



WHITE PAPER

CODING AND MARKING SOLUTIONS FOR ALCOHOLIC BEVERAGES

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1 Introduction

The alcoholic drinks industry is showing overall volume increases. In 2017, its global growth volume of 1% was its strongest performance in half a decadeⁱ, reversing alcohol consumption declines in a surge led by wine and ciderⁱⁱ and signalling a positive turnaround for the industry.

The year also saw record numbers of English and Welsh wine released onto the marketⁱⁱⁱ in the UK, where in recent times gin and craft beer have taken off to claim their place alongside wine and the ever-popular whisky.^{iv}

Meanwhile, a young generation noted for its reluctance to consume alcohol in large quantities has given rise to the trend of ‘premiumisation’. As a consequence, small-batch, artisan-style spirits are currently in vogue and driving growth in craft beer and high-end spirits including whisky, cognac, and tequila.^v

Despite challenges in the form of pressure to reduce waste, increased focus on healthy living, and the still-remote prospect of enforced plain packaging, the UK alcohol industry continues to perform well – and is providing further cause for optimism post-Brexit with the growth of non-EU markets such as South Korea and China.^{vi}

It is against this backdrop that the importance of coding and marking becomes clearer than ever.

The need for high-quality codes has risen alongside the growth of gin and artisan-style products. This is partly because supermarkets that stock premium spirits from independent producers must meet retailer standards for

traceability, and partly due to the fact that only quality codes can do justice to such products’ premium positioning.

Similarly, the recent switch from bottles to cans in the craft beer^{vii} sector has increased demand for excellent best-before dates, as such cans often have high design standards and require the code to contribute to their aesthetic impact.

In the UK, the export growth of gin and whisky means more products than ever require coding for protection. Without batch details, these products would be vulnerable to both lack of traceability and counterfeiting as they travel abroad.

It is the latter that represents perhaps the biggest challenge to the industry today. Counterfeit alcohol is estimated to cost the UK as much as £1.2 billion every year^{viii}, and with counterfeiters producing ever-more sophisticated and hard-to-detect copies^{ix}, robust, permanent, and complex codes are increasingly paramount to brand protection.

Linx’s own consumer research highlights the vital importance of coding and marking in this regard. We have found that just over half the population are aware of counterfeit spirits and wine currently being sold in the UK – and that 84 percent of people would be concerned if the code printed on a bottle of alcohol was poor quality.

Finally, traceable codes remain invaluable when alcohol manufacturers are forced to recall products, as has happened recently to Smirnoff^x, Bombay Sapphire^{xi}, and German drinks company Eichbaum^{xii}, among others.



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2 How effective coding supports alcoholic drinks production

2.1 Quality date and batch coding

Quality coding is essential to allowing drinks manufacturers to meet regulations and protect their brand. Only with legible, durable codes that show clearly even on dark materials can businesses beat the counterfeiters and protect their margins.

Inks that penetrate condensation to mark both glass and plastic bottles are available with continuous ink jet models, and these inks are particularly well-suited to cold fill applications and applications where bottles are stored outside before being brought inside to fill, causing condensation. Such inks also perform well for general applications where condensation is not present, saving companies the need to store different types of inks, and have different printers for different applications.

For coding onto dark materials such as wine or beer bottles, white, yellow, or blue inks are available to provide contrast and therefore enhanced legibility. In this case one ink could suit all the manufacturer's coding requirements, as a light blue, yellow or white ink will also show up well on clear glass.

Even an entry-level ink jet coder will give a niche brand the quality it deserves, allowing small businesses to say goodbye to removable labels and roller coders or stamps – and guaranteeing they meet retailer standards and customer expectations. For many such brands, especially

artisan-style ones, this is key because a poor quality code can affect consumers' perception of the product, while many high design bottlers now expect the code to contribute to the aesthetic appeal of the pack.

Similarly, for secondary packaging, companies can save on labels, pre-printing and storage costs by using a printer to apply uploaded imagery and logos directly onto card boxes.

It is laser coding, however, that is often most attractive to manufacturers. Laser coders print permanent, quality codes onto a range of substrates, including glass, coated metal, labels, and plastic. For premium brands, there is also the possibility of permanent laser marking onto wood and card.

With laser there is a wide choice of fonts, enabling codes to match the packaging and branding. By matching the quality of the pack in general, a quality code enhances the consumer's impression of the overall pack; conversely, a poor-quality code can undermine it.

Laser coding, due to its permanency, is also an excellent defence against counterfeiting. Its additional ability to produce complex logos and circular text on a range of packaging materials makes these traceability codes particularly difficult to replicate.



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2 How effective coding supports alcoholic drinks production

2.2 Reliability

A key requirement for many alcoholic drinks manufacturers is reliability. Only with a printer that requires minimal maintenance, and therefore less unplanned downtime, can they meet their all-important production targets.

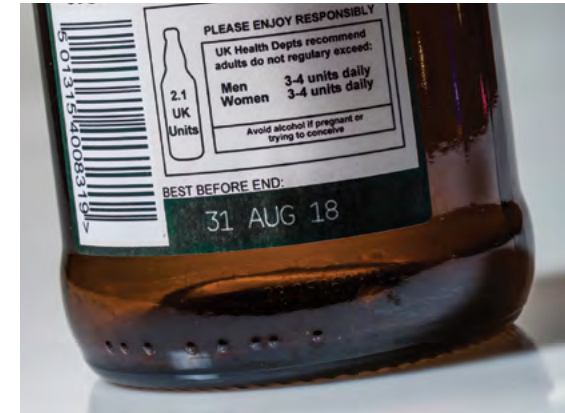
Contemporary coding and marking solutions ensure minimal maintenance by offering self-service features that allow operators within the business to plan servicing the printer around their production schedules.

Longer servicing intervals – up to two years for some models – and self-cleaning printheads that require a manual clean only once every three months ensure the printer always works reliably and invariably. This allows companies to keep their operation running with minimal intervention – especially important for 24/7 runs.

Such self-servicing features are of particular benefit for remote distilleries, which in the past may have had to deal with lengthy periods of downtime while waiting for engineers to reach them.

Aside from servicing, some models feature a seasonal shutdown mode, which further saves downtime by ensuring the printer is always ready to print first time, even after extended shutdown, and with no need for expensive printer flushing. This supports reliable operation even when the printer is infrequently used, and is especially useful for low-volume, seasonal drinks production.

Another key benefit with some solutions is reliable operation in wet or damp bottling environments. IP55-washdown stainless steel enclosures allow for continual operation even if the printer is stood under the bottling or canning line and washed down with the rest of the production equipment. There is no need to remove or cover during Cleaning-in-Place (CiP), saving further time.



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2 How effective coding supports alcoholic drinks production

2.3 Productivity

Busy line engineers rarely have the time to read a complicated instruction manual when the line needs to be up and running. As such, coding and marking solutions today provide an ease-of-use that allows production managers to spend more time focusing on production.

Smartphone-inspired screens, featuring easy-to-follow icons and fast message setup and retrieval, enable quick and accurate code selection and creation. Message selection based on images can further promote fast retrieval, as operation becomes more intuitive.

This delivers swift product changeovers and reduces both the number of errors made in code selection, and re-work or scrappage.

Coding is further simplified by the fact that there is no longer any need for many types of printers for different jobs. Multi-functional printers – those that can print both primary and secondary codes, for example – mean operators only have to learn one interface and store one ink type.

The end-result is that production is able to run more quickly. Similarly, for added speed and flexibility, a compact and truly portable printer can be placed right next to the line, as and when it is needed, and easily moved to different lines.



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3 Printer selection – factors to consider

Code content, substrate, line speeds and the factory environment are critical considerations in the selection of the most appropriate coding solution. It is important to have each pack material sample-printed, plus a trial of the printer on the production line is worthwhile, so that it is exposed to real-life production factors such as speed, dust, or moisture.

The overall Cost of Ownership of the proposed new machine should be investigated. This takes into account the initial price and factors such as reliability and the cost of consumables over its lifetime, along with the cost and frequency of servicing. Frequent breakdowns can negate any benefits of a lower purchase price.

Leasing and rental options may also be worth exploring. These are particularly useful solutions to meet urgent seasonal peaks in production without waiting for capex authorisation.



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4 The different coding technologies

There is a range of coding technologies available, each with their own particular strengths in different applications. These include laser coders and Continuous Ink Jet (CIJ) printers, which are the most commonly used solutions for primary coding in the alcoholic drinks industry.

4.1 Laser

Laser coding has no ink involved in the coding process and therefore no drying time and no risk of smudging, which can be an issue on some materials where the coded product may be in contact with other products or handling systems soon after coding. Laser coders are suitable for all the substrates used in the alcoholic drinks industry, and at high line speeds. CO₂ laser coders are the most popular lasers in the beverage industry, but fibre lasers are starting to be seen as viable options, as they can code onto bare metal such as beer cans.

Laser coders are particularly attractive due to their minimal maintenance, low down time, high-speed capability and the fact there are no consumables, which saves on the long-term cost of ownership.

Steered beam laser systems are highly versatile as they provide clear, consistent and perfectly formed characters in a variety of fonts and message formats, and enable the use of high quality graphics and logos over relatively large print areas. They are particularly suitable where high quality codes are required, e.g. to blend in with the style of the pre-printed packaging.

Laser codes can be highly visible or discreet, while the permanent nature of the code is also a vital tool in the fight against counterfeiting.

Furthermore, advances in technology and efficiency means that the initial purchase price of laser coders has significantly reduced. Add to this the low cost of ownership due to no consumables and relatively low maintenance, and this means laser coders are now a realistic choice for even smaller-scale operations.

Developments in design have also recently given rise to a new generation of lower cost compact laser coders, which offer an affordable alternative to other technologies whilst still maximising functionality.



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4 The different coding technologies

4.2 Continuous Ink Jet (CIJ)

CIJ maintains an important place in the market, as it can print on almost any substrate including metal cans, glass or plastic bottles and enclosures. A wide range of inks is available to use with CIJ printers, such as:

- Different coloured inks for legibility on coloured materials such as clear, brown or green glass
- Removable inks for returnable bottles
- Wet-bottle adherent inks for cold-fill applications
- UV-readable inks for anti-counterfeiting or internal traceability by bottle manufacturers.

From cardboard to glass, plastics to metal, CIJ can print from one to multiple lines of text and simple graphics at speeds of over 7m/s for a single line of code. Further versatility is provided by the compact printhead that can be situated above, beside or beneath a production line – even traversing from side to side across the line if necessary. With lighter models now available, the CIJ printer is more capable of being quickly moved from line to line and is quicker to install and set up than laser coders.

4.3 Large Character Marking

Case coders are particularly well-suited for printing variable information onto secondary packaging such as cardboard boxes. These outer cases usually require text and graphics, which are easy to see. Case coders can print to a high-resolution quality, and can help further promote the premium values of a brand.

Coding Technologies Selection

	CIJ	LCM	Laser
Line speed	✓✓	✓	✓✓✓
Print area	✓✓	✓✓✓	✓✓✓
Multi-lane printing	✓	x	✓
Print quality	✓	✓✓	✓✓
Code permanence	✓	✓	✓✓
Ease of integration	✓✓✓	✓	✓



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5 Conclusion

Besides the benefits of meeting industry regulations and protecting an organisation’s brand identity, there are more reasons than ever to invest in a coder today.

Coding and marking is the best way to ensure traceability and protect against counterfeiting, especially as exports grow, to meet the global demand for new and exciting spirits and beverages.

The ongoing trend for high-concept, artisanal alcohol products also demands quality coding – and that it not only performs its practical functions, but plays a role in the aesthetic appeal of the bottle or can.

Whether an alcoholic drinks manufacturer or a contract bottler, it is important to make sure all the options have been explored in order to select the coder that meets each exact requirement.

Both coding technologies – laser and CIJ – have advantages for bottle coding. From the application of high-quality permanent codes by laser, to the versatility of CIJ for coding onto different substrates, there is a relevant and appropriate coding technology.

By identifying the manufacturing line speed, code content and coding environment the true cost of ownership will be clear, and these important factors will help in ensuring the correct coding decision is made.

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