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What you need to know about inkjet

Ken Stack, president of Jetrion LLC talked to *Print & Paper Europe*.

Inkjet printing is an established, cost effective solution for short run and variable information applications. With improvements in print speed and quality, inkjet printing is quickly being integrated into traditional commercial offset printing and converting operations.

But, how does inkjet printing differ from other digital printing systems and what are the benefits it provides to printers and converters?

Ken Stack is president of Jetrion LLC, a new digital printing company launched by Flint Ink in February 2003, offering a fusion of digital ink, hardware, software, and service solutions to industrial and commercial printers. He said, 'Inkjet is a computer to print technology in which digital signals drive droplets of ink through a print head, and then directly onto a substrate. Inkjet printing differs from other plateless digital technologies, like copier or toner based, because it is non contact. Inkjet has the ability to print on a wide variety of materials and products, including non flat surfaces, because the printing device never comes into contact with the substrate.

'Like many digital printing systems, inkjet is widely known for the benefits that it provides for short run print and variable information applications. But its potential is far greater. Industrial inkjet printing systems can be cost effectively integrated into existing traditional printing systems to enable printers and converters to provide single source solutions for customers.'

So, what advice is there for printers looking to integrate inkjet technology into existing traditional printing systems?

Mr Stack said, 'When considering an investment in inkjet technology, printers should focus first on customer needs – like application, time to market, print run, print quality, and cost parameters – rather than the technology itself.

'To maximise return on investment, they then should also consider how inkjet technology will fit into their existing print operations. They have to decide whether to incorporate inline or offline, and they have to understand how the components of their printing systems interact. A good digital printing technology supplier will help them on both fronts.'

With differing technologies such as drop on demand (DOD) and continuous inkjet (CIJ) available, how do operators choose the right technology?

'Speed and print quality are the key considerations,' said Mr Stack. 'CIJ and DOD are both computer to paper processes – processes that don't require a press – but the action of propelling the ink to paper is quite different in each.

'Most industrial inkjet systems use CIJ technologies. With CIJ, drops of ink are generated in a stream, and deflected through a plate to produce an image. Industrial CIJ systems have speeds of up to 1000 feet per minute. That is much faster than DOD. But the image quality is lower than that of DOD technology.

'CIJ is the solution of choice for large direct mail order operations, and for product coding and marking in package printing applications for the food, beverage, pharmaceutical and beauty aide markets. And, it is being used in marking and coding lottery tickets.

'With DOD, a digital signal produces a single drop of ink on paper rather than a stream of ink. Colour is formed on paper in a precise collection of dots – not too dissimilar from traditional offset printing. DOD is the ideal choice for full colour, high precision printing, where quality is the most important consideration. DOD printing can produce near photographic quality results and can handle print speeds between 100 and 300 feet per minute. Applications for DOD include wide format printing, coloured graphics for packaging, point of purchase displays, textile, and large format/signage. Many companies are working on devices that will allow DOD to be used for packaging applications as well, but today they remain niche products due to the constraints on printing speed.'

KEN STACK.

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Most types of inks can be used for industrial inkjet printing systems including water, oil and solvent based as well as energy curable inks like UV. However, printers should make careful choices when selecting just which ink to use. Mr Stack commented, 'They have to balance how efficiently the ink runs through a print system with how well the ink performs once it is printed. Working with an inkjet supplier that understands how digital hardware, software, and ink interact is critical to prevent problems and make optimal use of inkjet printing systems.'

There may be plenty of inks available for inkjet technology, but what about substrates? Mr Stack continued, 'Advancements in inkjet inks provide the flexibility to print on just about any medium. Inkjet technology is used in colour proofing for wide format printing of textiles like wallpaper, carpeting, and even tiles. And, we are seeing growth in inkjet printing on glass and plastics for packaging applications. Of course, it continues to be used to print on paper and synthetic substrates. Many substrates today are coated prior to being printed on with inkjet, but advances in ink technology are beginning to remove this requirement. The wide range of inks available today continue to expand the range of substrates that can be used for industrial inkjet printing applications.'

Systems integration is the process of providing customers with targeted inkjet printing solutions by building a system from a variety of available components. Mr Stack said, 'At Jetrion we work with our clients in stages. We always begin with the big picture: defining the requirements for a large scale integration project from start to finish, including overall budget, print speed and quality needs. Then, we develop solutions for each stage of the printing process. It is important for end users to remember that successful implementation of a digital printing device is more than just choosing the right print engine. It is just as important to choose the right software, inks and service solution, and to consider how all of these will interact in a print system.'

So, is Mr Stack finding that printers and converters are concerned with past disappointments with digital systems and suppliers?

He said, 'Indeed, a lot of converters and printers made an investment in digital technology but were disappointed because the digital industry promised more than it could deliver. Misinformation, poor service, and a lack of understanding of the actual customer's requirements have limited the growth of inkjet for packaging. Success is much more than buying an inkjet printer.

'Training and management are two considerations that have been overlooked. Managing new workflow, variable data, and image processing are critical to making sure a digital system runs smoothly. Drawing on Flint Ink's 80 years in the ink business and the extensive digital printing experience of our management team, Jetrion has the expertise in digital and traditional printing to help printers make inkjet choices that will optimise their print systems.'

What of the future?

Mr Stack concluded, 'We believe that it is limitless. Packaging is going to be the application to drive inkjet printing into true industrial applications. So in the short run, say the next five to 10 years, package printers will see a continuous development of hybrid technologies. We believe that inkjet devices and traditional printing equipment will work in tandem. The digital device will be used to print only variable data - the graphics or text that are required to change during the run. This will allow end users to maximise their previous investments while taking advantage of the latest technologies.

'Decreasing costs, increasing speeds and the aging of traditional printing equipment will also drive the adoption of inkjet technology. We expect, over time, that printers and converters will slowly begin replacing their existing printing equipment with digital systems. That, however, is many, many years away.' ■

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