

## Digital can printing on the rise

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Despite being relatively new, the use of digital printing for beverage and food cans in consumer packaging is gaining traction. It's expected to continue growing as it allows for on-demand production, quick and cost-effective short print runs, along with vibrant colour options. Digital printing is ideal for increased personalisation or customisation capabilities for brands. And what's more, printed cans are fully recyclable.

As we settle into 2023, industry players offer their predictions on what this year will hold when it comes to digital printing technologies for metal packaging and give The Metal Packager a snapshot of the projects at hand.

**Merav Sheffer, head of marketing, Velox**

### **Ring in the new year: global trends shifting metal packaging sector to direct-to-shape digital printing**

Following the uncertainty of the past few years, 2022 has been somewhat stable for the digital printing and metal packaging industries. The want for more recyclable packaging and a demand in emerging markets is driving the need for beverage cans and other metal packaging, with print forecasted to be one of the beneficiaries of a 2.9% CAGR over the next five years\*, and digital print estimated to account for almost a quarter of the global print industry by 2032. It's little wonder that digital print technologies such as industrial direct-to-shape are set to benefit from the anticipated gains in metal packaging.

Here Velox highlights several key trends that will influence direct-to-shape digital printing for metal packaging in 2023.

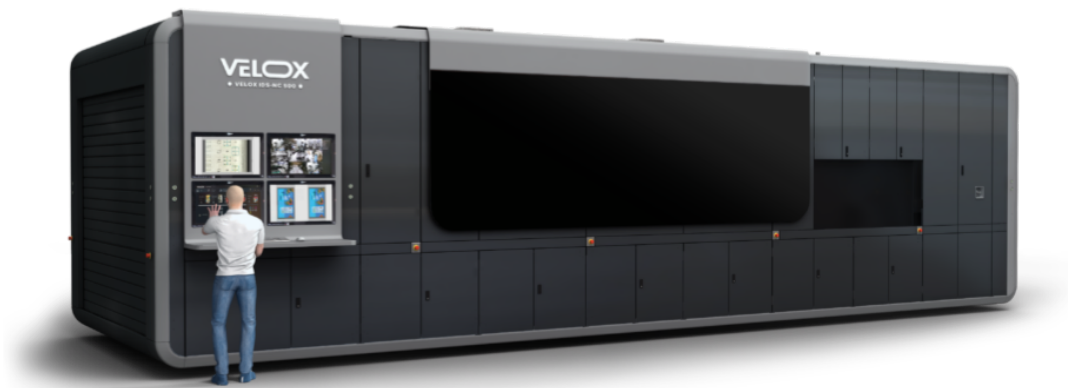
### **Sustainable printing**

With an ongoing trend towards wellness, young people are gravitating towards more healthier drink options such as non-alcoholic beverages, low calorie – high flavour drinks – mostly available in cans. With many of the Gen Z segment becoming more 'woke',

businesses that provide purpose and value are seen as more favourable. The Gen X segment, consumers of beverages in cans like craft beer and hard seltzer, are realising the

impact of single-use plastics on the environment and together with increasing state regulations favours more sustainable packaging. Businesses can do well to factor in the environment along with garnering support from the Gen Z and Gen X crowd by utilising direct-to-shape digital printing as it reduces plastic waste, energy consumption and the materials involved can be recycled.

Direct-to-shape digital printing is disrupting the packaging market by providing a solution for brands that don't have the minimum required for offset printing with can manufacturers, and use shrink sleeves and labels as their only alternative. Replacing shrink sleeves and labels with direct digital print translates to saving tonnes of plastic among other benefits.



*Velox IDS-NC 500 mass production direct- 1*

**Velox**, the developer and manufacturer of industrial direct-to-shape digital decoration systems, has teamed up with **Crown Holdings** to deliver a market first digital decoration technology for aluminium cans. It provides key sustainability benefits by reducing several steps and equipment required throughout the decoration process, replacing shrink sleeves and labels with direct print – dramatically reducing materials and carbon footprint. Its inherent operational flexibility provides a set of benefits such as moving to print on demand, any quantity job runs and quick time to market that reduces storage, shipping and inventory which also provides a positive impact on the environment.

### **Less shrink sleeved labels, more direct-to-shape printing**

For years shrink sleeved or labelled cans have been the rule of thumb for small-mid size beverage brands like craft beer, hard seltzer, kombucha tea and other new edge drinks. The latest advancements in digital direct-to-shape printing are widely seen as an alternative to shrink sleeved or labelled cans. The benefits of direct-to-shape digital printing for mass production volumes such as 30,000 cans per hour that the Velox system offers, is a game-changer. When a decorating system provides superior quality and is running so fast, job run-lengths are flexible, and it's quick to switch between jobs - this can impact an entire

business model. Suddenly, it's possible to offer a quicker time to market, print on demand, and flexibility with production by supporting brands with multiple SKUs and versioning.

Brands can now communicate with consumers through product packaging in new ways like special seasonal campaigns or social media interactions increasing brand loyalty. A mass production digital decorator means brands can use packaging that it's far more environmentally friendly compared to shrink sleeves or labels, as printing is done directly onto the can with zero plastic. Additionally, it eliminates overproduction, storage, and shipping. The good news for small-to-medium-size brand owners is no big volumes or minimum orders are required as direct-to-shape digital printing can do small as well as medium runs cost-efficiently, and the supply time is much shorter.



Velox's proprietary digital technology is a breakthrough since it's comprised of a dedicated system architecture and a series of specially formulated inks, developed from the ground up for direct-to-shape applications. It provides superior decoration quality together with extremely high speed, operational flexibility, low total cost of ownership and built-in sustainability. Unique decoration features include selective digital gloss and matte, on-neck and on-chime printing, seamless 360 degrees decoration, wide colour matching, and more. The extremely high running speed of up to 500 cans per minute allows for increased capacity and unlocks new markets while keeping a lower cost per copy and reducing the environmental footprint.

We expect significant opportunities in the direct-to-shape digital printing industry in the coming year and the trends highlighted by Velox are a few the transformations that will continue to shift the metal packaging sector towards direct-to-shape digital printing.

\* According to a market study by Smithers: [The Future of Metal Packaging and Coatings to 2027](#).

### **Samuel Teufel, product manager, Koenig & Bauer MetalPrint**

In the past, there have been several attempts to use off-the-shelf digital printing systems for the metal packaging market. These approaches haven't yet managed to penetrate the market. The bundling of expert competences is essential in order to be able to offer successful digital printing solutions for metal in the future. [Koenig & Bauer](#) is doing this together with [Durst](#) in the context of the current digital printing project and thus combining years of experience in sheet handling and (inline) coating with the best expertise in inkjet. This is a promising strategy that aims to deliver a digital printing solution that's well thought-out.

What will this solution look like in detail? Specifically, the strategy involves embedding and adapting Durst's multi-pass digital printing unit in customised sheet handling components from Koenig & Bauer MetalPrint. This enables the system to meet the challenging demands of metal as a substrate. If desired, the system also includes an inline coating machine from Koenig & Bauer MetalPrint. The result is as follows: numerous print tests reveal outstanding

print image quality on pre-coated sheets, realised entirely without plasma pre-treatment, primer stations or other pre-treatments. The standard 6C configuration can be extended to include partial inline white printing at customer request. The appropriate software for

handling the print data will also be provided. Another, if not the most significant USP, however, is the ability to use the system as a conventional (print+) coating line. This is realised by the unique sheet handling concept after the digital printing unit, which is suitable for hybrid production purposes.

The system's unbeatably wide-use case, in conjunction with the extremely attractive total costs of ownership, is the perfect opportunity for our customers to make the move to digital printing and future-proof their own production – without betting everything on digital. Because – to be honest – in the medium term, no digital printing technology will ultimately be able to displace conventional printing processes from the market. Rather, the hybrid production constellations are becoming more and more interesting to differentiate themselves from the competition in the future and to be able to react flexibly to customer wishes as well as to serve new markets.

That's the main reason why our concept is so coherent. This has also been confirmed by the extremely positive feedback from customers. The ongoing development of the project will have progressed further by MetPack 2023, which will allow us to give further detailed outlooks by then. The goal will be the completion of all development work and the successful start of a field test in 2023.

\* Please note that images are currently unavailable as the project is under development.

### **Peter Strode, chief commercial officer, SLAC International**

All can manufacturers are exploring ways into the digital, personalised or customised can market, in the belief that they will gain the upper hand with emergence of the Gen Z and MetaVerse concept. [SLAC](#) developed its first Digital Can Printer with inkjet technology in 2016, and has recently rolled out the latest iteration of the mini can line SLAC Digital Printer – SC-DCP-200-G2. The new line lowers the traditional volume threshold for DWI and opens up low-cost opportunities for annual volumes of 50 million cans or less.



The non-contact printing technology the SLAC machine utilises has no changeover downtime; limitless design possibilities; designs stored in digital file; label change in a click; one-can-one-picture; high flexibility, even a lot size of 1 is possible; no ink changes; no roller cleaning, scalable print quality (print resolution and grayscale printing); high productivity; fast investment payback; and less time to market.

Our next generation machine has been updated to a new height of performances with applications of new technologies while maintaining a reasonable cost.

1. In the previous model SC-DCP-200-6, printing resolution options are 600dpi x600 dpi, 600dpi x300dpi, 300 dpi x300dpi, while in SC-DCP-200-G2, we're currently trialing the 1200

dpi x1200 dpi resolution, with 1200 dpi x900 dpi, 1200 dpi x600 dpi, 600 dpi x600dpi to follow. This is a great leap forward offering high quality commitment as well as flexible printing scenarios.



2. A totally new printhead housing is designed in the new model SC-DCP-200-G2. With this new housing or platform, the printheads are easy to locate and adjust positions, delivering easy access, more user-friendly operation and simpler size change opportunities for different can diameters and heights. The redesign increases the print length from the previous 178mm to current 235mm, covering all beverage cans seen on the market this eliminating some of the print challenges of multiple heads on one height of can.

3. A new printhead arrangement is also adopted on the new model. In industrial inkjet printing, the state-of-the-art printhead types are piezo-based printheads, both as binary and gray scale, with or without recirculation, with bulk PZT or thin film PZTMEMS, etc. In addition, industrial inkjet applications also require high and long-term printhead reliability in order to achieve productivity and high manufacturing yield. Therefore, a reasonable array of the printheads, especially the nozzles, is of paramount importance to successful printing. In our new machine type, a new creative printheads arrangement instead of butt joint arrangement is applied.

4. An ink system, in which the ink is recirculated rather than getting stagnated or idled during machine stop, is integrated into the system. For the UV inks used in can printing, there's a need for heating, degassing, filtration, and/or recirculation. The ink movement will help avoid sedimentation that may otherwise block nozzles. It has been proved by many researchers that printheads comprising recirculation systems help maintain ink homogeneity and fluidity and reduce greatly printhead maintenance time.