



## **Breakthrough White Applications – In-line and Three-layer White Capability**

*Thanks to the introduction of a seventh channel running white ink and three-layer capability, the new breed of super-wide format inkjet printers from undisputed industry pioneer, VUTEK, are opening up a whole new range of possibilities for digital printers.*

Although the fundamental ability to digitally print white ink has been around for a few years, recent technological advances have significantly improved the actual processes involved, enabling printers to offer their customers a wider range of print effects and entirely new applications based on white ink.

Notwithstanding the often time-consuming option of off-line screenprinting, the choices available to digital printers who wished to produce white text or graphics in colour jobs were exceedingly limited. However, times have changed, as the increasingly innovative technology behind digital inkjet continues to push the boundaries. Today super wide format printers offer new capabilities in terms of the number and variation of substrates that can be printed as well as new techniques for applying and using white ink. Indeed with the ability of UV-curable inkjet solutions to print to a myriad of non-white substrates, such as wood, metal, fabric and glass, there is a greater demand for white ink than in the days when white media was almost the standard substrate. This spells good news for digital printers who, thanks to such innovation, are provided with the means of enhancing their creative projects and exploring new application opportunities, thereby differentiating themselves from the competition and increasing revenue.

EFI's cutting-edge VUTEK UV technology, long regarded as setting the industry standard in superwide format inkjet printing, leads the field with its white ink capability. Although other manufacturers in the same printer space offer white ink as an option on their equipment, EFI's latest VUTEK QS printer range offers a seventh white ink channel as standard. This means that VUTEK users, and ultimately their customers, do not sacrifice their light cyan and magenta ink sets to achieve white output, thus eliminating any trade-off in quality.

But more importantly, the QS2000 and QS3200 super-wide printers differentiate themselves from solutions offered by competitors thanks to their ability to print white in a unique mode, in-line. By including white ink as a seventh inline channel, the QS-series can apply ink in three independent layers enabling not just pre- or post- flood, but also in a number of valuable variations. This unique capability in the QS opens up an entirely new host of applications leveraging white ink.

Kevin Currier, Applications Engineering Manager for EFI's VUTEK solutions, explains, "Until recently, white ink was used predominately as a pre-coat or diffuser to flood a substrate. Digital technology really ups the tempo from a flexibility viewpoint as it enables the use of white in new application areas. This is typified by our QS-Series, which offers the ability for in-line printing of white ink in six variations; namely overprint, underprint, spot, underspot, fill and overspot."

While some of EFI's competitors might offer the use of white ink in basic pre- or post-flood applications, the ability of the QS-series to deliver true in-line printing capability in three layer applications is a key differentiator that Currier is quick to highlight.

"Unlike certain machines on the market, the VUTEk QS Series includes technology that sees the ink-heads positioned in one line. This means that we are unique in delivering super-wide format solutions that can print three layers on top of each other in one pass and *without* the need to re-introduce the substrate into the printer", says Currier.

"The printheads on some manufacturer's machines are positioned in the series: white, colour, then varnish. However, this makes certain applications considerably more time consuming, especially those involving transparencies", he continues. "In such a print-head combination it isn't possible to print white as an overprint to achieve a diffusing effect. As the panel can only go through the printer in one direction, a user would have to first print the colour, then re-introduce the substrate to print the white."

For Currier, it is this high-level of versatility achieved from its three-layered printing capability that sets VUTEK technology apart from the rest of the market. "What this basically means is that print shop owners can quickly and more easily

achieve spot white effects under part of a print, so instead of just using it as a flood they are considerably enhancing certain aspects of images that they wish to emphasize", he adds.

This unique set of tools allows the user to interchange the lay down order of the three individual data layers. In its simplest form, this process allows an image to be printed as a window see-thru film. This utilizes reverse print process image, followed by a layer of white to act as both diffuser and "paper" white, and lastly a layer of black for opacity, all on a clear film substrate. This is all done inline without the need for material reintroduction or any post-processes. This ability extends to more creative uses once in the hands of a skilled prepress operator.

The customization of individual images now becomes limited only to the imagination and skills of the user. By making careful decisions in the early stages of image development, the second and third layers can also be engaged in a variety of creative ways. Key colours can be emphasized by adding the equivalent of bump plates, rich blacks, and elements that are hidden under ambient light and exposed when backlighting is applied.

Chuck Dourlet, VP Marketing EFI VUTEk, also points out that such three-layering capability using white ink enables VUTEk owners to enter a market space previously dominated by photographic-based technology printers. "By utilising the standard feature of the seventh channel running white, our customers can not only achieve the same level of output as photo type or RGB printers, but can do so without incurring the high cost of certain films and other consumables", explains Dourlet. "The expanded range of capabilities, including closer matches on photographic reproductions, is one of the reasons our customers are installing printers like the VUTEk QS2000 and QS3200."

The ability to use white to overprint, underprint, spot, underspot, fill and overspot has seen creative boundaries extended as VUTEk users develop applications and achieve new and exciting effects. Indeed Currier cites many examples of how customers are working closely with creative bureaus to realize ideas that would have previously been unachievable.

"We have a customer who needed to produce printed output to promote bread for a food retail client", he explains. "He found that by printing the bread image onto wood, he was able to capitalize on its structure and emulate the rustic, artisan

look and feel of traditional breadmaking – even though the bread was manufactured by industrial means. At the same time, printing the client's logo onto a non-white substrate proved easy and allowed him to achieve a Pantone match using the white ink."

Using a seventh channel of white ink also has the advantage of delivering time and ink saving efficiencies in printing onto coloured substrates. Indeed, certain applications like spot underprinting can now be easily achieved when previously they would have been considered irksome, if not impossible to produce.

"The printer who needs to produce a small image containing white onto a large black panel, now has increased means of printing the job than merely resorting to digitally printing the black background using black ink", says Currier. "It is far easier and more effective to produce the image onto something like black foam PVC Forex, under-printing the white in the desired area of the image. This option would also consume less ink and would likely be faster if the image is proportionally smaller than the PVC Forex on which the image is printed."

Typifying those customers that are enjoying increased business from the white ink capability of their VUTEK printers, is Bradford based large-format specialist, Multigraphics. "Our VUTEK QS3200 was installed during May and has been running virtually 24/7 ever since", says Multigraphics' Marketing Manager, Jo Stuart.

"Much of that work involves maximising the white ink capability to enhance our applications and demonstrate our increased service offering", she continues. "We could have previously used our screenprinting capability for larger volume work, but small quantities would have been troublesome for us and very expensive for the customer. Having the seventh channel running white is a key advantage of the QS3200 and saves a great deal of time and money."

One of the first things printed on the QS3200 were graphics for breathalyzer machines, used in pubs and bars, to test customers' alcohol levels. "The graphics were printed onto 0.5m<sup>2</sup> clear acetate substrate and included a lot of white text", explains Stuart. "The substrate was used as an overlay for a metal unit, but we needed to back it up with white. The first batch was for only 20 panels, but since then the job has been repeated three times with the customer astounded by the vivid intensity of the white."

Derek Johnson, Sales Manager at Multigraphics agrees. "The print quality of the white ink on the QS3200 is far better than that of other manufacturers. The printer achieves a truly stunning white, which surpasses the expectations of customers and is enabling us to compete for and win more specialist work that would have previously been beyond our reach – such as fashion industry projects. As this type of work is considered more prestigious, its higher perceived value makes it a real revenue generator for us."

For EFI's Kevin Currier, it is precisely such attributes that are currently driving market growth. "The capability of in-line, three-layered white-ink printing as standard enables printers to differentiate themselves and boost their competitive edge", he explains. "This in turn is allowing them to drive additional demand by not only winning more jobs, but subsequently delivering them faster and at a higher-quality than the competition – which is what it's all about."

*ENDS*