ISSUE 2
2010

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MESSAGE FROM BRYAN COLLINGS

The clouds of European and American recession are showing good signs of lifting and we will soon be half way through the year marked by FESPA 2010 in Munich. It is billed as a show of 'NEW wave innovations'. Innovation is one of the main drivers of specialist printing development and we as technical journalists are eagerly looking forward to the unveiling of significant numbers of innovations. Hopefully FESPA 2010 will highlight a summary of these as they are the main focus of their show.

We see a strong growth in India and Asia with the only possible cloud being an over heated China sometime in the next two years. However the authorities seem to be alert to the possibility and we can only hope that they keep economic control of the situation.

Here at *Specialist Printing Worldwide* we have also seen developments and are delighted to welcome Sophie Matthews-Paul to our team as Editorial Consultant. Sophie's wide experience in the sector combined with her well-honed editorial skills will ensure that the high standards set by our magazine will improve even further over the coming issues.

If you are not a subscriber to this magazine, we hope you enjoy this free promotional copy and find it useful. If you value what we publish and want to receive all future issues, please subscribe by either going to www.specialistprinting.com/subs_form.htm or completing the form on page 74. Payment may be made either by credit card or we can invoice you.

I look forward to seeing our European readers at FESPA 2010 and our American friends at SGIA 2010 in October.

Bryan Collings, Publishing Director, *Specialist Printing Worldwide*

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Chameleon Business Media Ltd
Changing to meet your industry's needs

Chameleon Business Media Limited
1 Cantelupe Mews, Cantelupe Road
East Grinstead, West Sussex RH19 3BG, UK
www.specialistprinting.com
Fax: +44 (0)1342 322664

PUBLISHING DIRECTOR:
Bryan Collings
Tel: +44 (0) 1227 272095
bryancollings@specialistprinting.com

EDITORIAL CONSULTANT:
Sophie Matthews-Paul
Tel + 44 (0) 1544 340057
sophie@specialistprinting.com

DESIGNER:
Alison Smith for Blue Daze Design Ltd
copy@specialistprinting.com

PUBLISHERS:
Frazer Campbell
Tel: +44 (0) 1342 322278
frazercampbell@specialistprinting.com

Debbie Drewery
Tel: +44 (0) 1342 322392
debbiedrewery@specialistprinting.com

Dave Fordham
Tel: +44 (0) 1342 315032
davefordham@specialistprinting.com

SALES MANAGER:
Carol Gibbons
Tel: +44 (0) 1425 617429
carolgibbons@specialistprinting.com

ADMINISTRATION AND SUBSCRIPTIONS MANAGER:
Sam Dunmore
Tel: +44 (0) 1342 322133
samdunmore@specialistprinting.com

SUBSCRIPTIONS:
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GERMAN AGENT:
August-Wilhelm Rust
Internationale Medienvertretungen
Tel: +49 6127 660325
Fax: +49 6127 965 9734
info@specialistprinting.com

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Sophie Matthews-Paul joins *Specialist Printing Worldwide* team


Sophie Matthews-Paul

Chameleon Business Media is very pleased to announce that Sophie Matthews-Paul has joined the *Specialist Printing Worldwide* team. Sophie has more than 30 years' experience as a technical writer on screen-printing and associated processes. Since its inception, she has also concentrated on the wide-format digital print sector as an independent international consultant. She brings unrivalled experience and knowledge in her new role as Editorial Consultant.

We are delighted to bring Sophie on board and are very confident that she will be a tremendous asset to *Specialist Printing Worldwide* in its role as the industry's leading international technical reference source. ■

Distressed and antique look with new Destructo White

International Coatings Company has introduced a new special effects textile ink designated 3822 Destructo White which is available via its international network of distributors. Designed to give a vintage or antique look, once cured this ink is designed to crack and split apart when pulled, stretched or crumpled.

Developed specifically in response to customer demand for an ink which can simulate flaking or weather pain, 3822 Destructo White is phthalate free, press ready and is suitable for use on 100 % cotton materials, plus blended poly-cotton fabrics. Curing is carried out at 170 degrees C, which is slightly higher than for conventional plastisols, and the finished print is stretched or crumpled to achieve the cracking effect.

Steve Kahane, President of International Coatings, states: "The distressed or grunge look continues to be a strong fashion trend going forward. Our Destructo White allows printers easily to achieve that look and we've received very positive feedback on its performance and how easy it is to use." ■

Low migration inks from Agfa adhere to food packaging regulations

Agfa's Dotrix users can now benefit from a new low migration ink which is crucial within the food service industry and ensures that no contamination occurs on either the exterior or the interior of the packaging. Formulated using the company's patented complete cross linking technology, the Agfa Agorix LM inks adhere to strict industry standards and are compliant with EU and FDS food packaging regulations.

Used in conjunction with the new Agfa Dotrix Modular LM digital printer, Agorix UV-curable inks are available in two colours sets of CMYK or with the addition of OV. The incorporation of orange and violet extends the colour gamut to give 90% reproduction of Pantone colours when used with Agfa Apogee ColorTune Spot and Apogee ColorTune CMM.

The web, single pass Dotrix Modular LM enhances Agfa's existing industrial digital solution by incorporating its low migration inks, making it suitable for packaging applications onto a wide range of materials. Typical primary and secondary substrates include multi-layer alu, aluminium, PET, PE, PP and OPP. ■

Inca Onset S20 installed in Ypres caters for shorter, greener runs

An Inca Onset S20 high speed flat-bed digital printer has been installed by Belgium based Daelprinting to enable the company to produce higher quality output within shorter turnround times, using a more environmentally-friendly solution. With throughput speeds of up to 250m^2/hr, a maximum size of 3.14 x 1.6 m and the ability to handle substrates up to 50mm thick, the new machine satisfies the need to handle runs of up to 500 sheets.

Until the installation of the Onset S20, Daelprinting's work was split 50/50 between screen and digital printing. "With the S20, we are now able to turn a job around in three to four days, shortening our lead times by 75%," says Arjan D'haene, Commercial Director of the company. "Not only that, but the print quality is much better than we've produced before and it has resolved a problem with banding we've had with all of our previous digital machines."

Daelprinting is located midway between Amsterdam and Paris and produces a variety of applications including point-of-sale, banners and industrial solutions to a broad customer base. D'haene continues: "More and more of our customers want environmentally friendly print, and the combination of Fujifilm Sericol's UV curable inks with the S20's ability to print on paper, cardboard and Re-board allow us to offer them a number of 'green' options to choose from." ■

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Two new industrial digital printing machines from Mimaki

A duo of small format UV-curable printers has been introduced by Mimaki which are suitable for the production of industrial applications, prototypes and promotional items. The first is the UJF-706 which has a maximum output size of 700 x 600mm on thicknesses up to 150mm, whilst the second is a low-cost desktop A3 unit and suitable for office environments.

The Mimaki UJF-706 supersedes the UJF-605C which was launched in 2004 and featured white ink for over- and under-printing. The new model is twice as fast as its predecessor and incorporates four point optical positioning recognition for centring prints onto small objects.

Designed as a desktop UV-curable unit, the Mimaki UJF-3042 also includes white ink and LED curing so that heat sensitive materials can be printed. Its maximum resolution is 1440 x 1200 dpi and its compact size is complemented by the fact that it only requires a standard power socket. ■

Mimaki's new desktop UV-curable printer features white ink

Buy out for Kammann secures its future

Kammann Maschinenebau, based in Bünde, Westfalen, Germany, has been taken over by its former management along with investment specialist Perusa Partners of Munich. The traditional mechanical engineering company will concentrate again on direct printing to glass and plastics, web printing and spares and service. The new arrangement was put into place at the beginning of April 2010.

Last October Kammann suffered from a downturn in business formerly associated with the decoration of CDs and DVDs. A plan to continue trading was put into place, aided by the co-operation between the insolvency administration, Kammann's management and Perusa. 160 of the original 260 employees have been retained.

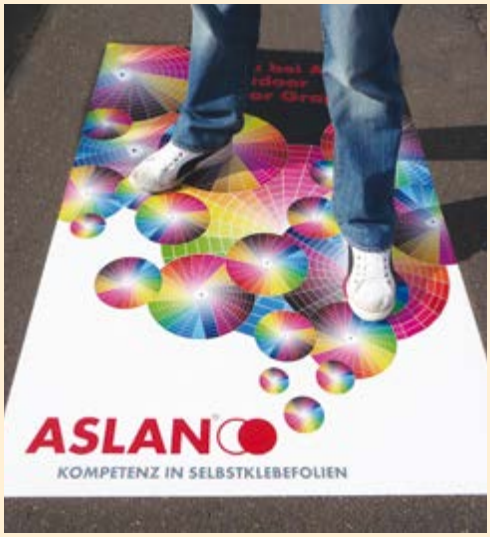
Conditions are looking positive for a new start, thanks to highly innovative products which ensure full order books. Additionally, the new inflow of cash strengthens the capital base of the company. ■

Temporary advertising options simplified with Aslan's new floor graphics film

Aslan's DFP 46 film and complementary MP 326 laminate are designed for use on smooth or rough outdoor surfaces, roads, car parks and paths. The digital printing material is compatible with all major solvent-based and UV-curable inks, with the overlaminate featuring an embossed anti-slip texture which offers a good level of flatness, can be machine cleaned and is resistant to scratching and wear.

Both films must be applied together on dry, clean and non-greasy surfaces, with their edges flush. Applications can be carried out in ambient temperatures of 10 degrees C or more.

Aslan sees this film combination being suitable for temporary advertisements at trade fairs and exhibitions, sporting events, promotions, festivals and store openings. There is a guarantee of up to six months for the composite solution, dependent on application and the mechanical load. ■



Aslan's film and laminate protects prints from abrasion and features an embossed anti-slip texture

Direct disperse inks from Mutoh

Mutoh Europe has introduced a new range of aqueous-based direct disperse inks, designed for use and specifically tuned for the company's Viper TX and Viper TX Extreme series of direct-to-textile printers. These fast drying inks offer an excellent colour gamut and nozzle stability.

As an addition to its aqueous-based dye sublimation inks used for transfer printing, Mutoh's Direct Disperse option is designed for the direct printing of polyester flags, soft signs and banners without the need for washing. Outdoor durability is up to one year, and fixation is required via a heat source.

Available in 1 litre bottles, the Direct Disperse inks are compatible with Mutoh's continuous supply system known as BIS. This has been developed for speed intensive, volume users who need a high-end delivery and refill system for unattended printing. ■

Technologies combine with the help of Thieme

Since the launch of the second-generation M-Press, known as the Tiger, Thieme says that four of the new versions of this combination screen and digital printing machine have been installed, despite the tough economy. Additionally, six more are currently on order.

Developed in conjunction with Agfa, the M-Press Tiger can be operated in a fully automatic mode with a sheet feeder which enables fast media loading to the inkjet station, before passing through an integral dual curing system to the stacker. The choice of print modes gives a maximum throughput speed of 700m^2/hr at the maximum print format of 1.6 x 2.6m, with the universal vacuum print table featuring 48 zone configurations to provide powerful hold-down.

Digital and analogue processes can be combined to form a unique hybrid system, by equipping the M-Press Tiger with additional screen printing stations. The Thieme chassis is designed for high-speed output, enabling digital prints to be enhanced with special inks only available via the screen process. ■

The Agfa M-Press Tiger is now selling well

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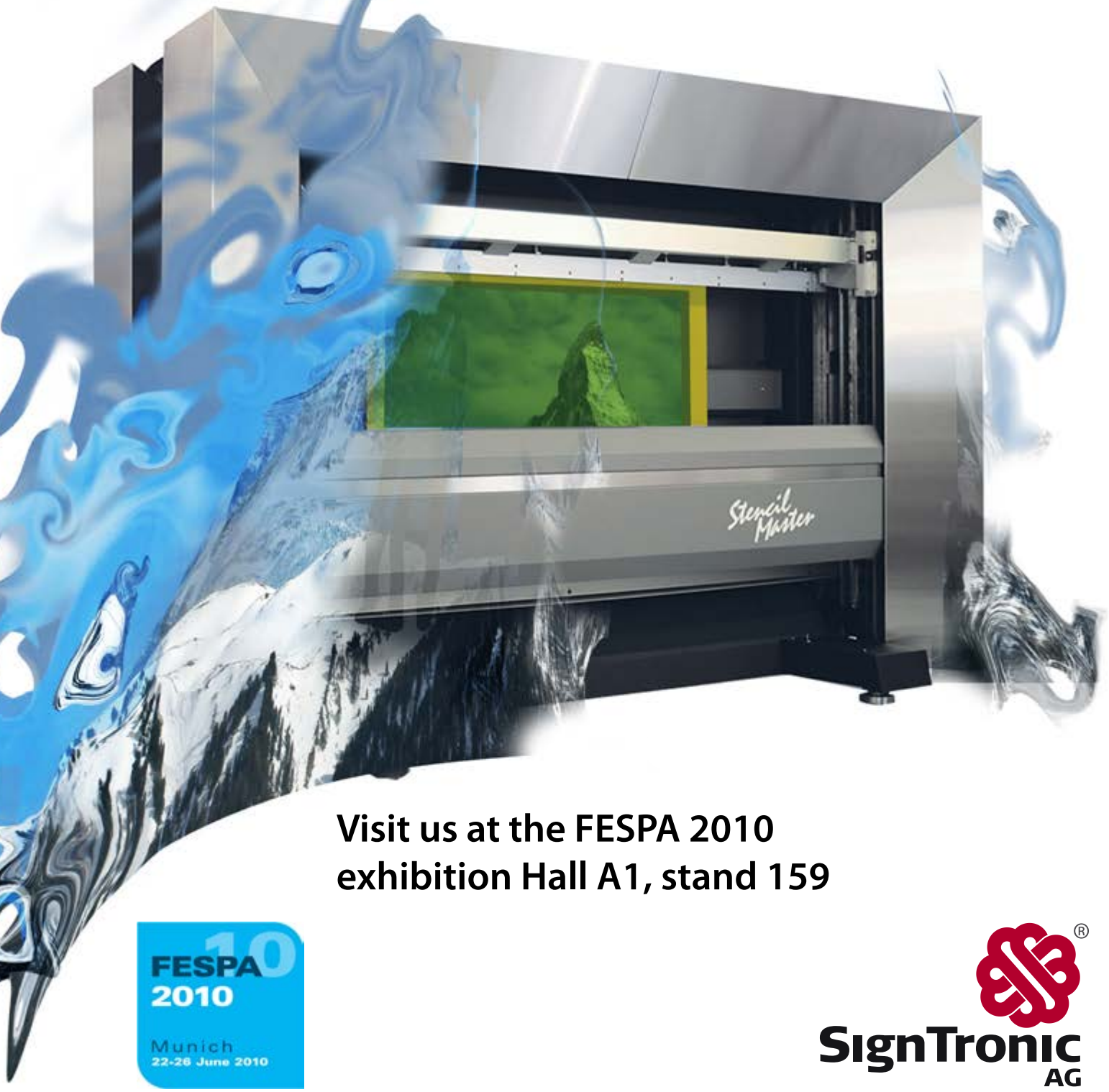

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SignTronic® AG

Gerber ups its M series cutting options

A selection of tools for use with the new, turnkey M Turbo cutting and routing system from Gerber Scientific Products

According to Gerber Scientific Products, today's graphic producers are faced with customers demanding a wider range of offerings post printing. In particular, they often demand processing of the printed item which involves routing, cutting and/or creasing. Considering that this is also required on a large variety of substrates of significantly varying thicknesses right down to kiss cutting, it is evident that life is getting very complicated. To this needs to be added the ability to route aluminium and have software which can cope with the process control needs of a modern print shop, plus accurate profile cutting. All of this is needed even if prints have been slanted, often formerly a near impossible scenario and nigh on impossible until Gerber Scientific Products brought out its new M Turbo. This new cutting solution is able to meet all of these demands and has the benefits of a sophisticated registration system and vacuum bed for accurate and secure positioning of work on the cutting table. Gary Feltham, the company's International Sales Director, is satisfied that this is a complete turnkey finishing system put together in one package. For further information contact Gerber Scientific Products via www.gspinc.com. ■

The new M Turbo flat-bed cutting table from Gerber

New products from Mutoh target the digital textile market

Amongst the new additions to Mutoh's portfolio of wide-format digital ink-jet machines are printers and auxiliary equipment which cater for the textiles and soft signs' market. The Viper TX 100 2.6 m system prints direct onto open structure textiles and, also, onto paper using dye sublimation. This system benefits from the company's Intelligent Interweaving, known as i2, and uses Mutoh's direct disperse and dye sublimation inks.

Mutoh's Viper printers for soft signs are designed to remove the need for transfer paper as they include in-line drying and fixation, with a heavy duty media unwind and rewind unit which handles reels up to 150kg. Aqueous-based direct disperse inks produce deep and vivid colours with good outdoor durability, assisted by the company's high volume ink delivery system (BIS).

The UniFixer heat transfer calender rounds off the new announcements from Mutoh. This unit, which is used for effective heat transfer and thermo-fixation, has a working width of 1.7m and is suitable for short runs and higher volumes. Its fast heating and cool down is complemented by a small foot-print and safe, easy operation. ■

The Mutoh Viper TX is one of the company's new digital textile printers

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THE ADVANTAGES, AND IMPORTANCE, OF GOOD QUALITY DIGITAL PRE-PRESS IN GRAPHICS' SCREEN-PRINTING

Computer-to-screen is the future for the graphics' screen-printer, explains Ad Versteeg who compares the different systems in use at Netherlands based, Point Seven

During an extensive discussion with Wim Herbold, director of Point Seven BV in Nieuw Vennep, The Netherlands, the pros and cons of the various CtS (computer-to-screen) systems came clearly to light. As one of the few companies that is still busy in the marketplace for large-format full colour work in screen-printing primarily, Point Seven decided a few years ago that the only way to do this properly, and also to be able to earn an income from it, was to invest heavily in pre-press.

There are not that many companies in this country anymore that prefer to produce large-format, full colour work via screen-printing. It would appear that even the screen-printers themselves are beginning to lose faith in their own techniques and standing, as if the additional value placed on this process would diminish. If you produce the type of work that can also be produced via digital machines, in other words large-format, full colour work in both small and large quantities, then this is exactly the argument to be made for re-structuring the screen-printing department in such a way as to be able to continue doing it. If screen-printing is prettier, lasts longer, can be produced faster and cheaper, then why would you decide to print digitally instead?

THE DIGITAL LIE

Herbold talks about the 'digital lie' when he talks about the differences between the two techniques, especially when it comes to the way in which printers and printer inks are sold nowadays. "People believe too easily that the digital printer is some sort of miracle machine that can do anything and everything and that it is simple to deliver top class work just by using it."

These are not the words of a computer illiterate who would be unaware of what digital techniques are capable of nowadays. Besides the other machines in use at Point Seven, there is also an Inca Columbia Turbo (the only one in the country with the capability to print white). This machine is in use more or less on a continuous basis and even though the work that it produces is fantastic, as they agree themselves, they still prefer screen-prints and these prints are, in many ways, just better being easier and faster to produce, without putting profit margins under pressure. By far the most income for this company comes from the screen department.

The frames slide automatically into the line to come out clean 35m further after having been coated, exposed and dried

This immediately says something about the quality of the printed matter that is produced here. As far as Herbold is concerned, people are too easily persuaded by the stories from the digital developers. Also, the strange thing is that if there is some banding on a digital print this seems to matter less than if there is something to be seen on a screened poster. It's difficult to explain, but it appears that screen-prints are scrutinised in a much more critical manner. Therefore, the printed matter that leaves Nieuw Vennep must be of irreproachable quality.

There have been enormous amounts invested in the screen-printing techniques here in recent years. The four-colour machine has already been here for a while and the pre-press was set up in such a way that it wasn't a problem to produce a set of four large-format screen-printing frames in a fast and efficient manner. Well before the move to the new premises, which is over a year ago now, a computer-to-screen system was already in use. This company was one of the first to invest in a system whereby the image to be produced was sprayed with wax on the coated mesh. This resulted in the lithograph becoming obsolete because films were no longer necessary with the system. This

Continued over

The screen-printing line, four colours at the time – prettier, faster and cheaper

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immediately led to a saving of hundreds of thousands per year. Of course the necessary wax needed to be paid for but, overall, the system still paid for itself in no time.

The manufacturer delivered the wax himself. Changing over to a cheaper alternative wax immediately meant the end of the service. This service included, among other things, that the replacement of the print heads was never a problem or an issue. If the old one began to streak, then a new one was delivered immediately and free of charge.

WAX-LESS SYSTEMS

When the competition brought the 'wax-less' systems onto the market, the wax system manufacturer suffered immediately. More and more screen-printers changed over to CtS and the most popular machines were those that didn't need consumable items. Therefore, the manufacturers of the wax system also changed over to a tried and tested laser system that they also used for the production of offset plates. Point Seven was interested. The first machine to be produced was shipped to Nieuw Vennep immediately after the event. However, there were some small problems. It didn't operate exactly as predicted, especially with the larger formats. Anything finer than halftone 18 seemed impossible without banding. In hindsight, it might have been better if the test frames had also been made in the desired large-format sizes. Then these problems would have come to light immediately.

Around the same time that this new system was being experimented with, there were also changes taking place at the original manufacturer's facility. Among other things, changes within the board caused problems in regard to communication about the new machine and they seemed almost impossible to solve. Point Seven had already got rid of the old wax system, so they had no fallback point there. They had always said that screen-printing was better than digitally manufactured images, but that claim was proving harder to back up because the quality of this system was absolutely not meeting the requirements.

The StencilMaster from SignTronic is fast and delivers the promised fine lines in a problem free manner

The financial crisis had also started around that time. It was very noticeable, plus there were delays and stress due to moving to the new premises. It was imperative that they did not produce printed matter of an inferior quality. As stated above, the new system worked and the quality was good and reliable; it was fast and the dots had never been so sharp, but it just wouldn't work with the fine halftones even after the necessary interventions and modifications to the machine – not even when the standard 64 lasers were expanded to 96. Eventually, it was promised that the new, but yet to be developed, CtS laser machine would perform better but the waiting period for that could be in the region of one to two years.

WRITING WITH LIGHT

In the meantime, Wim Herbold decided to have a look at what the competition, Sign Tronic, had to offer and he was impressed with the alternative. Based on another system, it appeared that this machine, SignTronic's StencilMaster, could deliver the promised fine halftones in a problem free manner and work with the same speed for larger formats.

The system uses the 'Digital Micromirror Device' (DMD). This chip, which was developed by Texas Instruments back in 1987, contains nearly 800,000 microscopic aluminium mirrors that can be controlled individually in such a way that the reflecting UV-light can be directed towards the frame to be exposed or is deflected and made harmless. Using this technique, 'writing' with light can be carried out in a very focused and precise manner. The chip with the small mirrors is directed across the frame to be exposed and projects the image in lines using a Zeiss lens, resulting in a very precise and seamless image of dots, text or pattern.

Sometimes it is easier to make decisions when your back is against the wall. Right at the worst point of the financial crisis, which also hit this company hard, a decision had to be made to switch for the second time within a year to another entirely new system. The advantages of using CtS were known and the rest of the company had been fully restructured to accommodate this. The complete pre-press was fully automated. The only missing link was to be able to expose the frames without any problems.

Point Seven decided to keep the laser system as a back-up and moved it to the warehouse. It has been replaced by the StencilMaster, which fits right alongside the hyper-modern line of washers, a coating machine, the rinsing unit and drying section. The printing frames slide automatically, including any ink remains, into the line to come out clean 35m further after having been coated, exposed and dried. All this is in accordance with a tightly scheduled and fully standardised process. Frames have already been produced with lines 32, without any further problems – no deformations, sharp dots and fast. Speed is of the essence because the editions are getting smaller. The pre-press has to be able to keep up with the printing. That is not a problem using the new system. Contrary to the previous machine it is again possible to use regular, standard emulsion.

Efficiency and standardisation are the keywords

STANDARDISATION

The fact that Point Seven can continue to screen-print at a previously determined level is important. They believe religiously in this method of printing and are of the opinion that screen-printing is superior in many ways to digital printing techniques. Screen-printers who wish to continue printing need to invest in the automation process, efficiency, standardisation and, therefore, pre-press. This is the only area within the screen world that is still innovating. "There are enough opportunities for the screen-printer but you must be able to deliver perfect work in conformity with current market prices and not make any mistakes."

THE AUTHOR

Ad Versteeg has been working in the screen-printing industry since 1968, including twelve years of teaching techniques. For almost 18 years he was the general editor of a Dutch screen-printing magazine and is one of the founders of 'Het Zeefdruk Instituut' (2004), a non-profit organisation for the screen-printing industry. He has written and translated several textbooks and, today, he is a freelance journalist writing for several international magazines. ■

Ad Versteeg is a Writing and Editing Specialist

Further information:
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PERFORMANCE SOLUTIONS

Ikonics works with a host of companies in the specialist printing industry designing tightly engineered imaging solutions. Tony Bergstedt discusses a recent co-operative technology development to optimise system performance

Development of a successful printer-ink-substrate suite often involves a complex interplay between these three systems in order to provide optimum system performance. Ideally, all of these systems are developed concurrently to provide the most efficient path to the end-point of a quality product offering. In the best of scenarios, development is undertaken with specific, quantitative performance specifications in mind. In many instances, however, the overall system is not built entirely from scratch, and one or more of the system components may be effectively "locked in", dictating the conditions which the remaining component/s must accommodate.

Such was the case in a recent development project initiated for a major ink manufacturer looking for an improved primer coating material for paper label stock to complement their new suite of UV inks. Although an interim primer had been developed internally during the course of ink development, the final print performance did not meet the company's high quality standards. Ikonics was enlisted to provide a solution for this final piece of the puzzle.

The key performance criteria communicated by the customer were controlled ink absorption and drop spread on paper label substrates, low odour, and a uniform surface appearance, with no cracking or chalkiness. In addition, the primed media must maintain key characteristics already designed into the existing ink formulations, such as colour integrity, cure quality, rub resistance, and consistent gloss levels between colours. Additional considerations from an overall product quality standpoint are drop spread uniformity, both across the web and on a localised basis, which demands consistent coating quality as well as ability to moderate localised variations in the paper substrate.

Controlled drop spread depends on the combined effects of coating absorptivity and suitably paired surface energies of the ink and primer coating. When drop spread is too tightly constrained, print lines are seen in areas of solid print, which can impart a subtle "corduroy" surface effect or, in extreme cases, bare areas between the nozzle paths. When drop spread is excessive, these print lines merge and become uniform, but defects occur in the form of blurred edges and loss of detail emerge.

Insight regarding both the ultimate application and hardware-defined constraints is essential, as desired drop spread is application-dependent. Tightly controlled spread is beneficial for reproduction of fine detail, but increased spread is required to fill in larger solid print areas, such as when drop spread is closely coupled to the resolution of the print-head. In this case, this information was communicated at the onset of the development process. Importantly, the details were continuously refined through rigorous testing, evaluation and feedback from the ink manufacturer.

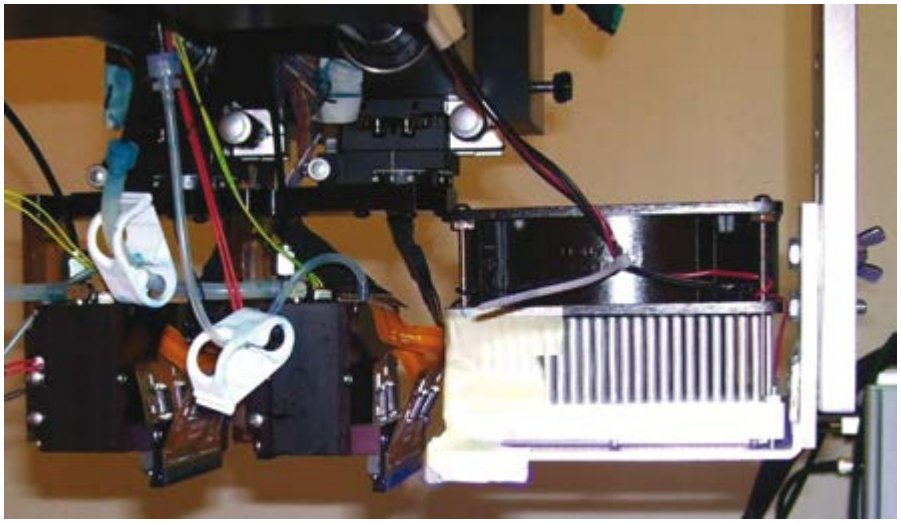
Formulations for media primer coatings are by no means universal, though sufficient commonality exists to provide a reasonable starting point for optimisation. Again, discipline and rigour in determining functional specifications are essential at this stage of the development. Two base strategies were investigated in the first development pass – blended resin coatings and mixed resin-microporous formulations based upon the Ikonics Accu line of ink-receptive films.

Evaluation of the various primer formulations included printing both with and without UV "pinning" (inhibiting ink fluidity by partially curing the ink with a low UV dose) in order to assess the individual and combined effects of the primer coating and irradiation. Unpinned prints isolate and reveal the inherent drop spread control contributed by the primer coat and reveal any print bleed as a result of absorption by the primer. By comparison, pinning demonstrates effectiveness of curing on restricting the extent of spread above and beyond the primer contributions.

To complicate matters, early primer formulations revealed differential gloss and drop spread for the four inks, revealing how formulation variations that address deficiencies with one ink may be ineffective or differently effective for other inks in the suite, depending on individual ink chemistries and/or surface energies.

At each stage in the development process, the customer conducted thorough print performance evaluations and provided comparisons between fine features and filled figures. Of particular utility were quantified performance results and suggested modifications where appropriate (such as that drop spread needs to be increased by 25%, ink gloss with formulation X was reduced by 40%, etc). Such quantification is helpful in making prescribed modifications to the primer formulations, particularly where surface energy adjustments were required, although formulation changes are in many instances nonlinear and require evaluation of multiple incremental formulation changes in each formulation-feedback iteration.

The final formulation as well as intermediate formulations developed during the course of this and other related projects



XY materials' deposition system fitted with dual Dimatix SE-128 print-heads and a Norlux LED array

Ikonics ink-jet development laboratory

are added to Ikonics's suite of solutions for UV ink primer coatings.

An example of an ideal product development scenario is the simultaneous development of a functional (non-graphical) UV fluid, substrate and printer combination, enabled by Ikonics's ink-jet development laboratory. The objective was to develop an acid resistant pressure-sensitive adhesive, a suitable print-receptive substrate which is also capable of selective release to transfer the printed image to an acid etchable substrate, and the printer hardware configuration to enable implementation as an industrial process.

Requisite design characteristics for the fluid included thermal stability, which is particularly important for fluids that require elevated print-head temperatures in order to lower the fluid viscosity to assure consistent jetting. Once printed and cured, the prints must hold print detail and maintain dimensional stability throughout handling and transfer processes. In order to provide good image transfer, the fluid must maintain sufficient residual tack in order to adhere to various metal surfaces during handling and subsequent etching procedures using aggressive acids and occasional elevated temperatures.

Design of the print substrate was dictated by considering both the print receptivity to the ink-jet fluid and the intended function of the prints following printing. As described in the first example, the surface treatment required controlled drop spread, accommodating both highly detailed figures and larger areas of full coverage without print lines, which could compromise the quality of the etched image. In addition, the substrate had to be thin, transparent and flexible, allowing registration to the etch substrate and forming around compound curves, yet resistant to stretching and image distortion. The substrate's final function is to provide release/transfer capability for transferring the printed image from the print substrate to the etch substrate.

With the above specifications in mind, fluid development proceeded from the ground up, with simultaneous optimisation of fluid function, jetting characteristics and substrate coating matched to the application.

Prototype fluids were evaluated for jetability using a Dropwatcher II (Imaging Technology International) fitted with a Spectra SE128 print head (Fujifilm Dimatix). This development platform is used to select optimal print head temperature and firing pulse settings for proper drop formation and velocity.

As potential fluid candidates were identified based upon successful testing in the Dropwatcher, these settings were transferred to an XY Materials Deposition System printer (Imaging Technology International). Here, additional print parameters were adjusted and the UV exposure conditions were varied for optimal cure. Image quality concerns emerged at this point in the development process, as this is a compound effect of jetting, pinning and curing and controlled drop spread. As a starting point, our microporous Accu ink-receptive substrates were tested and found to give good control of drop spread for highly detailed prints, though the high absorptivity of the coating and lack of a release/transfer mechanism required further development.

From this point, a complex iterative process began which involved refinement of the fluid properties, repeated jetability and print testing on the Dropwatcher and the XY printer, and reoptimisation of UV pinning/curing and substrate coatings.

As development neared the commercialisation stage, external evaluations were initiated with key customers providing valuable feedback on product performance and viability as a production process. Additional fluid and substrate adjustments proceeded and the process culminated in the assembly of a full product offering including an acid resist fluid, print substrate and a production printer built to our specifications and designed to produce up to 914mm x 1,219mm (36" x 48") acid-resist transfer prints. The full product suite was recently placed in a production facility for beta testing and is currently being utilised for large-scale production work. ■

Tony Bergstedt is Director of Chemical Research at Ikonics Corporation

Further information:
Ikonics Corporation, Duluth, Minnesota, USA
tel: +1 218 628 2217
email: tbergstedt@ikonics.com
web: www.ikonics.com

UNDERSTANDING SUBLIMATION AND ITS METHODOLOGY

The possibilities provided by digital sublimation printing are still relatively unknown. Peter Waelkens of Roland DG Benelux explores the potential of the process

Textile sublimation is a known concept, but the possibilities go much further. The applications range from flags, sports apparel, aluminium plates, signs and displays to the sublimation of wooden panels that give rooms a unique touch. Partly due to the less familiar applications, sublimation printing has large market potential and bright future prospects. The advantages of the technique are legion, but sublimation also has its limitations.

WHAT IS SUBLIMATION?

The term sublimation rings at least a little bell with most people. We remember the physics lessons at school where dry ice turned into gas at room temperature. That, in a nutshell, is the essence of sublimation; solids go directly to a gaseous form, without first going through a liquid phase. Sublimation prints follow the same process. In the first phase, the ink is 'fired' (an ink-jet principle) onto a coated paper, known as transfer paper. The sublimation takes place in the second phase, and this is when the ink is turned into a gas through heating. The gaseous ink then binds itself to the polyester substrate by applying pressure for a fixed period of time. Once that process has been completed, the degassed ink particles have become part of the new medium, and the result is that the sublimated image lasts a very long time.

WHAT ARE THE STRENGTHS?

In sublimation, the ink particles bind to the polyester layer, and this results in several advantages with the first being that it is laundry-fast. This laundry-fastness is substantially higher than one would expect from textile transfers (flexography). If we express that in terms of the EN ISO 105-C02 standard, we can apply a value of 4 to 5 to the sublimation process. That is on a 5-point scale where 5 is the maximum laundry-fast value.

A second strong point is the light stability. The value system for light stability is contained in the EN ISO 105-B02 standard, and is also known as the colour-fastness scale or the blue scale. Depending on the pigment colour used, the sublimation technique achieves a value ranging from 5 to 7, with 8 being the maximum degree of light stability. We can compare that to a summer of three weeks to four months and a winter of four weeks to nine months.

A third, but not unimportant benefit of sublimation, is the weather-fastness that can be determined by means of the EN ISO 105-B04 standard. On that scale, sublimation has a value of 5 to 6 on an ascending 8-point scale.

It is possible that those possible benefits could fail to be achieved due to an insufficient fixation time, temperatures that are too low or because a polyester coating is not suitable, such as on an aluminium plate. A polyester material does not necessarily need a coating to be used for sublimation, but it is recommended for direct printing onto polyester (PES).

Ecologically speaking, polyester is a better choice than, for example, PVC. When preparing polyester, chlorine should not be used. When it is destroyed, no chlorine will be released into the environment. The same is not the case with the preparation and destruction of PVC.

WHAT ARE THE LIMITATIONS?

Sublimation is only possible on polyester media. Silk, cotton and many other fabrics are, by their nature, not suitable for this process. It is possible to use sublimation on polyamide and nylon (such as swimsuit material), but the durability and the colour intensity of those prints will be limited. Nonetheless, the prints could be useful in making prototypes and samples.

Because of the high energy and paper consumption required, sublimation is not the most ecologically responsible technology. To counter this, the transport of textile is less environmentally harmful than the transport of PVC.

WHAT ARE THE APPLICATIONS FOR SUBLIMATION?

Sublimation printing can be used in a wide range of applications. It has proved its value in very diverse markets.

Examples of applications in the soft signage market include banners, pop-ups, flags, canvases and sports apparel. For the sign market, it includes aluminium displays, boards and bags. Examples of applications for the interior decorating market include curtains, tablecloths, wooden walls and doors. Other potential markets include the clothing industry and the photography market, where sublimation is primarily used to personalise items.

Sublimation printing therefore has a large market potential and good future prospects.

WHAT COMPONENTS ARE REQUIRED FOR SUBLIMATION PRINTING?

Sublimation printing requires the following components: a printer, sublimation ink, a heat press, software, transfer paper and media. Roland DG and its partners offer a total sublimation-printing solution.

THE PRINTER

Roland DG offers a range of wide-format printers which are ideal for making sublimation prints. The Hi-Fi Express FP-740 sublimation printer is based on Roland DG's renowned ink-jet technology and is as easy to operate and maintain as the other Roland printers. The machine has a printing width of 1.87m and has eight print-heads in a staggered twice x CMYK configuration, with each head having a 360 dpi resolution. The reliable components and the staggered configuration of these print-heads means that fast print speeds can be achieved so productivity is very high.

The solid construction, the variety of configurations and the impressive maximum printing speed of 50.91m²/hr make the

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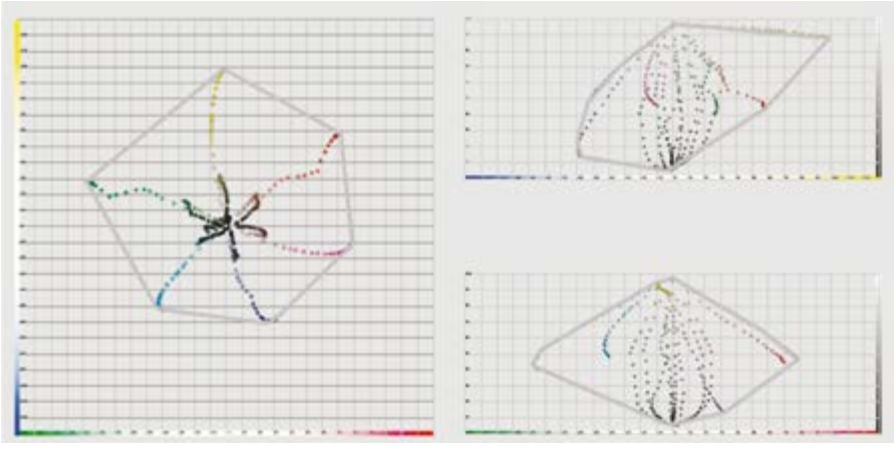

Roland's standard ink set produces a clear colour spectrum

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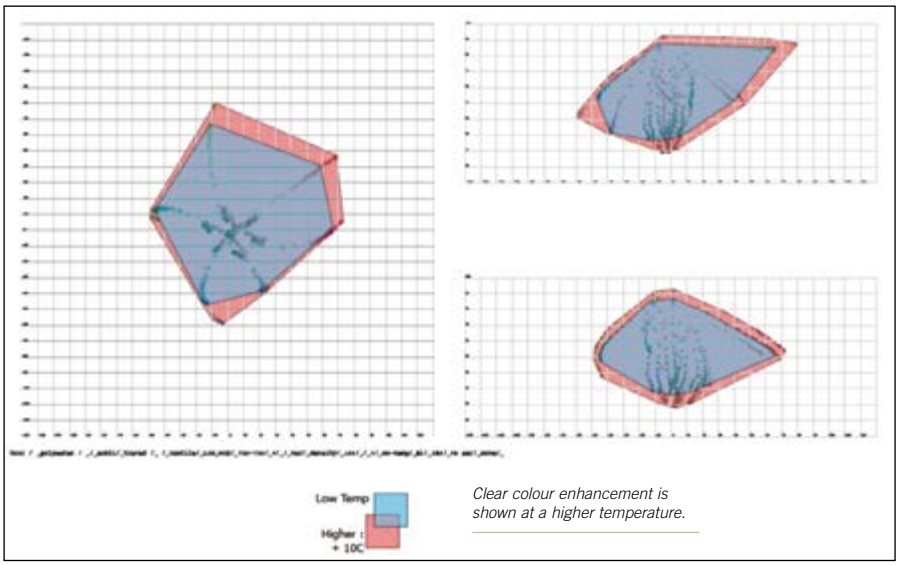
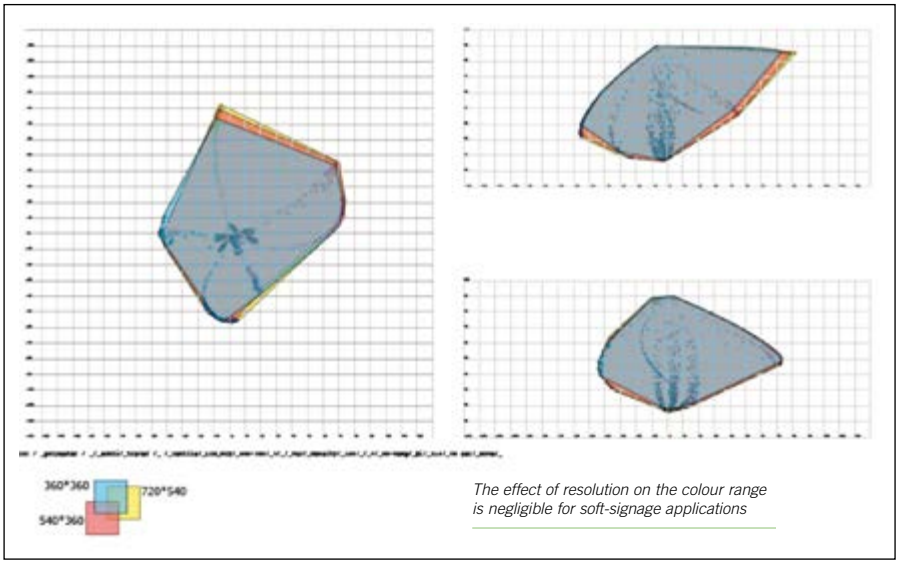


Clear colour enhancement is shown at a higher temperature.

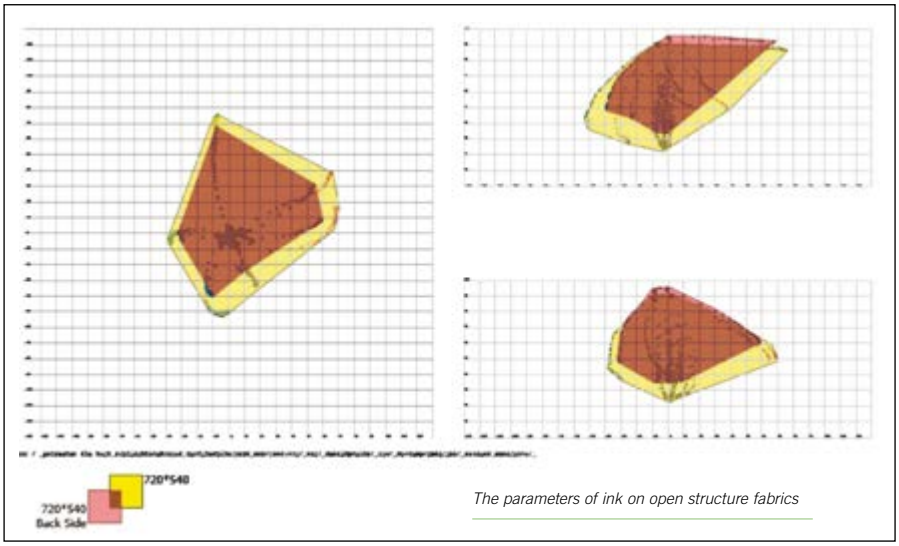
FP-740 ideal for large four-colour printing jobs, such as sports apparel, banners and flags. The printer's many options mean that it can also be configured precisely for a wide range of specific production applications. It is, for example, possible to print directly onto textiles (with the DTU-740) and there are several refillable ink systems available.

Other Roland printers and combined printers/cutters can be configured for sublimation. The XJ series (for up to six colours), the RS series (four colours maximum) and the SJ-1045EX (six colours maximum) can be used for sublimation after a special refillable ink system has been installed. These printers deliver highly detailed prints that are ideal for interior decoration applications or clothing for photographic applications.

The VP-300i and SP-300i printers/cutters can be purchased with a special sublimation assembly and are now available at a very attractive price. These are particularly interesting for producers of gadgets, among other products.



The effect of resolution on the colour range is negligible for soft-signage applications



The parameters of ink on open structure fabrics

THE INK

Roland DG's water-based sublimation ink (SBL2) is available in four colours (CMYK) and offers a colour range that is designed for all possible sublimation applications. The ink comes in one-litre bottles and its viscosity and surface tension is optimised specifically for the system (ink lines, dampers, print heads, and other components) used by Roland printers and which has advantages over other sublimation inks. Printers equipped with refillable ink systems can use this ink perfectly.

The colour spectrum that is achieved with the standard Roland ink set with the clear linearity of the four basic colours. It also shows that the basic pigments that are used are pure and this, in turn, leads to fresh and pure basic and mixed colours and to a lovely grey balance.

THE HEAT PRESS

Heat presses can be broken down into two groups – cylindrical calendered presses and flat tables.

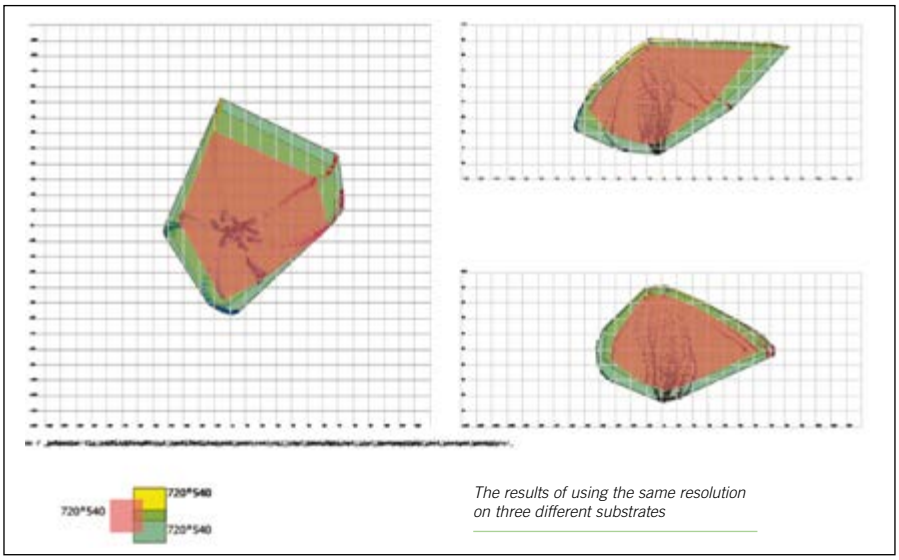
Cylindrical calenders are roll-to-roll or sheet-to-sheet units used primarily for soft signage. Depending on the diameter of the cylinder, it may be possible to speed up production. Increasing the temperature and/or the pressure does not affect the speed with respect to the quality, however, and the contrary is, in fact, true. If the temperature is too high, the polyester fibres will discolour. Increased pressure has no effect on the quality. If the pressure is too low, the result is a fuzzy image with low colour intensity and it is also possible that the images will get a shadow because the paper could shift vis-à-vis the media during printing.

Flat presses are used primarily in the signage market. The most important parameters here are pressure, time and temperature.

The Roland DG dealer network offers heat presses from Monti Antonio, Klieverik, HeatJet, and others. Roland DG does not have its own line of heat presses.

THE SOFTWARE

Roland's integrated RIP software, VersaWorks, has standard settings that give a lovely result on transfer paper of different weights. These settings guarantee minimum ink use and maximum ink transfer from the paper to the substrate, plus an optimal colour yield. Other features, such as the exclusive spot-colour Roland Color System Library, the MAX Impact



The results of using the same resolution on three different substrates

Preset for a richer colour contrast and the possibility of printing variable data for personalisation make the work a lot easier. With the on-line update functionality, users always have the latest updates, which improves efficiency and quality. An example of that is the update of the CPSI engine to version 3019, which provides support for printing transparencies.

The new error diffusion screen methodology is another benefit. Error diffusion ensures that prints are not grainy, which can contribute to improved sublimation quality on more closed surfaces. VersaWorks is delivered as standard with the printer.

In addition, optimal configurations can be created for specific applications and this is how Roland DG offers solutions that meet the needs of the client. If users use ink combinations that differ from the standard, alternative software can be suggested.

THE TRANSFER PAPER

The Roland Media Center offers two types of transfer paper. The standard transfer paper is suitable for use with a calender press and the high-tack is primarily used in combination with a flat-bed press. High-tack paper can be used for sublimation on aluminium plates and coated wood, as well as for other applications. A major advantage of high-tack paper is the adhesive qualities on the substrate, which can prevent shadow images (shifting) from occurring.

THE MEDIA

A variety of technical textiles are available from The Roland Media Center. These can have different properties, such as water-repellent, feel like cotton to the touch and/or be wind-proof. Standard textile types and other materials are available through the Roland DG dealer network. Specific materials can always be tested and analysed to determine suitability.

What affects the printing result?

Roland DG has done extensive research into the factors that can influence the results of sublimation printing. This research shows that parameters such as speed and resolution could have an impact, but that other factors also play an undeniable part. Temperature, the substrate and the ink will also affect the result. The findings can be summarised as follows:

- Higher temperatures result in more saturated colours.
- The effect of resolution on the colour range is negligible for soft-signage applications.
- For sublimation on fabrics with an open structure, the quantity of ink is more important than the resolution.

Results show that traditionally emphasised parameters, such as speed and resolution, do not tell the whole story. Depending on the application, other parameters could be more significant. Ink optimisation related to the resolution, for example, can lead to higher ink penetration on flag fabric (and other materials).

The conclusion that we can draw is that co-ordinating the parameters with the substrate could lead to a better result. The challenge, therefore, is to find the right combination of parameters. Roland DG can help you to make the right choice. ■

Peter Waelkens is in New Business Development at Roland DG Benelux

Further information:
Roland DG Benelux, Oevel, Belgium
tel: +32 14 57 59 72
email: Marie.Swinnen@rolanddg.be
web: www.rolanddg.eu

PAD PRINTING 101: BACK TO BASICS

The different machines available for pad printing are discussed by Sigi Knappik in this article, the third in a series on this versatile process

MAKING THE DECISION

Purchasing the right machine for your application is simple if you know what to look for. There are three basic technologies available today: open inkwell, closed ink cup and rotary gravure. Now let's discuss these three pad printing systems and investigate proper machine construction and design.

OPEN INKWELL MACHINES

The original open inkwell system is the most versatile of the three machine styles. It is characterised by a cliché holder that uses an open ink reservoir. Common to all machines is the need to flood the cliché image with ink and then "doctor" it clean. An open inkwell machine uses a spatula and doctor blade assembly to accomplish this task. The spatula is the device used to flood the image with ink during the machine cycle. The doctor blade, akin to a razor blade, clears the excess ink from the surface of the printing plate without removing ink from the etched image area. "Doctoring" is the term used to describe this process. The flexibility of this technology stems from the fact that a single open inkwell machine is capable of being outfitted with many different sizes of accessories. For example, our Combi 90 is capable of running with twelve different sets of accessories: 80 by 80mm through 100 by 400mm.

The two major benefits of open inkwell technology are that the machines are flexible in application and economically provide large image capacity. On the down side, however, open inkwell machines have solvent evaporation issues to consider. Due to this evaporation, viscosity adjustments are needed to maintain good print quality.

CLOSED INK CUP TECHNOLOGY

The closed ink cup system was introduced in the mid-1980s and has become widely accepted by today's customers. Its popularity is due to the fact that the ink is encapsulated in an inverted cup that thereby limits solvent evaporation. Unlike the open inkwell machine, the closed ink cup does not require a spatula. The inverted cup is placed directly onto the etched image and gravity helps flood the image with ink. The rim of the cup contains a hardened metal ring that doctors the surface clean.

Today's machines differ in the methods used to clamp the cup to the cliché surface. The original method of mechanically clamping the cup in position is still used in high-speed machines. The clamp mechanism is complicated in design, but extremely effective in providing the necessary clamping force. Our newly introduced Combi series of printers uses a magnetic hold-down mechanism to secure the cup to the cliché surface. The magnet allows simplification in the machine design with the added benefit of increased flexibility. In the case of the Combi, multiple cups can be used for multi-colour applications and extended length images.

The InDecs SPM Modules combine the features of high precision digital printing with increased throughput speeds of continuous printing

The Aero 90 single-colour electro-pneumatically driven, table-top pad printer

Benefits of the closed ink cup technology are numerous, but centre on the cup's ability to sustain constant ink viscosity over long operating periods, thereby increasing output and profitability. The only drawback is that the image must fit within the limited diameter of the cup.

ROTARY GRAVURE SYSTEM

Rotary gravure technology, also called RTI, is preferred in applications that require printing 360 degrees around a part's circumference or printing in a continuous motion. The RTI shares many design features with open inkwell technology in that it uses an open inkwell and doctor blade assembly. The printing plate is a cylindrical steel drum that contains the etch on its surface. The silicone transfer pad is in a circular or roll form, typically with an aluminum hub and silicone rubber perimeter.

Both drum and padroll are mounted onto shafts with the drum rotating in one direction and the transfer pad rotating in the opposite direction. As the two items make contact, the transfer padroll pulls the image out of the etch and then deposits it onto the part. This technology, when applied properly, can result in printing speeds of more than 2000 parts per minute.

PAD PRINTING MACHINE CONSTRUCTION

When making a decision to purchase, machine construction is an extremely important consideration, regardless of the technology required. A well-built machine is designed to produce a quality print on a consistent basis over a long period of time. To accomplish this, certain features need to be present. First, review the construction of the chassis. A well-built chassis will use materials that add structural integrity, reduce vibration and minimise flexing. Open inkwell machines that have large throat areas are best constructed of steel. Aluminum does not provide the same degree of strength.

Look at the machine base, if included. Is the frame constructed from tubular steel or is it bent, sheet steel? A tubular steel construction provides an excellent structure on which to mount the machine. Note the placement and mounting of the key drive components. Are they mounted securely to the chassis or do you see movement in the mounting mechanism? Movement in this mechanism can result in inconsistent print location.

Check to see how motion is controlled. Are positive stops used? If so how are they constructed? The machine should contain two positive stop mechanisms with one used to control motion over the cliché to promote accurate image pickup and the other located over the part to promote accurate image placement. Check the construction of the stop mechanism. A sound design will use a cushion with a shock absorber to minimise vibration. A stop constructed only of aluminum is insufficient and will result in unwanted vibration and premature component wear.

Examine the pad ram. Most ram assemblies consist of two rods, a drive cylinder and a mounting block. The two rods should be mounted in a bearing assembly within the block and be free of movement in any direction except the Z axis. Any uncontrolled movement of the rods within this assembly will result in inconsistent image location.

ELECTRONICS AND COMPONENTS OF A PAD PRINTING MACHINE

Once you have completed the mechanical review, investigate machine electronics. Are the functions controlled by a PLC (Programmable Logic Controller) or do a series of relays control the machine functions? A technically superior machine will use a PLC because it offers flexibility and reliability. Plus, a machine outfitted with a PLC is much easier to interface to auxiliary equipment.

Another important point of consideration is the quality of the components used in the construction. Look inside the machine to see if you recognise the manufacturer of the components. Are the air cylinders, sensors and other internal parts from a respected manufacturer? Even on a well-constructed machine, components sometimes fail.

Continued over

A reputable manufacturer offers the security of having parts in inventory for immediate replacement.

PAD PRINTING MACHINE DESIGN DETAILS

Scrutinise the design. Specifically, does the machine allow adequate adjustments of those assemblies that affect print quality, that is, the doctor blade and spatula assembly, stroke adjustment and so on. Another feature to examine is the throat area of the machine. Several competitors' machines offered to the industry boast large cliché size capacity, only to compromise it with insufficient throat area. The pad that would be needed to print an image required by the large cliché cannot fit into the machine.

Finally, pay close attention to the drive mechanism. As mentioned earlier in the "Pad" section, a high-quality print image is obtained by using a pad with a highly defined tip or apex and sufficient hardness. Whether the drive mechanism is pneumatic, mechanical or hydraulic, it must be capable of compressing the mass of pad silicone.

SERVICE SUPPORT

Given this limited forum, it is impossible to give a complete analysis regarding the proper machine for every application. But, as you evaluate the different machines available, take into consideration the suppliers. Can they support their equipment once it is on your production floor? Will they provide highly trained and experienced personnel to assist you with all of your pad printing questions?

FINAL EXERCISE

Do you really understand pad printing?

You should now have a fair understanding of the four basic elements of the pad printing process: pad, cliché, ink and machine. For a final exercise, we will now attempt to take this knowledge and apply it to a typical case study in three-dimensional product decorating.

The particular product we will be decorating is a hand-held remote control that will require a single-colour print image in white. The image measures 1.5 x six inches including function icons scattered over the length of the remote with each image adjacent to an opening created for the keypad. The material is ABS and the surface contains a very light texture, dark grey in color.

Production speed will be moderate with a requirement of 400 to 500 parts per hour, equating to one million parts annually. The customer has requested a new machine that uses sealed ink cup technology. Our challenge is to recommend the necessary elements that must be used to successfully print the remote housing.

TRANSFER PAD

Given the size of the image, it is important first to choose a pad of sufficient mass to avoid image distortion. Consulting the pad catalog, we find a pad that offers a maximum print area of 2.45 x eight inches. However, this pad is too large for the machine that we intend to use to print this part. (Note: Trans Tech could quote a larger machine, but the economics of this particular project do not justify it.)

Upon further examination we see that the image is broken down into two distinct groups: one group of images is located at the top of the part and the other is located at the bottom. There are approximately three inches of blank space between the two. The image group at the top covers a square area of 1.75 inches by 2.25 inches. The image at the bottom measures .25 inches by one inch. Again we consult the pad catalogue but, instead of looking for one large pad to cover the entire area, we look for two smaller pads.

A common practice used to reduce pad size on larger images is the use of smaller pads mounted to a pad bar. As we search the catalogue, we find two pads that fit this need. The first that will print the top portion allows a print image up to three by three inches (#082 in the Trans Tech Pad Catalog). The second pad is smaller and will allow a print image up to one by two inches (#373, page 50). As the surface texture of the part is light, the pad choice does not require a steep angle. We do, however, decide that both pads should have a hardness of 65 shore. This will help the transfer pad to penetrate the texture better. Given all this, our final pad selection is S35082 and S35373. Notice that the digit 5 is underlined. This digit within the pad part number denotes durometer (hardness).

CLICHÉ

Now that the pad has been chosen, we turn our attention to the cliché. We remember that there are several different cliché materials available. As we review our choices, the process of elimination begins. Immediately we eliminate Steel Foil, Polymer, Hydro-Foil and Express-3, since they are not capable of sustaining a production volume of one million parts. Another consideration is the texture of the part. A steel cliché provides a solid etch resulting in a solid layer of ink which will be beneficial in filling the texture. Both the Polymer and Hydrofoil material require a second exposure process using a halftone film. The result is a dot pattern within the etched area. This is undesirable because it will produce a print image with pinholes caused by the texture. Therefore, our cliché choice for this application is steel. Now that we have made our pad and cliché selection, it is time to turn our attention to ink.

PAD PRINTING INK

The decision on which ink to use is one based on the performance requirements of the printed image and the part substrate. As you can see from the photo, the function icons are located adjacent to the void that the function button will eventually fill, once the remote is assembled. The actual icons are not operational; however, they are close enough to the button that they will see their fair share of abrasion from operator use. Therefore, the images must be durable.

ABS is an attractive material to print on as it offers sufficient surface tension which promotes good ink adhesion, crucial to meeting the requirement of durability. Considering all of this, our selection for this application is a two-component ink that satisfies both the adhesion and durability requirement. Our type B ink which uses BH hardener at a ratio of 4:1 is our ink of choice.

PAD PRINTING MACHINE

In choosing the correct machine, a number of issues requires consideration. The first major issue has been settled: the customer has requested a machine that uses sealed ink cup technology. The largest sealed ink cup available provides a print image up to 110mm in diameter (4.33 inches). This is not large enough to cover the 1.5 by six-inch area of the entire remote. Another option to consider is the use of two ink cups mounted side by side. In measuring the images, we find that a 90mm cup will print the group of icons at the top of the remote and a 60mm cup will print the image at the bottom.

Our mechanically-driven Sealcup series printers will not work, since they are capable of using one cup only and are dedicated to a specific cup size. Our Combi 90 and Combi 130, however, are designed to be flexible in application and are capable of using two different cup sizes in tandem. By positioning both cups side by side, it is possible to print the remote. Both machines are capable of fulfilling our requirements, so in this instance, we will choose the Combi 90 as it does not cost as much as the larger Combi 130.

PAD PRINTING 101 SUMMARY

The pad printing process is not as complicated as it sometimes seems. But, by breaking down the process as we have done here, we can understand the components. With practice, you will find that pad printing can be a highly effective and profitable way to decorate three-dimensional surfaces. Feel free to contact us at www.itwtranstech.com for help. ■

Sigi Knappik is New Business Development Manager at Trans Tech

Further information:

Trans Tech (an ITW Company),
Carol Stream, Illinois, USA
tel: +1 630 909 5786
email: sknappik@itwtranstech.com
web: www.itwtranstech.com

INNOVATIVE TOOLS FOR PROCESS CONTROL IN SCREEN-PRINTING

Stijn Verdonck of Artesis Hogeschool, Antwerp, discusses a new solution for achieving FOGRA and other standards of colour management

During the past few years, four-colour screen-printing has been gradually losing ground to other printing techniques. As offset is getting increasingly more efficient in set-up and digital processes are rapidly gaining greater throughput speed, the choice for screen-printing is, indeed, becoming less evident.

One of the ways a screen-printer can stay competitive is by increasing productivity. This can be achieved on different levels. On the side of the machine manufacturers, for example, equipment could be made faster, more automated and integrated. However, this kind of innovation is a big financial risk for developers and comes with a considerable price tag for the printers who want to get involved. Alternatively, a lot of progress can be made in the operational efficiency of existing production lines: reducing machine down time, material waste, reprints … Doing so possibly means a serious lengthening of the profitable lifespan of current screen printing machine parts.

Indeed, in any screen-printing shop, occasional mistakes are made resulting in substandard work and, at worst, reprints. If one could reduce the numbers of errors made in daily printing practice and/or discover them at an early stage, a substantial amount of money could be saved.

Standardisation and colour management have been fashionable words in the industry for many years, but how do screen-printers go about achieving this? A basic four-step plan is presented in Figure 1. The main issue here is not the exact method of colour management (step 3) or which norm to implement: ISO 12647-2 or -5, or some personal reference – this can be changed relatively easy. The real challenge is to keep a printing process colour-stable at different levels: throughout a sheet, throughout a machine run and finally between different runs (steps 2, 4). Always using the same combination of machines, materials and settings for a certain application - the literal meaning of standardising - is one thing; but every screen-printer knows that, even then, colour differences in print will still pop up.

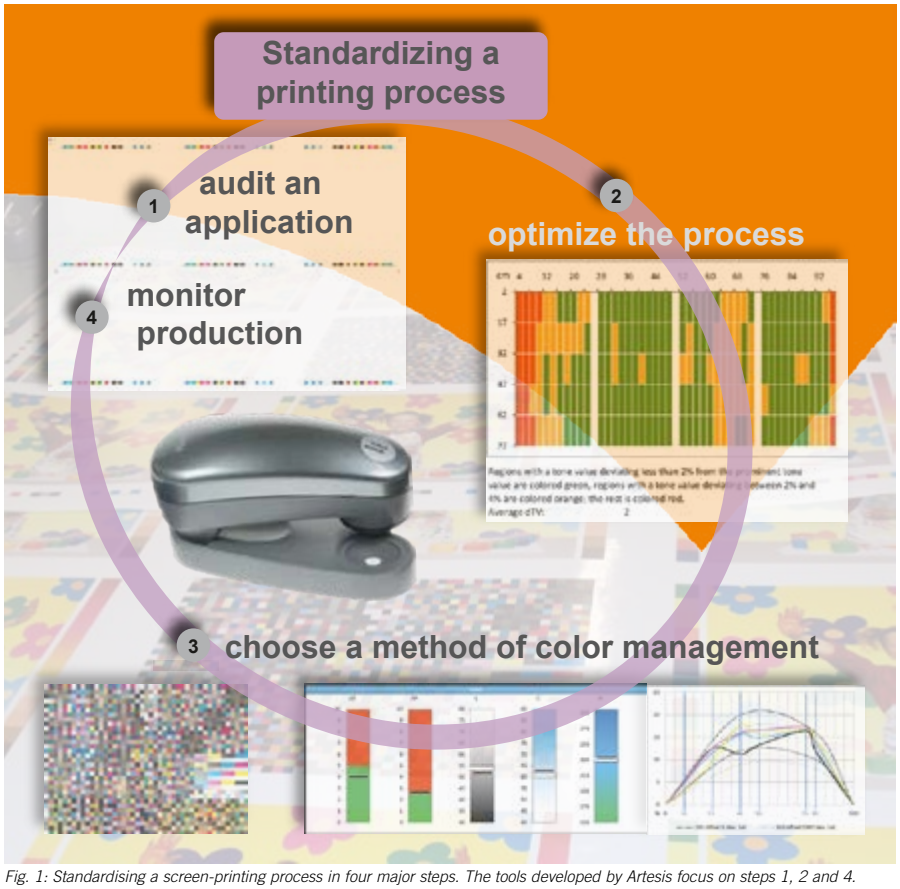


Fig. 1: Standardising a screen-printing process in four major steps. The tools developed by Artesis focus on steps 1, 2 and 4.

The best option is, of course, to monitor closely the process through all of its stages (step 4) so that an anomaly is detected before further production steps are taken. There are separate meters available for monitoring different aspects of the process: screen tension, Rz values, tone values on film, tone values on screen, tone values and full spectral values of colours on print …

The way these meters operate is time-consuming so it is not realistic to check all relevant parameters for every job. Moreover, there is often no easy way to interpret the measurements directly in order to trap an error, let alone to get an idea of how to correct it.

This is where a recent research project by Artesis Hogeschool Antwerp comes into the picture. With funding from the Flemish government (IWT) and a collective of contributing companies and organisations, a technology was developed to measure three key process aspects with just one handheld device in the form of a spectrophotometer with a specially developed piece of “click on” hardware to provide tone values on film, tone values on screen, tone values and solid color Lab values on print. The extended spectrophotometer is connected to a computer with an intuitive graphical interface to interpret the results immediately.

Basically, the user measures a film, screen, print or proof in two single movements with one and the same handheld device. The measurements can be performed fast enough to test sheets systematically during printing (on the fly): it will take only a few seconds and, therefore, can be done on a regular basis, for example every 30 sheets. The software immediately gives a “go” or a “no go”, based on a set of easily configurable

Fig. 2: ISO 12647-2 print and FOGRA certified proof: a perfect match.

references and tolerances, dedicated for the printing application at hand. If desired, it provides more detailed information on the irregularities found. The graphs are designed in such a way that the press operator can easily reach conclusions, such as increasing or decreasing flood bar pressure during a print run to stay on target color values. No special knowledge of colour management is required.

The software can also be used to analyse and optimise the standard settings of a process (steps 1, 2). Because of its extensive reporting on sheet, run and inter-run stability it is the ideal tool to explore which are the best combinations and settings obtainable in every shop's specific environment.

Additionally, the software helps the printer determine if an ink is compatible with a certain norm (such as ISO) and find the exact concentration needed to match the solid colour targets on his specific setup; this concentration will greatly depend on the choice of mesh and other factors. During testing, ISO 12647-2 references were used (also for tone value curves), resulting in prints perfectly matching an FOGRA certified proof (see Fig. 2).

The system is currently being perfected and will hopefully hit the market this summer at FESPA 2010. This is definitely something to look forward to! ■

Stijn Verdonck is a researcher at Artesis Hogeschool, Antwerp

Further information:
Artesis Hogeschool Antwerpen
tel: +32 497 902959
email: stijn_verdonck@hotmail.com

ALTERNATIVE OPTIONS FOR DIGITAL INKS

Considerations for today's inks include their chemistries, environmental properties and end uses. Ruth Zach outlines the differences and considers the available choices

When wide-format digital ink-jet printing first emerged, the printers were slow and used true solvent-based inks which were harmful for the environment but were relatively inexpensive. With the progress in this process, the machines advanced as well as the inks they used. Mild solvent inks were introduced for the Mimaki, Mutoh and Roland families and low solvents for the Seiko ColorPainter series and HP Designjet 9000s. These inks were also still solvent-based but were free of cyclohexanone solvent which was banned from use due to their harsh effect on the environment.

The ever-evolving digital printing market introduced UV-curable printers for the graphic arts which are high speed and produce high quality prints using complementary inks which are both environmentally friendly yet perform well on a wide variety of media. Currently there are more than 20 printer manufacturers producing UV printers which are high speed and prolong the life of the print-heads.

The UV-curable inks add value in that they are not based on solvents but on monomers that cure instantly with exposure to UV light projected from UV lamps installed next to print-heads. In solvent-based inks, in the drying process, solvents are evaporated and released to the environment whereas, with UV-curable inks, the drying process is replaced by curing in which the liquid monomers, comprising the UV-curable inks through polymerisation, turn into polymer without emitting solvents to the printing environment and avoiding foul odours. The latest trend in UV-curable technology is in LED variants that waste less energy in the curing stage, are safer to use for the operators and are compatible with a wider range of media since they don't heat the substrates.

Bordeaux eco solvent ink in 1 litre bottles and chipped cartridges

Another breakthrough came from the development of printers using eco-solvent inks. These were first introduced also by the leading

		DEFINITION	APPLICATIONS	INDUSTRY ISSUES/BENEFITS
Solvent-based inks	Hard solvents	By definition, a solvent is a liquid substance – any liquid, even water – capable of dissolving another substance. In the digital ink-jet world; however, the term "solvent" is used to describe any ink that is not aqueous-based. These inks use aggressive solvents with poor health and environmental profiles. They contain HAPs, TAPs, VOCs and have low PELs.	used outdoors to produce vibrant, durable pieces seen on billboards, bus wraps, etc	• True solvent inks dry faster, need fewer heaters built into the printing system, and soften the substrate surface for better bonding with the pigments. Graphics printed with solvent inks bond better to a wide range of uncoated substrates, are more durable, offer better UV resistance, and withstand a greater degree of mechanical wear. What's more, uncoated vinyls cost dramatically less than vinyls used with traditional water-based inkjet printers and up to half as much as specially treated substrates required with first-generation eco-solvent inks. • In addition to ozone issues, the emissions from conventional solvent-based inks need to be limited to avoid potential health and safety issues for workers using these inks • Governments worldwide continue to address the health and environmental concerns associated with conventional solvent-based inks. Their new regulations call for dramatic reductions of volatile organic compounds (VOCs) containing Hazardous Air Pollutants (HAPs) into the environment • Customers are making it clear that they want to print superwide graphics directly onto uncoated substrates without installing expensive ventilation systems. These businesses still are looking for the same durability and substrate selections that they get from solvent printing for same costs • Many eco-solvent or aqueous-based inks fall short in versatility and performance compared to traditional solvent inks
	Mild/light solvent inks	These inks are the same as traditional solvent inks, but with slightly less aggressive solvents. However, the solvents still have poor health and environmental profiles, contain HAPs and VOCs, and have low PELs.		
	Eco	To most people, "eco" is short for ecological; however, most eco-solvent inks available on the market today are neither derived from a renewable resource nor created through an ecologically sound process. These inks are the same as light solvent inks. They are less aggressive, but they exhibit poor health and environmental profiles. They contain HAPs and VOCs.		
	Ultraviolet (UV) curable inks	These inks **have no VOCs**, and they do exhibit low PELs and typically have poor health and environmental profiles. This situation means that there are safety issues with relatively low exposure levels.	Special substrates (glass, textile, ceramics…) flexible substrates	
	Aqueous-based Inks	These inks are extremely limited in application since they tend to be less durable, less weather-resistant, and generally need to be applied to a coated stock.	Indoor, textile, photo…	Eco-solvent and aqueous inks often use slow-drying solvents; therefore, they need more heaters to aid the drying process. This requirement increases the likelihood of some substrates puckering under the heat. For this reason, eco-solvent and aqueous ink usually have to be printed on coated materials, which are often more expensive than non-coated materials, so the printer can put more ink on the substrate. The ink receptive coating modifies the surface tension so the ink applies to the media without causing print artifacts.

Bordeaux's complete ink range

printer manufacturers, Mutoh with their Falcon Outdoor series, the Rockhopper and later the ValueJet printers using Eco Ultra ink and Roland with its VersaCAMM, SolJet and the XC and VP models using Eco Sol Max, the brand name of the Roland equivalent.

All these ink types – mild, low, eco solvent and UV-curable formulations – created a demand for alternative, cost-effective inks that maintain the quality sustained by the original versions. The first ink options did not provide a real answer to these expanding trends since the quality did not match the requirements.

Third party ink manufacturers tried to fill the open gap. Ink manufacturers became more innovative and invested heavily in research and development of products that correlate to the changes in wide-format digital printing technology. By and by, the inks offered by third party manufacturers were of a very good quality and saved the end users up to 40% on expenditure on all of these chemistries.

Among the first to introduce quality cost effective eco solvent inks was Bordeaux Digital Print Ink, a quality third party ink manufacturer who predicted this trend and began the development of a proprietary alternative as far back as 2003. The final product was released in 2005, more than a year before its competitors. The company managed to deploy its solution throughout the market and is considered by many users as the best eco solvent ink on the market. Bordeaux first implemented Mix & Match technology that enables the user during every stage of printing, to replace an original ink cartridge with a Bordeaux Prime Eco cartridge, individually, and to continue printing without any effect on the prints. This Mix & Match technology eliminates the need for cleaning and flushing and matches the original ICC profiles, making it the most technologically advanced eco solvent inks on the market.

The market seemed to respond well to third party ink manufacturers that provide a solution for all types of inks via a single supplier. There is still a relatively small number of such ink manufacturers among them; Bordeaux provides a variety of solutions including mild solvent, eco solvent inks, UV-curable and UV-curable LED inks, Triangle ink which also includes Megaink and Nazdar, Lyson whose main market share is aqueous-based inks and Marabu Inks. Each of these manufacturers has its benefits in certain products, but all of them are setting new standards to third party inks that were considered in the past as lower quality but are now synonymous with innovation, quality and printer compatibility.

Key terms and acronyms that are commonly used in the inks industry:

- HAP: Hazardous Air Pollutants.
- VOC: Volatile Organic Compounds.
- TAP: Toxic Air Pollutants.
- Cyclohexanone: a common solvent used in full solvent ink.
- NMP: N-Methyl Pyrolidone, a very aggressive solvent that has a poor toxicological profile.
- PEL: Personal Exposure Limit as set by OSHA, a limit to protect the health of printer operators. ■

Ruth Zach is marketing co-ordinator at Bordeaux Digital PrintInk

Further information:

Bordeaux Inc, Santa Clara (CA), USA
Tel: +1 408 247 2205
Email: info@c-m-y-k.com
Web: www.c-m-y-k.com

WHERE VERSATILITY MEETS QUALITY

Diana Dogaru explains how WP Digital's wide-format UV-curable digital printers meet the needs of customers and markets

Nowadays UV-curable digital printing is the top option for businesses upgrading their print shops or when starting up in wide-format. This ink technology has been serving the display sector, photolabs, advertising agencies, and print-on-demand shops for a number of years. A variety of demands has now made this the formulation of choice by companies needing fast implementation of the latest technology. It offers speed, photographic quality, brilliant colours and consistency across all run lengths onto a limitless range of material types and sizes.

Formerly an issue in print houses using traditional, analogue systems, digital printing requires the use of a computer and monitor to handle operations; but this barrier has now been largely accepted as knowledge and understanding of alternative printing solutions are now recognised as valuable by those who need a variety of different print systems at their finger tips. The question of whether digital production makes sense or if other printing methods would be more convenient is one of the topics that WP Digital's team is getting ready to answer using its team of highly qualified professionals with depth of knowledge in domains related to material surface, ink deposition, colour management, print quality and, last but not least, in offset and screen-printing.

Understanding the boundaries for each of these print technologies enhances the value given to decorated material by using digital technologies in areas where there are the greatest benefits. These include low volumes, products requiring the shortest time to market, environmental concerns relating to VOCs (volatile organic compounds) or metal components, assistance in the fast development of decorated products to enhance the value of the raw material, or simply small images that are most efficiently reproduced by digital printing by the elimination of costly screens or plates. The colour set reproduced in WP Digital's machines has adapted well to cover and complement the capabilities of offset and screen-printing without diminishing the digital value of being able to obtain saturated colours along with natural ones.

WP Digital's understanding of the digital printing business and the requirements as outlined above are maximised in two models available currently. The first is the Virtu RS series hybrid machine, offered in two sizes, whilst the second is the Virtu RR50, a dedicated roll-to-roll machine for flexible materials.

The Virtu RS 25 has a maximum print width of 2.5m and is complemented by the 3.5m wide Virtu RS 35, both of which are hybrid systems designed to output onto rolls and on rigid materials. The print table is manufactured to handle material weights of up 50kg/m^2 at thicknesses of up to 95mm. The transportation belt can be stopped, enabling the machine to function purely as a flat-bed printer, with impeccable quality given by the precise movements of the printing beam. Additional tables allow materials longer than the print bed to be fed, respectively longer than 1.2m. The printing mode has been precision designed to print on these longer materials, activating the transportation belt and thus advancing the material in very accurate steps through encoder measurements and bridge corrections. Following this concept, the printing quality does not suffer along this passage; there are no gaps or overlaps of print sequences which, so often, can produce colour discontinuities and disruption to the optical result.

Both the WP Digital Virtu RS25 and 35 feature a compact design

The Virtu machine is perfect for printing materials from widths as small as A4 up to scalable 2.5 or 3.5m materials, and in weights from simple commercial stocks to those used in building construction and interior decoration. The rigid mode of the Virtu RS printer is as efficient as a dedicated flat-bed printer and possibly, at times, even more so as it offers the possibility of expanding the printing length outside that of the printing bed y axis.

The problem of printing lightweight materials, which do not tend to transport easily or, indeed, even hold flat on the print bed, has been solved by WP Digital construction engineers with the inclusion of a dual power vacuum pump system. Known as vacuum A and vacuum B pumps, these are respectively weak and strong, and can be independently set on longitudinal sections across the printing tables. The dimension of these longitudinal sections is very important when talking about scalability of the printing process as is the dual system of vacuum strength. Inefficiencies occur when a material needs more preparation when it is in the machine, rather than during the printing time itself.

With well-calculated sections and adjustable vacuum power, the material on a WP Digital machine bed can generally be expected to keep flat to the printing area without the need to cover the remaining vacuum holes. The intensity of each of the

Continued over

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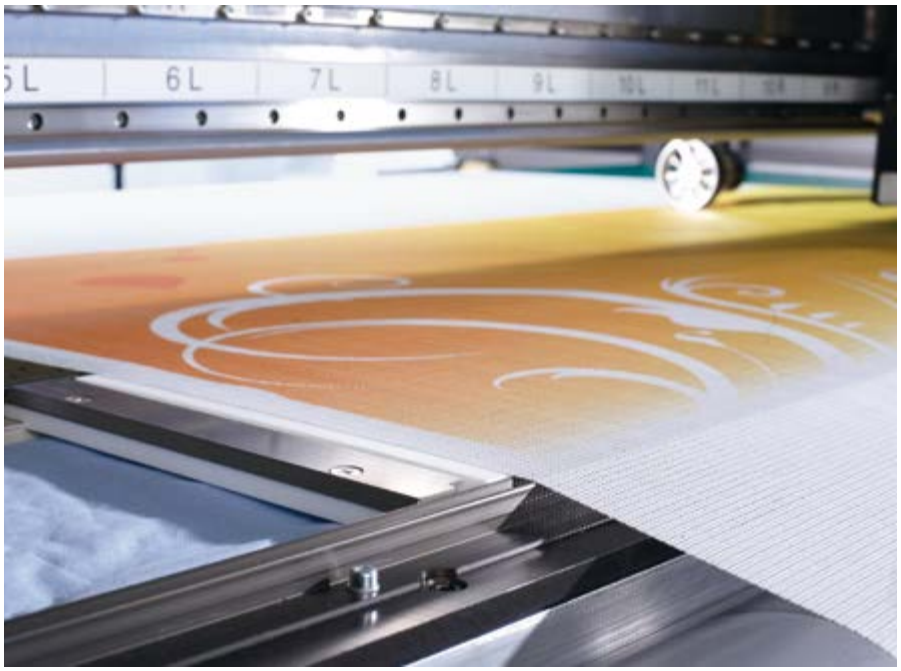


When printing textiles or meshes with a porosity that allows the ink through, there is an integrated collection tray with guide margins

pumps strengths is adjustable in very small increments via the operator software, from 5% to 100%. This means that materials which seemed impossible to print due to their physical characteristics (such as being very thin or elastic) can now be used successfully on the Virtu RS series machines.

The operator interface to the machine is touch-screen and easily accessible in a user-friendly design; visual icons are backed-up by easy to understand symbols in standard colours per degree of error.

The combination of a perfectly designed and well-constructed machine is not the only reason why WP Digital customers have such a high success rate. Computer controlled diagnostics are available to the service engineer, helping him to understand the faults that may have occurred, and why they were caused. This is encapsulated within an area of the software specially designed for engineering usage. WP Digital is totally committed to supporting the customer from the first day of installing a machine, right through to production start-up and beyond. This helps the user to understand his machine and improve his ability to run the printer efficiently and safely for the environment, operator and the system itself.

Ink consumption is a critical factor as the price of UV-curable ink is comparatively higher than the price of solvent ink. As well as cost generally being an issue, consumption is still a matter of high concern due to environmental concerns regarding the recycling of any waste ink. WP Digital's machines do not have a waste container as none is generated other than for head cleaning. A harmonised solution has been developed between maintaining the printing modules to adequate jetting parameters and the amount of ink that is dispensed through the printing head nozzles for cleaning or reviving purposes. The operator is instructed and shown how to adjust the purging sequence in a way that uses just the right amount of ink. This is usually purged onto a paper napkin that is placed on the bottom of the printing service tray. This napkin is changed and the sink is always clean after each print-head revival.

The roll-to-roll mode is configured to reproduce the quality levels to which the machine was constructed. The 500kg maximum weight of the rolls makes the Virtu RS suitable for use even with heavy industrial rolls, with encoder measurements and bridge adjustments eliminating any problems with colour consistency in the print. The easy and flexible handling systems for 2.5m and 3.5m rolls makes the Virtu RS machine a particularly successful partner for companies wanting to work with both flat and roll materials. Change-over from sheet feed to roll-to-roll mode is quick and easy, to make the machine simple to operate and very user-friendly.

Because there is no pressure roller in the loading system the adjustable vacuum makes it possible to handle rolls of materials that are stretchy or very thin. There is an operator-controlled roll loading system designed to minimise the material waste to as little as 20cm depending on the job. The machine can be easily paused and adjusted via the software to print on collecting rolls; once the printed material has reached a sufficient length it can be fed safely onto an empty core.

When printing textiles or meshes with a porosity that allows the ink through, there is an integrated collection tray with guide margins. This prevents the material from being pushed upward from the printing plate, due to ink build-up, and from touching the printing nozzles.

Successful digital printing requires more than just the machinery. It also requires prompt service and diagnostics, to the capability to provide continuous information to the operators and an online spare parts ordering facility for 24 hour delivery.

VIRTU RR50 PRINTING AREA

Years of experience and customer liaison lie behind WP Digital's highly productive award-winning roll-to-roll machine which handles materials up to 5m wide, the largest standard size used in UV-curable and solvent printers. Designated the Virtu RR50, this superwide model features a compact design complemented by an elegant and solid metal structure, linear motors and easy operation. All these features reflect the Swiss design 'touch' of the WP Digital construction team.

Although there are 5m machines on the market which display similar qualities and particular values for a specific application, the Virtu RR50 machine was built not only for present-day materials but also for those of the future. The maximum weight of rolls for use on this machine is 750kg, including the shaft. Thus, there are factors which distinguish one

Continued over

The WP Digital Virtu RR50 prints up to 5 m wide yet retains a small footprint

A rugged print-head assembly ensures stability even at high speeds

machine from another and make each particularly suitable for a specific market. Material transportation is the most critical factor for 5m superwide printers. High powered precise, linear motors give the Virtu RR50 very high precision in material advance during the printing routine. Once the material is on the reel an intuitive and easy handling system allows a single operator of a RR50 to handle the feed.

Any 5m machine needs space surrounding it to enable large rolls of materials to be manoeuvred. An efficient 'multi-position load and unload system' was developed by WP Digital's engineers to provide the ability for loading and unloading the rolls up to one foot in diameter either from the rear or the front of the printer. A choice of adjustments means that the pressure of the roller can be set to handle not only very thin materials but also those that are lighter than the feeding roll. A batch winder allows easy and rapid change-over, and up to three multiple rolls can be printed simultaneously.

Generally, the finishing of 5m widths of material requires a supplementary cutter or hand working. However, the RR50 machine includes longitudinal cutters that automatically trim the material in any number of pieces and in a selected position, with a minimal strip width of 40mm.

The high speeds of the head carriage involved in modern digital printing machines can induce vibrations which affect print. To counteract this problem, the Virtu RR50 has a specially designed beam mounted on a massive frame, with detailed Swiss workmanship throughout, to allow precision output in large formats with negligible vibration even at the fastest rates.

WP VirtuRS machines can print onto rigid and flexible materials, include industrial products such as glass

An integrated antistatic device is used to enhance the output quality on materials which retain an unwanted electrostatic load. This normally would spoil the precise drop position on the media surface.

All these features are the direct result of listening to our customers and designing what they need in a print machine to enable them to meet their customers' requirements. WP Digital machines match specific market needs, and combine the wide experience of our general printing machine manufacturing experience. They are intuitive printers, strongly built to maintain high production speeds and loads; they are also constructed to provide a system which is easy to maintain. Our highly qualified team of constructors, designers, print quality specialists, material surface scientists and colour management experts all contribute their valuable knowledge to meet the demands and foresee the future markets for a 5m width machine when used with single or multiple rolls.

In the same way as a coloured book illustrates all the possibilities an offset litho press can cover in printing, WP Digital's machine portfolio covers all the elements of traditional commercial printing through to the avant-garde material decoration used in construction and interior decoration. Whether mesh from the reel, multiple rolls, glass, aluminium, wood, concrete, canvas, rigid tarp or ultra thin film – the list of materials printable with the Virtu is continuously increasing through the dedication of the construction and application team. Our customers' successes are the goals of the WP Digital team, and this commitment is a major driving force in creating machines which deliver the ability to decorate a wide range of materials to meet an innovative decoration market that is highly driven by consumer demands.

The WP Digital printers are environmental and user-friendly machines and consumables, which minimise material waste and provide a strong 'shelf' appearance in individual designs using unique personalised colours to define decorated output. Together, we can create inviting and soothing graphics with a calming influence on our environment. These include water surfaces, natural stones, natural fibres, painting and photographic reproductions – a few moments of unforgettable natural beauty. ■

Diana Dogaru is Business Development/ Business Intelligence specialist at WP Digital AG

Further information:
WP Digital AG
tel: +41 71 292 13 80
email: marketing@wp-digital.com
web: www.wp-digital.com

ADDING VALUE TO SURFACE FINISHING

The benefits of triple function liquid coating is explained by Marabu's Product Manager, Gianni Robertazzi

The finishing process is gaining in importance in digital printing companies. The added value going along with surface finishing helps printing companies to differentiate its product offerings. But what's technically the best and most cost efficient way of print finishing? Which coaters are able to offer solutions on rigid and flexible media?

The original requirement behind surface finishing was the protection of prints, initially only realised by film laminating. Once protected, these prints could be used for prolonged outdoor use, and gained additionally in chemical and physical resistance.

As an alternative to film lamination, a liquid coating process with water based coatings was introduced. It is proven to be an excellent alternative for flexible media, such as self-adhesive vinyl, banner, wallpaper or canvas. Depending on the print width, the coatings are applied automatically with a coater using Mayer bar technology or, in case of large-format banners, by mop or roller application. Clearstar LP, a member of the Marabu group, is one of the leading manufacturers in this field, offering both the StarLam coater and a complete portfolio of water based coatings.

Since the introduction of UV-curable ink-jet printing, a new requirement came up in the form of the coating of rigid substrates, not possible with water-based coaters. To offer a compact machine with high throughput, the fast curing UV technology was the choice and this showed a specific characteristic, different to previously used ink-jet inks. Due to the 100% solid content of the inks and the immediate curing, there is no height reduction when being cured. Therefore prints show a somewhat structured surface, differing from other higher gloss graphics such as screen prints. Technological progress such as cure delay, smaller drop sizes and inline varnishes are trying to improve this characteristic effect.

Marashield liquid coatings from Marabu

The coating machine from Marabu's co-operation partner, Bürkle

A liquid UV coating is able to turn these prints into a high gloss surface, coated edge-to-edge with no further trimming needed. In contrast to a film lamination added on top, a UV liquid coating is based on the same chemistry as the UV-curable ink-jet inks creating a real system-like sandwich.

At FESPA 2010 Marabu is launching the new Marashield product range of liquid coatings based on three pillars – primer, finishing and protection.

Products in each respective area are tailor-made for the application and approved on the new UV coaters by Marabu's co-operation partner, Bürkle, from Germany. The combination of Marabu's new Marashield UV coatings with the superb UV coater quality allows an industrial and, therefore, reproducible coating quality. Short set-up times, automatic height settings and coating thicknesses from 8 to 30 micron are key features.

PRIMER

UV primers are needed when the UV-curable inks have problems with adhesion onto difficult substrates such as glass and polyolefins. A suitable UV primer applied in a homogeneous layer can get the necessary adhesion to the substrate and allow it to be overprinted with standard UV-curable inks. To a large extent this widens the scope of a UV-curable flat-bed printer in terms of suitable substrates.

FINISHING

In the finishing range the decorative optic is key. Point-of-purchase/ point-of-sale applications often reqiore a very high gloss level of 95 measured at 60d. The high gloss improves the overall brilliance and colour depth, especially in darker areas of digital prints.

In contrast, often required for indoor prints in museums or gallerys, are elegant and velvet matt finishes with a gloss of >10 at 60d.

PROTECTION

The important field of protection is often named in marketing brochures, but many times are not backed by industry standard tests such as DIN or ASTM regarding chemical or physical resistance or Xenon/QUV weathering tests. The first product will be suitable for high-quality PVC films, suitable for fleet marking, and showing exceptional flexibility.

In summary, Marabu is finalising the Marashield product range for the global launch at FESPA 2010 in Munich. Tests around the world have shown enormous potential, giving digital printers more options with their installed printer base. ■

Gianni Robertazzi is Product Manager at Marabu GmbH

Further information:
Marabu GmbH & Co, Tamm, Germany
tel: +49 7141 691 357
email: kft@marabu.de
web: www.marabu-inks.com

THE SOFTWARE ROUTE TO THE FINEST FINISH

In their last article, Lars Bendixen and Pete Alsten explained the benefits of digital cutting. Here they discuss the benefits of an efficient workflow

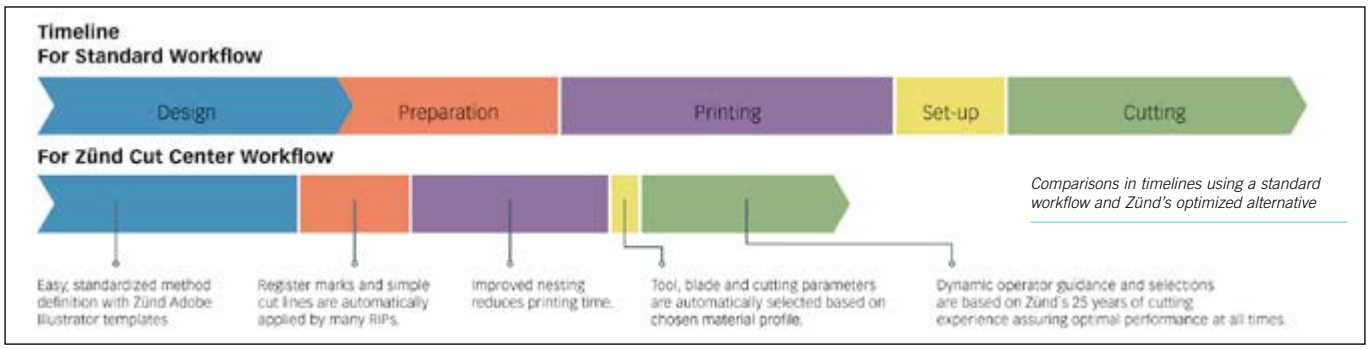
During the past few years, digital finishing of printed graphics has become an increasingly important part of a printing company's business.

As time has passed, so digital printing has become much faster. For ink-jet machines, most of the speed improvement is achieved by simply adding more nozzles to the system. This same principle cannot be applied to digital cutting. The actual cutting productivity is primarily defined by the intricacy of the shape to cut and the type and thickness of the material. Secondarily the workflow plays a major role in the overall productivity.

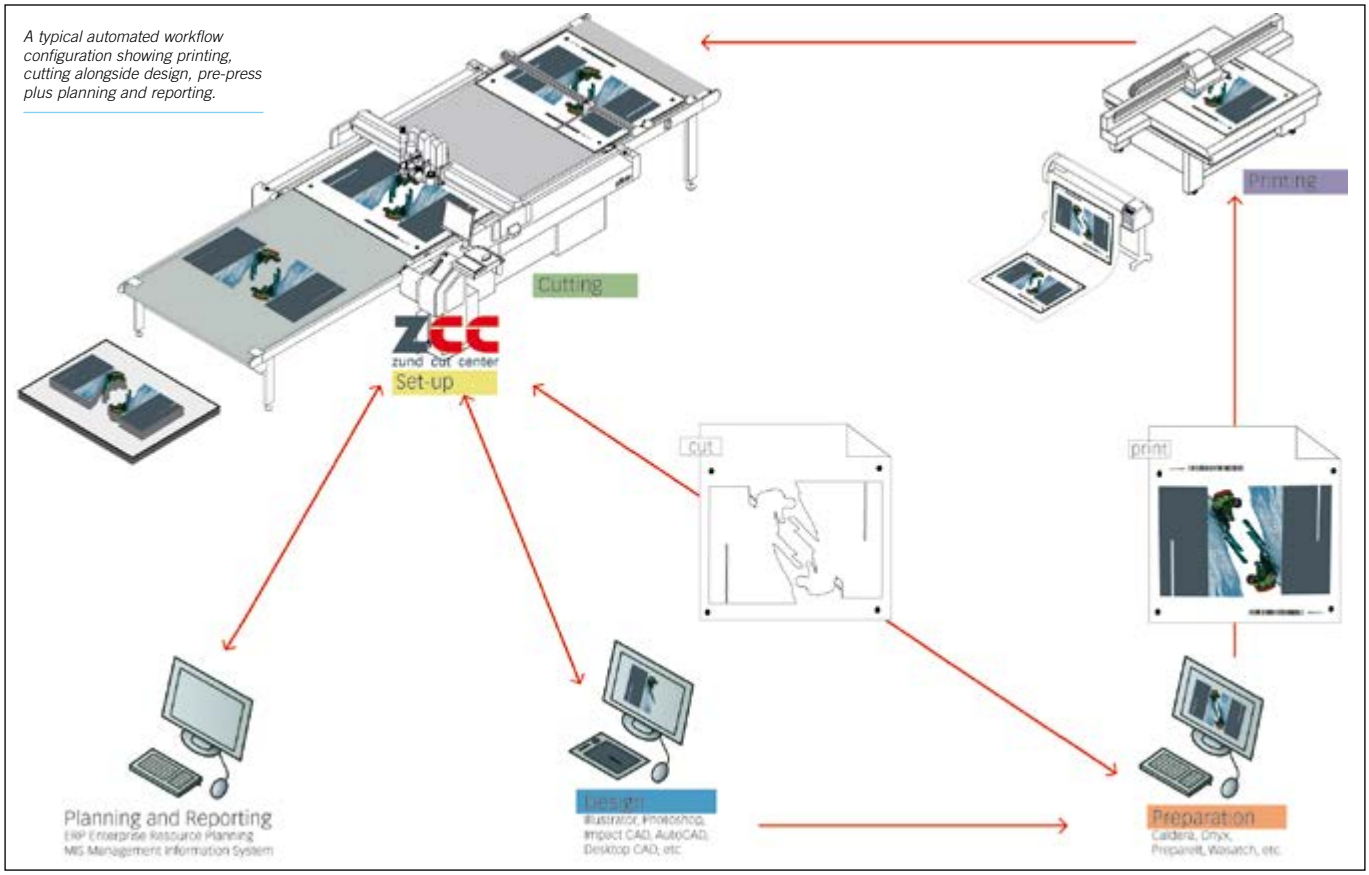
Traditionally one cutting system has been able to keep up with several of the fastest printers on the market. This is now changing. Multiple digital cutters may be required and if not managed correctly, the cutting work flow becomes the next bottleneck.

The process of working a digital finishing system into a company's workflow usually includes changes that could affect how designers and production personnel have been working for many years. These changes can cause resentment and a general feeling of being overwhelmed when facing the task of needing to adapt to these changes and begin a new learning curve for both file preparation and machine operation.

The most glaring problem shared by most print service providers when implementing a digital cutting workflow is the inefficiency of how their data is handled. This, in turn, results in an inefficient production workflow in general. Even the most efficient and productive businesses



Comparisons in timelines using a standard workflow and Zünd's optimized alternative



A typical automated workflow configuration showing printing, cutting alongside design, pre-press plus planning and reporting.

waste a large amount of time handling print-and-cut files from one area to another, reworking files, renaming files and/or layers within files, and saving and/or locating specific files on a company's network. These issues can be further compounded by a designer's or a machine operator's lack of experience and expertise that can only be gained through months or years of working with the specific software packages, printers, and finishing equipment used by the companies for whom they work.

LISTENING TO CUSTOMERS

With thousands of digital finishing systems installed into the printing and graphics industries worldwide, Zünd has spent years listening to customers and learning their needs and desires for a digital production workflow that can be easily installed and learned by everyone necessary. Devising a workflow for everyday use that can be implemented by any company, large or small, has been no easy task.

Through a collaborative effort, Zünd Cut Center Software Suite now offers a solution that incorporates some of the best solutions created over the years for efficient file handling, proper layer naming structures within files, overall file management, production management, the use of proper cutting and routing tools with the correct parameters determined by materials, and the simplest overall user interface available on the market today. These features, combined with the ability of being open for integration with today's leading RIP, ERP, CRM, estimating, and job costing software packages, will change forever digital production workflows and how they are implemented and used.

While Zünd has been working on this revolutionary new product, others have also been hard at work on their own efforts to address the ever changing production workflow challenges seen by printing businesses. Some have been concentrating on file formats, such as JDF (job definition format), but Zünd sees these efforts as not going far enough. The current JDF specificationis a great start in the right direction, but it falls short without a software solution that can utilise the information contained in these files. Standard JDF specifications further lack the details required for cutting.

Zünd Cut Center includes its own ZCC protocol to communicate job and order status to third party planning and scheduling software. In principle it works very much like JDF. Thus, the ZCC protocol can be seen as an extension to JDF, enabling anyone familiar with this format to understand and integrate the necessary elements or to create a complete JDF based workflow including digital cutting.

Many of today's popular RIP software companies have also been working on their own proprietary solutions for providing print companies with a more efficient workflow solution. Again, these efforts fall short due mostly to the main problem that they are "closed" systems, meaning that their solutions only work for companies exclusively using their RIP software. The problems become most evident when a print service provider is using multiple printers from multiple manufactures with multiple RIPS. This scenario causes the problem of having a different workflow solution being used for each printer/RIP.

WORKING TOGETHER CLOSELY

The best solution to address the digital workflow solution is through a suite of software packages that work closely together to tie in all of a company's production and management systems. The Zünd Cut Center Suite accomplishes this task through the use of an innovative new Cut Queue, Cut Editor, and Cut Center that will allow a user to handle files easily in a standardised format supported by all of the most popular RIP software packages.

This new suite is also able to handle being installed into an environment where the user wants to change file naming structures as little as possible by being flexible and able to be adapted to that particular company's needs through importing their files with their naming structures and converting them automatically to the standardised form. This will allow for the system to be installed and used quickly with very little learning curve involved for the designers.

Increasingly shorter delivery times and just-in-time production both require careful planning and scheduling of resources, including design,

Continued over

How Zünd Cut Center simplifies workflow

DESIGN STAGE

Print-to-cut registration

Most flat-bed cutting systems locate the position and rotation of the material to be cut by means of register marks. These are typically added to the artwork in software like Adobe Illustrator and, although this is an easy task, it still takes time. Just opening and saving files which can contain several hundreds of megabytes can cause a frustrating delay when a tight deadline needs to be met. A common mistake is to add too many register marks which will add to the total cutting time.

In the meantime, popular RIP software from vendors like Caldera, Onyx and Wasatch, are capable of automatically adding register marks. Zünd Cut Center specifications assure that only the necessary number of register marks are added and in the optimal positions.

Creating cut-lines and defining the desired cutting method

Different cutting methods and tools, such as for kiss-cut, die-cut or cut and crease operations, require different options and parameters at the cutter. The part of a design to be creased and which is to be cut can easily be defined, for instance, by designating different layers in the artwork for separate operations. It becomes a problem involving an additional file preparation step when the original designer or advertising agency doesn't know about cutting; the very minimum result means having to open, correct and save the artwork once again. Since no exact standards exist, everyone uses different names and definitions for each cutting method.

Certain RIP software products can automatically create simple cut lines used, for example to trim posters. Zünd Cut Center requires only few standardised steps and includes easy-to-follow guidelines and templates to ensure that standardised definitions are made at the design stage, then carried through the RIP/nesting process to the cutting stage.

PREPARATION STAGE

Cleaning up the artwork

Even though artwork looks right on the monitor, this is no guarantee that the final cut part also looks good and feels smooth. Most designs include unwanted elements, such as stray points, double lines and unclosed curves. Since these will not show in the print, designers usually pay no attention to them. Nevertheless, these factors have to be dealt with and different cutting methods, tools and blades all have an influence on the final cutting quality and speed.

Via hot folders, Zünd Cut Center automates a large amount of routine clean-up work and includes powerful tools to assure optimal cutting, even with less optimal data.

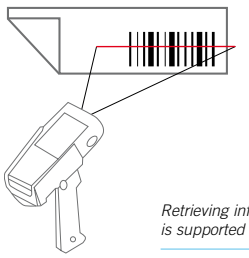
The preparation stage naturally also includes normal pre-press work, such as nesting for better material usage and the most efficient printing. With digital, or late stage cutting, considerable advantages can be achieved at this stage. This is outlined in Specialist Printing Worldwide, Issue 1, 2010.

CUTTER SET-UP STAGE

Locating the proper cut file

As a result of the previous steps, the artwork may now have been saved in several different versions. Locating the proper cut file version is usually not a problem and some RIP software can automatically generate bar-codes to eliminate any doubt about which cut file is the most current and corresponds with a certain print. But how easy is it to locate the file when a customer orders 50 additional copies of the job he received three months ago?

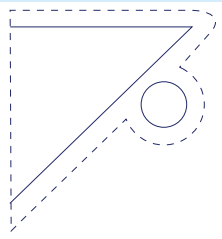
Zünd Cut Center supports both file retrieval and rotation via bar-code. It also enables easy file location based on, for example, an order number or production date. It further stores all relevant parameters to ascertain that the job can be reproduced exactly as it was previously.



Retrieving information via bar-code is supported by Zünd Cut Center

Setting up the cutter

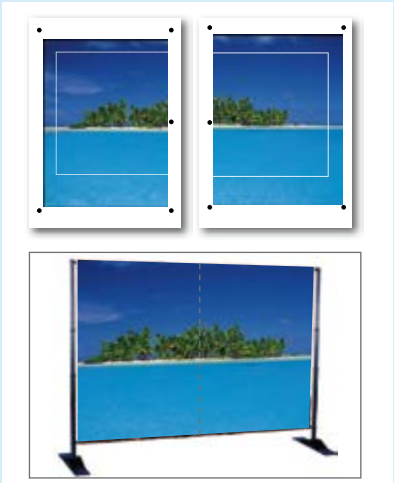
Zünd Cut Center is the only cutting software to provide exact guidelines for the operator. Other systems rely on the user's experience when selecting tool, blade and cutting parameters and this often leads to inconsistent cutting performance and quality. Materials dictate the cutting method/tool and certain procedures, such as routing, require the cut path to be offset according to the diameter of the chosen router bit.



With Zünd Cut Center the cut path is automatically offset when necessary and even optimised for the particular method and tool in question.

Dealing with print distortions

No print is perfect. Distortions often arise from within the printing process itself, media stretching or shrinkage, or from lamination. Different applications dictate different cut registration and compensation methods. Using register marks most cutting systems are able to compensate for basic distortions. When dealing with unstable media, like textiles, extreme distortions can occur just by laying out the media on the cutter and accidentally stretching and deforming the print. Other instances of problematic applications include panelled prints, which have to be cut to exact size to fit a frame, and corrugated displays that need to be cut and creased from the unprinted side thereby rendering the register marks invisible. Zünd Cut Center accommodates all print applications and offers ideal registration and compensation methods for all common print and media distortions.



In some paneled jobs, each panel must be cut to exact dimensions and despite differently distorted, they still need to line up

CUTTING STAGE

Cutting performance

Most flat-bed cutters offer a variety of tools and blades to process various materials. Operator training is usually offered when the system is first installed and, normally, trial and error leads to operator experience which at the end determines the actual performance. When operators change positions and when multiple operators work on the same cutting system the result is inconsistency.

Zünd Cut Center encompasses a database with 25 years' cutting experience always assuring optimal performance. As new tools and know-how become available, the database is easily updated.

REPORTING

For final cost calculations it is necessary to keep track of how much time was spent where. When planning future expansion it is also helpful to know the real utilisation of the cutting system. Via the ZCC protocol Zünd Cut Center provides all data necessary for all relevant reports. ■

Continued from page 37

preparation (pre-press), printing and cutting systems. Accurately predicting total production time becomes essential when committing to short delivery times and job monitoring is necessary to react quickly to changing priorities.

With convenience and time saving in mind, Zünd Cut Center provides a complete overview. Pending jobs can easily be sorted by priority, due date, order identification and, for example, the material. This makes it easy to group all jobs with the same tool requirements and parameters and, thereby, avoid having to change the cutter set-up.

At the other end of the production process, finishing via cutting/routing, the combination of the three software modules makes an even larger impact. The implementation and use of the Zünd Cut Center Software Suite can reduce a cutting machine operator's learning curve to just a few hours. The Cut Center takes advantage of an unprecedented library of materials commonly used in the printing and graphics industries that has been compiled over many years and is continually being added to. Updates to this library will be available for download from the Zünd web site.

The material library contains all of the necessary information regarding what the media is, what tools should be used for processing it, as well as the recommended parameters to be used for cutting/routing. All of this information is automatically assigned to each file entering the Cut Queue so that an operator doesn't need to be an expert with each material to achieve expert quality cutting/routing results. By having all of a print service provider's files routed directly into the Cut Queue, it will also make an operator's job of finding the correct cut files much easier which, in turn, saves time and results in fewer mistakes.

The Cut Queue also actively keeps track of a job's progress by allowing anyone to have access to seeing the status of the jobs in the queue. The jobs in the queue can be sorted by any of the columns generated, allowing a user to see at a glance which jobs are hot, pending, being worked on or already finished.

EASIER SET-UP

The process of using the Cut Queue in combination with the Cut Center output module makes the job of the machine operator easier than ever. Because a lot of the decision making regarding tooling and cutting parameters has already been made for them automatically when the cut files were entered in the Cut Queue, the operator only needs to feed materials into the cutting system and verify that the system is configured with the appropriate tooling for the job.

The Cut Center software even makes these tasks easier by visually showing the operator the correct modules and tools needed for the job, as well as whether or not the machine is currently configured correctly. The software will then not allow a job to be processed until all of the correct modules and tools are in place and verified by the software. By having the software take control over all of these parameters, Zünd Cut Center is guaranteeing the proper use of the machine, as well as the cutting results, no matter who the operator is or which shift they work on.

As you may be able to tell from all of this, the task of creating and implementing an efficient, but easy to use, digital workflow solution has been long in coming and is anything but an easy task. It could not have come this far without the help and expertise of many people, especially all of Zünd's customer's. The Zünd Cut Center Software Suite is a revolutionary new tool designed to address many of today's production workflow problems while, at the same time, remaining flexible to change with the future and able to be integrated with many other software packages to help a company be as efficient as possible and gain control over their production processes. ■

Lars Bendixen is Product Manager for Zünd and Pete Alsten is North American Product Manager for Zund America

Further information:

Zünd Systemtechnik AG,
Altstätten, Switzerland
tel: +41 71 757 81 00
email: info@zund.com
web: www.zund.com

Zund America, Inc,
Franklin, (WI), USA
tel: +1 414 433 0700
email: pete.alsten@zund.com
web: www.zund.com

EXAMINING THE BENEFITS OF LASER TECHNOLOGY

Digital printing has been addressing the need for shorter runs and speciality products for the past several years. As a result, converting equipment manufacturers saw an opportunity to move into the digital age by perfecting laser die-cutting through software and hardware advancements. Michael Bacon looks at how this will help companies

The Spartanics hybrid roll/sheet laser die-cutting machine

BEAM DELIVERY

For all practical purposes, laser die-cutting technology equipment is broken into two areas including gantry and galvanometer systems. Gantry systems are known as XY plotter systems because they either move the laser above a sheet of material or move the material in XY in order to position the head in a predetermined area. These systems are best utilised in wide-format applications (600mm or above), when cutting thicker material substrates (800 microns or higher) and where tight tolerance cutting needs to occur (membrane switches).

Galvonometer (galvo) systems make small adjustments in mirror angles to move the stationary laser beam in different directions within a specific cutting area. Technically advanced galvo systems use a sealed CO_2 laser versus semi-sealed laser sources. The advantages of the galvo system are speed (100 m+ using a single laser head), software advancements that eliminate operator error from occurring and removal of costly tooling expenses incurred using traditional tool-based systems. Galvo systems are now bringing your converting department into the short-run, quick turnaround realm that was recently reserved only for digital printers.

Galvo lasers have seen the most significant transformation within the past several years due to software advancements. These advancements can be analysed in several different ways. However, the most important seem to be the practical areas that affect a printer's bottom line.

TOOLING EXPENSES

The main reason people look at laser die-cutting systems is to remove the daily, weeklyor monthly aggravation and expense of tooling replacement and design. For example, a mid-level printing company spends anywhere from €40,000 to €80,000 per year on tooling. A majority of this replacement tooling is damaged not during the production run but, rather, during changeover. More often than not damage occurs when tools are being placed back into or removed from inventory.

New tooling designs create another significant portion of this annual expenditure. How much time do you spend trying to match die lines to your existing roster of die plates? How often are you restricting your customers by telling them that a certain die design or part outline is already in inventory so this will reduce their expense for a new job? If either case is true then finding a tool-free solution might be the answer. Would there be an advantage to your sales department if they could sell a new job without having to charge the customer for a new die? These are the questions that many printing companies are asking themselves prior to settling on a tool-free converting line.

SCRAP MATERIAL SAVINGS

Savings do not only come in terms of tooling costs. The consistency achieved with most laser die-cutting systems allows users to reduce the amount of scrap during changeover close to 20% annually. For example, many label jobs require a significant amount of kiss cutting. When using either a steel rule die (flat-bed die-cutting system) or a rotary die-cutting system there will be a certain amount of make-ready required to shim the die board or magnetic die to keep the kiss cutting consistent. Quality galvo laser systems will produce a 210 micron spot size from the laser source and store jobs that reduce the time need for changeover. The smaller the spot size, the better the cut quality you will achieve because the laser beam (round in shape) is compact and burning the least amount of surface area. Software advancements in laser die-cutting control how deep the laser cuts, therefore reducing inconsistent depth of cut and unnecessary adjustments on most systems.

Other savings documented by laser die-cutting users are related to part layout. Annual savings of an additional 15% are reported from nesting parts closer together for maximum throughput and minimal scrap. Traditional tooling layouts require more scrap between parts in order to fit die designs. There are limitations to the amount of metal that can be machined and wrapped for any given layout and laser die-cutting reduces these leading edge, trailing edge and gutter requirements.

Continued over

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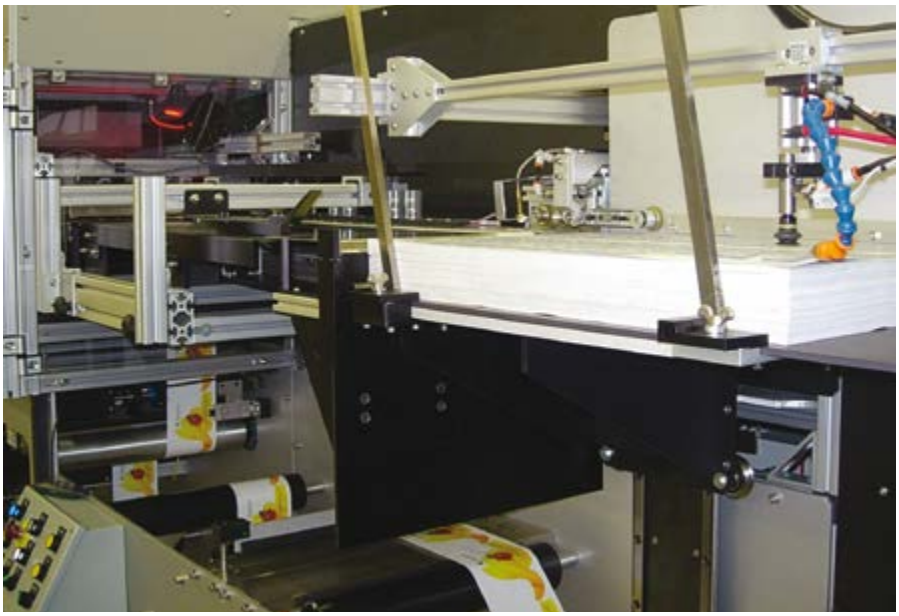
OPERATOR SOFTWARE

Advances in software for galvo systems that go unnoticed to many new operators, or first time technology gazers, include speed capabilities and cut quality. These are behind-the-scenes advances that make laser die-cutting a legitimate competitor to traditional flat-bed and rotary die cutting systems. The tangible advances in software, that relate to operator ease-of-use, include optimisation and rate estimator tools.

Software driven laser die-cutting systems on the market today come with optimisation tools that take any vector based file (such as .dxf) and automatically convert the file into the cutting software so that the operator has limited manipulation during job setup. Systems are equipped to split images automatically for optimum throughput speeds and create cutting paths from imported geometries that reduce operator interaction. Basically, the system imports a file from anywhere in the plant and creates a new cutting file. If the material is the same and only the geometries change, then you are producing a new part design within minutes. If the material is different, but it has been run before, then settings have been saved within the laser software and can be recalled quickly so changeover is still within minutes.

Rate estimator tools allow your production department and/or sales personnel the opportunity to price out new jobs in minutes, or while on the phone with the prospective customer. It gives you the ability to plug in die lines and laser settings so that production rates can be determined immediately.

Another advantage to laser die-cutting is that it allows a printer to output multiple jobs on a single roll of material. Jobs are assigned a specific bar code with a corresponding number and the laser system is equipped with a bar code reader that can change cut configurations immediately. Printers purchasing laser die-cutting technology to coincide with their digital printers are finding that they can take a new job in the morning and have it completed by noon that same day.



This hybrid coil-fed and sheet-fed system produces laser die-cutting ranging from short-run jobs to higher volume flexo applications

DIGITAL CONVERTING DEPARTMENT

Combination sheet-fed and roll-fed laser die-cutting systems are opening up opportunities in converting departments that were not possible in years past. A laser die-cutter accepting material from a digital printer with a format of 200mm or 350mm wide also has the ability to run 350mm wide sheets on the same system. Printers have found that this opens up limitless opportunities in their prototype and production departments.

Speed considerations have been subject to debate over the past several years since galvo systems started to make noise in the industry. Single source laser die-cutting systems mean you use a single laser source and galvo scan head. There are companies today that are able to reach 100+ m per minute using a single scan head. Typically they are using sealed CO_2 lasers that are 400 to 600 Watts. Using multiple heads to reach these speeds is acceptable as long as the software within the system is designed to reduce the signs of stitching two images together. This issue can be easily detected during the system qualification process.
Most laser die-cutting equipment manufacturers encourage demonstrations of capabilities to dispel any laser cutting myths that still exist, including burn-through, rounded corners or image stitching.

Laser die-cutting systems also offer a wide variety of converting systems including UV coating, lamination, slitting, sheeting, rotary die cutting stations, and much more.

In general, traditional flat-bed and rotary die-cutting systems continue to make up the majority of converting systems within printing companies. Laser die-cutting has overcome early setbacks regarding cut quality and speed by enhancing software to control the laser source. As the printing world moves from traditional printing sources to digital engines the expectations in other areas within printing companies seem to follow. Anytime a solution can reduce operator intervention, increase throughput and eliminate material waste, it becomes more obvious that this solution is viable. ■

Operator ease-of-use includes optimisation and rate estimator tools

Mike Bacon is Vice President of Sales and Marketing for Spartanics

Further information:
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THE PRO SCREEN INITIATIVE

With more than 40 years of experience in screen-printing, Rudi Röller enthuses about the future of the process in the digital (printing) age

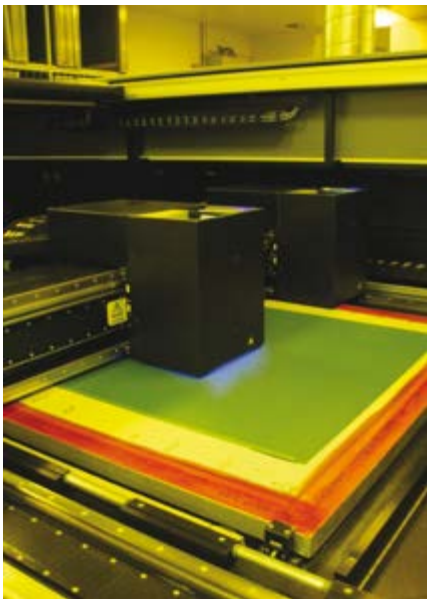
Solar panels – screen-printing contributes to this field of energy acquisition Photo: © Michel Angelo

A good 555 years ago, Johannes Gutenberg revolutionised the printing world with the invention of the modern printing press. The movable typefaces allowed the mass distribution of printed works to the people. This brought about a shift in thinking and started to move people into the information age. Today we are in the midst of a similar upheaval. The traditional printing processes (letterpress, gravure, offset printing, screen-printing) are undergoing profound changes in this "digital age". Digital technology has not only radically changed pre-press (keywords: "Computer-to-Plate" and "Computer-to-Screen"), but the so-called "fifth printing process" namely, digital printing, has also changed the world of classic print media.

DIGITAL PRINTING: COMPETITION OR COMPLEMENT?

"Also, as well"- would be the right answer, if there were one simple answer.

We mostly read (or read "almost exclusively"), but also hear and see in the media and at exhibitions about which new, ground-breaking developments are happening in digital printing and what fields of application are being increasingly captured. The focus of the experts seems to be fixed on this. In some areas, this is indeed the case and correctly observed. This progress comes primarily to the fore in the graphic printing field. It has also helped many a former classical screen-printer to diversify, expand and get orders for print jobs, which were previously uneconomical both for the client as well as his own business.



Computer-to-screen (CtS) has helped bring screen-printing pre-press into the digital age

Continued over

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Looking at the development before the era of "digital printing", we already observed an attack by XXL offset on screen-printing applications in the point-of-sale arena. Of all the European countries, this trend was most pronounced in England. Even in Germany, some larger screen-printing companies added or completely converted to offset and digital printing. But the big graphic screen-printers are still around. These are the ones who understood the necessity of timely investing in modern technology (especially in pre-press and multi-colour printing machines). The brilliance of screen-printing and the cost advantages for larger print runs are still unbeatable.

TO DO THE ONE, WITHOUT NEGLECTING THE OTHER – AS SOMETIMES IN LIFE, THIS ALSO APPLIES HERE

Screen-printing with its (almost) unlimited possibilities justifies its position as the fourth printing process and has captured such a variegated market in recent decades like no other method; both now and in the future it cannot be eliminated from the world of brilliant prints. However, through the euphoria which has broken out in many organisations for digital printing, there is a grave danger that the strengths of screen-printing are all too easily overlooked and neglected.

Inter alia, the strength of screen-printing (universal printing process "through the mesh") lies in literally being able to put down ink deposits anywhere between 3µm right the way up to 300µm! Let us also not forget the fact that screen-printing can also be carried out on almost all materials and different kinds of shapes.

At a time when the economy in most areas is no longer growing as we have been used to for many years, all possible application options must be fully exploited and all niche segments filled. This must also include developing the technology further and expanding the areas of application of the screen-printing process. Whilst in graphic screen-printing (so-called decorative printing), digital printing is developing as "competing and complementary", industrial screen-printing (functional printing) still has the potential to engulf new applications and grow even further.

Knowledge and creativity, recognition of technical and economic possibilities - that's the challenge called "Pro Screen"

"Pro Screen" also means to me that all participants – users, manufacturers, associations and the trade press – are fully committed to the further and continuous development of screen-printing. The goal of the initiative "Pro Screen" should also be to acquaint future designers and engineers with screen-printing technology as a viable manufacturing and coating process. Industry should be made aware of the strengths in order to acquire new fields of application. Development engineers, who are not aware of the technical possibilities of screen-printing, lack the important prerequisite of even considering the screen process as a manufacturing solution.

Screen-printing justifies its position as the fourth printing process with its virtually limitless possibilities

No car can be made without screen-printing Photo: © Julien Jandric

DID YOU KNOW, FOR EXAMPLE ... THAT TODAY NO CAR CAN BE MADE WITHOUT SCREEN-PRINTING?

Engine pistons, for instance, are screen-printed with a lubricant and the cylinder head gasket is screen-printed. The windscreen and rear windows are printed with an edge mask; even the heating element of the rear window defroster is produced using the screen process. Speedometer dials, interior trim, auto electrics, lighting, even the door mat and car battery label (acid-resistant) are screen-printed. The list could go on and on.

In the home, whether you take flat-screen TVs, dishwashers or washing machines (the operating panel and mounting adhesive is screen-printed), ceramic hobs, electronic refrigerator control units and evaporator plates, tableware, furniture fronts, mirrors, carpets and curtains are all further examples of screen-printing applications. From the cellar right up to the roof and even solar panels (silicon wafers) are produced via screen-printing.

Within the leisure sector – in sports clothes, sporting goods, sports equipment, skis, tennis racquets, again we find screen-printing. We could continue almost indefinitely with further examples but, to round off, would you have really known, that blood glucose test strips are produced by means of screen-printing?

SCREEN-PRINTING – QUO VADIS, HOMO SERIGRAPHICUS?

I want this article to encourage the promotion of the vast array of possibilities that screen-printing offers, by hammering home the strengths of this universal printing process for new ideas and applications into people's awareness. Knowing and understanding the manifold and everyday applications, in which screen-printing plays a vital part, provides the base to expand into new fields.

For this purpose we should set ourselves the important task of collecting and cataloguing all of the many application examples this process is capable of, in order to create a definitive reference guide and a pool of ideas for new developments in screen-printing.

The initiative: "Pro Screen" – our challenge in the digital (printing) age! ■

Rudi Röller is an executive board member and Director of Business Development and marketing at Kissel + Wolf

Further information:
Kissel + Wolf GmbH, Wiesloch, Germany
tel: +49 6222 5780
email: info@kiwo.de
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WE'RE ONLY HUMAN

Anna Harris, Technical Manager for screen products at MacDermid Autotype, looks at some common mistakes in screen-printing practice and how these can be overcome

Problem solving can literally mean the difference between profit and loss on some jobs

It goes without saying that production needs to be carried out in the fastest and most efficient manner in order to increase throughput and improve profitability in any industry. However, it is an unfortunate fact that, in most production environments, things do go wrong occasionally; typically this happens at the worst possible time when there are tight deadlines to meet! It is at this point where problem solving can literally mean the difference between profit and loss on some jobs.

The easiest thing to do is to blame the tools, or in many cases, the screen making products that are being used. But in reality, most of the time the product failure is a symptom, rather than the root cause. Although it is easier said than done, when there is a production failure, taking time out to step back and analyse the root cause usually resolves the problem permanently, more quickly and cheaply. In this article I will bring to light some common, true to life examples of problems that have occurred during the screen making process and explore how these were resolved by stepping back and looking at the problem holistically to identify the root cause.

One example is where an exposure test had been done and the exposure time determined by checking the stencil's resolution. Unfortunately, though, the print durability of the stencil was extremely poor and the screen broke down very quickly on the press. On visiting the site we ran tests only to discover that everything in the whole process appeared to be carried out as it should be. However, whilst processing a screen, the frame felt particularly hot when it was taken from the drying cabinet. The thermostat in the drying cabinet was showing a reading of 35 degrees C but, when it was checked with a thermometer, the temperature was in fact much greater at 60 degrees C. The thermostat had broken.

The high temperatures were causing the stencil to fuse and, as a result, it was not washing out properly, which meant that using resolution to gauge the exposure time led to what was in fact gross under-exposure. Once the thermostat was fixed, and the temperature controlled at 35 degrees C, the resolution at optimum exposure was excellent and the durability of the stencil improved greatly. Something as simple as the thermostats breaking can easily go unnoticed so it is always advisable not to rely on them exclusively and check temperatures with a thermometer periodically.

High temperatures can also cause premature ageing problems with photo-stencil products. Manufacturers can control conditions during production and shipping; however, for printers, the storage and handling of such products may cause problems, particularly in extreme climatic and processing conditions, such as in Asia where temperatures and humidity are extremely high.

For example, if photo-stencil films and emulsions are stored in areas that are not temperature controlled then materials stored at the top of the racks will be exposed to higher temperatures than those stored at ground level, as the heat rises within a building. Even turning off air conditioning and climate control systems at weekends can cause the heat to rise dramatically, having a huge impact on the products stored within the facility.

As a result, photo-stencils can progressively lose resolution and mesh adhesion, because this exposure to heat can considerably speed up the ageing process. Should temperatures rise above 50 degrees C the components start to be affected and, if exposed to higher temperatures, the materials can rapidly become useless. At 70 degrees C this happens in a matter of minutes, especially with photo-stencil films. Ideally, photo-stencil films and sensitised emulsions need to be stored at temperatures ranging from 5 to 20 degrees C. Diazo is particularly affected by temperature and should ideally be stored at 5 to 7 degrees C.

Additionally, high temperatures can create problems with registration. An image exposed on a warm frame will contract with the frame as it cools, so the image appears too small. For instance, one customer was experiencing this problem as the screens were being dried at particularly hot temperatures to enable them to deal with the business's high turnaround and a large volume of wet screens; allowing the frames to cool down before exposure solved the registration problem. However, the company needed a high level of throughput to meet the demand but without damaging the stencil. The solution was to use a low cost dehumidifier in the drying cabinet which allowed them to reduce the temperature and improve the drying. This is a simple example of where identifying the root cause gave them a permanent cost-effective solution

to a problem that had cost them a lot of money over the years.

Another critical factor in increasing productivity is ensuring that screens are made in true safe-light conditions. One particular example I recall is where screens were all being made in yellow, safe-light; however, occasionally a screen would fail along one edge. This problem created significant delays in productivity and increased levels of wastage. It was caused by a particularly basic, but easy to miss, problem. We identified that the box of film was being stored open on a bench (in a yellow safe-light, air-conditioned environment) but a small amount of UV light was being reflected off the low ceiling in the room every time the exposure unit was switched on.

Although the unit had a black curtain surrounding it, this did not go all the way to the ceiling. To prevent such a minor factor causing major problems it is always sensible to verify the light conditions of the area. This can be done simply by drawing a cross on a sheet of white paper with a yellow highlighter. If the cross is visible when the paper is in the supposed yellow safe light area it is, in fact, not safe.

Contamination can also impose significant detrimental effects on print production processes. For example, one business was experiencing particularly bad problems during stencil preparation. The source of this contamination was difficult to determine as previously the company had never experienced this issue; nothing had been altered in the stencil making area that could cause such a problem to arise. Indeed, the stencil making area was consistently kept extremely clean and it had a door to prevent contamination entering the room from other areas.

It then transpired that a grinding machine had been installed in another part of the building which was, unfortunately, near the air intake units causing particulate matter to enter the room through the air inlet ducts. Good air quality is essential for high quality stencils and there are many practical steps that can be taken to clean up an environment without the need to invest in an expensive clean room .

In another case waterborne contamination was causing the failure of a high percentage of screens. The customer was advised to rinse the mesh from the top as opposed to through the mesh, which would normally wash contamination away, but this did not solve the problem entirely. The root of this problem was ground work being carried out near the water main of the facility which was disturbing the rust in the old water pipes. The permanent solution was to fit a cheap in-line water filter to the hose in the washout booth. A simple check for water contamination is to hold an off-cut of fine mesh over the hose for five minutes and observing what is being filtered out.

In today's extremely competitive marketplace, specialist printing companies often find themselves working flat-out in order to stay ahead of the game. Naturally, this leaves little room for error. However, when working under such increasing pressure it is easy for mishaps to occur, often with what appear to be minor problems escalating and having a considerable adverse effect on business performance. Stepping back and looking at the whole process is undoubtedly the best way to resolve problems; treating the root cause rather than the symptoms will save you more money in the long run and help you stay ahead of the game. ■

Anna Harris is Technical Manager at MacDermid Autotype

Further information:
MacDermid Autotype, Wantage, UK
tel: +44 1235 771111
email: pressrelations@autotype.com
web: www.macdermidautotype.com

BEAUTIFUL, LONG-LASTING FLOOR GRAPHICS ARE JUST STEPS AWAY

Jeff Stadelman discusses how to select and install the most appropriate floor graphic media to ensure safety, durability and long-lasting design integrity

As customers look to maximise brand exposure and create new visual appeal, both indoors and out, many select floor graphics as a viable option to increase awareness and grab attention. Providing a durable, long-lasting and eye-catching vehicle for brand messages or signage, floor graphics have quickly become a key component of point-of-purchase displays, tradeshow graphics, outdoor event signage and other uses. Both short- and long-term floor graphics are a creative way to tap into typically unused promotional spaces, but they are only successful if the proper graphic elements are selected to guarantee that the image stays put, looks good and ensures safety.

A floor graphic consists of a base media, an adhesive (removable, permanent or high tack), and an overlaminate. To help you select the optimal combination of 'layers' for your floor graphic, there are a few simple questions to answer about your particular project – what type of floor surface are you working with, what printing method will you be using, how long will the graphic be displayed, and what amount of foot traffic and/or equipment traffic is expected? These considerations help ensure your result will be a durable product that leaves a lasting impression.

Remove one edge of the liner from the graphic and carefully position it on the floor surface.

Floor graphics are a highly recognised advertising and promotions vehicle that leave a lasting impression

FLOOR SURFACE

Floor graphics can be installed on a wide variety of surfaces, but the type of floor you are working with will determine what kind of adhesive you will need for installing the graphic. Most indoor graphics are installed on smooth, non-porous floor coverings such as tile, sealed concrete or hardwood. For these surfaces, you will need a removable adhesive that allows for repositioning, if needed, during installation, as well as easy removability without damaging the floor when the graphic is no longer required.

For graphics being installed on unsealed concrete or asphalt surfaces, typically found in outdoor applications, a more aggressive adhesive is needed in order to provide the appropriate adhesion. Adhesives used for these rougher surfaces, such as a high-tack solvent acrylic product, are considered to be 'permanent' and should only be used on unsealed concrete and asphalt as they can be difficult to remove from the typical indoor, sealed surfaces.

No matter what type of base media you use, at the end of a floor graphic's lifespan, it should lift off easily and leave behind little or no adhesive residue. Take the time to determine the best adhesive for your floor surface to ensure proper adhesion and easy removal.

PRINTING METHOD

Vinyl is the most common base media for floor graphic applications because it is relatively inexpensive, has excellent layflat and conformability, is durable, prints well, and is one of the easiest materials to install. Pressure-sensitive adhesive (PSA) vinyls are a popular option due to their high stability, durability and built-in adhesive that eliminates one step in the creation process, versus using a non-pressure-sensitive material, which requires you to add an adhesive mounting film during the lamination stage.

For a printer – screen, digital or otherwise – it is important to understand available vinyl film options and when they should be used. Different types of vinyl base media are offered for almost every printing technology, including UV-curable, latex, water- or solvent-based ink-jet, and screen-printing. The following recommendations are based on the type of printer you will be using to produce the floor graphic:

- Solvent-, eco-solvent-, UV-curable and latex-based inkjet: Digitally print an image directly onto matte or gloss digital imaging media. Note: Media suppliers can provide direction on the correct ICC profile to use for the project.
- Water-based ink-jet: Digitally print an image directly onto matte or gloss digital imaging media designed specifically for water-based dye, or UV or pigmented ink sets. Note: In water-based applications, the edges of the graphic must be completely sealed.
- Screen-printing: Screen-print an image onto removable, non-topcoated vinyls, which are suitable for UV-curable and solvent screen printing.

In addition to selecting a vinyl media based on your printing method of choice, you may also have options on different thicknesses, finishes, warranties and price points.

TRAFFIC PATTERN DICTATES OVERLAMINATE

Building upon the vinyl base media and adhesive you have selected, overlaminates are a critical component for enhancing the durability of your floor graphic. A graphic's face must withstand a multitude of abuses – dirt, spills, cleaning solutions, buffers and foot traffic – so overlaminates are extremely important to the success of a floor graphic. They protect and seal the image while also providing slip resistance.

It is important to choose an overlaminate that offers good traction. Overlaminates should meet or exceed the industry requirement for static coefficient of friction (CoF) or slip resistance. The US Occupational Safety and Health Administration (OSHA) recommends that walking surfaces have a CoF of greater than or equal to 0.5 for dry surfaces, 0.6 for handicap accessible routes and 0.8 for ramps. Other organisations, such as the American National Standards Institute (ANSI) and the National Floor Safety Institute (NFSI), recommend CoFs of greater than or equal to 0.5 for dry surfaces and 0.6 for wet surfaces.

Floor graphics can be produced for areas with low or high foot traffic and for short- or long-term use. Depending on traffic patterns and length of use, three classes of overlaminates are suitable for floor graphics – polycarbonate, vinyl and polypropylene.

Polycarbonate films have superior abrasion resistance, making them ideal for high-traffic applications or long-term installations. Polycarbonate is an extremely tough polymer that offers high durability and the potential for the graphic to last up to two years indoors.

Vinyl overlaminates, whether they are textured or smooth, are a more cost-effective choice for lighter-traffic areas. The softer, more pliable vinyl offers moderate abrasion resistance and is better suited for short-term applications of up to one year indoor. It is also a preferred laminate for exterior floor graphics, with expected durability of up to three months.

Polypropylene overlaminates are also available with a textured slip-resistant finish and are a very economical solution for extremely short-term floor graphics that are expected to be removed after a few days or up to a month.

After printing a graphic, it is important to allow the ink to dry completely before applying the overlaminate. Otherwise, retained

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SLIP-RESISTANCE TESTING FOR FLOOR GRAPHICS

When determining the coefficient of friction (CoF) and slip resistance, there are a number of testing methods available, two of which are the American Society for Testing and Materials (ASTM) D2047 Static CoF test (using the James Machine), and the ASTM C1028 Static CoF test, which is an approved test for both dry and wet surfaces.

- According to section A4 5.1 of the ADA (Americans With Disabilities Act), slip resistance is based on the frictional force necessary to keep a shoe heel or crutch tip from slipping on a walking surface under conditions likely to be found on the surface. While the dynamic CoF during walking varies in a complex and non-uniform way, the static CoF, which can be measured in several ways, provides a close approximation of the slip resistance of a surface.
- Contrary to popular belief, some slippage is necessary to walking, especially for persons with restricted gaits; a truly "non-slip" surface could not be negotiated. The Occupational Safety and Health Administration recommends that walking surfaces have a static CoF of 0.5.
- A research project sponsored by the Architectural and Transportation Barriers Compliance Board (Access Board) conducted tests with persons with disabilities and concluded that a higher CoF was needed by such persons. A static CoF of 0.6 is recommended for accessible routes and 0.8 for ramps.
- It is recognised that the CoF varies considerably due to the presence of contaminants, water, floor finishes, and other factors not under the control of the designer or builder and not subject to design and construction guidelines and that

solvents can collect between the base and laminate surfaces, eventually leading to delamination.

PROPER INSTALLATION PROLONGS LIFE OF GRAPHIC

After you have printed the floor graphic and applied the overlaminate, proper installation of the graphic involves a few important steps:

- A clean floor is critical to a graphic's success. Floors must be treated first with a commercial cleaner and then wiped down with isopropyl alcohol to remove any grease or residual cleaning solution. It is not necessary to remove wax prior to application.
- Pre-position the graphic on the floor to ensure proper placement. Remove one edge of the liner from the graphic and carefully position it on the floor surface.
- Using a squeegee, apply the graphic, working from the centre and moving outward with firm, even pressure. Remove remaining liner and use the squeegee to apply the rest of the graphic with short, overlapping strokes. This helps avoid trapping air bubbles between the graphic and the floor.
- Re-burnish all edges to ensure good contact with the floor.

After installation, allow the floor graphic to set for eight to twelve hours before waxing, scrubbing or polishing.

Waxing is strongly recommended after the graphic has set, especially if a floor buffer or an industrial-strength floor cleaner will be used for future cleaning. Waxing protects the graphic from industrial cleaning chemicals and power floor scrubbers, seals the edges to prevent them from peeling up, and fills in the seams on large graphics that require more than one piece of vinyl. Be sure to select a floor finish that meets or exceeds the industry standard of 0.5 CoF value, using the ASTM D2047 or equivalent test procedure.

When preparing to install floor graphics in outdoor applications, apply above 15.6 degrees C onto a dry surface. Simply use a brush or broom and sweep the area clean of dust, dirt and other debris. Do not wash the area prior to application. Apply graphic as directed above. If in doubt, check with your vinyl manufacturer for its specific recommendations on installation.

A removable adhesive allows for repositioning, if needed, during installation, as well as easy removability without damaging the floor when the graphic is no longer needed.

CONCLUSION

The entire floor graphic system is more than just choosing the right media; it's the sum of its parts from the selection of the most suitable vinyl, adhesive and overlaminate, to proper floor preparation and installation. Floor graphics are a highly recognised advertising and promotions vehicle that leave a lasting impression. Using the proper materials for the job will ensure printed floor graphics maintain their vibrancy for as long as needed.

From tradeshow booths to retail displays, parade routes to marathon courses, there are acres of floor space awaiting graphic decoration. After understanding the basic construction of floor graphics and the wide variety of available materials, the only limit is creativity. ■

Jeff Stadelman is a Technical Marketing Manager for MACtac Graphic Products.

Further information:

MACtac Graphic Products, Stow (OH), USA
tel: +1 330 668 1111
email: MACtac.Americas@bemis.com
web: www.MACtac.com/Graphics

COMBATING THE MENACE OF GRAFFITI WITH MACTAC SPECIALIST FILMS

Can graffiti really be considered a form of art? MACtac certainly doesn't think so and it's not alone. As Max Linder explains, numerous railway companies and owners of public buildings also share the company's opinion

Tackling the problem of graffiti is proven by the fact that many such companies and owners are taking advantage of MACtac's self-adhesive films to protect building interiors and walls, as well as train coach bodies and windows.

Image protection is not a new phenomenon. MACtac pioneered this industry more than 30 years ago through a range of clear PET (polyethylene terephthalate) films which were designed to protect photographs from colour fading with a special anti-UV adhesive. Since this point, its PermaColor range has been continually improved to ensure that printed graphics are protected not only from UV rays but also from graffiti on posters, doors and windows. And, whilst experience has proven that it is almost impossible to prevent people from producing graffiti, thanks to the MACtac solution it has become much easier to remove it again with the help of either standard solvents or organic cleaning products.

THE NIGHTMARE OF THE RAILWAY COMPANIES

Being a moving medium, trains and metros are surely the ultimate dream for those who produce graffiti. This, in turn, obviously becomes the nightmare of railway companies, and it was certainly the case for Trenitalia when it consulted MACtac in 1999, seeking a solution with self-adhesive films that would replace anti-graffiti varnishes which had proved to be less efficient. The Italian railway officials cited two levels of problems associated with graffiti on trains, one affecting the public, the other affecting the train operator.

A typical graffiti attack on railway carriages

The public at large is more often than not appalled at this environmental defacement. But not only that – of equal significance is the fact that the public tend to associate vandalised trains with the probability that their journey will be unsafe, that the equipment will not function correctly and they might be liable to be robbed. Furthermore, public confidence in operational safety and efficiency is also undermined. In particular, this line of thought is held by the elderly.

Meanwhile, the train operator suffers in two respects. Firstly, this takes place on the perception level, where the substantial investment in graphics' identity on trains loses its return and, at the same time, the intended image of safety and efficiency decreases in its credibility. Secondly, on a direct cost level, substantial expenditure is incurred in terms of cleaning and repainting trains.

However, the greatest problem is that, in no time at all following these 'cleaning up' processes, train coaches will inevitably be subjected to graffiti and the vicious circle starts up once again.

The trials – that have been conducted with several train companies – have resulted in an impressive multi-layer material, designated MACtac Complex SAG.

Its application is very straightforward, non-toxic and eliminates the need for painting booths.

In addition, replacing the original paint by Complex SAG lowers the total cost by up to €6,000 per coach and will only result in one day of immobilisation of the rolling stock instead of the standard eight to ten days which are usually required for repainting. Regarding actual costs, graffiti removal from Complex SAG costs approximately €200 per coach, compared to €12,000 for repainting, representing a significant difference.

All of these benefits have not only resulted in Italian Railway Companies using Complex SAG on more than 10,000 coaches, but also many other public transport companies have decided to use the system in a number of different European countries.

Graffiti removal from SAG 100 demonstrates how the film is not affected

PROTECTING BUILDING FRONTS AND BRICK WALLS

Graffiti can also now be regularly found on building fronts and brick walls, representing a new challenge for the MACtac labs. On top of digitally printable self-adhesive films for direct application on brickwork and concrete, researchers have now developed flexible films to protect these graphics against graffiti.

Graffiti left on the new IMAGin LAG 100 protective films is easily removed with organic cleaning products. This, in turn, results in savings on cleaning or refurbishing costs, contributing towards the city looking more aesthetically pleasing and at the same time protecting the environment.

These self-adhesive solutions, as well as many others for glass and window protection, are certainly worth considering if you, too, are trying to combat vandalism at an acceptable cost. ■

Max Linder is Director of Communication and Marketing Services at MACtac Europe

A specially developed multi-layer laminate	Transparent PET sheet	>> for graffiti removal
	Permanent adhesive with a UV-filter	
	Pigmented PVC film	>> in the Railway Company colours
	Acrylic adhesive	>> to be applied on the coach body
	Backing paper	

Further information:
MACtac Europe, Soignies, Belgium
tel: +32 67 356 211
email: mactac.europe@bemis.com
web: www.mactac.eu

THE DRAFT GUIDANCE ON THE COMPILATION OF SAFETY DATA SHEETS

Elaine Campling outlines the key points in the The European Chemicals Agency's latest documentation

The European Chemicals Agency (ECHA) draft guidance on the compilation of safety data sheets is available on the ECHA Website. The purpose of this guidance is said to help industry to comply with the requirements of Article 31 (Requirements for safety data sheets) and Annex II (Guide to the Compilation of Safety Data Sheets) of the REACH Regulation. The document is also described as providing useful information for recipients in relation to the requirements of Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work. There is also an overview of related elements of the Classification, Labelling and Packaging of Substances and Mixtures (CLP) Regulation (EC) 1272/2008.

The main body of the guidance is some 120 pages in length and, whilst the overall objective may be to help both suppliers and recipients, the latter may have difficulty in disseminating the information that is provided to them in the form of the new SDS. Both for suppliers and customers, unravelling the complexities of their duties and the impacts of both regulations has been, and will be challenging, as we pass through the transition phases.

The SDS is the primary hazard communication tool for substances and mixtures in the supply chain. Prior to entry into force of the REACH Regulation, the European legislative instrument for the SDS was Directive 91/155/EEC (amended by 93/112/EC and 2001/58/EC). Whilst there are transition periods for products supplied prior to the 1 December 2010, new substances/mixtures and revised safety data sheets supplied after this date will need to be accompanied by a SDS meeting the new requirements, as set out in Annex II of the REACH Regulation.

Mixture (preparation) manufacturers have until 1 June 2015 before mixtures will be required to be classified, labelled and packaged in accordance with the CLP Regulation

Without full SDS information, users may be subject to inadvertent exposure to chemicals, lack of proper hygiene control and potential ill health

Mixture suppliers have until June 2015 to comply with the CLP Regulation

1 December 2010 is also a key date in relation to the CLP Regulation, when substances must be classified, packaged and labelled in accordance with this regulation. In fact, substances must be classified in accordance with both the CLP Regulation and the Dangerous Substances Directive 67/548/EEC until 31 May 2015, since the classification according to both systems must appear in the SDS until this time, after which

Some substances with work place exposure limits may not be classified with risk phrase/hazard statement and this sometimes causes confusion

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only the classification according to the CLP Regulation is required.

Mixture (preparation) manufacturers have until 1 June 2015 before mixtures will be required to be classified, labelled and packaged in accordance with the CLP Regulation. Mixture suppliers are permitted to include the CLP classification in their SDSs prior to 1 June 2015 if they so wish, but it must be accompanied by the classification according to the Dangerous Preparations Directive (DPD), 1999/45/EC. If mixture suppliers choose also to label their products in accordance with the CLP Regulation, the CLP classification must appear in the SDS, along with the classification according to the DPD and both the DSD and CLP classifications of the constituent substances.

In effect, this means that recipients of SDSs will see elements of both systems, for example the familiar R numbers/phrases and not so familiar hazard codes/statements. While the former may bring some reassurance to customers and help with familiarisation to the new hazard communication system, it will be a challenging time for product suppliers without fairly sophisticated software systems to generate both sets of information within a single document.

For customers, the SDS isn't necessarily an easy document to disseminate in practice, even prior to implementation of the REACH and the CLP Regulations. ESMA Members have reported contact from their customers confused by some of the content of SDSs they have received from other suppliers and who are not always able to decipher the information that has been provided for a variety of reasons. In some instances the customers of ESMA members have reported that they are using chemical products from other suppliers that are apparently either non hazardous, or with a low overall hazard rating and want reassurance that the information provided is correct. Further investigation by ESMA Member Companies has, on occasion, determined that these products are more hazardous than would appear from the information provided, due to incorrect or incomplete information in the SDS.

Since there is a duty to evaluate the health and safety implications of a product prior to use and to implement appropriate risk management measures as required, it is difficult to conduct a reliable assessment, if full and accurate information is not provided in the SDS. Without this information, users may be subject to inadvertent exposure to chemicals, lack of proper hygiene control and potential ill health.

It will be more challenging for customers to recognise whether their SDS is compliant during the transition phases of the REACH and CLP Regulations, when users may receive an SDS to the new format, or the old, with or without CLP classification and labelling elements, depending on when the chemical was first supplied and whether it has been revised and whether suppliers take advantage of transition periods.

For hazardous products, whatever system is used, the overall classification for the product should appear in the Hazard Identification

Suppliers are permitted to include the full compositional information including constituents that do not meet the criteria as hazardous, which could lead to misunderstanding

section of the SDS (Section 2). Pre-REACH, this information would have been provided in Section 3, but these sections were inverted with entry into force of the REACH Regulation.

A SDS is also required for non-hazardous substances if the substance is persistent, bioaccumulative and toxic (PBT), or very persistent, very bioaccumulative, (vPvB) or otherwise a Candidate List substance (substance of very high concern).

A SDS must also be provided on request for non-hazardous mixtures that contain any of the following substances:

- PBT, vPvB substances or Candidate List substances of 0.1% or more by weight;
- A substance with Community work place exposure limits;
- A substance with human health or environmental hazard >= 1% by weight for non-gaseous mixtures (>= 0.2% by volume for gaseous mixtures).

It should be clearly stated that the mixture itself is not hazardous according to the DPD and from 1 June 2015, the CLP Regulation. An SDS does not need to be provided for articles except in the case of explosives and pyrotechnical articles, since it is not structured to provide safety information for this category of product.

Constituent hazardous substances present above defined concentration levels must be identified in Section 3 of the SDS (Composition/Information on Ingredients), along with the classification of these constituents (R numbers and/or H codes). Substances with Community work place exposure limits must also be identified in the Composition section (in practice national limits are also generally included). Some substances with work place exposure limits may not be classified with risk phrase/hazard statement and this sometimes causes confusion. If a substance is identified in the Composition Section without R number/H Code, it could indicate that the substance appears because it has work place exposure limits, the detail of which should be provided in Section 8 (Exposure Controls/Personal Protection).

However, as noted, the REACH Regulation introduces additional criteria for identifying substances in this section, which will likely make it more difficult to identify whether the compositional section is correct. Furthermore, suppliers are permitted to include the full compositional information including constituents that do not meet the criteria as hazardous, which could lead to misunderstanding.

In the case of R phrases, hazard statements, safety phrases and/or precautionary statements that are not written out in full in other sections of the SDS, the full text should be provided in Section 16 (Other Information). Section 16 is a useful reference section where additional information may also be found including the details of any changes from a previous version, which should help the recipient of the new format SDS. Without examining the requirements Section by Section, it is useful to note that, whilst the 16 Section SDS is retained, there are additional sub headings and the inclusion of substantial additional information, with which recipients should familiarise themselves. Exposure scenario documents may be included in an Annex to the SDS, which could result in the receipt of bulky documentation if, in the case of mixtures, the exposure scenario information is not provided within the core chapters of the SDS. The new format SDS will take some getting used to and it is hoped that further guidance will be provided. ESMA Members will do their best to help customers understand the new format and answer any questions about the content. ■

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

Further information:
Fujifilm Sericol UK Limited, Broadstairs, UK
tel: +44 1843 872030
email: elaine.campling@fujifilmsericol.com
web: www.fujifilmsericol.com

FROM SQUEEGEES TO NEW TECHNOLOGIES

As a specialist manufacturer for the screen-printing industry, last year RKS relocated to state-of-the-art facilities in Rösrath, near Cologne in Germany. Although the company's main business remains in squeegee production, it is also heavily involved in the manufacture of machines. Peter O'Sullivan discusses the company's past, present and future

INDUSTRY POSITION

When RKS relocated in September 2009 with its move from Bergisch Gladbach to Rösrath, it doubled its floor capacity. As a result, the new building now provides far more comprehensive facilities so that it can fulfil all of its customers' needs while continuing its growth path. The engineering section of the company is largely self-sufficient, with much being driven by communication with its client base which works closely with the company's teams to determine what is needed. Many customers have their own ideas relating to elements which can be integrated into developments and RKS believes that one of its strengths is being able to respond to these demands.

In-house, two master tradesmen are key employees within RKS. This duo has been with RKS for more than ten years, with one being an electrician and the other an engineer. Both are experts within their trades to the extent where they can think out developments, and plan and design manufactured results, an attitude which is considered unusual for a squeegee manufacturer.

When a new customer contacts RKS for the first time, there is a deep and detailed dialogue to make sure that requests for specific elements are discussed so that the company's skilled teams can assess the viability of these ideas and factor them into concepts. Normally, such is the experience of RKS's skilled workforce that, when the company's craftsmen suggest something, there is no doubt that it will work as a practical solution.

ORIGINS

The history of RKS is steeped in screen-printing. The company was founded by the late Rudolf Kürten from the factory floor of one of the major printers in Germany – Kürtain and Lechner, specialising in the poster and large-format screen-printing sector.

Observing the design and construction of squeegees, Rudolf couldn't understand how such an inflexible piece of rubber could give a good result on a consistent and reliable basis. As a result, he conceived the idea of producing a good quality squeegee blade which incorporated a controllable printing edge. At the time, the development of this edge was little short of revolutionary. The development was achieved using the support of fibreglass backing, and this has become the trademark of RKS, with worldwide patents now protecting some of its design.

This squeegee product formed the basis of the blades we know today. Little has changed since the early products were introduced, and they are still as current now as they were 25 years ago. True, there have been developments and variations in design and refinements, but the original principles are still used in some applications today just as they were in their earliest versions.

The concept is deceptively simply yet extremely effective. Using a proprietary design and construction, the RKS squeegee blades have been developed to produce repeatable and standardised results. Because the fibreglass spine integrally joins at its tip to an elastomer squeegee materials, the blade retains its original form and remains parallel to the printing plane during operation. When this principle is compared with a conventional blade, when using the latter the squeegee can change shape, radically and unpredictably, during a production run and this will affect the quality of the end result.

RKS believes that the standardisation it has developed and effected through the manufacturing criteria used in its blades has resulted in this success. The concept of its own, two-component product comprises a hard elastic carrier which provides the desired, correct constant printing angle with uniform squeegee pressure and flexibility. The incorporation of a polyurethane Vulkollan strip means that there is an accurate print edge which provides contact with the screen. The ability for the blade to adapt itself to different surfaces in a sealing manner means that the ink transfer takes place smoothly consistently.

When RKS originally developed this squeegee blade, it raised a tremendous amount of interest. Just two years after developing the original idea for innovating these blades, in the mid 1980s RKS was formed as a separate company to concentrate purely on this side of the business. For the first five years, the main focus and interest came from Germany. However, there was natural progression as word caught on and the products proved themselves within the

The SM2800 AL multi head squeegee grinding machine

(From left to right) Peter O'Sullivan (Service Manager), Stefan Winter (Managing Director), Jörg Wiegand (Manager of polyurethane products) and Oliver Gruener (Sales Manager).

screen-printing industry, more machine manufacturers started using RKS blades and exports grew.

Kürten and Lechner also expanded; it was clear that RKS needed its own identity to concentrate on its squeegee system. The formation of a separate company RK Siebdrucktechnik GmbH.

Even up until he died at 76 years old, Rudolf Kürten maintained regular contact and visited RKS every day, offering new ideas and retaining a positive influence on the business. In particular, he was instrumental in the design and build of the first RKS Grinding Machine, a successful system which can be tailored for a wide range of industry sectors, from labels through to large format requirements. These specialist machines continue to be marketed, with between 15 and 30 still being sold every year.

Having broken away from the parent company, RKS finally became a separate entity two years ago. This move has been fruitful as the new company has been able to raise firm support for the original business, even being responsible for identifying the need for the move to new factory premises.

MOVE TO NEW PREMISES

RKS moved into its new premises in September 2009, and these new and improved facilities were instrumental in enabling the development of new products. Although screen-printing still represents a major element of the company's production, developments are now evident in other areas, such as within the use of polyurethane in emerging industries. In common with many manufacturers in the sector, RKS is seeing a decline in the mainstream screen-printing market, particular in the graphics' arena where digital is now a strong presence. Thus, the company is now positioned to expand into niche markets.

Nonetheless, RKS remains dedicated and committed to screen-printing despite the fact the new premises allow the company to move into more related and non-related areas. This diversification includes the intention is to bring in additional people to concentrate on marketing new products.

Since the move to the new building, RKS believes that anyone seeing the company now would be amazed at the change. Compared with its old factory which not only was very old but not at all aesthetically pleasing, the new facility deservedly projects the image of the business as it is today. This is backed up by its products and high-tech approach to screen-printing, with the premises now featuring 2,300m^2 dedicated to production, complemented by a 400m^2 administration area. Not surprisingly, this new capacity represents a €2 million investment.

COMPANY SIZE

The company started with four people and now totals 25. During the years there has been remarkably little turnover in staff – in fact, some who left the company have subsequently made the decision to come back. Additionally, four of the original employees are still with the company.

Today, Stefan Winter is managing director. He's been with the company for 19 years, starting in the machine shop as a machine fitter, before turning to business management studies in engineering, becoming financial manager and, then, moving to his present position in 2006. He is totally involved in all areas of the business, as are all of the team which gets involved in every aspect – unusual in German industry. The original philosophy prevails; because RKS has the right employees who have been together for so long, everyone can contribute positively to producing the right results.

RKS prides itself as a solutions' supplier, and feels that many other manufacturers of

Continued over

conventional squeegee blades know how to "think in the box", but they can't help and advise people about the squeegee's best application. Instead, they leave that to their agents. RKS does not. If customers have applications to query or which pose a problem, they speak to RKS directly. Thus, the business is not just a manufacturer of squeegee blades; it is prepared to help in every way with the application of a blade so customers are very best equipped to get correct results and achieve the best results.

CHANGING THE PRODUCT RANGE

The RKS squeegee system, with its innovative fibreglass backing, has been an excellent, and secure, foundation product which still outsells the rest of the company's portfolio. Because conventional squeegee grinders on the market at the time had problems with this type of backing, so the development of RKS's squeegee grinder commenced. This was an in-house design and, as it was the company's own development, RKS realised it could also manufacture other products. Whilst deciding to stay with the core product in the squeegee blade, this is now complemented by the production of its grinding machine, along with specialist application machines. These are one-offs in many instances, yet now provide an important niche side of the business.

CHANGES IN THE INDUSTRY

The original RKS blade was intended for poster applications, now produced more commonly and relatively quickly on a digital machine. Although large format graphic printing was the intent with the original design of the squeegee system, it now represents less than 10% of the company's market. Most of today's uses are now in technical applications where screen-printing still plays an important role. Examples include vehicle instruments, glass, windscreens, RFID (radio-frequency identification), PCB (printed circuit boards), medical, pharmaceutical, credit cards, currency printers and the growing solar industry.

RFID is proving to be an interesting application sector which complements RKS's existing range, being developed as a tracking system for screens. All the information is stored onto a chip, which is readable and downloadable onto a central database so the customer can keep track of these screens. Some companies have in excess of 1,000 screens/frames in their store. For every frame, there has to be a record of what is on it and this information is usually kept on a file. The file is never sited with the frame; instead it's in a filing cabinet. Thus, the RFID tagging system has enabled the use of a chip on the frame itself, with the cataloguing being within the screen frame. This allows for readout of the logging or storing of the frame, information of that frame (how many impressions, when it should be washed, how long in print, when first exposed). All these details can be kept with the frame throughout its process.

This is an area which RKS has identified and, together with a software company, development has led to a product called Screen-FID (a trade mark of the company IGS). RKS has carried out two years of active development with several different key customers and there is now a proven solution coming online which will be marketed more aggressively in the future.

RFID is not just for screen-printing, but also for stirring and filtering – more potential growth areas. Yet it is not a massive monetary investment – integration is easy, with a typical costing being circa €5500 for the necessary hardware and software package.

To summarise, RKS has moved from the original squeegee blade for large format graphics to a system that is used for highly technical printing, achievable because of the controllable edge that allows for the fine definition customers look for in screen-printing.

On average, there are 125 screen-printed components in a single car, such as the fascia, trims, wood effects, windscreens and dials – there is no reason why RKS shouldn't be involved with them all. The company is in the supply chain, albeit at the very beginning. It supplies people who, in turn, supply car manufacturers. Looking at their dashboards and instrumentation, every German car is almost certain to have seen an RKS squeegee blade.

ALLIANCES

The merger with Than Tec, supplier of polyurethane conventional squeegee blades, was announced at FESPA 2007. The company's latest product being Printan HQ and this allows RKS not only to offer specialised squeegee blades, but also associated polyurethane products under one roof.

CUSTOMERS

RKS believes in maintaining contact with people who are in the supply chain. These customers often do not see themselves as screen-printers; they are represented as instrumentation manufacturers, currency printers or credit card producers. The difficulty encountered is in getting behind those who have screen-printing as a part of their process. As an example, if you think of Saint-Gobain or Pilkington, they are glass manufacturers; they print on glass but they are not printers. RKS must get to the right areas in these companies who print on the end product or the components that go towards that end product.

MARKET CONDITIONS

During the last ten years, the graphics' sector has dropped from 40% to less than 10% of RKS's business. But new areas, such as solar, have grown from 1 or 2% to 15%. Another growth market has been in the pharmaceutical market were the RKS blade has to meet very stringent controls.

Europe represents the company's largest area of business, with Germany representing the number one country. Export is currently running at 50% to 70% whilst, outside Europe, it is approximately 10% with good business options being carried out in the Far East and Australia. India is also a fast expanding market and RKS is looking to increase its penetration of the USA and China.

The company's turnover in 2008 was more than €2million, which proved to be RKS's best year for a variety of reasons. Firstly, different products gained momentum, such as within the solar industry; but it was also a good year for grinding and other machines in general. Additionally, it was a strong period for tailored products, such as fine-tuned blades produced to specific requirements. Although 2009 saw a drop in turnover, this was not a significantly worrying amount.

RKS is adamant that good dialogue is the key. Very often the company sends a customer a sample; if the desired result isn't achieved, there is discussion as to why, and a way forward is determined. Have parameters changed, for example? This dialogue offers alternatives and solutions. 85% of the time, if this is maintained, then the business remains and the customer will use the company's blades. It is extremely rare for a client not to be satisfied if these principles are honoured. Thus, support when the blade has gone to customer is the key.

With machines, RKS believes again in the importance of maintaining dialogue. This involves the actual people designing, building and equipping the machines. Management and shop floor workers are all included in these discussions and the company is certain this is key to getting the product right.

A new website and brochure has been launched prior to FESPA 2010.

MOTTO AND STRATEGY

"High-Tech equipment for screen-printing" was the original motto of the company. Although it is still valid at RKS, it is not just for screen-printing any more and as such is no longer used.

RKS's strategy is to identify areas in screen-printing and coating which can be improved the glass industry being one of these with big potential. ■

Peter O'Sullivan is Service Manager for RKS

Further information:
RK Siebdrucktechnik GmbH, Rösrath, Germany
Tel: +49 2205 949970
email: sullivan@rk-siebdruck.de
web: www.rk-siebdruck.de

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FESPA 2010

22–26 June 2010; Munich, Germany

According to the organisers, FESPA 2010 will be the biggest and most comprehensive exhibition ever, mirroring the wide-format market's consistent growth and providing a vital platform for screen-printing and textiles. This year the show fills five halls at Messe Munich, and has been 'zoned' into areas focusing on these three key areas.

Only five years ago, FESPA deemed one hall sufficient for digital technologies but, for 2010, the growth in this sector is reflected by the fact that three times the amount of floor space is needed to accommodate manufacturers and suppliers within this sector. Compared with FESPA 2005 when wide-format and related processes impacted on the show's exhibitors for the first time, this zone is the largest event for digital wide-format production in Europe this year. This is confirmed by the fact that it is nearly 30% larger than FESPA Digital 2009 event, which took place in Amsterdam and it's now accepted that all major players in this will take part at FESPA 2010, with most using this show as a platform for global product launches.

The screen-printing element of the show is smaller than in 2005 which shows how this process is moving into solutions for niche industrial and higher volume printing applications and is no longer purely concentrating on main-stream market sectors. Despite this market shift, the Screen zone of FESPA 2010 will be the biggest and best representation of screen-printing worldwide for the next three years, and FESPA events continue to be a magnet for screen-printers from around the globe. By presenting screen and digital side by side under one roof, FESPA aims to show visitors how successful print service providers can blend digital and analogue processes to deliver a broader scope of products for customers and optimise productivity and profitability.

TEXTILE

The trend towards textile substrates for a range of sign, graphics and industrial applications will be in evidence throughout all zones of FESPA 2010. In particular, the dedicated Textile zone – under the new FESPA Fabric banner – harnesses the size and success of the diverse garment exhibits at FESPA 2007 within a focused event.

Concentrating these exhibitors within an entire dedicated hall, FESPA Fabric will shine the spotlight on the latest developments and trends in garment printing and embellishment, straddling both digital and screen processes.

The following listing provides details of exhibitors who are supporters of this magazine and members of its sponsors, ESMA and NASMA. For a full list of exhibitors, visit the website at www.fespa2010.com.

3M DEUTSCHLAND GMBH

3M's Commercial Graphics Division is featuring live demonstrations of wrapping solutions, innovative methods for glass, windows and partitions, new colours for electro-cut applications and options for interior decoration.

3P INKJET TEXTILES AG

New display fabrics include Value line Value Mesh FR (IQ-IJ 651) and Value Real Backlit FR (IQ-IJ687), developed to fulfil changing market demands. These are PVC free, 100% recyclable and free of harmful substances, produced using environmentally friendly methods.

ADELCO

New developments in conveyor textile driers, including dual energy and infrared units will be shown alongside Adelco's automatic drawer driers for curing digital textile inks. Other new solutions include ink mixers, automatic quartz flash cure units, manual carousel printers and table flash cures.

AGFA GRAPHICS NV

This is the first dedicated wide-format event where Agfa Graphics is exhibiting following the acquisition of Gandinnovations. The company now has wide-format ink-jet solutions for entry-level, mid-range and high-end businesses covering the whole spectrum of digital printing applications. The current portfolio includes printers for signs, displays, point-of-purchase, point-of-sale, banners, billboards, plastic bags, posters and labels. Machines include new models in the Anapurna and Jeti families, with Agfa also offering the hybrid M-Press digital and screen-printing unit and the modular Dotrix. New printers on show will include the Anapurna 2500LED and the Jeti 1224 UV HDC.

ALCAN COMPOSITES – ALCAN KAPA GMBH, SUBSIDIARY SINGEN

Alcan's products include Dibond aluminium composites, Forex rigid foam plastic sheets plus Kapa, Gatorfoam and Foam-X light-weight foam boards. The range includes a broad choice of variants and options for direct-to-substrate digital printing, fabrication, mounting and other applications in signs and displays.

AMERICAN BILTRITE

Speciality pressure-sensitive self-adhesive tapes include the TransferRite range now complemented by Ultra for adhesion to exposed liner paper with good lay-flat features. ProtecRite Digital is a low tack application tape for ink-jet prints and protects graphics from being scratched when stored, transported and applied.

AMEX SRL

Italian based Amex is introducing new photo emulsions, textile and graphics inks at this year's event.

ARLON INC

The new DPF 6000XRP vinyl is a 2 mil gloss white cast film with bubble release, tinted, repositionable, permanent pressure-sensitive adhesive. It has good conformability and an outdoor durability of up to seven years.

ASLAN, SCHWARZ GMBH & CO. KG

See us on stand B2/200
www.aslan-schwarz.com

German company Aslan specialises in self-adhesive films for digital print as well as for glass decoration, light boxes or stencil films. Its outdoor floor graphic application, a composite of digital printable film and laminate, will be one of the product highlights presented at FESPA. As well as protecting the print from abrasion and soiling, the laminating film has an embossed anti-slip texture, and there are insurance warranties available against any possible damage caused by slipping on this product.

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Other products on display include Aslan's green product line of self-adhesive PP-films, films for special applications such as black- or white-boards, self-adhesive digital printable films for all kinds of application and self-adhesive films for glass decoration.

ATLANTIC ZEISER GMBH

See us on stand A1 / 315

www.atlanticzeiser.com

Show-casing full-colour printing, Atlantic Zeiser is featuring its Gamma-70 print engine and UV-curing module, Smartcure. This is integrated in-line on system solutions for narrow label printing, consumer goods, promotional items, and small batch production. This system has a top speed, high native resolution of 1060 dpi, with high cost-efficiency and reliability when printing on porous and non-porous media. Additional functionality includes printing to flat and three-dimensional materials for maximum flexibility.

Atlantic Zeiser helps industrial customers to increase the cost efficiency, brand value and quality of their products within the production and logistics chain. The company offers total system solutions and a broad range of integration modules to industries and governments such as printing, plastic card, telecom, pharmaceutical, banking, packaging, labels and cosmetics.

AVERY DENNISON GRAPHICS AND REFLECTIVE PRODUCTS DIVISION

With the theme, "Solutions to Grow Your Business", Avery Dennison Graphics and Reflective Products is showing its self-adhesive films portfolio, focusing on precise and demanding end-user market segments, such as fleet and corporate identity graphics. The aim is to guarantee user satisfaction through meeting the needs of designers, sign-makers, converters, and application teams.

The Avery Dennison stand will also host live demonstrations and, additionally, visitors can interact with the company's web-based services. These include a state-of-the-art website, complete with an on-line colour selector and a directory of the extensive network of Avery Graphics European distributors, plus an extensive dedicated portal for ICC profiles.

BARBIERI ELECTRONIC

Spectrophotometers and software for colour management in digital imaging are being demonstrated by Barbieri, with special colour measuring solutions designed for the wide-format, flat-bed and industrial printing markets. The Spectro LFP can measure every kind of media including glass, ceramics, back-lit paper, film, paper, banner, metal plates and fabrics.

BELTRON GMBH

See us on stand A1 / 482

www.beltron.de

With high quality machinery and equipment for many applications and markets Beltron's partners are from the graphic industry as well as those involved in industrial applications. In addition to the printing and the electronics' industries, the company's brand has been approved in many other fields. These include the solar industry, nano technology, UV-hardening of glue, the medical, glass and automotive sectors, production of furniture or other wood based applications and manufacturing of concrete plates. Beltron's equipment complies with all main regulations, such as CE, DIN or SMEMA.

BIEDERMANN GMBH

German-based Biedermann GmbH offers a broad range of products for mounting and laminating. This year Biedermann will show its newly developed system for the design of prints on glass.

BOCHONOW GMBH

Bochonow Maschinenbau is show-casing its newly designed Genius automatic screen developing system, plus its pre- and post-press equipment.

BORDEAUX DIGITAL PRINTINK LTD.

See us on stand B2 / 300

www.c-m-y-k.com

Israel-based Bordeaux Digital PrintInk develops, manufactures and distributes inks for wide- and superwide-format digital ink-jet printers, with its products used by printing companies in more than 60 countries. Bordeaux's sales and marketing team and research and development department work closely with OEM partners to secure market share and expand product lines.

Established in 2000, Bordeaux has focused its efforts on developing and manufacturing inks for industrial applications, supporting ink-jet printers designed for roll-to-roll, rigid media and print-and-cut applications. The company's formulations are used in the production of posters, billboards, point-of-sale, truck and fleet graphics, and other applications. A worldwide network includes dealers, distributors and OEMs which allows the company to meet market needs with its alternative inks.

BROTHER INTERNATIONALE INDUSTRIEMASCHINEN GMBH

Designed for industrial use, the successful GT-541 garment printer and new dual platen GT-782 from Brother are amongst products being demonstrated at FESPA.

The Japanese company has a profile comprising a diverse range of electronic, industrial and domestic appliances. It is also one of the world's leaders in the production of industrial sewing and printing machines.

In EMEA, Brother's headquarters for industrial products, including sewing and embroidery machines as well as its garment printer, is located in Emmerich, Germany.

CALDERA GRAPHICS

Caldera's suite of production orientated print and print-to-cut workflow solutions offers colour management, imaging and driving solutions for wide- and superwide-format peripherals.

CANON DEUTSCHLAND GMBH

The latest additions to Canon's aqueous-based wide-format imagePrograf printers are featured amongst other digital imaging solutions.

CHAM PAPER GROUP

See us on stand B1 / 275

www.champaper-digital.com

Founded in 1657, Cham Paper Group manufacturers coated speciality papers. Across its three locations in Switzerland and Italy, the company develops and manufactures products

Continued over

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for use in the consumer goods, industrial release and digital imaging sectors.

At FESPA, the company its demonstrating its latest innovations from its ink-jet paper grades under the labels Exterio outdoor papers suitable for solvent-based, UV-curable and latex inks, and Transjet transfer papers for digital dye sublimation. In addition to its ink-jet range, Cham Paper Group will also exhibit transfer papers for traditional screen-printing.

CHIMIGRAF

Chimigraf's product line of ink-jet inks include UV-curable, UV LED, solvent, mild-solvent and true eco-solvent variants for wide- and superwide-format digital printers. These include options for industrial and single-pass applications.

COLDENHOVE PAPIER HOLLAND

See us on stand B2 / 370

www.coldenhove.com

Founded in Eerbeek, the Netherlands, in 1661, Coldenhove Papier is an independent, family-owned paper mill now focusing on technical paper and board for industrial applications. More than a decade ago the company claims it set the global standard for digital dye sublimation transfer paper with the introduction of Jetcol HTR. Designed for ink-jet printing with disperse dyes, Jetcol offers good transfer yield, stability, colour gamut and image detail.

Other properties include ink economy and a richer colour output. Coldenhove Papier has also developed a complete range of transfer papers, compatible with all inks and printers and suitable for a large number of applications.

COLORGATE DIGITAL OUTPUT SOLUTIONS GMBH

ColorGate's Productionserver 6 is a flexible software RIP for digital wide-format printing for any production environment. At FESPA, the company will demonstrate how all application systems can be controlled with just one software RIP, from proofing printer through to cutting plotter with just one standard interface. Productionserver 6 with Ink Saver, its proprietary GCR technology for CMYK and light-colour-half-tone printing systems, can help to reduce ink costs by up to 30%. Designed to be more productive, the universal production RIP comes with the Parallel Process Manager, which claims to deliver a productivity increase by a factor of four. The new Productionserver 6 makes it possible to increase the data-transfer rate of DFE-controlled printer systems by a factor of five, thanks to optimised writing speed via TCP/IP.

CST GMBH

On show at FESPA, the patented imaging head from CST is based on DMD technology, allowing scrolling imaging screens without wax or ink. The design is directly exposed on the coated screen using micro light beams at different resolutions up to 2000 dpi. The product range includes engraving machines with ink technology, engraving machines for embossing plates and cylinders, Co2 and Yag laser engraving machines and digital printers for aluminium plates.

DICKSON COATINGS

Dickson Coatings offers a wide range of fabrics for digital and screen-printing, including Evergreen eco-friendly coated products. These offer a matt surface finish without glare, no curling and all are ISO 14040.

DR. HÖNLE AG

Hönle is demonstrating its high-power UV-curing units and systems with the focus on specially developed options for ink-jet printing, such as the Uvaprint. The company will also show its latest developments in UV LED technology.

DRYTAC EUROPE LTD

Drytac is exhibiting and demonstrating a wide range of mounting and laminating machinery and consumables including a new generation of UV and aqueous liquid coating systems.

DURST PHOTOTECHNIK DIGITAL TECHNOLOGY GMBH

Durst's selection of printers on show at FESPA includes industrial strength wide-format options, such as the high-speed Rho 1000 which is a combination solution that can benefit from the addition of existing loading and stacking options. Like other machines in the Durst Rho family, this machine uses the company's proprietary Quadro Array print-head technology.

Also being demonstrated by Durst, to complement its graphic printer capabilities, are specialist applications, such as ink-jet printing onto glass, ceramics and corrugateds.

EFI

EFI's Fiery colour print servers are being demonstrated, including the latest version of its Fiery RIP. Printers include VUTEk hybrid and roll-fed digital ink-jet printers and Rastek entry-level flat-beds.

ENCRES DUBUIT

See us on stands A1/126 & B1/465

www.encresdubuit.net

Specialist in manufacturing technical and industrial inks for screen-printing and digital markets, Encres Dubuit's four market segments include new technologies which comprise defined areas for screen-printing and digital applications. At FESPA the company will divide these sectors with halls in both zones. Inks include formulations for CDs and related products, mobile electronics, computer keyboards and cabinets and mobile telephones.

The company also produces inks for credit cards, telephones, fidelity and parking cards. For the industrial marking industry, typical areas include bar-codes, technical labels, meters, dashboards, home appliances, command buttons, plus luxury items such as perfume bottles and beauty products. In the consumer field, goods include cosmetic, hygiene and pharmaceutical applications whilst, for the graphics sector, inks are produced for luxury packaging products, cardboard, plastics, cases, gondola heads, and point-of-sale.

ENDUTEX – REVESTIMENTOS TEXTEIS, S.A.

A manufacturer of PVC coated fabrics, Endutex materials are available for digital printing in widths up to 5m wide. New at FESPA is its Terratex Collection, a range of 100% PVC free materials which includes a textile for dye-sublimation printing.

EPSON

Alongside its Stylus Pro printers, Epson is demonstrating how its Micro Piezo digital ink-jet technology can be used to create high-

quality display graphics on a variety of substrates. This is shown producing high-quality, display graphics for the signage, decorative art and interior design markets on a variety of flexible paper, plastic, lenticular and textile materials. The company's Epson Stylus Pro printers will run wide-format photographic, fine art, poster, and wallpaper applications in association with Epson's strategic software partners.

An additional stand highlight is the 1.63 m (64 inch) Epson Stylus Pro GS6000 demonstrating a range of creative indoor and outdoor applications. Integral to the quality and durability of printed output is the Epson UltraChrome GS Ink, an eight-colour ink set providing an exceptionally wide colour gamut so making the Stylus Pro GS6000 ideal for branded applications. This ink set meets Epson's high environmental targets and allows the production of high-impact, high quality durable prints, enabling printers, copy shops and sign shops to extend their business into higher quality and more demanding applications.

ERGOSOFT

See us on stand B1 / 182

www.ergosoft.ch

ErgoSoft's technologies on display at FESPA show enhanced solutions that offer sophisticated job layout, increased production, automation, and processing features to improve workflow and increase profits. The company's products include image processing and colour management solutions for the fine art, photographic, wide-format display graphics, dye sublimation and digital textile printing sectors.

ESC EUROPA-SIEBDRUCKMASCHINEN-CENTRUM GMBH & CO. KG

Active in the screen-printing market for more than 60 years, as well as the digital arena since its inception, ESC is presenting its automatic stop cylinder screen-printing machine, the ESC-High Press Plus E3 which has now been enhanced in its latest version. Together with its partner, ATMA, the company is also show-casing its ESC-AT screen-printing machines which offer high quality and accurate printing results amongst the advantages of the flat-bed printing models Atmace 'S', Atmatic GD and Atmatic 60 PD. Other solutions include the ESC-perfecta IC in-line system for screen washing and reclaiming, and the new and improved ESC-KP/XP pad printing machines. ESC is also demonstrating several of its ink-jet printers designed to print direct-to-textile, or on small-sized substrates (ESC-Direct Jet), with each machine producing high-speed prints onto variety of material.

ESKOARTWORK

Pre-press, workflow and finishing solutions for the point-of-sale, sign and display markets are the focus on EskoArtwork's and their partners' stands. Highlights are the SignUp and SignUp Auto nesting tools plus the latest Kongsberg die-less cutting and creasing tables.

ESMA VZW

See us on stand A1 / 549

www.esma.com

ESMA is a leading, non-profit association in Europe for specialist printing manufacturers of screen-printing, digital and flexo technologies. Its members are manufacturers of machinery, equipment, software or consumables. The objectives are to promote the adoption and correct use of the various specialist printing processes. High-tech knowledge is disseminated through conferences, exhibitions, press, public relations, technical training and research into the specific requirements of process printing used in industrial environment. The latest expertise is developed in area of printed electronics and its industrial printing process requirements. ESMA is currently supporting several research and developments projects in printed electronics. All members can participate in all six working committees that manage the following objectives: Digital Committee; EPP (Exhibitions, Promotion and Publicity) Committee; Application Committee; HSEP (Health, Safety & Environmental Protection) Committee; TDS (Technical Development and Standardisation) Committee; and IPS (Initiative of Process Optimization for Screenprinting) Committee.

FIMOR SAS

See us on stand A1 / 549

www.fimor.fr

Squeegee manufacturer, FIMOR, supplies products to more than 80 countries and is showcasing its complete range of high resistance polyurethane squeegees, as well as the globally-available Serilor HR and SR lines, which include Serilor D square squeegees for the booming photovoltaic industry. Also on display are some of the company's extensive range of manual, half and fully automatic sharpeners which are available in sizes from 50cm to 3.5m plus a selection of squeegee accessories such as aluminium holders for hand and machine-use, cutters, polishers and cleaners.

FOLEX AG

Folex is focusing on its media for wide-format ink-jet, membrane switches and digital printers with new materials including eco-solvent and UV-curable compatible materials.

FOTEC AG

See us on stand A1/560

www.fotec.ch

Swiss manufacturer Fotec concentrates on screen stencil emulsions, chemicals and films and is presenting its latest developments for the digital direct exposure.

The company's Foteco complete stencil making program is suitable for all screen-printers using both conventional contact exposure and computer-to-screen technology. Also on show is an economic concept for the production of high quality film positives, including printer, RIP and Fotecfoil 7700 ink-jet films.

FUJIFILM SERICOL

Fujifilm Sericol is concentrating on its wide format graphics portfolio, including UV-curable ink-jet printing systems and innovative developments from its comprehensive graphic screen systems' offering. All ink-jet platforms featured are fuelled by Sericol's award winning Uvijet inks. The Onset high productivity flat-bed printers from Inca have represented a major change in business dynamics for the industry whilst the Inca Spyder is a proven mid-range flat-bed platform with production

Continued over

speeds up to 93m²/hr.

New to the Acuity family is the Advance HS which outputs near-photographic quality images at 40m²/hr and is designed to be a mid-range flat-bed option. The roll-fed Uvistar, with throughput speeds of more than 300m²/hour, enables printers to take advantage of the emerging market for billboard banners printed on woven polyethylene and other superwide-format display graphic materials. Finally, the Euromedia brand includes hundreds of media products for aqueous-based, solvent and UV-curable printing and laminating, including innovative value-adding products for specialist applications.

GCC EUROPE BV

GCC supplies a broad range of high-performance laser engraving, cutting and marking systems, cutting plotters and UV-curable ink-jet printers with new products including the K72UV printer laser products such as X500, S290-20W, Gaia 100 Watt and the Jaguar IV, Puma III and Sable cutters.

GERBER SCIENTIFIC PRODUCTS

See us on stand B1 / 449
www.gspinc.com

Gerber Scientific Products manufactures computerised sign-making and speciality systems, software, materials and accessories which are integrated into its Matched Technology System to provide solutions for digital colour printing and dimensional signage needs. Currently, the Gerber Solara ion is the only cationic UV-curable inkjet printer with the complementary GerberCAT Inks which offer good flexibility and adhesion. The Solara ion uses the Cold Fire Cure system that cures ink at near room temperature, allowing printing on heat-sensitive and paper-based substrates.

The M Turbo Router is a powerful solution for automatic print-to-cut finishing, routing aluminium up to .080, acrylic and wood up to .075 inch. Its 1kw router cuts, creases and routes four times faster than the standard M Series router. The M Turbo provides a turnkey system at a reasonable price that includes everything needed to begin production.

GRAPO TECHNOLOGIES AS

Czech Republic-based Grapo Technologies is demonstrating its full portfolio of UV-curable printers at FESPA including its Shark which offers four-colour output plus white.

GRÜNIG-INTERSCREEN AG

See us on stand A1 / 140
www.grunig.ch

The improved G-Coat 415 can be operated as a front or side loader

The focal point for Grünig-Interscreen at this year's exhibition is the production of the perfect screen, and the company is presenting a complete range of products designed for screen preparation. For screen washing, G-Wash modular in-line development system, with feeder, is complemented by a decoating option for smaller screens plus a recycled water systems with inclined filter for the purification of liquids.

The G-Stretch 270 automates this process, combining the benefits of mechanical and pneumatic equipment, with motorised, movable stretching beams. Special corner clamps guarantee a torsion-free operation, aligned precisely with the fabric grain, over the entire surface of the mesh. For preparation and screen drying, there is a series of cleaning and coating options to suit all budgets and application types. Included at FESPA are the G-Prep 370 frame cleaner, along with the G-Coat 415 coating machine which has modified and improved so that it can be operated as a front or side loader, or in-line. Finally, the G-Wash 170 SD modular in-line cleaning system customises automates screen processing, lowering operating costs and ensuring optumum reproducibility.

HAAS & CO MAGNETTECHNIK GMBH

This company's magnetic foils, tapes and special products include the Magnetoflex range, being show-cased at FESPA.

HARLACHER

Internationally active in the pre-press area of industrial textile and screen-printing, Harlacher's pneumatic and electro-mechanical tensioning systems, automatic coating machines, vacuum frames and exposure systems are complemented by the company's range of drying cabinets. Products have been developed for all areas of the screen process including textiles, glass, ceramics, industrial and graphics.

HP

With the latest additions to its wide-format printer family, HP is showing a full range of Designjet and Scitex products at FESPA, including its latex printing technology which is now replacing solvent-based output for many applications. High-speed machines include the HP Scitex FB7500, its three-quarters automatic flat-bed system which incorporates the company's own MEMS X2 print-heads, along with options for fast and productive roll-to-roll and roll-to-sheet output. Aqueous-based units are demonstrated with the HP Designjet Z3200 photographic quality system whilst latex models cover a selection of widths.

The selection of printers and associated products at FESPA covers all budgetary requirements. Software options include its SmartStream Design plug-in for Adobe InDesign which enables VDP and versioning on wide-format applications.

INKTEC CO LTD

Being demonstrated are aqueous-based and solvent inks as well as the company's Jetrix UV-curable flat-bed printer.

INTELICOAT TECHNOLOGIES

On show at FESPA are several new products including Magic Stick 2, a low tack adhesive backed polypropylene banner and Magic POS Pro+ 400, an anti-curl block-out universal film.

INTERCOAT – AMC PANCKE AG

See us on stand B1 / 330
www.intercoat.de

Intercoat is a German manufacturer of self-adhesive printing media which is displaying its re-launched Nature range of indoor and outdoor self-adhesive vinyls for wide-format printing. These include new products with superior performance for various solvent-based ink systems, as well as phthalate free and PVC-free products which comply with the REACH regulation. Complementing the re-launch of Nature is a new range of Protec overlaminating films.

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INTERNATIONAL COATINGS

At the forefront of textile screen-printing ink innovation for more than 54 years, International Coatings' products are known by printers around the world for their proven quality, consistency, and performance. There is also a comprehensive range of solutions including phthalate free and PVC-free systems, colour-matching systems, textural and special effects inks, adhesives and additives, waterbase, discharge, athletic and performance inks and transfer products.

INX DIGITAL

INX Digital produces ink systems for virtually all types of commercial printing, packaging and digital print processes, as well as print-related equipment and advanced systems in the digital and information technology fields.

ITW MORLOCK GMBH

With a world-wide comprehensive service, ITW Morlock develops, designs, produces and distributes high-quality pad-printing-systems.

J-TECK3 SRL

J-Teck3 is a young, dynamic Italian manufacturer of digital piezo inks for transfer and direct printing within the graphic and textile markets whose main focus is the constant research of advanced and innovative solutions for higher product performance and optimal printed results.

Its Nanodot technology is a manufacturing process for optimal dispersion and reduction of pigments in nanoparticles. J-Eco Nano inks are eco-friendly disperse dyes for sublimation and direct printing on polyester substrates for a variety of textile and graphic applications. Other products manufactured by J-Teck are J-Eco Pigment G and T, pigment inks for papers and different kind of fabrics, plus acid and reactive dyes.

K FLOW
the digital workflow company

K-FLOW GMBH

See us on stand A1 / 549
www.kflow.de

K-Flow, a digital workflow company, is a consulting and software development business specialising in custom-made workflow solutions for the industrial printing industry. On show is new Smartt Softproof application for visualising and validating print data for any printing system and output condition on a TFT monitor. Also show-cased is the device link colour server K-XChange for accurate colour conversion between print standards, for screen-printing, offset litho and digital applications.

KALA SAS

This French manufacturer of wide-format laminators has a portfolio consisting of hot and cold laminators from 1m to 2.1m wide, as well as various finishing accessories such as cutting devices and banner stands. It is entering the textile printing market with a new and affordable heat transfer 1.7m calender.

KIIAN

KIIAN SPA

See us on stand B1 / 340
www.kiian.com

Kiian Group is a major screen-printing, digital and speciality inks company which strives to improve its performance through innovation aligned to market needs and offers integrated solutions for all printing requirements via its brands. Its tradition is built on a heritage of knowledge, research and development and a deep respect of the environment. This is pursued through strict co-operation with companies focused on pure research and who invest in nano- and bio-technologies while dedicating attention to researching raw materials derived from renewable sources.

Products range from solvent-based and UV-curable inks, overprint varnishes for screen-printing, aqueous-based and plastisol inks for textile printing, sublimation inks, digital solutions comprising inks and feeding systems for textile, industrial and graphics plus speciality inks for the security market. New products are being introduced at FESPA.

KIWO®
Perfect stencil making
products – concepts – solutions

KISSEL + WOLF GMBH (KIWO)

See us on stand A1 / 120
www.kiwo.de

Concentrating on screen-making chemicals, coating technology, screenable adhesives and computer-to-screen technology, Kissel + Wolf's product range includes Azocol, Kiwocol and Polycol photo-emulsions, Cleanline environmentally aware screen cleaning options, Kiwoprint screen-printable adhesives and Kiwomat precision coating machines.

KORNIT DIGITAL

Printing solutions for the garment and apparel sector are being show-cased by Kornit Digital, manufacturer of advanced industrial digital equipment and revolutionary chemistry applications. Its exceptional line of high-speed industrial digital ink-jet printers features its direct-on-garment technology and FESPA sees the debut of the Kornit Breeze 921 industrial printer in this sector, designed for entry level businesses and engineered to provide affordable printing with high quality performance and the latest technology under the bonnet.

Kornit Digital is also presenting the Kornit Storm 931-8 dual-pallet industrial digital printer for high-volume, low-cost production, and the Kornit Paradigm 933 digital add-on station for combined digital and screen applications. Live demonstrations are planned for FESPA.

lüscher
Truly SWISS Quality

LÜSCHER AG

See us on stand A1 / 220
www.luescher.ch

Lüscher's Multi DX is a multi-faceted direct exposure system

The two key products from Lüscher AG are its Multi DX and its Jetscreen solutions,

both of which are targeted at the computer-to-screen and computer-to-plate sectors of pre-press. Stated to be the only direct exposure system in the world, the Multi DX processes plates used in conventional

Continued over

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printing, including those for standard offset litho, dry offset (Toray), letterpress and flexo, as well as tampon printing and flexible screen-printing, such as Gallus's Screeny. With a maximum plate format of 800 x 600mm and a resolution of 2400 dpi, the Multi DXUV is recommended for label printing, the solar industry, optical discs, hollow glassware, tubes and containers, plus applications where UV sensitive or ablation layers are processed.

The JetScreen DX enhances the development of computer-to-screen with a complete drive system for the exposure axis and head now operated with precise linear motors to ensure a positioning accuracy of +/-2 microns. Costs and set-up times are reduced, with dimensional accuracy achieved quickly, and the screen-printing capacity is increased via improved technology which achieves a maximum exposure head speed of 3m/second. The blue laser diodes used by Lüscher AG are subjected to a target-orientated development process so that a new generation of high-power lasers can be incorporated into future JetScreen DX systems.

MACDERMID AUTOTYPE LTD

See us on stand A1 / 549

www.macdermidautotype.com

MacDermid Autotype manufactures and supplies advanced screen chemicals, photosensitive emulsions, photostencil films and hard coated films for the screen-printing industry. The Autotype screen making products range is world renowned and, today, products such as Five Star and Capillex are bywords for quality and reliability. Also CPS screen cleaning chemistry is at the vanguard of product efficiency and environmental awareness. The company's Autotex/Autoflex polyester films are specially coated to be ink receptive, yet chemically and abrasion resistant for applications such as MTS, control panels and switches. Also offered are Autotex AM antimicrobial films for use in hygiene critical areas.

A Bemis Company

MACTAC EUROPE

See us on stand B2 / 169

www.mactac.eu

MACtac is show-casing its new self-adhesive products for interior and exterior decorative applications. The 2011 edition of the MACtac Worldwide Awards is also being launched, with new categories and prizes offered to entries from all over the world.

MARABU GMBH & CO KG

See us on stands A1 / 320 & B1 / 440

www.marabu-inks.com

The world premier of a new line of UV-curable inks from Marabu reflects its dedication to providing tailor-made solutions to the screen and digital printing community. A comprehensive selection of its portfolio is being show-cased for the first time on two individual stands, with screen products in hall A1/320 and digital in hall B1/440.

Screen novelties include new graphic, sign, and special effect inks and the world premier of the new ink dispenser Marabu MCD-Micro. Digital highlights include new UV-curable and mild solvent-based ink-jet inks and the global product launch of a UV-curable range of coatings. Clearstar Corp, a Marabu subsidiary, will present water-based liquid lamination clears on the StarLam coater. Live demonstrations are taking place on both stands.

MEHLER TEXNOLOGIES GMBH

Mehler Texnologies is presenting its complete product range of high strength materials for both screen- and digital printing. According to applications, needs and legal requirements, printing materials are offered in different qualities, weights and in widths of up to 5m.

MIMAKI EUROPE BV

Mimaki is demonstrating a range of printers covering all technologies, including UV-curable for industrial applications and dedicated direct-to-textile options. The novel UJF-3042 is a desktop machine which can produce small signs and displays, plus small lot production and sampling. The UJF-706 is another new industrial printer whilst textile businesses can now use a single unit to handle disperse, reactive and acid dyes, with a sticky-belt on the Tx400-1800B to enable printing onto stretchy fabrics. These new machines are complemented by the JFX-1631 flat-bed UV-curable printer and the low-cost UJV-180 hybrid machine. Cutting solutions are being demonstrated, too, with full support for print-and-cut workflows.

MOUNTEK GMBH

Mountek GmbH is a European embroidery machine distributor and service company offering the full range of Tajima embroidery machines from single head up to 58 heads.

MUTOH

At FESPA, Mutoh is presenting its full portfolio of wide-format ink-jet printers and cutting plotters, including UV-curable, bio-solvent, aqueous-based, eco-solvent, mild solvent, solvent and dye sublimation textile printers. For soft signs, the company is now offering the Viper TX Soft Sign 65 which has an integrated calender unit whilst, for UV-curable output the Zephyr represents a low-cost option which benefits from Mutoh's i2 intelligent interweaving technology for guided printer set-up and improved performance.

NATGRAPH

See us on stand A1 / 260

www.natgraph.co.uk

UK-based Natgraph is Europe's largest manufacturer of conveyorised driers utilising forced air, infra red energy and ultra-violet radiation. These driers are used predominantly to dry surface coatings applied using the screen-printing process although drying solutions are increasingly being designed developed and delivered by Natgraph for other applications.

Stencil processing systems, including exposure and drying equipment from small format through to jumbo sizes are also manufactured by Natgraph, as well as manual screen-printing equipment.

NAZDAR

See us on stand B1 / 160

www.nazdar.com

As one of the world's largest independent screen-printing and digital ink manufacturers,

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Nazdar is including its PowerPrint Series (1600, 1800, and 1900) of UV-curable screen inks in its FESPA show-case. The new 4000 UV Series single solution screen ink shows excellent adhesion on all common substrates.

The range of Lyson digital inks enables Nazdar to offer high quality but economical alternative ink options for most of the solvent-based and UV-curable digital printers on the market today, such as those from HP/NUR/Scitex, Inca Digital, Mutoh, Océ, Mimaki, Gandinnovations, Roland, Seiko, Agfa, and Teckwin.

DYNAMESH®

NBC MESHTEC INC
See us on stand A1 / 168
www.nbc-jp.com
As a major manufacturer of innovative and technically advanced screen-printing meshes, NBC produces a complete range from nylon, polyester and stainless steel wire, to the TLC Polymer V-screen. New products; "series" premium Polyester Mesh include the €series economical polyester mesh, and precision stainless steel wire mesh.

NESCHEN AG
In graphics, Neschen was a founding member of the Colour Alliance of leading RIP and print-media manufacturers. Its product portfolio extends from enhanced protective and adhesive films to printable media in a variety of materials used with advanced digital printing technology for avant-garde architecture and décor, as well as the more traditional promotional applications.

OCÉ DEUTSCHLAND GMBH
Océ is using FESPA to show-case its latest wide-format UV-curable flat-bed printer, the Arizona 550GT. This is its most productive printer to date, and is demonstrated printing onto rigid and flexible materials.

ONYX GRAPHICS, INC.
Onyx Graphics develops and markets commercial printing software and solutions for the digital colour printing market-place.

ORAFOL EUROPE GMBH
Orafol is one of the world's market largest manufacturers of self-adhesive graphic and reflective materials, plus adhesive tape systems. Additionally, its US subsidiary produces the same materials with matching processes and machine technologies. Vehicle wrapping is being demonstrated at FESPA.

OYO INSTRUMENTS
Amongst its portfolio of products, OYO is showing its full line up of ThermoImpression imagesetters and direct-to-screen systems, including the new entry level CtS offering, Goblin, which gets its first German public viewing in Munich.

POLYCHROMAL BV
Polychromal manufactures anodised aluminium sheets with open pore structures designed for durable front panels, nameplates and signs, and developed for several print methods, such as screen-printing, photo-mechanical printing, digital printing and engraving.

POLYONE CORPORATION EUROPEAN INKS DIVISION
PolyOne's products include its Wilflex brand inks which, along with complementary products, provide a variety of solutions for textile printing, including athletic, bases and additives, colour mixing, non-PVC, transfer, and white inks.

PRÖLL KG
Pröll KG's core business lies in the development of custom chemical products for coating and decorating plastics, as well as innovative ink systems for IMD Technology, screen- and pad printing inks, and Norikop emulsions.

R TAPE EUROPE
R Tape's product range is comprehensive stable of application tapes, including the Conform series, which utilises proprietary adhesive technology to create superior lay-flat graphics, Digimask Clear, a film for car wrapping, Claritex polycarbonate films, Hotmask transfer film for thermal garment applications plus screen-printing tapes and its special vinyl effect films.

REDGIANT, INC.
REDGiant produces aqueous-based and eco-solvent inks for a number of digital printers. These are compatible with HP, Epson, Canon, Roland, Mimaki and Mutoh printers.

REMCO

REMCO CHEMIE RENTZSCH GMBH
See us on stand A1 / 565
www.remco-chemie.de
Following the cooperation agreement with its Swiss partner brand Fotec AG, the German manufacturer of speciality chemicals for the screen industry, Remco is presenting its focus on process-oriented solutions. Due to the combined approach with Fotec, the product range comprises all consumables needed in pre- and post-press processes of screen-printing.

Products include frame cleaners, screen adhesives, degreasers, computer-to-film solutions, stencil production, manual and automatic screen cleaning and screen reclaiming (stencil and haze removal products), also for manual and automatic application. Outside its traditional screen-printing field, Remco is featuring new cleaning solutions for pad, digital and flexo printing.

RHEIMAGNET GMBH
This company develops and manufactures plastic-bonded permanent magnetic sheets for digital and screen-printing, as well as magnetic systems for industrial applications.

RKS

RK SIEBDRUCKTECHNIK GMBH
See us on stand A1 / 339
www.rk-siebdruck.de
RKS has been a leader in the production of high-tech equipment for the industrial and graphic screen-printing market for more than quarter of a century. The company's product portfolio includes squeegee grinding machines, RKS rotation blades for use in all popular rotary screen-printing units, and innovative special equipment such as the screen-fid RFID, which offers one of the most advanced methods of identifying different items and products.

The intelligent screen-fid technology enables a product or component to be identified and to its current location and identity recorded. This gives new solutions and perspectives in the areas like stock control, long-term recording, workflow, and archiving. The system offers a reliable structure for high security production tracking and ability levels.

Continued over

ROLAND DG

The 1.6m VersaCAMM VS-640 from Roland incorporates metallic ink

Roland DG's extensive portfolio of wide-format printers, integrated print-and-cut solutions, cutting plotters and engravers are being showcased at FESPA. These machines are used to produce high quality indoor and outdoor graphics. Roland DG also delivers compatible software, media, ink and services.

Being demonstrated are printers and cutters, including the popular VersaCAMM and SolJet Pro III series and the innovative VersaUV LEC-330 UV-curable machine. Metallic and white ink options using its solvent-based inks are features of the new VersaCAMM VS-640. The 1.6 m wide RS-640 and the 1.9 m wide AJ-740i printers are also being featured. Furthermore, an interesting solution for the sublimation market is being highlighted and several cutting plotters and engraving machines are to be shown.

RUCO DRUCKFARBEN AND A M RAMP & CO GMBH

Ruco is lining up its wide range of printing inks and a special focus is on the low-migration and barium-free 945UV-MA, UV-curable screen-printing inks for plastic and food packaging, as well as for baby bottles. Two pad printing ink series are on display, the first being new environmentally-friendly T30 inks which come in a halogen-free, PVC-free and non-chlorinated formulation.

Secondly, Ruco is presenting its T40 series. These one- or two-component inks have been designed for universal use so that they are suitable for a wide range of different substrates. T40 inks offer high gloss and are free from cyclohexanones and aromatic compounds.

In addition, 940UV/G, UV series screen-printing inks have been specially designed for the graphic industry. They are highly reactive and energy-efficient and stand out for extremely low material distortion during UV curing. High flexibility and excellent detail printing complete their profile.

SAATI SPA

Saati is showing an up-to-date and technically enhanced range of screen-printing fabrics, one of the newest of which is Saatilene HibondPlus, which offers an improved and extended performance thanks to a proprietary gas vacuum plasma surface treatment. The company also offers a wide array of instruments, accessories and laboratory equipment for the screen-printing industry.

One of the new screen-printing fabrics is Saatilene HibondPlus, which offers an improved and extended performance than Saatilene Hibond, thanks to the new surface treatment. In addition, Saati is exhibiting its complete range of screen-printing photosensitive emulsions and chemicals, developed and manufactured specifically for the most diverse applications.

SA INTERNATIONAL

SA International (SAi) is recognised as a global leader in providing complete, professional software solutions for the sign making, digital printing, proofing and CNC machining industries.

SAKURAI GRAPHIC SYSTEMS CORP.

Visitors to FESPA can see Sakurai's latest and long-awaited servo drive MS-SD, being shown as regular production model. This model completes a revolutionary constant squeegee movement and variable stroke-change, and is suitable for markets requiring high quality printing and accuracy, such as the IT, medical and electrical industries. Sakurai enables you to further strengthen your business with our latest products. The company's most popular model, the MS102AII, is being shown with special modifications to correspond to the demanding needs of the packaging market. This model runs with a max 4,000 iph.

SAWGRASS EUROPE

From natural and man-made fibres used in apparel, home textiles and soft-signage to hard surfaces such as plastic, metal, ceramic and glass, Sawgrass says it has a green ink solution for almost every application. Its proprietary ink formulations maximise quality and productivity while reducing total production costs and environmental impact; resulting in higher revenues with fewer worries.

Four recently introduced lines comprise M inks, aqueous-based pigment inks which are extremely versatile and boast excellent run-ability, exceptionally vivid colours, durability and outdoor stability with maximum uptime and minimum maintenance. Also new is SubliM Direct, the next generation sublimation ink technology, ideal for high-speed production environments that require the efficiency of a direct-print solution and SubliJet R, delivering fast printing speeds, energy efficiency, high-capacity and brilliant colour output. Finally, ChromaBlast R is a fast, low cost, hassle-free short run garment printing with vibrant, lasting images.

SEAL GRAPHICS

Seal's range of both filmic and liquid laminators provide finishing systems suitable for digital print providers, trade finishing houses, sign-makers, screen-printers, copy shops, photo-labs, quick printers and service bureaux.

SEFAR AG

Sefar is known for its precision mesh used in the screen-printing industry, developing innovative products and systems which simplify and improve processes and printing reliability. Sefar's stand will focus on screen-printing mesh for applications within the high end graphic industry. Following the successful introduction of pre-coated Sefar PCF fabric, the company is show-casing a new complementary adhesive. This combination of Sefar PCF along with the new glue simplifies the handling and improves the efficiency of the stencil production process.

Sefar is launching an anti-static mesh treatment which eliminates electrostatic, allowing for challenging printing applications. A diverse range of ancillary equipment for the stretching process, as well as control measuring devices, complements the company's large mesh portfolio. Sefar is also debuting the new Humicheck meter for contactless control of emulsion hardening, as well as a modified Tensocheck with a digital interface for precise tensioning measurement.

SEIKO INSTRUMENTS GMBH

Seiko I Infotech Inc, a subsidiary company of Seiko Instruments, Inc (SII), of Chiba, Japan, develops and manufactures precision-engineered wide-format printing systems specifically for the sign-making, graphics, CAD, and GIS markets. Products includes wide-format printers, inks, media, software, installation, support, knowledge and training.

SENSIENT IMAGING TECHNOLOGIES

Offering speciality inks and colours, Sensient Imaging Technologies, is a pioneer in sublimation printing.

SIEBDRUCK-PARTNER

Siebdruck-Partner is a consortium of screen-printing consumables producers (Marabu, Kiwo, Ulano and Sefar), together with their 13 German dealers. The dealing partners have close contact with their customers in all areas in which screen-printing is used, whether in the graphic or in the industrial sector. They are well supported by the manufacturers and their application engineers. Being demonstrated is live screen-printing, using a proprietary machine, as well as offering the possibility of some personal fitness during a stressful trade fair visit.

SIGNTRONIC AG

SignTronic AG's innovative and advanced technological solutions have been part of the industry for more than 20 years, majoring on the development of new machines and systems. At FESPA the company is showcasing what it claims to be the world's first fully automated in-line screen pre-press solution with direct digital UV exposure. The new StencilMaster 1621 saves on films, time and money and removes bottlenecks in production capacity and image quality, exposing screens digitally to UV light at a production speed up to 26m²per hour on standard emulsions. This StencilMaster is constructed for the fully automated vertical in-line production of frames up to 2300 x 2700mm with an image size of 1600 x 2100 mm. Smaller StencilMasters are available to order.

SIHL DIGITAL IMAGING

The name Sihl is synonymous with the production of coated and refined papers and films. The German location in Düren has a 300-strong workforce which develops and produces wide-format papers (photo, film, specialities), papers for office and digital imaging applications (ink-jet photo paper, ink-jet, copy/laser) as well as semi-finished products and information carriers. With ten state-of-the-art coating machines, the factory in Düren is one of the biggest, most modern coating plants in Germany.

Another area for production is the company's plant in Bern with a 100-strong workforce. Three modern coating systems produce ink-jet specialities such as vinyl, banner, canvas, back-lit and artist media. More than 7,000 jumbo reels are processed each year. Examples are being shown of all products at FESPA.

SPRAYWAY USA

Sprayway offers a full line of VOC compliant adhesives, especially designed to serve the screen-printing industry. Included are web, mist and flash adhesives. In addition, Sprayway manufactures screen openers, film, solvent and glass cleaners, anti-static sprays and an adhesive remover.

SPS

See us on stand A1 / 549
www.sps-technoscreen.com

The SPS Vitessa SL2 with, on the left, the SPS RSS 2 reject sheet selector

SPS TechnoScreen manufactures sheet-fed cylinder presses, based upon the company's original SPS Stop cylinder principle. SPS caters for print finishing applications, ceramic decals and textile transfer, plastic and credit cards, value documents, automotives and FIM/IMD applications of various kinds, combining speed and precision. Known for its Stop cylinder technology – which was developed and introduced by SPS - the company's portfolio today includes a wide range of automatic feeders, UV, jet air and wicket driers as well as automatic sheet stackers and sheet handling devices, ensuring a fully synchronised in-line functionality of all components.

STAEDTLER MARS GMBH & CO. KG

Staedtler Ink Jet is showing its wide range of inks for industrial, branded and continuous ink-jet. Product ranges include aqueous-, UV-curable and solvent-based, as well as special inks for thermal and piezo print-heads.

SUN CHEMICAL

See us on stand A1 / 240
www.sunchemical.com

Sun Chemical is show-casing its ongoing commitment to delivering quality, service and innovation to the graphic and industrial print markets at FESPA where people can learn more the company's product portfolio for graphic and industrial printers. FESPA visitors are to get a first-hand insight into the company's comprehensive product range including ink products for screen-printing, pad, offset and digital printing.

There will be full information about developments in a number of market segments including wide-format graphics, industrial applications and digital inks. Additionally, there will be the opportunity to learn more about Sun Chemical's position on sustainability, and how the company is helping to ensure customers minimise environmental impact.

TECHNIGRAF GMBH

See us on stand A1 / 200
www.technigraf.de

The KA half-automatic copying and drying unit

Technigraf has been manufacturing exposure equipment for UV-sensitive emulsions and films for almost 50 years. More recently has added a wide range of UV equipment products for curing UV-curable inks, varnishes and adhesives to its product line. Compatible measurement and test devices round out the product assortment.

The company is displaying its modified Aktiprint T/e UV tabletop drier as an innovative product at the FESPA 2010 Exhibition. This completely redesigned UV drier features energy savings of more than 20%. Technigraf has reduced the energy consumption of the unit by implementing new electronic ballasts, redesigned reflectors that were developed with the help of a special computer program, a new, sophisticated device cooling system as

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well as other technical design refinements. The Aktiprint T/e also offers additional benefits such as lower noise emission, more service-friendly design and an average 30 to 50% longer UV lamp service life. Thanks to its modular structure, both flat substrates and, within certain limits and after retrofit of special additional components, lightweight moulded parts can be processed in the unit.

In addition, Technigraf will exhibit a number of different types of UV modules and its smallest belt driers the Aktiprint Mini and Aktiprint L A Variocop S combi screen printing copying box with drying cabinet and an Akticop V 3500 S MH instant copying lamp will also be displayed as examples of the broad range of exposure devices.

TESOMA GMBH

As a manufacturer of drying and fixing systems as well as special machines for the thermal treatment of coated surfaces, Tesoma is displaying its new product development, Drylight, at FESPA. This new drier series is characterised by energy efficiency, process optimised air volume, heat recovery and multifunctional versatility. For users in textile, flock, graphic and further industrial applications a new drying concept is being presented.

THIEME GMBH & CO KG

Thieme's flat-bed screen-printing systems are complemented by the company's involvement in the digital printing sector with the Agfa M-Press Tiger combination machine. In graphic and industrial arenas, Thieme's own machines are used for the production of a wide range of applications and including semi-, three-quarters and fully-automatic machines, including multi-colour lines in a variety of sizes up to large formats.

TIFLEX

Tiflex manufactures a complete range of products for the screen-printing industry, including chemicals, inks and machinery.

ULANO CORPORATION

See us on stand A1/125
www.ulano.com

As a pioneering and innovative manufacturer screen-printing products, Ulano is displaying its portfolio of stencil making films and emulsions, screen chemicals, pigmented ink-jet film, automated coating equipment, screen measuring tools and ancillary products. New products are also being introduced at FESPA, using the theme of "Advanced Stencil Technology".

VFP – TRIPETTE & RENAUD IMAGE

See us on stand A1 / 429
www.tripette.fr

Tripette & Renaud Image is displaying its two new Uvilabel and Uvicard screen-printing inks, designed respectively for labelling and UV-curable printing onto credit and other types of cards. In addition, the company offers a full range of screen-printing and digital inks. FESPA is being used as the launch-pad for new digital inks for medium-sized printers.

WÄNGI MESH AG

Wängi Mesh AG is part of the Boller Winkler Textile Group in Turbenthal, Switzerland which manufactures precision fabrics for screen-printing. The company also produces precision fabrics for filtration applications.

WP DIGITAL AG

www.wp-digital.com
See us on stand B2 / 189

WP Digital AG is a Swiss manufacturer of digital wide-format hybrid and superwide-format roll-to-roll 5m printing UV-curable printing systems. The company is part of the WIFAG-Polytype Holding AG. The current product portfolio in the graphics market has been extended by customised, fully automated production lines for the industry. As well as graphics, the company focuses on glass and aluminium, markets which are growing rapidly and demanding new versatile decorative technologies.

X-FILM SELBSTKLEBEFOLIEN GMBH

X-film is showcasing its consumables for the graphic arts, sign-making, glass decoration and digital wide-format printing industry.

XAAR PLC

Xaar's status as FESPA Technology Partner is borne out by the number of printers at FESPA that rely on Xaar's latest inkjet print-heads, including the flagship greyscale Xaar 1001 and 760, and the binary high-speed Electron and Proton. More than ten of Xaar's OEM partners will display their latest products at the show, many featuring Xaar print-heads. These include Agfa, Atlantic Zeiser, Chimigraf, Durst, EFI, Eurotech, Grapo, Inx Digital, Mutoh, Neolt, Stork, and Teckwin. The Xaar-enabled printers in action, including some significant launches promised, provide a choice of roll-to-roll, flat-bed, high-speed scanning and single-pass printing on a variety of flexible and rigid materials.

ZÜND SYSTEMTECHNIK AG

Following the successful launch of the G3 series of digital cutters, Zünd is introducing its new Zünd Cut Center software suite which dynamically guides the operator to avoid mistakes, shorten set-up times and maximise productivity while reducing labour costs. The Cut Queue provides a simple interface to manage the finishing production schedule. Optimised RIP-to-cut workflow and easy integration to common MIS and ERP systems are among the features for automated production workflows. Fully compatible with leading RIP software from vendors such as Caldera, Onyx, Wasatch, the integrated Cut Server is a bridge between digital cutting and CAD/design, RIP, and business administration software.

Further information:
FESPA, Reigate, UK
tel: + 44 1737 240 788
email: info@fespa.com
web: www.fespa2010.com

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IT'S TIME TO REINVENT BENEFITS

Peter Buttiens outlines ESMA's exhibition and conference plans

Peter Buttiens

During the last ESMA General Assembly, it was clear that today's challenging times demand new approaches to the association for its members. The benefits should support both screen and digital members for the overall purposes of the industry.

It is now clearer than ever that, with joint efforts on-going for group exhibitions, these events are becoming of increasing interest for all our members. To start with, ESMA has been given a pavilion at FESPA 2010 in Munich with an even larger area at Glasstec 2010 (28 September to 1 October 2010). With the concept of ESMA's own Screen Village at DRUPA 2012, the reality is likely to be a large booth measuring more than 250m².

A new concept is also being launched for ESMA members in the form of platforms. These platforms will be designed as internal workgroup meetings which focus on specific niche markets and their applications. Moreover, these meetings will be open to invited printers and keynote speakers with the intention of providing better support to the complete supply chain within the printing market. The goal is to collect or to generate information that may be useful for the entire sector. The results will be made available on a specific website which will feature a dedicated forum and network, and these findings will also support specific conferences held by ESMA. The first platform concentrates on textiles, and platforms are open for both screen and digital printing technologies. This first platform will take place during the next few months, with the first conference in Milan prior to Viscom Italy. Further platforms will concentrate on glass and others are also being considered.

We can also announce that, in early March 2011, a conference will take place which covers High Tech Printing. This event will look more closely into the latest developments of membrane switch keyboard, capacitive touch screen, and in-mould decoration in combination with printed electronics. It's hoped that this two-day event will take place in Düsseldorf. See pages 29 and 30 for Stop Press news!

In addition, we're looking forward to another GlassPrint in 2011. Other conferences are currently in development and more information will be available during the year.

We would like to invite you all at FESPA to visit the ESMA pavilion (Hall A1, stand number 540) to discover more about our potential projects and information about new activities for our members. Those participating in the FESPA pavilion are Fimor, K-Flow, MacDermid AutoType, Tiflex and SPS-Technoscreen. ■

Peter Buttiens, CEO of ESMA

ESMA
Driving Print Excellence

Further information:
ESMA, Belgium
tel: +32 16 894 353
email: pb@esma.com
web: www.esma.com

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AN INTERVIEW WITH PARNELL THILL

Specialist Printing Worldwide asked former NASMA chairman Parnell Thill for his opinion on the current state of the industry as the world tries to come out of the economic downturn

Parnell Thill confirms sales are ticking upwards

First, I'd like to qualify my statements by allowing that I am not privy to any particular insight that is any better or any more keen than anyone else. I am certainly no expert on macroeconomic nuances. Rather my insight is simply a recitation of my personal experience within the context of the speciality printing sliver of the general economy. Having thus qualified my response, I can say that it is my perspective that a slow and careful growth curve is upon us, allowing a sense of cautious optimism.

Generally speaking, we see sales ticking upward and, while seeing an improvement over Q1 2009 is no great feat, it is, in fact, better news than the alternative. Further, the trajectory of the growth seems to indicate a steeper slope than we'd anticipated even earlier this year. Again, this is "relatively" good news.

Within the specialty printing industry, generally, we have similar reports along with a fairly consistent reporting of still-sluggish capital expenditures, which isn't entirely surprising … Confidence is a funny thing, as it tends to breed itself, for better or worse. Typically, as sales indicate tangible evidence of growth, confidence improves and capital expenditures loosen up. We're toward the front end of that cycle.

Instead of exploding into recovery like an Icelandic volcano, we're rather clawing our way back. Considering my personal experience within the printing industry, clawing comes pretty naturally.

In sum, I'm not blindingly optimistic, nor am I particularly pessimistic. And, while the phrase is nauseatingly overused, "it is what it is…" And what "it is," in my humble opinion, is a slow, careful recovery. ■

Parnell Thill is former Chairman and current Executive Committee member of NASMA. He is also Vice President of Marketing at the IKONICS Corporation

Further information:
For more information on NASMA, contact: Stephen W Kahane, NASMA Chairman.
International Coatings Company Inc, Cerritos (CA), USA
tel: +1 562 926 1010 ext 362
email: skahane@iccink.com
web: www.iccink.com

TOMORROW IS A VERY NEW DAY

Michael Robertson, President/CEO of the SGIA, looks at the dynamics between print communities

Michael Robertson is President / CEO of the SGIA

The printing industry is dramatically diverse. Other than the act of putting ink on something, it can be difficult to find commonality among the various sectors within the printing industry. Each sector has its strong points, opportunities and challenges. I regularly monitor the various printing sectors looking for new ideas and opportunities that might benefit the SGIA community.

Lately I've focused on the adoption of digital imaging technologies and how these new capabilities are being employed by each sector. As digital printing extends its reach through the printing industry, the differences between the sectors are becoming less apparent. Digital printing is becoming the great equaliser.

Fortunately for speciality printers, not all sectors are employing digital at the same rate of speed. Speciality printers adopted digital printing early and fast because it was such a good fit for their existing markets. This gave them an advantage in several markets including point-of-sale and environmental graphics.

Screen-printers were among the early adopters of digital technologies. They could adjust to shorter runs and customisation, but it wasn't always easy. Organisations had to change the way they thought about printing. For many, managing cultural change was the biggest hurdle they faced in adopting digital printing.

Many print sectors – the lithographic sector is a good example — face a tougher challenge than screen-printers when employing digital printing. They have the expertise to manage the technology, but they often have a harder time convincing people in their organisation to change the way they think about printing. For lithographers, conventional "print think" means high quantities, while digital solutions often mean much lower quantities. This has slowed the adoption of wide-format in some print sectors.

In hindsight, the timeline for adopting digital printing technology has really worked in our favour. Just a couple of years before the global recession, speciality printers were in the heart of the digital printing adoption phase. Screen-printers were adding digital technology and maximising its capabilities. Today almost 90 percent of screen-printers have digital printing equipment. The added capabilities of an emerging technology – digital printing – helped graphics' producers work through the worst of the recession by allowing them to bring new and valued services to their customers. While traditional technologies were being commoditised, digital printing was breaking new ground.

Looking forward, the dynamics in our community will be different. Because of the high adoption rate of digital imaging, most wide-format equipment purchases in this community will either be digital technology replacements or added capabilities. The wide spread use of digital imaging creates a "level playing field" where the customer can expect consistent high-quality printing. Speciality printers will be competing less and less on the actual printing, while increasingly competing on services and support before and after the print. For example, some companies will focus on design services or project management as part of their value proposition; others will focus on post-print management and distribution.

Change creates opportunity. Our community will continually find ways to add value in support of the customers' goals. The challenge is looking for opportunities through fresh eyes. Tomorrow's marketplace will be exciting and profitable, but very different to the marketplace we know today. ■

Further information:
Specialty Graphic Imaging Association,
Fairfax (VA), USA
tel: +1 703 385 1335
email: sgia@sgia.org
web: webmaster@sgia.org

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