company to invest in screen-printing. However, consider the diagram above paired with the savings outlined below.

Diagram 2 shows the electrical supply for a 6-station in-line press using LED lamps. The requirements from the dedicated electrical source would be reduced to only the press. The LED curing stations would run off the building electrical, and ventilation electrical would be eliminated. The additional electrical source would be for a water cooling system that could be run off the building electrical source.

## SAVINGS IN CONVERTING TO LED CURING:

- The energy consumed by the LED lamps would be run off of the building supply rather than the press supply due to significant power reduction.
- Some side considerations, not factoring in the payback calculations:
  - The electrical consumption may drop enough to re-classify the business industrial consumption to a lower price bracket.
- Ventilation of the lamps would no longer be needed, along with the energy required for the air displacement of the building going through the press ventilation.
  - Stacks coming out of the top of the building would no longer be needed, positioning a printer potentially to be re-classified with respect to air-emitting regulations.
  - With the press no longer tied to ventilation and reduced electrical pull, the press location would be less limited. More effective use of space within a building would be possible.
- LED bulbs are currently rated for at least ten years before potential replacement. Bulbs are still in testing and it is very possible the life span is longer. For this case study, ten years has been used.
  - LED bulbs are instant on/off. The bulb life can easily exceed ten years if turned off when not in use. There is no start up or ramping up time for LED bulbs.
  - LED bulbs have consistent output over the life. Mercury vapour bulbs degrade slowly, so printers are constantly increasing UV output as the mercury vapour lamps age. Curing results would be more stable.
  - The cost and environmental concerns of disposal of mercury vapour lamps are not an issue with LED lamps.
- LED lamps have a fully contained reflector and lamp. There is no expected need to replace reflectors and, with low heat output, fires in the system are eliminated. There is a glass shield to protect the lamp from wet prints or misuse. These glass shields can be cleaned easily and replaced if damaged at a relatively low cost. It is estimated that the glass be replaced every three years.

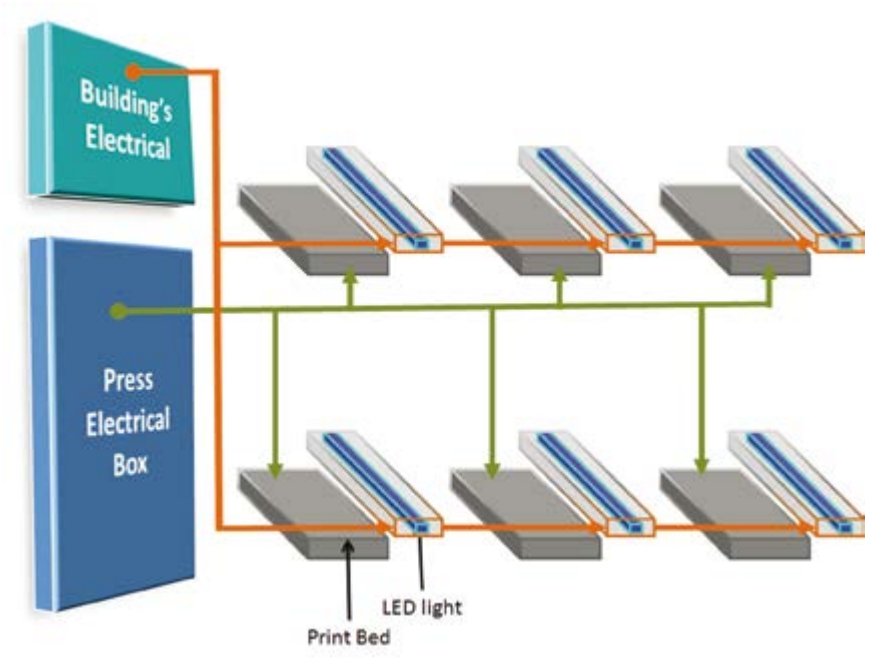


*Diagram 2: the electrical supply for a 6-station in-line press using LED lamps*

The total annual savings in moving to LED lamps is estimated at $184,700, as outlined below. Note that there is still energy consumption for running LED lamps; it has been assumed in this example that LED lamps would be about 5% of the total energy for the building. This may be an overestimation, but no real-world values are available.

| 6-HEAD IN-LINE PRESS: LED ALTERNATIVE | | MONTHLY COST | ANNUAL COST |
|---|---|---|---|
| **Press electrical: total monthly bill** | **$15,000** | | |
| Estimated % for UV output stations | 0% | $0 | $0 |
| Estimated % for press beds | 20% | $3,000 | $36,000 |
| **Building electrical: total monthly bill (minus press)** | **$5,000** | | |
| Electrical for LED lamps | 5% | $250 | $3,000 |
| Estimated % for ventilation | 0% | $0 | $0 |
| Estimated % for air displacement: winter (6 months) | 0% | $0 | $0 |
| Estimated % for air displacement: summer (6 months) | 0% | $0 | $0 |
| **Bulb maintenance** | | | |
| Number of bulbs per year | 0 | | |
| Cost per bulb + transportation | $0 | | $0 |
| Disposal fee per bulb + transportation | $0 | | $0 |
| **LED glass maintenance** | | | |
| Number of LED lamps | 6 | | |
| Glass replacement | $50 | | |
| Average number of years for glass replacement | 3.00 | | $100 |
| **TOTAL ANNUAL COST** | | | **$39,100** |
| **MERCURY VAPOUR LAMP ANNUAL COST** | | | **$223,800** |
| **LED LAMP ANNUAL SAVINGS** | | | **$184,700** |

The cost to retro-fit to LED lamps would be $535,000 with an annual savings of $184,700 providing a payback period of three years.

| | |
|---|---|
| **TOTAL ANNUAL SAVINGS** | **$184,700** |
| **TOTAL INITIAL COST** | **$535,000** |
| **PAYBACK PERIOD** | **3 YEARS** |
| **EST. SAVINGS OVER TEN YEARS ($184,700 X 10 YEARS)** | **$1,312,000** |

For most screen-printers, the up-front cost of $535,000 is out of reach, and implementing LED curing on an inline press without significant proof of savings is more than most can bite off. It is much more feasible for printers to adopt LED curing with their one-colour curing stations. Case Two outlines the payback period for a single head station.

## CASE TWO: 1.22M (48 INCH) SINGLE UV LAMP STATION

Many printers have a single UV lamp (two bulbs) station that cures for one or more single colour presses. The same payback calculations were run and are outlined:

| **SINGLE COLOUR PRESS WITH INDEPENDENT LAMP: CURRENT** | | **MONTHLY COST** | **ANNUAL COST** |
|---|---|---|---|
| **Press electrical: total monthly bill** | | | |
| Estimated % for UV output stations | | $2,500 | $30,000 |
| **Building electrical: total monthly bill (minus press)** | | | **$5,000** |
| Estimated % for ventilation | 2.5% | $125 | $1,500 |
| Estimated % for air displacement: winter (6 months) | 8.0% | $400 | $4,800 |
| Estimated % for air displacement: summer (6 months) | 10.0% | $500 | $6,000 |
| **Bulb maintenance** | | | |
| Number of bulbs per year | 2 | | |
| Cost per bulb + transportation | $550 | | $1,100 |
| Disposal fee per bulb + transportation | $100 | | $200 |
| **Reflector maintenance** | | | |
| Number of reflectors | 2 | | |
| Reflector replacement | $1,500 | | |
| Average number of years for reflector replacement | 2.00 | | $1,500 |
| **TOTAL ANNUAL COST: MERCURY VAPOUR** | | | **$45,100** |

| **SINGLE COLOUR PRESS WITH INDEPENDENT LAMP: LED ALTERNATIVE** | | **MONTHLY COST** | **ANNUAL COST** |
|---|---|---|---|
| **Press electrical: total monthly bill** | | | |
| Estimated % for UV output stations | | $0 | $0 |
| **Building electrical: total monthly bill (minus press)** | **$5,000** | | |
| Electrical for LED lamps | 2% | $100 | $1,200 |
| Estimated % for ventilation | 0% | $0 | $0 |
| Estimated % for air displacement: winter (6 months) | 0% | $0 | $0 |
| Estimated % for air displacement: summer (6 months) | 0% | $0 | $0 |
| **Bulb maintenance** | | | |
| Number of bulbs per year | 0 | | |
| Cost per bulb + transportation | $0 | | $0 |
| Disposal fee per bulb + transportation | $0 | | $0 |
| **LED glass maintenance** | | | |
| Number of LED lamps | 1 | | |
| Glass replacement | $50 | | |
| Average number of years for glass replacement | 3.00 | | $17 |
| **TOTAL ANNUAL COST: LED ALTERNATIVE** | | | **$1,217** |
| **MERCURY VAPOUR LAMP ANNUAL COST** | | | **$45,100** |
| **LED LAMP ANNUAL SAVINGS** | | | **$43,883** |

| **COST PER UV CURING STATION** | |
|---|---|
| Cost per 10cm (4") of LED lamp | $7,000 |
| Length of each bulb | 1.22m (48") |
| Total Cost per head | $84,000 |
| Number of print heads | 1 |
| Total for conversion of all print heads | $84,000 |
| Water cooling System | $2,000 |
| Installation Costs | $6,000 |
| **TOTAL INITIAL COST** | **$92,000** |

The cost to retro-fit to LED lamps would be $92,000 with an annual savings of $43,883 provides a payback period of two years.

| | |
|---|---|
| **TOTAL ANNUAL SAVINGS** | **$43,883** |
| **TOTAL INITIAL COST** | **$92,000** |
| **PAYBACK PERIOD** | **2 YEARS** |
| **EST. SAVINGS OVER 10 YEARS ($43,883 X 10 YEARS)** | **$438,830** |

Implementing LED curing is a long-term investment that provides significant savings in energy costs, bulb replacement costs and reflector costs. But the other benefits related to the change can also have significant impact on costs associated with the overall business – possible reclassification for energy consumption, possible reclassification for emissions, more effective spacing of presses, safer working conditions, and lower environmental impact.

Currently, viable LED lamps are available, UV screen inks are available and press manufacturers are starting to build new machines and considering the retrofit to existing machines. Adapting LED curing for the screen-printing market is right around the corner. ■

*For a copy of the first part of this article, contact subs@specialistprinting.com*

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# HOW SCREEN ROOM DESIGN AFFECTS EXPOSURE QUALITY

## Alan Buffington runs through a list of methods to improve this vital element of the production area

**The screen room plays an important role in exposure quality and how the screen performs on press. In most shops the screen room is given little thought other than to make it somewhat light-safe to avoid exposed screens. But what about humidity, airflow, reclaiming procedures, sinks, heating, racks and pressure washers? All of these processes affect productivity and profits.**

We go out on technical sales calls to solve exposure issues as part of our effort to sell and provide support for our emulsions. What do we encounter? The screen room was designed as an afterthought to the overall layout of the production area. A good exposure unit goes a long way in achieving the 'perfect screen' but a poorly laid out screen room area can negate all the qualities of a good lamp. The ultimate goal is non-stop press production, few pinholes, and no breakdowns on press, all of which generate better profits. A well planned screen room prevents poor exposure, standardises the environment of the room, and leads to predictable stencil performance.

### LABOUR STEPS IN THE SCREEN CYCLE:

**1. Screen cleaning** – Non screen room job: Keep plastisol ink out of your screen room; it contaminates mesh, sinks, and work areas. Keep solvent wash tanks nearby but not in reclaim area. If you use water-based cleaners to remove plastisol this must be in a separate sink from your reclaim and developing sink.

*A multi panel plastic 'door' prevents outside air from entering the screen room*

Encourage your press personnel, break-down crew, and screen washers to keep the frames free of plastisol. Once you allow plastisol into the reclaim, degrease, coat, and storage areas your screens will always have pinhole and fish eye problems that will decrease production yields.

**2. Screen reclaiming** – Dip tanks help keep this a non-stop process in busy shops. Four screens in a dip tank provide the needed time for the emulsion remover to soften the emulsion and allow easy reclaiming of the screen. Put a new screen in every time one is taken out to keep production flowing.

Use a dedicated reclaim sink where possible. Reclaiming and degreasing in the same sink leads to pinhole issues. If you have only one sink you must rinse it down thoroughly before starting to degrease. During the degreasing process splash back will occur causing the reclaim solution to bounce back onto your screen and lead to pinholes or fish eyes during production.4

**3. Degreasing** – This should be done in a dedicated sink with Murakami DGR-801 Degreaser.

Avoid reclaiming, and washing out of water-base inks in your degreasing sink. Keep it as pristine clean as you can and your screens will be as pinhole free as the emulsion allows.

You can develop screens in the degreasing sink; just avoid reclaiming. Thoroughly rinse all frame edges with a heavy stream of water inside and out to remove any degreasing solution trapped along the mesh/frame corners. This prevents fish eyes and streaks from forming in your emulsion.

**4. Pinhole prevention** – Dust can gather on the screen while it's drying after the degreasing procedure. An anti-static brush or cloth can remove the dust and discharge any static electricity.

The glass on the exposure unit should be wiped down regularly to keep dirt and dust from forming pinholes. Placing a large piece of black fabric over the screen will protect the vacuum blanket from plastisol and minimise pinholes.

**5. Coating screens** – Once degreased screens have dried completely they are ready to coat. Coating screens before they are dry will lead to fish eyes and pinholes. The screen coating floor area should be swept and mopped regularly; any dust will become a pinhole eventually.

Beware that coating several racks of screens will increase humidity in the screen room. This humidity will be soaked up by dry coated screens increasing moisture levels and hindering complete cross-linking during the exposure process. A future newsletter will address various coating techniques.

**6. Drying coated screens** – A hot box is ideal to dry screens quickly and completely without affecting humidity levels in the screen room. If you don't have a hot box try coating at the end of the last shift and allow the screens to dry overnight. Leave the de-humidifier on to keep humidity levels down.

Avoid drying screens with a floor fan. It will pick up dust and deposit it on your freshly coated screens, instead use a fan with a stand to keep it three feet or more above the floor. Floor fans used for drying lift water and dirt off the floor and deposit them on freshly coated screens.

### SCREEN ROOM EQUIPMENT LIST

**1. Exposure unit** – A strong multi-spectral lamp with an integrator. We recommend any exposure unit by Amergraph, any Nu Arc with a 12.7cm (5 inch) metal halide lamp and 5kw output, or any Douthitt or Olec exposure unit. Be aware that there are metal halide systems with small 7.6cm (3 inch) bulbs. While they work sufficiently for plastisol they age quickly and tend to produce weaker water-base and discharge screens.

Fluorescent tube systems will expose screens for plastisol, but lack the intensity of exposure needed for water-base and discharge ink systems. Home made units with lights bought from a home improvement store also create weak screens. They may be metal halide but lack essential wavelengths for cross-linking emulsion. The stronger the UV light the stronger the screen.

**2. Dehumidifier** – Home improvement stores such as Sears, and others, all sell inexpensive dehumidifiers. If your shop is in a rainy area, along foggy beaches, in a cold climate or you have a lot of wet screens in your screen room, you need one. Set it to 35%. Run day and night if possible. If you turn it off at night humidity levels in the room may sky rocket on a rainy night and take hours to return to a 35% humidity level and remove any absorbed humidity in the coated screens.

*Continued over*

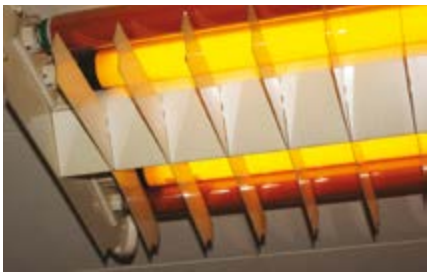

*Dedicate one wash-out booth for reclaiming emulsion and washing water-base screens, and another for degreasing and screen development*

Screens are like sponges, they absorb humidity from the air, so the air needs to be conditioned to 35% humidity for optimum stencil results.

**3. Screen racks** – These allow easy handling of screens. Once the screen is degreased and placed on a rack nothing will touch the mesh until it is coated. You can wheel them where you need them. From the reclaim area, to the hot box, to coating, to dry storage – this is much more labour efficient than moving them two or four at a time by hand. They hold 12 to 20 screens and you can also move the rolling racks out to clean the floor, which was impossible in the wood rack system I built for my shop.

Without rolling racks your screen room floor gets covered in dust since it can be difficult to sweep and mop everywhere. With movable racks you can establish daily cleaning procedures to prevent dust build-up that is common in textile shops. Avoid carpeted floors; tile and cement floors are easier to keep clean.

**4. Safety lights** – Yellow fluorescent safety lamps as well as yellow sleeves (available from Encapsulite http://www.encapsulite.com/uvblocking.html) for traditional white fluorescent



*Yellow fluorescent lamps or sleeves protect coated screens yet retain good visibility*

bulbs protect your coated screens while affording good visibility in the screen room.

To check the light-safeness of your lamps place some coins on the print side of an unexposed screen on a table under the lamps and leave this set up overnight with the lamps on. Develop the screen. If the circles made by the coins wash out before the surrounding area you are lightly exposing your screens. After a week in this light, image areas may be difficult to washout since they have been partially exposed.

**5. Hot box** – If you plan on using rolling racks, build a closet in the corner of the room with a sliding or hinged door so you can install an electric heater in the bottom. Base board electric heaters or ceramic forced air heaters are fire safe and can heat a small closet to 85 degrees. (Check with local fire codes before installing.) There are commercially available heaters that are completely self-contained units that dry screens exceptionally quickly. If you print a lot of water-base and discharge, or are in a cold climate with minimal sunlight, a hot box will help prepare stronger screens.

**6. Washout booth** – Dedicate one booth for reclaiming emulsion and washing water base screens. The other should be dedicated just for de-greasing and screen development. Use yellow fluorescent bulbs to backlight the booth so you can see the image during development. Where possible separate the reclaiming and degreasing jobs into separate sinks for fewer pinholes during blockout and in production while on press.

**7. Lay up board** – There are various line-up grids from major auto press manufacturers for positioning film positives to be taped to the screen. If your press is capable of pin registration I recommend migrating away from manual line-up and begin pinning your film and screens to improve set up times on press. A future newsletter on pre-press tools will report on the various pinning systems.

The whole purpose of shooting screens in register with a pin system is to achieve faster set up times. M&R's Tri Loc system, and MHM's system can set up a ten colour job in 15 minutes or less depending on press personnel.

**8. Vapour barrier door** – This is a multi panel plastic 'door' that prevents outside air from entering the screen room. I have found these preferable due to the heavy flow of traffic in and out of the door which allows visibility for safety when moving screen racks or personnel in and out of the room. Most of all, they prevent highly saturated humid air from entering the screen room during the nearby reclaiming and screen development processes. The plastic is also available in yellow to prevent light contamination from outside the screen room if needed.

**9. Pressure washers** – Depending on shop volume you may want a 3000psi for reclaiming and a small 600 psi for developing. The smaller 600psi versions sold at home improvement stores are ideal for developing exposed screens. SBQ emulsions benefit from being developed with a small pressure washer on fan spray to develop details. Stronger pressure washers (3000psi) speeds up the reclaiming and de-hazing process.

**10. Brushes** – Assign a dedicated degreasing brush and replace with a new one every month. The retired degreasing brush can be moved over to the reclaim booth, and the reclaim brush can be given to the solvent ink washer. Any grease or contaminants on the degreasing brush will create pinholes in the final screen. Another method is to buy coloured brushes and colour code them; red for solvents, yellow for reclaim, and white or green for degreasing. ■

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# SCREEN TECHNOLOGY FOR BRAILLE AND HAPTIC EFFECTS

## Andreas Kuenkele explains the ink and mesh criteria for printing tactile effects

**Screen-printing should and must concentrate on its strengths, in order to remain competitive in the future. Challenges like printing haptic effects or Braille and tactile elements for labelling use are, therefore, areas which are predestined for screen-printing applications. Important parameters here are both employing suitable screen technology as well as printing inks (usually UV lacquers) to meet the requirements. The following paragraphs are written to guide users with our knowledge and experience in this interesting area of application.**

*A screen-printed Braille alphabet*

### REQUIREMENTS FOR BRAILLE

Let us begin with some brief information about the norms and definition of Braille and tactile cautionary labels.

The norm height of the ink-deposit on the substrate (usually self-adhesive film for labels) should be between 0.5mm and 0.6mm, in order to meet haptic readability. According to current usage, print deposits of UV media with a height of 0.2mm to 0.3mm can be successfully achieved with correspondingly suitable mesh and special, highly viscous emulsions. This varies from the norm, but has found wide acceptance in this area of application and as such, is used for Braille printing and labelling.

### SELECTION OF MESH

Correct mesh selection is the most important factor for this kind of print job. The main problem lies in the fact that, the coarser the mesh, the poorer the resolution quality of the stencil. The finest resolution for Braille dots and tactile elements lies somewhere around a dot diameter and/or line thickness of 1.5mm. However, the ink deposit thickness of the print media has a direct bearing on the mesh thickness and the theoretic ink volume of the mesh geometry. The coarser the mesh selected, the more print media will be laid down.

We also have to differentiate whether Braille dots, tactile labels or both in combination have to be printed.

In the case where only Braille dots are to be printed, a 21-140 Y mesh is recommended. This then enables the Braille dots to be successfully reproduced as far as the diameter (norm 2mm) and their exact circular geometry is concerned. To obtain an emulsion thickness up to 0.3mm and more is no problem with the right emulsion and correct coating technology.

Using a 21-140 Y mesh for printing solely tactile labels is difficult due to the mesh geometry. This applies to the resolution (norm 1.5mm line thickness) as well as poorer print quality due to smearing. Therefore it is recommended here to use a 32-70 Y mesh and appropriate coating technique. Deposit thicknesses of the print medium of 0.2mm to 0.3mm are possible to achieve with this mesh, with the correct choice of emulsion and emulsion build-up.

If Braille dots and tactile warning labels are to be printed together with the same screen, the use of 32-70 Y mesh is recommended, because this has proved to be the best technical compromise.

*A visual sticky relief effect with a scent component, finished in screen-printing for food packaging*

### COATING TECHNIQUE

Once the mesh geometry has been decided upon, the appropriate coating technique has to be employed to ensure good printability. One popular method is the wet-in-wet coating technique. When using for example a 32-70 Y mesh, 2-3 or 2-4 coating with a suitable highly viscous emulsion, an EOM (emulsion over mesh) of 250µm to 300µm and more can be achieved. These screen build-up thicknesses are ideal for the printing process. An emulsion build-up higher than 300µm above the mesh makes no sense from a printing point of view and will cause problems during printing through smearing and poor ink release. A


*A tactile effect and Braille points*

*Haptic structure effects for fashion using imitation leather*


*A screen-printed magnetic board with a structured surface*

further possibility is transferring a thick capillary film (200µm to 300µm emulsion thickness) using the wet transfer method which, after drying, can be combined and anchored with an additional coating of a suitable emulsion from the squeegee side. Using this method, EOMs of 200µm to 300µm are possible.

As for the emulsion coating, Kissel+Wolf recommends Polycol S 295 HV, an emulsion specially developed for Braille printing. This highly-viscous, single-component emulsion has very good resolution properties with high emulsion build-up. Polycol S 295 HV enables long print runs and is especially suitable for the mesh types recommended above (32-70 Y or 21-140 Y). For the alternative capillary film method mentioned above, Ulano QT 200 and QT 300 screen printing film with Ulano QTX emulsion can be recommended. All these different possibilities have to be adapted and tested to meet the users' operating processes and requirements.

If it is required to combine both Braille dots and tactile warning labels using the same screen, we recommend a compromise using 32-70 Y mesh.

The diverse area of haptic effects can be captured best with the technical possibilities of screen-printing. Widely differing surface structures can be produced with the appropriate screen technique and print medium. The spectrum stretches from imitation leather, sticky jam, wood grain and sandpaper, to mention but a few.

## CONCLUSION

Our findings to date have shown that screen-printing can master such difficult printing tasks like Braille and haptic effects with good optical quality, a potential which can be exploited further. ■

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# PERSONALISATION AND VERSIONING IN WIDE-FORMAT DIGITAL PRINT

## Sophie Matthews-Paul and Tim Greene discuss the advantages of variable data printing

*Sophie Matthews-Paul, Associate Consultant with InfoTrends and Editorial Consultant of Specialist Printing Worldwide.*

**As an adjunct to digital printing, the ability to output variable data has grown in relevance and importance with its capacity to include personalised elements as an integrated part of an overall document. The results of recent research indicate that many wide-format print service providers recognise the opportunity that variable data represents in the wide format printing business. In the InfoTrends/ FESPA World Wide Survey print service providers reported an increasing demand from print buyers for variable data and personalisation. This capability is now cited at the most important development to enable wide-format printers to compete in the electronic media landscape.**

The intention of variable data is to enable individual components, such as a name or a graphic, to be entered into a print run without any interference or slowing down of the overall production process. In simplistic terms, variable data printing enables different fields of text, and versioned elements such as graphics and images, to be incorporated into a document without compromising the overall speed of the printing throughput. In wide-format, although the principle for using variable data remains the same, its overall effectiveness is tailored more to increasing flexible elements within larger prints without creating bottlenecks at the pre-press area of production.

Increasingly wide-format print providers are learning that, by having to generate the same base application containing variable information, such as a name or a localised item of detail, each print has to be treated as a separate job. Additionally, where text is keyed in for individual prints, not only is more time required but also the margin for error is increased significantly because of mis-spellings or misinterpretation of the given variable details.

### THE IMPACT OF VDP

Thus, variable data printing has continued to evolve and become a valuable tool because of the flexibility of the digital printing technique and the markets for which increasingly it is used. The impact of a personalised letter or document has made it popular in direct mail and marketing campaigns; it has allowed mass customisation of all run lengths of documents and its use now encompasses all areas of print, from transpromotional applications through to financial statements. The ability to integrate varied content is also known as dynamic publishing where a standard template can involve different content to bring tailored output within the same print run.

Variable data printing, or VDP, also benefits from additional elements, such as versioning. Whilst text can be streamed into a job using a standard comma delimited format or .CSV files to individualise every print, versioning enables fine-tuning of elements such as graphics to enable differing details to be incorporated into an application, such as regionalised or geographical information. In wide-format the reasoning behind variable data printing differs from typical small-format applications in that the end job is not specifically aimed at an individual in order to generate a call-to-action, such as with a targeted and personalised marketing shot.

For retail advertising, point-of-sale and general displays there is a growing need for customised elements to be incorporated as part of an application. The realisation that VDP and versioning is relevant to the display sector is now being taken up by creatives and agencies who can use a single design with different printed options that account for demographics and localised detail not able to be produced using analogue production methods.

Where larger applications are produced using digital techniques, the ability to vary both text and graphical elements formerly did not compromise the overall speed and handling of a particular job. Earlier wide-format ink-jet printing machines were not able to output jobs at a speed where time and cost penalties were likely to be incurred at the origination stage. Therefore, to create a new file for every print worked in practice, particularly when typical volumes were relatively low in an overall digitally printed job.

### ADDED FLEXIBILITY

However, with wide-format ink-jet production now achieving high throughput rates and longer runs, the need to automate the generation of customised elements is becoming increasingly necessary to avoid slowing down the printing process because an entire file needs to be modified each time to incorporate personalised or versioned information. Average run lengths for a digital wide-format application have increased from low volumes to run lengths of several hundred and more. Unlike the screen process, where every element to be changed requires new screens and origination, digital production must enable variants to be incorporated 'on the fly' so that speed is maintained.

Similarly, the growth in print-to-cut workflow has shown an increase for wider

*The Durst Rho 1000 wide-format ink-jet printer is a an ideal machine for VDP*

materials to be used for applications which, subsequently, will be finished as labels, stickers and decals, plus other smaller items for decorative and industrial lots. Automation in this type of workflow includes pre-flighting, batching, nesting and step-and-repeat, thus encouraging applications where the inclusion of variable data is a valuable asset to the print service provider.

Variable data plays two roles in wide-format production.

1) A given display application gains from the ability to incorporate unique elements, grouped information according to, say, demographic or regional detail and imported text. Working with a standard background, or template, these individual components can be incorporated as part of the print run without additional operator intervention.

Examples: Point-of-sale and retail advertising is produced where not every store or outlet wants to carry the same price point or image for an item or service being promoted. Typically the main graphic and background for these applications remain the same throughout, but variable information enables specific targeting of regional audiences. The incorporation of specific QR codes according to site also helps the advertiser or brand owner determine the effectiveness of the site and the content.

Applications such as participants' bibs for marathons and races benefit from variable data. The background graphic remains the same throughout but each individual's name and number can be printed automatically as part of a sequence, whilst grouped logos for associations or clubs can be versioned.

Railway and bus timetables where the variable data is incorporated into a generic template but the specific arrival and departure times can vary according to the station or site where the application is to be used. Although this area is being challenged in some cases by digital signage, particularly in airport and railway stations where the ability to change information frequently is essential, most station platforms, ticket offices and waiting areas rely on printed output.

In-store retail applications commonly feature standard digitally printed backgrounds which carry regularly updated information, such as book and album charts and other 'best sellers' relating to the individual shops and sites.

Labels, decals, identity cards, badges and smaller applications can be produced on a wide-format printer as part of an automated print-to-cut workflow. These typically need to include numbering as well as individual or versioned images.

2) The ability to incorporate sequential numbering, barcodes and QR codes realises the value of high speed digital production for industrial and electronic labelling applications. Hitherto, offline numbering or coding systems needed to be incorporated with analogue or digital printing processes as part of the production line.

Examples: Applications, such as lottery tickets, scratch cards, are reliant on variable data to individualise alphanumeric detail either at random or sequentially.

Labelling, both for commercial and industrial applications, requires individual elements for sequential and batch numbering, including barcoding and RFID tagging.

Outside the print area, bar codes and other information serve the purpose of assisting with batching and delivery logistics for finished commercial and industrial print, including job tagging and referencing. Particularly prevalent in fast turn-round retail applications which, in themselves, contain variable data, this additional detail is essential in ensuring the right jobs are batched together for final delivery.

## WORKFLOW

Variable data printing and versioning can be incorporated into an existing workflow in two different ways. Online variable data handling places the responsibility for the information with the print-house's pre-press department with the variable elements being incorporated during the workflow process, prior to the job being RIPped and printed. Offline variable data enables a design house or creative department

*Continued over*

to integrate the elements within a given file format whose print-ready data is passed to the print house in a single PDF for output.

The disadvantages formerly associated with handling variable data effectively so that time savings can be affected in wide-format print are now being solved with the latest Adobe PDF Print Engine (APPE 2.5). This uses the PDF/VT model for standardising variable data printing without any compromise to graphical elements. Because PDF/VT is non-vendor specific, users are not restricted to a particular type of rendering or output device.

It is important to note that, although RIP engines rely on Adobe PostScript technology, the flexibility afforded by the PDF print engine now enables a common cross-platform electronic method of document exchange. However, the PDF model has been slow in its acceptance within the wide-format printing fraternity partly because many RIP and machine suppliers opted to remain with their own proprietary output formats.

Today's PDF format incorporates native rendering technology which has been advanced sufficiently to provide more options than PostScript's imaging model which doesn't support layers or live transparency options. The portable document format also has full support for ICC profiles, an essential requirement when working with colour managed and standardised files across varying small- and wide-format output devices.

The native transparency in the PDF format has also increased its effectiveness for variable data printing as APPE 2.5 is able to use cacheing options for handling repeat elements during the RIP process. The PDF/VT specification is founded on pre-existing standards, these being ISO PDF/X-4 and PDF/X-5 which encompass overall document structure, layout and content plus graphical objects which support live transparency, layers and full ICC colour management. Thus, using PDF/VT means that variable content can be generated using a common format which is not restricted by the output device.

The benefits of incorporating PDF/VT into a wide-format production workflow combine the rendering capabilities of the RIP with the VDP components to provide a common process that enables both repeat and variable or versioned elements to be incorporated into the final print job without compromise on speed or quality. Because PDF/VT acts as the digital master file, it can be used for review and with a job ticket format, such as JDF, for full integration of workflow management.

A workflow allows for the generation of a VDP application for output in PDF/VT format and, currently, wide-format RIP developers are actively seeking to incorporate the benefits of Adobe PDF Print Engine 2.5 to simplify the ability for end users to utilise a single workflow for all types of application, with particular emphasis on variable data printing.

## CONCLUSION

Once the developments have been made by RIP manufacturers to incorporate object reuse into the capabilities of wide-format printers, workflow speeds will be increased and the bottlenecks incurred presently by having to RIP, every time, the background graphic or template which holds the variable data. Current solutions already take into account the ability to work with variable and versioned elements but these options normally produce individual PDFs for each print. These are then sent to the RIP and onward for processing in the normal way.

Although this method of handling variable text and images removes the manual element of importing, keying in and placing versioned images, time penalties are still incurred particularly when a large repeat graphic is being used as part of the job. At a high quality on a wide-format printing machine, the RIP time for a full-colour image can be considerable, although the period taken varies according to the amount of detail in the file being processed.

One of the initial strengths in early wide-format digital printers was the ability to produce greater variation print to print than was ever possible using a conventional analogue process. With screen-printing and offset litho changes are costly and time consuming and it is not practical to encompass VDP or, even, versioning using these methods. The use of digital production methods enables the best of both worlds to be encompassed with high speed ink-jet production devices producing consistency with each print yet being the ideal vehicle for outputting variable data which is controlled within the workflow. ■

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# TAGLESS APPAREL MANUFACTURERS CAN TAKE THE ROUTE TO COST-REDUCTION

## Maria Savelyeva presents an overview of current technologies available

**Over the past few years, the so-called Tagless Apparel – T-shirts, jeans, underwear and other garments that do not have sewn-in care labels – are becoming the new standard in apparel manufacturing. Not only is this trend popular with the consumers (who are spared of the annoying tags and the urge to cut them out), but it also brings in a magnitude of cost savings to the producers. The following article describes and compares the most popular tagless techniques, these being heat transfer labelling, screen-printing and tagless pad printing.**

### HEAT TRANSFER

Heat transfer (also known as thermal transfer) was the first technology that some of the major garment manufacturers deployed. This method involves outsourcing the production of label rolls and in-house application of the rolls to the fabric using heat presses. The heat transfer label roll is made of polyethylene, paper or polyester carrier, plastisol or, more recently, water-based inks and adhesives activated by heat and pressure, ranging within 127 to 204°C (260 to 400°F) and 8-30 PSI (0.6-2kg/cm²). The applied heat transfer label can look like a solid rubbery area with somewhat jutting text and images, or it can contain only the text/graphic elements with a "halo" from the adhesive material, which may be well-visible or almost non-existent. The latter, more advanced type of the heat transfer label, is usually almost unnoticeable on touch while the garment is still new and unwashed.

There has been much change in the heat transfer label industry, following some hiccups on the tagless market. Most notably, in 2008-2009 in the USA, heat transfer labels have reportedly caused skin allergies in babies and a small number of adults. Soon after this, US legislators toughened the rules concerning heavy metals and phthalates in children's articles as well as inks used in consumer products (CPSIA'08, California Proposition 65) – and the heat transfer companies had to reformulate their plastisol inks. Some of the companies came up with water-based inks.

Though 'human-friendlier', the new types of labels tend to be less resistant to washing, especially to repeated industrial type washing at high temperatures. Normally, a label withstands the milder "home" type laundering at the maximum temperatures of 45-60°C (110-140°F). In general, after a limited number of washings, the parts of the label start peeling off. (Many consumers seem to agree that heat transfer labels would not last adequately to the life of the garment. And when the labels disappear, letter by letter, the brand name and care facts vanish with them.)

Another issue for large-scale apparel manufacturers lies in label application speed – the 'dwelling' time (when the label is pressed into the fabric) that is required to achieve the minimal industrially acceptable levels of durability is about six to 12 seconds for each label. Average cycle time is 400 labels per hour. Depending on the set-up, the application time of heat transfers may be no shorter than that of sewn-in labels.

| PAD PRINTED TAGS by INKCUPS NOW | HEAT TRANSFER LABELS |
|---|---|
| LEGALITY: | |
| Printed tags are compliant with CPSIA'08: the Sapphire ink for tagless garments is certified phthalate-free and PVC-free. Also NAMSA certified to have zero skin irritation | Heat transfer labels are currently being reformulated to become phthalate-free and PVC-free – which in some cases resulted in serious adhesion and application problems |
| COSTS: | |
| Cost per printed tag ~ $0.003 | Cost per label for high volumes ~ $0.02<br>Cost per label for low volumes ~ $0.09 |
| $70.00 (cost of 1 ink can) = 100,000 tags | $1,100.00 (minimum order of labels) = 12,000 labels |
| Compact and durable supplies can be easily stored in cabinets | Funds tied up in label inventory that occupies a lot of storage space and gets damaged easily |
| Low utility costs: air is less than 0.5 cfm, electricity is 0.87amp/10watt (per machine) | Sky-high electricity costs |
| QUALITY: | |
| Tags withstand 50 industrial washes | Labels begin to break after 5-10 industrial washes |
| Tags can be stretched - good for flexible garments | Labels break apart on stretching |
| If garment shrinks after washing, tag also shrinks | If garment shrinks after washing, label causes unsightly dent on garment |
| Tags stay soft hand even after washing - great for intimate apparel | Labels have rough texture |
| PRODUCTION FLEXIBILITY: | |
| Average cycle time for machine ~ 1000 tags per hour | Average cycle time for machine ~ 400 labels per hour |
| Change graphics on demand!<br>A new design can be made in less than 20 minutes | 3 weeks lead time for changing graphics.<br>Minimum order – 12,000 labels |
| Ability to date and lot code to meet CPSIA regulations | Date and lot coding requires separate operation |
| Ability to reduce "show through" by reducing ink laydown - great for intimate apparel | No ability to control "show through" |

*This comparison chart shows the differences between pad printed and heat transfer labels*

### SCREEN-PRINTING

Not surprisingly, garment manufacturers and decorators continued exploring methods for tagless marking. This was probably due to small custom decorating shops, which wanted to do short-run on-demand production and already owned screen-printing machines, where output of the care tags was tried out. The obvious benefits were that the shops did not have to purchase several thousand labels (on average, the cost of a minimal order starts at $1000) or wait for them to be manufactured.

Screen-printing turned out to be capable of producing high quality, detailed tags that were durable as well as customisable on-demand. However, this method did not offer much advantage in production speed because the garments had to be turned inside out for printing, then given time for the ink to dry (which sometimes requires the use of drying ovens), and then turned back to the right side for packing. In case of multi-colour tags, production time grows as each colour had to be dried before the application of the next one.

As for the larger screen-printing

*A selection of pad printed tags onto textiles*

companies that normally own high-end automatic systems designed for the elaborate large decorations of the fronts of the garments – they found that screen-printing of the tags could often be an inefficient tie-up for their expensive machinery.

As of now, screen-printing is being used, but does not seem to have a future in large-volume tagless production.

## PAD PRINTING

Pad printing technology came next and – after some tweaking of the process, adjusting consumable materials and developing speciality printing plates and fixtures – became the method of choice for a growing pool of apparel manufacturers and decorators, both those who tag one dozen and hundreds of thousands garments a day.

Unlike screen-printing, which has been used for textile imaging for centuries, pad printing of textile or leather had been incidental until the last couple of years. Pad printing was originally developed and used for the precise imaging of uneven and relatively rigid surfaces, such as golf and stress balls, watch faces, dinnerware, doll faces, instrumentation boards and various promotional products, amongst examples. Therefore, the concept of pad printing care tags at first appeared somewhat amusing. Yet pad printing turned out very well suited for the application.

## PAD PRINTING MECHANISM

The basic mechanism of pad printing is as follows: the ink cup deposits ink into the image etched into the printing plate (cliché). The silicone printing pad picks up the ink and presses it onto the part. The part is removed and the next one positioned for printing by a conveyor or a human operator.

With most textiles, printed tags are touch-dry and garments are ready for handling (packing) within one to three seconds after printing; no separate drying process is required. Pad printing machines are capable of repeating the cycle at the speed of up to 2,100 prints per hour. As a result, the average production speed for the tagless printing industry is limited only by the operator's speed, and averages out at 1,000 tags per hour for one-colour images of approximately 5.08cm (2 inches) in diameter. For the multi-colour tag – which can be completed within a print cycle of a single machine – the speed can be up to 900 tags per hour, depending on the type of textile and image. These production speeds set pad printing apart from all other current tagless techniques.

The other major advantage is the cost of a printed tag. The amount of ink required to print a tag is miniscule; even after factoring in other consumables such as pads and etched clichés, the printed tag costs an order of magnitude less than a heat transfer label, at just about $0.003. Compare that to $0.02 to $0.09 cost of the heat transfer label (see the comparison chart for more details).

When it comes to capital expenses, pad printing equipment cost is

*Continued over*

comparable to, or less than, that of heat transfer label equipment. And the cost of utilities with pad printing is lower because the machines do not generate heat and require much less electricity, both for the operation and for air conditioning of the facilities. All of these cost factors amount to a huge advantage, especially for high-volume producers. In fact, most converts to tagless pad printing – for instance, Cupid Intimates (women's intimate apparel manufacturer based in Nicaragua) – cited significant cost reduction as the decisive factor for switching over from heat transfer.

As mentioned above, one of the benefits of screen-printing is that the graphics can be adjusted on the spot. With pad printing, on-demand artwork change is even more efficient because of modern digital plate-making technology. Computer-to-plate (CtP) comprises laser etching of specially coated plates (clichés) directly from digital files, without the loss of resolution and with complete cliché repeatability. The ability easily to make clichés in-house eliminates long lead times often associated with labels as well as the bulk of perishable inventory. Tagless pad printing makes short runs cost-effective and long runs quick to deploy.

## FURTHER BENEFITS

In addition, pad printing matches the other prominent benefit of screen-printing – the detailed and crisp image, especially when high quality pad printing inks, and those with small and uniform pigment particles – are used. There are such ink lines available on the market, as are inks that address consumer health concerns by being non-toxic and non-irritant to the skin.

The durability of pad printed tags exceeds that of heat transfer labels, mostly due to pad printing ink penetrating the fabric, not 'sitting' on it. The wash tests conducted by the Govmark Inc, an independent US laboratory, show that the test prints are virtually intact after 50 industrial grade washings at 70°C (160°F) with bleach. Most heat transfer labels don't stretch; the stretchable type labels have reduced durability. By contrast, the printed tags both stretch and shrink with the fabric, which makes them unnoticeable for the consumer even after the garment is worn and washed – and preserves brand identity. Furthermore, pad printed tags can be applied to heat-sensitive materials without the risk of leaving heat marks on the fabric.

*The B-100 single-colour benchtop pad printer for tagless production*


*An example of a neck tag pad printed with the B-100*

On the down-side, pad printing is new for garment makers. As with the adoption of any new technology, there is a learning curve. The pad printing process has many variables such as the ink mix, the depth of the plate and the pad pressure. When these variables are properly adjusted to the conditions – fabric density and elasticity, image characteristics, air humidity and temperature – excellent results are in store. When they are off, the quality will suffer. This is why, for a successful deployment, it is crucial to get quality training and technical support as a part of the transition program.

## THE WORLD IS TAGLESS

Technological solutions become viable and attractive, or the opposite, only in particular socio-economical conditions. With the current global landscape, mass production is happening where labour is cheap and in abundant supply. Medium and large apparel companies are running factories in Central and South America, India and China. They are looking for a tagless technology to complement their resources and optimise their processes, and tagless pad printing is the logical choice. In fact, it's a triple win because the manufacturers cut costs and production time while enhancing product quality and brand longevity, the developing countries get better working and living conditions and the consumer becomes care-tag-free.

## ABOUT INKCUPS NOW CORPORATION

Inkcups Now Corporation (ICN) states that it is the leading American supplier of equipment and consumables for tagless pad printing on T-shirts, uniforms, underwear, sportswear and other garments. The company has assisted hundreds of apparel manufacturers and decorators, ranging from small shops to multi-national corporations, based in the USA as well as abroad, in setting up tagless pad printing production.

ICN provides a turnkey tagless solution that includes robust high-speed semi-automatic pad printers, full lines of supplies, digital cliché-making equipment and services as well as technical support in English and Spanish. ICN's experienced industry professionals are based in the USA, Canada, Honduras, Dominican Republic, Mexico, Columbia and Argentina.

ICN's Sapphire SB series ink for tagless printing is a line of premium textile inks that pass 50 industrial washings, do not contain heavy metals and restricted phthalates (CPSIA and California Proposition 65 compliant) and are NAMSA certified to cause zero skin irritation.

As the leading inventor and promoter of the digital plate-making for the pad printing industry, Inkcups Now has proprietary expertise in laser plate-making equipment, set-up and operation, together with the most comprehensive line of specially developed laser engravable plates available on the American market. ■

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# WHAT DOES LEAN REALLY MEAN?

## Kathy McHugh explains the principles behind Lean Manufacturing and how print companies can achieve the best results

*Kathy McHugh*

**There has been a lot of chatter within the printing industry about Lean Manufacturing. But what does the term really mean? And why has it taken so long to take hold in the printing industry when other manufacturing sectors have been benefiting from lean for years?**

According to Wikipedia: "Lean manufacturing or lean production, often simply, 'Lean,' is a production practice that considers the expenditure of resources for any goal other than the creation of value for the end customer to be wasteful, and thus a target for elimination. Working from the perspective of the customer who consumes a product or service, 'value' is defined as any action or process that a customer would be willing to pay for. Basically, Lean is centred on preserving value with less work." Thus, Lean is focused on getting the right things to the right place at the right time in the right quantity to achieve perfect work flow, while minimising waste and being flexible and able to change. And that's a mouthful.

Let's face it, the principles of Lean Manufacturing are mostly common sense. So why has it taken so long for printing to see the Lean light? One reason is that we have always considered ourselves as custom job shops; every job that comes in the door is different, so there was no perceived way to make the process more efficient except to buy bigger, faster presses to get the work out of the door more quickly, or add more workers to bindery to speed up the many manual processes in that department.

That approach no longer works in today's highly technical, fast-paced world. Sure, you can improve throughput with a faster press but, if the processes that get the job to the press or through bindery and out of the door are broken or inefficient, you are simply moving the bottleneck to another part of the operation.

Besides, are we really custom job shops? Isn't that concept a thing of the past? After all, a brochure is a brochure is a brochure. Certainly, the content is different from brochure to brochure, but what is so different about the production process? Savvy print service providers have taken steps to productise their offerings and standardise processes wherever they can. Look at Vistaprint. Producing more than 54,000 jobs per day could certainly qualify them as a 'custom job shop', but in reality, Vistaprint has productised its offerings and removed every scrap of waste from A to Z. It is hard to imagine anything happening in the Vistaprint plant that does not represent value a customer will pay for. And they do pay for it – 67% of Vistaprint's customers are repeat customers!

### ASSESSING WORKING PROCEDURES

For the printing industry, Lean Manufacturing means stepping back and taking a critical look at your operation from end to end. How does work come in the door? What happens to it throughout every step, from estimating and production planning, through prepress, production, bindery, shipping, and finally, invoicing and collection? Who touches it at each step? Where do they travel during the process? How many steps are retraced? How much wait time is there while the job moves from department to department or sits idle while materials are pulled from inventory? How much time do employees spend conveying critical information to each other or tracking each other down to gain that critical information? Most companies who have taken the time to do this analysis have been shocked at what they found. They have been shocked at the waste of time, resources, effort and even materials that went into producing each and every project, and they have taken steps to eliminate that waste.

Remember that the key to Lean is to preserve value – value defined by what the customer will pay for – with less work. This means more dollars in your pocket and less overall waste in your plant. Take the time to do this analysis for yourself and see what the impact will be on your plant. You will never regret this investment and you will never look back.

Speaking of impact, let's take a look at the whole concept of chemistry. Conventional printing operations use a lot of noxious chemicals. Perhaps that is our dirty little secret. Do these chemicals represent value that customers will pay for? In some cases, yes, because there is no other way to produce, for example, a million copies of *Time Magazine*. But, in most cases, in a world where short runs and fast turns are the name of the game, there are options to remove most, if not all, of these expensive, dangerous

*Continued over*

and non-value-added chemicals from the printing operation. An increasing number of companies are doing just that. Chemistry-free platemaking has been an option for more than two decades since Presstek first brought it to market; for the majority of offset print projects, chemistry-free plates meet or exceed quality requirements, optimise make-ready on the press, and have sufficient durability for today's shorter run lengths. Think of the steps and costs that are eliminated by making that one simple change.

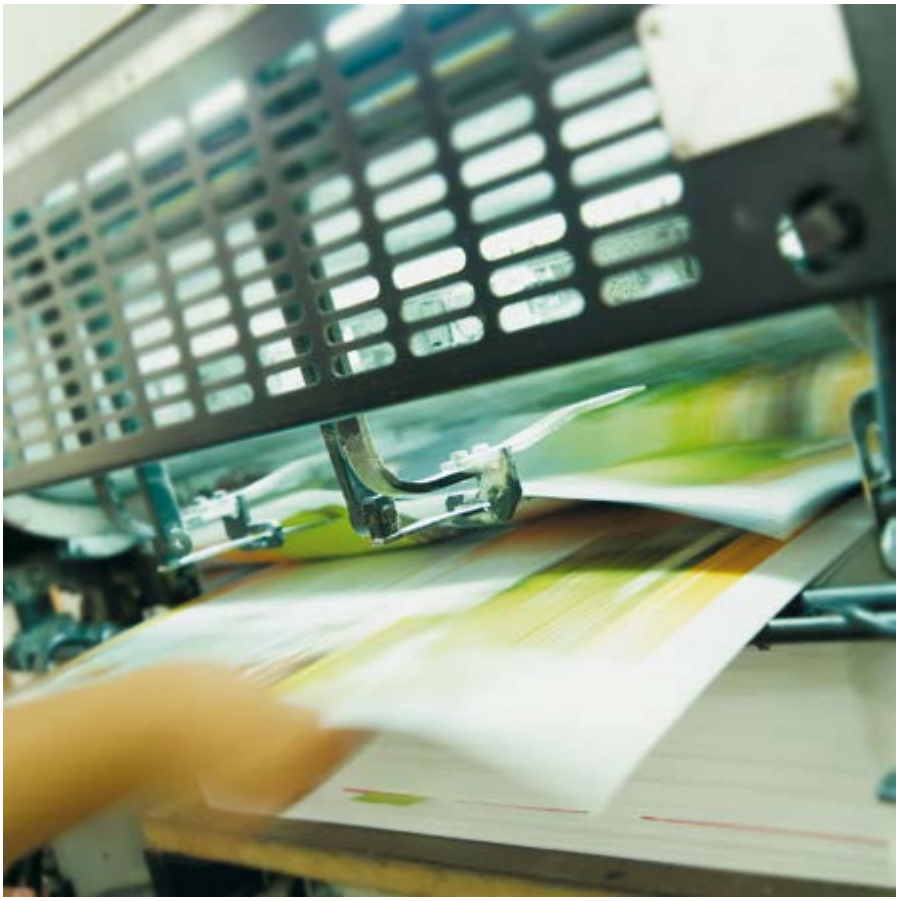
## THE VALUE OF WEB-TO-PRINT

How does work enter your plant? Do you have a web-to-print solution, an online storefront? Not only does this reduce the administrative costs of bringing work in to the plant, it can also reduce errors and provide a platform for automating a wide range of activities, from quoting and estimating, to imposition and scheduling. This is a value that customers will pay for. They love the convenience of 24/7 access. They love the ease of reprints, or the ability to make minor adjustments to standard templates to create customised documents. If implemented correctly, it reduces cost and cycle time for you and for them. Of course, they are still going to want to talk to you, so you need to make that part easy as well. But you will be amazed at how much time and aggravation is saved by simply adding a web-to-print front end.

What type of workflow do you have in place once the job is in the plant? How close to 'lights out' operation does it allow you to get? Can you afford all the touches involved in these smaller, more frequent jobs? One shop calculated that it was saving $40 per job that came in via the web. Okay, if you are doing a $50,000 annual report, maybe $40 is nothing. But if you are printing 1,000 sell sheets, it could be the make or break difference on job profitability. You may be surprised at the array of affordable solutions available in the marketplace that can revolutionise the way you work.

And what about an MIS system? Can you determine on a real-time basis how much a job is costing you, or how profitable a given customer is? Does your staff have instant access to all the information about a job from any terminal in the plant? This is easily doable today. There is no more need to have a paper job ticket waltzing its way inefficiently through the plant. Enter data once and have it instantly available to anyone in the plant that needs access to it to do their job. This is the world today, and it is not that difficult to achieve.

What about your offset presses? How much make-ready waste do they generate? How long does it take you for job changeover? Some of today's digital offset presses, such as the Presstek 75DI, offer job changeover as fast as six minutes, including on-press chemistry-free platemaking. Do the math. What's your average make-ready today and how much more throughput could you achieve by reducing it to six minutes or less? This is value a customer will pay for. What a customer will not knowingly pay for is all that paper waste when you have to run 250 to 300 sheets of paper through the press just to get up to colour. When is the last time a customer told you: "Oh, just take your time? Whenever you can get that job done, it's fine with me. No worries."



*Lean is centred on preserving value with less work*

Bindery may be the scariest part of this analysis. While it is possible to automate many bindery operations, many are still heavily manual. And the bindery is where it all comes together. If any other part of the process has a problem, bindery will pay the price. On the flip side, if there is excessive spoilage in bindery, you may have to start the job all over again, at great expense. And that is not value the customer will pay for.

## COMMON SENSE

We started out by talking about the fact that Lean is mostly common sense. Yes, you can get very technical and very process orientated with Lean. But it doesn't have to be that complicated to make a big difference in your operation. Take that walk-through, and take off those rose-coloured glasses before you do so. Be critical. Be observant. Talk to the folks who are redoing work or spending a great deal of time doing repetitive, redundant tasks. Look for the low hanging fruit and start picking away at it. Pick some metrics and measure before and after you make changes. Simple changes in work process can make a big difference, but you should also be seeking out technology investments that will enable you to optimise job flow through the shop and automate everything that can possibly be automated.

Do some reading: Google 'Lean Manufacturing' and see what you come up with. Ask your peers how they are learning about Lean. Check out publications offered by the Printing Industries of America on the subject. Visit IPA.org and check out its extremely affordable eLean online training. Take the training yourself or designate key people in your organisation to do so.

Once you take that initial walk-through, you will realise there is much that can be done to make your operation more efficient, profitable, and of more value to your customers. Then get to work. ■

***Kathy McHugh is Presstek Vice President & Chief Marketing Officer***

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*The Hopkins Lowrider is designed with space-saving features*

# SPACE IS THE PLACE

## Riley Hopkins looks at ingenious yet common-sense methods of creating additional working areas

**Space is one of the biggest considerations for any screen-printing company. It's expensive, it's often hard to get and, if you have to move to get more of it, you are at the mercy of every building inspector and fire marshall known to man.**

Therefore, I think it is best to use what space you have to the maximum, for as long as you possibly can. I was fortunate enough to grow up in Japan as a kid, and therefore tend to think cubically instead of just square feet of floor space. If you mentally look at the cubic footprint of your shop, you will suddenly see things in a completely different light.

There are many nooks and crannies that become attractive places to use. Bearing in mind that the shop should be set up in a 'U' (garments in, garments printed, garments packaged and shipped out) all the space overhead, underneath, and around is fair game for use. I designed our very popular Lowrider triple belt conveyor dryer with space saving in mind. Instead of taking up separate room on its own, the Lowrider sits underneath the printer, thereby freeing up the space the dryer would normally live in for other things. And, to top it off, the Lowrider system is on wheels.

Obviously, having garments on carts is good, as you can roll the cart full of shirts to the press, and collect the shirts after they have been printed and cured… and roll the cart over to the folding, packaging, shipping area of the shop. The same thing holds true for having all the screens for the next job librarried on a cart, with squeegees, inks, and the film positives ready and waiting for the press to be freed up. (Of course, the used screens, ink, and squeegees go on another cart to be cleaned up and stored in its own area). I call carts 'mobile space'.

Screen storage is another big space waster. I went to visit a company in London that was thinking of moving because they were 'out of space'. I looked around at all the screens stacked up on the floor in various areas of the shop, and realised they would have a ton of space … if they just used a fairly simple screen storage system. I sketched out some screen support units that bolted into the wall, then expanded them to go all the way around three walls in the shop about eight feet off the ground. For less than £500, all the support units were built and installed. And, as if by magic, suddenly there was free space on the shop floor. There was enough room for a couple more presses, a couple of long conveyor dryers and, most importantly, the company didn't have to move to another facility!

I don't mean to sound like I don't like the idea of moving, but my experience has taught me that whatever you have budgeted – triple it. And whatever time you have allocated for the move – double it if you are lucky, and way more than that if a building inspector or fire marshall decides to give you a hard time. Generally, if you contemplate a move, you will at some time find yourself with most of your shop being moved, and your business on hold until you can move in and start work. Any interruptions in your plans by unforeseen events have the potential to put you out of business. Hence my advocacy of using what you have to the most, for the longest. When you think you have to move, consider a second shift. You are paying for the place 24/7, so why not use it more than eight hours a day? Again, use what you have to the maximum, for as long as you possibly can.

Space is the place! ■

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# CHEMICAL INDUSTRY BRACED FOR CHANGES

ESMA
Driving Print Excellence

## Elaine Campling outlines the ramifications of CLP regulation and China's new chemical registration scheme as further regimes emerge in Taiwan and elsewhere across the globe.

**The first REACH (Europe's Registration, Evaluation, Authorisation and restriction of Chemicals Regulation) deadline to register high hazard and high volume chemicals (1,000 tonnes or more per annum) has now expired. The European Chemicals Agency (ECHA) report that 24,675 registrations were successfully submitted for 4,300 substances, including 3,400 phase-in substances. In basic terms, a phase-in substance is a substance which was already being manufactured or placed on the market before entry into force of the REACH Regulation on 1st June 2007 and was not notified according to Directive 67/548/EEC[1]. These substances qualify for phased registration deadlines, which with passing of the November 2010 deadline is now volume dependent.**

Organisations intending to register the same phase-in substance are required to join what is termed, a Substance Information Exchange Forum (SIEF), sharing information and data to avoid unnecessary animal testing and work towards consensus on classification and labelling of the substance. One of the SIEF registrants is a Lead registrant and submits the bulk of the required information at the appropriate time (relative to their tonnage band, or earlier if they choose). The remaining SIEF members submit their own supporting dossiers, which may also be submitted relative to their own tonnage bands, if different from the Lead registrant.

The largest number of 2010 registrations came from organisations based in Germany (23%), followed by the UK (12%), the Netherlands (9%), France (9%) and Belgium (8%). Around 86% of registrations were submitted by large organisations. Only representatives (representing non EU manufacturers) submitted 19% of registrations, exceeding the 14% received from European based small and medium sized organisations. The number of registrations is reported to be consistent with the European Commission estimate: ECHA expected to receive registrations for up to 4,700 substances and between 25,000 and 38,000 registration dossiers. Nevertheless, there is a possible shortfall between the number of registrations submitted and the number expected, which may have implications for downstream users. However, the loss of substances from the market may have already been realised by downstream users, in the lead up to the first registration deadline, due to the rationalisation strategies of their substances suppliers, what appears now as an inevitable consequence of the REACH Regulation.

ECHA expects to process the majority of dossiers by the end of February 2011. The remainder, those who failed the technical completeness check, will be required to submit an updated dossier with the information required by ECHA for processing during 2011. During the second half of 2010 between June and November, more than 5500 enquiries were submitted to the ECHA helpdesk and 10,000 participants took place in training sessions and 16 webinars run by ECHA during 2010, indicating the need for support in the complicated registration process.

### FUTURE REGISTRATION DEADLINES

Subsequent REACH registration deadlines follow in May 2013 for phase in substances manufactured or imported in quantities of 100 tonnes or more per annum and May 2018 (more than 1 tonne per annum). However, manufacturers and importers must brace themselves for notification of the classification and labelling of hazardous substances (without volume limit) to ECHA, a requirement of the classification, labelling and packaging of substances and mixtures (CLP) Regulation. The notification requirement includes certain substances in articles and hazardous substances in mixtures, e.g. printing inks and cleaning chemicals, if the substance is present in the mixture above concentration limits that trigger classification of the mixture as hazardous. Notification is also required for substances subject to REACH registration, i.e. with 2013 or 2018 deadlines, whether hazardous or not. Notification must be made from within one month of placing on the market from 1 December 2010. In reality, the first notification deadline was 03 January 2011, due to the timing of the holiday period

The chemical industry may have hoped for some time to recover from the first REACH deadline and CLP notification duties, but global change to chemical regulation is already under way, as reported in the 2010 Issue 3 edition of Specialist Printing. More detail is now known about China's new chemical control legislation, Measures on the Environmental Management of New Chemical Substances, Order No.7 (2010) of the Ministry of Environmental Protection, which came into force in October 2010.

China's new chemical scheme has similarities with the European REACH regulation, particularly concerning measures relating to risk assessment, risk management and submission of data. Chemicals on the Inventory of existing chemical substances in China (IECSC) will not need to be registered. New substances (and unregistered substances in mixtures) must be notified to the Chemical Registration Centre of the Ministry of Environmental Protection (CRC-MEP), generally without volume limit and only by legal entities located within China. The notification requirement also applies to substances in articles, where there is intentional release of the substance. Under the previous measures, manufacturers and importers were required to obtain a 'registration certificate' prior to manufacture or import by notifying toxicology data. However, the new measures significantly increase the burden on industry, due to extensive data requirements and risk management obligations.

### TAKING RESPONSIBILITY

Importers will put pressure on overseas organisations to take responsibility for notification, who are in any event the holders of substance data and limited by the 'no data, no market principle' of the regulation, similar to REACH. Overseas organisations without a Chinese based affiliate will require the services of a representative in China to act on their behalf. China's only representatives (ORs) will be subject to annual inspection and must satisfy qualifying criteria, including a requirement for a fixed office and a registered capital of around €320,000. ORs must also be familiar with chemical substance notification and without penalty record during the previous thee years

There is a one tonne/annum threshold before the more extensive full notification requirements must be submitted, but a 'simplified notification' must be submitted for substances manufactured or imported in volumes below one tonne per annum. The simplified notification procedure is split into two categories, with a 'special' or specific simplified notification process for qualifying substances. Unless lower volumes substances can be categorised in the 'special' category, an acute eco-toxicity test must be conducted in China.

Once notified, the CRC-MEP will evaluate

the substance and, if successfully processed, the substance will be considered registered by the notifier. As with REACH, notification is required by each manufacturer and importer. Notifiers can form themselves into consortia, but there is no reported requirement to do so. There are significant ongoing reporting requirements in this process, for example notifying the Ministry should new hazard information on the substance become available

A new chemical substance, classified as a 'substance of environmental concern' will not be registered for manufacture or import, unless appropriate risk management measures can be put in place, taking into consideration the hazardous properties of the substance and degree of exposure, which has similarities to the REACH authorisation process.

For those wishing to check the IECSC, the substance inventory can be accessed using the following link and searched by chemical abstract service (CAS) registry number: http://www.crc-mep.org.cn/iecscweb

However, not all listed substances can be viewed, as some substances have a confidential listing. It is possible to check with the Ministry by paying a fee of what is reported to be around €20 per substance, by submitting an enquiry in writing. There are some 45,000 substances on IECSC, compared with significantly more than 100,000 substances pre-registered under REACH, indicating that many substances could require registration.

## PENALTIES AND INCENTIVES

There are penalties for non compliance, including fines, but perhaps more of an incentive to comply is a further restriction that may be placed on non compliant organisations, banning them from notifying a new chemical substance for three years, which may result in significant market disadvantage.

The new requirements do not apply to exports to Hong Kong, Macao or Taiwan, but Taiwan is in the process of establishing a National Existing Chemical Substance Inventory for existing chemical substances used in Taiwan during the period 1 January 1993 to end December 2010. For inclusion in the Inventory, substances must be notified to the National Chemical Substances Registration Office.

Overseas suppliers are permitted to notify at this stage and the amount of information required is fairly minimal, although details of a Taiwanese Contact must be provided. The IUPAC English and Chinese name for the substance should also be provided, along with the common name in Chinese. The notification is conducted via an online system, but hard copies of the submission must also be received by the Registration Office.

Substances that had not been notified by the end of December 2010 may be subject to notification under the new substance notification scheme commencing mid 2011, which can only be conducted by entities located inside Taiwan. This route will be more burdensome, since a representative in Taiwan must be established to notify, and properties of the chemical identified by the submission of toxicity data.

More detail on the registration requirements for Taiwan will emerge during the coming months, as will the requirements for other schemes currently under revision, in Australia for example. It is clear that there will be no let up for the chemical industry going forward, as further changes to registration schemes progress across the globe, or new systems are introduced. The cost to this industry may have far reaching implications, outside of monetary considerations, in the reluctance to innovate and bring novel chemicals to market. ■

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

**Reference:**

[1] See ECHA REACH Registration Guidance: http://guidance.echa.europa.eu/docs/guidance_document/registration_en.htm

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# SUCCESS ON A PLATE

## Zdenek Mazura reflects on 65 years of Swiss precision engineering

**Lüscher AG Maschinenbau is celebrating its 65th birthday in 2011. The company, known originally as Brothers Lüscher was founded in 1946 in Obstalden, Switzerland, with the first offset whirlers, vacuum frames and exposure lamps being produced at that stage. During the years, Lüscher has grown from being a traditional engineering company to a high-tech supplier in the graphic arts industry. Today, it is a leading company in markets such as security, packaging, industrial and commercial printing. International sales are handled by a global network of subsidiaries in Germany, Spain, France, Italy, Hong Kong and dealers in 60 countries.**

### REPOSITIONING FOR THE FUTURE

Using the principle of strategic reorientation, Lüscher AG Maschinenbau believes it is setting the course for the future. As an innovative developer and manufacturer of CtP (computer-to-plate) machines, the company is positioning itself as a high quality, unique supplier of platesetter systems for multiple printing technologies across the whole of the graphic arts market.

Lüscher will continue to focus on high quality offset printing markets alongside the set-up and expansion into new markets such as flexography, security printing, and the development of multi-purpose CtP systems. These steps, along with new product innovations, will reinforce Lüscher as an important supplier meeting the changing demands of the printing sector.

New products recently brought to market include the unique hybrid platesetters XPose! Flex and Multi DX as well as special solutions for large-format web-offset customers with customised requirements for automation.

The XPose! Flex, as a hybrid platesetter for flexographic and offset forms, is perfectly suited to various applications in security printing such as banknotes, identity cards, credit cards and the like. XPose! Flex, however, also applies where there are diverse packaging applications, particularly for packaging with security features, such as in the pharmaceutical sector.

The new Multi DX flatbed platesetters can be used in screen, flexographic, letterpress and offset printing. These machines offer versatility across many markets such as packaging, commercial printing, and industrial printing. Practical examples include labels, tins, cartons, foils, ceramics, toys, sports items, car dashboards, electronic devices, PC boards and solar cells.

With the development of XPose! Flex and Multi DX platesetters, Lüscher believes it is the first and only supplier providing printing plate production for offset, flexographic, letterpress and screen-printing processes in one single, multi-functional platesetter.

### INVESTMENTS IN FACILITIES

As well as investing in new products, a comprehensive demonstration and training academy of more than 500 square m has been built specifically for these purposes. With this facility, Lüscher can now offer extensive testing possibilities including live production with the entire Lüscher CtP range. Through co-operation with service providers Click it and Reflex, who occupy the same building, customers from many markets can do specific trials with the Lüscher equipment for their own printing plate production requirements.

This investment in repositioning Lüscher also includes the expansion of customer support and its international sales structure. Of particular note is the distribution organisation in Asia where, in the past twelve months more than 15 dealers have been established across a dense distribution network in important regions of the emerging markets. The Lüscher Hong Kong subsidiary company, established in 2009, received an increase in personnel and a sales and service office has been opened in Shanghai.

As a further investment in quality, last month Lüscher AG Maschinenbau achieved ISO 9001 certification, further endorsing the quality of Swiss made CTP.

### INNOVATIVE PARTNERSHIPS

An important element of this overall reorientation are specific co-operation agreements formed with innovative and renowned partners. Marketed in an Agfa and Lüscher partnership, the Aluva N and Aluva P conventional CtP plates from Agfa set the standard in speed and quality imaging using Lüscher Blue laser CtP. Typically embraced by high volume printing operations, customers are choosing this 'best of breed' combination for economy-of-scale savings, and on-press performance delivered by the plates.

With high volume operations, plate handling and efficiencies gained from automation are paramount, so Lüscher is also providing solutions to all aspects of automation within prepress and into the press hall. To this end, a co-operation was established between Lüscher and the German company NELA (Brüder Neumeister GmbH).

The fruits of this collaboration are


*Lüscher's Multi DX unites the worlds of CTP and CTS*

*The company's Swiss head-quarters*


*Lüscher's training and demonstration centre*


*The XPose! hybrid platesetter digitally images offset, flexo and letterpress plates in a single system*

resulting in successful projects for fully automated 'lights out' plate production, starting with delivered pallets of new plates, and ending with sorted plates completely ready for mounting on press. Successful installations can be found, for example, at Vogt-Schild Druck AG in Derendingen, at Saxoprint GmbH in Dresden and Birkhäuser + GBC AG in Reinach. This co-operation between NELA and Lüscher is due for further expansion in the future.

## NEW STANDARDS IN SECURITY PRINTING

Lüscher has a proven track record within security and banknote printing, which has one of the most difficult and stringent quality requirements. Lüscher technology has prevailed with platesetter resolutions of 10'160 dpi combined with unrivalled precision and accuracy on flexo, letterpress, and offset plates alike.

The Lüscher installations at Orell Füssli, Zurich, the Canadian National Bank, and Note Print Australia (NPA), are representative of more than 30 of the company's major users in security printing on all continents.

Lüscher's many technological innovations, customer orientated restructuring, innovative partnerships and high growth rates in security printing are confirmation of its successful repositioning.

As a supplier to the print industry, Lüscher's primary commitment to its customers and positioning of products on the entire range of print plate production, is paying off. ■

***Zdenek Mazura is head of PM and Marketing at Lüscher***

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# ADVANCED FUNCTIONAL PRINTING 2011 + MEMBRANE SWITCH SYMPOSIUM 2011 – CONFERENCE PROGRAMME RELEASED

**Taking place on 10 and 11 March 2011 in Düsseldorf, Germany, Advanced Functional Printing 2011 and Membrane Switch Symposium 2011 are a joint two-day conference. An international audience will be able to take advantage of attending both sets of papers, which will be presented in dual English and German.**

## ADVANCED FUNCTIONAL PRINTING 2011

Advanced Functional Printing will offer printers a series of presentations from industry experts covering the best practices, as well as offering an invaluable insight into the latest technologies available. Applications to be covered will include automotive, film insert moulding, nameplate, fascia, printed electronics, circuit, label and solar cell technologies.

## MEMBRANE SWITCH SYMPOSIUM 2011

At the same time, Membrane Switch Symposium 2011 will provide printers and manufacturers in this important industry niche with the latest advanced technologies for membrane switch and industrial graphics manufacture.

Expert speakers will recognise the functional, aesthetic and integration advantages of membrane switches by offering a series of educational presentations covering market trends, current technologies and future opportunities. Printers, managers, owners, designers, OEMs and suppliers from throughout the world will also be given advice on best practice in operating and production for lean manufacturing.

Membrane Switch Symposium 2011 follows on from the first event in 2009, which was deemed an outstanding success by an international audience of more than 130 attendees.

## TABLE-TOP EXHIBITION

The conference programme will be supported by regular intervals dedicated to an accompanying tabletop exhibition of leading manufacturers of machinery and consumables, including Fimor, Folex, Grünig, Kissel + Wolf (KIWO), MacDermid Autotype, Marabu, Natgraph, Nicomatic, Nor-Cote, Proell, Roland, Sefar, SignTronic and Sun Chemical. Visit the website for latest list of exhibitors.

Delegate registration is available on the website for only €595, including access to all presentations at both events, exhibition displays, refreshments, lunch and dinner. Discounts are available for multiple delegate bookings – please call + 32 16 894 353 for more details.

The concurrent events take place at the easily accessible Radisson Blu Scandinavia Hotel in Düsseldorf.

## PROVEN TRACK RECORD OF SUCCESS

Advanced Functional Printing and Membrane Switch Symposium will be staged by ESMA, an association of European manufacturers of machinery and consumables for the specialist printing industry, and will be sponsored by Specialist Printing Worldwide magazine. Both parties have proven track records of staging highly successful international conferences and exhibitions, including European Membrane Switch Symposium, CTS & Digital Work Flow and GlassPrint. ■

**Further information:**
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Email: info@esma.com
Web: www.advancedfunctionalprinting.org and www.membrane-switch.org

**10 MARCH (DAY ONE)**

| TIME | PRESENTATION | PRESENTER |
|---|---|---|
| 10:00 | Arrival registration and table tops | |
| 11:00 | Intro | Peter Buttiens, ESMA |
| 11:15 | Keynote - The future of functional Printing | Ed van den Kieboom, Plastic Electronics Foundation |
| 11:45 | Verifying The UV Curing Process, (millijoules and milliwatts, measurements' of confusion?) | Rick Mann, Natgraph |
| 12:15 | New developments in digital printing of membrane keyboards | Dr. Thomas Dietrich, Folex |
| 12:45 | Lunch and table tops | |
| 14:00 | Functional Stencil Technology - From micro-fine, thin to ultra-coarse, thick layer | Sandra Christiaens and Dr. Roland Studenroth, KIWO |
| 14:30 | Latest dome technologies | Sebastien Charbonnel, Nicomatic |
| 15:00 | High-end Stencil and its interaction of the components | Patrick Brunner, Sefar |
| 15:30 | Coffee and table tops | |
| 16:00 | UV Inks for Membrane Switch: the Facts & Figures plus Outlook to UV Inks for Inmold Decoration | Claudia Bauer, Marabu |
| 16:30 | Digital Inkjet Printing solutions for MTS applications | T. Kirschner, Colorgate |
| 17:00 | Recent advances in printing transparent conductive materials | Frank Louwet, Agfa |
| 17:30 | Keynote - Going from good to great in screenprinting | Peter Kiddell, PDS Consulting |

**11 MARCH (DAY TWO)**

| TIME | PRESENTATION | PRESENTER |
|---|---|---|
| 08:00 | Table Tops | |
| 08:45 | Keynote - New Printed Electronic applications for Screen Printing | Prof. Hubner, HDM Stuttgart |
| 09:15 | The major development trends of Polycarbonate film | Serge Vincart and Martin Wong GC Limited |
| 09:45 | The Precision Print Project that focuses in on the effects that stencil profile (EOM) | David Parker, MacDermid Autotype |
| 10:15 | Screen printable piezoelectric polymer composites functionalized for Keyboard applications | Dr. Sivasubramaniam Venkatesh, Algra AG |
| 10:45 | Coffee and table tops | |
| 11:15 | Integrated Functions with Polycarbonate Films (Decoration, Hardcoated Films, FIM, Tactile Feedback by Electroactive Polymers, PE) | Matthias Groetsch and Dirk Pophusen, Bayer |
| 11:45 | Dual-Cure Lacquers as Protective Coatings for Film Insert Molding Applications | Dr. Herbert Bosch Manager and Stefan Zäh, Proell |
| 12:15 | Computer to Screen, secure your screen printing frames and your process | Nelson Schneider, Signtronic |
| 12:45 | Lunch and table tops | |
| 14:00 | Understanding the electrical and mechanical properties of materials used to print membrane switches and other printed electronics | Don Banfield, Conductive Compounds |
| 14:30 | Inkjet technology for advanced functional printing | Dr. Tim Phillips, Xennia |
| 15:00 | Keynote - Printable electronics in advertisement | Wouter Moons, Lumoza |
| 15:30 | Sum Up | Peter Buttiens, ESMA |
| 15:45 | Table tops | |
| 17:00 | Close | |



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# SCREEN PRINT INDIA EXHIBITION GAINS GLOBAL STATUS


*Screen Print India attracted more than 7,500 visitors*

**Screen Print India 2010, the ninth in the series organised by Aditya Expositions since 1994, proved to be a milestone in the history of screen-printing industry exhibitions in India. Held in December at the Bombay Exhibition Centre, Mumbai, this event raised the benchmark for screen-printing industry exhibitions organised in the country to a much, much higher level.**

This was the first time that Asian Screen Printing & Graphic Imaging Association (ASGA) supported an industry exhibition outside China and co-branded it as Screen Print India 2010/ASGA India 2010. ASGA delegations from ten countries visited the event and closely interacted with their Indian counterparts to explore business potential.

Key international industry associations including SGIA of USA, CSGIA and CSPIA from China and SLAP of Sri Lanka, supported this event along with Screenprinting & Graphics Association of India (SGAI) and TEKPA of Tirupur. This indicated the prestigious nature of the event and the confidence it enjoys within the industry.

The show covered a 4,500 square m area with more than 100 booths. The event attracted some 7,500 focused visitors from across India and abroad. New products and technology innovations were showcased and, as per the benchmark set by the previous exhibitions, all the top guns of the textile printing industry participated.

*The event received international support, with the SGIA's Michael Robertson and Pei Guifan of CSIGA cutting the inaugural ribbon*

It also witnessed the debut of India Calling, a networking event that brought together the cream of the international screen-printing industry and invited Indian counterparts to interact, network and talk business with the world. The Screen Print India awards for excellence in screen-printing were also presented at another high profile function.

Increasing awareness among the screen-printing fraternity and educating them about the latest developments was another important facet. Informative seminars were conducted by global screen-printing guru, Mike Young, during the event and touched upon the core issues faced today.

Anil Brahmbhatt, President, SGAI, said: "As a dedicated national industry representative body, we have always partnered with events that increase awareness about the latest technologies, equipment, input materials among the screen printing fraternity. Screen Print India 2010 provided these in abundance. There also has to be more interaction within the fraternity and this event is truly an ideal forum for facilitating such an exchange."

The venue accommodated the greater capacity requirements and proved to be a big hit with the exhibitors and visitors. This was appreciated because it was much easier to access and also quite spacious, enabling participants to display even their largest machines in a more aesthetic manner.

Devang N Sheth, Director, Aditya Expositions, organiser of SPI 2010/ASGA India 2010 commented: "This is the ninth time we have hosted this exhibition and over the years it has grown significantly in stature and size. Right from the outset the intent for this show was to facilitate interaction and business dialogue within the screen-print industry in India and also to showcase our capabilities to other screen-print hubs from across the world to facilitate trans-border business. The show was a good platform to explore the capabilities of the Indian industry and to initiate dialogues which would create business opportunities for everyone involved." ■

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# ONE FACET OF A THREE-WAY FESTIVAL OF PRINT

**FESPA Americas, which runs from 24 to 26 February at Orange County Convention Center in Orlando is shaping up to offer printers a multi-dimensional visitor programme to set them up for success in 2011 and beyond. This new event will run alongside the established regional print show *Graphics of the Americas*, as well as *ISS Orlando*, the recognized event for decorative apparel printing, covering embroidery, screen-printing, sublimation and direct-to-garment. Visitors to any one show will automatically gain access to the other two events free of charge.**

FESPA says that suppliers are enthusiastically backing this innovative event format, with exhibitors including Arlon, Color Dec, EFI, Esko Graphics, HP, Inx Digital and Mutoh lining up to demonstrate their wide-format innovations to the FESPA Americas visitor audience. EFI, a regular star attraction at FESPA events in Europe, has also confirmed its role as FESPA Americas Platinum Sponsor.

FESPA Exhibitions Director Frazer Chesterman comments: "This unique three-way combination of events adds up to a fascinating festival of print, offering one-stop access to more than 500 exhibitors. By coming together side by side on one site, in an appealing and accessible location such as Orlando, we can promise printers from North America, central and south America and the Caribbean the most interesting, rewarding and enjoyable experience."

A brand new FESPA event feature launching at FESPA Americas is Screen Masters, a hands-on screen-print 'boot camp', run by FESPA regulars Michel Caza, Bhargav Mistry, Charlie Taublieb, Scott Fresener and Ad Versteeg. These screen gurus will offer expert close-up tutorials on all aspects of the process, with an individual focus on sign and graphics, garment printing and fine art, appealing to everyone from apprentices to screen print pros and all stages in between.

*Charlie Taublieb is one of the hosts of Screen Masters*

The Screen Masters Workshop, taking place on the exhibition floor, will run in two streams. The morning session will focus on graphics, signs and fine arts including prepress screen-making. Ad Versteeg will deliver an Overview of Screen Printing before Michel Caza and Bhargav Mistry reveal the Secrets of Great Graphics Printing.

The afternoon session hosted by Scott Fresener and Charlie Taublieb will concentrate on the state of the industry today with reference to garment decoration before examining T-shirt printing and printing high-end and special effects.

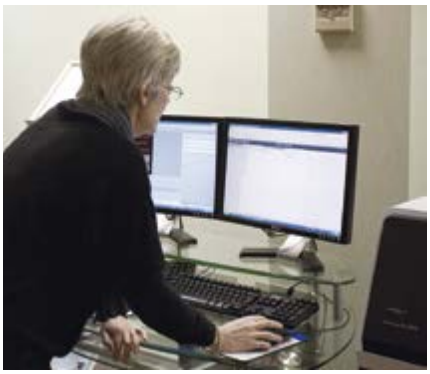
Production personnel will want to set aside plenty of time for Print Shop Live, a multi-vendor touch-and-try zone with a live end-to-end workflow. For the first time at a FESPA event, this feature sets out to allow printers to get their hands on an array of print output engines using different technologies and inks, working with real job files to see for themselves the different qualities of output that can be achieved on a range of substrates.

Print Shop Live will be moderated by independent wide-format industry consultant Sophie Matthews-Paul, who works with print businesses the world over to optimise production efficiency and quality, and to devise workflows to handle innovative substrates and applications.

A Global Business Forum on site at FESPA Americas will help visiting print shop owners and general managers to explore the trends affecting their business and devise strategies to build their businesses in the wake of the global financial crisis which continues to impact many PSPs. The forum will be chaired by print entrepreneur JR Kraft, CEO of BuildASign.com, with input from FESPA research partner InfoTrends.

Printers with a specific interest in digital textile applications will make a beeline for the FESPA Digital Textile Conference running alongside FESPA Americas, organised by John Scrimshaw, textile expert and editor of *Digital Textile* (inkjet printing), *International Dyer* and *IMPACT* (environmental and ethical concerns in textiles). The conference has been a sell-out in Europe over two consecutive FESPA Digital events and, as the trend to textile gains traction, American wide-format printers will find this the ideal place to learn more about the technologies, tips and tricks that can make them a success in textile print, whether for flags and banners and soft signage or decor and home textiles.

Some of the event features that wowed the crowds at the flagship FESPA 2010 in Munich will also be brought to life for printers visiting FESPA Americas, including the pulse-racing FESPA Wrap Cup, a competitive high-speed vehicle wrapping event organised with the support of a range of media vendors.



*Print Shop Live will be moderated by Sophie Matthews-Paul, independent wide-format industry consultant and Specialist Printing Worldwide's editorial consultant.*

Chesterman concludes: "2011 looks set to be an important year for printers worldwide, who recognise the need to invest in their businesses again after the challenging trading conditions that dominated the last three years. Technological innovation is racing ahead and, with no other wide-format events on the east coast of the US until Spring 2012, FESPA Americas will be a springboard event for digital wide-format and screen-plus-digital printers, as well as offset or small-format digital printers looking to broaden their horizons, and anyone looking to boost their capabilities in textile and apparel printing." ■

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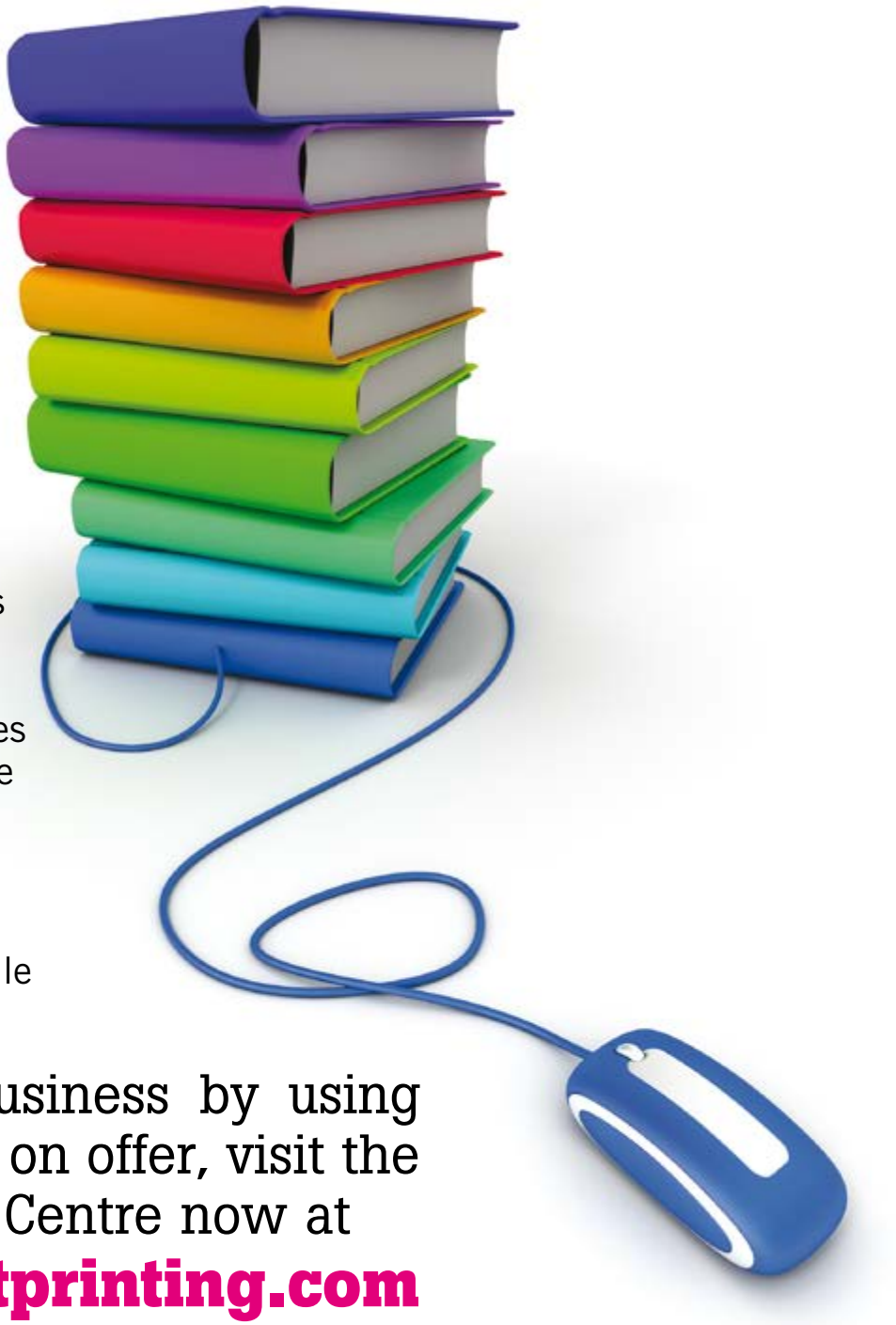

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# FOSTERING INTERNATIONAL INTERESTS AND RELATIONSHIPS

## Mike Mockridge shares his thoughts on the importance and relevance of association membership

Mike Mockridge

**When, many years ago in Manchester, England, I first joined SGIA, I never imagined that I would one day find myself elected as the first European Chairman of this internationally acclaimed North American based Association.**

To be perfectly honest with you, my motives in joining were not of the purest. I had no thoughts of the greater good that could result from contact with the world-wide community of specialist printers. No, to be perfectly frank, I merely wanted to access the huge fund of technical information about all aspects of screen-printing that I knew could not so easily be obtained anywhere else. And what a bargain it was. Reliable and unbiased advice about all aspects of the screen process, available at a moment's notice, proved to be absolutely invaluable.

Today, of course, we have a very different scenario. It is accepted that by now more than 90% of screen-printers have acquired some digital printing capability. Now knowledge is proprietary. Only the supplier of your digital equipment can offer you help and assistance.

So, what now is the function of SGIA in this new situation? Indeed, does such a trade association have any role to play in this new environment?

Well, during the many years of my involvement with this great international association I made an interesting discovery. I found that being a member of a global community conferred many unexpected benefits. Almost without realising it I had made friends with fellow printers in many other parts of the world. Furthermore, and to my surprise, I discovered that this networking often created business opportunities I would not have otherwise expected.

I am often asked about my involvement with SGIA, and in particular about the fact that I am British. To me the very fact that a 'Brit' could become Chairman of SGIA says a great deal about the international credentials of the organisation. Whilst SGIA is undeniably a North American based institution, it is also a truly international organisation with connections to similar groups in many other parts of the world – including Asia and South America and Latin America. It fosters goodwill and exchanges of ideas with these other organisations to the benefit of all.

In a highly competitive and changing world, it is more important than ever before to have good network relations with your fellow printers, both at home and in the rest of the world. Obviously, we are competitors, and if one of us stumbles on to the method for turning 'lead into gold' it is not expected that he or she will give away the secret. But we have many common interests, which we share with our colleagues within the global community. This sharing of information and experiences can be mutually beneficial, without in any way impairing our competitiveness. I believe that belonging to an internationally respected association like SGIA broadens the mind and adds status to both the individual member, and to his or her company. ■

***Mike Mockridge is Chairman of the SGIA***

***Specialty Graphic Imaging Association***

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# CONCERNS AND CAUTIOUS CONFIDENCE

## Steve Kahane looks at business and market trends in North America

**NASMA recently held its fall executive forum meeting in Irvine, California at the corporate headquarters of Roland DGA. More than 20 senior executives and owners from the leading manufacturers in the North American print industry participated. Here are some of the highlights from the meeting.**

All participants were increasingly optimistic about their businesses and markets. In a quick and very general survey, everyone indicated that sales in 2010 were up from 2009 and, next year, everyone expects further growth. Two-thirds of the companies indicated that their marketing spend increased this year whilst more than three-quarters of the group plans to increase its marketing spending next year. Given the experience during the recession, companies to this point have held off hiring and buying equipment. But that is expected to change next year as participants begin increasing headcounts and capital spending, albeit cautiously. The new normal in North America appears to be mostly steady but slow and challenging growth.

During the business round-table discussions, several issues seemed to be on everyone's mind. First and foremost, material availability and supply chain management are challenging everyone at the moment. Second, margin pressures remain as print customers work to regain their bottom lines. And third, what is the role of screen-printing in an increasingly digital world?

The keynote speakers expanded on these issues and gave their views on where the market is heading. Tom Butler, owner of Ink Throwers, one of North America's largest screen-printers, talked with us about his business and the screen-print market in general. Tom noted that the 'big box' retailers have shortened their supply chains over the past several years, bringing a lot of printing back to North America. But expectations from the major retailers are very high in terms of pricing, delivery and response. Screen-printing remains the 'go-to' technology for high volume printing.

Frazer Chesterman, FESPA Managing Director, and Marcus Timson, FESPA's Sales and Marketing Director, spoke with us about the growth in the digital marketplace and FESPA's plans for its upcoming shows – in particular, FESPA Americas. FESPA sees considerable growth ahead for graphic printing. Screen-printing will remain an important market segment, but attention is shifting to digital printing where there is a faster pace of innovation. FESPA plans to highlight wide-format, in particular, at its upcoming FESPA Americas show in Florida. While there are many challenges ahead, the good news from the meeting is that manufacturers are excited and are once again looking to growth and the future. ■

***Stephen W Kahane is Chairman of NASMA***

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# LOOKING AHEAD TO KEY ACTIVITIES

## Peter Buttiens outlines some important diary dates for the future

### TOWARDS AN ESMA EUROPEAN QUALITY LABEL?

In difficult economic times, European manufacturers stand out for the higher quality of the products they provide, with strong commitment and respect for the environment and workers. Many have already invested in ISO 9000 certification which measures the efficiency of a quality system. As customers face an increased variety of offerings worldwide, the question remains as to how to distinguish the best supplier or suppliers specific to their needs in the specialist printing branch.

ESMA is investigating the creation of its own 'quality label' or 'award level' for members. This aims to help manufacturers be recognized as 'world class' suppliers with respect to research and development, service and respect for the environment as well as other factors, which have yet to be defined. A complete project will be developed during the coming months and will be presented to members for approval.

### RFID TECHNICAL NEWS ON THE ESMA WEBSITE

This is a topic which will cover the implementation of RFID (radio frequency identification) to support the screen-printing production workflow and security (ATEX). A team of manufacturers in Germany and Switzerland is offering a complete software system designed to increase the flexibility and control within the screen-printing process using RFID technology. More information and details can be found on the ESMA website from the beginning of February 2011 and in future issues of Specialist Printing Worldwide.

### SPORTSWEAR AND FASHION T-SHIRT PRINTING AND PRODUCTION CONFERENCE

This ESMA sponsored conference now has a firm date of 4 February 2012, the second day of the TV exhibition in Stuttgart. This event will be held in co-operation with TV-P magazine and will be a one-day conference with ten speakers concentrating on the latest developments in T-shirt and sportswear printing, covering both digital and screen technology. A special deal with the TV exhibition will be available for companies and members that participate in the conference. Interested companies and speakers willing to present a topic should contact ESMA please. More details will be provided around April 2011.

### LOOK FOR OUR ESMA CITY PROJECT AT DRUPA 2012

This is currently a 600 square m pavilion with ten members and one non-member. There is still limited availability for other companies wishing to join. ESMA City will feature screen-printing, functional printing, specialist applications and printed electronics. More information is on the ESMA website www.ESMA.com where interested parties can fill in the online survey to register. ■

***Peter Buttiens is CEO of ESMA***

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