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2015

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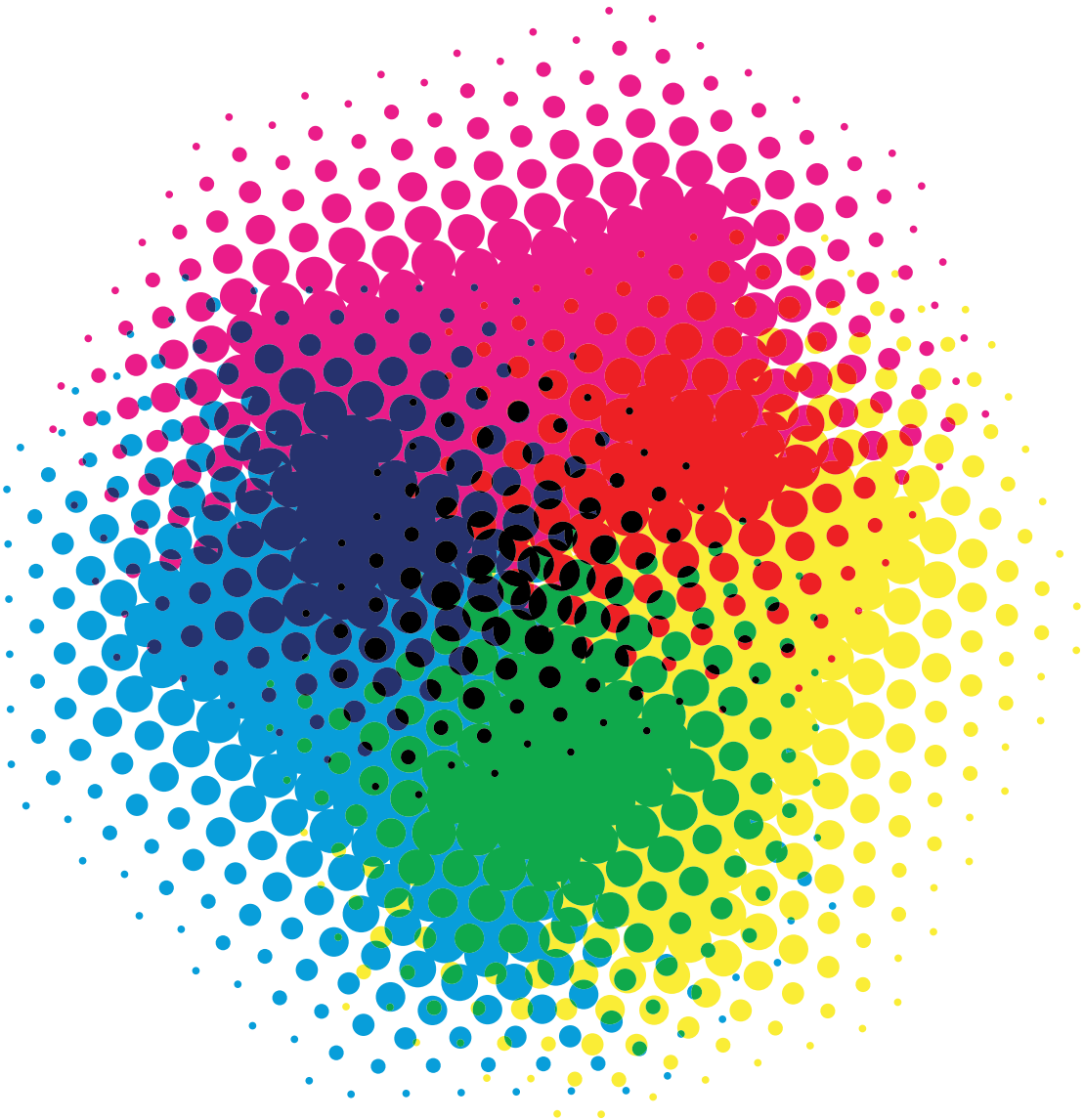

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WELCOME

Welcome to our largest-ever issue, featuring a broad cross section of need-to-know technical information for all users of screen and wide format digital systems, wherever you may be in the world. If you picked up this issue at FESPA 2015 or received it as a promotional copy by post, the *ONLY* way to receive all future issues is to subscribe at www.specialistprinting.com

With 25 educational articles in the following pages that offer solutions using an assortment of print techniques, I'm confident you'll agree that an annual subscription of just €58 / $84 / £48 represents excellent value!

We look forward to meeting readers and advertisers alike on stand A60 in Hall 8 at FESPA 2015, which kicks off their busy series of shows this year in Brazil, China, Mexico and South Africa. With other 2015 events including GlassPrint, Direct Container Print, The IJC, LabelExpo, SGIA '15, Screen Print Vietnam, CSPIA China Screen Print Expo and InPrint to follow this year, new business opportunities await the industrial, graphic and textile sectors as many regions report growth.

Macro economics in the Eurozone are feeling winds blowing in opposing directions; Greece possibly facing an exit from the Euro with its destabilising effect, possible referendum in the UK regarding continued membership following a May election, Ukraine on the EU's doorstep facing an uncertain future and requiring support but all offset by quantative easing by the European Central Bank to help stimulate the economy. Fortunately our contacts in the EU tell us that the market for print is still strong and can only get better as QE starts to bite.

North America is still growing as it emerges from its recent problems and India is growing strongly again while China still sees 7% growth in GDP. All good news for companies operating in these regions.

Bryan Collings, Publishing Director, Specialist Printing Worldwide

THE ATTRACTION OF DIVERSITY

As FESPA lays out its stalls for this year's exhibition in Cologne we can see that it is using the event to expand into new areas of interest as well as concentrating on core technologies which, this year, are planned as zones for digital, screen-printing and fabric. But, as diversification continues to attract, the addition of special areas for interior decoration and digital signage provide an indication that the association wants to acknowledge these growth segments as part of the overall exhibition remit that includes a more specialised view on applications.

An exhibition the size of FESPA might be the leader in its field in terms of volume and visitor attraction but it is wise that it's chosen not to rest on its laurels when taking on board future considerations and interests. During the years, indeed decades, the event calendar has been peppered with the rapid rise and subsequent fall of trade shows, with most of these following in a sequence which can often be determined by technology shifts and the view of the relevant demographic that an exhibition is trying to attract.

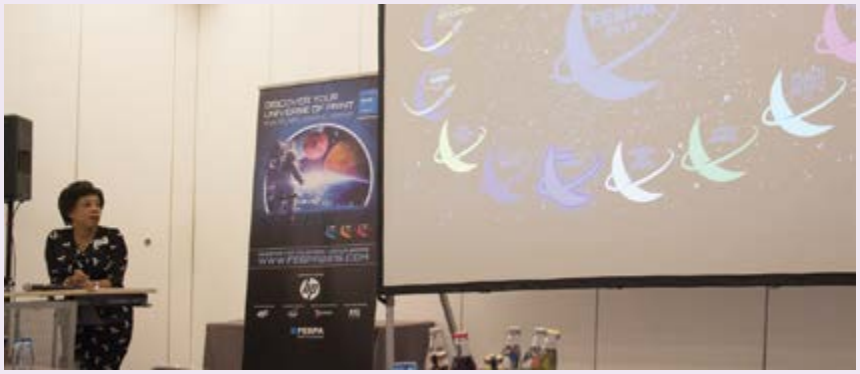
PULLING POWER

Following the overall trajectory for the success, or otherwise, of a trade event is fascinating. An observation can be made based on common-sense, showing that the required pulling power can only be positive if a demand is filled that caters both for the exhibitors and visitors. Comparisons year on year are sometimes difficult to evaluate, particularly when the world economy tends to affect trends and onwards decisions made by developers, manufacturers and end purchasers. Pundits can certainly help to influence who goes where to see what but more than temptation is required when considering which show to visit and for what purpose.

FESPA wasn't alone in deciding to project its activities ahead of current technologies, with associations such as ESMA, realising that a sea change in print methodology was about to take place. I first saw its effects more than two decades ago when the first real potential from digital print began to manifest itself. But, back at FESPA Lyon in 1996, no-one could really be certain with any degree of accuracy about future impact and whether or not changes in the industry would be minor or, as was proved subsequently, of major relevance, a fact that was confirmed at the Munich event in 1999.

The rest, as they say, is history. But while wide-format digital print has been enhanced by different flavours of application such as textile production and, now, greater concentration on interior décor, so has the requirement for more specialist methodologies including industrial and functional options. Specialist conferences and events have evolvedsimilarly to accommodate these technologies and acknowledge their importance on industry directions, with ESMA being a key association that has concentrated successfully on the route by utilising educative processes through discovery and networking.

Accommodating more eclectic options under the FESPA umbrella was inevitable and, in an all-encompassing exhibition environment, this should lead to a more balanced assessment and perception of what manufacturers can offer to end users of printing machines and their final customers. It should also adopt a comfortable apposition with other associations that are taking on board growth into new sectors and the likely implications across the board. As Cologne this year also incorporates screen-printing, the juxtaposition of processes and their applications provides a valuable opportunity for all those who want to evaluate different processes and their benefits as a part of their service or product offering. This can be followed through by participating in complementary conferences and open days which satisfy the quest for addressing the need for more in-depth understanding and knowledge.



FESPA's Divisional Director Roz McGuinness outlines the exhibition's mission for 2015

THE WISDOM OF CIRCUMSPECTION

That FESPA's events continue to ride on the crest of a wave is not just a result of good luck or chance. It cannot be denied that the association was one of those that happened to be in the right place at the right time when digital options first became available as a practical print production tool. But its exhibition has never ignored the analogue element that continues to be valued by its member associations and their followers. Nor has it cast aside its philosophy of sharing which, after all, was the reason it was formed in the first place. Nonetheless, breaking down the "barriers" between different countries has extended way beyond the original remit for the original organisation to become a central point for European screen-printers. Today's reach, too, is distinctly international.

Back in the early sixties I don't suppose anyone imagined for one moment that technology would progress in the manner that it has, nor that the channels used for communications would be transformed so radically. But it takes organisations and complementary associations with an eye on the future to sift the wheat from the chaff and to unite a cornucopia of disparate industry segments with a resulting cross-fertilisation of knowledge and processes.

As a result, far from forcing a dichotomy between analogue and digital techniques, the opposite has happened and this has extended the versatility and flexibility of all related methodologies to prove the point that it is the end application that is the important bit. Demonstrating this principle is something that FESPA exhibitions are very good at achieving and, this year in Cologne, we will be able to see this at first hand.

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

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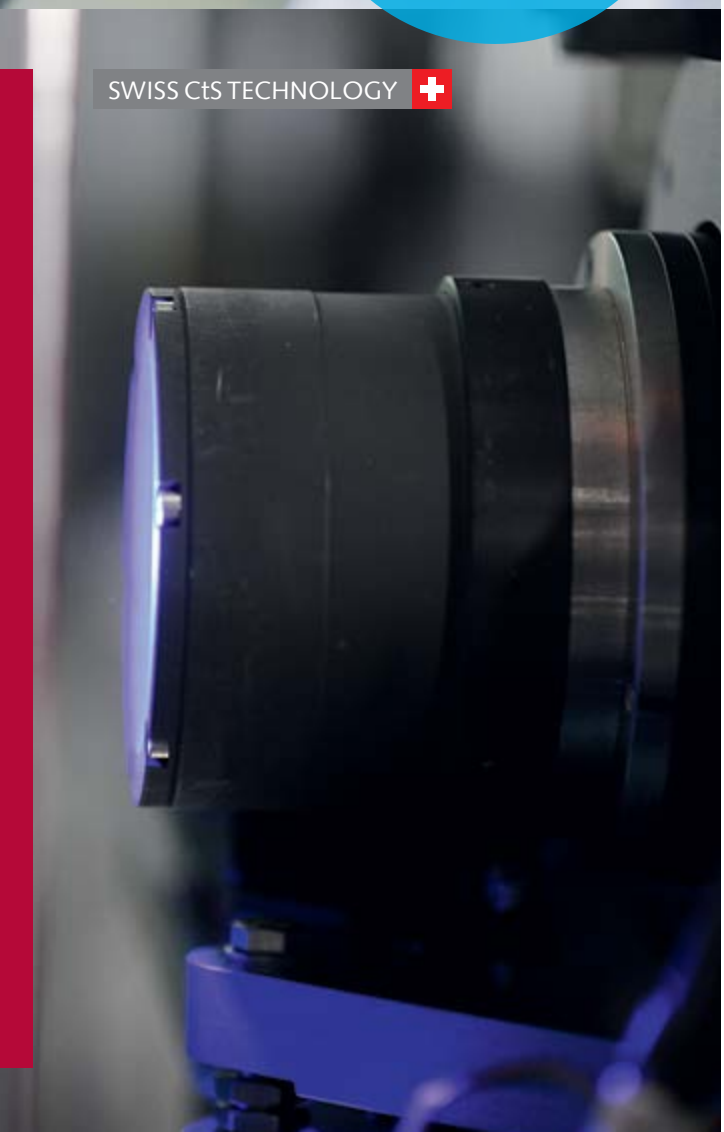

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PRACTICAL ADVICE FOR SCREEN-MAKING CHEMICALS

Simon Jones and Peter Gower describe the benefits that CLP labelling will bring

We all feel comfortable using trusted products and brands; familiar labels and graphic styles exist to reassure us. Very soon, however, many everyday work-place products will be changing their appearance with the introduction of new and unfamiliar labels.

Our task in this article is to offer you a practical guide to the regulations on 'Classification Labelling and Packaging' (CLP) of substances and mixtures for products you are likely to use within the screen-making area. We hope this information will help you to understand whether a familiar and trusted product remains the same, and assist you to select an alternative safer product if you have concerns.

The CLP classification of chemicals introduces a consistent approach to the labelling of chemical products world-wide and all users of industrial products will see changes in comparison with the previous system. All responsible manufacturers have embraced these changes recognising that it is in their best interest to ensure workers use only the safest and lowest impact products available for their processes.

Screen-making requires a number of different chemical products, from surfactant based degreasers, organic solvent-based ink cleaners, stencil removers and haze removers all the way through to polymer-based emulsions and light sensitive materials, so safety is a key aspect of all operations.

FAMILIARITY MAY BREED CONTEMPT

We have all been familiar with labelling under the 'Dangerous Preparations Directive' (DPD) in Europe, or CHIP in the UK, but the new CLP labelling may make some products appear to be more 'hazardous' than before while others may have a quite unexpected classification. This prompts the question: "what has changed?"

Let's start with surfactant or 'soap' based degreasers. Typically, these have been hazard-label-free yet under CLP most now have an 'exclamation mark' warning symbol and are classified as 'causing serious eye irritation'. The same would be true of household dishwashing liquids, soaps and shampoos if sold for industrial use! For the user of any of these products the classification is understandable and valid, which is why you should always take the necessary precautionary steps to avoid eye contact, such as wearing safety glasses when degreasing screens.

Under previous DPD classification the 'Corrosive' labelling was typically only applied to materials that had obvious acidic or basic properties such as sulphuric acid or sodium hydroxide. One change with CLP labelling is that the 'Corrosive' symbol will be extended to include materials and products which exhibit mildly corrosive properties to eyes only. Again, many surfactants/soaps and most common household dishwashing liquids will now fall into this category, particularly if highly concentrated.

Another warning label that requires further analysis of the risk is the 'Harmful' label. Solvent-based ink cleaners and thinners may be labelled as 'Harmful', but there can be significant differences in the actual level of risk to a user. Screen cleaning products containing solvents such as cyclohexanone and butoxyethanol are classified as 'Harmful by Inhalation' and represent an obvious and significant risk if used as an on-press cleaner or within a small and poorly ventilated cleaning room. However, alternative screen-cleaning products are available which have the same outward 'Harmful' label but are classified as 'Harmful by Ingestion' only, which represents a significantly lower risk to the operator.

General advice for solvent-based ink cleaners is to select products with a high flashpoint/low volatility and those which contain either no aromatic hydrocarbons, or a low level of these materials. Aromatic hydrocarbons are always classified and labelled as 'Harmful to the Environment', and most are classified as 'Harmful by Inhalation'. Moving to aromatic-free cleaners has many benefits.

Water dilutable 'Aquawash' cleaners are also proven to reduce the amount of organic materials in waste water. Despite being labelled as 'Corrosive' to the eyes in undiluted form due to the high surfactant content, they are typically hazard-label-free in use.

Continued over

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Practical Guide to CLP Labelling of Screen Making Products

Hazard	Physical		Health					Environmental	
Classification	Highly Flammable	Flammable	Corrosive	Severe Irritant	Irritant	Harmful if Inhaled	Harmful if Ingested	Toxic to the Aquatic Environment	Harmful to the Aquatic Environment
Symbol									
Hazard statement(s)	Highly flammable liquid and vapour	Flammable liquid and vapour	Causes severe skin burns and eye damage	Causes serious eye damage	Causes serious eye irritation / Causes skin irritation / May cause respiratory irritation / May cause an allergic skin reaction	May cause damage to organs if inhaled / Harmful if inhaled	May cause damage to organs if swallowed / Harmful if swallowed / May be fatal if swallowed and enters airways	Very toxic to aquatic life with long lasting effects / Toxic to aquatic life with long lasting effects	Harmful to aquatic life with long lasting effects / May cause long lasting harmful effects to aquatic life
Signal word	Danger	Warning	Danger	Danger	Warning	Warning	Warning	Warning	
Description	Flammable at room temperature	Flammable when heated	Causes chemical burns on contact	Causes irreversible eye damage on contact	Causes reversible irritation on contact	May cause organ damage, headache, nausea and vomiting if inhaled	May cause organ damage, headache, nausea and vomiting if ingested	May be fatal to aquatic life	May be harmful to aquatic life
Ready-to-use Degreaser									
Concentrated Degreaser									
Degreaser (diluted in-use)									
Dishwashing Liquid									
Cyclohexanone									
Butoxyethanol									
White Spirit									
Screen Wash (>10% aromatics)									
Screen Wash (<10% aromatics)									
Screen Wash (0% aromatics)									
Aquawash (high surfactant)									
Aquawash (diluted in-use)									
Stencil Remover (concentrate)									
Stencil Remover (diluted in-use)									
Lemon Juice / Vinegar*									
Haze Remover <5% caustic**									
Haze Remover >10% caustic**									
Dual Cure Emulsion									
Diazo									

* As foodstuff's Lemon Juice and Vinegar would not require labelling. They are included for comparison purposes only

** Both Haze Removers will have the same corrosive labelling and risk phrases. However, based on caustic content a product with >10% caustic will be more highly corrosive than a product with <5% caustic.

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DON'T JUST READ THE LABELS

Given what we have just explained, it is clear that just reading the label may potentially cause confusion as outwardly two distinctly different products may share an identical label. However, these products may exhibit quite different properties, like that between a highly concentrated surfactant based chemical as opposed to a highly concentrated sulphuric acid (battery acid). They can both be harmful in their own way, but within different hazard ranges.

For the former it would be sufficient to use Personal Protective Equipment (PPE) consisting of eye protection and gloves, whereas the latter would require a full face mask, long gloves and chemical-proof apron, plus a well ventilated working area free of other chemicals.

Our key recommendation, and this applies to the use of any products with a warning symbol, is to read carefully the label and Safety Data Sheet (SDS) first, to establish the specific hazards associated with the use of that product. This will allow a user to compare the risks behind different products thereby making the right decision regarding which of them may offer the safest option.

Reading the SDS would also enable a user to select the appropriate level of PPE for a specific working environment. As a minimum, eye protection and gloves should be used when handling any chemicals, even those designated to have a low hazard. Where concentrated products are required, particularly stencil removers, the labelling will be related to the concentrated form rather than its classification when in use. In this instance, it may be appropriate to use goggles or a face mask when handling the concentrate, but standard safety glasses would be appropriate when cleaning screens with the diluted product.

REVIEW YOUR PROCESSES

The change to CLP labelling is a good opportunity to re-evaluate the everyday products used for screen making and cleaning and also to review your own procedures. This is the perfect time to reacquaint yourself with the new style CLP SDSs, ensuring that your practices are still up to scratch and that chemicals are being used with appropriate PPE.

This could also be an ideal time to run a most holistic 'review' of all your screen-making and cleaning operations. Are you confident you are using the most efficient and safest available product at each stage? Can you substitute a 'Harmful' product for one with a lower risk? The most relevant for screen-printers is the 'Harmful by Inhalation' classification. Are you using the safest environmental option? Who knows, you might even save yourself some time and money in the process.

To help with the 'review' we have produced our own table (below). The document can also be downloaded from the CPS website at www.cps.eu. It details generic screen-making and screen-cleaning products and typical CLP classifications for those products. Products used should be compared to the 'generic' classification in the table; in many cases, it may be possible to select an alternative one with a less severe hazard classification.

SAFETY FIRST

There is no doubt that it may take a while for everyone to become acquainted with the new labelling, but its benefits are obvious. Anything that can harmonise regulation so that everyone on the globe can quickly identify the toxicity levels of a specific product must be a bonus. But, as ever, the correct understanding and interpretation of the rules is key.

For us at CPS none of the issues introduced by CLP represents a challenge. From our inception, our ethos has been to provide screen printers with the safest and most environmentally friendly products available. Anything that can improve regulatory transparency and ease of use, at the same time enhancing safety while protecting the environment, will always receive our wholehearted endorsement. ■

Simon Jones is Commercial Manager CPS and Peter Gower is Regulatory Affairs Manager at CPS Chemical Products & Services

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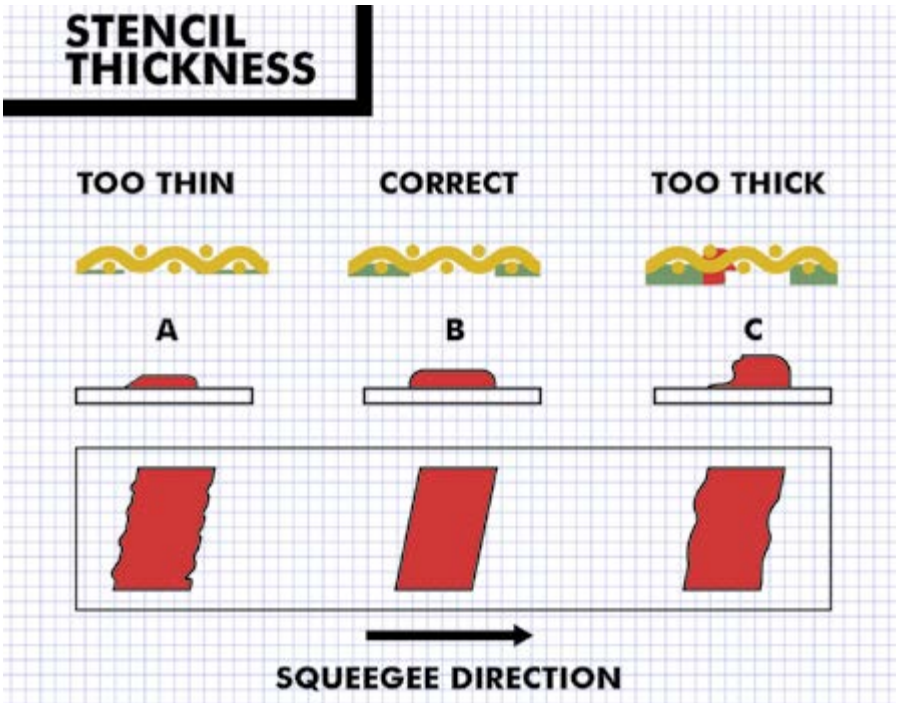
HOW THICK IS THICK?

Mick Orr explains the relevance of good screen coating for the best results

Mick Orr



The influence the overall stencil thickness on a printed line. (A) When the stencil has too low of EOM the mesh interferes with the printed image. (C) When the stencil is too thick the transfer of the ink is impeded because the squeegee can't effectively transfer the ink to the substrate. This results in excessive ink in the "wells" of the mesh. (B) When done correctly your print will be sharper and have adequate ink deposit.

Golf is easy, anyone can do it! To be good at it takes practice and skill. I can hit a golf ball, but where it ends up is completely out of my control. I might actually be able to improve my game if I were to take lessons, and learn from a pro; or I could just keep flailing around and pretend I know how to play golf. After all, eventually, the ball might find the hole.

Stencil making is easy. Anyone can do it; all it takes is a knowledge of how a stencil is made and apply that knowledge to make future stencils. It is nothing more than controlling all the many variables present to make acceptable stencils.

All too often a person is just put into the position of screen-maker because someone quit, or moved into a different position. This job is usually handled as an 'on-the-job' training by whoever was in the department, good or bad. The new trainee learns how to coat the screen. Usually, shortcuts are taken to get the screens out as fast as possible. The new trainee not only learned a few bad habits from the previous screen-maker but has probably developed a few new bad habits to pass on to the next person.

HOW TO COAT A SCREEN

The most common problem is how to coat a screen. Direct emulsion might be inexpensive but quickly becomes expensive if it can't reproduce the artwork. Time and product will be wasted if the screen is made either too thin or too thick. Screen-making requires a lot of training to make a high quality stencil. Someone printing the side of a cardboard box probably isn't too concerned with accurate, sharp images. Someone printing a solar cell with a precious metal is extremely concerned with a quality stencil. Let's look at the coating thickness of the stencil.

Coating thickness is truly one of the biggest variables the screen-maker has in making a good stencil. It's easy to coat a screen but getting the proper thickness requires knowing what is to be printed. Sadly, most screen-makers do not have thickness gauges to measure stencil thickness. The only way to know if the stencil is thick enough is to rely on how the emulsion has been applied in the past.

Unfortunately, many screens that are produced are just okay and not the best that they could be. I highly recommend a thickness gauge to monitor stencil thicknesses. It's a tool that I use constantly and is used by high resolution screen-makers everywhere. The reason these are so useful is because conditions constantly change in the screen-making environment. Mesh counts, thread diameter, colour, tension, environment temperature and humidity will all affect the stencil. Having tools to measure these conditions will only help. This one tool will help the stencil maker ensure that the stencil profile is the same for future print jobs.

SHARP OR DULL?

I have had these questions asked countless times over the years: "Should I use the sharp edge or the dull edge of the scoop coater?" "How many coats are needed to coat the screen?" My answer is it is not important how many times you coat the screen or if you use the dull or sharp edge of the coating trough. It depends on how thick the EOM (emulsion-over-mesh) is needed to get an acceptable stencil. The reason EOM is needed is to reduce the mesh interference of the printed image. This is most noticeable on fine lines and edges of the printed image.

If the stencil EOM is too thick the ink deposited will be incomplete on the substrate. There will actually be residual ink left in the well of the mesh. Lines can appear ragged and choked.

Good EOM will yield:

1 Smooth surface on the print side of the screen
2 Sharp, straight line images
3 Good gasketing of the image to the substrate during printing
4 Expected ink deposit.

I am reluctant to give a guide as to how thick a stencil should be because so many different types of mesh/ink/emulsions are being used. But I will say, the finer the image

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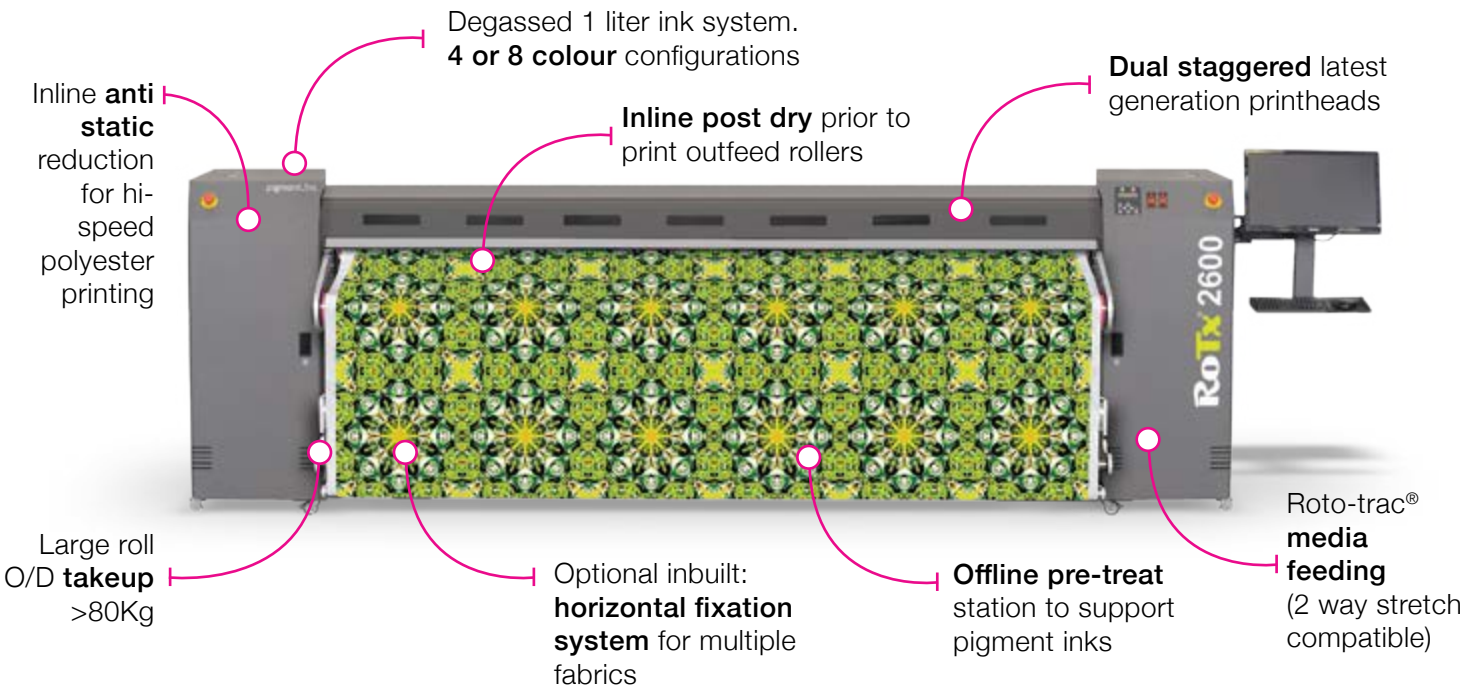

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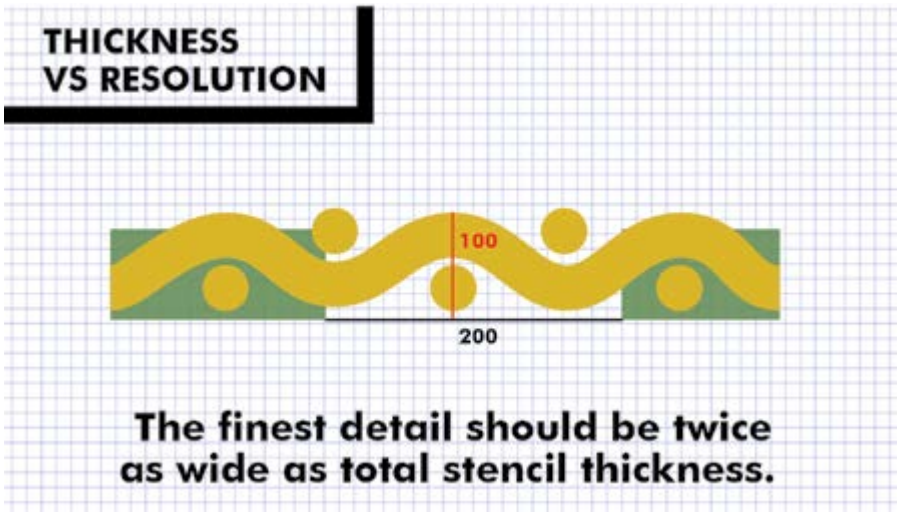


A guide to help when determining detail over stencil thickness

that is to be printed, the finer the mesh must be. You have to have enough threads holding onto the image and the image must be anchored to the mesh effectively to print.

If you don't have the correct stencil thickness the print will not be the best possible. The ink deposit on any substrate is mainly determined by the mesh count and the total thickness of the screen. The stencil plays a minor role in ink deposit. However, stencil thickness plays a major role in print quality.

TWO FACTORS OF INFLUENCE

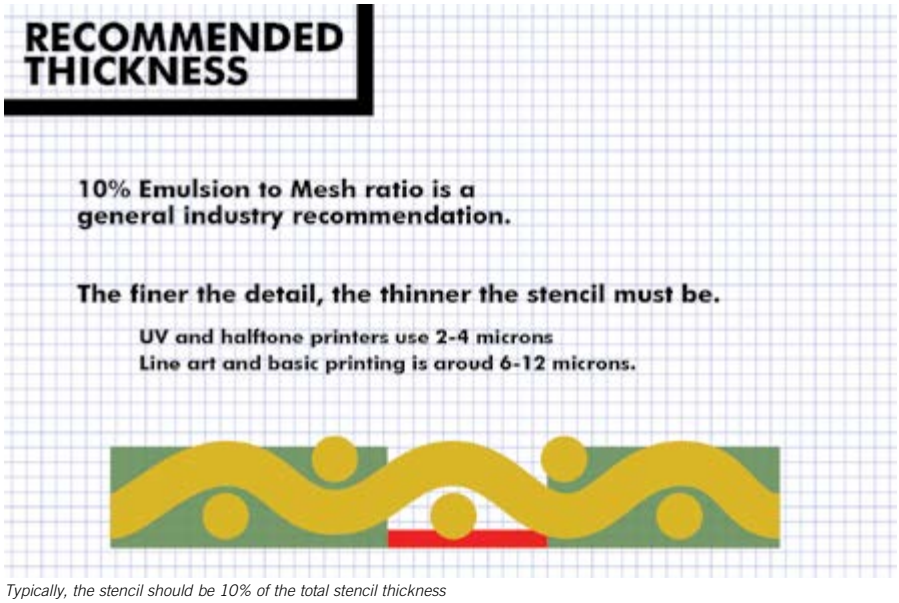
This is where stencil making must be done accurately and repeatedly. Let's look at two factors that influence total stencil thickness, these being mesh plus stencil.

1. Mesh

As I stated, mesh is the determining factor for bulk of ink deposit. All mesh manufacturers will give a theoretical ink volume for the mesh. Basically, this theory is a guide, but it does help in determining ink deposit. In short, mesh thickness increases as the thread count decreases. As mesh counts increase the mesh thickness decreases. One of the problems with theoretical ink volume is that mesh tension will also affect the ink deposit.

In today's world almost every screen-print shop uses plain weave polyester mesh. All that has to be determined is what mesh count to use. Here's where choices get a little fuzzy. The finer the artwork detail, the thinner the mesh has to be. Typically, the higher the mesh count the thinner the total mesh thickness. Thus, the thinner the stencil will be.

As a rule-of-thumb, the typical stencil should be approximately 10% of the total stencil thickness (mesh plus emulsion). This 10% (EOM) is to be on the print side of the screen. This is a very important value which helps determine print quality. When the EOM is too thin the mesh will interfere with the printed image resulting in ragged edges, and poor ink deposit.



Typically, the stencil should be 10% of the total stencil thickness

Image quality will also suffer if the EOM is too thick.

The correct EOM must be determined by the stencil maker. It's really important to know what is to be printed. As I mentioned above, as a rule-of-thumb, the stencil should be around 10% of the total thickness of the screen. Screen-printers are constantly breaking this rule as better mesh, ink and emulsions are developed.

2. Coating equipment

Automatic coaters and hand coating troughs are the two types of coaters that do the same thing. I want to address hand held coating troughs. These troughs, or scoop coaters, are what is used to apply a direct emulsion onto the stretched mesh. As long as the coaters are kept in good condition, with no dents or rough edges, they will deliver evenly coated screens.

Unfortunately, it takes a human to operate the coating troughs. This makes it difficult to duplicate exact stencil thicknesses screen after screen. A weary armed screen coater will not produce the same emulsion consistency, but they can be close. A good screen maker is a valuable person. Never let them have a day off or have a sick day. Screen making isn't an art. It takes time and an understanding of the complexities of the printing process. It is a skill that is difficult to master.

READ THE RECOMMENDATIONS

So, how do you know what to use and how to use it? The easiest way is to read the manufacturer's recommendations. Ink manufacturers will give recommendations on which mesh should be used. Some will even recommend a type of emulsion such as: "for water based inks, or plastisol, or UV inks, etc." They may even give a recommendation on how much ink needs to be deposited.

Virtually any product that is used in printing will have recommendations on how to optimise the equipment or products. In our industry if something needs to be printed, screen-printers will find a way to get it done.

So how thick is your stencil? Do you have any way to measure it? Don't just take a person's recommendation on how many coats of emulsion to put on the screen. You have to coat the screen to the thickness that will sufficiently reproduce the image you need. ■

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See Ikonics at FESPA 2015 hall 8 / A26b

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SCREEN-PRINTING – BETTER THAN EVER

According to Andreas Ferndriger, screen-printing continues to offer unparalleled possibilities, although unnecessary limitations are being set because some processes have not been systematically optimised

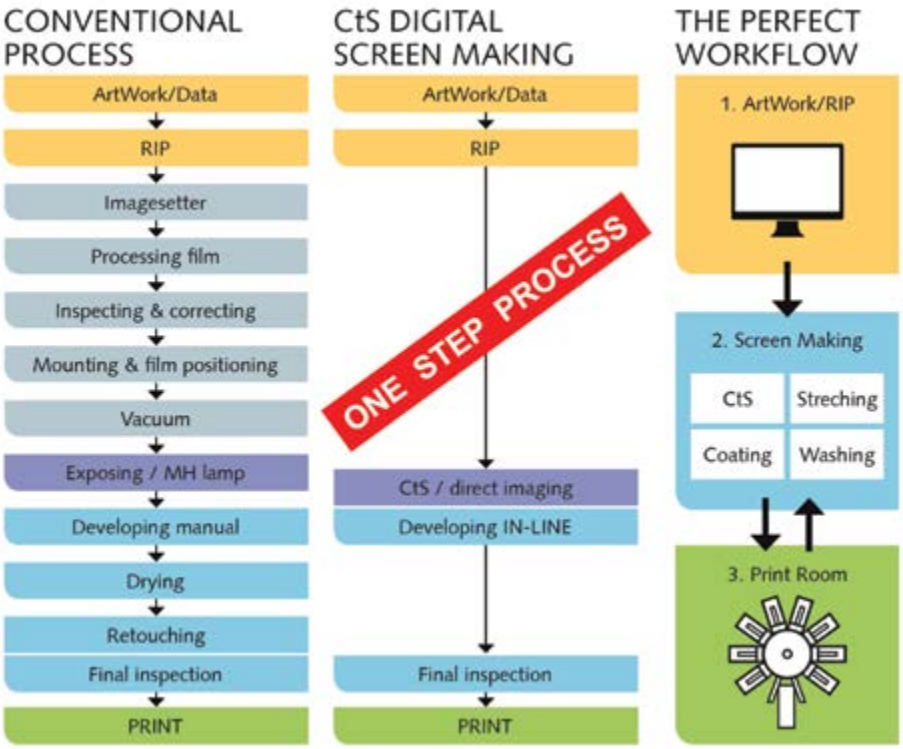
Screen manufacturing is the crucial weak point of the screen printing process. Far too often, users seem to forget that this process is decisive for print quality, print output and especially, their associated costs.

Swiss suppliers, Grünig and SignTronic have dedicated their activities to the screen manufacturing and preparation processes. Under the slogan 'the perfect screen', they offer solutions that can be summarised by the terms 'technology' and 'automation'.

In the field of CtS direct exposure, technology is indispensable for forward-looking companies. The purpose of this technology is to eliminate various screen preparation processes and – based on the artwork data - to expose the screens directly and without any deterioration of quality, without film, montage, vacuum frames etc.

This advanced screen printing technology offers two essential aspects that should be kept in mind:

- Considerably improved printing qualities with smooth transitions/continuous tones, sharp details and lines up to photo-realistic prints that look digital but have actually been achieved by screen printing.
- Substantially lower screen costs and – thanks to shorter set-up times – reduced costs result for the overall process, as well as increased printing output.



A combination of technology and automation

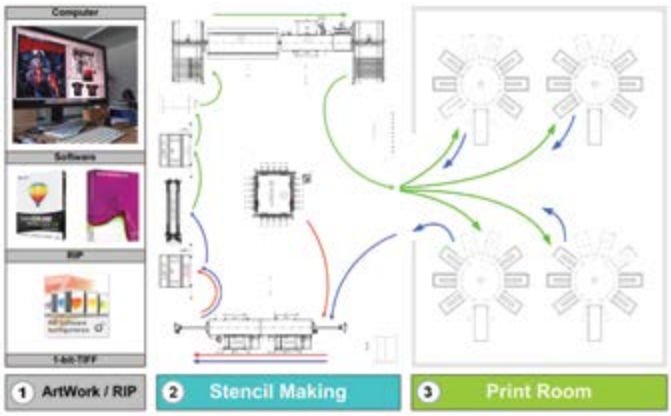
THIRD GENERATION

SignTronic has been offering CtS direct exposure technology for more than 11 years and now offers an extensive product range of third generation StencilMaster equipment. Now smaller, front loader versions are also available: STM-ONE for smaller screen quantities in sizes up to 1200mm x 1200mm and STM-XS for very small screens for multiple image production with up to 16 screens simultaneously.

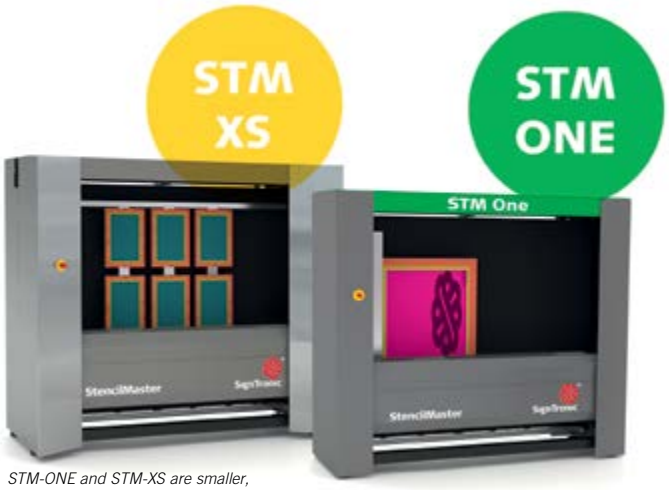
AUTOMATION EXPERTISE

When applied to screen manufacturing, automation is setting standards in the field of almost operator-less screen preparation involving various processes. Grünig has been designing equipment and systems for automating the screen preparation processes for more than 48 years. In recent years, the company's engineers have systematically worked towards the objective of combining various processes by integrating them into an in-line solution.

The extensive product range covers all screen sizes from 10cm x 10cm up to XXL screens measuring 5m x 12m. In this context, it does not matter whether the solutions are required for the industrial, textile or graphic markets, as the ultimate goal in state-of-the-art screen printing will always be the perfect screen. Products cover stretching, gluing, coating, drying, washing, developing, preparation and water treatment.



Overview of factory workflow



STM-ONE and STM-XS are smaller, front loader version CtS machines from SignTronic

COMBINED APPROACH

Together, Grünig and SignTronic have developed the LAB concept, whose key factor consists of positioning screen manufacture as an essential link between the artwork/RIP and printing departments.

The accompanying image (above) shows a combination of technology and automation, implemented for a customer in the USA: STM-TEX-PRO-10. ■

Andreas Ferndriger is CEO and Sales and Marketing Director at SignTronic / Grünig-Interscreen

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See Grünig and SignTronic at FESPA 2015 hall 8 / C15

THE PRICE MYTH

Chuck Nall discusses the true cost of screen chemicals

Every business owner wants greater profits and to that end the first question is how much is your product? More is more and less is less, right? While this is, on the surface, a common sense question it is meaningless without knowing what a product does, or how fast it works, or how intensive the labour associated with the product and process is. This is an important consideration for pre- and post-screen chemicals, since they have labour and throughput considerations that inks and substrates do not. It is for these reasons that purchasing cannot treat pre and post screen chemicals as price only decisions.

Screen chemicals are easily sold as price items but unlike equipment or even inks are a more complicated purchase decision. For example, an emulsion remover that sells for one price might require 50% more labour time for the product to work properly. Or the number of screens reclaimed yields 25% fewer screens than a more expensive product. Pre- and post-screen chemicals like emulsion removers cannot alone be evaluated by price alone. If owners and management want better profits with this class of products, decisions based merely on price per unit will almost always be incorrect.

To make the best of a decision of the better product for your company, the decision will be made from an analysis of price, labour required and net units yielded. Simple, right? Well, that depends on the amount of time you want invest in the proper product for your company's needs. Investing time in this analysis will yield better profits.

This is a simple price/decision tree for emulsion removers:

1) **Proper product selection.** This is a simple but the most common mistake a company can make. This is especially true for larger companies that use purchasing agents. Agents, while good at many aspects of purchasing, rarely ever know the differences between products. There are specific products for specific emulsions and inks. If the proper and best matched emulsion remover is used best results will always be achieved. Select the best product for your company needs before you ever ask the price. Simple, right?
2) **Read the manufacturers product instructions (thoroughly).** The first corollary of Murphy's Law is: "If all else fails read the instructions." Every manufacturer will tell anyone who asks that the large majority of tech questions originate from misuse of product. Know the manufacturers' best use of their product. These instructions are compiled from testing and maximum product benefits. Simple, right?
3) **Measure and use proper product amounts.** The most common loss of money is management not knowing if the products are being used in the proper amounts. Again, purchasing will know to order when the production floor needs product and will know which vendor is cheapest or has free freight; but will they know if the product is being used improperly requiring twice the labour and slowing throughput? Or, worse, if the product is being used in the incorrect quantities and simply being washed down the drain. This is very important in products that are purchased as a concentrate. Mis-measurement of concentrates is a common loss of money. Simple, right?
4) **Know the labour contribution.** When a new product is being tested, measure accurately the amount of labour required. Commonly cheaper emulsion removers will require more time to pressure-wash for the product to work. In few places globally labour is not the more expensive component of the process. If your process is not regularly reviewed it is likely that labour has become a larger and more expensive part of your process. New products like dip tanks can eliminate as much as 80% of labour time and speed throughput. Measure and know the labour component to the process. Simple, right?
5) **Test and measure test results.** For an accurate purchase decision to be made a company must know what it is comparing. If steps one through four are not evaluated with current products and processes then a review of a new product will be impossible. Press washes, pallet cleaners, ink degradents and emulsion removers touch every production job in a plant. They also have critical labour components. Measuring results of existing products and processes to be compared to new products is vital to knowing true costs. Simple, right?
6) **Compare results.** Cheaper prices can only be known from evaluating what products work better, faster and with less labour and not merely from a purchasing person saying, "we pay less than that". It is a bit like asking what the price of machine is and not caring or knowing what the machine does. Knowing what your existing products do and cost and then comparing them to new products and processes is the only way to know what is cheaper for your company. Simple, right?
7) **Review processes regularly.** Pre- and post-screen chemicals as you can see are labour intensive. Personnel can change frequently in these areas of a production facility and it is for these reasons that every business should quarterly check these procedures regularly to ensure proper amounts are being used and labour is not being wasted due to improper use of products or procedures have changed requiring more chemicals and or more labour. Simple, right? ■

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CAN DIRECT-TO-GARMENT PRINTING BE MISLEADING?

Mark Bagley clarifies the versatility that can be gained from present-day equipment

They call it direct-to-garment (DTG) printing. But is that misleading? Garment decorators walk trade shows and the see the latest equipment in live action printing on what? For the most part, T-shirts. But why is that? Should we call it direct-to-shirt printing?

T-shirts are the primary things printed because we have more printed T-shirts in our closets and drawers than probably anything else. So they are probably the easiest thing to sell for most direct-to-garment users. They are also easy to get almost anywhere in the world and they are one of the least expensive items to print on. So that is why they are demonstrated the most at trade shows and other industry events.

But does that mean that direct-to-garment users should just focus solely on printing T-shirts and similar items, such as sweat-shirts? At the end of the day, it is about getting a return on investment (ROI) from your direct-to-garment printer.

This piece of Cordova nylon fabric was pre-treated using a polyester CMYK pre-treat fluid and printed with Brother GT-3 inks. (Image courtesy Brother International Corporation)

GETTING YOUR MONEY BACK

If your direct-to-garment equipment is running at 100% capacity, then getting your money back should not be an issue if your pricing is calculated properly. However, many direct-to-garment users find that their equipment is not being utilised to the fullest. Thus, there is the potential to print on to other items and generate additional sales. But it is not always that simple. Direct-to-garment owners need to understand what substrates can be printed using the water-based direct-to-garment inks and how easy it is to print them.

This is the first of a two-part series on how direct-to-garment users can determine what other substrates they can print using their direct-to-garment equipment. The second instalment, which will be published in the next issue, will discuss how direct-to-garment users can determine whether printing on these non-traditional substrates is profitable.

Note: It is always recommended for direct-to-garment users to consult their owner's manual as well for guidance in what substrates are recommended for printing with their specific direct-to-garment printer. Some direct-to-garment printers have limitations based on hardware or ink chemistry that should be considered in advance.

Printed stone coasters can be a better promotional sample then a printed shirt. (Image courtesy of Brother International Corporation)

WATER-BASED INKS

All direct-to-garment equipment that is known at the time this article was written use water-based inks. Thus, the substrate being printed must allow for these inks to absorb and bind

T-shirts are the number one item printed on direct-to-garment printers but smart users know there is the potential for additional profits by printing other items

This picture shows how multiple pieces of wood can be printed using a direct-to-garment printer and assembled together to create a 3-D clock. (Picture courtesy Modern Moose, Massachusetts, USA at www.modmoose.com)

with it. Otherwise, the direct-to-garment inks will easy come off the substrate. This means printing on items like glass and metal are better suited for other types of inks that provide better adhesion with these types of substrate.

Also, fabrics that have been treated with a chemical, such as with water-proofing, stain restraint or Teflon coatings that prevents items from sticking to the coated fabric are also not ideal for printing with direct-to-garment inks.

So how does a direct-to-garment owner know if a substrate will allow the direct-to-garment ink to adhere to it?

The first step is to use an ordinary spray bottle with water in it and generously spray the substrate. If the substrate absorbs the majority of the water after sitting for a minute or so, then there is potential it will work. If the water stays on top of the surface or runs off to the side, in most cases it might not be the ideal substrate to print on using direct-to-garment inks. In some cases, direct-to-garment owners can find substrates that have not been treated already that will absorb the ink and then clear coat can be applied later to seal the item.

WHEN THE HEAT IS ON

The second step is to determine if the substrate can handle the heat to cure the ink to the substrate. Some types of synthetic fabrics can be printed, but will start to melt when placed on the standard curing temperature and time settings. In some cases, splitting up the time setting and allowing a cooling period in between the presses will help prevent the fabric from melting. Some substrates can also be air-dried overnight or hovered under a heat press without direct contact for a period of time that will result in an acceptable adhesion to the substrate.

The final step is to check the durability of the ink on the substrate. In most cases, the durability is based on how the substrate will be used and the expectation of the customers. For any type of garment, the expectation is that the ink will last through typical laundering practices. However, non-wearable items, like stone coasters, don't usually go through the same laundering process.

Direct-to-garment owners should go through these three steps above to determine if a specific substrate can be personalised using direct-to-garment inks. In the next edition, the topic of whether a direct-to-garment owner should print on substrates that pass these three steps will be discussed. The answer is not always yes. Remember, direct-to-garment owners should consider only printing on items that help provide the desired ROI. ■

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See Brother at FESPA 2015 hall 8 / E20

EVOLUTION IN THE SPECIALITY INK-JET MARKET-PLACE

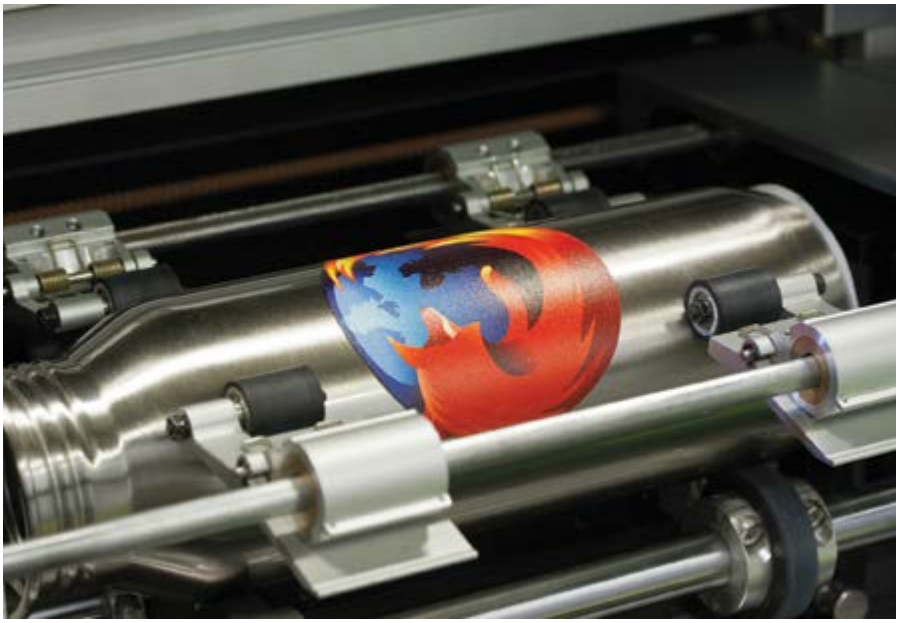
Benjamin Adner discusses the move towards industrial printing equipment

Benjamin Adner, President of Inkcups Now Corp

There has been a significant amount of change in the speciality ink-jet printing market-place during the last decade. Ink-jet has graduated from a cool way to print multi-colour graphics and a variety of three-dimensional plastic parts to a viable and reliable way to print single or multi-colour graphics cost-effectively and at industrial speeds.

Over the years the market has advanced from smaller speciality machines to industrial ink-jet machines and, during this period, our company, Inkcups Now Corporation has made a similar transition. We found that our customers required equipment and support at a much higher level and we changed the way we do business by offering better, more industrial equipment combined with superior training, support and customer care.

About a decade ago, the companies that wanted to move beyond one- and two-colour pad or screen-printed images on hard goods started using converted Epson printers. These were small ink-jet printers with solvent-based inks and Epson print-heads. They were capable of producing very nice multi-colour images on a wide variety of white or light-coloured flat surfaces. On the down side, these printers required a great deal of maintenance because the solvent-based inks were prone to drying in the print-heads, which would often ruin the heads, and they could not print a bright white because of difficult titanium dioxide pigments. These machines required constant attention and maintenance to keep them running.



A bottle printed by the XR rotary ink-jet

SMALL-FORMAT UV-CURABLE TECHNOLOGY

Starting about 2010, Mimaki introduced the UJF-3042 machine, which was its small-format UV ink-jet machine that met the needs of the speciality printing market. Other companies followed and nowadays there is a host of other companies who sell similar machines. These UV ink-jets came with better-quality, more reliable industrial print-heads, which resisted clogging. In addition, the print-heads could handle the white pigments, making these machines a significant improvement over the solvent-based machines. The advent of

The XJET printing bandage cases

compact, air-cooled LED curing systems made these ink-jets a viable solution for almost any sized printing company.

Although these new-generation small format UV-curable machines were a big improvement over the solvent-based ink-jet, their limitations immediately began to show. They were not durable or fast enough for companies who had more demanding production requirements. They are light-duty machines constructed from sheet metal with many of the critical components not designed to withstand repeated eight, 16, let alone 24-hour production shifts. Serious companies involved in large-scale printing of promotional products, medical parts, toys or industrial products found out that, although the print quality was good, these machines could in no way keep up with their volumes. As a result many of these small-format machines were turned into sample-making machines.

INDUSTRIAL-GRADE PRINTERS

About five years ago, Inkcups Now went to solve the problem for its customers by bringing to the market industrial-grade UV LED ink-jet printers. These industrial printers are five to six times faster than the bench-top machines, use double the print-heads and LED curing units, feature high-speed servo motors instead of a stepper motor, are built with industrial cabinets, high-quality components and weigh about 1,500lbs (compared with 150lbs for the smaller machines). One industrial ink-jet, requiring a single operator, can replace four to five bench-top machines in terms of output.

One Inkcups innovation that has had a major impact in the market is the XJET conveyorised ink-jet machine. This machine is very different to other flat-bed industrial machines due to its linear conveyor design and a patented programmable loading system, which uses auto-retractable templates for positioning the parts on the conveyor belt. The XJET enables very simple tooling, quick changeover between parts and provides a 15% increase in productivity over traditional flat-bed ink-jet machines because users can load and print simultaneously and then have printed parts automatically unload into a box. The combination of the industrial XJET inkjet printer with excellent technical support satisfied the need of high-volume producers and permanently changed the way they viewed ink-jet printing. It went from a test, short-run printing method to a go-to reliable method to decorate their parts.

PRINTING ON CYLINDERS

Looking forward, I believe, the next big thing on the market will be innovation in printing on cylinders. The market has been pushing for a fast industrial ink-jet for bottles, cosmetics and drink-ware. Various versions of cylinder attachments for small-format flat-bed ink-jets have existed for about a decade. However, printing the full surface of a bottle has always been too slow for any serious producer. For example, to fully cover the circumference of an 8 inch tall bottle with 3 inch diameter using a roller device could take three to four minutes.

We have begun to see recent innovations improve throughput on cylinders. Through advanced software and innovative use of print heads, Inkcups is now offering a machine that can print one bottle/minute, the machine costing $60,000.00. There is another high-quality, high-speed ink-jet on the market, offered by Dubuit, that prints 400 to 600 bottles per hour. However, its image size is limited to 75mm and it has a hefty price tag of $300,000 to $400,000 – both factors prohibiting its wide adoption. I believe the market will continue to innovate and develop fast, less expensive, more flexible industrial ink-jet printers for cylinders which will print larger logos, provide more rapid changeover and sell for significantly less money than what is currently available.

EVALUATION FACTORS

With so many options on the ink-jet market, it is important to evaluate a number of factors when considering an investment into an inkjet for larger-scale production:

Continued over

The XR rotary ink-jet for the printing of cylinders

1) **Estimate production speed.** Calculate how many of your typical parts fit in the machine's print area at a time, how much time it takes to print and how fast you need it done. For eight hour plus production runs, you will need a heavy-duty industrial machine.
2) **Evaluate the quality of printed samples.** A provider should show you your own parts printed with your own graphics, along with print durability test results.
3) **Compare ink cost per part.** Note that ink cartridges with timed chips often 'time-out' and cease before you used them up.
4) **Learn about the provider's reputation, technical support and warranty options.** I can't stress the importance of this factor enough. You will need a reliable partner with a responsive and skilled technical force to make sure that, from installation to training to servicing, nothing slows you down.
5) **Consider the loading-unloading process.** Can the machine be loaded and unloaded by one person without stoppage? Can it be integrated with your existing machinery?
6) **Consider changeovers from one job to another.** Does the software allow quick positioning of the new artwork on different-size objects? Can the software handle personalisation and image flexibility in the template? How easy is the printer to adjust from part to part? Can you use hand tools or does it require a technician with a toolbox?
7) **Consider the cost of fixtures versus that of loading templates.** How many fixtures do you need for continuous printing of one particular part? How many different-shape parts will you print? How long and how much will it take to have a fixture made? Note that the XJET requires only one inexpensive template/flat part.
8) **Compare ink containers.** Inks are sold in cartridges or bulk containers. Bulk ink may be cheaper and you'll go through ordering it less often and it doesn't have chips on them that expire.
9) **Compare ink certifications.** With safety requirements tightening all over the world, opt for inks that are certified by an independent lab to be heavy-metal-free.
10) **Ask the provider for break-even calculators for the machine.** Benjamin Adner is President of Inkcups Now Corporation ■

The XJET industrial UV LED ink-jet printer with conveyor

Benjamin Adner is President of Inkcups Now Corporation

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See Inkcups at FESPA 2015 hall 6 / P4

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THE WRAPPING GAME

Mike Horsten expands on the decoration opportunities on different objects

Mike Horsten, General Manager Marketing EMEA, Mimaki Europe

Funny things happen when you're working in the sign graphics industry. Last time I was at a tradeshow somebody asked me if it was possible to "wrap some things". I asked him to elaborate on a particular choice of object, but instead he told me that he just wanted to explore the possibilities.

I have to confess at that time I did not give the gentleman a structured, full and complete answer. There are so many options and ways to wrap things. Possibilities are endless and range from shrink-wrapped bottles all the way up to wrapping aircraft and boats.

I asked around on how other people tackled these questions and found out that other users that want to wrap objects knew as little as I did. So what, now I am the expert after all? Well, I would not go that far, but it turns out I do know more about the subject of wrapping than I thought.

WRAPPING POPULARITY

Wrapping is a new and fashionable way to put advertising on an object. The old-school painting and painted sign trade is pretty much gone. Digital technology enables us to print those signs and slap them on cars, airplanes and other objects. Even point-of-sale objects can be wrapped.

So how does it work? Well, as it turns out, it's not as easy as one might think. Cars for example are not flat; they're 3D objects. Just creating a stunning visual in Photoshop won't cut it, you need to take into account various factors and apply some kind of template that can guide you through the design process. There are numerous applications out there available to make this job a bit easier.

You'll also need to determine the printing technology you want to use. Remember – you will be stretching the media to a certain extent so not all ink types will be suitable. You need a flexible ink, like UV-curable, latex or the trusted solvent-based ink technology. For argument's sake, let's use solvent-based ink as the example that we are going to use for our car wrap project below.

THE PREPARATION PROCESS

When your design is ready, you have to determine which kind of durable media film you want it to be printed on, depending on how often it will be outside and which weather conditions it must face. If it will be used outside in harsh weather or scorching heat for a few months, you'd better laminate it, too, to protect the image from fading or being scratched. You should also consider the consistency of the media – a monomeric vinyl or a cast film? The latter allows for better stretching, but it will be more expensive. What kind of glue will you use? A temporary or permanent one? A fair warning, the latter one cannot be removed. Any attempt to do so will give you horrible headaches. And remember that most cars are leased. Upon return to the lease company, they have to be in a virgin state. That means sans wrap.

In The Netherlands on a leased car, let's go for solvent-based ink on a cast film with semi-permanent glue. We'll laminate it for protection against small parking spaces and the weather.

THE APPLICATION PROCESS

The design and wrap are ready! But now we still need to apply it. Again, this is not going to be easy. Have you ever tried to put a 160 x 120cm sticker on an object without folds, bubbles or wrinkles? Believe me, you won't pull it off on the first go. Then again, I already have issues putting an A4 size sticker on a

This train has been wrapped using Mimaki printed film

car. Luckily there is a trick, also known as application fluid – a soapy fluid that will help you perform the correct placement.

Also it's best to use magnets to support the media while you're applying the wrap. This will feel like the extra pair of hands you need to do your wrap. You might also want to look into the new bubble-free glue technology. This new technology uses small channels of air in the glue so that the air can be pushed out in an even way. The glue will spread out over a few hours and close all the channels, eliminating bubbles.

As it turns out, wrapping is not as easy as one might think. The printing part is just one of many steps to consider. Play around with it first before going for the real deal. And better still, get professional help. Quite a lot of media and vinyl suppliers are hosting classes on how to wrap a variety of objects and they'll be able to get you started.

A bus wrapped in Mimaki printed film

FUN CONCLUSIONS

Back to where it started for me – the customer at the trade show. By now I would be able to give him a very detailed response about not only the types of objects to wrap, but also on how to go about on doing so. I'd even throw in some fun facts, like the fact that an aircraft shrinks and expands more than 5cm per flight. Wrapping that bad boy requires a different skill set, not to mention vinyl that can resist temperatures from -60 degrees C up to +50 degrees C.

I hope I'll see him again at an upcoming show. If he imagines, we'll deliver. And that's a wrap. ■

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See Mimaki at FESPA 2015 hall 6 / U5 and T11

REVEALING THE BRIGHT SIDE OF SCREEN-PRINTING

The Pro Screen Initiative – part 2*. Rudi Röller outlines a new initiative and web portal that challenge digital alternatives

Time and tide stand still for no man. In the last five years, we all have witnessed further dynamic developments in the field of digital media and printing technologies. The traditional media continue to be under pressure and fewer print products are being produced. The rapidly evolving 'digital generation' is at home with smartphones and tablets in a world of social media.

No traditional printing sector has the status of a protected species. We have now entered an age of change and rethinking.

Facts proved that graphic screen-printing had been greatly suppressed by digital printing. However, those who shop around carefully today witness the danger and reality that even digital printing has been partially overtaken by new technology. Digital competition for digital printing is on the rise. The tags here are electronic indoor and outdoor advertising. LED advertising displays with screen sizes of 5m or more can already be seen in railway stations, airports and shopping malls.

THE WORLD OF DIVERSITY

Even today, screen-printing still remains one of the few printing process that reflects the whole world of diversity. But is everybody aware of this? The answer is: "no" – and we are about to change this.

It is wrong to assume that screen-printing has been superseded by digital printing. Often declared dead by many and swept into a remote corner, the full market significance of the screen-printing process for technical applications is very much bigger than generally known. The most common perception of the screen-printing process is still predominantly associated in combination with graphical products. Most are unaware of the fact that that graphic screen-printing amounts to less than 10% of the total volume of screen-printing today. The lion's share – technical screen-printing – plays a much larger and more significant role in the market, and will increasingly do so in the future.

TECHNICAL POSSIBILITIES

Apart from functional printing, technical screen-printing offers a variety of possibilities. Due to requirements on materials, substrates and usage, it is almost impossible to find an alternative process. Nevertheless, even experts often know too little about applications and areas of use. Would you have known, for example in the automobile sector, that the black border around car windows, the wires for rear window heaters and aerials are all screen-printed? Did you know that in medical technology, blood-sugar measurement strips are screen-printed with functional inks? Here are just two examples of hundreds.

Screen-printing can handle the high quality and fine tolerances required for all applications

Technical screen-printing is hugely dominant in industrial applications through the use of functional inks such as metallisation, paste, adhesive, etc. The enormous benefits of this printing and coating technology are high-volume production with high productivity. At this stage, it would take too long to enumerate all screen-printing applications, so let us itemise several key points:

Functional screen-printing:

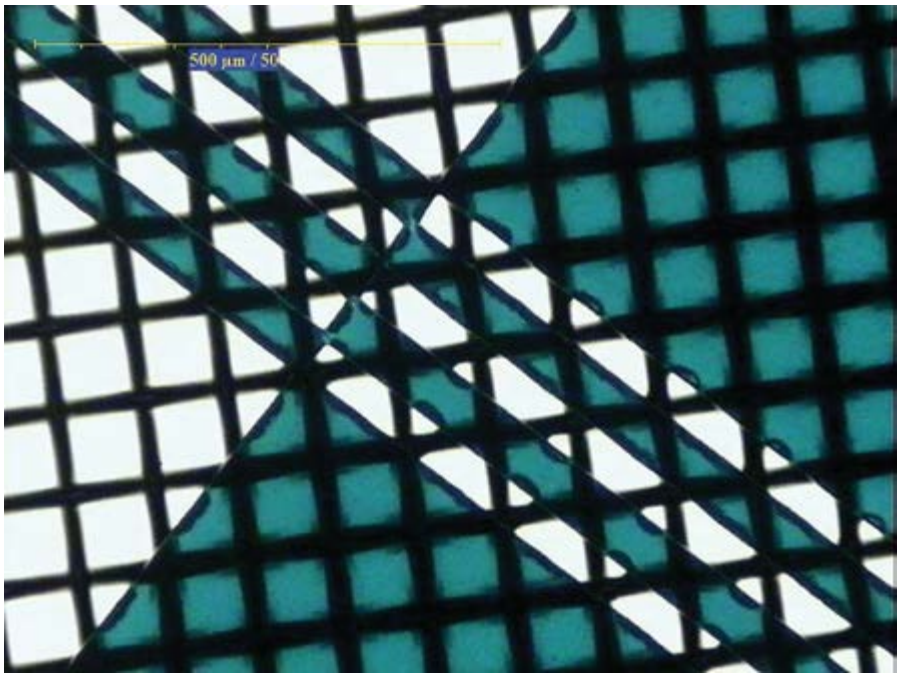
- Photovoltaic panels
- Illuminated signs, lighting
- Conductive structures (PCB, LTCC / antennas, heating circuits / membrane keyboards)
- Sensors
- Batteries
- Touch panels
- Glass (sheet and architectural)
- Textile

ONGOING VERSATILITY

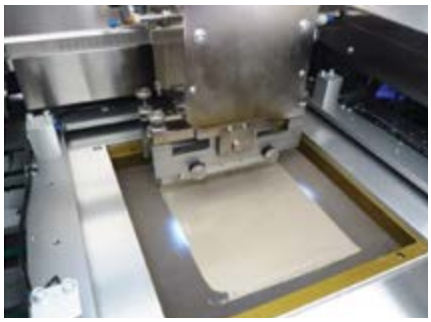
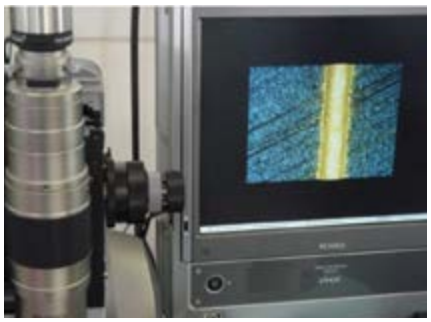
Why is the screen-printing process particularly suitable for the production of functional effects?

Because the versatility of screenprinting enables the reproducible deposition of precise motifs, even free-standing lines and dots, by the use of various mesh counts, coupled with the right screen coating – in precise thicknesses (from 3µ to 300µ) on to a variety of substrates. In particular, the possibility of applying very high coating deposits, up to several hundred microns, makes screen-

Continued over



State of the art: 30 µm fine line screen-printing (today, even 20 µm lines in industrial production processes are common)

Screen-printed photovoltaic panels on record flight: "Solar Impulse 2" around the world with no fuel

printing differ from other application and printing techniques and proves it is unique. Line thicknesses and widths up to 30µ (and even less) can be printed.

Decorative screen-printing

- Surface decoration (automotive / sporting goods / other)
- Signs and scales
- Glass, ceramics (baking / other)
- Textile screen-printing
- Roll-to-roll flat and rotary screen-printing (flags, clothing, carpets, bed-linen)
- Ready-made textiles (T-Shirts)
- Flock (direct flock, transfer flock)

Graphic screen-printing

- Point-of-sale (bill-boards, posters, displays, roll-ups)
- Plastic films, labels
- Print finishing (effects, lacquer, etc.)
- Promotional products
- Fleet marking (lettering on vehicles, ships, containers, aircraft, lorry tarpaulins)

THE HELP OF EXPERTS

Technical screen-printing offers unique possibilities for functional printing but, nevertheless, even experts often know too little about applications and their associated fields. So this is where we, the producers, users and organisations, step in to make everyone aware of the lesser-known sides of screen-printing and awaken them to its almost unlimited possibilities.

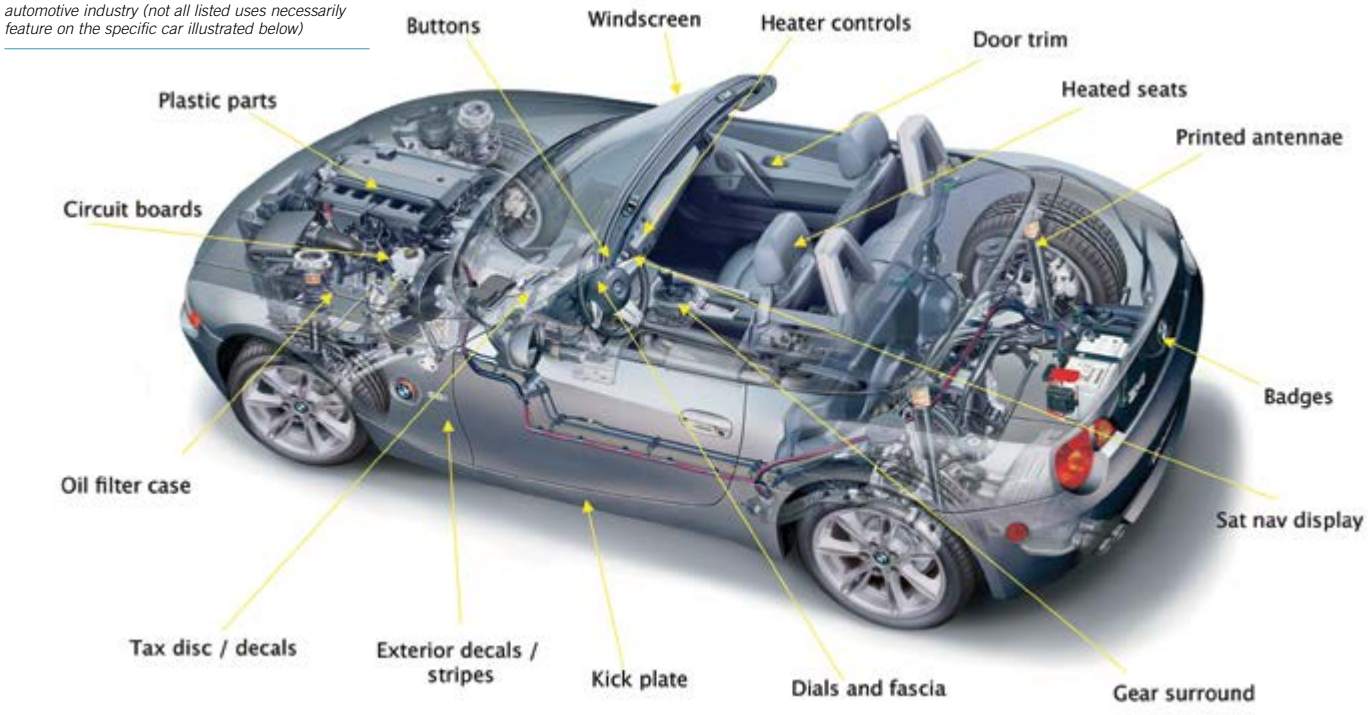
The Department of Screenprinting within the German Printing Institute (DID), a division of the German Printing and Media Industries Federation (bvdm), has therefore planned the creation of a website at www.screenprinting-technology.org to bring home the full versatility of screen-printing. Initiated by the DID board member Rudi Röller, Chairman of the Screenprinting Department, a project called: 'Documenting Technical Screenprinting Applications' was launched in September 2013

Continued over

PARTICIPANTS:

- Blase GmbH & Co. KG
- FERRO
- Gallus Ferd. Rüesch AG
- IFFLAND AG
- ISIMAT GmbH
- Kammann Spezialmaschinen und Steuerungstechnik GmbH
- KIWO – Kissel + Wolf GmbH
- Marabu GmbH & Co. KG
- Printcolor Screen Ltd
- Proell KG
- RIEBL-Siebdruck GmbH
- RUCO Druckfarben / A.M. Ramp & Co GmbH
- Schreiner Group GmbH & Co. KG
- Sefar AG
- Siebdruck Frey
- Spörl oHG
- SPS® TechnoScreen GmbH
- Sun Chemical

Screen-printing has a major role to play in the automotive industry (not all listed uses necessarily feature on the specific car illustrated below)



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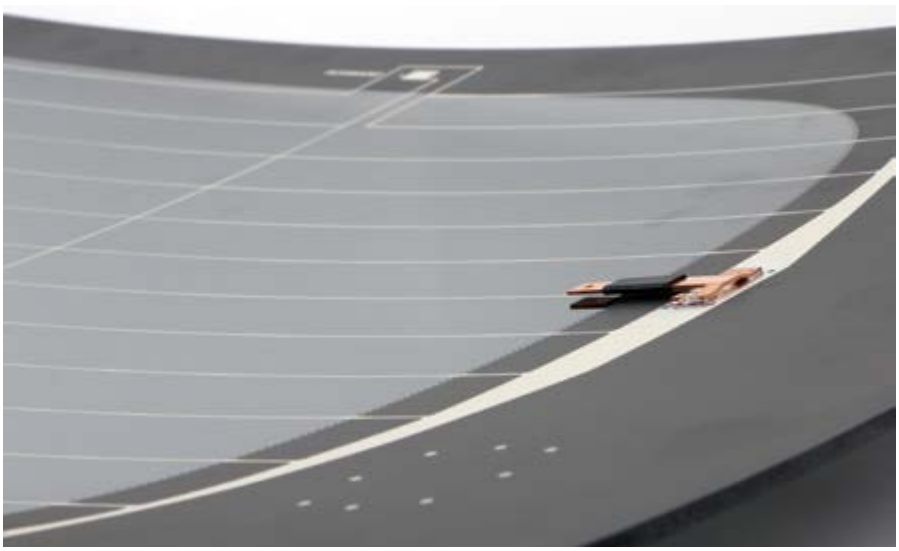


Screen-printing rear window heater circuit

following the kick-off meeting with leading industry players at KIWO - Kissel + Wolf's plant in Wiesloch, Germany (participants are listed in side panel on previous page).

The aim of the project is to analyse and identify the range of (new) rapidly growing application possibilities for technical screen-printing. All site content will be developed in close co-operation with manufacturers and users of systems and materials. Design, administration, and the editorial management of the website will also be done by experts and practitioners – bvdm/DID, manufacturers, users, ESMA, Stuttgart Media University (HdM). This will ensure that the site will provide maximum value for target groups, so that content and statements are current, accurate and credible.

INDUSTRY SUPPORT AND BEYOND

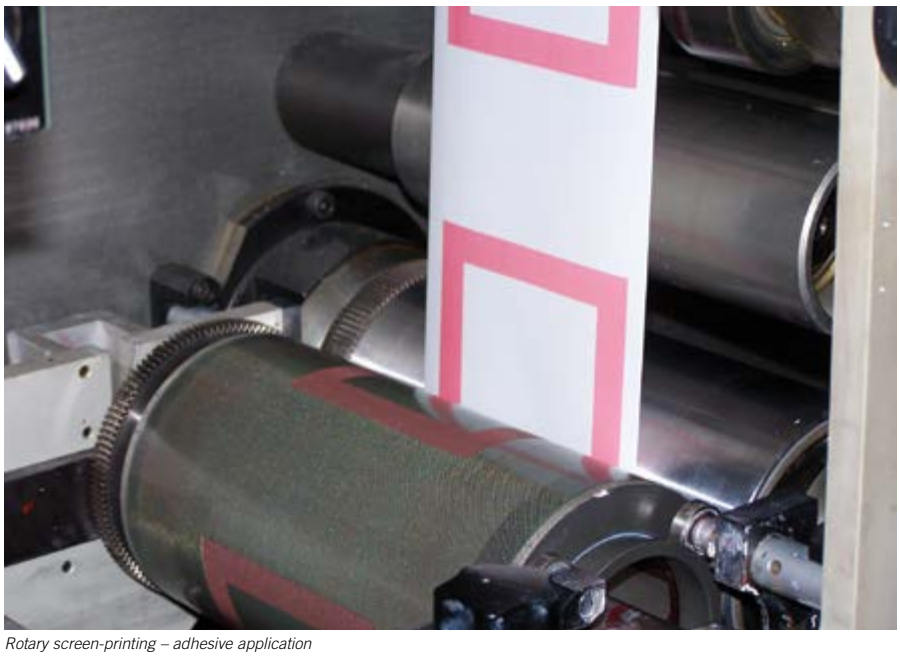
The web portal www.screenprinting-technology.org – Seripedia – will provide potential users, customers, product developers, colleges and universities, politicians and organisations, as well as students and trainees, with the latest information, suggestions and innovative screen-printing solutions for market requirements. This portal will not only showcase the strengths of screen-printing, but will also show that screen-printing is indispensable as a dynamic industrial production process.

The DID Department of Screenprinting, supported by grants and contributions from industry, will provide initial project funding for two years. After this time, ESMA will take over the operation and maintenance. A beta version of the site with typical examples (structure, contents) is at diddemo.businesscatalyst.com/index.html.

This article serves to continue the Pro Screen Initiative. And with this end in mind, everyone is strongly encouraged to support the further promotion of the vast array of possibilities that screen-printing offers. Why not become part of the Pro Screen Initiative and support Seripedia? Start by visiting the new web portal at www.screenprinting-technology.org

Knowing and understanding the manifold and everyday applications in which screen-printing plays a vital part provides the base to expand into new fields. This new web portal supports the important task of collecting and cataloguing all of the many application examples this process is capable of. This will lead to the creation of an invaluable and definitive reference guide, with a whole pool of ideas for new developments in screen-printing.

For interested users and potential project partners who wish to support the new web portal at www.screenprinting-technology.org, please contact Peter Buttiens of ESMA (email: pb@esma.com) or Karl Michael Meinecke of bvdm/DID (email: km@bvdm-online.de). Both will be delighted to provide further information. ■



Rotary screen-printing – adhesive application

** Part one of the Pro Screen Initiative ('The challenge of screen-printing in the digital printing age' by Rudi Röller) was published in Issue 2 / 2010 of Specialist Printing Worldwide. To download a copy, visit http://www.esma.com /doc/SP2%202010%20p44-45.pdf*

Rudi Röller is Executive Board Member and Director Business Development & Marketing, KIWO - Kissel + Wolf GmbH

Further information:
web: www.screenprinting-technology.org

Find out more on the ESMA stand (hall 8 / A60) at FESPA 2015

WHERE UV-CURABLE INK CHEMISTRY CAN REPLACE SOLVENT-BASED FORMULATIONS

Ruth Zach describes the differences that can apply across production requirements

It is no surprise that UV-curable printers are the fastest growing sector in the wide-format ink-jet market despite their cost compared with those that use other digital printing technologies. An entry-level industrial UV-curable printer price can start at €50,000 and can go up to €250,000 while high speed printers cost far more. But do these systems justify the investment?

Wide-format digital printing has spread into every aspect of our lives within just two decades. Much of traditional printing on paper shifted to printing on new materials and new channels opened when wide-format digital technology became commercialised.

These new technologies not only improved the speed and the quality of printing but also expanded direct printing options. Traditional options such as solvent- and water-based prevailed and are thriving with new printers, higher speeds and environmentally friendlier inks all provided at reasonable prices. These water- based and solvent-based printers are an excellent choice in terms of quality and price even over traditional offset printing, especially for shorter runs.

A BROAD TECHNOLOGY

However, digital printing is a broad technology. Within it there are different printing methods, all using digital technology but whose differences shape the target applications. Although some digital technologies did not survive, many prevailed, improved and thrive today. Among those that stretched digital printing capabilities is definitely UV-curable technology.

The Fujifilm Acuity UV-curable printer is an example of a flat-bed machine

UV-curable printing and specifically flat-bed printers enabled direct printing on new types of media for the first time and multiplied the application possibilities. However, in order to understand the potential of UV, one must first understand how it works, its unique characteristics and advantages.

UV-curable inks are different from any others used in wide-format printing from almost every aspect. The differences lie in the raw materials used in manufacturing these inks, the drying method, their functionality and in their print-head compatibility.

Most ink-jet inks are composed of a carrier, usually a liquid and a colorant which are forced out from the nozzles in the print-head and onto the substrate. The liquid could be either water or solvent(s). However UV-curable inks don't abide to these constraints. They are the only ink type that is not composed of a liquid carrier but of monomers and oligomers, which are chemicals that by a cross-linking reaction cause the colorant to remain as a dry film on the surface of the substrate. The monomers and oligomers, in liquid form, transform to a solid dry surface. The transformation process in which the ink solidifies on the media surface is referred to as curing rather than drying as in other ink types. The curing process is a chain reaction initiated by photoinitiators which are materials that originate this process once exposed to the UV light source installed in every UV-curable printer.

Continued over

Direct UV-curable printing onto skate boards

Bordeaux's plasma ink family

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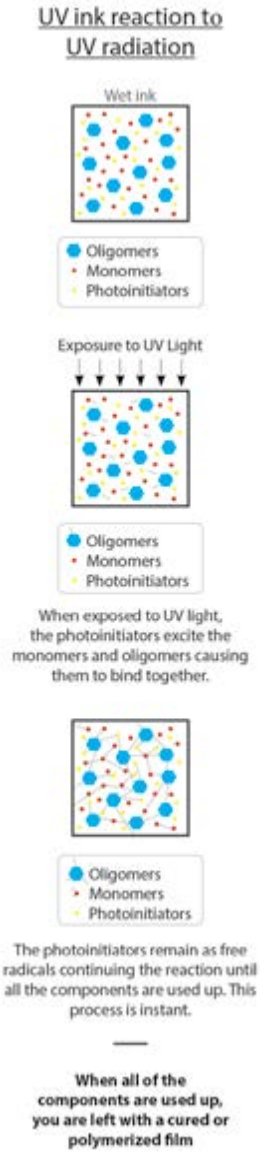

The reaction of UV-curable inks during the curing process

THE GREATEST ADVANTAGE

The curing is one of UV-curable's greatest advantages since there is no need to wait for the media to dry or evaporate before it is rolled or coated, as is required for water- or solvent-based inks. In addition, the ink does not penetrate the media but creates a thin coloured film which adheres to the surface of the media.

The revolution of UV-curable printers has brought the ability to print on almost any type of material with very little compliance concerns. Since UV cures instantly and does not penetrate the surface or requires drying or evaporation, both porous and non-porous materials can be used. Solvent-based inks, in contrast, are more suited to uncoated substrates since the solvent is later evaporated and leaves the colorant on the surface. Likewise, water-based inks are usually used for coated materials since they tend to penetrate into the media. These constraints are not found with UV-curable inks.

Printed graphics reflecting in the sunset

Furthermore, the development of UV-curable flatbed devices enabled printing on rigid surfaces too. Instead of the media rolling and the print-head moving from right to left, flat-beds introduced print-heads that move on both axes, including up and down, while the media remains static.

An additional advantage of UV is that the ink is regarded as environmentally safe to use even in home applications. Once it is cured it emits no hazardous air pollutants (HAPs) like the toxic fumes emitted by some solvent-based inks.

UV-curable printers not only provide an alternative to solvent- and water-based printers but have also opened new industrial applications which were never generated using digital printing. This technology is now open for applications where printing with solvent-based ink is regulated for health and safety issues.

ROTATING PRINT ROLLERS

One digital printing commercial application worth noting is the rotating UV-curable printer which does not print on a regular flat-bed but, instead, a rotating bed for cylindrical products. The rotating rollers are an add-on and can be mounted on the flat-bed and removed after printing. The rotating rollers enable 360 degree direct printing with UV-curable ink-jet. The rotating rollers print option is also supported by the RIP software. The direct printing on bottles and other cylindrical items exhibits excellent print quality which is scratch and abrasion resistant.

Bordeaux Digital PrintInk, a wide-format UV-curable ink manufacturer reveal some of the diverse applications used by some of their customers using wide format UV-curable printing. The applications include wood plaques, metal panels, expanded and extruded PVC sheets used mainly for thermoforming applications and other non-conventional materials such as cork board, stone and glass. Glass, like other substrates used with UV-curable processes may require a primer in order to increase adhesion but the possibilities to print are far beyond the inconvenience involved in applying a primer. It is also very efficient for direct printing on foam boards, eliminating the need to print on vinyl first and then mounting the output to the foam board.

3D PRINT SOLUTIONS

UV-curable flat-bed production is also a solution for printing on 3D items such as smart phone and tablet cases, bottles and other 3D items which can be secured to the UV flat-bed surface.

At every trade show, Bordeaux Digital PrintInk meets entrepreneurs that consult on solutions for digital printing on non-traditional substrates. The company has had customers approach us concerning printing on anodized aluminium items and even on Velcro.

UV-curable technology changed digital printing process and shifted digital printing to new and exciting fields. Triggered by flat-bed industrial-strength printers and complemented by the UV-curable ink, this technology has driven the industry forward and assisted in the growth of digital printing over traditional printing while lowering the price and increasing the print quality. ■

Ruth Zach is Marketing Coordinator at Bordeaux Digital PrintInk

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web: www.c-m-y-k.com

See Bordeaux at FESPA 2015 hall 6 / S70 & hall 7 / G19

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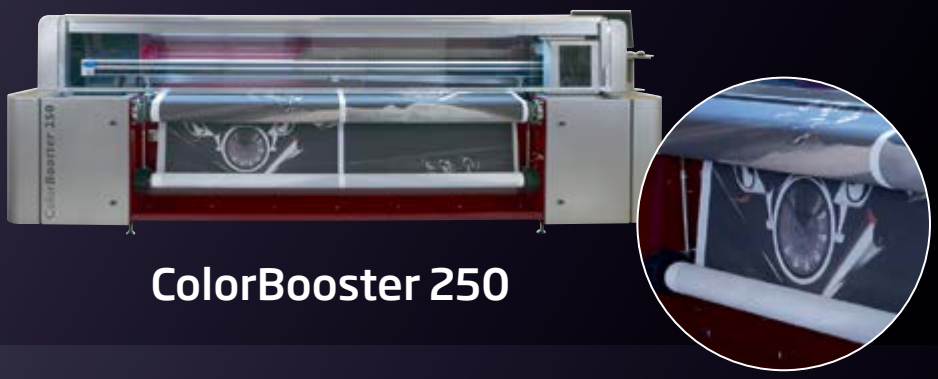
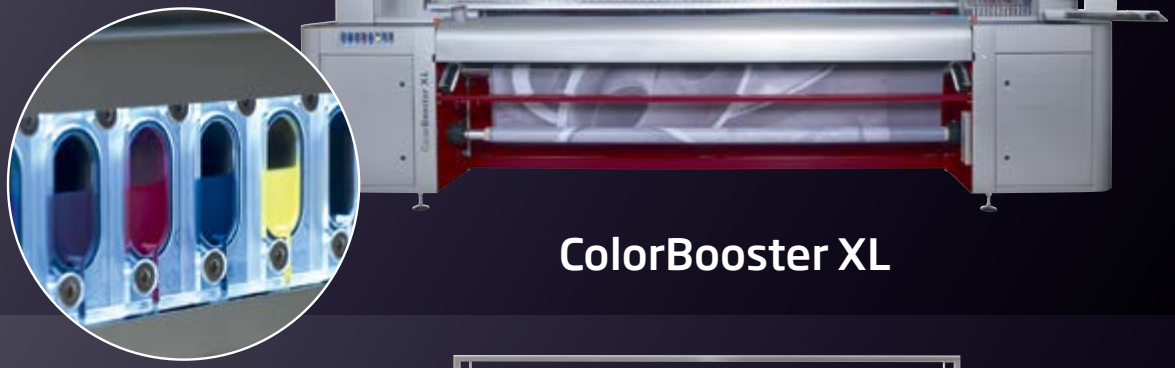


ColorBooster 250



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VERSATILE TECHNOLOGY ENCOMPASSES BOTH STANDARD INDUSTRIAL APPLICATIONS AND SPECIALTIES

Dr Nadine Wilhelms unlocks the potential of screen-printable PSAs

Since the early seventies, screen-printable pressure-sensitive adhesives (PSAs) have been successfully established in many industrial fields. The selection of the right product plays a crucial role for achieving excellent quality. Depending on the application, KIWO - Kissel + Wolf GmbH produces innovative screen-printable pressure-sensitive adhesives for different requirements.

Using the screen-printing method, the liquid adhesive is printed through a stencil with a squeegee onto the substrate. The stencil is made from a woven polyester filament, in which the mesh area is only open for the pattern of the adhesive to be printed. Screen-printable PSAs always compete with PSA tapes, but could replace them in many applications. Complicated and bothersome process stages related to PSA tapes, such as die-cutting, adhesive tape application and tape excess waste collection, can therefore be eliminated. With screen-printing, the pressure-sensitive adhesive is only printed where it is actually needed. By selecting the appropriate mesh size, it is also possible to vary the lay-down thickness. Greater lay-down thicknesses (depending on the mesh) than with other methods can therefore be achieved with screen-printing.

Today, solvent- and water-based adhesives as well as 100% UV-curable systems are state-of-the-art in screen-printing, although all systems have advantages and disadvantages.

THE DIFFERENT OPTIONS

Solvent-based PSAs are mainly characterised by good printability, very good surface flow and short drying times. After a short time, silicone paper can be applied or other processing steps can be carried out. The disadvantages of the systems lie in the

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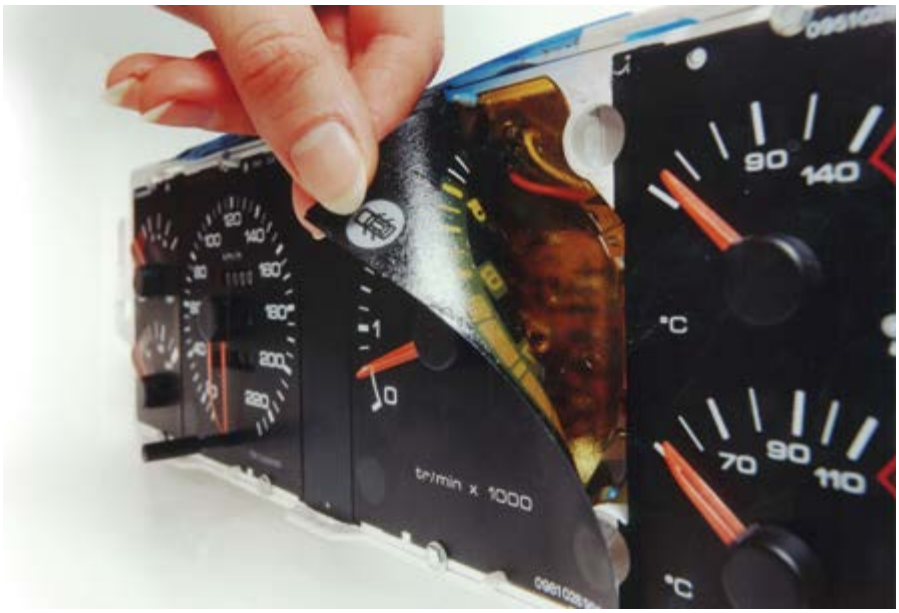
KIWOPRINT UV 92 – UV curable pressure-sensitive adhesive



Typical applications for pressure-sensitive adhesives are back-lit instrument panels and front foils in the automotive/electronics industry

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KIWOPRINT TATTOO D 163 certified screen-printable pressure-sensitive adhesives for temporary tattoos

flammability as well as emission of solvents and the resulting health and safety risks for the operator. The solvents it contains are also critical for some substrates and therefore limit the applications. In addition, solvents are required for cleaning and thinning.

A major benefit of water-based systems is eco-friendly usage. The products are non-flammable and practically odour-free. Good UV resistance, high heat resistance and the ability to prevent plasticiser migration are further advantages of this group. Newer products also provide good water and steam resistance. Drying times for the printed adhesive are longer than for solvent-based products. The main disadvantages are to be found in printability, which may cause drying and skinning of the adhesive through water evaporation in the printing stencil. Therefore printing breaks should be kept at a minimum. Controlled process parameters with, for example, air conditioning at lower room temperature and higher relative humidity allow a controlled production.

Adhesive printed through a stencil with a squeegee

The 100% UV cross-linking systems enable efficient environmentally friendly, solvent-free processing and low material consumption. No drying or skinning of adhesive in the printing stencil, good printability and excellent flow as well as very fast "drying" by chemical crosslinking under UV exposure, increase the attractiveness of these products. To profit from these advantages, additional equipment for UV curing and more continuously comprehensive process monitoring are required. Of particular interest is KIWOPRINT UV 92 – a UV-curable pressure-sensitive adhesive for technical applications. This is a UV pressure-sensitive adhesive for decorative foils, front panels and visual instrument panels. Due to its good tack properties, it is also suitable for labels and decals.

In general, the suitability for certain applications cannot be determined by the class of UV, solvent or water based system. Rather the specific formulation details of the printed pressure-sensitive adhesive generate the requisite product features and determine the suitability for the particular application fields. The product selection is also dependent on the operator's facilities for processing the adhesive, for example drying/curing conditions.

The applications of screen-printable PSAs are wide-spread and include self-adhesive foils and labels, colour transfers, front foils or membrane keypads in the automotive/electronics industry or in decorative applications in the graphical industry are well known and are complemented by specialties like temporary tattoos.

TEMPORARY TATTOOS

In these challenging special industries, periodic changes in legislation are quite common. Therefore, such specialities always need to be adapted to the current legal situation. While developing an adhesive for temporary tattoos with skin contact, only raw materials in compliance with the EU Cosmetics Regulation 1223/2009 were taken into consideration. For the new KIWOPRINT TATTOO D 163, no restrictions on marketability according to the requirements of the Cosmetics Regulation were determined by an independent institute. This allows the operator to use an approved adhesive quality for his process. Nevertheless, the operator still has to arrange a separate examination of the final product because the adhesive is just one of many components.

Beside the legal conditions, the technical details of the product are also significant. As a water-based, label-free adhesive, KIWOPRINT® TATTOO D 163 allows eco-friendly processing. Good printing results can be achieved by taking into account the process parameters for water-based systems mentioned above. Excellent water and aging resistance as well as a good compatibility with many inks complete the profile of this product.

Adhesive bonding in general is a growing joining technique and has already entered a wide range of applications. Screen-printable pressure-sensitive adhesives are also present in diverse applications as mentioned above. But new joining processes as well as upcoming new raw materials and the PSAs which result, will enable access to even more areas of application for these versatile products.

KIWO provides its customers not only with products, but also develops application-orientated solutions for perfect results, including on-site consulting. Users with further questions, even for niche applications, can contact the KIWO Applications Centre. ■

Dr Nadine Wilhelms is Head of Adhesives Development at KIWO

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See KIWO at FESPA 2015 hall 8 / A3

INDUSTRIAL SOLUTIONS FOR DIGITAL PRINTING ON POLYESTER

Monica Cingolani looks at the ink types available in this market sector

The global textile market is a mature market. However, the technological revolution brought about by digital printing and the growing interest in synthetic fibres – polyester in particular – has radically changed the situation and digital textile printing is approximately growing 20% annually.

Polyesters are synthetic polymers widely used in clothing, especially sportswear, as well as in furnishings and advertising (soft signage). This is due to their technical characteristics, reduced management costs and the infinite possibilities provided by sectors that before the digital era were 'inaccessible' to the textile substrates.

CHOOSING THE BEST TECHNOLOGY

Making the right choice means finding the best compromise between printing results and optimal process management. This means choosing between sublimation, disperse or pigment printing – all suitable for printing on polyester.

- Disperse inks are the only water-based inks that create a chemical bond with the polyester fibre and can be printed directly onto the fabric.
- Sublimation inks are a specific class of disperse inks able to sublimate – ie pass directly from a solid state to a gaseous state, without becoming liquid. Sublimation inks can either be printed directly onto polyester or onto paper and then transferred to the fabric.
- Pigment inks are able to physically bond with various fabrics, including polyester. It is possible to print pigment inks directly onto polyester, and all other fabrics that can resist high temperatures.

There are several fundamental considerations when choosing a printing process type:

- Brightness and chromaticity required by visual/stylistic choices.
- General fastness required by the item's intended use.
- Available equipment, which determines the printing technology to be used.
- The application, which dictates the required technical characteristics of the finished product.

DISPERSE, SUBLIMATION AND PIGMENT INKS: PROS AND CONS.

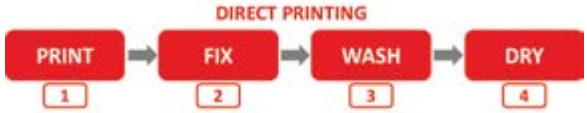
We have looked at the aspects that determine selection of the best ink. Now let's look at the specific pros and cons of the three types of ink:

- Brightness and chromaticity. Exceptional in the case of sublimation inks, which offer incredibly bright and intense colours. Tones become softer with disperse inks and pigment inks.
- General fastness. First place for rubbing fastness goes to disperse inks, which even pass the strict tests of the automotive industry. Pigment inks are the best in terms of light fastness, while the overall fastness of sublimation inks is lower.
- Equipment and process. The use of pigment inks is relatively simple, as they do not necessarily require any post-treatment:

Sublimation inks are versatile. When the

The printing process for pigment inks

Direct printing using sublimation inks



Transfer printing with sublimation inks

The printing process with disperse inks

transfer process is used, this choice ensures a simple printing sequence:

Disperse inks require industrial equipment. This process, which is particularly technical, is undoubtedly more appropriate for those who already have an established textile production line:

NO SINGLE BEST CHOICE

Disperse inks should be chosen for applications that require high overall fastness: interior decoration (such as curtains, sofa covers and carpets), home linens and industrial applications, for example in the automotive industry.

Sublimation inks should be favoured for all applications that require excellent brightness and colour definition. Inclusions are fashion, sportswear (fluorescent printing in particular), interior decoration (when high overall fastness is not required), advertising (such as for soft signage, pop displays, backlit advertising). They also have the advantage in that they require no post-treatment (washing or steaming).

Pigment inks should be selected for applications that require high light-fastness, or as an alternative to digital printing with reactive, acidic, disperse inks, using a simpler printing process. Other advantages offered by pigment inks are:

- Optimisation of the production cycle: shorter and more cost-effective.
- Eco-friendly choice: low-environmental-impact inks, with reduced water consumption during the production cycle.
- Versatility of use: suitable with a wide range of fabrics.

INFINITE POSSIBILITIES

Kiian Digital is the preferred partner for those seeking consistent quality and reliability for both direct and transfer printing. Its formulations go beyond the basic four-colour process to offer a wide selection of light and spot colours, deep blacks and fluorescents, for both transfer and direct printing, and always with the highest standards of quality. Industrial solutions for polyester printing are represented by the following series:

- Digistar DYS. Disperse pigment based ink, for direct polyester printing, compatible with DX3, DX4 and DX5 piezo printheads and offering excellent general fastness: to light, to rubbing (post-treatment), as well as excellent resistance to outdoor exposure.
- Digistar K-ONE. Sublimation ink for transfer printing, compatible with Kyocera piezo print-heads. Digistar K-ONE offers extremely vivid and bright colours, allowing a wide colour gamut during profiling.
- Digistar HI-PRO. Sublimation ink for transfer printing, compatible with Epson piezo printheads. Digistar HI-PRO has been developed for printing onto light and/or low coated papers; it offers high chromatic performance and excellent drying quickness of the printed paper.
- Digistar Easytex. Digital pigment ink for direct textile printing, compatible with DX3, DX4 and DX5 piezo print-heads. Digistar Easytex offers excellent light fastness and good resistance to washing, as well as the possibility of printing on a huge variety of fabrics.

This is just a taste of the complete range of Kiian Digital inks for transfer and direct printing, that multiply business opportunities. ■

Monica Cingolani is Image & Communication Manager at Kiian Digital

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GAINING MOMENTUM IN MANUFACTURING AND INDUSTRY

Jon Bultemeyer explores the potential for screen-printing

With the market for graphical screen-printing rapidly shrinking, the future of the process itself seems to be in peril. Not a day goes by without further bad news. As one of the world's leading manufacturer of inks for screen, digital and pad printing, Marabu is an expert in both the analogue and digital worlds. This puts the company in an ideal position to ask: "How bad does the future look for screen-printing?"

There is no denying the fact that screen-printing is no longer the all-conquering force it once was in the graphical space. Historically, the process was the only choice for many applications. But it is being increasingly supplanted by other methods – first and foremost, by digital printing. Digital methods deliver full-colour results quickly and flexibly – without the time and expense of making and changing plates.

These strengths are highly attractive, especially as the world of manufacturing becomes increasingly connected, and increasingly geared to mass customisation. Processes and value chains are becoming ever-more dynamic, integrated, and flexible. This is enabling the manufacture of customised products at the same low cost as standard mass-produced items. In other words, product personalisation is advancing hand-in-hand with greater productivity. Companies that fail to recognize these trends – that fail to embrace lower costs, longer product life cycles, and new technologies – will be left by the wayside.

Screen-printing continues to gain momentum in manufacturing and industry

Smartphones and touch screens have created a market for screen printing that did not exist ten years ago

Challenging substrates such as glass or injection-moulded components

DO WE FACE THE DEMISE OF SCREEN-PRINTING?

So does the new, hyper-connected business world mean the death of screen-printing? No, it doesn't. Many applications exist, particularly in manufacturing, that are crying out for the quality and characteristics that screen-printing – and, in some cases, screen-printing alone – provides. Demand from the graphical market will continue to fall. However, screen-printing continues to gain momentum in manufacturing and industry.

It is important to communicate clearly – and exploit – the advantages of industrial screen-printing. After all, it has truly unique attributes. For example, screen-printing is currently the only process that can vary the ink coating to create layers of varying thicknesses. Additionally, screen-printing inks boast high resistance to chemicals and mechanical strain. This enables them to be employed on challenging substrates such as glass or injection-moulded components. Moreover, this technology ensures high colour intensity, excellent flow properties, and high process flexibility – all in combination with low capital expenditure. The new hyper-connected age of manufacturing is not closing the door on screen-printing. On the contrary, it is opening up entirely new ones.

BUILDING ON THE STRENGTHS OF SCREEN-PRINTING

Marabu's Mara Glass MGHT ink demonstrates how it is possible to build on the strengths of screen-printing. This new ink was designed to handle challenging substrates and high thermal loads; it can be employed in applications that entail extremely high temperatures – temperatures that are simply too high for conventional organic inks. This special single-component ink for glass can withstand high temperatures during production processes, for example during the manufacture of OGS (One Glass Solution) touch screens; it can also withstand extreme thermal loads during actual use of the final products, such as laboratory glassware and light bulbs.

Not only does screen-printing provide a beautiful look and feel; its unique properties make it ideally suited to in-mould decoration (IMD). This is especially important in the context of the stringent quality and safety requirements

Mara Glass MGHT withstand extreme thermal loads

of the automotive industry. It is also relevant for the manufacture of buttons, switches, and consoles for medical devices and household electronics. For IMD processes, screen-printed polycarbonate film is placed in the mould prior to injecting the plastic. This results in pristine printed decorations securely bonded to the substrate. It is critical to ensure that there is no wash-out effect during injection. Screen-printing inks for in-mould decoration, such as the Marabu Mara Mold MPC, boast high adhesion to polycarbonate film, highly flexible ink film for exceptional mouldability, and strong bonds to injection mouldings.

ENORMOUS POTENTIAL

Smartphones and touch screens have created a market for screen-printing that did not exist ten years ago. And this market has enormous potential; 1.5 billion smartphones were sold worldwide in 2013 alone. The 3C (computing, communication and consumer electronics) market is booming, and has extremely high standards in terms of materials. This applies especially to inks, which must provide exceptional resilience and coverage. Touch screens for smartphones pose a particular challenge – two layers of ink must be printed on top of each other, and must together not exceed a thickness of just 30µ. This is equivalent to roughly half the thickness of a human hair. Digital printing does not provide the precision necessary to align these two layers perfectly.

Screen-printing is the only process that provides the correct properties and sleek visual appearance when printing on glass. Marabu developed the Mara Glass MG3C specifically for this application. This ink boasts exceptional optical density, ink film with a high degree of electrical resistance, and the ideal properties for multi-layer structures.

SCREEN-PRINTING'S ADVANTAGES

Screen-printing offers many advantages, such as the resilient ink, colour brilliance, variable ink film thickness, and the ability to precisely align ink film edges. It is also the best choice for graphic applications requiring special effects, exceptionally brilliant colours, or adhesion to transparent substrates. Overall, combining screen-printing with other processes will become increasingly common.

Marabu is a leading global manufacturer of screen, digital, and pad printing inks as well as liquid coatings and is head-quartered near Stuttgart, Southern Germany – a region renowned for its pioneering technology and engineering prowess. The company has been setting milestones with plenty of industry-first solutions for both industrial applications and graphic design since 1859. With its 15 subsidiaries and exclusive distribution partners, it offers high quality products and customer-specific services in more than 80 countries. Exceptional technical support and hands-on customer training are core elements of its corporate philosophy. Sustainable business practices are also key to Marabu's vision, and have been implemented through a number of initiatives, with concrete results. The company is committed to maintaining this course of action in the future. Marabu has been certified to ISO 9001 since 1995 and to ISO 14001 since 2003.

Ink manufacturers such as Marabu must make customers and potential partners aware of the advantages of screen-printing. They must show not only what it can already do, but what it could do in the future. Screen-printing needs to remain an attractive process, regain lost traction, and – most importantly – become dominant and irreplaceable in new markets. Innovation is critical to achieving these goals. ■

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IT'S ALL ABOUT THE DOTS

Mark Ritchie describes why ink-jet print quality is more than just a measurement of DPI

The subject of print quality is complex, subjective and difficult to quantify, particularly when printing four-colour images. Some recent articles in the printing trade press have proposed that the number of dots or lines that can be printed per inch (dpi or lpi) is a key determinant of final print quality. This is a simplistic position which does not consider the other important factors, many of which are system related, and external to a print-head. A decision based on this criterion alone would dismiss the potential for offset litho, printed for example at 150 lines per inch, to compete on quality with many inkjet printheads available today.

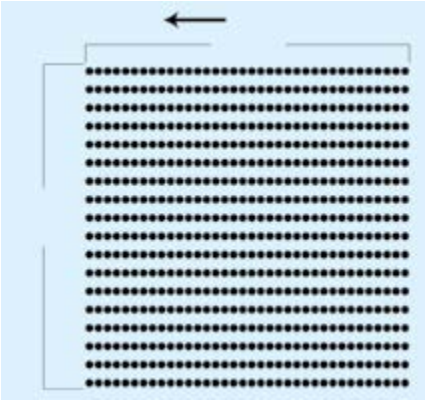

Figure 1: Xaar 1002 print-head with encoder resolution increased to give 360x720 dpi

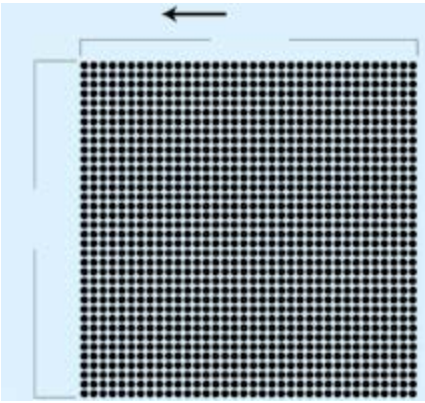

Figure 2: Xaar 1002 print-heads interleaved to give 720x720 dpi

Figure 3: Comparison of dot sizes

PLAYING THE NUMBERS GAME

Ink-jet print-heads are often described by their nozzle density or dots per inch, also known as native addressability. For example the Xaar 1002 has a density of 360 nozzles per inch (npi).

To characterise a printer it is important to consider the effective addressability of the whole device, not just the print-head. For example, when encoder resolution is increased on the media axis of a printer, this also increases its effective resolution:

Addressability can also be increased by interleaving multiple print-heads to double the effective npi:

The dpi value of a print-head thus identifies a location of dots, but does not actually describe the real resolution of a printing device.

IT'S ALL ABOUT THE DOTS

The use of variable dot greyscales in a process colour image increases the resolution visible to the human eye compared to a binary print. The number of grey levels can be defined as the number of different dot sizes that a printing process is able to reproduce, including white (where no dot is present). The capability of offset to print a high number of grey levels is one of the major reasons that it can achieve high print quality, despite its relatively low printing frequency referred to earlier.

The Xaar 1002 GS6 printhead can produce seven different drop sizes between six and 42 picolitres and is therefore capable of printing eight grey levels. These are set at linear increments of six picolitres (pL) which ensures that a wide range of tonal values from light shades to full solid coverage is achievable.

If drop volumes are of a similar size, print-head tolerances can lead to visually identical printed dot sizes and it becomes impossible to differentiate tonal differences. This results in a narrower greyscale range than the official product specification.

Figure 3 illustrates two examples:

a. a) Xaar 1002 at 360 dpi with eight grey levels at clearly differentiated linear six pL increments
b. b) 600 dpi print-head with non-linear increments and barely differentiated dot sizes: greyscale effectively reduced from five to three levels

The capability of varying dot size results in a higher perceived print resolution than the basic print-head dpi specification. The more levels of visible greyscale, the smoother the colour transitions and the wider the tonal ranges become, resulting in comparable print quality to higher dpi binary or restricted greyscale images. This is known as apparent or effective resolution and can be calculated using the following formula:

Examples of different print-head dpi and greyscale levels are illustrated below:

Printhead dpi	Greyscale levels	Effective resolution
360	8	1018
600	5	1341
600	3	1039
720	4	1440

The Xaar 1002 print-head with a native 360 dpi and eight clearly differentiated grey levels, results in an effective resolution greater than 1000 dpi. This is further increased if used in 720 dpi mode even with a restricted greyscale.

HOW CLOSE CAN YOU GO?

Ultimately it is the capability of the human eye which is the final determinant of perceived print quality. The resolving power of a 20/20 human eye, commonly referred to as normal visual acuity, is considered to be one arc minute (a unit of angular measurement equal to one-sixtieth of one degree). This translates to a dot size of 29 microns at the eye's closest focusing distance of 10cm (4 inches), which in turn equates to an effective resolution of 876 dpi – well within the capabilities of a 360 dpi eight grey level print-head.

Resolving power decreases with an increase in distance so that, at the average reading distance of 30cm (12 inches), the finest resolution that 20/20 vision can perceive under ideal viewing conditions is 89 microns or about 300 dpi. It also diminishes based on other variables such as iris diameter, light levels, contrast, and light wavelengths.

This is why magazines are printed at 300 lpi and most computer monitors have about 100 pixels per inch (ppi) – these resolutions are more than sufficient at the correct viewing distance even in ideal lighting conditions. High resolution capability is of no benefit when it is beyond the capacity of the human eye and visible only through the artificial use of magnification.

WHY SIZE REALLY DOES MATTER

The size of a printed dot is normally a function of the drop volume jetted by a print-head. A smaller drop size results in a smaller printed dot and a lower colour density, thus improving image highlight areas. Small dots also have the

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Figure 6: The effect of dot size on colour density

potential to realise smoother edges on text when used to fill in the spaces around large dots.

However, this does not necessarily mean that smaller is better. An array of printed dots which do not fully overlap will not be suitable for printing solid areas or bold text. A larger dot size can ensure that full solid coverage and stronger or higher opacity colours are achieved – a distinct advantage for prints that are designed to have high visual impact.

Figure 6 shows two versions of the letter 'X', both made up using the same number of dots, but where the dot size of the image on the left is twice that of the one on the right. The 'X' on the right has areas of white space which results in a lower colour density and a lighter shade compared to the one on the left. This is particularly clear when viewed at a distance where the individual dots are no longer visible and illustrates the role dot size can play in the perception of the final printed image.

The Xaar 1002 GS6 print-head can jet drop volumes as small as six pL which results in small dot sizes that are ideal for the reproduction of highlight image areas. Its greyscale capability also enables it to jet drop volumes up to 42 pL which are suited to the creation of striking colours and highly opaque whites. This single print-head variant can therefore cover the print quality requirements of fine detail images as well as strong, vivid colours.

HIT THE SWEETSPOT

To ensure precise imaging, each dot must be placed in the exact predetermined position on the substrate. Misplaced dots will affect the quality of text, which can exhibit 'ragged edges' (Figure 7), and colour registration, resulting in 'scratchy' prints or white lines in images and solid areas.

All print-heads are manufactured with a tolerance for drop placement accuracy which determines the initial capability of a print-head when installed. During use, air bubbles or particles which find their way into the ink chambers of end-shooter type print-heads can cause deviated nozzles or misdirects. These can only be removed through regular maintenance and in extreme cases by replacing the print-head itself.

The Xaar 1002 family of print-heads uses Optimised Geometry nozzles to deliver extremely precise drop placement accuracy and consistent drop volumes even with heavily pigmented and high viscosity fluids. This ensures accurate reproduction of fine text along with exceptionally smooth print tones and solid areas. In addition, Xaar's unique TF Technology ensures continuous ink flow at a high rate directly past the back of the nozzle during drop ejection. This automatically removes air bubbles and unwanted particles, radically improving jetting reliability and reducing the chance of temporary or permanent nozzle deviation.

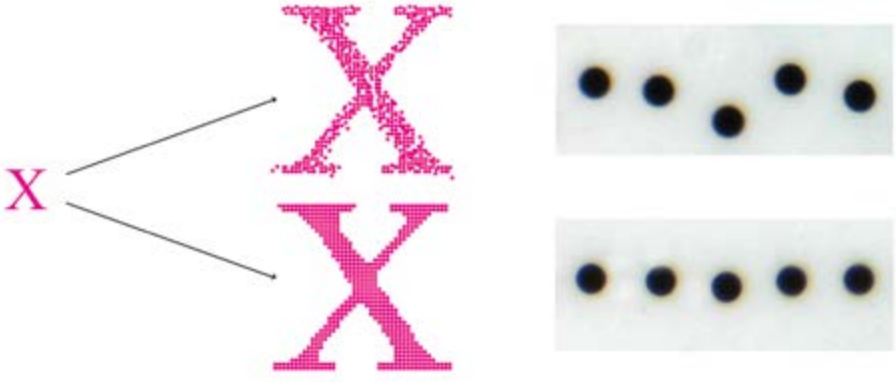

Figure 7: Effect of dot placement accuracy on text reproduction

CONSISTENCY IS CRITICAL

Visual print quality can also be affected by the consistency of drop size across the print width. Bands of different colour density visible in an image are highly undesirable, but can result from inconsistent drop volumes across a single print-head and the entire print width.

This is influenced by the physical capability of a print-head to jet drops of equal volume, and its ability to regulate heat build-up generated by the process of actuation. Variation in ink temperature will affect its viscosity and the drop size which will be ejected. Elevated temperatures in one area of a print-head will result in higher drop volumes and increased print density which can be extremely difficult to manage.

The constant recirculation of ink through Xaar 1002 print-heads ensures that ink temperature is always controlled and consistent, resulting in even colour density across each print-head and the entire print width.

There are many important factors all combined together which influence the final quality of a printed image. To reduce the measure of print quality to a single parameter, such as the dpi or native addressability of an individual print-head results in a one-dimensional perspective of a highly complex subject.

It is also essential to note that the focus of this article has been on the role of the ink-jet print-head in achieving final print quality. Other influential elements, such as print carriage accuracy and consistency, ink and substrate types, throw distance between print-head and substrate, RIP and half-toning software, etc have not been considered.

This investigation into the key determinants of print quality clearly shows that no single factor can decide the final print quality and demonstrated that the native resolution or dpi of the print-head is only one of many contributory factors. ■

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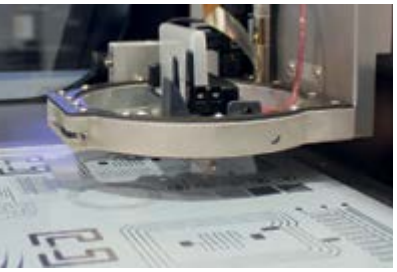
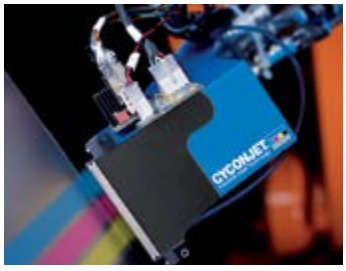
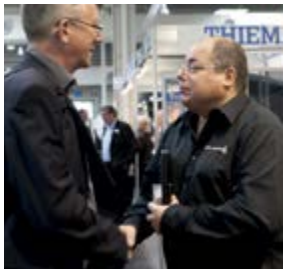




MULTI-FACETED DESIGN GAINS WITH UNIFORM TECHNOLOGY

Standardised digital printing enables processing of membrane switch graphic overlays

The German printing specialist Thieme, together with its industrial partners, has developed a digital printing system for the production of flexible membrane switch graphic overlays. This system is suitable for any desired graphic and print size while meeting the high demands on design, flexibility and service life of these technically sophisticated products.

Membrane switches are encountered in many areas of daily life. They are particularly widespread in industrial and medical applications because, in contrast to typical PC keyboards, they resist dust, moisture, and chemicals. Membrane switches, adapted to each field of application, are available in numerous designs, sizes and colours.

The top membrane layer – referred to as the graphic overlay – is a design element which is also exposed to dynamic alternating loads due to keystrokes. The printing process is essential to ensuring all of the overlay's quality criteria are met and this is a process that is very well implemented utilising the screen-printing process. In the future, graphic overlays increasingly will be produced using digital ink-jet printing allowing even the smallest batch sizes to be efficiently reproduced, quick delivery times to be met, and the benefits of individualism to be exploited.

Many opportunities of creative design such as colour gradients, integrated photorealistic motifs or other individualisations could only previously be produced industrially at great expense. Thanks to the new combined ink-jet and screen-printing process, which Thieme has developed and standardised together with its partners, the complete layer structure can now be individually and industrially reproduced.

The process includes a tested combination of special membranes, digital printing inks, screen-printing inks, and at the heart of the system a specifically developed machine technology. This system enables optimal printing results as well as the durability to perform a million keystrokes and more without visible wear to the print layer.

OUTSTANDING AND DURABLE PRINTING RESULTS

The digital printing process opens up multi-faceted design options for sophisticated customer specific decor applications such as those using traditionally hard-to-print colour gradients. The graphic overlay is printed subsurface and the applied colour layer must therefore resist the stresses resulting from any subsequent embossing process without cracking. The stress caused by the compression of the raised keys every time they are touched cannot lead to premature wear. The graphic overlay is additionally back-printed with white and a barrier coat on a UV or solvent basis. These additional coats are applied in the screen-printing process which enables high coating thickness and a good contact capacity for the adhesive layer which is ultimately used to bond the membranes in a laminating process.

"All of the components of our printing process are optimally matched to each other and were extensively tested," emphasises Harry Götz, Product Manager for digital printing systems at Thieme. Along with the testing of mechanical fatigue strength (keystroke test), embossing, and laminating tests were performed as well as tests of stresses caused by heat, cold, temperature change, damp heat, and UV exposure.

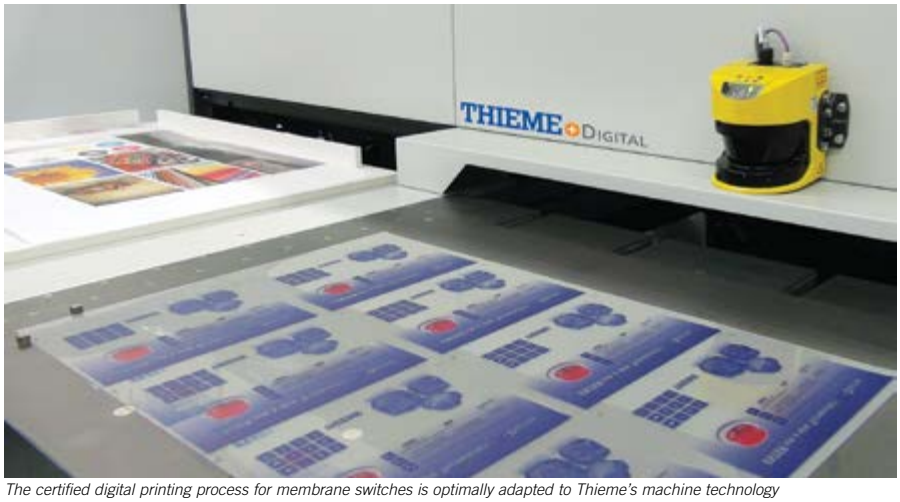
All of the tests were performed in a certified laboratory. Visual tests also confirmed high colour fidelity and a very large colour space (FOGRA39). "We can therefore ensure our customers that they will achieve both visually and technically outstanding results with our printing process," Götz concludes. "Thanks to the defined quality of the membranes, printing inks, and the optimal adaptation of the process to the Thieme printing machine the customers can rely on consistently good results."

UNIFORM MACHINE PLATFORM, FREE CHOICE OF FORMATS

Since both digital and screen-printing are used in the production of graphic overlays, it is highly advantageous that Thieme uses the same machine platform for both digital and screen-printing processes. The material handling (such as a movable printing table, positioning points and selectable vacuum zones) and additional equipment for printing optimisation (for example, integration of cleaning and ionisation systems) are therefore identical for both printing processes which ensures an effective printing sequence.

The top-selling industrial machine Thieme 3020 with its printing format of 750 x 1050mm is used and is available as either a screen-printing station or a digital station. The Thieme 500 D with its printing format of 600 x 400mm is available as a less expensive alternative for start-up digital ink-jet production covering most of graphic overlay formats in one-up production.

In addition to this, special customised formats can be realised on the Thieme machine platform. Optical alignment using a camera system in the screen- printing and digital printing machines is also possible to allow prints to be automatically aligned with each other. Completely new design options are opening up for graphic overlay manufacturers. ■



The certified digital printing process for membrane switches is optimally adapted to Thieme's machine technology

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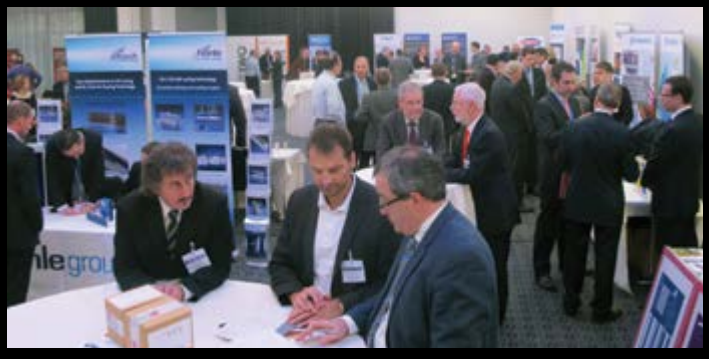

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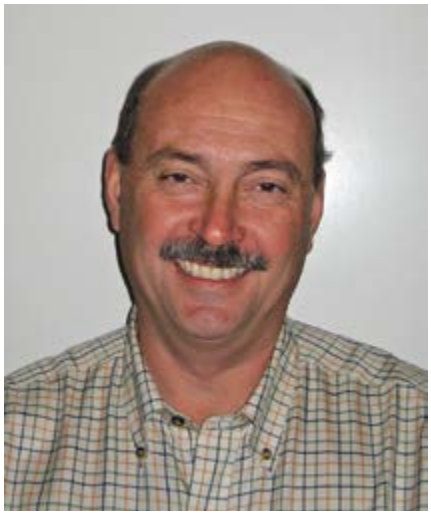
EXPANSION REQUIRES THE LATEST TECHNOLOGY

Tim Klee reports on how screen-printing has helped a specialist company grow its horizons



Murray Bain, Stanpac's Vice President of Marketing

Stanpac manufactures packaging supplies for the US and Canadian markets. To grow its beer, wine and spirits bottle decorating business, the company needed to upgrade its existing decorating machines which were old and could not handle organic inks. In addition, the new equipment had to handle efficiently the unique shapes and vibrant colours that the beer, wine and spirits market uses to make its products stand out on the shelf.

Based on its positive track record with Kammann equipment, Stanpac turned to KBA-Kammann for the latest decorating technology. Last year it installed a five-colour K15 CNC-M18 fully automatic, CNC controlled, universal screen-printing machine with UV drying and a K31 A glass pre-treatment unit.

THE STANPAC STORY

Stanpac started manufacturing caps for glass milk bottles in 1949 and, as the dairy industry moved away from glass bottles, the company diversified and moved into ice cream packaging, which is now the largest part of its business. . "We do everything from paper forming to die-cutting to flexo and litho printing," says Murray Bain, Vice President of Marketing. "We even offer ice cream filling equipment."

Stanpac's head-quarters in southern Ontario

With decorated milk bottles experiencing a new growth, the company continues to supply them and other supplies to those in the dairy industry that rely on refillable glass. These include organic dairies, local dairies that produce milk on the farm, and companies that provide home delivery of milk.

As much as Stanpac loves the dairy industry, it recognised that it needed to get more out of its capabilities. Taking advantage of its glass decorating expertise, Stanpac branched out into producing packaging and ceramic labelling for wine, liquor, and beer bottles. Head-quartered in southern Ontario, one of Canada's two main wine producing areas, the company benefited from the surge in popularity of Canadian Ice Wine.

With seven patents in more than 20 countries, the company is recognised by its customers as innovative and customer focused. "We pride ourselves in listening to our customers and offering solutions to unique problems," offers Bain.

OPENNESS AND FLEXIBILITY

This openness and flexibility also manifests itself in how it helps the community solve problems. Since 2001, Stanpac, through its owner Steve Witt, has donated space in its Smithville, Ontario facility to a local organisation that provides food and emergency assistance for needy families and individuals. Recently, its facility in Brenham, Texas, also got into the act when the manager of a resale boutique geared to seniors needed a new accessible site for its store since the existing one was being torn down. Stanpac responded by providing the space and doing all the work to make it wheelchair accessible. Bain notes: "As a family-run business, people are important, too; not only our own people but also the families in our communities."

GETTING THE RESULTS

Stanpac operates the K 15-CNC on a three-shift basis and is able to produce all of its existing work along a sizeable increase in business. The servo-driven system easily handles the unique shapes and designs requirements of the beer, wine and spirits market. A seam detection system, a bottom register camera and an optical registration sensor greatly improved productivity and print accuracy. "The eight color job we just completed required two passes," Bain comments. "But, with the optical sensor, set up was easy and the registration was spot on."

Ice wine has seen a surge in popularity

The K31 A pre-treatment unit enabled the company to begin its transition from ceramic to organic inks. "Our customers love the vibrant colours we have been able to achieve with both organic and UV inks," Bain adds. Stanpac also planned for the future by choosing a machine configuration that allows the addition of four more stations.

Stanpac employs over 350 people and has facilities in Smithville, Ontario Canada and in Brenham, Texas USA ■

Tim Klee is Marketing Consultant for KBA-Kammann USA

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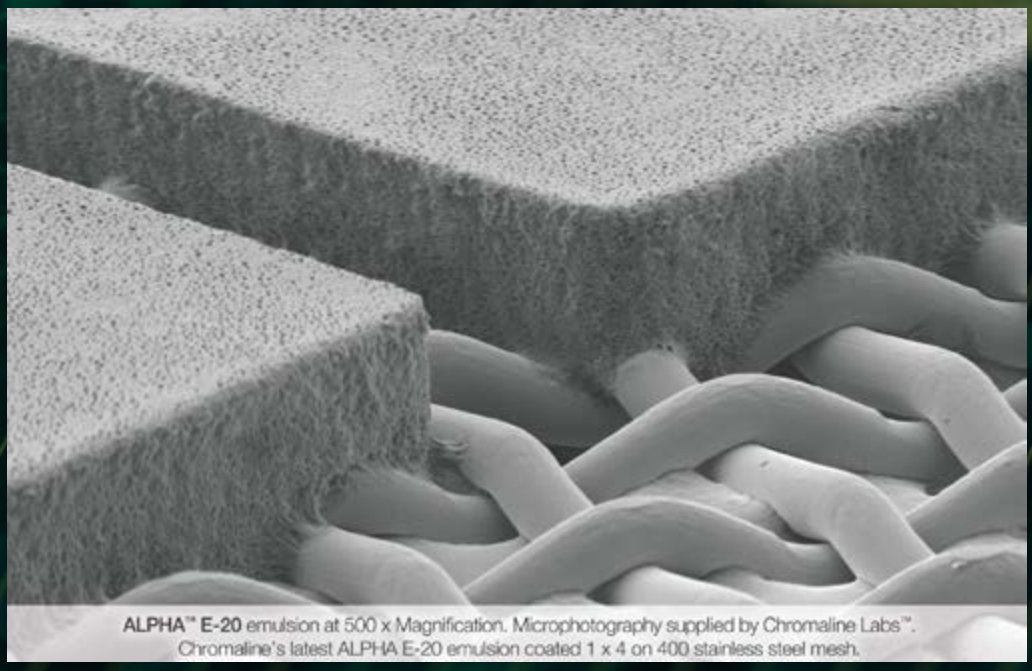

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THE TRANSPORT OF CHEMICAL SUBSTANCES

ESMA
Driving Print Excellence

Elaine Campling explains the implications for moving print-related products

Many chemical substances used by industry in printing inks, adhesives and cleaning products, for example, are classified as environmentally hazardous (aquatic pollutants). These chemicals are typically used at concentrations that result in an environmentally hazardous rating for products.

If a substance/mixture is only classified for transport as environmentally hazardous i.e. not classified under any other transport hazard class, then one of two UN numbers in Class 9 (Miscellaneous dangerous substances and articles) must be assigned:

UN3077 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.
or
UN3082 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S

The United Nations (UN) number is a four-digit number that identify hazardous substances, and articles in the framework of international transport.

Many chemicals have their own UN number, but some groups of chemicals are assigned a generic number, when they cannot be distinguished by the presence of a 'specified' substance in the dangerous goods list. A 'not otherwise specified' (N.O.S) entry generally requires supplementation in brackets with a technical description of the constituent(s) contributing to the classification of the product as hazardous.

CLASS 9 CLASSIFICATION

The Class 9 classification for printing inks and other similar products has been difficult for manufacturers in supplying to customers and for onward transport. It is generally more expensive to transport hazardous chemicals, many couriers will not take them and the documentation, packaging, labelling and marking requirements require specialist trained personnel and are labour intensive and costly.

There are some options in transport regulation with reduced requirements such as the limited quantity provisions, which can be applied to small pack sizes. However, whilst beneficial, most of these options are limiting, or require additional measures. The limited quantity option requires either boxing, or shrink/stretch wrapping of packs and a level of marking, labelling and documentation depending on the mode of transport by air, sea or road (not withstanding transportation by inland waterways and rail).

The modal regulations governing air, sea and road transport are as follows:

IATA (Air): International Air Transport Association
IMDG (Sea): International Maritime Dangerous Goods Code
ADR (Road): European Agreement concerning the International Carriage of Dangerous Goods by Road

Some categories of dangerous goods are subject to dispensation from transport regulation, as the risk from a transport incident is minimal such as viscous flammable liquids of Class 3, providing the pack size requirement is met and there are no additional hazard properties – e.g. no toxic sub risk (to be further explained later in this document). There was no such dispensation for Class 9 aquatic pollutants.

RISK CONSIDERATIONS

Since the risk of an incident involving the transportation of Class 9 products in small pack sizes is also fairly low, regulators were lobbied to try and obtain a relaxation in regulation, which was generally prompted by industry and moved on by trade associations in contact with national member state authorities responsible for transport and direct representation.

Changes to the model regulations stem from changes agreed by the United Nations Dangerous goods transport Committee Experts; the Sub-Committee of Experts review proposals from Member States and other interested parties for changes to the UN 'Recommendations on the Transport of Dangerous Goods', which has become to be known as the UN Orange Book due to its colour. The recommendations of the Sub-Committee are formally endorsed by the Committee of Experts on the Transport of Dangerous Goods.

The UN Recommendations have global standing and although not directly legally binding, form the basis of international

agreements and national regulation. The Recommendations (Model Regulations) in the latest (18th) edition form the basis of the 2014 edition of the IMDG regulations and 2015 editions of ADR and IATA.

PACK SIZES

The 18th revision includes deregulation of certain pack sizes of UN3077 and UN3082, which was also written into the revised editions of the modal regulations. The revision states that these products carried in single or inner packagings in combination packages containing a net quantity not exceeding 5 litres (for liquids) or 5 kilos (for solids), are not subject to transport regulation, save for meeting the general packaging provisions to ensure that the packaging is fit for purpose and there is no reaction with other dangerous goods being transported.

It was enacted in ADR as Special Provision 375 and Special Provision A197 in IATA with a specific entry in the text covering marine pollutants in sea regulation (IMDG 2.10.2.7). The new provision can be applied from the 1 January 2015, but there are transitional arrangements for IMDG and ADR, which means that the special provision does not need to be used immediately. The use of this special provision is also optional, unlike most other special provisions that must generally be applied, once listed. However, since it is beneficial to industry, many companies affected by the difficulties with the transportation of Class 9 aquatic pollutants will be working with the revised regulations. This means that these organisations must comply with all changes, including any that are not beneficial; companies must work with a particular set of regulations in their entirety, either the revised regulation, or the preceding version.

NEW EXEMPTION

Companies using the new exemption are now able to consign these products without transport document, secondary containment, marking and labelling, etc., saving time, cost and labour. It is hugely beneficial for onward transport such as for customers of printing ink manufacturers because they can move the goods from site to site for testing and evaluation purposes. Previously they would have generally needed to use the services of freight forwarders because printers generally do not have dangerous goods systems in place – to produce dangerous goods notes and so on.

The new deregulation for Class 9 aquatic pollutants has created an anomaly within transport regulation. In accordance with the provisions of 2.3.2.5 in the Model Regulations, viscous flammable liquids e.g. flammable printing inks that have a flashpoint of 23 degrees C or above and less than or equal to 60 degrees C, which are not also toxic, corrosive or environmentally hazardous (and meet the criteria on nitrocellulose content), are not subject to the transport regulation if they meet the requirements on the solvent separation test and criteria on viscosity.

The anomaly lies in the fact that viscous flammable liquids defined above are subject to dispensation from transport regulation and Class 9 aquatic pollutants in pack sizes of 5 litres/kilos can now be excluded from most of the provisions, but there is no dispensation for Class 3 viscous flammable liquids in pack sizes of 5 litres or less that are also classified as aquatic pollutants. This has now been addressed by the UN Sub Committee of Experts, who recently adopted the proposal to exempt environmentally hazardous Class 3 viscous liquids that meet the conditions for exemption in 2.3.2.5 and special provision 375 for inclusion in the 19th revision. ■

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

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See ESMA at FESPA 2015 hall 8 / A60 and Fujifilm in hall 6 / S9

NEW BUSINESS VENTURE LAUNCHES INTO THE TEXTILE SECTOR

End-to-end solutions are the key for company launch

At this year's FESPA in Cologne the show will herald the global launch of a new business venture, Pigment.inc, from Impression Technology. Impression Technology is a creator of DTG (direct-to-garment) digital T-shirt printers. The tag line for the new company, Pigment.inc is "Everything Textile". It's a bold statement for the new business, but it is supported by more than a decade of experience in designing, manufacturing and global distribution of direct-to-garment digital textile printers.

The concept behind creating the new company, Pigment.inc, is to provide textile manufacturers with an end-to-end solution regardless of the fabric type. Other companies have focused their attention on just one or two printing machines aimed at a specific vertical market. The competitors offer machines that can only handle a few, very select types of fabric or are just too expensive to consider using for most textile printing. Most machine manufacturers only offer support for a limited type of ink, further restricting the application of the hardware. Many early adopters have mixed and matched inks with machines but are left without any warranty on the machine or the performance of the ink as a consequence.

ROTX INTRODUCTION

Part and parcel of the launch of Pigment.inc at FESPA 2015 is the début of the new RoTx range of roll-to-roll digital textile printers. The RoTx direct-to-fabric (DTF) digital printers incorporate the totally new Roto-Trac fabric feeding system. At a fraction of the cost of sticky belt systems Roto-Trac can still handle 95% of all the fabric that people want to print using a digital printer.

The new RoTx machines are stated to be fast. These machines put those at twice their price to shame. There is nothing on the market that comes close to the RoTx for the cost. It is able to produce flags and banners at up to 100 square m/hour, and high resolution imaging for fashion and interior design at up to 50 square m/hour.

To be everything textile is not as simple as offering a trick new printer, no matter how good it is! To provide that end-to-end solution for anyone into textiles, Pigment.inc offers a wide range of inks that can be paired up with the RoTx printer. Because different applications call for printing on different fabrics, Pigment.inc offers a choice of reactive dyes for natural fibres in garment and fashion textiles, sublimation dyes for synthetics used in sportswear as well as soft signage, flags and banners and pigmented inks for use across the range of fibres for interior design, home-wares, displays and other forms of soft signage.

END-TO-END SOLUTIONS

That still isn't enough to provide a complete end-to-end solution. Fabrics have to be pre-treated before you print on them, even synthetics. FESPA 2015 is also the debut of Pigment.inc's new roll-to-roll pre-treater. After the printing is done, the print must be fixed. Reactive inks need to be steamed and washed, pigmented inks require heat pressing and sublimation or disperse dyes require high temperatures for sublimation or fixation.

For all these technical requirements of the different applications Pigment.inc will provide a complete end-to-end solution by pairing up the right pre-treat system with the right inks in the printer and the matching fixation system. It doesn't matter what area of business the user is in or what market segment needs to service with digital textile printing, direct to fabric, Pigment.inc is a single place to go for everything textile.

Impression Technology was founded in Sydney Australia in 1999 and is a privately owned company. Impression Technology is the developer and manufacturer of the digital direct-to-garment printers, the Com-press UV and label printers and Pigment.inc RoTx roll-to-roll fabric printers. All equipment is supported globally through a dedicated distributor network and the company's mission is to provide the highest quality machines, software, inks and support services. With a continual commitment to R&D, it aims to provide new technologies and complementary product in support of an ever expanding global digital community. ■

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email: Stever@impressiontechnology.com
web: www.dtgdigital.com,
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See Pigment Inc at FESPA 2015 hall 7 / H4

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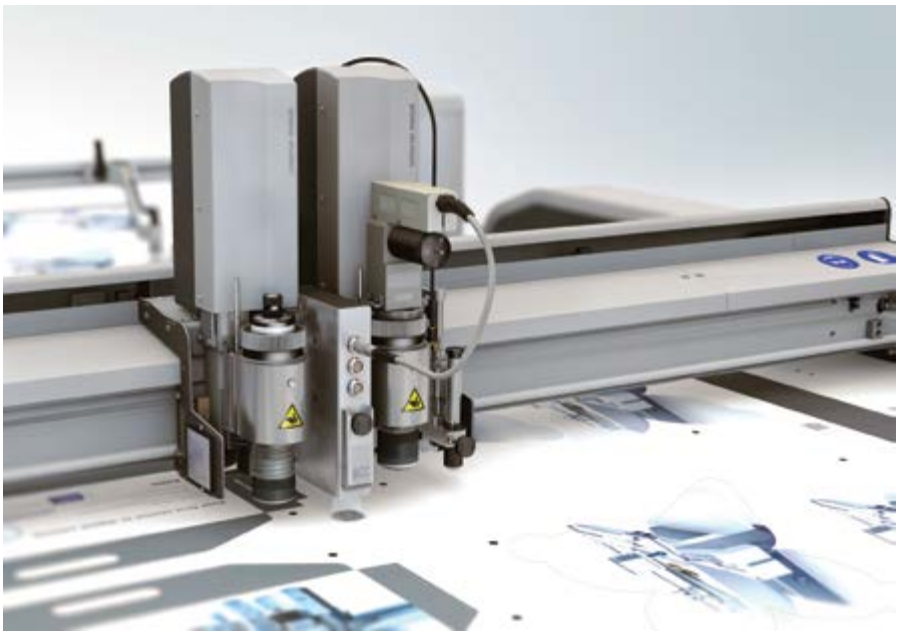
GAINING THE COMPETITIVE EDGE

Lars Bendixen discusses the benefits of digital cutting systems

Lars Bendixen is Product Manager Graphics at Zünd



Zünd's quick-response (QR) code capture technology

Zünd high-performance digital cutting systems cut, crease, and route just about any material you can imagine, and they do so with perfect precision and efficiency. Zünd offers application-specific solutions for automating both the material-loading and unloading process. In this interview, Daniel Bischof, responsible for PR at Zünd spoke to Lars Bendixen, Product Manager Graphics, about how Zünd digital cutting systems achieve unsurpassed productivity by keeping idle time to a minimum.

Daniel Bischof: *Print service providers are under constant pressure to increase productivity. What is Zünd doing to support them in this effort?*

Lars Bendixen: The print finishing work-flow can be divided into three phases: prepress and file preparation, machine set-up, calibration, etc, and processing, for example cutting/routing along with material loading and unloading. Zünd has put a great deal of effort into maximising efficiency in all three phases but especially in automating all aspects of processing. The latest example of our efforts to reduce set-up time, for instance, is the automated router tool changer – ARC. The ARC carousel lets the user freely configure up to eight router bits for processing. The system automatically selects the perfect bit for the job and material at hand.

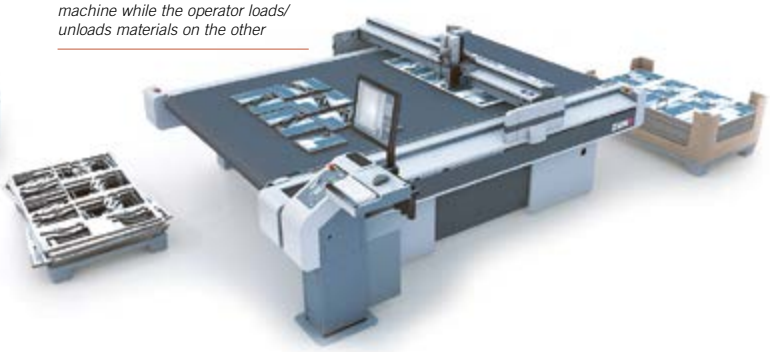
DB: *In the manufacturing process, human operators are increasingly supported by robotic equipment. Robots are fully integrated in the production process and work 'hand in hand' with their human counterparts. What is your opinion of this development?*

LB: In the past, the purpose of robotic equipment was to replace human labour wherever possible; nowadays much more emphasis is placed on having robots assist, rather than replace, their human counterparts. The strict and somewhat limiting separation between manual labour and automation is quickly becoming a thing of the past. For simple, repetitive tasks – prime targets for automation – the use of robots is becoming more and more widespread. Even as robots relieve humans of these monotonous tasks, the human operator remains the one who ultimately controls the production process. Zünd is following suit with its most recent developments. At FESPA Cologne we are showing for the first time in Europe how a collaborative robot can be used to remove and sort parts cut on a Zünd S3 M-800.

DB: *For whom and in which applications does investing in automation make the most sense?*

LB: There really is no definitive answer to this question, in part, because Zünd offers such a vast range of automation features for every type of production scenario. To benefit industrial applications, for instance, we offer automation in material handling as well as

The Zünd CenterWinder roll-off system enables the processing of rolls up to a weight of 100kg



In tandem mode, the cutter processes jobs on one side of the machine while the operator loads/unloads materials on the other

order processing. The automated material-handling system feeds jobs in any sequence onto the cutting surface, and through quick-response (QR) code capture technology, the cutting system instantaneously retrieves the corresponding cut file and processes the job at hand without any operator intervention. But just-in-time production and ever shorter delivery times are challenges for smaller operations as well.

At present there is an undeniable trend towards shorter-run jobs while the volume of jobs is increasing steadily. Automation solutions, such as fully automated tool initialisation or pendulum production with tandem vacuum, make perfect sense in this context; they help increase throughput and minimise the potential for errors. In tandem mode, the cutter processes jobs on one side of the machine while the operator loads/unloads materials on the other.

This practically eliminates idle time, making the system incredibly productive. Zünd cutting systems are based on a design concept that emphasise flexibility, adaptability, and upgradeability more than any other system on the market. This modularity allows for tailoring Zünd cutters to specific requirements at any time, with cost-effective upgrades that help the user keep up with ever-changing demands.

DB: *An important aspect of automated production is the seamless integration in existing workflows. What solutions can Zünd offer customers in this regard?*

LB: The digital cutting software that powers our cutters, Zünd Cut Center – ZCC, offers seamless Print&Cut work-flow integration. ZCC processes files from all commonly used RIPs and nesting programs, and fits optimally into any production work-flow.

However, with ZCC, we actually go one step further: with the ability to integrate with ERP and MIS systems, ZCC has broken new ground. By directly linking the ERP system with the cutter, real-time production data is always available. After completion of a job, ZCC feeds the production data back to the ERP system for final cost analysis.

DB: *Print service providers are always working towards increasing their productivity. How can Zünd support its customers in this?*

LB: By developing cutting systems that are capable of producing non-stop, with little or no supervision. We facilitate processing rolled materials with a variety of roll-off and rewind devices that can be configured according to specific customer needs. For applications involving sheets or boards, we offer the collaborative robot, fully automated board-handling system, or automated sheet feeder. All of these solutions offer reliable material-handling automation which contributes significantly to overall productivity.

DB: *Inconsistent cut quality leads to waste and reduces the profitability of a cutting system. What solutions does Zünd offer that help customers consistently achieve or even exceed their quality standards?*

LB: Zünd cutters are high-precision machines. With their robust build, they are capable of withstanding the rigorous demands of any production environment. All components – from drive system to cutting blade – are perfectly calibrated to ensure exceptional precision, repeatability, and longevity. ■

Zünd offers fully automated, reliable loading of sheets and boards

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See Zünd at FESPA 2015 hall 7 / M20

MESH AND MORE

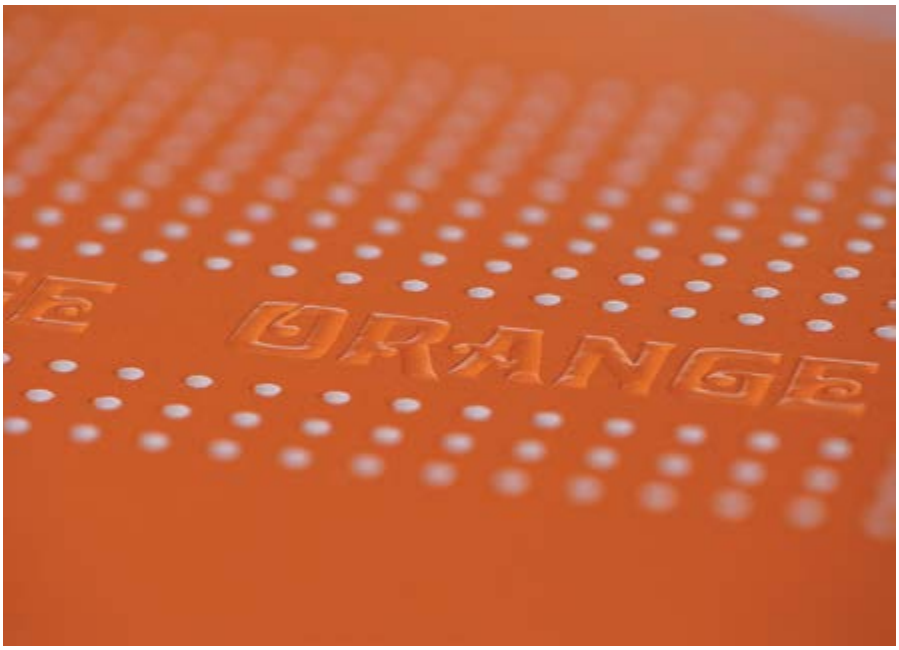
How a specialist leader in technical fabrics is gearing up for the future

Sefar AG draws on more than 180 years of innovative energy to provide tailored solutions to its customers. With in excess of 2,300 employees and fully integrated subsidiaries in 23 different countries (including a recently acquired business in South Africa), the screen-printing mesh solutions' specialist provides complete world-wide market coverage. A privately owned business, Sefar is a leading manufacturer of precision fabrics and monofilament fibres for screen-printing and industrial filtration applications.

The company's origins date back to the 1830s, when the Dufour & Co family business in Thal, Switzerland was producing silk bolting cloth to sieve flour, while also developing a successful textile weaving and spinning business. This company grew throughout the 19th Century, before joining forces with a series of like-minded Swiss organisations in Thal and Zurich to create a single, strong entity.

Today, Sefar products are used in a wide range of industries, from electronics, graphics, medical, automotive, food and pharmaceuticals to aerospace, mining, refining and architecture. The group operates weaving plants in Switzerland at Thal, Wolfhalden and Heiden, in the Romanian town of Sighisoara, and at Kabinburi, Thailand. Fabrication plants are located throughout the world in Switzerland, France, Italy, Spain, Germany, The Netherlands, USA, Canada, Mexico, Brazil, China, Malaysia, India, Australia and New Zealand. Separately, the specialist Monosuisse division produces fine and medium yarns in Switzerland and Poland and, following the recent acquisition of Sider Arc F&M srl, in Italy where nylon alternatives are made.

Screen-printing mesh for the graphic industry



Partial clear varnish with SEFAR PET 1500 165/420-34Y TW (UV inks) or SEFAR PET 1500 77/195-55Y PW (solvent inks)

A FAMILY COMPANY

Sefar is a privately held corporation, and has been since the outset, allowing the company to be solidly backed-up financially. It does not have to face stock exchange issues like others and it's crucial that the families are backing up Sefar effectively and positively. The board also consists of a good number of family members and they have a strong emotional tie to the company's activities. CEO Christoph Tobler is one of the family members, so there is a strong link. "It's important to emphasise that when the global financial crisis hit in 2009, we purchased our main yarn supplier to secure our strategic yarn sourcing position," explains Ueli Bötschi, Head of Sefar's Screen Printing Division, explains. "They had been responsible for a large proportion of our yarn supply, so we took the difficult decision to integrate our own yarn supplier." At a time when sales opportunities were extremely difficult around the world, Sefar made the bold move to acquire Monosuisse AG and is now the industry's only supplier to offer a complete value chain.

The Sefar mission statement is 'mesh is more', emphasising the group's commitment to be the leading manufacturer of monofilament precision fabrics for customer-tailored solutions in separating, coating and dosing for industrial processes and technical applications. Screen-printing is a typical dosing and coating measure, where dosing is through a mesh before a substrate is coated.

TAILORED SOLUTIONS

According to Bötschi, the delivery of tailored customer solutions is at the heart of Sefar's service provision, working closely with customers to develop know-how jointly. "To understand an application and develop appropriate products, we need to understand the customer," he suggests. "Now, we can also influence the yarn in the right way through Monosuisse and have a better end product."

The Sefar philosophy is to team up with customers in a fair and respectful way so that a sustainable partnership can evolve. "We have to 'go the extra mile' mentally, thereby creating a recipe for success," Bötschi stresses. In addition, positive co-operation is maintained with industry and technology partners.

ATTENTION TO QUALITY

To ensure product quality, advanced measurement equipment, application laboratory facilities and clean room fabrication equipment are installed at Sefar's factories, where quality management certifications ISO 9001, ISO 13485 (medical), ISO 14001 (environment) and ISO/TS 16949 (automotive) are observed. "For a global business like Sefar, that's a must," explains Bötschi.

With the potential to develop so many applications simultaneously, the company's learning capacity and opportunity are extensive and are likened to the co-ordinated

workings of a centipede. "If one leg fails to work properly, the other 99 feet support the health and growth of the company," Bötschi analogises. "The centipede approach is crucial to our strategy of where we want to be today and where we want to go tomorrow."

With the mission statement of 'mesh and more', Sefar wants to be the leading manufacturer of monofilament precision fabrics for customer-tailored solutions in separating, coating and dosing for industrial processes and technical applications. The most important part of its work is the customer; everything that the company accomplishes is for the customer because they are the only ones that decide its fortune and success.

As such, Sefar really works closely with its customers and together they generate application know-how. To understand an application itself, the company needs to understand the customer to develop the right products and it can also now influence the yarn in the right way through Monosuisse, resulting in a better final product.

TEAMWORK WITH CUSTOMERS

Sefar sees the benefits of teaming up with customers in a fair and respectful way so that it can fully understand their situation and where they want to go. This enables the company to provide its end users with the right products and have a sustainable partnership. The formula is the 'go the extra mile' mentally, and that is the recipe for success. Quality is key because in the end, it's a promise and commitment we give to our customers. There are also crucial standards, starting from ISO 9001 through to the automotive standard and, for a global company like Sefar, these are vital. Additionally, Sefar collaborates with very competent partners and co-suppliers all around the globe.

In the area for screen-printing onto glass, a fascinating yet demanding task, a practical and efficient method is needed that encompasses efficiency in decoration and the application of functional elements. The high reproducibility and quality of Sefar's meshes are stated to provide clear economic advantages, facilitating and accelerating the production of stencils and optimising the printing process.

In the increasingly diverse markets where Sefar focuses its business, the principles of screen-printing's standardisation levels are increasing. The advantages can be summed up quite simply because there are no other printing processes which can produce such high quality output onto an almost endless number of different media types. Additionally, techniques such as computer-to-screen are priority issues that are helping to promote screen-printing.

APPLICATION LED

Also important in screen-printing is that it represents a simpler situation in the production line; it's easier than other processes, with the stencil being fundamental for a good print shop. Customers first have to invest into pre-press before they can do a much better and safer print job. "If you have a lousy stencil but you want good results with your print job, it's too big a challenge," states Bötschi. "The industry needs to make sure that there is higher investment in the pre-press side than there is today, to allow them to increase the print run, decrease the consumption of ink and to have better and regular quality.

"It's our job to make screen-printing fit for industry and you need standardisation, reliability and cost efficiency. And the industry has emerged a lot over the last few years, although we are not where we need to be yet, especially with pre-press. I am very pleased that CtS (computer-to-screen) people and others are promoting their solutions more strongly than in the past," Bötschi analyses. "I feel the industry has made some mistakes in the past, because when new technologies like inkjet came in, everything became flat so the results looked more or less the same. It was all about cost, cost, cost. People now see that is a dead road because, in the end, companies that make money need to invest in solutions that also help them give their customers' solutions.

Sefar's maxim rests on the importance of

Continued over

Half-tones printed with SEFAR PET 1500 120/305-34Y

Screen-printing for unique designs on light fabrics with fine details using SEFAR PET 1500 100/255-40Y

learning about applications in order to help customers and, in recent years, the company has moved from being product biased to adopting a customer orientated approach.

"The one big disadvantage of mesh is that when you have the yellow mesh on your stencil and the white mesh, you can't see that it's from Sefar," says Bötschi. "So we try in a new way to make our labelling and branding stronger and improve information on the label. As an example, we have now a certain number of stickers on it, which the customer can pull away from the label and put on the stencil and frame, and also in their invoice and processing documents so he can control and co-ordinate his processes. We're the only ones doing this, nobody else."

In addition the company provides all the information needed by the user during stencil production on the labelling and, two years ago, Sefar launched its new packaging. It believed that, as 'number one', it also needed to be the best in the content and quality of the documentation given to customers. A global initiative, the new packaging received a great reception when it was introduced by Sefar's sales team to customers all over the world.

INNOVATIVE PRINTING

In recent months, Bötschi has observed a more positive spirit among customers and partners compared to earlier this decade, coupled with the fact that standards and expectations are increasing. "Increased interest in such subjects as computer-to-screen is helping to promote screen-printing, while the volume of training-related enquiries has grown substantially," he adds.

For a precise fit and durable print this image of a glass facade was produced using SEFAR GLASSLINE 68/175-55W

"Previously, companies seemed reluctant to invest in people but now we face the positive challenge of how best to cope with the high number of training requests. Ultimately, we need to be cost-competitive and have efficient offerings."

According to Bötschi, compared to screen-printing, no other process allows customers to print at such high levels of quality. "The diversity of media applicable to screen- printing is almost endless and the process itself is easier than the alternatives if quality and efficiency counts."

The stencil is considered fundament for a good print shop. Bötschi contends that the industry needs to make greater investments in pre-press to allow increased print runs, reduced ink consumption and to achieve better and regular quality. "It's our job to make screen-printing fit for the industry, so standardisation, reliability and cost efficiency are all needed. The industry has come a long way in recent times but we are still not where we need to be, especially with respect to pre-press."

It is widely suggested that screen-printing is the fastest growing print process, notably in Western and Eastern Europe, China, Asia and North America. Sefar is particularly active in Europe, closely followed by China, Asia and North America. The company's strongest growth potential lies in the Far East.

DEDICATED TRAINING AND DEVELOPMENT

In recent months, Sefar has completed a facelift of its dedicated screen-printing competence and training centre, including an expansion of the application department. An exhibition hall highlights applications and products that can be produced and finished by Sefar mesh, with displays focused on glass, electronics, textiles, ceramics, graphics and tiles.

Continued over

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Hollow ware glass, showing fine, easy-to-read details with SEFAR PCF 150/380-31Y

A back-lit poster with half-tone 28 lines/cm with produced SEFAR PET 1500 150/380-31Y

There are meeting rooms and an engineering and application department, where an application team builds important bridges between the customer and Sefar. The staff is responsible for ensuring that product developments match the expectations of Sefar product managers and sales people.

Customers visit the centre almost every day, mainly from Europe but also regularly from all over the world, including countries such as India, Latin America and the USA. There is no other institution in the world, be it a mesh or emulsion supplier or anyone else, that has the same set-up and that can attract new and established customers globally.

POSITIONED FOR THE FUTURE

An important change has taken place within the Sefar Group strategy in recent years, as the organisation has evolved from focusing on the development of hardware innovations and the acquisition of stencil making organisations to concentrating more closely on satisfying the screen-printing mesh needs of customers. "It is our job to be a well-respected partner of our customers and stakeholders in the glass, ceramics, solar, plastic, graphics, textile and electronics industries learning about their applications to help them further and drive joint innovation and success," explains Bötschi. "We took the important step of refocusing our attention on the development and production of screen-printing mesh." This process freed up energy and resources.

It was acknowledged that mesh needed improved mechanical behaviour and Sefar's dedicated R&D team is already making important inroads in reaching this goal. "Sefar is now much leaner and fitter than ever and much more competitive" Ueli Bötschi concludes. "We have a very clear focus."

Sefar sees a different spirit with its partners and customers from three to four years ago; the business sentiment all over the world is much more positive now. The volume of training and requests for training that the company receives has also substantially increased in the past twelve months. In the last five years, people were reluctant to invest in people but Bötschi now has the problem of coping with the high number of requests and the training team are doing a fabulous job. Additionally, what's important to screen-printing is that the standardisation level is getting higher. People want to know what is happening and have clear figures.

Despite the boom in some segments for digital printing, screen-printing retains its strengths in areas that are difficult, if not impossible, to challenge using ink-jet or alternative technologies. Typically these areas include electronics, ceramics and tiles, packaging, photovoltaic, textiles and garments, plus within many sectors of graphic production. Strong growth in industrial, decorative and functional printing are also seeing increases for screen-printed products and, as an example, the automotive and electronic industries often require many thousands if not millions of parts.

For Sefar, growth opportunities continue to present themselves with markets increasing across the board that accommodate steady increases and, in some areas, massive evolutionary progress. Developing the right meshes for specific applications means that the company can address every challenge by supplying the most suitable solution, from basic, no-frills products through to specialised advanced meshes that provide the quality and reliability essential for critical pre-press operations. ■

Printed ambience on light decorative materials with SEFAR PET 1500 71/180-55Y

Further information:
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New, affordable plasma treated screen-print fabrics from EXTRIS

In May EXTRIS is due to unveil its new look, together with launching an extended range of high performance screen-printing fabrics with greater emphasis on added value features like plasma treated and Oeko-Tek certified products.

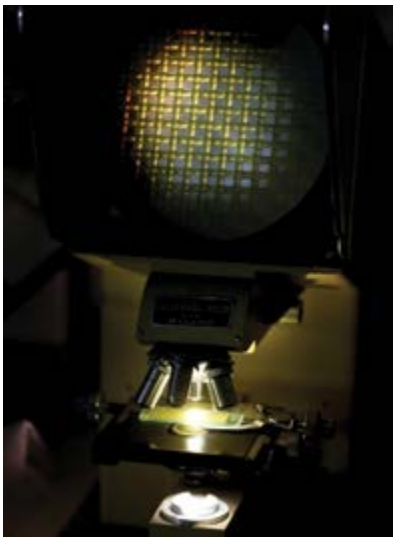
Plasma treatment is an environmentally effective process that increases the fabric wettability. The process enhances the emulsion bond, without the need for pre-surface treatment, yet leaving the printed surface unaffected. The Oeko-Tek certification, on the other hand, guarantees that fabrics are completely safe and do not release harmful chemical substances into the environment.

These developments coincide with FESPA 2015 and, in addition, EXTRIS is to showcase its CarboNY range, produced with a highly heat-resistant nylon thread and a shield of carbon fibre. Its anti-static characteristics, which are slightly conductive, mean it can be used for high quality printing in environments sensitive to electrostatic charges.

"Our products are ideal for those markets where the highest image registration standards are required, such as advanced industrial components, automotive and electronics" says Daniele De Rosa, Managing Director. "They are equal if not better than equivalent ones, and much less expensive."

Formed in 2008 EXTRIS has already become the corporate provider to many large textile firms as well as to the automotive industry. EXTRIS fabrics are already used globally and the firm has full ISO 9001 and ISO 14001:2004 certifications. The company's production facility is equipped with Dornier looms, considered by many the most advanced technical fabric looms in existence. All of the yarns used by EXTRIS for its own fabrics are subject to extensive performance testing before going anywhere near a loom.

Daniele continues: "The use of screen-printing for electronics and glass remains the best way to get high quality results and our company will continue to invest in the production of even better textiles. Some large players in the screen-printing sector are disengaging from the technique and several well known producers will not even be present at this year's FESPA exhibition in Cologne. We remain loyal and committed to technological development providing greater added value to industrial and textile screen-printers around the world and our enhanced presence at FESPA 2015 is another significant measure of our ambition and drive in this direction." ■



Extris screen fabrics mesh details 125X (magnification)

See EXTRIS at FESPA 2015 hall 8 / D80

The young generation moves up

In a successful long term partnership of nearly 30 years with NBC, Japan, in the field of highest quality of screen-printing meshes, the company has moved up the young generation. Julia Fleischer takes on the task as Managing Director with high motivation and support for the management level.

She will push ahead the high quality from NBC screen-printing meshes and the high level of reliability from NBC, Japan as well as from PVF, Germany, for all customers and user in Europe.

PVF-Vertriebs is not only an independent distributor of precision fabrics, but also the manufacturer of Micron precision screens for technical printing within the premium sector. ■

See NBC at FESPA 2015 hall 8 / C67

Julia Fliescher moves up to Managing Director

Lüscher-Tschudi represents new brand name for digital high speed soft signage printing machines

For more than two years, Lüscher-Tschudi GmbH in Switzerland has developed and constructed very precise digital high-speed printing machines in wide-format. Its new printing system also contains a heat setting (thermo-fixation process) to dry and cure colours after printing. This roll-to-roll system forms the company's new printing machine named T-REX 320.

Lüscher-Tschudi realised international customers require high quality results especially with high speed printing runs. The T-REX machine is specially constructed for this purpose and will accommodate all industrial applications of soft-signage products onto all textile substrates.

For customers' requirements, including complete technical advice and service for textile printing and heat setting applications the company offers a team of experienced staff. This enables users to obtain the correct product for their applications in the graphic and textile industries.

Lüscher-Tschudi is based in Switzerland and has a well equipped technical department for any print demonstration and for individual practical training. The company is able to demonstrate all of its latest printing systems and heat setting machines under full practical conditions. ■

Sun Chemical develops on-line after-market trouble-shooting guide

A new on-line troubleshooting guide has been launched by Sun Chemical, designed to help wide-format digital ink customers resolve common technical issues that can arise during printer operation. The website at digitaltsa.sunchemical.com provides solutions to help customers solve challenges they may be facing with their digital printing issues.

The online guide uses photos and descriptions to help the printer operator identify which technical problem they are facing. Then they can read the solution provided by Sun Chemical to resolve their particular challenge.

"Our digital aftermarket ink customers can benefit from this free tool that is designed to help them troubleshoot issues that can occur during printing," states Penny Holland, Vice President of Marketing, North American Inks, Sun Chemical. "Our customers need to keep their printing equipment running smoothly and limit downtime. This online solution can quickly help them resolve problems. It is just another way that we are working for our customers." ■

See Sun Chemical at FESPA 2015 hall 8 / C1 & C5

Dual EFI VUTEk LED printer purchase multiplies capacity at SuperWide

British trade-only printer SuperWide Digital has invested in two VUTEk machines from EFI to increase production capacity and support its expansion into new sales areas. Having purchased a VUTEk GS3250lx Pro 3.2m wide-format flatbed and roll-fed LED-curing printer in March 2013, the UK company has benefited so extensively that it has doubled up by buying a second unit with a VUTEk GS5500lxr Pro five-metre roll-to-roll LED UV-curable machine, which will now headline its super-wide format production. The second investment is a further demonstation of SuperWide's confidence in EFI.

The purchases are central to a phase of significant expansion at the Manchester, UK-based print house, which sells only to the trade and is reputed for its reliability, speed of turnaround and confidentiality. These were also the main reasons behind SuperWide's decision to expand its relationship with EFI, following on from the success of its original investment in the VUTEk hybrid LED printer. The second iteration of this machine features a heavy-duty winder/unwinder to allow it to handle bulkier materials, such as the durable floor graphics SuperWide is now pioneering in the UK market.

The SuperWide team first saw the five-metre, roll-to-roll VUTEk with UltraDrop Technology from EFI in November 2014 and realised immediately that it represented their next step for super-wide format production. The printer's up-time and the flexibility of EFI's 3M-cobranded SuperFlex UV ink combine with its 7-picolitre print-heads to provide the blend of performance and quality SuperWide requires, while low operating costs will improve profitability during its phase of investment and growth.

"SuperWide prints a huge variety of display work for thousands of customers around the UK, and for many we provide the vital missing piece to make an order come together," explains Luke Drogan, Business Development Manager at SuperWide Digital. "There's no fall-back for us, so we need to have the right equipment to meet our customers' expectations, and their deadlines, time after time. The reliability of the two VUTEk machines and EFI's accessible and supportive approach gave us the confidence that this was the right choice for SuperWide."

"When you're producing work for your customers' customers, there's very little margin for error," adds Paul Cripps, general manager of EFI EMEA. "SuperWide's decision to pick VUTEk twice is a vote of confidence from one of the UK's largest print operations, and EFI will be there to support them every step of the way."

With a portfolio as varied as vehicle graphics, banners, graphic flooring, soft signage and digital wallpaper, SuperWide prides itself on producing high-quality printed output that its clients can sell on as their own. Services include design, art-work checking, print production and a full finishing and delivery service, plus installation. SuperWide believes that its dedication to providing a behind-the-scenes trade-only service is the reason behind its popularity with customers and continued success. ■

See EFI at FESPA 2015 hall 6 / P10

Xennia offers ink-jet print software for OEM machine builders in key digital applications

Xennia Cygnus print software has been successfully deployed for many years in its own digital solutions and bundled as part of OEM hardware module packages. The company is now making this software available as a standalone package for OEM machine builders wishing to incorporate advanced functionality into digital printing systems without the need for in-house software development.

An advanced digital print software package, Xennia Cygnus includes full image path control as well as the management of the other components of an ink-jet printing system. The software is now available for customers in industrial, labelling and addressing, décor and ceramics applications looking for an integrated digital front end (DFE) and image path package. Xennia Cygnus is already installed in more than 600 printers world-wide, and has a significant business benefit for companies wishing to build high performance digital printing systems without the need for software development.

Xennia Cygnus print software performs image colour management, RIP and splitting functions, with multiple process and spot colour capability using sophisticated imaging algorithms and including native Adobe PDF support. It also supports full offline or online variable data printing (VDP). The software is compatible with a wide range of printheads and printhead driver hardware, and is also capable of controlling other components of printer hardware including ink supply, curing, maintenance and motion systems. The software user interface (UI) can be customised with OEM branding, and look and feel. Industrial productivity is also supported with print-while-loading/RIPping, advanced job queueing and ERP/MIS integration features. ■

Premier Textiles and Expand Systems announce fabric distribution agreement

Based in Manchester, UK since 1981, Premier Textiles has announced an exclusive partnership with American digital textile printing technology specialist Expand Systems. Both companies have earned the reputation of being exceptionally committed to meeting their clients' individual needs, with both companies at the forefront of new developments where "imagination is the only limitation". The combination of the Premier Textiles dedicated team of textile experts with the commiting by Expand Systems to providing solutions to meet all digital textile printing needs, each states it is easy to understand why these two companies have forged a partnership.

Premier Textiles is a family owned company that has been supplying fabric into a variety of end uses for more than 30 years. Within the last decade, stock for digital ready fabrics, including pre-coated fabrics for pigment and reactive printing, has become the largest in Europe. As a leading supplier of print base fabrics its range is ever growing, whether through customer demands or the in-house desire to push boundaries constantly and develop new fabrics that are not available in the current market.

At the heart of the company's business, it believes in the real value of partnership. This is backed up by an experienced team, which works together with customers, truly getting to understand the Premier Textiles business and providing them with the best materials and service available.

Expand Systems has been at the forefront of digital textile printing technologies in the USA, The company is solely dedicated to fabric printing and is a leader in education, consulting and implementation of digital textile printing solutions in North America. Since the late nineties, its passion has been about bringing direct digital printing back to the US.

Premier Textiles is one of the most trusted suppliers of new and innovative digital ready fabrics into the global marketplace. Expand Systems is also a trusted supplier of machines, inks, and fabric pre-treatments and specialises in providing custom print solutions. ■

See Premier Textiles at FESPA 2015 hall 7 / G28

Based in Manchester, UK, Premier Textiles has been supplying fabric for more than 30 years.

Karlheinz Mohn has joined TECHNIGRAF as Managing Director

New managing director for TECHNIGRAF

Located in Grävenwiesbach, Germany TECHNIGRAF is now under new management following the appointment of Dipl-Ing Karlheinz Mohn as new Managing Director. This took effects at the beginning of January and he supersedes Claus Drews, taking on sole responsibility as the manager of the UV specialist.

In 1965, Walter and Ruth Stumpe started their own business and established TECHNIGRAF GmbH. Some 50 years later they sold their company to four new shareholders under the responsibility of Claus F Drews who restructured the company successfully and pushed forward the corporate development. Drews left the director position at his own request end of 2014 and is now responsible for product development as well as the production of the high-end UV systems.

Mohn worked for 20 years for one of the big players in the printing industry after completing his studies in general mechanical engineering. He worked in different positions in development and construction before he decided to establish his own business as technical consultant for the printing industry. Due to his professional background and network as well as his voluntary activities in various business associations, Mohn now wants to strengthen the customer focus of the TECHNIGRAF, optimise internal processes and build up and intensify the bilateral partnership with customers and suppliers.

"Based on our long-term planning, we want to adjust the demands of the market at a very early stage. We want to open up new business sectors to be more independent from special markets. So we will be well-prepared for the next 50 years," states Mohn.

For the past 50 years TECHNIGRAF has been nationally and internationally established as a specialist for MH-exposure and UV-curing systems as well as UV-measuring instruments. These products are needed for graphic and industrial applications and rely on the company's technological knowledge resulting from the high production depth that enables a wide range of individual technical solutions. ■

See TECHNIGRAF at FESPA 2015 hall 8 / A12

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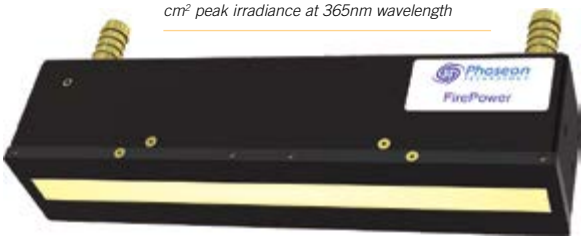
New water-cooled FirePower from Phoseon

Phoseon Technology has announced the expansion of the FirePowerT FP300 water-cooled products with 12W/cm² peak irradiance at 365nm wavelength. These products are ideally suited for curing adhesives, coatings and inks where 365nm is the specified wavelength. The high peak intensity increases application performance and throughput to levels that were not possible.

"Customers are asking for higher performance at 365nm wavelength. These high-power, water-cooled light sources provide the highest irradiance for a wide variety of applications," states Joe Becker, Product Marketing Manager.

Phoseon provides patented LED technology to deliver rugged, high performance products for application specific solutions. The company is focused 100% on LED technology and provides world-wide sales and support capabilities. ■



The water-cooled FirePowerT FP300 with 12W/cm² peak irradiance at 365nm wavelength

J-Teck3 focuses on dye sublimation

J-Teck3 is focusing its attention on dye sublimation digital textile printing as a core technology where water-based inks are printed on coated paper and subsequently heat-transferred onto polyester fabrics. The company says this technique has become recently very popular and is acquiring a growing success in new application sectors such as printed polyester for fashion and for the home decoration segments. These are both now very successful markets which can be added to the more classical areas such as sportswear printing, soft-signage and visual communication.

As a recognised specialist, J-Teck3 states it is a market leader in the production of dye sublimation inks. Its history in innovative solutions for this market makes it particularly open to new technologies as well as concentrating in the research and development of products dedicated to the digital textile printers for industrial use. More so, in recent months the company has been focused on the study of new technologies different from Epson such as Kyocera, Ricoh, Seiko, Panasonic and others, and it is now ready with dedicated products to be launched at upcoming events during the year including FESPA 2015.

A wide range of J-Teck3 digital inks also includes direct-to-polyester products, graphic pigments for different applications and others dedicated to industrial use. ■

See J-Teck3 at FESPA 2015 hall 7 / K40

J-Teck3 has added focus to dye sublimation products

ImageTek installs Spartanics semi-rotary laser die cutting system

Digital label converter, ImageTek Labels, head-quartered in Springfield, Vermont, has installed its first Spartanics semi-rotary laser die cutting system. This is a complete label finishing solution that is equipped with a myriad of converting options to deliver unsurpassed label finishing quality and flexibility.

ImageTek Labels is a top quality label converter that utilises top of the line digital printing and finishing equipment to produce quickly high quality labels with durable inks and materials. Labels produced by ImageTek Labels can survive the most extreme environments and adhere to a variety of substrates.

"We pride ourselves on providing our customers with the best quality labels for their most demanding needs," explains Bethaney Lanou, Technical Sale and Procurement Specialist of ImageTek Labels. "This unit will allow us to expand our capabilities utilising wider format, laser cutting, hot stamping, laminating and sheeting all in one pass."

The Spartanics semi-rotary laser die cutting system at ImageTek Labels comes fully loaded with a rotary hot stamping system, a dual sided laminator, a 400W high-speed laser die cutting station with a 350mm working field, a combination semi-rotary/full rotary die cutting station, a full varnish flexo station, a coil parts extraction unit, a rotary sheeting station and comes with the Spartanics

Fastline Laser Cutting Software. This unit also has the ability to operate as a roll-to-roll or roll-to-sheet system.

"We were excited to show ImageTek that we are more than a laser cutting solutions provider, and we feel that this system will allow them to continue offering their customers flexibility and fast job turnaround," says Mike Bacon, Spartanics VP of Sales and Marketing.

This off-line Semi-Rotary Laser Die Cutting Finishing solution was purchased and installed to complement the EFI Jetrion 4950LX UV LED Series Digital Printer that was installed at ImageTek Labels late last year. ■

Esko to acquire MediaBeacon

Esko is to acquire MediaBeacon, a specialist in Digital Asset Management (DAM) software solutions. Based in Minneapolis, Minnesota, it brings an award-winning suite of DAM tools to market, primarily in the USA, through direct distribution and strategic OEM partnerships in various industries ranging from retail and consumer packaged goods to media, print and the public sector. "It is Esko's strategy to digitise and integrate the entire packaging production workflow from design all the way to finished packs and displays in the store. With this acquisition, we further our transformation from a prepress solution provider to an end-to-end supplier in the packaging world," explains Udo Panenka, Esko's President. "Increasing pressure on error-free and timely production of brand expressions across a diverse media range like packaging, in-store displays and online and printed advertising, turns an integrated DAM solution into a cornerstone for both print service providers and brand owners. Adding MediaBeacon tools and expertise expands the Esko Software Suite and brings to market a production work-flow solution that keeps pace with the challenges of organisations around the globe." To facilitate a smooth integration process, Jason Bright, CEO and founder of MediaBeacon, will assume the role of Chief Technology Officer. Bright, a highly respected thought leader and industry visionary, will work closely with the Esko R&D teams to drive software integration efforts and to ensure ongoing development of the MediaBeacon DAM software. Brett Robertson will assume responsibilities over daily operations as the General Manager of MediaBeacon. He was previously the Director Global Product Marketing, Servo Motors with Kollmorgen. ■

See Esko at FESPA 2015 hall 6 / R50

Ultraflex appoints Amerine

Supplier of wide-format media products and solutions, Ultraflex Systems has added industry veteran Terry Amerine, as its Director of Marketing. Amerine joins the company after more than seventeen years at Fujifilm Graphic Systems where he held multiple senior management positions primarily in marketing, business development and new technology launches of ink-jet equipment, media and inks. He directed the introduction of both the Inca Digital and Acuity UV-curable flat-bed printers while at Fujifilm and he has also held sales and marketing management positions at Borden Chemical and Honeywell. "We are extremely pleased to add someone with Terry's experience and extensive knowledge of all aspects of print technology," states John Schleicher, Jr CEO of Ultraflex Systems. "He has been at the forefront of the emergence of UV ink-jet technology as well many other product launches that have fundamentally changed the wide format and commercial print industry." ■

See Ultraflex at FESPA 2015 hall 6 / Q104

Chromaline hires Dobie as northeast technical sales representative

Art Dobie has been hired by Chromaline

Duluth based technology company IKONICS Corporation has hired Art Dobie as northeast technical sales representative for the company's Chromaline Screen Print Products Division.

He will serve clients in the North East region of the USA, including Connecticut, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Eastern Pennsylvania, Rhode Island, Vermont, Virginia (northern), and West Virginia (northern). Additionally, he serves Montreal, Quebec and Toronto. Dobie will provide sales and technical support for Chromaline's screen-printing products and actively train and support Chromaline distributors and printers in his territory.

Dobie is internationally recognised in screen-making technology and has a strong screen-printing background. He is a graduate of the California University of Pennsylvania with a degree in Graphic Communication Technology. He is fluent in all screen-making and printing methodologies including solar cell, thick film/hybrid microelectronics, membrane switch, graphics, textile and flexible circuitry among other screen-printing applications and has received honours and awards from The Academy of Screen Printing Technology, International Microelectronics Assembly and Packaging Society and was honoured in 'Who's Who in Screen Printing' in 1998.

"We are pleased to have Art join our company," says Ken Hegman, Vice President of Sales, North America. "His vast knowledge of the industry, coupled with his excellent technical and sales experience, will make him a great addition to the Chromaline technical sales team. We are looking forward to him becoming a member of our customer support group."

Chromaline Screen Print Products is a developer, manufacturer and worldwide marketer of photochemical imaging systems. Chromaline is a leading supplier of photo stencil films, emulsions, screen preparation products and ink-jet artwork media for the screen-printing industry. ■

See IKONICS at FESPA 2015 hall 8 / A26b

Wall graphics materials feature in Ritrama's products

Ritrama's range of wall graphics ink-jet print media is stated to be a professional solution for the coverage and the wrapping of any kind of wall. These films can be used in malls, hotels and offices, and in restaurants, cafés and residential properties. This wall graphics ink-jet range ensures the maximum results even on outdoor highly uneven walls, states the company, and its extreme flexibility and offers new business opportunities for interior designers, architects and design studios that can express their creativity with innovative solutions and special effects.

The range includes RI-Jet Deco Wall 50 is a 50µ gloss white cast PVC film for outdoor and indoor applications with an outdoor durability of up to five years. It is designed to cover non-conventional raised surfaces, and combines an extra permanent adhesive with an extreme conformability that offers outstanding adhesion performance on rough brick wall surfaces, even where this features deep grouting. This film can be printed using eco-solvent, solvent-based, latex and UV-curable ink-jet technologies.

The RI-Jet Deco Wall 75 represents a 75µ polymeric PVC film with a gloss white finish for indoor and outdoor applications, again with a durability of up to five years, maintaining an optimal dimensional stability. This film is designed to cover outdoor non-conventional raised surfaces, and has an extra permanent adhesive. It is it is also an excellent solution for interior decoration where there are rough walls, plastered walls, plasterboards and partitions. This film is also for use with using eco-solvent, solvent-based, latex and UV-curable ink-jet technologies.

Wall Graphics Ink-Jet Print Media, the professional solution for wall decorations

Finally, RI-JET Deco Wall 100 is Ritrama's 100µ monomeric PVC film with a matt white finish, specifically developed to decorate a variety of finished surfaces, such as plastered walls, lacquered walls and plaster boards, featuring a durability of up to four years. It is again suitable for ink-jet printing with eco-solvent, solvent-based, UV-curable and Latex inks. The matt finish of this product suits indoor applications as light reflection doesn't present an issue. This product is recommended for customised decorations, particularly for shop interiors where tailor-made walls can be used for short term promotional campaigns. High performing and cost-effective, this film is particularly attractive to interior designers who are looking for design solutions.

Ritrama's materials are used in specialised and commodity industries including visual communication, food, pharmaceutical and wine labelling, offset and screen-printing, industrial labelling and anti-counterfeiting. The company has an extensive network of distributors present all over the world to ensure a local just-in-time delivery of the products ■

See Ritrama at FESPA 2015 hall 6 / S10

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A technical educational conference for everyone involved in inkjet developments.

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The inkjet Conference attracts delegates from a wide range of industries including: Ceramics, Graphics, Newspapers, Packaging, Textiles, Glass, 3D printing, as well as delegates from some of the leading brand owners, all looking to understand the core technology before investing.

TheIJC scientific board is chaired by Fritz Bircher of the iPrint Institute in Switzerland, with board members, Ian Hutchings from University of Cambridge, Michele Dondi from ISTEC Faenza (Italian Research Council Ceramics) and Marc Van Parys from University College Gent.

Call for papers for the academic track closes: 15th May 2015

Contact : academic@theijc.com

Detailed delegate information and booking is availale online at www.theijc.com
Delegate fees: €585
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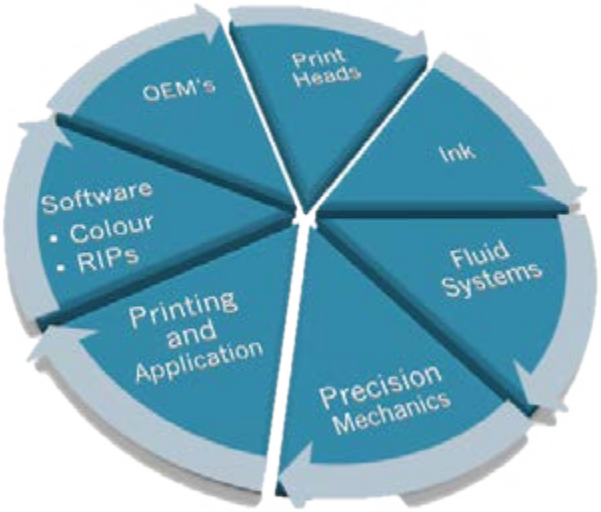

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MILAN WILL SIGNAL FURTHER GROWTH IN INDUSTRIAL PRINT

Key ambassadors help to shape further growth of specialist event

The launch of InPrint in Milan, exactly a year after the second edition of InPrint in Germany, is in direct response to demand from the market for a dedicated forum for Industrial print technology in Italy.

Industrial print is forecast to grow following the highly successful launch of the InPrint Show in Germany in 2014. Set to achieve a further 50% growth in Munich for 10 to 12 November 2015, the launch of InPrint 2016 in Italy signals increased confidence in the future expansion of the industrial print technology sector.

In November 2014, InPrint Show organisers ran a dedicated development group meeting in Italy with more than 20 key exhibitor companies as part of a programme to drive forward industrial print development across Europe. Within this meeting, enthusiastic support for the concept of an industrial print show in Italy was realised. Representatives from Reggiani, Ricoh, Konica Minolta, Kuei, JetSet, J-Teck3, Mimaki, INX Digital, Sensient and others agreed that the launch of InPrint in Italy would be a tremendous showcase for industrial print as well as a logical addition to the InPrint Show which is already established in Germany.

REASONS BEHIND ITALIAN CHOICE

"Italy is both a major manufacturing centre and a leader in digital textile, ceramic, wood, packaging, and other manufacturing sectors. All members of the development group were very positive about the idea so it was a logical decision to launch InPrint in Italy," states Marcus Timson, Co-Director, InPrint Show. "There is no doubt that this innovative region will benefit from hosting the InPrint Show as it will create new potential by connecting elements of the industrial print supply chain who are likely to have never met before."

Mimaki, a leading supporter of the InPrint Show launch in Germany, also believes that the show in Italy is a positive development. Mike Horsten, General Manager EMEA, Mimaki and InPrint Founder Ambassador explains: "Having been part of development group for the hugely successful launch of InPrint 2014 I am absolutely convinced that the launch of InPrint into Milan in November in 2016 is a very positive and exciting move. The Italian market-place is a leader for decorative industrial printing and we believe that an Italian version of InPrint will help to push forward industrial printing by connecting new markets and creating new possibilities."

Paolo Capano, European Director of INX Digital

Giorgio Macor, founder of Kuei s.r.l

Lorenzo Villa is an InPrint Italy Ambassador

Mimaki's Mike Horsten

Sakata INX Group, with their European HQ in Milan, also believes this development to be very positive for the future of industrial printing. Paolo Capano, European Director, INX Digital adds: "As the Italy-based branch of Sakata INX group worldwide, we know how important is to combine local skills and global expertise to achieve the excellence in regards to ink-jet products. This is even more important when it comes to industrial printing. Even with a prevalence of small and medium enterprises, Italy can boast highly specialised production districts, such as textiles, ceramics, glass, flexible and metal packaging, all areas where the Italian industry has already embraced ink-jet extensively. I am sure that an edition of InPrint in Milan, our economic capital and the heart of the Italian industry, will enable the global printing community to exchange vital information and give birth to projects and collaborations even more exciting. Inkjet will allow the different industries to grow the business."

LEADERS IN DESIGN AND DECOR

"We are very proud to be running the third edition of InPrint in Italy as this country is a world leader in design and decoration," Frazer Chesterman, Co-Director, continues. "This show enables us to focus upon developments

Continued over


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STRATEGIC SPONSORS AND AMBASSADORS ARE KEY TO DEVELOPMENT

Following the considerable success of the launch edition of the InPrint Show, the second edition is benefiting from an increasing number of sponsors and an enriched team of ambassadors dedicated to promoting industrial print technology to the manufacturing sector.

Strategic sponsors include Agfa, Encres Dubuit, Fraunhofer Institute, Heidelberg, Hinterkopf, IMI Europe, I.T.Strategies, JetSet, Kuei, Machines Dubuit, Marabu, Mimaki, ThePackHub, Ricoh and Xaar.

In addition to the sponsors for the show, Ambassadors have been appointed to play key roles within the show itself. The list of ambassadors for InPrint include: Jason Oliver, Tom Cloots, Frederic Blancher, Didier Trolio, Anke Hinterkopf, Graham Kennedy, Mark Alexander, Friedrich Goldner, Patrick Smith, Sophie Matthews-Paul, Paul Jenkins, Mike Horsten, Mark Hanley, Mike Willis, Sergio Ferrari, Giorgio Macor.

Sponsors talk about why they made the decision to exhibit, sponsor and become an ambassador at the InPrint Show.

Graham Kennedy, Business Development Manager, Industrial Print, Ricoh Europe: "As a founding sponsor and now strategic partner for the InPrint show. Ricoh is well positioned to utilise the unique position the InPrint Show has as a showcase for ink-jet technology in manufacturing and industrial application. The co-location with Productronica positions the show nicely in Munich which we anticipate will attract a high quality visitor base from Germany, Europe and the rest of the world. Ricoh has exciting plans for InPrint and we look forward to the build up to the show and playing a leading role in the continuing development of industrial print technology."

Mark Alexander, Director of Marketing, Xaar: "InPrint 2014 was an exciting and successful event – not just because we launched the Xaar 1002 there. It is the only event to focus totally on the industrial print market and it demonstrated the enormous potential for this sector. For Xaar it's an ideal platform to show process engineers why Xaar technology is so successful and how it can benefit their own specific applications."

Giorgio Macor, Founder, Kuei srl: "I am absolutely convinced that InPrint is a show offering something unique and vital to the development of industrial print technology into the future. Kuei's participation at the InPrint Show in 2014 led us to many new sales of our exciting 3D wood printing technology. Utilising our ink capability allied to a single pass printing system we are able to create a textured effect onto wood utilising melamine which has been very popular with a burgeoning marketplace for industrial production for interior decoration. InPrint 2015 will no doubt continue the success story for Kuei and industrial printing."

Tom Cloots, Director Marketing Industrial Inkjet, Agfa Graphics: "From the very beginning of the concept of an industrial print show, we believed that the InPrint is strategically important to create new opportunities. Being a founder and playing a key role in the development group was well founded as InPrint 2014 was a tremendous success for Agfa Graphics. We see the industrial sector as an area for innovation and future growth and we look forward to taking print technology into new manufacturing markets with InPrint 2015 in Munich as an ambassador and key strategic partner."

Jason Oliver, VP of Digital Inkjet, Heidelberg: "Heidelberg sees a very positive future for ink-jet particularly in the industrial print sector so it is a logical move to be part of the next InPrint Show in Munich. The successful establishment of InPrint as the show for future industrial print technologies synchronises perfectly with Heidelberg's vision for inkjet. We have plans to launch exciting new systems for customers decorating 3D objects – we call this '4D Printing."

Tim Phillips, InPrint Founding Sponsor Xennia: "I had always felt there was a need for a show for industrial printing and since the launch of InPrint, Xennia has been involved. The reason is that the development of inkjet into industrial markets is a key aspect of strategic interest for Xennia as our business continues to develop into specialist, industrial markets. We look forward to InPrint 2015 and the success it will be for both the growth of industrial ink-jet printing and Xennia's continued leadership in this field."

Friedrich Goldner, Marabu Printing Inks: "We embraced the idea of a show focusing on industrial print applications right from the very beginning and the inaugural InPrint event in Hannover delivered great results. We look forward to InPrint in Munich this year to bring new ink solutions to the arena – this time in synergy alongside Productronica."

Didier Trolio, Machines Dubuit: "Machines Dubuit have confirmed to be strategic partners of InPrint 2015 as we see the importance and growth potential of industrial printing. In 2015 Machines Dubuit had the honour of being highly commended for the Great Innovations Awards with our new 9150 which enables digital printing onto cylindrical objects. The potential that digital technology has to transform production for industrial printing is considerable and we have both the inks and the technology to provide new opportunities for industrial print production."

Frederic Blancher, Encres Dubuit: "Encres Dubuit has been part of the development group for the InPrint Show launch and we feel the event is by far the most outstanding showcase for industrial print technology there is. In 2014 it was a tremendous success and we were very satisfied with the impact and the results from the show. Industrial print remains a very important sector for our business which reinforced our decision to become strategic sponsors and ambassadors for the show in 2015."

Mark Hanley, IT Strategies: "IT Strategies helped the InPrint development from a strategic perspective offering insight and opinion to develop focused content and information for industrial ink-jet technology. The fact the event was very successful and is growing demonstrates the buoyancy and the innovative potential of industrial inkjet. We look forward to continuing to be part of this success and being part of InPrint 2015."

in key sectors such as digital textile printing for apparel, interiors and technical textile as well as surface imaging onto home decor and furnishing applications such as wood, plastics, ceramics, glass, metal, packaging and other functional applications."

Lombardy itself is a major centre for innovation in industrial technology, chemistry and manufacturing with established clusters of specialist expertise in Bergamo, Como and Brescia. Milan is the accepted business capital and the most popular international event destination in Italy. The region has a distinguished reputation for leadership in design and engineering meaning that InPrint 2016 will have a unique focus and format making it a distinct but complimentary show to InPrint in Germany. ■

InPrint 2017 will make a return to Germany.

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DISCOVERING THE UNIVERSE OF PRINT

Multi-channel marketing campaign for Cologne event has lift-off

This year's Global Expo moves to Cologne, Germany for the first time, running for five days from Monday 18 to Friday 22 May 2015. FESPA 2015 is set to occupy 62,500 square m of exhibition space in the new north halls of KoelnMesse, making it the largest FESPA Global Expo of all time.

The FESPA 2015 campaign's space exploration theme emphasises the galaxy of growth opportunities that exist for printers if they take the time to look beyond the day-to-day running of their business. The message is that the possibilities for print service providers are infinite and that FESPA is a launch pad for new products, while enabling and encouraging exploration and discovery.

The campaign revolves around a dedicated event website at www.fespa2015.com, offering key information for both exhibitors and visitors. The landing page features the striking campaign visual which shows an astronaut – the FESPA 2015 visitor – ready to step out into a star-filled universe, with brightly coloured planets and stars representing the wealth of technologies, applications and markets that are there to be discovered.

TRAVEL AND EXPLORATION THEMES

The idea is an evolution of the travel and exploration themes which have characterised FESPA's European event campaigns during the last four years. Each campaign has set out to encourage FESPA's global community of speciality and wide-format printers to broaden their horizons and look for different directions in which to take their businesses, whether through new technologies, additional services, alternative applications, innovative business models or by entering new markets.

FESPA Divisional Director Roz McGuinness explains: "With no other international print event in 2015, FESPA in Cologne will offer visitors the most comprehensive constellation of print and related technologies. At our last FESPA Global Expo in London in 2013, we invited our community to 'Fly FESPA', and over 22,000 printers, sign-makers and print specifiers 'flew' with us. For 2015, we're taking the mode of transport to another level, along with the event itself, which will certainly be the most extensive event FESPA has ever staged."

The sold space for FESPA 2015 already exceeds that of FESPA 2013 and this year's Cologne event continues to attract more exhibitors. As such, FESPA 2015 will offer a vast line-up of suppliers, giving the global visitor audience an unmatched opportunity to assess and explore the latest technologies, applications and ancillary products to drive their businesses forward.

Roz McGuinness with Neil Felton (centre) and Sean Holt

THREE KEY ZONES

As in 2013, the visitor will find FESPA 2015 structured around three key zones – FESPA Screen, FESPA Digital and FESPA Fabric, each represented by its own planet on the website and other campaign collateral. The 'planet' device will be used to help visitors navigate at the show in May.

FESPA 2015's educational programme for visitors will be the most extensive yet, designed to support printers in making critical decisions about the direction of their business. A robust line-up of world-renowned industry experts will host and participate in a range of sessions in the FESPA Education Hub, two theatres located on the main show floor. Together they will provide pertinent insight and inspiration into digital, screen, industrial and textile printing.

Sign Hub, a theatre dedicated to signage, will be featured in European Sign Expo, (Hall 7) while FESPA's new interior design showcase, Printeriors, (Hall 9) will host its own dedicated conference on Thursday 21 May 2015. FESPA 2015's complete content programme will ensure that all aspects of wide-format speciality print are covered at FESPA 2015 Global Expo.

Specialist Printing Worldwide and ESMA will exhibit jointly on stand number A60 in Hall 8

RETURN TO AMSTERDAM IN 2016 CELEBRATES TEN-YEAR DIGITAL ANNIVERSARY

FESPA Digital 2016 will mark its ten year anniversary by returning to the Amsterdam RAI from 8 to 11 March 2016. The four-day event will once again include FESPA Fabric, Printeriors and European Sign Expo.

"We are delighted to announce FESPA Digital's return to Amsterdam – a decade after its inception there," states Roz McGuinness, Divisional Director, FESPA. "As the first digital wide-format and speciality printing event of 2016, exhibitors will maximise the opportunity to use FESPA Digital as a launch-pad for digital devices that will address the wide-format and speciality printing markets, including garment decoration, printed interiors and industrial."

During the last ten years, FESPA Digital has firmly established its role as one of the most creative and inspirational exhibition platforms within the wide-format digital printing industry – not only in Europe, but around the world, attracting visitors from around 120 countries.

"After careful deliberation with all stakeholders, the decision to host FESPA Digital 2016 in Amsterdam was an easy one to make," adds McGuinness. "Although we considered a number of other European cities for the 2016 show, Amsterdam was a clear favourite for FESPA and our exhibitors.

"Not only is it very accessible geographically for visitors from Benelux, Germany and Northern Europe, but Schiphol is one of the top five European airports, with routes to Europe, Asia and the Americas."

The Amsterdam RAI has seen significant improvements since FESPA Digital was hosted there in 2009. A brand new congress centre, which is due to open later this year, along with new cafés and eateries mean a much wider choice for both exhibitors and visitors. There are also more new hotels in close proximity to the exhibition centre.

McGuinness concludes: "FESPA's commitment to digital is stronger than ever as we continue to reinvest back into the exhibition and our global print community. FESPA Digital 2016 will once again celebrate the endless opportunities with digital print through industry leading exhibitors, seminars, workshops and networking opportunities. It is set to be one of the most influential wide-format digital and textile print exhibitions in 2016."

FESPA 2015 will take place in Cologne, Germany, from 18 to 22 May

The event will also give visitors the option to join other satellite events under the same roof – for example, there is the co-located European Sign Expo 2015, with its focus on physical, non-printed signage. ■

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WELCOME TO THE NEW INDUSTRIAL REVOLUTION

FESPA profit for purpose

Thomas Struckmeier explains the reach generated by multi-faceted opportunities

Thomas Struckmeier

Managing an industrial print business over the last 23 years, the main FESPA exhibition in Europe has always been an unmissable destination event for me, enabling me to see everything that was happening in my market under one roof. It was and is unquestionably the single most important source of product innovation and know-how for any speciality printer, whether producing graphics or industrial products.

I've observed over the last 15 years how FESPA has championed evolution in the screen graphics space. FESPA has helped printers world-wide to understand the digital opportunity and to embed digital technologies and work-flows in their business, to complement their analogue operations. It's my personal view that FESPA – as a facilitator, influencer and educator of the speciality print community – has contributed positively to the pace of development in wide format graphics.

Now, the industrial print community which FESPA represents stands on the brink of a similar revolution. Screen remains a strong and viable production process for many industrial applications. At the same time, digital technology is enabling industrial printers to devise new methods and business models, achieve manufacturing efficiencies, create new products, and add value through customisation in ways that are impossible with the manufacturing economics of screen printing.

THE MIX OF ANALOGUE AND DIGITAL

Just as graphics printers now blend digital and analogue processes to achieve more profitable production models and broaden their customer offering, so industrial print will inevitably also move towards a mix of analogue and digital. The industrial printer of the future will operate with multiple processes, with the focus squarely on quality, delivery and outcome for the customer.

Considering the many and varied industrial segments where (screen) print has traditionally played a role – signage, labels, automotive, glass, ceramics, white goods, electronics, surface decoration – digital print has enormous disruptive potential, enabling significantly smaller production volumes and infinite customisation. If we rethink 'print' as a method of depositing one material on another, it achieves new scope as an additive manufacturing process, which offers new direction for the entire industry.

It's clear to see that the major vendors of printing equipment, along with suppliers of software, inks and media, are actively developing solutions focused on this many-faceted industrial opportunity, many of which I expect to see on the show floor at FESPA 2015. Developments in inks and formable media, in particular, will enable us to print 'direct to shape' in a way that could fundamentally revolutionise the printing of three-dimensional automotive components or packaging containers, for example, to say nothing of the possible decorative applications.

IDEAS FROM THE INDUSTRIAL SPACE

But the 'industrial opportunity' is not only for printers already involved in industrial applications. Printers in other areas, including graphics producers, can also take ideas from the industrial space and apply them to innovate their products. 'Industrial' thinking could be the means for some printers to break out of commodity markets and develop niche, speciality printed products that offer the customer something unique, commanding improved margin and customer loyalty along the way. It could be a move to print onto alternative substrates to access new business in printed interiors or textiles. It could be the inclusion of conductive inks in a point-of-sale graphic to create circuits, increasing interactivity and extending the engagement potential of the graphic in today's multi-sensory, multi-media marketing environment. The possibilities are infinite.

As a printer, I'm living these changes at first hand. Now, as a FESPA Board member, I'm thrilled to have the chance to ensure that FESPA continues to lead the agenda, offering printers and their customers clear signposts to the various paths of print innovation that are open to them.

Thomas Struckmeier was appointed to the FESPA board in September 2014. He is the managing director of Blase Holdings, which includes Blase Siebdruck, a leader in printing and in-mould decoration for industrial, functional and decorative applications, with key markets including automotive and bicycles, white goods and machinery, gaming equipment, and corporate and domestic interiors. The group also comprises Blase Kommunikationstechnik dedicated to the production of printed electronics, and IMD Technology for in-mould decorated parts.

I'm excited to see this revolution coming to life at FESPA 2015 in Cologne this May. Working with ESMA, we're building on FESPA's long heritage in screen and industrial printing to create an inspiring new Industrial Showcase. Here, visitors can see for themselves the array of products that can be created or decorated using a printing process, whether screen or digital. At daily 'lunch and learn' sessions, visitors will get the chance to hear from suppliers and industrial printers, listen to their experiences and perhaps consider how they could be applied to their own business. And the new Printeriors showcase and conference at FESPA 2015 will bring to life the decorative applications that can be achieved with screen and digital print.

In all areas of print, the discussion has moved away from process, and service providers are thinking about technology as an enabler. FESPA will always be the home of screen print. More recently, it has been a champion of the digital wide-format revolution, a catalyst for growth and innovation in signage and graphics. Now, weaving together these two strong threads, and backed by our global reach and influence, FESPA becomes the natural home of the new industrial print revolution. ■

FESPA's 2015 Global Expo, incorporating European Signage Expo and Printeriors, takes place at Koelnmesse, Cologne, Germany from 18-22 May 2015.
See event preview on pages 74-75.

Further information:
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UNDERSTANDING THE CAPABILITIES OF OUTPUT DEVICES

Michael E Robertson explains why SGIA's Digital Equipment Evaluations are an unparalleled comparative resource

Michael E Robertson

One of the most popular resources at SGIA.org is the collection of Digital Equipment Evaluations. These highly detailed reports were conducted on specific output devices to help the community accurately address its imaging needs by objectively documenting the capabilities and intent of numerous output devices.

Building the resource, and revising the complex methodology of the evaluations, has been quite an undertaking for SGIA staff. The list of completed evaluations is growing, and several new reports are slated for 2015. Here's a list of manufacturers currently included in the Digital Equipment Evaluations and those scheduled for upcoming evaluations:

- All American Supply
- AnaJet Inc.
- BelQuette Inc.
- Brother International
- Durst Image Technology
- EFI
- Fujifilm North America Corporation
- Hewlett-Packard
- Inca Digital Printers Limited
- Kornit Digital
- Lawson Screen & Digital Products, Inc
- Mimaki USA Inc.
- Mutoh America Inc
- Océ Display Graphic Systems
- Omni Print
- Roland DGA Corporation
- Screen USA

SGIA's goal for the Digital Equipment Evaluation programme is to provide a central source of unbiased and accurate data on output devices, and to provide the information in a way that supports comparative analysis. SGIA uses a consistent team and a series of standardised testing formats (depending on the type of equipment) to assess equipment and complete each evaluation. We observe a host of characteristics and procedures associated with each device.

Here's the 'short version' of the characteristics considered in each Digital Equipment Evaluation. If you would like more detail, the complete evaluation methodology is provided at SGIA.org via the Digital Equipment Evaluation home page:

- Colour gamut and density – A visual model of the machines' inherent colour gamut is presented along with comparisons to Adobe RGB and GRACol2006 Coated 1v2 colour spaces. The overall print density achievable at different production settings is also measured and recorded.
- Print speed (bi-directional) – Print times are recorded using a standard print-image-output in different modes.
- 4ft x 8ft boards/hour — A consideration for flat-beds and hybrids.
- Print quality – An SGIA test image comprised of various industry standard wedges, Pantone spot colours and CMYK colour builds is used for evaluation. Delta E and neutral grey are included in the evaluation.
- Print repeatability and uniformity – Measurements from the far right, centre and far left are taken to compute DE across the width of the print area.
- Ink usage – The ink used to print the SGIA test image is reported via the RIP or print controller. Ink use for maintenance applications will be noted when applicable.
- UV adhesion test – The Cross Hatch Test (CHT) is used in accordance with several standards.
- White ink opacity – When white ink is an option on an output device, L-values are measured on both white and black substrates. The difference between the two is an estimation of opacity.

I encourage you to take advantage of this valued resource when you are evaluating equipment. And, while you're at it, peruse the other resources available at SGIA.org.

The Digital Equipment Evaluations can be accessed at SGIA.org, search words: 'digital equipment evaluation' or use the link under 'Sourcing'. ■

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

Specialty Graphic Imaging Association

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To confirm your interest and check for updates on the latest presentation titles and exhibitors, visit the website at

www.DCP2015.org

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CURRENT TRENDS AND FUTURE OUTLOOKS

David S Koebcke looks back at the last meeting's valuable content

David S Koebcke

At NASMA our mission remains to provide a forum where senior executives and owners of North American Specialty Manufacturers serving the printing industries can meet to discuss current trends, outlooks for the future, business topics of concern and interact with top printing executives in North America.

Our final meeting in 2014 was held in Atlanta, Georgia. The NASMA members in attendance were treated to the type of industry insights that help them develop the business strategies to succeed in the ever changing printing environment.

Our first event Printer's Perspective Speaker was Mr Ford Bowers, General Manager at Miller Zell Inc. Miller Zell is an Atlanta-based leading world-class retail design company who applies valuable shopper insights to help retailers create selling environments that captivates and engage shoppers, enhance the In-store experience and optimise sales opportunities. Mr Bowers shared with our membership the core values that have helped Miller Zell navigate its business, explaining the decisions it is faced with and the support he needs from manufacturers in our industry.

Our second event Printer's Perspective Speaker was Mr Marshall Atkinson, COO at Visual Impressions. Visual Impressions has been a leader in the garment decorating business for more than 20 years. Located in Milwaukee, Wisconsin, and managing its clients' screen-printing and embroidery needs with central distribution throughout the USA.

SHARING THE FOCUS

As a frequent article and information contributor to Impressions, Wearables & Stitches magazines, and with a focus on Sustainable Green Printing, Mr Atkinson shared how the focus on sustainability has created a culture at Visual Impressions helping to profitably grow their business. He issued the challenge to the manufacturers in attendance to join them in this journey of sustainability and bring all ideas.

Our final speaker of the meeting was Mr Dan Butler, Industry Consultant with more than 30 years of retail experience. He has been helping clients with decisions in merchandising, in-store design, store operations and management and shared with the NASMA membership some of the key challenges faced in retail and how our businesses could support the retail industry going forward. Additionally, Dan cautioned the membership of some of hurdles facing the industry and hopes we might gain insight from those challenges.

INSIGHTS AND A POSITIVE OUTLOOK

As is typically the case, the speaker presentations were the highlight of our meeting. On behalf of the NASMA membership, a big thanks to our speakers for the insights they shared.

Another aspect of the meeting is a Business Barometer, whereby we gauge the overall optimism of our members and, as a summary comment, the membership projects a positive outlook for the near term future. Overall, there is seen to have been improvement in the market with stable growth opportunities going into 2015.

My personal wish is to see this optimism transformed into positive results for everyone in the speciality printing community in 2015. ■

David S Koebcke is President of Sefar Inc and Chairman of North American Specialty Manufacturers Forum

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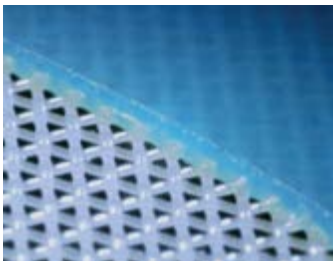

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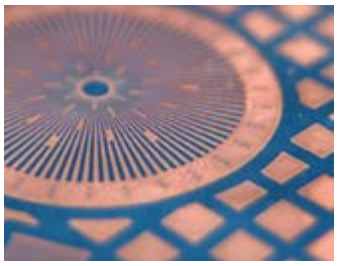

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