HIGH-SPEED DIGITAL PRINTING FOR CORRUGATED

Last June 2014, European Federation of Corrugated Board Manufacturers (FEFCO) held Seminar on High Volume Digital Printing on Corrugated Board', it saw presentations by users and suppliers including **Barberan, Bobst, Esko, HP and Sun Automation**.

"The demand for digital printing mainly comes from the customers, packers and fillers and from retailers," states FEFCO. "The need for versioning and personalisation, regional marketing, last-minute changes, rapid response to customer demand and accelerated time to market are the principal factors pushing the industry to move from analogue to digital printing."

Because corrugated is, on the whole, low margin, you need high total volumes to make it pay. This favours fast inkjet print engines with automatic loading and unloading for material handlings, and the potential to reduce consumable costs that this new generation of printers brings. Likely to be of more immediate appeal for now too, is this technology's potential to improve image quality.

Handling difficulties

Durst and HP make dedicated corrugated versions of their high-end UV flatbeds that feature specialised systems to handle the large, heavy but relatively floppy corrugated sheets. Last year Fujifilm, which sells Inca Digital's Onset family of printers worldwide, announced a specialised corrugated loading/unloading system that it commissioned for the Inca S40i high-speed UV flatbed, together with lower-cost UV inks formulated for corrugated media.

However, even the fastest multi-pass flatbeds only manage a fraction of the throughout of the single-pass presses that have been introduced in the past year or so by Barberan and Sun Automation, suggesting that this new breed of single-pass machines may well gain traction with some. Sun Automation, in particular, is targeting display work as well as packaging, as it reckons it has the quality as well as the speed to succeed here. He goes on to explain how digital can drive costs down: "This is not all in the inks and process. There are no plates and downtime is less by 160% than flexo; there is less labour. All those costs have to be taken into account. Yes, UV ink is expensive, but other costs are less."

Sean Moloney, product manager for the Sun Automation CorrStream high-speed digital press, has a similar cost savings argument: "We have uptimes in excess of 80%, which is more than flexo, so we are very productive. Standard litho and flexo presses struggle to get to 50% due to make-readies on shorter runs."

For high-quality flexo you need a certain paper thickness," he says. "This is to avoid the 'guitar' effect of an impact process that will otherwise mark the flutes of the corrugated. Digital is non-contact, so you don't get the guitar effect. This lets you use thinner paper but get higher quality. As the paper cost is the highest part of corrugated, then digital offers big savings."

Existing options

Barberan's Jetmaster BIJB-1260 corrugated press is 1,260mm wide, with a lead-edge feeder that leaves 5mm between sheets, with delivery onto a conveyor that can lead to a stacker. It prints at up to 55m per minute at 360dpi resolution and three grey levels. "So far the 1260 is our widest printer, but we have projects to go wider, up to 1,980mm," says van Ijzerloo.

The CorrStream family costs from £1.3m for the 537mm-wide Series 20, with the 785mm Series 40 costing £1.7m and the 1,345mm Series 66 between £2.5m and £2.6m depending on configuration. All models take sheets up to 1.6m length and run at the same linear speed of 70m per minute. Throughput depends on width; the Series 66 will hit around 5,000m2 per hour. By comparison HP's dedicated multi-pass FB15000 with corrugated handling equipment outputs about 500m2 per hour, though with higher claimed quality.

Then there's Bobst. Last year the Swiss carton finishing manufacturer made a brief

announcement, saying it was developing a fast corrugated single-pass sheetfed press based on Kodak Prosper continuous inkjet heads and water based inks. It's said almost nothing since and wouldn't comment further for this story, though it did attend the FEFCO Brussels workshop in June.
HP is also adapting its single-pass technology for corrugated. In June it announced the High Speed Corrugated Solution, based on a simplex configuration of its 1,066mm wide T400 inkjet web press, to run at up to 182m per minute. This is not a direct digital corrugated printer, instead it pre-prints white liner paper that is combined with the other layers on a separate corrugating machine. The price isn't announced, but around £2m would be a fair guess.

Helping converters address market demand for shorter runs and faster turnaround times, the new HP Scitex 17000 Corrugated Press, powered by HP Scitex HDR Printing Technology, can increase digital print productivity for cost-effective corrugated packaging printing. The new press features the recently introduced HP Scitex Corrugated Grip and HP HDR230 Scitex Inks and prints at speeds of up to 1,000 m2/hr (10,764 ft2/hr) for economical, high-volume production of industrial-grade corrugated boards. Prints made with the HP HDR230 Scitex Inks on a representative coated media have been independently certified as having Good Deinkability. The HP Scitex 17000 Corrugated Press is expected to be available worldwide starting 1st August 2015.

Xanté's Excelagraphix 4200P stands out in this sector because of its relatively low £60,000 cost, thanks to a combination of its 1,066mm wide Memjet single-pass printhead array (and water-based dye inks) and manual sheet feeding and stacking. There's a reason for the low cost though. While Memjet technology is fast compared to comparably priced multi-pass printers, its top speed of about 18m per minute is only a fraction of the 55m and 70m per minute that Barberan and Sun are hitting.

The Excelagraphix 4200 high speed wide format inkjet suitable for short run, custom corrugated boxes. It opens up new revenue. It allows print a full color pizza box in a matter of seconds, suitable for special promotions and vendor ads.

BOBST STARTS FIRST BETA SITE PROGRAM FOR DIGITAL PRINTING PRESS FOR CORRUGATED BOARD

Designed to deliver four-color digital post-print directly onto a broad range of uncoated and coated corrugated media, the Bobst digital printing press offers both personalization and speed on short-run and high-volume work. This sheetfed press delivers quality and variable-data printing at up to 200 meters per minute—and can handle sheets up to a maximum size of 1.3 x 2.1 meters.

Jean-Pascal Bobst, CEO of Bobst said, "We promised the packaging industry a series of revolutionary digital printing solutions. Now that the corrugated version is in beta testing, the industry can see that we are making good on that promise. This press will start a revolution in the corrugated packaging industry because it opens up such a huge range of possibilities to box makers, and to their clients—the brand owners."

The site chosen for the first beta installation is the Model AG plant in Weinfelden, Switzerland, which is also the production and management hub of the CHF 700m turnover Model Group. Dr. Daniel Model, CEO of Model Group, noted, "We are very excited and proud to be the first beta customer for this revolutionary press. We firmly believe that the technology this Bobst solution brings will permanently transform the corrugated packaging industry." Philippe Milliet, head of business unit sheetfed, added, "Model have been our partners on many such pioneering projects and we tremendously value their input because of their forward-looking philosophy."

Working with Stream Inkjet Technology supplied by imaging technology leader Kodak, Bobst has produced the first credible digital solution for industrial scale corrugated box printing. The Kodak Stream Inkjet Technology not only delivers vivid color reproduction and one of the highest print resolutions available, it also utilizes food compliant inks, a key issue for packaging manufacturers in many sectors.

Philippe Milliet further said, "The Bobst digital printing press is unlike any other solution seen in the market. For corrugated packaging makers, it bridges the gap between high-volume flexo printing and the lower capacity digital systems available up until now. Furthermore, the press has been designed to integrate into the typical high-volume, post-print production environments of the corrugated industry. For our customers, it means they can offer their clients more flexibility and the reactivity to meet dynamic consumer demands, by introducing new products with versioning, mass customization and personalization." The beta press at Model AG will be shortly followed by a second installation in Europe.

Source: Bobst

CORRSTREAM® – DIGITAL PRINTER FOR CORRUGATED

SUN Automation's® series of three production speed digital printers for corrugated – CorrStream® 66, 40 and 20 – offer corrugated box makers and the converting sector unrivalled speed, reduced costs, efficiency and outstanding print quality, as well as bringing inkjet sophistication to mainstream applications as a real alternative to conventional analogue methods.

The CorrStream® series of single pass digital printers provide box converters new levels of flexibility in print and as well as the key ability to ease the pressure on box makers' operating costs at the lowest batch levels, compared to flexographic printing. CorrStream allows for increased value added through print on demand as well as the opportunity for converters to reduce or remove traditional costs such as origination and plate making.

In addition, further opportunities exist for corrugated producers to align with increasing digitalization in other packaging media to provide solutions for brand owner/retailer seasonal or event-based on-shelf promotions that require, for example, short-run or variable print capabilities.

CorrStream's® CMYK color digital printers for corrugated allows graphics to press in hours instead of days, small or large production runs at speeds of up to 8000 sheets per hour, personalization and graphic changes, data merge capabilities, wide formats and mass customization.

Simple to operate, the three equipment option sizes provide High Quality Post Print (HQPP) print quality at lower costs on the typical batch sizes now seen at many plants. It's only a matter of time for industrial inkjet to take hold in the graphics market on corrugated. This range of machines and their modular design will future-proof corrugated companies and help them to capitalize on new opportunities.

SUN Automation will also have inks available for CorrStream to print on coated materials by the end of the year without customers having to make any changes to the existing set up of the equipment.

✓ Print widths of 100 mm to 1,345 mm and 3,000 mm
✓ Traditional analogue sizes with digital benefits
✓ Speeds of up to 10,000 sheets per hour
✓ Simple to operate and reduced maintenance costs
✓ Service packages available, including software
✓ Support, for peace of mind
✓ A range of machines sizes and modular design to future proof