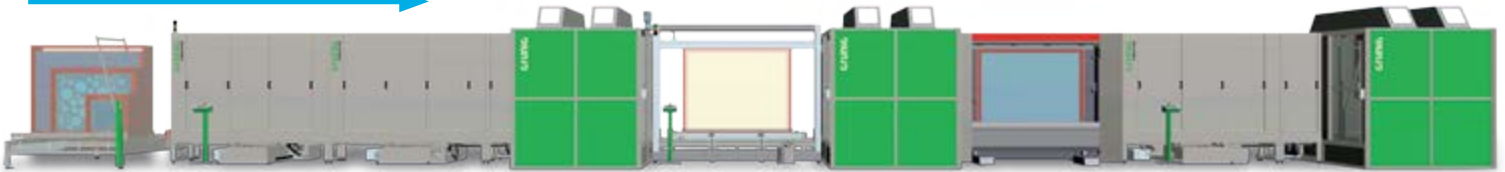# SPECIALIST
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Today, screens must be manu-factured in a reproducible and cost-efficient manner at optimal quality. Only then will you be better than your competitors.
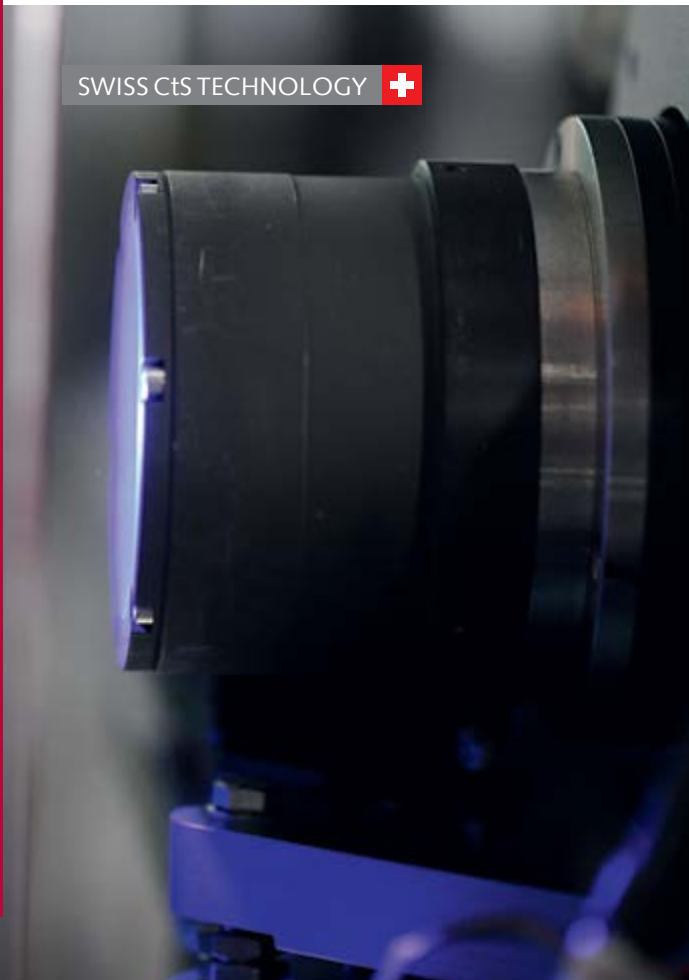
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**PUBLISHING DIRECTOR:**
Bryan Collings
bryancollings@specialistprinting.com

**PUBLISHER:**
Nicola Penhallow
+44 (0) 7889 637434
nicola@specialistprinting.com

**EDITORIAL CONSULTANT:**
Rebecca Colegrove
rebeccacolegrove@specialistprinting.com

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

**CREATIVE DIRECTOR:**
Robert Penhallow
Creative Director
+44 (0)7816 968563
robert@specialistprinting.com

**PUBLISHING CONSULTANT:**
Dave Fordham
+44 (0)1342 315032
davefordham@glassworldwide.co.uk

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## SPECIALIST printing WORLDWIDE

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# THE STRONGEST BOND

Corinna Little and Andrea Werkmann explain how the latest plasma pre–treatment can optimise printing by improving adhesion of inks and coating, even on challenging surfaces

**Atmospheric pressure plasmas generated by electrical discharges in air or other gases have a remarkable combination of properties that enable unique surface treatment. Such plasmas produce large quantities of very reactive but short-lived chemical species. These can disinfect, clean, modify and functionalise a wide range of surfaces and prepare them for bonding, painting and printing. In recent years, plasma pre-treatment has established itself as a standard process in many different sectors, from medical technology and the automotive industry to aerospace and aviation technology.**

## PRINTING APPLICATIONS

For printing applications in particular, cold plasma technology can help by increasing the wettability of highly repellent surfaces and improving the quality of subsequent processes such as bonding, printing, varnishing or coating. Plasma pre-treatment is used in common printing processes such as digital printing, pad printing, screen or offset printing and also in 3D printing.

Relyon plasma, a subsidiary of TDK Electronics based in Regensburg, Germany, develops plasma systems and offers a wide range of specialised plasma components for manual applications and in-line processes. The company now presents the world's smallest plasma handheld device: the piezobrush PZ3 with Piezoelectric Direct Discharge (PDD) technology.


*The piezobrush PZ3 is currently available with two modules for conductive and non-conductive materials*

## SMALL BUT STRONG

The piezobrush PZ3 is a compact plasma handheld device for easy and mobile use in laboratories, pre-development and assembly of small series. With a maximum power consumption of 18W, the PDD technology is used to generate cold active plasma at a temperature of less than 50°C.

At the heart of the piezobrush PZ3 is the TDK CeraPlas plasma generator, a high-voltage discharge component for plasma generation. It transforms a low input voltage in such a way that very high electric field strengths are generated, which dissociate and ionise the surrounding air. The compact design of the PDD technology makes it possible to integrate atmospheric pressure plasma into a handheld device.

## CHOICE OF MODULES

In general, all materials can be treated with atmospheric pressure plasma from the piezobrush PZ3 since there is hardly any temperature impact on the material during surface treatment. This virtually eliminates the risk of over-treatment of materials such as plastics. However, different surfaces have to be activated with the appropriate accessories to achieve a good end result.

Two modules are currently available for the piezobrush PZ3. Non-conductive materials such as plastics, glass, ceramics or natural materials such as organic fibres, textiles and leather are said to show very good results after plasma treatment with the Standard module. The Nearfield module is designed for the treatment of conductive materials such as metals, CFRP, indium tin oxide or conductive plastics.

The increased maximum power compared to the previous model allows a treatment speed of 5cm²/s and a treatment width of up to 29mm. Even on materials that are very difficult to treat such as high-density polyethylene

*Due to its compact design, the piezobrush PZ3 handheld plasma device can be used in a wide variety of applications*


*Plasma discharge at the tip of the piezobrush PZ3 with the Standard module*

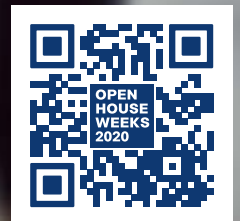*Pre-treating individual 3D printed parts prior to gluing them together with epoxy helps to establish a strong structural bond in the end product*
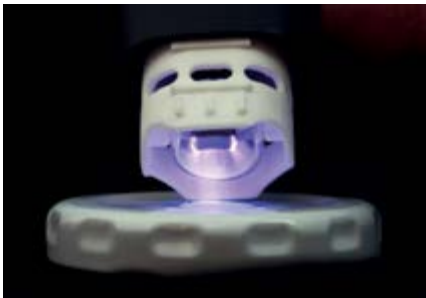


*Plasma discharge at the tip of the piezobrush PZ3 with the Nearfield module*

(HDPE), a surface energy of 72mN/m can be achieved after plasma treatment.

Relyon's device is equipped with various functions such as a stopwatch, a countdown function to set the time with automatic switch-off function or a power setting by adjusting the plasma intensity. An integrated display helps to make control easy and intuitive.

## PRE-DEVELOPMENT TOOL

As a tool for pre-development, the piezobrush PZ3 can be used to perform simple feasibility tests to determine the effectiveness of corona treatment for optimum printing results on challenging materials such as polyolefin-based plastic films. In addition, this cold plasma technology can be used in production for smaller runs, e.g. for individual printing of

small parts or locally limited areas using digital printing. The compactness of the technology also enables the treatment of complex geometries and thus the easy individualisation of mass products, for example in the packaging industry.

## HIGH PERFORMANCE PLASTICS

The piezobrush PZ3 can significantly improve printing results, especially in areas where high-performance plastics are used. One example of this is inkjet printing on PTFE (polytetrafluoroethylene): on this highly hydrophobic material, ink droplets bead up and produce a low-quality printed image; in addition, the ink can easily be rubbed off the surface. If the printing process is preceded by a cold plasma treatment with the piezobrush PZ3, the printed image becomes more homogeneous and resistant to removal by friction.

Similar results have been achieved with other high-performance plastics. Marius Ritzi from Ritzi Industriedrucktechnik reported: "On the difficult plastic PEI (polyetherimide), we were able to achieve outstanding adhesion properties with the piezobrush, and all this even inline. The production process could thus be streamlined and significantly accelerated."

On plastics such as PEEK (polyetheretherketone), FEP (fluorethylene-propylene) or COC (cycloolefin-copolymers)

### TECHNICAL DATA FOR THE PIEZOBRUSH PZ3

| | |
|---|---|
| Electrical connection | 110–240V / 50–60Hz |
| Power consumption | 18W |
| Design | Handheld unit with plug-in power supply, integrated fan |
| Plasma temperature | <50°C |
| Weight | 110g |
| Treatment speed | 5cm²/s |
| Typical treatment distance | 2–10mm |
| Typical treatment width | 5–29mm |

significantly improved adhesion properties can be achieved by pre-treatment with the piezobrush PZ3.

## AVAILABLE NOW

Due to the piezobrush's easy handling, wetting and adhesion of many surfaces can be improved with cold plasma treatment. Chemical primers that carry health and safety as well as environmental risks could be increasingly replaced by relyon's device.

The piezobrush PZ3 was launched on the market in July 2020. To test and validate individual processes and applications, sampling is possible in the relyon plasma application laboratory. In addition, relyon plasma offers a rental of the plasma handheld unit so that it can be directly incorporated into the respective process and tested accordingly. ■

*PDD and piezobrush are registered trademarks of relyon plasma*

**Corinna Little is Application Manager and Andrea Werkmann is Marketing Manager at relyon plasma**



*The piezobrush PZ3 features an integrated display to make control easy and intuitive.*

**Further information:**
relyon plasma GmbH, Regensburg, Germany
tel: +49 941 60098270
email: a.werkmann@relyon-plasma.com
web: www.relyon-plasma.com



*Adhesion test showing results of inkjet printing on untreated and plasma-treated PTFE with the piezobrush PZ3*

# UNLOCKING POTENTIAL

## When planning to install a digital press, the PC specification you choose to run your software workflow will play an important part in the data rates you will be able to achieve, explains Ian Bolton

*Ian Bolton is Product Manager at Global Graphics Software*

**Bringing any digital printer to market has many technical barriers. By far the largest new technology barrier is the role that software plays in unlocking all of a digital printer's potential, especially when looking ahead to the new generation of faster, wider, higher-resolution presses.**

Consider these scenarios:

- Replacing a traditional press with a digital press allows short runs of 'print to order', reducing waste and storage, but the challenge is in retaining output quality.
- Running print jobs that have mostly static data with defined zones of variable data (e.g. labels with text and barcodes) requires a focus on image (raster) data speed. Intelligent raster caching techniques for the static page areas can result in huge reductions in the amount of data.
- To produce printed items in a production run that are completely unique and personalised, ultra-high data rates are required. Breaking through this barrier requires an integrated graphics pipeline, with massively parallelised RIPs and screeners, that can drive printhead electronics across multiple PCs.

Each of these software barriers represents a quantum leap in speed and PC hardware cost.

### ANALYSIS TOOL

When planning the implementation of your first or next digital press, the PC specification you choose to run your software workflow will play an important part in the data rates you will be able to achieve. Assuming you are not bottlenecked by disk drive performance due to requiring intermediate disk accesses, you can generally expect data rates to rise with the computational power of your PC.

It might therefore make sense to review the PassMark (www.passmark.com) scores for a range of CPUs [central processing units] within your budget and make your choice based on that, but this alone won't be enough to tell you whether you'll be able to drive your printer at full rated speed. Similarly, you may already have an existing PC system in mind but need to know if it will be powerful enough for your new requirements.

Ideally, you could set up an evaluation system to run some typical print jobs to get a definitive answer, but this could be costly and labour-intensive, especially if this is your first digital press.

It's for this reason that Global Graphics created Direct Benchmark: an analysis tool that exercises Harlequin Direct, an ultra-high data rate RIPping and screening solution, with your choice of press configuration and print jobs, stepping through a tuning cycle to obtain a series of data rates and line speeds that can be achieved.

I'll be sharing our method and results across several representative print jobs in my presentation at the Inkjet Conference in October where I am aiming to provide delegates with a copy of our benchmarking tool for their own use – if you have an existing PC system to run on, you can install Direct Benchmark and gather your own results. Alternatively, you could base your decision on a database of results I am gathering from running a variety of jobs on a range of PC specifications.

### CREATING YOUR OWN BENCHMARKS

Whilst a real system would be connected to printhead electronics and driving your press directly, the Harlequin Direct invoked by Direct Benchmark doesn't require this connection.

*"You may already have a PC system but need to know if it will be powerful enough for your new requirements"*

This makes it very quick and easy to install and start gathering performance numbers. The screenshot shows the settings you can use to reflect your printer configuration and define the print jobs to benchmark.

During benchmarking, you will be
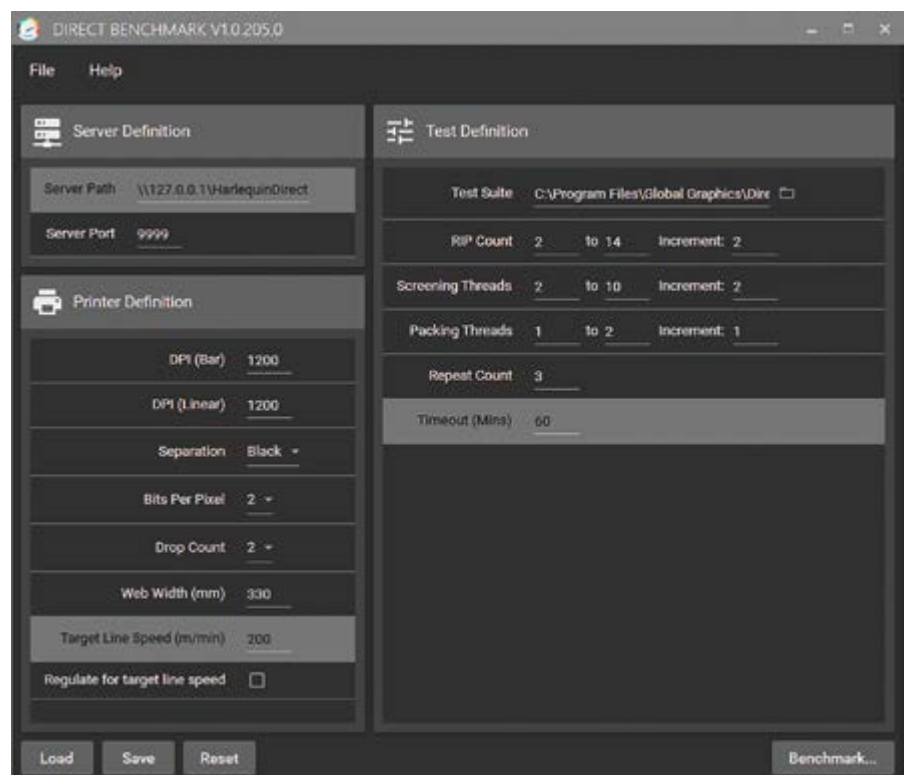


*This screenshot shows the settings you can use to reflect your printer configuration and define the print jobs to benchmark*

presented with a screen showing statistics for each run, including data rates, line speed and CPU usage, along with a real-time graph at the bottom. Results can then be exported and settings adjusted for additional runs as required.

## USING THE DIRECT BENCHMARK DATABASE

If you aren't in a position to run Direct Benchmark yourself, Global Graphics is in the process of gathering results for a range of press configurations and print jobs, running on a variety of PC hardware specifications. This is being conducted in conjunction with Proactive Technologies who are providing access to some of the machines we're using. Whilst it is too early to draw any conclusions or share our results at this stage, if you have some typical print jobs and a press configuration in mind, please get in touch with me, because we may be able to generate the results for you.

## A QUICK WORD ABOUT DATA RATES

It's worth taking a brief diversion to talk about data rates by taking the example of a fully variable data job. Each minor inefficiency in a job of this type will often only add between a few milliseconds and a second or two to the processing of each page, but those times need to be multiplied by the number of pages in the job. An individual delay of half a second on every page of a 10,000-page job adds up to around an hour and a half for the whole job. For a job of a million pages it only takes an extra tenth of a second per page to add 24 hours to the total processing time.

If you're printing at 120ppm, or equivalent, the digital front end must process each page in an average of half a second or less to keep up with the press. The fastest continuous feed inkjet presses at the time of writing are capable of printing an area equivalent to over 13,000 pages per minute, which means each page must be processed in just over 4ms. It doesn't take much of a slow-down to start impacting throughput. If you're involved in this kind of calculation you may find the digital press data rate calculator available on Global Graphics' blog useful: https://blog.globalgraphics.com/tag/data-rate/ ∎

*Ian Bolton is Direct Product Manager at Global Graphics Software*

### Further information:
Global Graphics Software, Cambridge, UK
tel:     +44 1954 283100
email:  ian.bolton@globalgraphics.com
web:    www.globalgraphics.com

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Your route to global markets

# DIGITALLY ENHANCED

Combining the advantages of screen printing and digital printing techniques, inkjet digital transfer technology can overcome the limitations of classic screen printing, reveals Katja Pirnat

**The numerous advantages of high-quality and affordable digital printers have challenged traditional technologies for quite some time, and are pushing them to develop continuously. Textile printing is no exception.**

Just like with other digital prints, contemporary clients expect durable prints with no limitations as to the number of colours, and an image with photo resolution on textile as well. What matters is to allow for low-scale but more regular orders, continuous changes of prints, short deadlines and low prices.

Manufacturer and designer INO has upgraded the qualities of screen printing with options provided by digital printing, and after almost a decade of improvements, it has produced the IDT [inkjet digital transfer] technique.

## PHOTO-QUALITY TRANSFER

The IDT, also called a hybrid transfer or DST transfer, is a transfer made with a standard screen printing procedure, whilst having all the advantages of digital printers.

The basic procedure of making an IDT transfer is as follows:

1. Using a digital printer, a colour print is printed onto a polyester material with a purpose-made coating. During the same phase, the print for the film is made.
2. A screen printing stencil is made.
3. Using a screen printing machine, a layer of screen printing ink is applied onto a digital image that constitutes the background of the print.


*Digitally printed PET sheet – joining multiple jobs in photo quality*

4. Hot-melt adhesive powder is sprinkled over a freshly applied layer of screen printing ink.
5. After passing through the drying unit to dry, the transfer is ready to be transferred.

*"IDT technology is the perfect solution for printing full–colour transfers with additional colours"*

Depending on the client's graphic requirements, promotional or decorative use of the transfer and the type of textile, the basic procedure can be upgraded with additional layers or printing and drying steps. There are numerous options to add value to the procedure. These include adding spot colours to digital prints, combining a white background with a transparent one, printing an additional background layer for better colourfastness of the transfer, a layer of print adhesive instead of powder adhesive to make the print softer to the touch, or adding a blocking layer for textiles that sublimate.

## ENDLESS DESIGN OPTIONS

IDT technology provides endless possibilities


*Oeko-tex certified IDT transfer*


*Samples printed using the inkjet digital transfer process*

for what both screen printing and digital printing have to offer. With digital printers the creation of transfers benefits from unlimited choice of colours, colour gradients and lettering. An advantage of digital printing also lies in the fact that each sheet in any part of the empty screen may contain completely different data. Colours, prints and texts may be changed at no additional cost, as there is no need to make new stencils.

On the other hand, the screen printing procedure with the option of printing spot colours and colours with special effects complements the shortcomings of digital printing, and provides quality, softness, stretchiness and durability to the screen printing transfer.

Thus, IDT technology offers a solution for printing full-colour transfers with additional colours or variable data such as customised transfers, transfers containing barcodes or serial numbers, CMYK logos containing spot colours, transfers containing laundry symbols… You are limited only by your imagination.

## DURABILITY AND ECOLOGY

If the printing procedure is carried out correctly, the print on a textile made using IDT transfer remains intact even after 50 washes at 60°C, provided the textiles are washed in a


*Full colour image digitally printed on PET films*

domestic washing machine.

What matters most is the correct choice of printing materials and following the manufacturer's instructions. An increase in demand for colours for IDT transfers, eco trends and the continually increasing green requirements of clients have encouraged the ink manufacturers to develop water-based and Oeko-Tex certified colour systems and additives for IDT transfer printing. However, compared to plastisol inks, water-based ink

systems require the user to pay a bit more attention when they meet the process for the first time.

The initial investment in inks is low, as all CMYK colour hues are obtained with digital printing. The entire system only contains white or transparent colour as the background, the blocking black colour, printable or powder adhesive, a component to merge all the layers and some additives to facilitate the printing procedure.
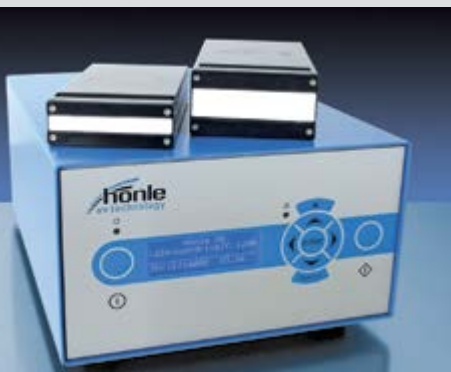
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By choosing the right materials, it is possible to print IDT transfers with Oeko-Tex standard suitable for transferring onto a wide range of products, e.g. T-shirts, sports jerseys, softshell jackets, work clothes, bags, umbrellas, slippers, shoes, etc.

## PRICE COMPARISON

According to calculations, the cost of making a full-colour transfer following a basic IDT printing system (digital + 2 x white + powder) is much lower than that of making a standard screen printed three-colour transfer.

The big difference is on account of the high cost of making screens with the classic method of printing transfers. The costs increase rapidly with each new colour added, and do not disperse even with large orders. This contributes to the higher end price of IST transfers.

The price of IDT transfers decreases for all sizes of orders from 10 to 10,000 sheets with the difference decreasing when the quantity in the framework of a single order increases.

With regular printing of IDT transfers, it is absolutely worth thinking about how to simplify, lower the costs and increase the



*Examples of products created using IDT*

productivity of screen printing process itself. Your investment in a quality automated screen printing machine with automatic positioning of the screen onto a digital image will be recovered once you reach 600,000 prints.*

When comparing the prices of transfers of 460mm x 320mm in size, for IDT transfers we

took into account the fixed costs of making the screen and the costs of digital printing and screen printing processes, as well as the cost of printing materials, i.e. film, inks, adhesives.

The same costs were taken into account for the IST standard transfers, only without the digital printing and with multiplying the costs of the screen for each colour added.

## COMPETITIVE EDGE

By combining the advantages of screen printing and digital printing techniques, IDT transfer technology has overcome all the limitations of classic screen printing. Close collaboration between screen printing companies and manufacturers of equipment and materials has brought about a simple, economic and environmentally friendly

*"The print on a textile made using IDT transfer remains intact even after 50 washes at 60°C"*

process that brings a competitive edge and excellent printing results to both small and large printing companies around the globe.

However, the most innovative within the industry are already flirting with the next milestone idea in the world of transfers, i.e. how to make the idea of 'wearable technology' a reality. ■

*\*The calculation applies for the INO Print SA6 screen printing machine.*

**Katja Pirnat works in Customer Support at INO**
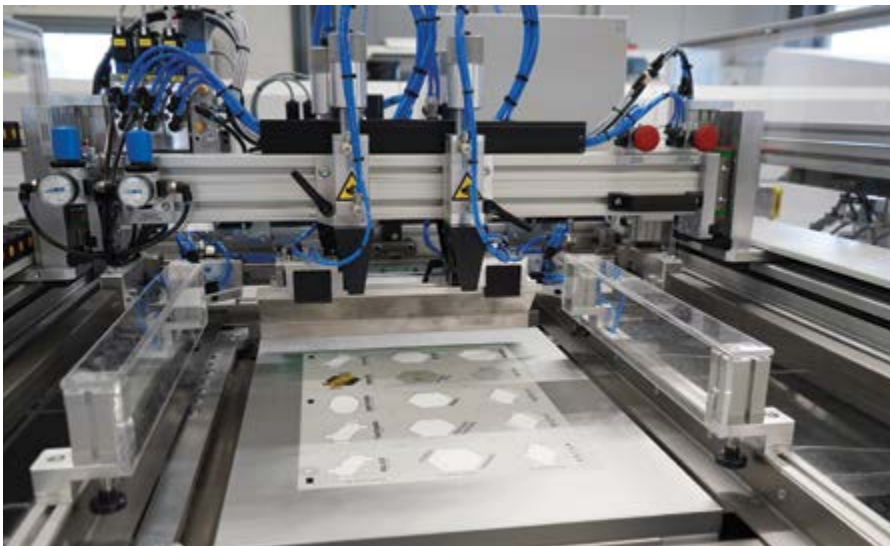


*(Above/below) Applying backing white to the digital image with a screen printing machine*
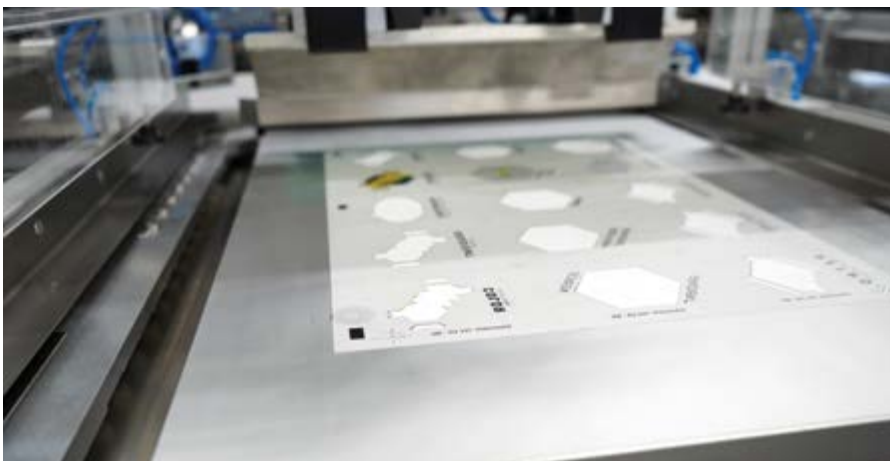
# SEEING THE WOOD FOR THE TREES

Inkjet is not equivalent to analogue and like-for-like equipment 'races' are counter-productive. The key to success with inkjet is to use it wisely, believes Richard Darling



*Richard Darling is Strategic Business Development Manager at Ricoh Europe*

**Elon Musk famously shared his thinking around innovation and how he deploys first principles with great success. He focuses on an indivisible problem, a so-called first principle. This rigorous process is grounded in Aristotelian thought and given further credibility from the world of physics. In essence, it means isolating the problem first, then designing a solution second. Its brilliance is in its simplicity, yet humans, and in particular humans from the inkjet world don't always follow this logic.**

Technology is fine and science is supposed to push the boundaries of possibility. However, 'possible' is too often different from 'useful'.

Perhaps possibilities are too frequently assembled into and called solutions, but a solution needs a question to answer or a problem to solve. There are some notable cases of technology being used dogmatically by inkjet fundamentalists where the end result is a pseudo-solution to a non-existent problem, falling into the trap of *digital analogic*



*Developed in partnership with Ricoh, the Hymmen Saturn digital printing line does not have to go fast to deliver clear economic value to wood décor producers*

(more later). The result is a clever bit of tech, but a mismatch: it doesn't do something really useful; it doesn't do it reliably and it doesn't deliver economic or operational benefit.

There will always be visionaries and early adopters who are excited by the technology and see possibilities. These people tolerate imperfection whilst being energised by new

## "Innovations should all start with a big WHY"

capability and ways to use it. They see current obstacles and difficulties and imagine what can happen if they can squeeze an industrial inkjet piece of kit into the way they do stuff. These pioneers are valuable: their insight and willingness to leap help to refine ideas and to

support R&D involved in bringing new tech to reality.

However, these early, optimistic investments should not be taken for granted and we need to beware of creating white elephants which dampen enthusiasm. Word of mouth can broadcast expensive failures very effectively and technology can readily gain a poor reputation as an unsuccessful money-pit, slowing progress for us all.

### INNOVATION TO MAINSTREAM

Moore's 'Crossing the chasm' is an accepted model for how innovations make their way to becoming mainstream or not.

To grow, a new idea must cross from the early adopter phase to appeal to the early majority. In order to do so, the narrative must evolve, and discussions must move on from technical to demonstrate clear, compelling and strategic economic reasons for adoption. At this point the technical problems are solved. Tinkering must stop. We must move from exciting technical discussions with adventurous early adopters to more cold-thinking, hard-headed rationality. This requires inkjet innovators to carefully think of the form in which a technical capability is offered, how it might fit in to existing structures of an operation or market, what barriers exist, what must be changed and how can it be changed. Innovations should have all started with a big WHY.



*Tortoise wins the race – some digital print equipment is sensibly and deliberately slower*

*Cold calculating methodology delivers realistic operating benefit assessment with fit-for-purpose precision*

Where's the problem or weakness in the way things are already done? What are we trying to solve?

## DIGITAL–ANALOGIC THINKING

Too often we have seen inkjet make grand entries into markets which looks wonderful but actually is fundamentally flawed. Often, we've invented the wrong thing, been too obsessed with speed and replacement of what exists already and fallen into the chasm.

These mistakes result from digital-analogic thinking: creating a near as possible direct replacement for analogue function when this is not needed.

What is *'digital analogic'*? Time is money, centralisation, consolidating volume, going faster is efficient – the only way to go. This is ingrained over years: industry focuses


*A methodical model: the Decorative Inkjet White Paper written by Richard Darling & Carsten Brinkmeyer*

on lowest possible material costs, highest throughput speed and theoretical efficiency, side-lining hidden overheads or cash tied up in WIP [work in process] and inventory, long supply chains involving risk, lead times, stock and impaired responsiveness.

These are common characteristics of so many manufacturing processes and are

## "Industrial inkjet equipment must be realistic"

obvious targets for digital fluid deposition or print to challenge. Like-for-like inkjet equipment to face-off with an analogue equivalent is not a good idea. It plays to the operational weaknesses and 'old think'. It also plays to all the weaknesses of digital technology. Inkjet will not be faster than gravure or flexography.

Higher speed in inkjet gives exponential increase in equipment complexity and cost, and often tips the balance away from economic viability. Printing faster puts print reliability, colour consistency and performance on a knife edge. A formula 1, single pass printer with an array of the most up to date printhead technology is an impressive technical feat. However, it is *digital analogic*; it doesn't solve a problem and often introduces a whole bunch of other problems.

## FIT FOR PURPOSE

Some digital print equipment is sensibly and deliberately slower, uses a narrower range of qualified substrates and an even tighter range of ink or toner options. Why do end-users need more choice of substrates and inks?

Could it be traditional material cost-consciousness or perhaps outright print snobbery? We should heed the Ockham's razor principle: 'plurality should not be posited without necessity'. Simplified

digital print equipment adequately delivers capabilities for smaller operators to do what doesn't make sense using analogue means.

Industrial inkjet equipment must be realistic and driven by a deeper consideration of benefits it can bring to a whole operation and supply chain. Key has to be versatility to produce fit-for-purpose single items or small lots with minimum fuss, low risk and importantly sited as close to the end of the production process as possible. Small lots will increasingly be the new norm: mainstream. Any part of a production that doesn't need such a capability should continue to be supplied by traditional analogue means. Of course, if the proportion of volume needing no variety falls below a certain threshold then analogue may itself completely lose its raison d'être.

## SATURN'S SWEET SPOT

Ricoh applied this rational process in collaboration with Hymmen to develop the Saturn décor printer. We deliberately focused on solving a market problem to enable wood décor producers themselves to invest in digital to deliver clear economic value. The focus was not speed but throughput, balanced to the production stream targeting a sweet spot where quality, flexibility, speed and total cost all converged. This positioned Saturn printers in a different location compared with other digital offerings on offer. We addressed the right problem to enable producers to decentralise manufacturing, something which has a huge value normally, not only post Covid-19.

We also used a cold calculating methodology to ascertain economic benefit of one way versus another. The model and method crosses fixed and variable costs, profit & loss and balance sheet. Whilst inkjet outsiders may not have full insight into potential end-users' manufacturing cost accounting minutia, our modelling delivers realistic operating benefit assessment with fit-for-purpose precision.

## SUMMARY

Inkjet is not equivalent to analogue and it makes no sense to try to make *digital analogic* equipment formats. Don't use an F1 single seater for popping to the shops and don't expect a hatchback to carry or deliver heavy loads. Horses for courses. Think problem first, solution second. If tech developers all focus on this, inkjet will cross the chasm and be a more widely used technology across a variety of industries. ∎

*Richard Darling is Strategic Business Development Manager at Ricoh Europe*

# THE END OF ESTIMATES?

## Capture your shop floor data with clever MIS – Peter Horwood shows how taking control of costs in real time can help to optimise company performance

Imagine being able to monitor each and every machine running live on your shop floor – to know the actual time spent on each part of the process, the time a job has taken, the amount of machine downtime, the speeds of your machines per job, as well as the amount of waste produced throughout your overall production cycle. A company can be producing the best estimates in the world, but if the job is taking twice as long as it should be in the production cycle, then it is obvious that money is being wasted at some point.

Automation and integration is the aspiration for many companies in many sectors and in the printing sector it is clearly recognised that for any business to thrive it is vital to maximise efficiencies on the shop floor and indeed throughout the complete supply chain. The present challenging and fast moving culture of consumerism is contributing to the current desire to find technologies that offer optimum efficiencies, quality results and speed to market. Underlying forces such as the exponential growth of e-commerce and the increasing pressure on sustainability are driving creative innovation and ever higher levels of productivity. For example, in the packaging and carton sectors, consumer expectation for instant, unique and entertaining products is pushing the bar within the supply chain for decreased lead times and even faster delivery.

MIS is a key area where forward thinking companies in all print sectors can find clever tools that will enable them to respond to current market forces and successfully grow their business. Finding an intelligent system that is designed to simply manage every complexity and daily challenge faced in every type of printing environment and on every shop floor can prove to be a game-changer. For print
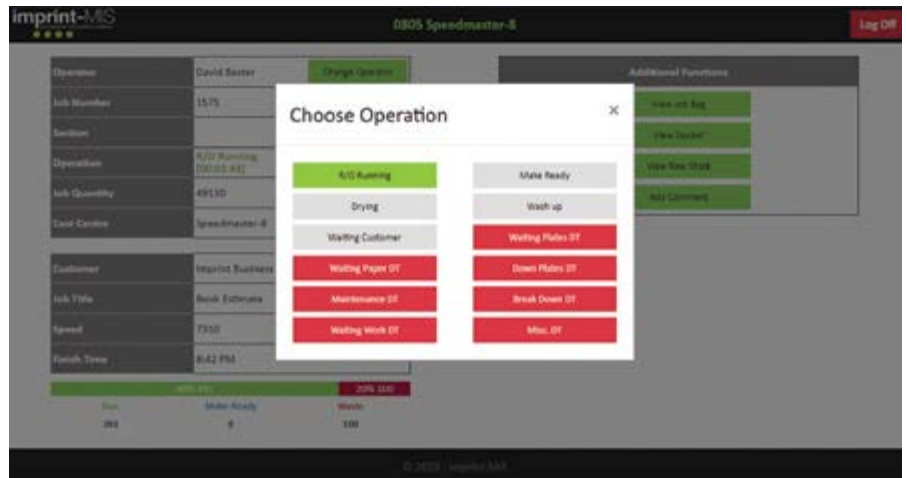


*Screenshot of an online shop floor station*

service providers working with multiple vendors and suppliers, finding an intelligent system with open architecture and integration capabilities that can accurately capture and monitor shop floor data is a massive advantage. It is never easy to change habits and ways of working but finding the right MIS company with a deeper understanding of the daily life of a printer could be the way to a different future.

When looking for a company at the forefront of MIS innovation, a good place to start is Imprint MIS in the UK. Most recently they have been developing interesting and innovative tools for shop floor data capture (SFDC) with inbuilt and effective integration capability. The company says its strategy is to help printers and suppliers work together as

partners to achieve optimum performance at all levels. Glennys Bourne, CEO is quoted as saying, "A good estimating system will go a long way to help realise costs but couple this with shop floor data capture and machine monitoring and realising true and actual costs

## *"MIS is a key area where forward thinking companies can find clever tools that will enable them to grow their business"*

in 'real time' becomes a reality. Helping companies optimise performance means providing software that will enable their systems to integrate with others. We design our SFDC software to potentially integrate with any existing system no matter the functionality."

### SFDC AND INTEGRATION
In recent times it has become increasingly apparent that systems need a way of integrating with other systems to aid automation. It is possible to do this using Imprint's API technology that supports a collaborative approach with a number of third party suppliers and utilises remote diagnostics through a browser on any device. A machine's data is fed into the MIS using JDF. This directs the machine signals which are then fed into the data capture hardware. The SFDC and machine monitoring tools record the length of time each job is taking – logging events such as downtime and pressure points. For online and W2P ordering, the power of the SFDC tools enables the user to load hundreds of small digital jobs in seconds onto the software's production board, which then plans them intelligently and efficiently. Integrating live, the production board shows each job in the system and where it is in the cycle. The less time each job takes from start to finish, the less the overall cost of production.



*Integrated machine monitoring capability provides valuable data on each piece of equipment and each process*

*Shopviewer shows information from several shop floor stations at once – an overview of the live production data as it happens*

## TRACEABILITY AND 'REAL TIME' REPORTING

An important task for maximum efficiencies in overall production in any company is traceability i.e. keeping a full record of all jobs from start to finish will allow a business to identify the reasons and the areas that can be altered to gain maximum efficiencies. For example, if there's a fault in the substrate – then it becomes essential to be able to trace each item affected. What's necessary is a 'Job Record' card system designed to hold a complete technical spec of each job, along with its current prevailing

estimate as well as links to the finished stock card plus a complete history from order to invoice. With this tool any complex job can be automatically opened together with all necessary documentation in seconds creating an error-free environment with full traceability.

Integrated machine monitoring capability provides valuable data on each piece of equipment and each process, supplying real time data and realising costs for all presses and post press equipment where accurate monitoring of time and materials is essential. Using an integrated

report generator that customers can customise provides information that is relevant to them – either individually, by department or for the company business model as a whole.

## IN SUMMARY

Shop floor data capture (SFDC) and machine monitoring tools are essential for companies looking to maximise efficiencies, expose bottlenecks and reduce costs. Some might look into a crystal ball to see what trends are coming and how their business might grow in the future – but the reality is far more practical. To control costs and build growth it is fundamental that printers look carefully at every facet of their complete operation from order through to finishing, warehousing and distribution. Forward-thinking printers would be wise to find an MIS supplier, such as Imprint, with a deeper understanding of the daily challenges for printers in every sector. ■

*Peter Horwood is Project Manager at Imprint*

**Further information:**
Imprint Business Sytems ltd., Essex, UK
tel:      +44 1245 231670
email:  sales@imprint-mis.co.uk
web:    www.imprint-mis.co.uk

# A CUT ABOVE THE REST

## Die–cutting machine or digital cutter? If you are hesitant about purchasing a cutting plotter due to insufficient automation, Luca Bartalini has a solution…



*Luca Bartalini is Product Manager at Valiani*



*The Valiani Omnia die cutting machine is designed to automatically feed and contour cut media without the need of an operator apart from the loading of material*

**One of the most frequent questions of the period we are living in is whether it is more convenient to use a traditional die-cutting machine or a digital cutter. Large companies offer both die cutting and digital cutting to help their customers create unique shapes but the difference between the processes is not always clear to everyone.**

It is not even clear, to most of the small companies that do not have these types of solutions, which they should buy first. Very often we, as experts, find ourselves in the awkward position of having to answer this question and give advice. Let's first try to clarify what the terms 'die-cutting' and 'digital cutting' mean.

### DIE-CUTTING

In the world of printing, die cutting provides a quick and inexpensive way of cutting lots of printed items into identical shapes. The artwork is printed on a square or rectangular sheet of material (typically paper or cardstock), then placed in a machine which has been loaded with a custom-made 'die' or 'punch block' (a block of wood with a metal blade, bent and folded into the desired shape). When the machine presses the printed sheet and the die together, it cuts out the shape of the blade into the material.

### DIGITAL CUTTING

Unlike die cutting which uses physical dies to create the shape, digital cutting uses a blade mounted on an arm. This arm allows the cutter to move left, right, forwards and backwards. The printed sheet is placed on the table, and the cutter travels across the sheet along the programmed path to cut out the shape.

### WHICH IS THE BETTER OPTION?

How do I choose between the two cutting solutions? The easiest answer would be, "it all depends on the kind of job". If you are looking to trim a high volume of smaller items printed

*"If you're looking to make your marketing materials more engaging, a custom shape goes a long way"*

which follows a computer-programmed path to create the shape. A digital cutting machine consists of a flat table area and a set of cutting, milling and scoring attachments

on paper or cardstock, die cutting is the far more cost-effective and time-efficient option. Once a die has been assembled, it can be used over and over again to create a huge number of identical shapes – all in a fraction of the time of a digital cutter. This means the costs of assembling a custom die can be somewhat offset by using it across a large quantity of items (and/or reusing it for additional print runs in the future).

However, if you are looking to trim a low volume of large-format items (especially those printed on thicker, tougher materials such as Forex, Foam-board or R-board), digital cutting is the better option. There's no need to pay for a custom die; plus, you can create more intricate shapes via digital cutting.

### DO YOUR RESEARCH

Based on market research and sector journals, the printing market is experiencing a period of great growth in the digital sector. This is mainly due to a sharp reduction in the



*Samples of die-cut products*

*A die-cutting machine presses the printed sheet and the die together to cut out shapes*

quantity of orders but with a substantial increase in the variety of demand. Typographies are increasingly faced with requests for small batches, custom tailored jobs, fast deliveries and competitive prices, which is ill-suited to offset printing and die cutting processes.

From this assumption we come to the question, what should be done to satisfy this kind of demand? My personal interpretation is, equip yourself with a 'smart' product, capable of meeting quality, versatility and a fair production capacity.

Each manufacturer claims that their product is of the highest quality so the next question would be, what are the parameters that should guide us in the judgment? Surely reputation on the market is an important factor, as is value for money but there are other aspects that I would suggest looking at:

real usage cost, support available, additional services, warranty terms, ease of use and installation and training times.

Versatility is another important aspect that determines the extent of the work that can be carried out, the variety of materials that can be processed and the longevity of the investment. The last aspect is very important because considering a hypothetical leasing, it is imperative that the machine meets its needs for a period at least similar to that of the leasing.

Finally, your new equipment should have a fair production capacity that is able to meet real needs – not just expectation.

## ADVANTAGES OF DIGITAL CUTTING
It's my opinion that if you're looking to make your marketing materials a little more engaging, a custom shape goes a long way. So how do we turn this idea into reality? Surely the easiest way is to equip ourselves with a digital cutter that can make cuts and score different shapes in various types of material whether rigid or soft, such as paper, cardboard, foam or Forex.

Currently the market offers a wide choice of solutions for digital cutting, with different prices and sizes, from small to very large, and

managing different file formats and making the daily duties easier and quicker. Additional software that helps generate packaging, POS/POP display or any other similar application has become a standard of the market.

All these characteristics often make digital cutters appear very interesting and attractive to a lot of end-users, but possibly their capabilities are still far from the expectations of automation and speed required by the high-volume printing companies. This is demonstrated by the growing number of producers attending trade fairs, both directly and through dealers, with products of all sizes and prices – and, I would add, quality!

## AUTOMATED PROCESSES
It is possible to combine the versatility of flatbed cutting plotters with the automation of a printing machine that has an automatic materials feeder. These machines offer the flexibility of handling different kind of materials and thicknesses but at the same time allow the end-user to load a substantially long job and forget about it until it's completely done. Certainly, to the eye of an entrepreneur, an automated machine allows them to make more precise calculations and be very competitive in terms of global offerings.

## *"This is undoubtedly a new business opportunity for machinery manufacturers"*

with different performance or cutting capability. The majority of these machines are conceived for single processes, some with flat tables, others with conveyors, and the most advanced with dual gantry that grant a sort of tandem mode and theoretically double the performance but in all cases and despite the technology, they need an operator capable of using the equipment and who can load the materials.

Digital flatbed cutting machines come with a system to detect printing registration marks, a bundle of software capable of

The most advanced machines work both ways: in automatic mode for large batches and as a traditional digital cutter for single mock-up or for prototypes.

As with traditional flatbed plotters, this automated variant also has its own characteristics. Among the most important, I would certainly consider the size and thicknesses of material that can be processed and the capacity of the feeder that determine the autonomy of the process. The simplicity of use is also important, along with the integration with vector graphics software such as AI or CorelDraw, compatibility with packaging CAD, a precise solution for detecting printing crop-marks, capacity for loading a file via QR code that make the process even more automatic and independent of the user capabilities.

This is undoubtedly a new business opportunity for machinery manufacturers and an excellent resource for all those companies who until now had doubts about the purchase of a cutting plotter due to insufficient automation. ■

*Luca Bartalini is Product Manager at Valiani*


*Die cutting is a quick and inexpensive way to cut and score large quantities of identical printed items*

# FLEXO CLEANS UP

## Using solvents for flexo plate processing and washing can create solution-handling and waste disposal issues. Bill Schweinfurth explains how aqueous plate technology offers a cleaner alternative

**Aqueous plate processing finds its earliest roots in a 1948 Kodak patent which is the foundation of photopolymer imaging. A process-free printing plate, or at the minimum an aqueous process plate has been a goal for printers even before that invention since the days of hand engraved plates.**

Development took some time, but market availability and adoption of aqueous processed plates began in earnest after drupa 2004, and now 15 years later with the increasing pressures of environmental sustainability it has finally become the primary method of offset plate processing. Although the unique challenges of flexo plate-making have added complexity to achieving that goal.

### CHALLENGES OF FLEXO

The earliest flexo relief plates were composed of rubber and the resultant print was not of the highest quality. The introduction of photopolymer flexo plates helped increase the quality but not that much in comparison to offset or gravure, two of the primary packaging print technologies. The subsequent introduction of CTP imaged photopolymer flexo plates in the mid 1990s provided much higher resolution and tighter controls to the platemaking process, but still didn't achieve the quality of offset or gravure.

One of the challenges of flexographic printing is that the flexo plates image directly on the substrate, creating plate wear and therefore impeding run longevity, as well as print quality. The flexo plate, unlike offset, is without an aluminium backing, thereby making it an inherently soft surface in comparison to offset plates, which makes it harder to achieve a small minimum printing dot or maintain a durable dot structure in general over the course of a press run. In order to mitigate these issues, flexo plate manufacturers have developed different plate materials, exposure and processing solutions.
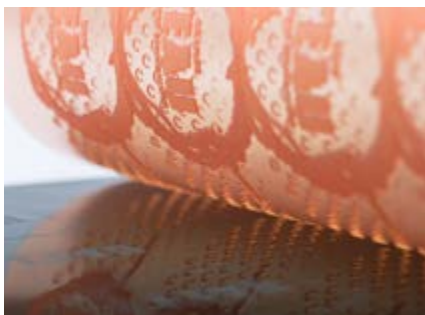

*An operator reviewing a plate produced on Miraclon's Flexcel NX Ultra system*

The most widely used method of flexo digital plate-making today uses a plate that has a LAMS (Laser Ablative Mask System), which is a black carbon mask layer manufactured directly on the plate, that is then exposed with a digital laser imaging device that ablates the image area

*"Flexo plates image directly on the substrate, creating plate wear and therefore impeding run longevity"*

from the carbon mask. Flexo plate and laser imaging technology has continued to improve over time along with image quality, however the LAMS process still doesn't offer the level of control or detailed reproduction we would typically find in offset or gravure platemaking.

At drupa 2008 Kodak introduced Flexcel NX, the first step in an alternative solution developed using the company's long history of imaging and offset plate-making. This process uses a Thermal Imaging Layer (TIL) mask, which in essence is exposed film that is then laminated with a unique laminating process providing a 1:1 reproduction to the Kodak polymer flexo plate material. The plate is then developed in a solvent based solution to wash away the non-imaged areas.

The TIL can produce a much cleaner image


*A plate coming off Miraclon's Flexcel NX Ultra system*
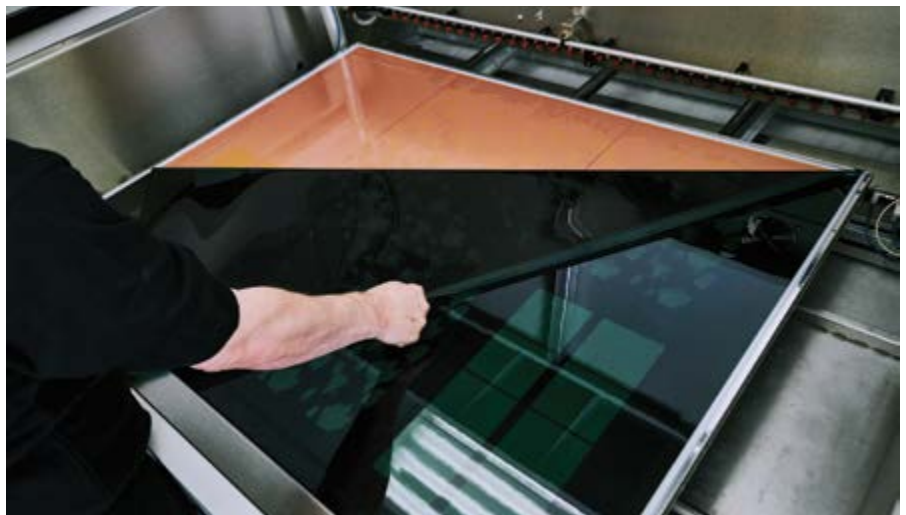

*Operator lifting a plate off Miraclon's Flexcel NX Ultra system*

mask and the plate can be produced with smaller flat top halftone dots with broad shoulders to help stand up to the direct imaging on the media. The plate can also carry ink more consistently and requires 3–4 times less energy to image the TIL compared to LAMS.

## AQUEOUS FLEXO PLATEMAKING AND PROCESSING

Efficiently and completely removing residual material from the exposed and processed plate has proven to be a challenge for many plate manufacturers over the years. Additionally, since the flexo plate dot structure and process requires a tall dot in order to create a shoulder to maintain the dot under the pressure of compacting it against the media, there is a good deal of residual non-print plate media that needs to be removed or washed off. If not washed out properly, developed plate debris ultimately redeposits on the plate causing print defects. This issue can be further compounded if the surface of the plate is textured – where a textured surface can act as an additional trap for debris.

Solvents initially proved to be more efficient than water for plate processing and washing off the residue but brought with it solution-handling and waste disposal issues, until now.

In an effort to achieve a high performance aqueous flexo plate-making solution, at Labelexpo 2018 Kodak – now Miraclon [a standalone company formed from Kodak's former flexographic packaging division] – introduced the Flexcel NX Ultra system, its latest

*"With aqueous processing a printer can have a press-ready plate in less than an hour"*

evolution of the Flexcel NX product line. Flexcel NX Ultra involves the same basic TIL technology, but unlike the current Flexcel NX which uses a solvent based developer, Flexcel NX Ultra uses a new aqueous-based development process that is solvent and VOC-free. The new Kodak Ultra Clean technology uses a specially designed plate processor and a specially designed processing solution with a dispersing agent.

Miraclon's Kodak Flexcel NX Ultra plate processor develops the latent image into a relief image by removing the unexposed photopolymer from the photosensitive flexographic printing plate using this unique aqueous processing solution while the plate is being mechanically cleaned. The patented process uses natural-based agents to prevent the build-up of unexposed polymer on the plate and the plate processor itself – ensuring both the quality of the plate and a minimal amount of maintenance and cleaning for the operator.

The system is also fast: only seven minutes to process a plate – and with the rapid drying times possible, a printer can have a press-ready aqueous-processed plate, in less than an hour. And as for waste products, the spent solution is drained out of the processor as a combination of reclaimed water and inert by-product for treatment and municipal disposal. The combination creates a level of quality, efficiency and sustainability not seen before in flexo plate-making.

## PROBLEM SOLVED

High performance flexo plate-making and processing has come a long way since the invention of photopolymer imaging in 1948. With the addition of the Kodak Flexcel NX Ultra aqueous solution from Miraclon, achieving the goal of an environmentally safe and sustainable process provides flexo print providers with a solution that will continue to support high quality print, increased productivity and lower costs for years to come. ■

*Bill Schweinfurth is Worldwide Product Marketing Manager at Miraclon*

**Further information:**
Miraclon, Zaventem, Belgium
tel:    +32 2 352 2520
email:  pr@miraclon.com
web:   www.miraclon.com

# COMMUNICATING IN COLOUR

## Standardised viewing conditions are required when discussing colour. Brian Wolfenden examines ISO 3664:2009 and reveals the key to accurate colour communication

**What do a photographer, commercial printer, brand owner, graphic designer, screen printer, and a flexographic printer have in common? They all have a need to accurately see and communicate colour. When they carry out this objective consistently and accurately, they are providing a high level of value to their clients and increasing the efficiency of their business.**

Reproducing colour accurately is a complicated process, especially when different substrates, technologies, and production facilities are involved. To help ensure that accuracy is achieved, colour viewing comparisons across the supply chain need to be made in an environment that conforms to the ISO 3664:2009 viewing standard.

ISO 3664:2009 is the international colour viewing standard for the graphic arts and photography industries. It is a set of specifications that enables lighting engineers and manufacturers to design, test, and certify their colour viewing systems to the industry standards, and challenges them to enhance the performance of their products. There are five specific conditions to meet when designing an ISO 3664:2009 compliant viewing booth:

### 1. COLOUR QUALITY

The phase of daylight accepted as the industry standard for graphic arts and photography has a spectral power distribution (SPD) called CIE D50, which has a correlated



*GTI Wall Viewing systems combine luminaires, mounting brackets, and metal wall panels to create an ISO compliant viewing area Up to five luminaires can be linked together*

*'ISO 3664:2009 enables lighting engineers and manufacturers to design, test, and certify their colour viewing systems to industry standards'*

colour temperature of 5000K. The ISO 3664:2009 standard specifies that D50 light, which represents natural daylight, be used to view prints, photographs, and other graphic arts applications. It should be noted that not all 5000K lamps are equal. To maintain



*GTI lamps produce a full-spectrum white light which renders colours with a high degree of accuracy and efficiency*



*VPI Vertical Print Inspectors are designed for the visual evaluation of large format prints in a vertical format*

*GTI PDV Professional Desktop Viewers are available in three model sizes; all fold for easy set-up and storage*

compliance with the standard use only ISO 3664:2009 compliant lamps in your viewing booth.

## 2. LIGHT INTENSITY

Consistent light intensity is critical to consistent image rendition. The standard provides a target intensity designed to allow full tonal visibility of shadow detail without washing out highlights. It is preferable that colour decisions be made under light that is between 1750 and 2250 lux, with 2000 lux being optimum.

## 3. EVENNESS

Even light intensity across an image assures correct interpretation of print/reproduction quality. Evenness is ensured by measuring illuminance at several evenly distributed points on the viewing surface. Illumination should be at least 1200 lux (60% of 2000) intensity at all points on the viewing surface.



*The GTI CVX-3052/FS is one of many floor stand models that the company offers*

## 4. SURROUND

Surround colour and reflectance affect colour appearance. ISO 3664:2009 specifies that the surround and backing shall be neutral and matte with reflectance between 10% and 60%. A 60% reflectance is comparable to a viewing system painted with Munsell N8/neutral grey paint. Manufacturer of colour viewing systems, GTI Graphic Technology, paints all D50 viewing booths with N8/neutral grey paint.

## 5. GEOMETRY

The presence of excessive glare is distracting and can hide reproduction detail. Therefore, the light source, image, and the observer's eyes need to be positioned to minimise glare. The standard does not explicitly specify lighting geometry but states it should be minimised.

Selecting a viewing booth to meet your requirements is easy. Determine what size viewing area you need; it is recommended that your viewing area be large enough to allow a side-by-side comparison of prints and proofs. You should also consider the number of people who will be involved in the viewing process when selecting your viewing station. ISO 3664:2009 compliant viewing systems are available for all size

## *'Consistent light intensity is critical to consistent image rendition'*

applications. GTI Graphic Technology offers products ranging from small desktop viewers to wall viewing systems specifically designed for large format prints.

## CONCLUSION

Standardised viewing conditions are required when discussing and communicating about colour. ISO 3664:2009 is designed to help implement standardized viewing conditions across the production and supply chain. The standard not only specifies D50 lamps but proper illumination at the viewing table. Therefore, the easiest and most efficient way to achieve ISO 3664:2009 compliance is to use an ISO 3664:2009 compliant viewing station and to maintain it with regular relamping. The result will be fewer proofing cycles, faster customer approvals, better communication between stakeholders, and lower cost. ■

***Brian Wolfenden is Marketing Manager at GTI***

# ONE SIZE DOESN'T FIT ALL

## Standard waveforms are rarely optimised to meet the demands of specific applications. Matthew Pullen and Tracey Brown argue the case for bespoke printhead waveforms

**Anyone who has ever visited a tailor to purchase a bespoke suit knows that there is nothing quite like it. Styles and fabrics can be chosen to suit the occasion but it's the custom fit, shaped by a master craftsman, that makes all the difference. In close analogy, while an off-the-rack electrical waveform can be used to drive an inkjet printhead, bespoke waveforms offer so much more.**

From the exceptional print quality requirements of commercial labels to the non-contact robustness needed for ceramic tile decoration, to the precision deposition capability demanded by printed electronics, tuning a waveform for specific combinations of printhead, fluid and substrate is the key to success for material developers, ink vendors and print system OEMs. Ink ejection as controlled by the printhead driving waveform contributes just as much to image quality, print system productivity and jetting reliability as software interventions such as image profiling.

### WHY WAVEFORMS MATTER

Commercial piezoelectric (PZT) inkjet printheads come in many shapes and sizes. Although employing various proprietary methods to generate drops, they all operate in fundamentally the same way. When a voltage is applied to a PZT crystal within the printhead, the crystal changes shape. This shape change generates a pressure pulse within the printhead nozzle chamber resulting in the ejection of a drop.

The voltage which deforms the PZT crystal is created by electronics in the guise of a waveform (precisely timed voltage of variable amplitude). The shape of this waveform is crucial to printhead operation and is dictated both by the architecture of the printhead and the properties of the fluid. Ink parameters such as solvent composition, solids content and viscosity heavily influence the pressure response.

Standard waveforms are commonly available from ink suppliers or printhead manufacturers. While adequate, these waveforms are rarely optimised to meet the demands of specific applications. They may not, for example, yield the required laydown for a given substrate or have poor linearity of response, making image management difficult. As an example, colour gamut, saturation, linearisation, coalescence and wetting effects on gloss substrates can prove especially challenging. Perhaps surprisingly, standard waveforms may also perform differently across colours in an ink set, imposing additional image quality and colour
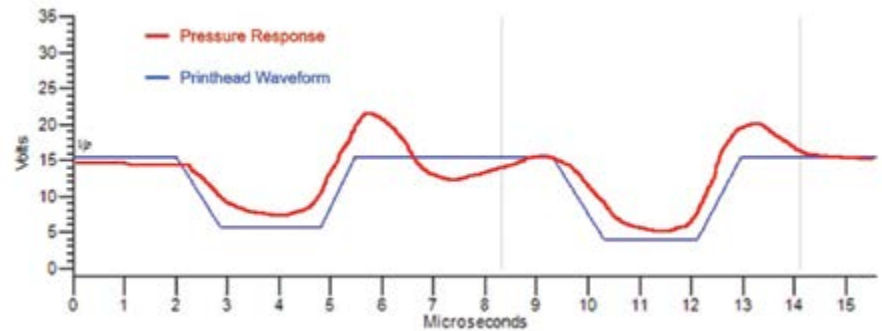


*Printhead waveform and resultant pressure response for two sub drops*

registration complications. Even inks with only slightly differing pigment and surfactant packages may exhibit dissimilar acoustic responses due to differences in viscoelasticity or surface tension. Further problems may be encountered when drop velocities are not optimised for the specific application, especially in cases like direct-to-object printing where extended or varying throw distances are required. Non-optimised waveforms can even impact print system productivity and reliability. The generation of undesirable satellite drops

can promote ink build-up and dripping resulting in increased maintenance.

### NO ONE "RIGHT" WAVEFORM

Waveform generation and grey level mapping are performed either within the printhead or by way of external electronics. There are advantages and disadvantages to each approach which balance the trade-offs of complexity, cost, heat dissipation and flexibility in addressability of voltage and timing parameters

Fundamental factors to consider when
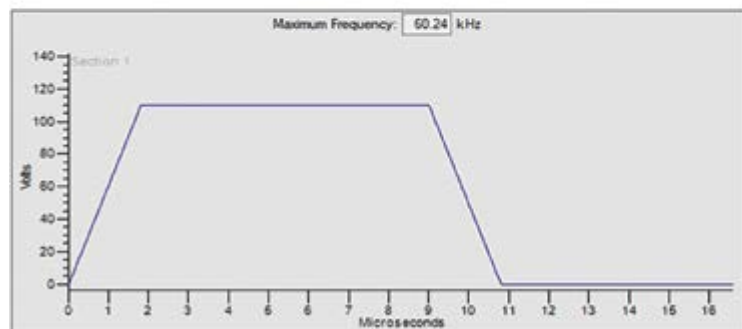


*With a simple, single drop waveform, it is easy to illustrate how a drop can be ejected with a specific velocity and volume by way of two different waveform shapes. While the drop velocity and volume are the same in both cases, the quality of drop formation differs dramatically*
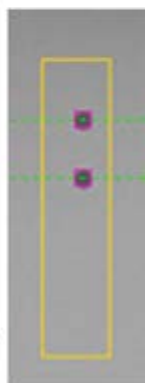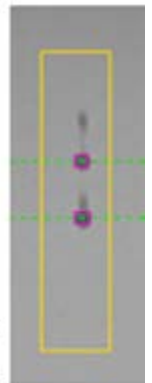
determining the shape of a waveform include drop volume, drop velocity, productivity and reliability.

**Drop volume:** This is one of the first characteristics considered when specifying a print system. Greyscale is built by applying multiple pulses within a waveform to eject drops of different sizes. Each drop must be ejected with enough energy to catch and

*"Pulses can be designed to control ink build-up on the nozzle plate and even recover missing or deviating nozzles"*

coalesce with, but not perturb, preceding drops. Additionally, for precise control of laydown and colour gamut, drop volume linearity is important across grey levels.

**Drop velocity:** Optimising waveforms to prioritise velocity may sacrifice elements of control over drop formation and the creation of small, unwanted satellites. Small drops can take longer in flight than large drops, during which time the substrate may have moved. A commonly pursued, but suboptimal 'solution' is to overdrive standard waveforms with elevated voltages to increase laydown and throw distance, but this comes at the expense of system reliability and print quality.

**Productivity:** Maximum firing frequency is limited by the combined physical characteristics of the printhead and chosen

fluid. Performance is further impacted by system parameters including the speed of the scanning carriage, web or object, the required size of the drop and resonance effects.

**Reliability:** Printhead waveforms play an essential role in print system reliability. Pulses can be designed to control ink build-up on the nozzle plate and even recover missing or deviating nozzles. With clever use of tickle pulses (waveforms which provide enough energy to keep the fluid moving within the nozzle without ejecting a drop), the length of time a system can be paused without problem can be extended.

## BESPOKE WAVEFORM DEVELOPMENT

At a minimum, bespoke waveform development should include the determination of drop volumes at various print frequencies for each fluid/waveform combination, the mapping of drop volume and velocity vs both drive voltage and print frequency, and the analysis of drop and ligament formation by observation of drops-in-flight. Also helpful is the investigation of fluid rheology to understand viscosity profiles, surface tension, particle size and density in aid of potential

fluid reformulation. And finally, the evaluation of open time and latency will help to impact jetting reliability, fluid build-up and misting.

To implement a bespoke printhead waveform, drive electronics must be acquired or developed which offer fine, digital control, ideally with the ability to produce accurate waveforms that have good optimised pulses over a range of jetting loads. Simple, unsophisticated electronics are not up to the task.

Years of technical evolution have yielded a vast array of highly reliable printheads aimed at an endless stream of fluids in an every-growing list of applications. In the matter of waveform optimisation, there is no substitute for understanding specific application requirements and when help is needed, calling on those who are masters in the art and science. Just as nothing compares with a well-tailored suit that is appropriate for the occasion, there is no one-size-fits-all for inkjet printhead waveforms. ∎

*Tracey Brown is Director of Strategy & Marketing and Matthew Pullen is Product Manager – DropWatching Solutions at Meteor*

**Further information:**
Meteor Inkjet Ltd., Cambridge, UK
tel:      +44 34 5844 0012
email:  enquiries@meteorinkjet.com
web:    www.meteorinkjet.com

# A BREATH OF FRESH AIR

## Keeping the air we breathe clean is more important than ever before. Jim Kuzara examines the balance between specialised printing and sustainability practices



*Jim Kuzara is Technical Sales Manager at Ship & Shore*

**Attractive and eye-catching packaged product helps to keep merchandise moving from the shelves. Multicoloured, high gloss, laminations and dimensional printing techniques all conspire to draw the consumer in for purchase. Packaging industries – food, pharmaceuticals, bulk packaging, paper, film, and corrugated materials, all seek to gain a competitive advantage through unique and highly visible packaging.**

Brand Managers are constantly challenging the printing industry experts with coating specifications to provide best finish appearance. The printing industry is also challenged to deliver these finishes in an environmentally-friendly fashion to minimise impact to local surroundings and the quality of the air we breathe.

Ink or coating materials are chosen to create a best finish effect and print durability. Typically, solvent-based or water-based coating materials are used. Although both coating types contain solvent material, water-based materials have significantly less solvent content. It is the solvent-based printing operations that emit large amounts of Volatile Organic Compounds (VOCs) that are the focus of regulatory agencies and generally require abatement controls.

### WHY DO WE CONTROL THESE EMISSIONS?

VOC emissions that enter the atmosphere combine with nitrogen oxides and UV rays (sunlight) to form smog that has been proven to cause respiratory health problems. Other solvents have been classified as Hazardous Air Pollutants (HAPs) and have been shown to be cancer causing. Furthermore, the capture and treatment of ozone emissions from corona treatment equipment has found its way into recent permits and subsequently into abatement equipment. These emissions are also unhealthy and very corrosive to surrounding plant equipment.

Emissions from printing operations that utilise solvent-based materials are regulated by Federal, State, and Local authorities by guidelines established through the Clean Air Act. In general, these regulations limit the VOCs that can be emitted by a coating operation either as a single solvent or as a solvent mixture. They are generally quantified in tons of emissions (allowable) and can differ across locations.

The goal of any well-designed printing facility is to mitigate these emissions by implementing add-on abatement controls. Typically, thermal oxidisers are used in this application. Principally, Regenerative Thermal Oxidisers (RTOs) are installed to minimise the impact of coating emissions in a cost-effective way.

Solvent emissions are emitted to atmosphere in a variety of ways from printing operations:

1. Press ink application exhaust areas – flexographic, rotogravure, litho, offset, etc.
2. Press tunnel drying area exhaust
3. Ink mix local to the press area
4. Ink/solvent storage rooms
5. Ozone emissions from corona treater adhesion promoting equipment
6. General press vicinity ventilation (typically for older presses)

### HOW DO THERMAL OXIDISERS WORK?

VOCs and HAPs are combusted at approximately 1450–1500°F [788–816°C] to be converted to carbon dioxide and water (also other very minor products of combustion depending on inlet constituents).

Thermal Oxidisers come in a variety of arrangements that have subtle effect on destruction efficiency, operating costs, and thermal efficiency (the amount of energy that can be recovered from the combustion process).

Regenerative Thermal Oxidisers (RTOs) have long been the choice of the printing world. RTOs feature 98–99% destruction efficiencies and are thermal efficient up to 97%. RTOs tend to exhibit high flexibility in most applications



*Example of a 50,000 SCFM Regenerative Thermal Oxidiser (RTO) for the printing industry*
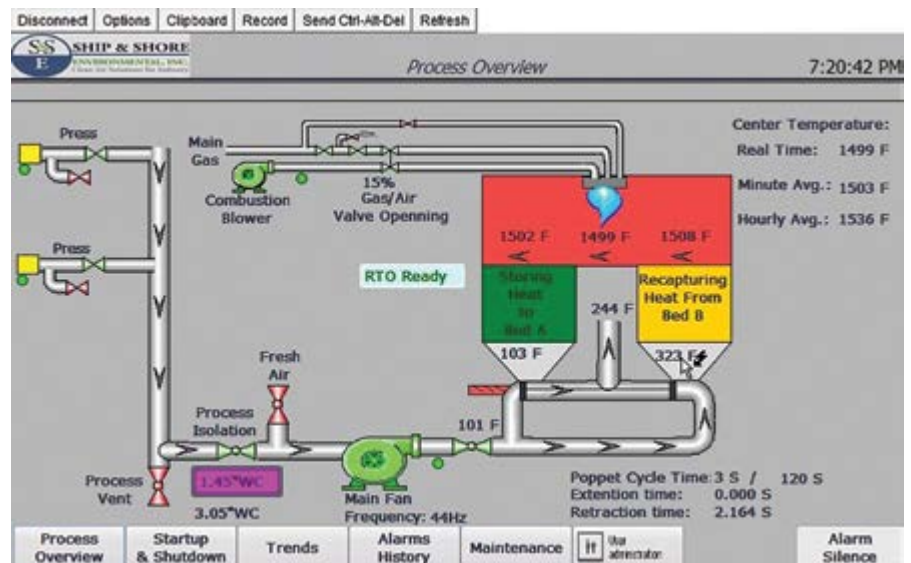


*Sample of a Human Machine Interface (HMI) screenshot. The PLC and HMI system allows RTO operators to control and monitor the printing process and systems and can also be used for troubleshooting and data analysis*

due to their excellent destruction and thermal efficiency properties. RTOs are usually the preferred technology because they can effectively control very high volumes of air with low to moderate solvent concentrations. In addition, due to the high rates of thermal effectiveness, RTOs will have minimum natural gas consumption and lower costs of operation, thereby offsetting capital equipment costs over a shorter period of time in comparison to alternate technologies. RTOs are reliable, durable, easy to maintain, and PLC controlled with touch screen HMI interface.

### ADDING VALUE TO YOUR THERMAL OXIDISER PURCHASE

Ship & Shore Environmental is a supplier of VOC abatement equipment to the printing industry with complete engineering, design, fabrication and maintenance capabilities.

The key to a successful system implementation starts with your individual process and the ability of a thermal oxidiser company to understand your goals and objectives. This allows for maximum value throughout the entire equipment selection process.

The decision to control VOC emissions with an RTO, whether mandated by regulation or voluntarily, comes with a price. This is usually manifested in cost and time across your organisation – manpower, capital purchase, added energy costs, regulatory permitting challenges, and facility design changes (concrete, ductwork, piping and wiring).

Keys to getting best project value:

- Complete understanding of the print process to maximise abatement equipment potential
- Familiarity with all different process equipment suppliers (such as presses, laminators, ink/solvent providers) provides added advantage for any expansion and production projections for future growth
- Optimising air flow to the oxidiser (smaller unit purchase) while enhancing fuel to the unit (fuel via VOCs in exhaust streams) to achieve minimised operating cost
- Coordinating with your environmental engineers and/or consultant to achieve regulatory compliance
- Assistance in filing for air quality permits and applications
- Researching possible secondary process heat recovery opportunities to maximise energy recovery for overall lower operating costs
- Incorporating design provisions anticipating future process changes
- Knowledge, experience, and relationships to take advantage of new construction incentive available through local state agencies and utility entities (these are very lucrative returns available primarily through highly efficient Ship & Shore RTO purchases)
- Overall assessment of plant design to maximise incentive potentials with respect to presses/laminators/RTOs as a complete package

Your abatement system supplier must be hands-on and understand the core principles of manufacturing processes. Alongside plant personnel, Ship & Shore baselines, designs and integrates environmental control technology for leaner capital outlays and cost-effective operation. We focus on your abatement needs while you manage the challenging business environment. Better air quality, energy efficiency, maximum profitability – Ship & Shore partners with the printing world to grow and expand businesses through the addition of well-conceived environmental controls. ■

*Jim Kuzara is Technical Sales Manager at Ship & Shore*

# CIRCUIT TRAINING

Dr Guy Masse looks at how printed electronics technology has evolved and discusses moving from decorative to functional screen–printed products with a range of conductive, dielectric and electroluminescent inks

**Printed electronics is not a new concept, but it has generated increased attention since the mid-2000s. Some traditional applications such as keyboards, battery testers, appliances, electroluminescent lamps and biosensors date back to the 1970s. Now the term printed electronics (PE) generally refers to the printing of electronic materials onto a flexible substrate.**

Over the past several years there has been an increasing awareness of the potential benefits of PE, especially for flexible substrates, for the purpose of reducing weight and to anticipate high volume Roll-to-Roll printing assets. New potential markets have emerged that couldn't be achieved through the conventional PCB [printed circuit board] industry.

## COLLABORATIVE EFFORT

Printed electronics is really a multidisciplinary field: knowledge of materials, chemistry, electronic and printing are necessary. This specificity makes it difficult to move from the laboratory stage to the series. Once the laboratory research stage is finished, the move to the industrial step needs the appropriation of innovation by the manufacturer. For transdisciplinary applications like PE, collaboration between several manufacturers is essential. However, manufacturers are not all equipped for the development of collaborative innovation; the industrial tool, generally a production one, is not adapted to prototyping tests. The need for external collaboration complicates the adoption of laboratory projects to achieve industrial innovation. Collaboration between potentially competitive industrial players is tricky and the proliferation of independent actors from each other decreases the chances of success. These difficulties may explain the issue of getting on the market for some promising projects.
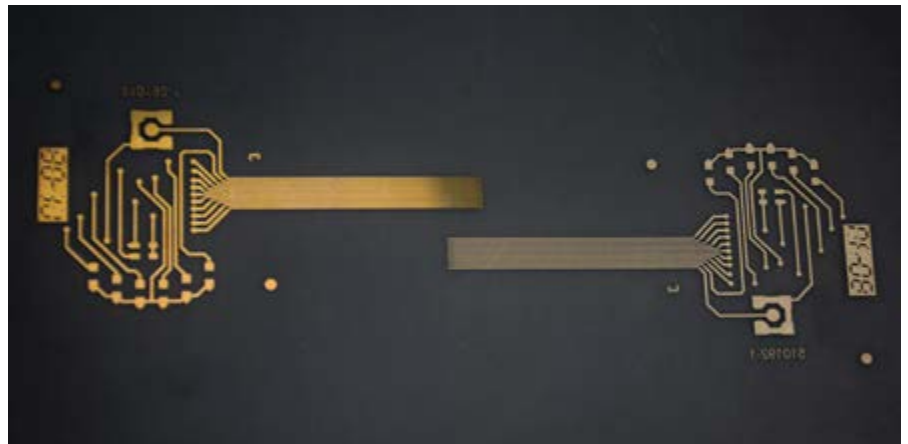


*Comparison between silver paste (on the right) and Encres Dubuit's nano silver ink (left)*

## DECORATIVE TO FUNCTIONAL

Industrial screen-printed applications or products are mostly functional applications with screen printing being an essential part of the overall production process. In contrast to decorative applications, which are confirmed visually or limited to a colour management, a functional application's function is controllable and quantifiable.

Among functional products, those developed for printed electronics represent a real challenge. Moving from decorative to functional products will be Encres Dubuit's challenge for years to come.

Dubuit has directly considered the specificity of such development by forging relationships and partnerships with some manufacturers specialising in conductive inks, academic circles and some platforms involved in the printed electronic adventure.

## INKTRONIC PRODUCTS

Encres Dubuit has gradually built its own portfolio of products dedicated to the printed electronics market, in standard and custom formulations: the Inktronic series, which contains various solvent-based and/or UV curable products.

*'Screen printing, which produces patterned, thick layers from paste–like materials, remains the dominant technology'*

- The first step: decorative products containing effect pigments
- The second step: effect pigments for functional products
- The third step: functional products with functional pigments/fillers/polymers.
- The last step is on the move.

As a new entrant to this market, Encres

**Conductive Inks:**
- Silver microparticles-based
- Silver coated microparticles-based
- Carbon-based
- Carbon Nanotubes (CNTs)
- Graphene-based
- Silver nanoparticles-based

**Dielectric Inks:**
- Dielectric varnishes
- Dielectric whites

**Electroluminescent Inks:**
- White and Blue-green

And other inks under development and evaluation.

## DIFFERENT APPLICATIONS

Printed Electronics can be divided into different segments:

**Traditional PE Applications –** there have been many commercial printed electronic successes over the past 40 years, including:



*Encres Dubuit's potential substitute for silver paste: silver coated copper and silver coated glass inks*



*Electroluminescent system (ITO PET film + EL white ink + dielectric white ink + silver paste)*

*Thermoformed UV products (silver-coated copper ink, black ink and matt varnish) on a Hytech HPF (High Pressure Forming) press*

- Membrane switches and interconnects
- Battery testers
- Biomedical sensors
- Electroluminescent lamps for lighting and for smart packaging
- RFID HF, UHF/NFC, smart packaging and smart card antenna

**Emerging PE Applications –** most of the devices of the new segments listed below are nearing or entering commercialisation and/or are the subject of a lot of academic work. Screen printing which produces patterned, thick layers from paste-like materials remains the dominant patterning technology due to years of experience and the number of commercially available materials. Rotary screen printing, flexography, gravure and inkjet printing, all compatible with roll-to-roll,

*'Encres Dubuit proposes solvent–based and UV screen printable multi–layer materials systems with compatible conductive, dielectric white and electroluminescent inks'*

are alternative printing processes allowing high throughput printing and lowest possible manufacturing costs.

- Flexible sensors and printed photodetectors/electromagnetic sensors
- IME (in mould electronics)
- Wearable electronics
- Flexible heaters
- Touch panels
- LED lighting
- OLED lighting
- Organic and Perovskite Photovoltaics
- Organic transistors (OTFT: organic thin film transistors), OFET (organic field-effect transistors)

RFID HF, UHF/NFC, Smart Packaging and Smart Card Antenna are some of the PE segments where Encres Dubuit's Inktronic system is involved. RFID/NFC Systems typically include the following: a primary antenna, a transceiver, and a transponder with a passive antenna. The electromagnetic field produced by the primary antenna will activate the integrated circuit of the passive transponder and then the information it contains may be read by the transceiver. The passive antenna technology must meet three fundamental

criteria: it must provide low resistivity, allow easy assembly of the IC chip, and high volume/low cost production. The PE part is however limited to the antenna and most of the time the silver cost of the printed antenna is prohibitive compared to other technologies such as etched copper and aluminium foil and does not satisfy the low-cost requirements.

The increasing need for sensor systems comes from the growing demand for applications based on an interconnected world by the Internet of Things (IoT), by Human-Machine Interface (HMI) connection solutions, by the increase in the number of applications and connections in cars and in fields such as health, childcare/old age and industry.

Resistive, capacitive, piezoelectric and photoelectric sensors allow the printing of strain gauges, force/pressure sensors, gas sensors, moisture and temperature sensors, image sensors and photodetectors; biosensors, IME sensors.

In addition, the piezoelectric effect can also be used for actuators (for smart catheters or haptics) and energy harvesting.

## IN-MOULD ELECTRONICS

Material needs to become smart and functional with smaller circuitry and more and more electronic content. In order to meet the demand of new form factors, it is important to be able to embed electronics into formed and injection moulded parts. In-mould electronics (IME) represents a new group of PE applications that includes in-moulded plastics (IMD technology applied to PE), part of the 3D Plastronics and the structural electronics technologies.

Film insert moulding (FIM) can be seen as an excellent way to integrate printed electronics and decorative printing into a single moulded part that is both functional and durable. Such parts are used in many applications, including automotive, consumer electronics, industrial, white goods, and medical devices.

For such applications, conductive inks

must maintain good adhesion and low resistivity after the printing has been thermoformed and need to be heat-resistant to survive the elevated temperatures during the moulding process. Washout, where the heat and pressure of injection moulding causes localised deformation, also needs to be avoided.

Encres Dubuit has begun specific developments for this field of applications.

## ELECTROLUMINESCENT LAMPS

The EL lamp is a parallel plate 'lossy capacitor' structure with an active inorganic phosphor (microencapsulated zinc sulphide compound) embedded in dielectric and sandwiched between the electrodes. Application of AC voltage (60–250V, frequency range from 50–1000Hz) to both electrodes generates a changing electric field within the phosphor particles causing them to emit light. For most EL lamps, an inverter (DC-AC converter) is used as a power source.

Today there are some new end use applications under development, but the EL technology remains predominantly a niche technology.

Encres Dubuit proposes solvent-based and UV screen printable multi-layer materials systems with compatible conductive, dielectric white and electroluminescent inks to help the manufacturing of printed flexible EL lamps for a wide variety of applications, including HMI membrane switches, smart packaging, and some backlights applications.

## MOVING FORWARDS

Moving from decorative to functional products is not easy. Functional screen-printable products and, more particularly, products for printed electronics need to be designed differently than decorative inks.

As a multidisciplinary and transdisciplinary technology, PE needs collaborative studies, with an intermediate proof of concept step in order to bring to the industrial manufacturer a totally finalised and characterised project. Following this method, Encres Dubuit works in collaboration with some partners and/or platforms to develop products dedicated to each segment of the PE.

This is an exciting time for printed electronics, and new applications are found regularly. Continued improvements in materials, patterning, and processing technologies increase reliability and durability of these systems providing growth opportunities for OEMs, manufacturers and material suppliers. ∎

*Dr Guy Masse is Global Innovative Project Manager at Encres Dubuit*

# COMBINE HARVESTING

## Greg Cholmondeley evaluates the best methods for obtaining and analysing data to help improve your business decisions and boost profitability

**You need to make smart business decisions to win in today's printing business. Providing large-format graphic-display services is one of those intelligent decisions, but there are more you need to make, and you need accurate and timely data to make them. Are your printers running efficiently? Which ones are over- or under-utilised? How much ink did each job use? And what is happening on the floor of one or more of your shops right now?**

You already do this today, but your methods probably involve eyeballing ink consumption, estimating when jobs will complete, and having operators spend considerable time babysitting printers. These techniques work, but knowledge, precision, and efficiency will make your operation more profitable.

### CLOUD TECHNOLOGY

Cloud-based solutions can help you do this by collecting and analysing real-time and historical printer data. These new solutions could be game-changers for many large-format printers, helping many print providers become more profitable and productive.

Consider the advantages browser-based cloud technology can bring for remote

*"Production analytics drive smart business decisions"*

monitoring, management, and analysis. Printing companies can view all of their large-format and cut-sheet printers across one or multiple locations, seeing near-real-time statuses of any printer, or group of printers along with historical trends. Printing



*Consider the advantages of browser-based cloud technology for remote monitoring, management, and analysis*

companies can even gain the advantage that comes with comparing performance and ink consumption between printers or printer groups over any timeframe.

The most advanced tools offering this capability gives users the ability to accurately compare how two printers or two locations are performing. Plus, users can set up notifications for production-blocking events and schedule emailed production reports.

### MOBILE APPS

Mobile apps extend the functionality of the newest print data management tools further,

with integrated functionality to do important tasks such as monitoring print queues and consumable statuses. A good app functionality for large-format display graphics printers will also give users the ability to peruse lists of every job printed over the past day or week. Plus, solutions that provide production-blocking alerts wherever you are with a mobile device can be invaluable for field sales and key personnel, especially those charged with directing multi-site operations.

All of these capabilities coming to the fore with the latest cloud and mobile tools are powerful.

Consider how production-blocking notifications on your phone could change your job. Large-format jobs can take a while to print, which means that operators start the printing and do other work until they think the job is complete. They waste their time watching the job finish if they guess early, and the printer sits idle if they guess late.

While this waste adds productivity cost to every job, error conditions can be disastrous. Imagine initiating printing a large banner and having a production-blocking event. You could lose hours of productivity unless your operators regularly check each printer. This process severely impacts their productivity on other tasks. Having an app with an alert can give key personnel notifications quickly no matter where they are, so users can quickly resolve a situation without ongoing distractions. Managers can be confident



*The ability to monitor multiple large-format and cut-sheet printers across one or multiple locations helps users to quickly gather big picture results that can be essential for reducing inefficiencies and growing margins*

there are no significant downtimes even when they not on the floor or on-site, with production stoppage alerts set for 20 minutes. This approach allows them to perform other tasks required to run their business while managing their operational staff.

## TAKE OUT THE GUESSWORK

Job ink accounting is another valuable capability possible with the latest tools. Tracking the real ink consumption of each colour for each job, for example, provides valuable data that can improve profitability. Entering your ink and media prices takes the advantage further, taking guesswork out of costing jobs so that you can accurately price future work based upon accurate ink utilisation data for each production device. This one feature will help ensure your margins are profitable.

*"Using tools like these is like having an extra set of eyes on your printers"*

Production analytics drive smart business decisions. Businesses can perform better over time when they can monitor and compare printer performance in terms of jobs printed, cancelled or errored-out, the amount of ink consumed, or the square metres printed. You can see the cumulative time a device spent printing, idle, awaiting user input, or in an error state. You can view this information as tables or graphs to help identify opportunities. And, you can compare these metrics between groups of machines. You might want to know which printer produced more over the past year. Or, you might want to compare performance between your downtown and suburban locations last week. You can drill down to understand why a particular printer is performing better or worse than others.

## EFI SOLUTIONS

Electronics For Imaging, which serves a large base of digital inkjet display graphics production customers with its Vutek and wide format printer product lines, is among the most proactive in this level of data and mobile capability. The company's two newest data tools for display graphics printers from its Fiery digital front end/print server business – EFI IQ browser-based production analytics and the EFI Go mobile app – are currently free to use with subscription pricing to be announced in the future.

The tools provide the information your operators and floor managers need to get the most out of your investment and to make profitable pricing decisions. The systems work because they are cloud-based, and passively collect data through EFI Fiery digital front end (DFE) equipment used to drive EFI printers. Operators don't have to waste time entering information, and you know that the data is accurate and complete.

The new systems provide an important – and for now, free – benefit in production for users of the current generation of EFI wide- and superwide-format printers including Vutek GS, HS100/HS125, h3/h5, D3r/D5r, 3r+/5r+ and 32h printers. EFI IQ and EFI Go also support EFI Pro 32r+ or Nozomi printers, as well as cut-sheet digital printers using Fiery DFEs. Users can get the more productivity out of their printer investments, using tools like these, which are like having an extra set of eyes on your printers to make informed business decisions and react to productivity issues quickly. ■

*Digital print consultant and analyst Greg Cholmondeley is president of Cholmonco Inc. and PRINTelligence.org*

# INDUSTRIAL ACTION

## Paddy O'Hara explains how a compact new printhead could be of benefit when surgical precision is needed for industrial inkjet applications

**There seems to be an ever-growing list of potential applications for inkjet technology. The fundamentally versatile nature of the technology continues to fuel the imagination of engineers and designers in areas that often surprise even the most evangelical of us in the inkjet business.**

Whilst parts of the market have become commoditised, now concentrating on productivity increases and cost decreases, for others there are more precise requirements. Industrial direct-to-product printing has been around for over a decade but has hit a glass ceiling as it suffers from issues that inkjet has struggled to address over the years.

*"High-resolution printheads typically feature large spacing between the nozzle rows"*

Restrictions on speed, print quality and cost of the inkjet solutions have, with a few exceptions, marginalised the technology to printing special editions and promotional runs, along with some variable local language detail.

Applications that are often inaccessible such as the decoration of consumer products, require photo quality images, large runs, and are low cost product. So new thinking needs to be applied on how to achieve these.

The print quality required is higher than could historically be achieved with 360dpi printing. Any printheads with the right form factor have been limited to this nozzle resolution. The high-resolution heads typically have a large spacing between the nozzle rows, making multiple passes the only option to increase the quality, adversely affecting the productivity.

### INCREASING INKJET PRODUCTIVITY

Productivity levels possible with inkjet have also been a concern. The latest high speed printheads are beginning to achieve comparable print speeds to analogue systems, though many still only achieve half or less. Typically, the way this is addressed is to have multiple print stations, but that can add considerably to both the investment cost and the total cost of ownership. Of course, the old inkjet evangelists will say "What about the down time to change jobs and the make ready time?" However, this only applies to the short run part of the business. We are looking here to increase the run lengths, where the make-ready time has less impact.

So, to address this we need to present the market with lower cost product and increase the productivity. The reality will be a combination of system design to reduce product handling times, lower cost inkjet to allow more heads to be added, better ink and coating technology to reduce the amount required per head and longer lasting printheads.

### SIZE MATTERS

Another problem aspect has been the ease of integration of inkjet printheads. To allow printing of objects wider than one print swathe, either multiple mandrels or complex automation techniques have been used. This also adds to print quality problems with stitching errors, cure delay effects and alignment issues. A solution to this could be a print bar assembled using multiple small heads achieving wide print swathes, still capable of printing onto small diameter objects as low as 16mm. To make this possible, highly accurate production of the printhead components is required allowing precise alignment of the printheads. By building a machine in this way the overall size of the equipment and cost are reduced considerably whilst adding greater control over the print quality.

It is also worth noting that growing markets such as additive manufacture, printed electronics and biotech have many of the same issues. The ability to add a fluid to complex parts or in tight spaces requires a compact head. Also, these applications require very accurate jetting. Silicon MEMS manufactured nozzles have less nozzle to nozzle variation than other techniques, increasing the possible jetting distance and



*The new small form S800 printhead from Epson is equipped with 600 nozzles per inch, with a 1mm distance between nozzle rows*

When considering cost, in many functional fluid applications, the fluid itself is either costly or too expensive to produce in large quantities. Printed electronics fluids can cost thousands of euros per litre and biotech fluids may only be possible to produce in small batches. A small head with small internal volume allows these to be used in sensible quantities for the application.

### EPSON'S NEW PRINTHEAD

Although Epson has not historically been active in this area of the market, this year it will launch a printhead that could answer many of these demands. The S800 printhead having a small form factor and a distance between nozzle rows of only 1mm, is still equipped with 600 nozzles per inch. With a silicon MEMS [micro-electro-mechanical systems] nozzle plate, the accuracy of the individual jets is superior to using plastic or metal nozzles, giving even higher quality. Additionally, utilising the same MEMS manufactured PrecisionCore technology used in office and commercial printing equipment, Epson products benefit from the economy of scale, making it well placed to push the cost boundaries.

*"A super compact high resolution printhead with a silicon nozzle plate seems purpose-built for these up and coming industries"*

positioning accuracy of the fluid drops. Therefore, there is less effort required from the OEM to make these challenging applications work.

The overall size is important when using robotic automation for some of these applications, especially when printing onto convex shapes such as automotive components. So, a super compact high resolution printhead with a silicon nozzle plate seems purpose-built for these up and coming industries. Additionally, the accuracy of printhead alignment features and nozzle positions will allow these functional printing markets to realise levels of precision not previously possible.

It is highly likely that other printhead manufacturers will also respond, though how, is yet to be seen. All this will benefit the machine makers, printers and consumers in many ways, leading to strong growth in this, the most industrial area of inkjet. ∎

*Paddy O'Hara is OEM Printhead Business Development Manager EMEAR at Epson Europe*

# TRANSFER WINDOW

## When the use of eco-conscious inks is a screen printing prerequisite, non-PVC transfers could be the solution, suggests Andrew Macdonald

**Picture the scenario: you're a screen printer specialising in transfer printing, predominantly working in the promotional market where short runs and quick turnaround are typical. You secure an order from a client for multi-positional branding on a range of ethically sourced garments with a prerequisite that eco-conscious inks are used for decoration.**

You are aware of the existence of water-based and digital systems as potential non-PVC solutions, but there's a potential complication. Time is of the essence, and you're unaccustomed to the nuances of water-based printing as you've spent the majority of your career working with plastisol inks.

For those of us well versed in plastisol tradition, the transition to water-based inks can appear somewhat daunting. Consider the experience of staff who are accustomed to the printability of plastisol inks and the potential financial cost to invest in dryers capable of achieving the longer curing times required of water-based inks.

### NON-PVC PLASTISOL

There is an alternative on hand, and that accolade goes to non-PVC plastisol inks. These inks were launched with a fanfare a few years ago in response to more extensive brand Restrictive Substance Lists (RSLs) and requests from specifiers to remove PVC from inks.

In hindsight, the uptake from direct printers has been low. This is primarily due to the limited wet-on-wet printability of non-PVC inks compared to conventional plastisol inks. Wet-on-wet printability is a critical factor for direct printers, but is of lesser consequence to

transfer printers which renders non-PVC plastisol an ideal choice for those experienced in traditional plastisol transfer systems.

Non-PVC plastisol is a comparable product with similar quality, performance on press and application performance parameters. In most cases, it can be considered as a replacement beneficial for future repeat jobs in which the only adjustment is for a client who now specifies a non-PVC solution.

Non-PVC inks are durable. A 40°C wash resistance can be expected as standard with most inks. With an additional dusting of Polyurethane (PU) adhesive powder, 60°C wash resistance may be achievable, which should satisfy major brand expectations.

As with all ink systems, non-PVC inks have associated advantages and disadvantages to achieve the durability benchmarks required for work wear when compared with water-based systems. Under challenging conditions, plastisol inks will soften when exposed to the high temperatures associated with industrial washing.

### ADVANTAGES

If you are considering adopting non-PVC inks in your production, consider the following benefits:

- Non-PVC inks will not dry on the screen which solves a common problem experienced with alternative non-PVC formulations.
- Non-PVC inks are ready-for-use (RFU), and therefore don't require any modification prior to production (add a viscosity reducer which is required when

running on cylinder presses).

- There is no requirement for cross linkers which is common in alternative PVC-free formulations. Consequently, the shelf life of the inks is not compromised which simplifies stock rotation and represents considerable savings in monetary terms.
- The majority of non-PVC plastisol inks are offered as Pantone Matching Systems (PMS), which greatly simplifies the ability to promptly and accurately achieve clients colour specifications.
- Non-PVC plastisol inks are ideally suited to a production environment requiring quick turnaround.
- Alternative eco conscious ink systems can require a 90–120 second cure, whereas non-PVC full cure is achieved in 60 seconds, offering potential savings in energy costs and production time.
- Printers accustomed to using non-PVC plastisol inks may adopt non-PVC transfer systems with ease.

Consider the associated benefits of a non-PVC ink system. All ink systems have their merits, and non PVC inks are equally worthy of consideration for printers accustomed to printing with plastisol inks. ■

*Andrew Macdonald is Technical Manager EMEA at Avient*

# POWERFUL PARTNERSHIP

## Neil Cook relates how a partnership between a software specialist and an industrial inkjet design and technology company has benefitted both businesses

**Industrial Inkjet Limited (IIJ) is a rapidly expanding company with expertise in providing monochrome and colour inkjet print engine systems for customers across diverse markets.**

IIJ's partnership with Global Inkjet Systems (GIS) has been going strong for over 10 years.

When the IIJ team started the development of their Colourprint 72 single pass print engine, they contacted GIS for software, printhead electronics and technical support.

"Without doubt, GIS has enabled IIJ to grow," says Paddy O'Hara, IIJ Business Development Director, and with the partnership benefitting both companies, a close relationship has developed. This has meant that product quality and performance requirements can quickly be fed back to GIS, influencing feature development and product performance of the GIS software and drive electronics.

IIJ's print engines are integrated into a wide range of applications from full colour product decoration to monochrome barcode printing. A key requirement for this equipment is a compact form factor, as this allows improved flexibility during installation. The flexibility and scalability of GIS software and electronics product range has meant that it can be found in all IIJ products from their smallest 72mm wide print engines through to their latest wide format Monoprint 775i.

## VARIABLE DATA

GIS' high-speed variable data printing capability enables IIJ to meet the most demanding requirements. "GIS' variable data engine is extremely powerful," says O'Hara. "The software is much simpler and faster than trying to RIP every image for just a small area of variable text." The GIS variable data engine overlays the variable part of a pdf so creating a single static background that only needs to be RIP'd once. Smaller amounts of variable data can be processed faster, thereby increasing the production capacity.

This powerful variable data printing capability has allowed IIJ to target more markets, such as the garment industry, where they are able to print variable data onto clothing tags. With the increased use of RFID [Radio Frequency Identification: a wireless system comprised of tags and readers] in the industry, being able to print human-readable data contained in the RFID chips at high speed has really helped IIJ gain a foothold. Moreover, experience gained in this sector is transferable to others, such as high-value consumer goods.



*GIS electronics within the IIJ Print engine. Product quality and performance requirements can quickly be fed back to GIS, influencing the future development of its software and drive electronics*

## SECURITY PRINTING

With IIJ's experience and expertise in print engine manufacture and variable data handling, it has been a natural step for the company to move into security printing. The security printing sector is ever evolving, as governments and companies are in a constant technology race with counterfeiters. The security applications vary enormously – from security labels for high-value products to passports and money notes. Most security applications are a hybrid solution of digital printing of information onto ID cards and passports. In such cases, the pages or cards have the background image printed using traditional offset methods, and then sheets are pre-cut prior to the variable information being applied. This two-step process can introduce tolerance errors where the substrate has been cut, with potential for the data to be printed in the wrong place. Being able to ensure that the this does not happen is made possible by the GIS dynamic XY positioning software. This identifies where on the substrate data needs to

*"GIS dynamic XY positioning software identifies where data needs to be printed and shifts the image by the required distance"*

and flexo/litho printing techniques. This combination is often a challenge to integrate due to the speed and positioning of the overprint. "Being able to match not only the top speed, but also to cope with accelerations and at the same time ensuring we can overprint at the correct position is critical for our print engines," says O'Hara. "However, by using the GIS software, we no longer see these issues when integrating onto existing lines due to its flexibility. Different systems have different inputs both in terms of electrical and software requirements, and the ability to easily change resolutions, etc., allows the GIS software to be tailored not only to the line, but also for different job types."

A further challenge is seen when the overprinting is onto a product that has been part processed prior to the variable data being applied. It is important that the variable information is overprinted in the correct position on the substrate, such as in the

be printed and shifts the image by the required distance, so ensuring that an individual photo or address appears in the correct location.

## EVOLVING RELATIONSHIP

So where next for IIJ? With the flexibility of its print engines and expertise gained through highly data demanding sectors, the company is ideally positioned to be able to take advantage of the continued requirement for traceability across different sectors. The continued partnership between IIJ and GIS will continue to meet all future challenges. ∎

*Neil Cook is Head of Marketing at GIS*

**Further information:**
Global Inkjet Systems Ltd., Cambridge, UK
tel:     +44 1223 733 733
email:  neil.cook@globalinkjetsystems.com
web:    www.globalinkjetsystems.com

# PINK IS THE NEW BLACK

Expanding from a limo garage set–up to taking over a dye works factory, this print shop now caters to a mixed clientele in the Philadelphia area. Mark Vasilantone tells its story

**Dylan Houser and Woody Kumetat of Pink's Inks love the colour pink. "We have a pink logo, pink packing tape, pink mailers, pink gloves for screen clean-ups – and most of our shop is painted pink," explains Houser.**

Best friends since high school, the duo started screen printing in 2017 after being laid off from their e-commerce jobs at a publication for the tattoo industry. On the recommendation of a friend, they attended a three-day screen printing course at Vastex International geared for newcomers.

"We'd never held a screen or pulled a squeegee before, but we had both worked for clothing companies in the past and had some experience dealing with screen printers," says Houser.

By the end of the week, they were hooked. Houser purchased the equipment needed to set up shop in an old limousine garage devoid of windows, ventilation and air conditioning. "Our first year was a sweaty one," he recalls.

## ACCOMMODATING OVERSIZE PRINTS
The duo purchased a Vastex V-2000HD six-colour/six-station press and VRS pin registration system, which permits aligning of film positives off-press and then clamping them onto the press in register.

"We chose the V-2000 for its 25-year warranty and because you can make fine adjustments to the equipment via micro-
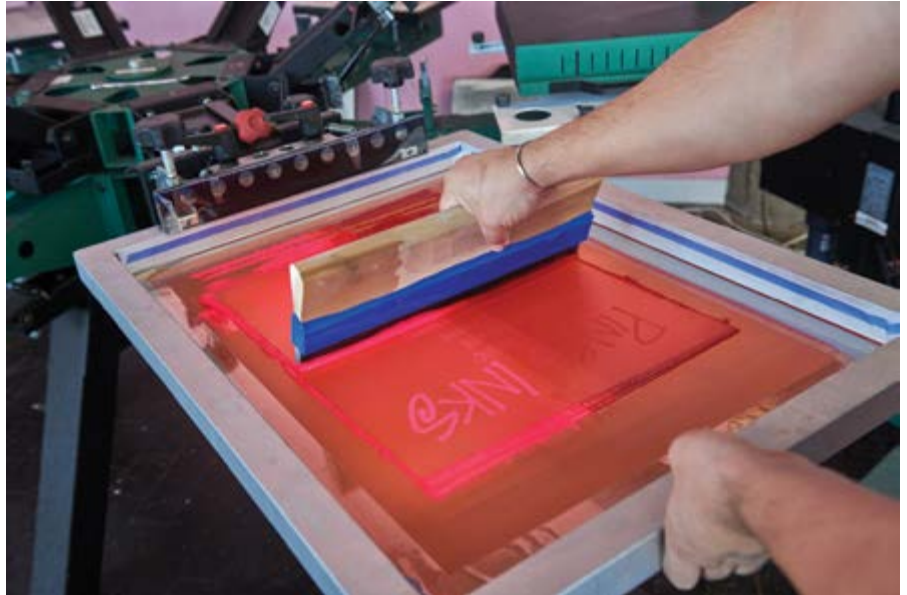

*Micro-registration knobs shown above rear clamp allow precise adjustments*

registration knobs rather than with a wrench," explains Kumetat. "This was important early on because it helped us easily register colour screens."

Few shops in the area printed images as large as 38cm x 53cm on garments, so Houser and Kumetat purchased oversize pallets and invested in an exposure unit for oversize screens to give themselves a competitive edge.

"We worked in the tattoo industry for a long time, so a lot of our customers were tattoo artists," says Houser. "The trend was oversize prints on T-shirts, hoodies, and jackets – from collar to hip, if possible – so it was advantageous to have the right equipment for the job and not have to turn people away."

Houser and Kumetat invested in an E200-2331 LED exposure unit, which accommodates screens having frames as large as 58cm x 79cm. The unit is mounted on a Dri-Vault screen drying cabinet that holds 10 screens up to 64cm x 91cm.

*"Best case scenario: I have to get more shirts. Worst case scenario: The shop is on fire"*

"We're able to expose screens in 45 seconds using LED, versus 10 minutes with regular fluorescent bulbs," explains Kumetat. "Not only are we more productive, but we're more vigilant with the quality of our work. If we expose a screen and run a test print, and we're not happy with the outcome, we can change it; it's not an arduous task. And at the end of the day, the customer is happy because the print looks really good."

After the first year, Pink's Inks outgrew the limousine garage and moved to Globe Dye Works, a former yarn-dying factory built in the 1850s. Unlike the garage, the new facility had a multitude of windows that


*The 137cm wide belt and large heating chamber of the dryer can handle more than twice the number of shirts than the previous 76cm wide dryer*

flooded the shop with sunlight.

"After we moved, our films weren't exposing well, and we thought something was wrong with our exposure unit," Kumetat recalls. With help from Vastex, Houser and Kumetat concluded that the problem was caused by sunlight.

"We were coating our screens in the sun, storing them in the sun, and lining up films in the sun," says Kumetat. "The emulsion is photo-responsive, so the sun was partly exposing the screens, and when we tried to burn a film onto it, it didn't work properly."

Houser and Kumetat solved the problem by building a dark room for their screen coating functions.

### CURING UPGRADES BOOST PRODUCTIVITY

Kumetat cures ink between colours with a RedFlash flash cure unit with 46cm x 61cm heater. An AutoFlash upgrade rotates the head of the flash cure unit into position above the pallet via a foot pedal, and automatically rotates the head away from the pallet after a preset dwell time, preventing over- or under-flashing.

"Often it's just the two of us in the shop," says Kumetat. "If I get a phone call and I'm on press, I have to pick it up. Or if I get distracted and walk away for 30 seconds, that shirt could catch fire. Best case scenario:

*"The name Pink's Inks can be traced back to the day Houser was hit by a bus"*

I have to get more shirts, and the order is delayed. Worst case scenario: The shop is on fire. So the AutoFlash is a lifesaver."

When the duo first set up shop, they purchased a LittleRed X1-30 infrared conveyor dryer with a 76cm x 122cm long conveyor belt. The dryer is capable of curing

approximately 100 one-colour plastisol-printed images and about 40 six-colour plastisol-printed images per hour.

As the business grew, they upgraded the dryer by adding a 46cm conveyor belt extension. Several months later, they upgraded the unit again with another 46cm belt extension and an additional heating chamber, allowing them to double the conveyor belt speed.

"At the time, we couldn't afford to purchase a larger dryer, so we loved the fact that we could upgrade the one we had," says Houser. "Finally, we got to a point where a new dryer was in our price range."

Houser and Kumetat chose a BigRed V54 dryer with a 137cm wide belt and three heaters per chamber. "The belt is about twice as wide and the heating chamber is roughly three times the size of our original LittleRed, so we can dry twice as many shirts at a faster rate of speed," notes Houser.

He anticipates that the big dryer will also speed up the drying process when printing with specialty inks, which typically require a slower cure time. "We print a lot of black-on-black using reflective ink," says Houser. "It's a unique upsell for our customers. Not only does it look cool, but it can be a great safety feature."

The ink contains glass beads that reflect artificial light, causing the printed image to glow in the dark. According to Houser, reflective ink is challenging to work with; applying too much ink causes the beads to sink to the bottom rather than stay close to the surface where they reflect light more effectively. The beads also reflect heat during the drying process, which necessitated

reducing the dryer's belt speed by 50%, limiting capacity to 40 or 50 shirts per hour. Houser expects the larger dryer to cure at higher rates when pressed into service.

### A HAPPY ACCIDENT

The name Pink's Inks can be traced back to the day Houser was hit by a bus while riding his bicycle.

"After the accident, I was hospitalised for several weeks and bedridden for another six weeks," he says. "The rehabilitation centre I was in only had pink sinks, so after I came out of rehab I joked about the sinks and called my Instagram account pinksinks."

Fast-forward seven years: rather than open a new social media account, Houser changed the spacing in the name, added an apostrophe, and Pink's Inks print shop was born.

"It was really a happy accident that this joke between friends became the name of our company," he says.

Today, Pink's Inks is thriving. The shop caters to a mixed clientele of tattoo artists, street wear companies, and mom and pop shops in the Philadelphia area.

"No matter how much we grow, we always want to help out the guy down the street, because you can't forget where you came from," says Houser. "It's the small, local businesses that gave us a chance to get in the game." ■

*Mark Vasilantone is President of Vastex*

# PRINTING UNITED GOES DIGITAL

Transitioning from an in-person event in Atlanta to a worldwide digital platform, the Printing United Digital Experience will deliver a community-based, content-rich programme from 5–26 October 2020

**The show company has shared its plans to present hosted global programming and product unveilings across Printing United Month:**

"The Printing United Digital Experience provides a unique opportunity to bring those highly anticipated product launches and engagements to the printing community at large, both from an exhibitor and attendee standpoint," said Mark J. Subers, President of Printing United. "Our expert team has worked diligently to build a unique digital model to ensure that all market segments have a front row seat to this powerful, guided event, to further enhance opportunities for engagement and interaction."

## NEW FORMAT

A fresh series of insight days will kick off each week, highlighting a different community focus spanning apparel, commercial, digital textile, graphics/wide-format, in-plant, industrial, mailing/fulfilment and packaging. The new format offers the printing industry a variety of highly-focused hosted tracks and allows vendors and customers to interact.

"The energy and enthusiasm we've received from our partners as they learn more about the new Printing United Digital

### *"The printing industry greatly needed this event to go on this year"*

Experience platform is profound," explained Ford Bowers, President and CEO, Printing United Alliance. "While we are disappointed not to be able to convene in person this year, we are committed to delivering on our promise in bringing the latest in technology, education and innovation to our industry in 2020. While the event will take shape differently than originally planned, it will undoubtedly serve as intended to our vast audiences nevertheless."

"The printing industry greatly needed this event to go on this year, both from a sales perspective and for peer engagement in general," said Marco Boer, Vice President, IT Strategies. "Printing United's convergent roots allows for a seamless transition to this exceptional online platform, one of which we are proud to support. Our team appreciates the opportunity and limelight to share in experiencing the newest technology that companies in our industry have worked so hard to bring to market and waited all year to debut."

For Printing United Digital Experience sponsorship opportunities, contact Jack Noonan, Vice President of Business Development, Printing United Alliance: jnoonan@printing.org. ■

**Further information:**
web: www.printingunited.com

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# SAKURAI LONDON OPEN DAYS

## From 22–25 September Sakurai will open the doors of its London Branch for an exclusive customer event, where the Excite textile transfer solution will make its UK debut

**Following the success its 2018 event, over four days this autumn Sakurai is inviting customers to its premises in London. The theme for this year's open house is taking a more environment friendly approach to greener printing and thinking, with a link to technology, products and consumables that support this way of working.**

Sakurai will focus on several key areas of the print market: textile transfers, industrial applications and finishing & packaging. During a two-day focus on textiles, Sakurai will hold the first UK demonstration of its Excite solution for textile transfers. The DMS-80SD-EXT is a two-colour screen printing press equipped with an inkjet unit to produce a textile transfer sheet with one pass. Based on the concept of EXCITE (EXtra Combination of Inkjet TEchnology), the machine prints CMYK 4-colour inkjet, then cures it with an LED-UV lamp. Glueing is achieved with hot-melting powder – applied only to the point where the varnish is printed by screen printing.

For packaging and finishing, Sakurai advocates its Maestro MS102AX screen printing press in line with the LQM 105 EVO hot stamping machine as a cost efficient solution for foiling.

For specialists in industrial printing, the company will be showcasing results achievable with its MS80SD screen printing press with developed camera sheet alignment registration in line with product quality inspection for achieving high levels of accuracy.

Over the four days Sakurai will have a number of industry experts on hand to offer support and advice on products, including consumables and pre- press. Partners for all equipment demonstrated will also be available to give specialist advice and guidance of all the products and services on display during the event.

For tickets to the event or to find out more, see the Sakurai website. ∎

### Further information:
linkedin.com/company/sakurai-graphic-systems-corporation
web:    www.sakurai-gs.co.uk



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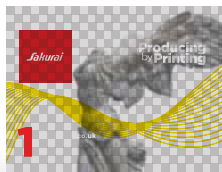
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# ESMA TURNS 30

## Proudly celebrating 30 years of community, the European Specialist Printing Manufacturers Association has postponed its General Assembly until 2021

**What began as a collective effort of Europe's major screen printing suppliers has grown and evolved to become the home of industrial printing in all its facets. Turning thirty in 2020, the European Specialist Printing Manufacturers Association (ESMA) represents the best in both screen and digital inkjet technologies, and looks with optimism into the next decade.**

Some of the key figures look back at their time with the association and share future outlooks.

### REFLECTIONS

ESMA was founded in 1990 in the United Kingdom as a supplier-led initiative to stimulate the growth and potential of screen printing. Derek Down, then the General Secretary of FESPA accepted the additional responsibility of ESMA General Secretary and continued in this role until 2002 when Bryan Collings took over. "Working for ESMA was a privilege and introduced me to so many genuine business people in our specialist printing community," recollects Bryan Collings, now the Publishing Director of *Specialist Printing Worldwide*, "The organisation has come of age over the last decade and now offers its members great networking facilities and marketing opportunities through its

*"Currently, the association counts 67 member companies"*

seminars. With my *Specialist Printing Worldwide* hat on, we are proud to be partners of such a great organisation as ESMA and look forward to a great future together."

The *Specialist Printing Worldwide*

magazine was launched in 2007 and this was also when ESMA moved to Belgium and appointed Peter Buttiens as the new CEO. He brought new enthusiasm and grew the organisation to where it is today. "As a member-based community it has always been a priority to serve our existing supporters but also to make ESMA attractive enough for new members and steer it

*"For over thirty years ESMA has successfully adapted and diversified through innovation and partnerships to continue to provide valuable services"*

towards industry innovations," says Peter Buttiens. "The combination of the committee work and broader involvement from the team in conference development have positioned ESMA at the forefront of the European industrial printing sector. Screen and inkjet are the two pillars which carry the association and fuel our continuous search for new exciting technology applications. From industrial decoration to functional printing, we maintain an ever-expanding focus on various markets."

### CONFERENCES

Among the proudest of ESMA's achievements are its conferences, valued for highly technical contents and international networking opportunities. Since 2005 ESMA has been organising GlassPrint (in collaboration with Chameleon Business Media); the Advanced Functional and Industrial Printing conference (evolved from the Membrane Switch Symposium) will hold its fourth edition in 2021; The Inkjet Conference (TheIJC; in collaboration with

Digital Direct Technologies) is on track for its seventh edition in autumn 2020; and Printed Interior Decoration and Direct Container Print have been around since 2014 and 2015 respectively. Inaugurated in 2017, ESMA Academy remains a successful educational series organised at the Fraunhofer Institute for Manufacturing Engineering and Automation.

"For over thirty years ESMA has successfully adapted and diversified through innovation and partnerships to continue to provide valuable services – not only to its membership – but also to the wider printing community through its 'Knowledge Hub' and industry-leading conferences. The membership may have changed over the years, but the focus of ESMA has always remained the same – to promote specialist printing processes, both screen and inkjet, with equal focus", comments Debbie Thorp from Global Inkjet Systems, the current Chair of ESMA Board, and adds "On behalf of the Board and the membership I would like to take this opportunity to thank the ESMA team for all their efforts and dedication to maintaining so well the core ethos and goals of our association established 30 years ago."

### EDUCATION AND COLLABORATION

As a community of major industry players, as well as partner for a number of recognised research institutes, ESMA has established a community of professionals that help each


*ESMA CEO Peter Buttiens*


*Walter Frick, one of ESMA's 'founding fathers'*


*Debbie Thorp, current Chair of the ESMA Board*

other excel through education and collaboration. Currently, the association counts 67 member companies, with Zeller+Gmelin and Ricoh as the latest additions. "Ricoh decided to join ESMA to engage in the strong network supporting both screen and digital printing, says Dominiek Arnout, Head of Business Development EMEA at Ricoh Europe. "As a technology provider to the inkjet industry, Ricoh industrial print division wants to help customers to generate all possible benefits of going digital, particularly in the textile sector. Contacts facilitated via ESMA will help Ricoh understand the detailed needs of the market."

Since ESMA's inception, industrial printing has come a long way and the association has been a consistent supporter in this journey – through its committee meetings and cross-technology expertise, through technical and networking events or through professional peer advice regarding health, safety and environmental legislation. "How much has changed in our industry during these thirty years? Nearly everything!" exclaims Walter Frick, ex-Marabu and one of ESMA's 'founding fathers'. "The technology has permanently been improved, the machines and printing materials have completely changed, and the markets have moved from

*Dominiek Arnout, Head of Business Development EMEA at Ricoh Europe*

*Bryan Collings, Publishing Director of Specialist Printing Worldwide*

graphic applications towards many high-tech industrial operations. But the fact that ESMA members are working together for the benefit and further growth has not changed since the very beginning in 1990, when we started to create a platform where all suppliers, competitors or not, could meet and discuss. Good luck for the coming 30 years!"

As the current general commitment to safe events does not call for extensive celebrations, ESMA has postponed its 30th anniversary General Assembly to 2021 when

the occasion can be marked with strong member attendance. More details will follow later this year. ■

**ESMA30**
**Driving Print Excellence since 1990**

**Further information:**
web:   www.esma.com

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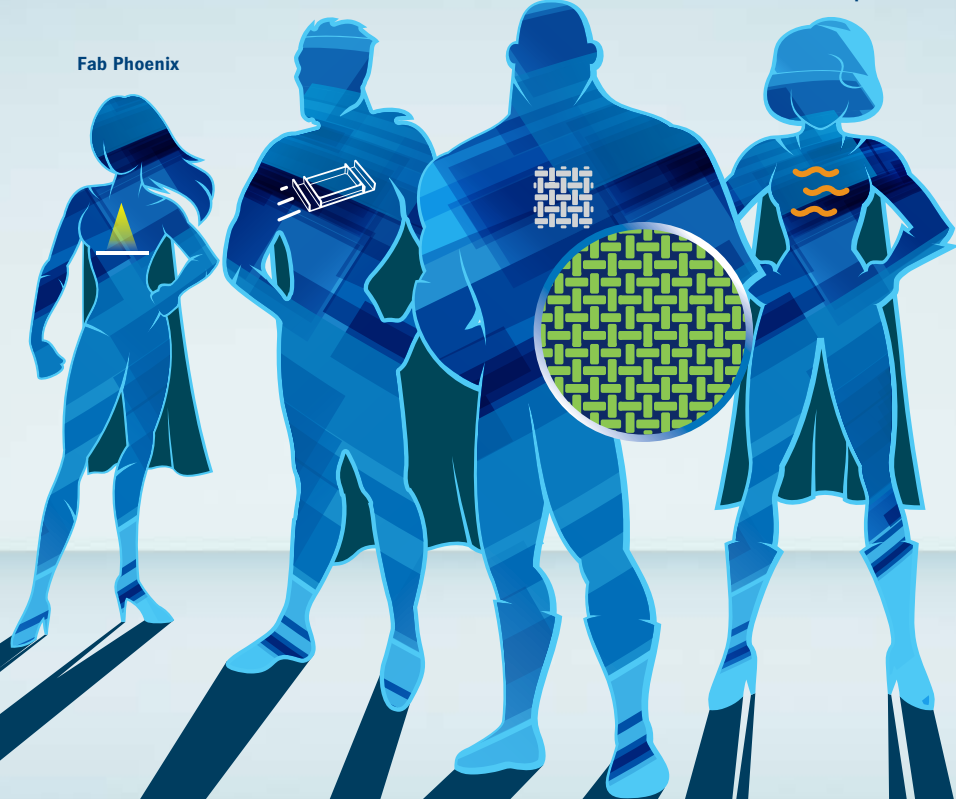
# INPRINT JOINS FORCES

## The 2021 edition of InPrint Munich will co-locate with ICE Europe and CCE International in order to target the packaging sector

**The International Exhibition of Print Technology for Industrial Manufacturing, InPrint Munich 2021, is teaming up with ICE Europe and CCE International to create additional footfall from the fast-growing packaging sector.**

The industry has welcomed the move to create a multifaceted platform with increased opportunities and synergies across related markets. Over three days, print equipment and machine suppliers will meet international buyers and decision makers from the manufacturing and print service sector to discuss the role of print technology in on-demand production, mass-customisation, and cost-efficient processing in the manufacturing of goods, parts, and packaging.

### IN GOOD COMPANY

ICE Europe, the International Exhibition for Paper, Film & Foil Converting, is the world's leading exhibition for the conversion of flexible, web-based materials, such as paper, film, foil and nonwovens, with a strong focus on drying and curing solutions, as well as special films used for touch panels, displays, and food packaging. CCE International, the International Exhibition for the Corrugated and Folding Carton Industry, presents innovative technologies for the manufacturing and converting of corrugated and carton board. It covers the entire production and processing chain of corrugated materials, with digital print on carton as one of the key topics.

According to show surveys, the majority of ICE and CCE visitors come from industry sectors that are important growth markets for

InPrint exhibitors, including packaging, pharma and electronics, but also food and beverage, transport and logistics, furniture and cosmetics at CCE, and plastics, engineering and paper at ICE.

"The co-location of three dedicated trade shows evolving around converting and printing

*"ICE and CCE visitors want to know more about print technology that can be integrated into their manufacturing process"*

technologies creates a really strong, multifaceted event with increased opportunities and synergies for both exhibitors and visitors", said Frazer Chesterman (FM Future), Co-Founder of the InPrint event brand. "Whilst the main focus of ICE or CCE visitors is on specialised converting technology, they are also looking for integrated print solutions to label or decorate their finished foil, film, paper, or carton product. Surveys confirm that one third of ICE and CCE visitors want to know more about print technology that can be integrated into their manufacturing process. With InPrint Munich located next door, they can literally proceed to the next step in their production line."

### REACHING NEW MARKETS

InPrint Munich typically attracts high-level trade professionals; more than 80% of visitors are decision makers, many come with definite investment plans. Another target group is traditional print service providers looking to upgrade their business towards more advanced industry applications.

"Print technology has now successfully penetrated most areas of the manufacturing

sector. This is because technology suppliers have long acknowledged that adjusting technology to market demands is an ongoing and very rewarding effort", said Marcus Timson (FM Future), Co-Founder of the InPrint event brand. "Stand allocation is now well underway, and with Munich remaining our home, InPrint will be the destination for many visitors from the heart of Europe's trade activities – a perfect platform for print tech companies to ride the wave, test the market, and promote new paths for print technology in industrial production."

### PREVIOUS HIGHLIGHTS

The previous InPrint Munich 2019 showcased 136 exhibitors from 22 countries, introducing technical innovations in digital, inkjet, screen and speciality printing on diverse shapes and materials. A total of 2,755 high-profile industry professionals from 60 countries attended the show. Alongside the exhibition, the popular three-day Technical Conference featured more than 70 international top speakers from across the entire print and manufacturing sector, presenting case studies, technical talks and panel discussions.

Exhibits on display focused on printing machinery, print heads and components, inks, fluids and chemicals, UV technology, drying and curing equipment, metrology and quality assurance, software for colour and process management, and special custom-built systems for packaging and labels, printed electronics, fabrics and textiles, surface finishings, additive manufacturing, security printing, 3D print, and many more.

### EXHIBITOR INFORMATION

Companies interested in exhibiting at InPrint Munich 2021 can request the new exhibitor brochure or reserve their stand space online at www.inprintmunich.com. Floor space is selling fast and early booking is recommended. Further updates on the event, participants and conference programme will be posted on the show website as preparations progress.

The new InPrint show dates are 9–11 March 2021; the venue remains unchanged at Munich Trade Fair Centre in Germany. ∎



*2021 will see InPrint co-locate with ICE Europe and CCE International at Munich Trade Fair Centre in Germany*

**Further information:**
web:  www.inprintmunich.com

# SGAI E-COMMERCE SEMINAR

## Devang Sheth reports on the 'E-commerce and T-shirt Printing Start-up Essentials' Seminar held in Mumbai this spring

**The Screenprinting & Graphics Association of India (SGAI) and** *Screen Print India* **Magazine jointly organised a seminar on 'E-commerce and T-shirt Printing Start-up Essentials', held on March 14, 2020 in Mumbai. There were around 40 participants.**

Devang Sheth, Publisher & Editor of *Screen Print India* who is also the Secretary of SGAI, welcomed the delegates, speakers and sponsors.

'Getting Ready to Print Great Colours,' the first session, was conducted by Hemanshu Desai, Director of Venus Infotech. He explained the technicalities of t-shirt printing process. Jignesh Ruparelia, partner of Varsha Transprint, presented 'Sublimation, Beyond Imagination.' He said that sublimation printers should develop their own products and sell in the market rather than doing stereotype jobs. During the session on 'Seize a Big Opportunity to Start Your Own Business', Anil Brahmbhatt, MD of Skyscreen International, said that T-shirts printed with customised designs have become the rage and are increasingly driving demand.

'Branding in Business' was presented by Harshit Gala, Founder of Oh Phish. Social media expert Karan Dharamsi spoke on 'Exploring Social Media Marketing.' He revealed his 'story-based email marketing strategy' to build a profitable E-Commerce business. In the experience sharing session, Deepak Kapure, co-founder of Inkholic

### *"You have a burning desire in your belly"*

Enterprises, and Vivek Ajmera and Jinal, Founders of Creativeideas.store, shared their experiences on selling their merchandise online.

Addressing the participants, Anil Brahmbhatt, President of SGAI, said: "Given the current situation (Covid-19) you made it a point to attend the seminar which only shows that you have a burning desire in your belly." ■

**Further information:**
web:    www.sgai.org.in

## SGAI

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www.sgai.org.in

# FESPA MOVES TO AMSTERDAM

## The delayed FESPA Global Print Expo, due to be held in Madrid, has now been rescheduled for March 2021, with a change of location to Amsterdam

**FESPA will now host its next flagship international event at the RAI Exhibition Centre in Amsterdam, The Netherlands, from 9–12 March 2021, again co-locating FESPA Global Print Expo, European Sign Expo and Sportswear Pro.**

"In March 2020 we took the decision to delay FESPA Global Print Expo by six months in the face of the advancing pandemic and its implications for our exhibitors and visitors," explained FESPA CEO Neil Felton. "Since then the development of Covid-19 has been dynamic and unpredictable. While many regions are now gradually emerging from lockdown, at this point in time we cannot be confident that we could match exhibitor and visitor expectations of a FESPA event if we were to go ahead in October this year.

"Early March 2021 offers the strongest alternative, giving our exhibitors and visitors time to recover and ourselves time to prepare fully for any new operational requirements," Felton continued. "Feedback from the market indicates that, having faced the considerable commercial challenges of 2020, our community will welcome FESPA Global Print Expo in March 2021 as an important platform for business recovery and forward progress early next year."

### AMSTERDAM
Amsterdam is a popular and proven destination city for FESPA events, having played host to successful exhibitions in 2006, 2009 and 2016. Its accessibility via road and rail from many areas of northern and central Europe will be an advantage for many visitors.

This new March 2021 edition of FESPA Global Print Expo will replace the originally scheduled 2021 event in Munich, Germany. FESPA will return to Munich in 2022. ■

### FORTHCOMING FESPA EVENTS INCLUDE:
- FESPA Global Print Expo, 9–12 March 2021, RAI, Amsterdam, Netherlands
- European Sign Expo, 9–12 March 2021, RAI, Amsterdam, Netherlands
- Sportswear Pro, 9–12 March 2021, RAI, Amsterdam, Netherlands

**Further information:**
web:   www.fespa.com

# SECOND VIRTUAL SUMMIT

## Following the success of the first FuturePrint Virtual Summit, FM Future has announced its second summit will run from 12–16 October 2020

**The first FuturePrint Virtual Summit, held in June this year, was created to help the market during a difficult period. As the Covid-19 crisis continues, and while lockdown begins to ease, FM Future's decision to run another summit has gained widespread support.**

Organisers want to build on the first event, with 'visitors' leaving feeling inspired, rejuvenated and optimistic about the future.

The first vSummit attracted 1,564 individual delegates from 65 countries, and attendees roundly approved of their experience: 81.05% regarded the summit to be very helpful to extremely helpful.
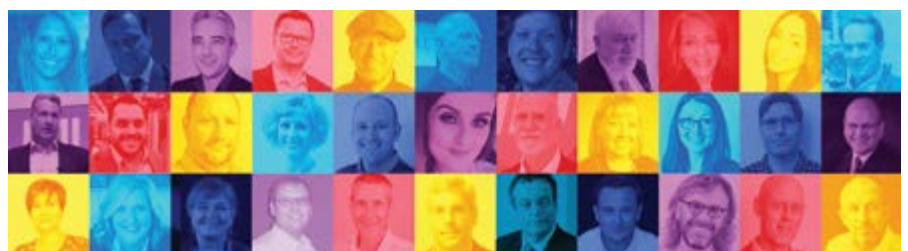
### NEW FOR THE SECOND EDITION
Organisers are looking for new inspiration from the next generation of print. The first day of the event will be entirely led by 'Young Guns in Print'.

The visitor profile from the first FuturePrint Virtual Summit contrasted with that of print events, with over 55% of visitors falling into the 18–35 age category, and as a result, the organisers want to build a content programme that includes more inspiring talks from younger people.

FuturePrint's mission is to help the market during Covid-19, and move the narrative forward by providing free access to talks from across the print spectrum, including the ideas and vision from young leaders as well as inspiring business leaders, innovators, designers and print service providers.

To get involved, email: Marcus.timson@fmfuturenow.com ■

**Further information:**
web:   https://virtualsummit.futureprint.tech

## Grünig gives live video demonstrations of its new in-line washing system

In the textile and transfer printing industry, screens are usually rather small, but they are used in large quantities. Accordingly, Grünig developed its G-WASH 170 XS-DUO range for optimum modularity and automation when washing screens.

The new range of DUO models come in various sizes and configuration levels with a cleaning capacity of up to 500 screens per shift. Maximum screen size per slot is H1200 x B1500mm. One-, two- or three-chamber solutions can be adapted to the required processes and existing capacities. There are integrated closed-circuit tanks for solvents and recycled water, and a closed washing chamber for a minimum of carryover and no aerosol leakage. Preliminary drying of the wet screens is by means of optional blow-out modules. A magazine-style system ensures a slot capacity of up to 40 places.

Due to Covid-19 restrictions on trade fairs, Grünig has set up the new equipment in its showroom in Schwarzenburg, Switzerland. The company is offering customers and partners live video demonstrations of the G-WASH 174XS-DUO or any other machine they might be interested in.

www.grunig.ch ■

## Hymmen files patent infringement suit

On April 14, 2020 Hymmen GmbH filed a patent infringement suit against Barberán S.A. According to CEO René Pankoke, 'due to the activities of Barberán S.A. since last year 2019, we see ourselves forced to take this step in order to protect the interests of Hymmen GmbH as well as those of our customers and our partners on the side of the lacquer manufacturers.'

The first patent in the suit is the German part of European patent EP 3 109 056 (German file number DE 50 2016 000 571.0). The subject matter of the patent covers a process for producing a structure on a surface of a flat workpiece, as well as a device for producing this structure. There is an ongoing opposition to the grant of the patent, but Hymmen believes the patent will remain in force.

The second patent in the suit is the German part of the European patent EP 2 313 281 (German file number DE 50 2010 001 024.6). The subject matter of the patent covers a process for decorative coating of flat workpieces. Contested are devices from Barberán S.A. (e.g. devices from the 'Jetmaster' series 1260 or 1890 'single pass'). After an opposition motion, by decision of December 14, 2014, the European Patent Office has maintained the patent with slight changes in the content. The appeal directed against this decision was withdrawn by the opponent. An extension of the infringement action to further property rights of Hymmen GmbH is possible.

www.hymmen.com ■

## Brother's latest textile printer now on sale

The GTXpro, Brother's new direct-to-garment printer is now available at all certified dealers. After the successful introduction of the mass production machine several months ago, Brother decided to make its industrial DTG printer available for purchase as soon as possible.

The GTXpro offers newly developed white printhead technology with inside ink circulation to use less white ink for cleaning. Employing more nozzles than previous models, a redesigned printhead allows up to 10% faster printing using 'fast mode' print settings.

A further development is a new print height sensor which detects if the platen is too low to reduce ink mist and ensure print quality.

The GTXpro is capable of printing on a wide variety of textiles – all with the same ink.

Brother maintains that all existing GTX products (e.g. the various printing platen) can be used for the GTXpro.

https://gtxprobulk.com ■

## ColorGate appoints VP of Global Sales

Roger Albert has joined ColorGate's management team to take on the role of VP of Global Sales and Business Development for the digital inkjet software supplier.

Albert has over 30 years of industry experience, having worked at Stork, Océ, Canon, Kornit Digital and GMG Color. In his new position he will report directly to ColorGate's Founder and CEO Thomas Kirschner and oversee all of ColorGate's Sales activities relating to the direct, indirect and OEM channels.

*Roger Albert has joined ColorGate as VP of Global Sales and Business Development*

"All of my previous roles had a connection to ColorGate's field of activity," believes Albert. "I have been working in conventional and digital textile printing, sign and display, commercial and packaging printing. RIP and colour management technology has always been the vital thread for my customers' success. I am looking forward to applying my knowledge, to optimising the potential of the Sales team and to helping even more customers and prospects to find the ColorGate solution that is right for them," he concluded.

Thomas Kirschner, Founder and CEO of ColorGate, commented that he is "very happy to have Roger on board to help us to put a world-class organisation together."

www.colorgate.com ■

*Brother's new industrial direct-to-garment printer, the GTXpro*

## Natgraph appoints new Head of Technical

Drying and curing specialist Natgraph has made an internal appointment, promoting team member Darren Kerry to Head of Technical at the company. Kerry's 1 July appointment came as 37-year veteran Rick Mann prepares to move to the part-time role of Technical Consultant from January 2021.To ensure a smooth transition, Mann will work alongside Kerry for the rest of this year.

*Darren Kerry has taken over as Head of Technical at Natgraph*

"I feel the time is right to step to one side and allow the younger generation of Natgraph employees to come through and lead the company technically in our future directions and ventures to fully exploit new market and manufacturing opportunities," explained Mann.

"I would like to thank Rick for everything he has brought to Natgraph over the years," commented Natgraph MD, Andre Goodson. "His extensive technical knowledge and market understanding have been central to the company's development. However, his plans now present a great opportunity for Darren, who has worked at Natgraph for 24 years and fully deserves this new role."

www.natgraph.co.uk ■

## Zünd and Caldera launch PrimeCenter prepress automation software

Cutting system manufacturer Zünd and French software developer Caldera have launched PrimeCenter prepress automation software to improve workflow efficiency. PrimeCenter is designed to simplify file preparation and output, allowing users to configure their workflows – from design to print to cut – with the level of automation that best meets their needs. The software is available in Basic, Pro, and Max versions and the level of automation can be changed at any time.

Due to PrimeCenter's open interface, the software can output to any RIP/printer and any cutter. Graphics can be nested, contour-based at the push of a button or in an automated process. PrimeCenter also offers an array of alternative nesting methods, e.g. jobs can be ganged using metadata to simplify sorting, or made ready for delivery at the same time.

Users can create trim boxes, define bleed or add register marks with the software. For applications involving transparent materials or transfer print, there is an option to mirror the layout. PrimeCenter also lets the user integrate selected metadata in the output file. Information printed along with the job facilitates job tracking and attribution of cut parts to the respective orders. PDF files are verified by Preflight Check after import and before export. Optionally, each step of the process may be automated by hot folders, filename conversion or by using an XML-based job ticket exported from an MIS or ERP system or a web shop. PrimeCenter handles layout preparation and preflight checking autonomously for an efficient, cohesive workflow.

www.zund.com ■

## Global Graphics and Inèdit collaborate on digital textile production

Software firms Global Graphics and Inèdit have collaborated to create an enhanced PDF engine for textile workflows. NeoStampa allows textile printers to connect potentially complex workflows, organising job queues to send designs to different devices. It is compatible with most digital devices sold into the textile market, including from vendors such as Mutoh, Epson, EFI Reggiani, Mimaki and Konica Minolta.

The new working relationship is "a wonderful opportunity to expand our reach within the textile community," commented Jeremy Spencer, Global Graphics Software's vice president of business development.

"This collaboration with Global Graphics will mean a change in our clients' results, providing them with improved precision in PDF printing, that combined with our colour management system, will make neoStampa the most complete Rip Software on the digital textile printing market", predicted Daniel Martinez, product owner at Inèdit Software

Inèdit will be replacing its existing PDF Library with Global Graphics' Mako, a software development kit that enables the creation of fast, scalable solutions for print workflows from PDFs or other vector formats.

www.globalgraphics.com ■
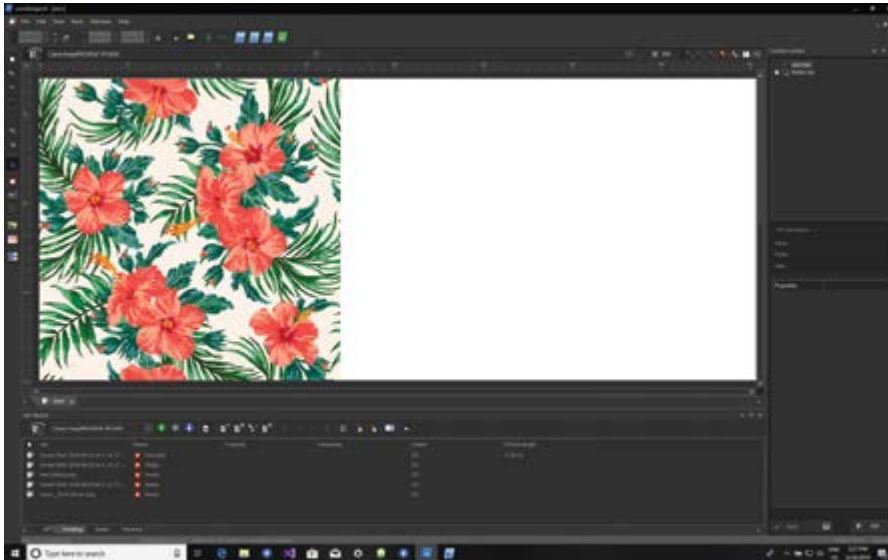

*The new neoStampa 9 RIP software for textile digital printing*

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www.luescher.com

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## Miraclon appoints Commercial Director for EAMER

Stephen McCartney has joined Miraclon as Commercial Director for the European, African, and Middle Eastern Region (EAMER). McCartney has over 25 years of B2B commercial and distribution management experience. At Miraclon he will manage the commercial team in the region with a focus on supporting growth in the strategic market segments.

"In my new role as Commercial Director, I am looking forward to working closely with the team, our customers and business partners to drive business growth," Said McCartney. "It is a great time to be joining the company and I am excited to be a part of its journey."

"Stephen will be instrumental in the implementation of all of the regional commercial growth and optimisation projects in EAMER," commented Grant Blewett, Chief Commercial Officer at Miraclon. "We are confident that, with his expertise in international B2B sales and his track record of revenue growth, Stephen will be a valuable addition to our team."

www.miraclon.com ■

## PolyOne announces new name: Avient Corporation

Provider of specialised polymer materials, services and sustainable solutions, PolyOne Corporation has completed its purchase of Clariant and Clariant Chemicals India Ltd. The expanded company has changed its name and will now be called Avient.

The entry into the agreement to acquire the Clariant Masterbatch business was originally announced in December 2019. The Clariant Masterbatch business includes 46 manufacturing operations and technology centres in 29 countries and approximately 3,500 employees, who will join Avient's Colour, Additives and Inks segment.

"We proudly welcome our newest associates and valued customers from Clariant Masterbatch," said Robert M. Patterson, Chairman, President and Chief Executive Officer of Avient. "They are joining us on day one of this new era for our company, which as of today will be named Avient."

Mr. Patterson expressed his wishes for the new brand to "create a specialty company focused on sustainable solutions for our customers, being a Great Place to Work for our associates, and creating value for all stakeholders."

www.polyone.com ■

*PolyOne is now called Avient*

## Beltron launches environmentally–friendly curing chamber

Successful for many years on the UV curing market, Beltron is now able to meet increased customer demand for a comparable UV LED system. The company's new ULB480 irradiation chamber uses efficient, environmentally-friendly semiconductor-based LEDs (available in wavelength ranges: 365nm, 385nm, 395nm and 405nm – others on request) to generate ultraviolet light for curing.

Beltron's air-cooled UV LED irradiation chamber is suitable for curing UV-reactive materials such as paints, varnishes, adhesives and sealing compounds. Due to its completely high-gloss mirrored irradiation chamber, four integrated UV-LED lamps (three on the side walls, one from above) and a switchable rotary table, the ULB480 curing chamber ensures a homogeneous irradiation of products, enabling the device to be used for production as well as in the laboratory.

www.beltron.de ■

*Beltron's new ULB480 irradiation chamber employs UV LED technology for maximised performance, reliability and UV energy*

## Derek Down obituary

It is with deep sadness that we have to announce that Derek Down has died of a coronavirus related illness at the age of 92, on Wednesday 18 June 2020. Derek was very well known and respected in our industry and his presence has been missed since he retired 18 years ago. He was General Secretary of FESPA for many years and was also instrumental in the formation of ESMA when the manufacturers wanted to have an organisation distinct from Fespa. He then served as General Secretary of ESMA until Bryan Collings took over in 2002. Derek will be sorely missed by everyone who knew him and all at *Specialist Printing Worldwide* wish to pass on their condolences to his family. ■
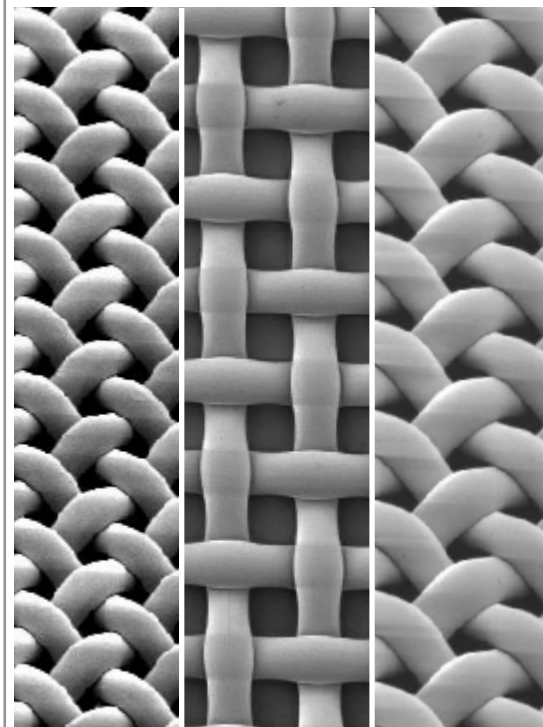
## Meteor launches next-generation industrial inkjet RIP

Powered by Harlequin, eLab Pro builds upon Meteor's original RIP configuration tool. Designed for developers of industrial inkjet systems, eLab Pro works with Meteor's inkjet printhead drive electronics and software to offer a graphical user interface with the ability to command the RIP directly from the print controller or printer Digital Front End (DFE).

eLab Pro delivers integrated, fast access to ScreenPro, a multi-level screening engine developed by sister company Global Graphics Software that corrects inkjet print imperfections, and MetCal, wizard-driven software that automates printer calibration and runs Meteor's nozzle-out compensation technologies. eLab Pro also works alongside VDP PDF products including Harlequin VariData, Stepz by Hybrid Software and Variegator by Xitron.

Colour management and precision spot colour matching capabilities are available, and for high-speed book printing or adding variable data to labels and packaging, eLab Pro is available with Meteor's Scalable RIP Farm where multiple RIPS run in parallel.

"We're excited to launch eLab Pro," said Clive Ayling, Meteor's managing director. "This is the perfect tool for industrial inkjet customers, with a great GUI and a seamless interface to any Meteor-based workflow."

"We've made it extremely easy to upgrade to eLab Pro with complete access to all previously developed configuration files," assured Jonathan Wilson, Meteor's head of business development. "Customers can contact me or their local account manager for upgrade details."

eLab Pro is available now.
www.meteorinkjet.com ■
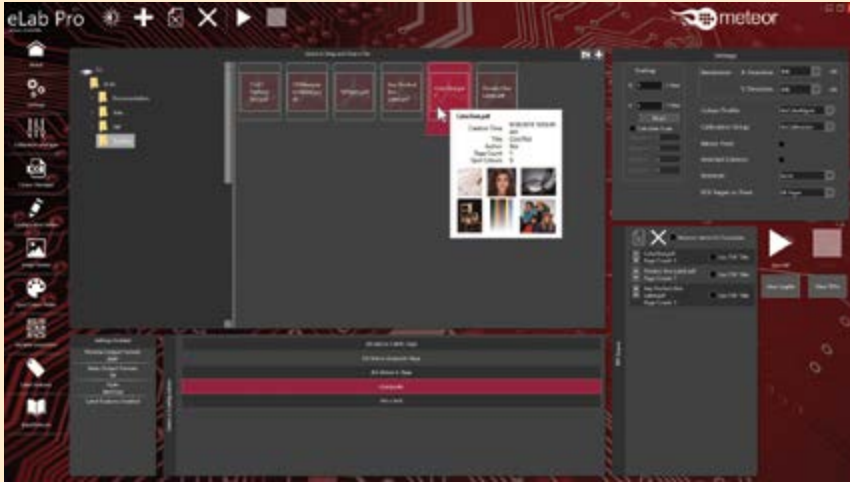


*Meteor's upgraded RIP solution is offered in a complete plug and play package*

## Upgraded AXYZ Trident offers more powerful print finishing

AAG (AXYZ Automation Group) has upgraded the AXYZ Trident print finishing system for increased automation, configurability and productivity. The new Trident features a stronger modular solid steel welded frame construction to better accommodate more vigorous machine operation, and an expanded range of routing, cutting and creasing tools, including a four-position tangential knife-changer to supplement the Automatic Tool Change (ATC) facility.

Additional machine enhancements include improved dust extraction and spray mister units for more efficient machine tool lubrication and cooling; the AVS (AXYZ Vision System) for precise material registration and alignment and routing/cutting accuracy; and increased gantry height to enable the processing of materials up to 125mm thick. A narrower carriage design also contributes to a 12% smaller footprint.

The AXYZ Trident is available in four standard sizes (4008, 4010, 5010 and 6010), with processing bed areas ranging from 1,524 x 1,219mm up to 2,159 x 3,048mm and a processing length of 1,259mm (customisable up to 15m if required). It incorporates a multi-purpose processing head comprising a 10HP 24,000rpm quick-release HSD routing spindle and tangential and oscillating knife-cutting units.

Trident is supplied as standard with Vectric VCarve and optional Aspire design and production software, with the latter enabling more complex 2D and 3D work.
www.axyz.co.uk ■



*Designed for faster, quieter and more powerful print finishing, the new AXYZ Trident can handle a wide range of flexible, semi-rigid and rigid materials*

## NASMA holds first virtual meeting

Like so many others during the pandemic, the NASMA (North American Specialty Manufacturer's Association) members were not able to travel for our June meeting. Instead, we met virtually for the first time. Some joined us from their homes and others from the office. As our name states, all of our members are manufacturers in the printing industry, which makes working from home nearly impossible. Many members serve critical infrastructure needs and have been able to remain open during much of the Covid-19 shutdown.

As with most industries, the printing industry experienced a dramatic slowdown when the various Stay at Home orders were announced in the U.S. This was especially true for garment decorators. The cancellation of concerts, events and sporting activities caused a dramatic decrease in garment demand. According to figures provided by Printing United Alliance (formerly SGIA), apparel decorators experienced a 68% drop in sales in March/April 2020 compared to the same period last year. Despite that depressing number, sales started trending back up, with the same respondents reporting only a 20% sales decrease in May/June 2020 compared to the same time period in 2019. Stated another way, this would be a 48% rise from the Covid-19 bottom from March/April 2020, indicating a slowly moving upward trend. It has yet to be determined whether the surge in Covid-19 cases occurring at the time of this writing will dampen these rising sales.

Another topic was the future of trade shows. As vendors and printers alike will attest, there are a plethora of trade shows – from local, regional shows to major events like Printing United Alliance (formerly Printing United/SGIA). Most shows were outright cancelled, while others were postponed. This has forced NASMA members to rethink the best way to present their products to the industry, forcing a move towards virtual presentations and demonstrations over video chat. For an industry accustomed to 'kicking the tires' for major equipment purchases, this signifies a major shift in purchasing habits.

One thing everyone agreed with is that all NASMA members remain committed to advancing the needs of the printing industry and are looking forward to coming out of this pandemic ready to print.

www.nasma.info

*Report by Taylor Landesman, Vice-President of Lawson Screen & Digital Products, NASMA Executive Committee Member* ◼

## Ultraflex provides frontline assistance

Keen to provide support and stay up and running in all warehouses, Ultraflex is doing its part to help those on front lines who are working tirelessly to heal and to help. The company's range of digitally printable textiles and flexible substrates now includes the Rx Product line which offers four products with AAMI (Association for the Advancement of Medical Instrumentation) ratings. RxTex 102 and RxTex 54 come with an AMMI level 1 protection are thermally bonded non-woven materials. RxProtect 4 is a chemically bonded non-woven material that is water repellent, pathogen resistant and can be reused and cleaned easily. This material has an AMMI level 4 protection.

Ultraflex is able to provide solutions for hospital curtains, pop-up tents, aprons, protective coverings, material for partitions, temporary flooring, way-finding signage and more. Products from the company's PVC, flooring, and textiles can be used in these various applications.

Ultraflex' new items include upholstery and décor solutions, recyclable textiles, PVC-free banner material, products made from recycled content and other digitally printable materials.

www.ultraflexx.com ◼



*Ultraflex' range include soft signage, building wraps, banners, floor and wall coverings and tradeshow graphics*

## Vastex upgrades exhaust system on dryers for DTG and screen printing

LittleRed X-Series conveyor dryers and DTG-capable XD-Series conveyor dryers from Vastex now feature an upgraded exhaust system to increase drying efficiency, reduce noise levels and improve operator safety.

"The new air mapping system is more powerful, removing fumes and moisture through an enlarged stack, preventing contamination of the shop environment," explained Vastex president Mark Vasilantone. "The air flow also cools the skin of the heating chamber and control panel, improving operator safety and comfort."

The upgrade is standard on

LittleRed-X1, -X2 and -X3 models for curing of screen-printed plastisols, water-based inks and discharge, and on LittleRed-X1D, -X2D and -X3D models additionally capable of curing DTG-printed digital white ink.

Increasing the powered exhaust diameter by 5cm for each model is said to improve drying capacity by approximately 10% in high-moisture applications like water-based inks and direct-to-garment printing. Exhaust ducting now exits the dryers vertically from the top of the chamber instead of from the side, eliminating the additional width and 90-degree elbow previously required, while reducing noise significantly.

www.vastex.com ■

*The upgraded exhaust system now features on Vastex' LittleRed XD series of conveyor dryers*

## Seiko expands its laboratory and training facilities

In support of its European customers, Seiko Instruments has expanded the premises of its technical laboratory and now also offers a training room for holding meetings, courses and seminars. Directly connected to its parent company, near Frankfurt am Main, the new 250m$^2$ service centre comprises a laboratory and a training room for up to 30 people

The laboratory features a drop analyser, equipped with a stroboscope and a camera with a resolution of 1292 x 964 pixels for recording single drops in flight. Optimally adapted oscillation pulses of the waveform generator generate printing results that are finely tuned to individual requirements. Test prints on a roll printer and a linear printing unit confirm drop accuracy and print stability.

Fully certified by its Japanese parent company, Seiko Instruments tests the compatibility of ink creations with its printheads in cooperation with ink manufacturers. Ovens are used to simulate the aging process of the materials, which are then observed under a microscope and with a high-precision weighing scale.

A technical team is also on hand to assist customers in the development of peripheral components for the production of complete inkjet printing systems, and also provides support for installations.

The new training room will facilitate digital inkjet discussions and help with the developing of new ideas. Seiko Instruments is keen to work with customers on their needs

*Seiko's new service centre comprises a laboratory and a training room for up to 30 people*

and looks forward to welcoming visitors personally from 3 August.

www.seiko-instruments.de ■

## Sakurai offers time-saving foil stamping solution

The LQM Evolution in-line hot foil stamper is designed for full integration into every Sakurai screen printing line, installed after the dryer and before the stacker. After the image has been printed as UV-varnish on the substrate and then dried, the foil is applied only on the necessary parts (the printed area), meaning no more need for dies – and foil waste is minimised.

Via a touchscreen the operator can enter such parameters as foil application temperature, foil application pressure, substrate length, number of decoration areas or indexing front to back (multi foil application). The machine is also equipped for remote teleassistance and is able to handle sheets with a max. size of 520mm x 760mm (LQM 76 model) or 1050mm x 760mm (LQM 105model).

In addition to partial foil application, the machine offers a continuous mode for foiling the complete surface as well as a bypass function to carry out jobs without foil stamping. This mode allows the sheet to pass through at the same speed as the press, acting purely as a transport mechanism.

The LQM Evolution can also be integrated into existing Sakurai cylinder screen printing lines.

http://sakurai.com ■

*The Sakurai LQM Evolution offers a time and cost-saving solution for finishing UV-varnished screen prints with metallised hot foil*

## Drytac advises businesses to use temporary graphics to retain customers

Social distancing has become standard practice across the world in recent weeks. As businesses and public spaces reopen, it's essential to provide guidance in the form of graphics – e.g. floor graphics designating the requisite distancing, or wall or window decals informing shoppers of a new queuing system. Moreover, during challenging trading conditions, retailers and other public-facing companies need to grab their customers' attention – and not just once, but time and time again to retain an ongoing, loyal relationship. Installing temporary graphics is an effective, affordable way to regularly refresh a brand and promote up-to-the-minute messages.

Temporary graphics offer almost unlimited creative potential so choose carefully for the greatest impact. Focus on one or two areas – for instance the windows or the walls – and refresh them regularly. Drytac has a large selection of short-term graphic solutions that can be applied by hand with no specialist equipment (and no need to hire a professional installer) and can be removed cleanly without leaving adhesive residue. These products can also be layered over existing graphics, speeding up installation further.

Graphics media need to withstand the duration of the promotion without fading, ripping or curling at the edges. To meet these requirements, it's important to use the right products for each job. Check the suitability of your chosen graphics media before use, to ensure compatibility with the surface, environment temperature, cleaning products



*Using short-term graphics for timely, impactful messages helps to maintain customer loyalty*

and, importantly, required levels of safety. On flooring, only specialist floor graphics media should be used as these products have been rated for slip hazards, for example. In any public space it's essential to use media that has a fire rating too.

www.drytac.com ■

## International Coatings creates screen print ink system for hybrid DTG printers

Intended to optimise hybrid digital print applications, International Coatings' HDB System allows digital garment ink to be printed faster, and with sharper resolution, better colour and wash fastness. The new three-component/step system is comprised of an HDB primer coat for either cotton or hard-to-print synthetics, followed by the HDB Synthesis Receiver Base (part A and B), and an HDB Optimum Clear. With the HDB Digital System, digital ink is printed wet-on-wet on the HDB underbase, eliminating the need to flash.

Digital printing is possible on both light and dark garments, and a low-bleed system is designed to block bleed for printing on polyester, synthetic and performance fabrics.

The HDB Digital System is available now through International Coatings' network of distributor companies.

visit www.iccink.com ■



*Hybrid prints combine a screen print underbase with an inkjet-type print*

## Dr. Hönle aims to destroy Covid-19 with UVC irradiation

UV specialist Dr. Hönle could prove that energy-rich short-wave UVC irradiation is effective at rendering SARS-CoV-2 viruses inactive. Research project tests were conducted at the Institute for Medical Virology of the University Hospital Frankfurt, where results showed that using Hönle UV units, the Corona virus can be killed within seconds, and an inactivation rate of 99.99% (log4) was confirmed in the laboratory. The tests were carried out applying different UV technologies and proved that whether the disinfection units were equipped with UVC discharge lamps or UV-LED, inactivation rate and inactivation time remained constant and reproducible. The conclusion reached was: 'risk of infection with Covid-19 is reliably and efficiently minimised by disinfecting ambient air and surfaces with UVC irradiation'.

Hönle has used these results for its latest product series, SteriCube and SteriAir, consisting of UVC cabinets, UVC chambers and UVC hand lamps for germ inactivation. Hönle's UVC units destroy germs in ambient air, thereby avoiding infection caused by aerosols. The units can be used to disinfect items and equipment in settings ranging from laboratories and surgeries to hotels, restaurants and bars. It is possible to irradiate books and teaching materials in schools and as well as goods in the retail sector. SteriCube and SteriAir devices can be used in waiting rooms, kitchens and classrooms and on passenger transport such as trains or buses.

www.hoenle.com ■



*Hönle's compact SteriAir devices can be used in waiting rooms, classrooms and on passenger transport*



*Knowledge gained from tests on the Corona virus has been applied to Hönle's products for germ inactivation*

# THE SCIP DATABASE

## Frank Toma anticipates the launch of a database for Substances of Concern, set to go live this autumn

**ESMA**
**Driving Print Excellence**



*Frank Toma is Chairman of ESMA's Health, Safety and Environmental Protection Committee*

**After my last article, which, under the impression of the corona pandemic, was a bit emotional, this time I would like to offer some hard facts, introducing the SCIP database. SCIP stands for Substances of Concern In articles as such or in complex Products and addresses the issue of the so called substances of high concern as specified on the ever growing SVHC [substance of very high concern] candidate list.**

The need for this database arises from plans for the EU circular economy. The goal here is a more sustainable use of resources, preventing materials being disposed of as waste from one sector when they might be valuable resources for another sector. For this reason the Circular Economy Action Plan has identified two main objectives to enable the recycling of raw materials and the limitation of unnecessary burdens. Substitution or at least a reduced presence of substances of concern is particularly wished for, as well as improved tracking mechanisms throughout the supply chain.

### RECYCLING DIFFICULTIES
Right now there are some problems with the handling of waste in the EU which make recycling difficult:
• There exists only insufficient information about substances of concern in products and waste.
• There is even less information about the presence of substances of concern in recycled materials in articles.

### "SCIP was developed to provide information about substances of concern"

Depending on the intended use of recycled materials, waste containing SVHC might not be useable.

### SCIP DATABASE
This is where SCIP comes into place. SCIP was developed to provide information about substances of concern in articles. This is aimed at:
• Substitution of substances of concern
• Prevention of hazardous waste production
• Improved communication for waste operators
• Consumer choice (e.g. "Do I want to buy a product containing a carcinogen?")
• Helping regulatory bodies to understand the use of SVHC in articles for informed policy decisions
The prototype of SCIP was released in February 2020; a live version is due for release in October 2020. Unless delayed (by the corona pandemic, for example…), obligation to use the database – or better still, to feed the database with information – will start in January 2021.

### DELIVERING DATA
And who has to feed SCIP? Well, this is quite similar to REACh [Registration, Evaluation, Authorisation and Restriction of Chemicals]. Any company that places a product on the EU market will be required to supply information. These might be EU producers of articles as well as importers, but also assemblers and distributors.
What data has to be provided?
• Article identifier
• Article name
• Article category (TARIC/CN Code)
• SVHC identifiers
• Concentration range
• Material category
• Safe use information
Obviously, once again, there is a lot of work to be done. For that reason it is mandatory for companies to get an overview, to determine whether there are any SVHCs present in the articles produced, imported, distributed or assembled by them.
So much for now. Stay healthy! ■

*Source used: Presentation of Elaine Campling, CAS, from the HSEP online meeting in April 2020*

**Frank Toma is Chairman of ESMA's Health, Safety and Environmental Protection Committee, and Safety Officer at ENVISAFE Consulting**

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