

LIVING ON THE EDGE

Interior decoration suppliers are increasingly turning to single-pass inkjet for edge band production. Rita Torfs and Marc Graindourze consider the options, along with the importance of ink choice



Marc Graindourze, Agfa's Business Manager of Industrial Inks

Many interior trends originate from the world of fashion and thanks to inkjet printing, interior decoration can be as creative and versatile as fashion.

Agfa focuses on integrating inkjet printing in industrial production runs. The company recently launched its 6-colour Altamira Design PID inkset specifically for interior decorative parts. It was mainly developed to print edge bands – saving time and costs – but it is also suited for skirting boards (base plates), panels, window blinds, profiles and even automotive and transportation elements (interior parts of cars, buses, caravans, etc.).

HOW ARE EDGE BANDS CURRENTLY PRODUCED?

In a traditional edge band manufacturing process, polymer granules are extruded into a thin edge band film. Typical surfaces for edge banding are ABS, PP or PVC. During extrusion, a colourant is usually added to obtain a coloured bulk material. Furthermore,

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a primer is applied to improve adhesion and ink wetting of the ink that will come on top, typically by means of gravure printing (requiring one engraved cylinder for each colour and each design). The printed image is protected by a topcoat, typically a UV varnish.



UV inkjet printing is a cost-efficient alternative to gravure printing for edge band production

For an aesthetic effect, a relief can be embossed to depict the wood grain structure. Embossing can also be done prior to printing. The last step is to cut the edge band to size.

Rotogravure printing of edge bands has multiple disadvantages: the need for many basic colours, a stock of cylinders, in addition to limited speed.

DIFFERENTIATION AND COST-EFFICIENCY

One of the advantages of inkjet printing for edge band production is that the analogue gravure method can be replaced by single-pass inkjet. UV inkjet is the preferred option because of its good adhesion on plastics and primers. The benefits of inkjet are many: no stock of cylinders, a fixed set of process colour inks and a shorter preparation time – resulting in more cost-efficient production runs.

In addition, the products can be differentiated and personalised. Every year, new colours and designs are promoted as the new fashion. Using inkjet printing, products such as wallpaper, furniture, floors, panels, skirting etc. can be printed with any design you desire.

Inkjet printing can be used from the design phase and testing to pilot runs and proofing, up to full production printing – all with the same printer and inkset. The production can run at a higher speed and has a smaller footprint. The run length of edge bands is limited, which makes them ideal for single-pass inkjet production printing.

WHY CHOOSE UV INKS FOR EDGE BAND PRINTING?

Agfa's UV single-pass inks deliver several advantages, including adhesion and consistent prints (from beginning to end; left to right). This consistency results from excellent jetting reliability (long open head times, no satellite formation etc.) and batch-to-batch constancy. Extensive testing has been carried out for the new inkset. The reliability of single-pass printing has been proven in production run lengths (i.e. printing for four hours without maintenance) with no missing or failing nozzles.

During the ink development process, the focus was on meeting the specific needs of the edge banding applications. To that purpose, Agfa used know-how that is



Rita Torfs and Marc Graindourze at a 2019 ink conference

integrated into multiple patents, including patents specific to edge band printing.

Agfa's Altamira Design PID inkset complies with Ikea regulations, which include IOS-MAT066 (surface coatings and coverings) and IOS-MAT010 (chemical compounds and

"The run length of edge bands is limited, which makes them ideal for single-pass inkjet production printing"

substances) as the strictest regulations related to printing of edge bands.

The new inks have been designed to provide a full process fit with the furniture band manufacturing process. For each combination of inks, the printed colour is stable very shortly after printing, which makes it possible to continue with the next process steps right away. The ink consistency allows repeated printing of the same design.

METAMERIC MATCHING AND COLOUR CONSTANCY

Why a 6-colour inkset? Next to the CMYK inks, the Agfa inkset comprises two colours specifically for wood designs. For 'wood grain designs', all wood colours can be obtained by combining the wood-red and wood-yellow inks with black and cyan inks. For standard designs, natural stone, concrete look and other fashion colours, the 4-colour approach

with CMYK will deliver the best option because of its wide colour gamut.

Check the colour of your interior in daylight, or under different sources of room lighting; does it look the same?

When two items (e.g. a table top and

an edge band) have the same design, but are printed with a different technology, their colours might look different under various light sources (e.g. fluorescent light or an incandescent lamp). This is called metamerism.

Moreover, the colours of a single printed design may also be perceived as different colours when they are examined under different light sources. This is known as colour inconsistency.

By tuning the ink, both issues can be avoided. Pigment selection is the key factor here. Agfa's Altamira Design PID inkset is designed to deliver less metamerism and lower colour inconsistency values for all typical wood designs compared to standard (general purpose) UV inksets with a high colour gamut. The wood-yellow and wood-red colour inks limit colour inconsistency and metamerism compared to the printed 'top plate'. A further

reduction of both features is obtained by optimising bulk colouring of the substrate and using a primer in combination with the inks.

MAKING THE MOVE TO INKJET

Edge band printing is a compelling case for switching from an analogue printing technology to single-pass inkjet. For production run lengths, both the higher speed versus gravure printing and the high design flexibility are very attractive.

The ink's performance forms a key element of the printing solution. Edge band printing requires a dedicated inkset. With Altamira Design PID, Agfa has developed an inkset that meets all the application requirements, delivers consistent print results and enables interior decoration manufacturers to enjoy all the advantages of digital printing. ■

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