

# New frontiers for flexo

Flexography is a widely established printing technology across the industry but that's no reason to take it for granted. **Marco Mussini** explores how innovations along the process chain are making flexo more productive, more sustainable and more cost-effective.

Over the past three decades, flexography has been demonstrated to be a printing technology with very impressive growth in terms of quality and productivity. It passed from low to high quality printing and today is widely used for packaging production in flexible packaging, labels and tags, plastic bags, shrink-wrap, carton board and corrugated.

The technology is not standing still and there are continuous process improvements and innovations that strengthen flexo's packaging printing position. These are making an impact along the whole production process, from the packaging design to the final product.

## Plate improvements

The quality of flexo printing can rival other technologies, especially offset, because the flexo platemakers can use solutions that combine high-resolution optics with an exceptional screening output. Devices capable of combining 4,000dpi HD optics with unique screening technologies deliver the advantage of sharper and more accurate imaging. This combination makes it possible to achieve outstanding print quality with a straightforward plate production process.

Just as significant, this technology is very easy to use and there is no longer any need for tweaking or adjustments. Moreover, the rounder dot shape produced thanks to this technology combination, means that they are more stable on press, resulting in longer print runs with the same printing plate, even more than standard digital flexo plates. With longer print runs, the press stops less often for wash-ups, resulting in greater productivity.



Flexo platemakers can combine high-resolution optics with exceptional screening output.

HD Flexo is an industry standard that supports all major digital plate types. This gives the client freedom to choose the best plate type to optimise printing and plate production. For example, thermal plates avoid the use of solvents that could be potentially damaging to the environment. Because of the stability and longer life of HD Flexo plates, printers typically reduce waste on press through shorter make-readies and fewer plate changes or press stops. This can further reduce the environmental footprint of the process.

"HD Flexo is a big step in flexo printing," comments Jef Stoffels, director of corporate marketing at EskoArtwork and a spokesman for industry group Flexo4all. "It makes life easier for brand owners, print buyers, trade shops and converters. It does not require a significant capital equipment investment as it is just an upgrade of existing and running equipment. Trade shops or converters will benefit from HD Flexo because, with a safe, high quality process,

they can compete with offset or other printing techniques without losing quality or having to adapt pre-press specifically for the process."

## Press room steps up

The printing process is undergoing improvements too. In the world of flexo, the time taken in setting and adjusting a production run is a key factor when it comes to evaluating productivity. On top of this, returned orders affect the reputation of a company and increase its costs. With these issues in mind, new high performance, quality control systems make it possible to guarantee that 100% of the production from a flexo printer meets the quality standards set by the customer, while simultaneously cutting setting times and reducing waste.

New technology enables the detection of a wide range of print defects down to just 3mm<sup>2</sup>. When used in carton board application, the sheets containing elements identified as defective are



Marco Mussini, CEO Domino Communication, the agency that sets up and coordinates Flexo4all marketing activities.

automatically ejected, highlighted, or ignored by the press, according to the settings defined for the detection zone the defects occur in and the level of quality chosen by the operator.

Philippe Kunz, marketing and communication project manager at BOBST, a Flexo4all member, says: "iQ300, the quality control system developed by BOBST, is the essential final filter that

**“The technology is not standing still and there are continuous process improvements and innovations that strengthen flexo’s packaging printing position.”**

verifies the production and ensures that the printing reaches the quality needs of even the most demanding end-users.”

### Low volume, high quality

Flexo printing technology is particularly convenient when low volumes of production are required, often within a limited budget of expense. An example is the pharmaceutical industry, where large orders can include a range of variations that need to be treated as separate projects. In these kinds of packaging applications, flexo printing provides a higher level of chromatic balance and colour constancy than the average offset.

The latest developments of polyurethane (PUR) resins have opened up new applications, such as laminates. Modern polyurethane resins are synthesized through the complex multi-step reactions, creating high-molecular,

film-forming resins with excellent adhesion properties, high solubility in alcohol, low solvent retention, high blocking and sterilisation resistance. Tailor-made PUR resins can be manufactured and their characteristics can be adjusted exactly to the respective requirements.

“Over recent years intensive laboratory research has brought PUR-based colour inks into flexo printing, opening up this technology to new possibilities previously reserved only to gravure printing” says Thomas Bastian, marketing director at ink manufacturers Siegwerk. “PUR inks exhibit excellent printing results and can be universally applied to a very wide range of substrates. OPP, pre-treated PET as well as OPA, barrier films coated with SiOx and AlOx can be printed directly with PUR inks”.

### Sustainable approach

The production of packaging, with a low environmental impact, is today a need and a challenge as it has to remain

attractive and consistent with brand concept and image as well as the retailer’s store image while minimising environmental impact. Flexography has a role in being a printing technology that suits the sustainable demand of FMCGs, brand owners, private labels and retailers. Sustainable packaging is not an end in itself. It is the outcome of the fully sustainable integration of processes, equipment and materials from the design to the final printed package.

In 2010, DuPont Packaging Graphics ran an updated Life Cycle Assessment to measure the environmental benefits of using thermal technology during the flexographic plate-making process compared to the traditional solvent process. Compared to the original Life Cycle Assessment from September 2008, the objective of this update was to use data from a long-term continuous

operation of a tradeshop installation. The new data collection focused on equipment electricity used over an extended period of time, including idle time. DuPont was very demanding on methodology in order to measure energy consumption and emissions accurately for today’s tradeshops.

The updated results validated the findings of the original study. For plate processing, digital thermal (with PET developer material) has a 63% lower non-renewable energy consumption and 52% lower greenhouse gas emissions compared to digital solvent plate imaging process for a 0.067 plate (1.70mm thickness).

The thermal plate-making process is a dry system which does not use solvents and brushes to process photopolymer plates. This brings the overall process down to 30-45 minutes whereas solvent plate-making typically lasts 3-4 hours. Since solvents are eliminated, the thermal plate-making process also removes all steps directly associated with solvents, such as manufacturing, transportation, storage, distillation and recovery.

This reduction has an impressive benefit on energy consumption and a direct positive impact on human health. A more favourable environment helps to increase workers’ productivity and the tradeshop’s profitability. ■

### Flexo4all: strategic cooperation

Flexo4all is a strategic cooperation that combines worldwide expertise from independent companies in the graphic arts and packaging printing industry. Its aims are to:

- encourage networking within the flexo industry to create active co-operation among all partners
- connect the competence of all members to deliver knowledge and added value solutions worldwide
- promote the value of flexography as the best technology to satisfy all printing needs
- achieve improved and sustainable service for the Flexographic Packaging Printing industry.

For more information, visit: [www.flexo4all.com](http://www.flexo4all.com)