WHITE PAPER

CHOOSING THE BEST BEVERAGE CODING SOLUTION

INTRODUCTION

The beverage market is a huge global business. In the UK alone the value of the soft drinks market in 2012 was almost £15 billion,[1] while for wine and spirits the figure was £38 billion.[2]

As margins become tighter due to competition, pressure from customers and increases in costs, every stage of the production process comes under scrutiny.

In addition to these traditional market pressures, customer research conducted by Linx found that especially manufacturers of high sugar drinks face further challenges on two fronts – the increasing cost of sugar and government campaigns to tackle obesity.[3], [4] The alcohol drinks industry is also under pressure from health bodies as well as government initiatives to curb binge drinking.[5]

The combination of all these factors means that bottlers need to maximise efficiencies throughout their operations – and this includes avoiding errors or waste such as that stemming from poor quality codes or machine stoppage. Only an individual business can truly calculate the specific costs incurred through the downtime of its equipment, but all commentators agree that the impact of wasted production time can be significant.[6]

At the same time, brand owners are increasingly seeing the benefits of adding value to their product labelling, for example through the introduction of interactive content which can be accessed through QR codes linking to audio or video content hosted on the web.

QR codes themselves can have a number of different applications as brands look for different benefits from their pack design, including both attracting consumers and product protection. In Singapore, QR codes as part of the design on beer bottles are helping single people meet,[7] while Pernod Ricard announced plans to introduce QR codes onto all its packaging as an anti-counterfeiting measure.[8] It is even claimed that QR codes on alcohol packaging are the only way to eradicate fakes.[9]

And as the diversity and variety of beverage types and brands increases, the design of packaging has changed with it as manufacturers seek new ways to attain on-shelf impact. In bottled water, for example, companies are taking the possibilities of design into exciting new areas.[10]

These developments are creating a demand for coding equipment which is capable of marking everything from simple use-by dates to complex graphics on primary, secondary and on-shelf packaging. An effective code can therefore become an integrated part of the pack design, not just a necessary add-on to convey basic information.

As pack designers increasingly exploit this capability, coding and marking equipment is evolving to keep up. Future-proof coders, which allow add-ons to be integrated at any time, mean users can react to changing trends quickly.

And with regulatory pressure in mind, effective coding and marking technology can help the owners of valuable beverage brands both resist counterfeiting and ease the traceability of products.

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FACTORS TO CONSIDER

Choosing the right coding solution for drinks products is no easy task. No two applications are exactly the same: the following are all factors to be considered when deciding which coding solution to choose:

- Code content – will your current simple, one-line Julian date and batch code be sufficient in the future? What are the requirements from your packaging designers and customers? Will increased code complexity such as additional lines, or printing in different orientations be supported by the printer you choose, or will you need to purchase another printer?
- Substrate being coded onto – consider the range of materials you need to code onto eg. glass, plastic bottles and tops, metal or printed cardboard secondary packaging. Ensure that you have each of these sample-coded by the printers you are considering. Is the code legible? Also consider the range of colours of the materials you want to code onto: one coding solution may not be suitable for all
- Line speed – will the coding solution keep up with your line speeds? Will the print be compromised if it cannot?
- Factory environment – if your coding environment is wet or dusty then ensure that your coding solution has the right IP rating to perform reliably
- Available budget – not just the initial purchase price, but consider the overall cost of ownership and factor in reliability; by compromising on price you may pay more with unexpected breakdowns

Our own customer research has suggested that the key drivers behind coding purchases in the beverage industry are reliability, low cost of ownership and ease of use. However we will see that these three factors can be interlinked.

Reliability

Reliability is a must: as other parts of the production line become faster, coding equipment has to be able to keep up, especially in harsh coding environments where sugar dust or water could cause a coder to fail.

Maximising productivity means reducing unscheduled and scheduled maintenance time and costs. Printers have to be equipped with quicker trouble-shooting and servicing capabilities, and 'self-service' options to allow basic maintenance to be carried out without the need to bring in an engineer.

Low Cost of Ownership

Flexibility is key here: a printer that can fulfil several coding functions by being moved between lines will pay for itself in months.

Today's lean manufacturing principles, sometimes led by quickly-changing consumer demands, require production to be more flexible, to react to smaller batch sizes and faster delivery. Therefore printers must be more flexible – capable of dealing with faster product changeovers and easily moveable between production lines.

Cost of ownership takes into account the initial purchase price, plus the consumables and servicing costs over years; not forgetting the hidden cost of downtime caused by an unreliable printer or delays in code entry during changeovers. With the efficiency of bottling plants typically running as low as 40-70 per cent[11] a tiny margin can be crucial and valuable.

Ease of Use

Feedback from Linx research across a range of FMCG and industrial markets suggested that users prefer a simple, cost-effective solution rather than complex, feature-heavy machines. A printer with an intuitive interface will save time during product changeovers when new codes are entered: prompted coding fields can simplify this process even further, and remote control features will also allow code control from a central location, further reducing the risk of coding errors.

The costs of errors can be substantial, particularly if these are not detected until after product has left the factory. In a survey of the food and beverage industry for Ernst & Young, 81% of respondents deemed financial risk from recalls as significant to catastrophic, while 58% had been affected by a product recall event in the last five years.[12]

THE DIFFERENT CODING TECHNOLOGIES

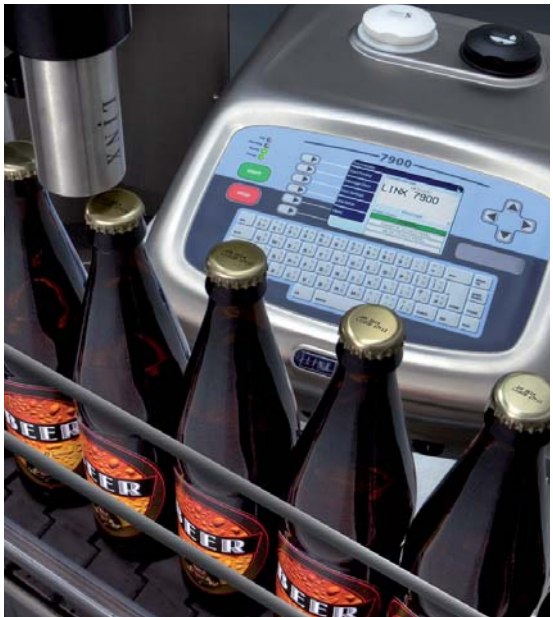
There is a range of coding technologies available, each with their own particular strengths in different applications. These include laser coders and Continuous Ink Jet (CIJ) printers which are the most commonly used solutions for primary coding in the beverage industry.

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 is in contact with other products or handling systems soon after coding. On the other hand, laser coding is highly dependent on the nature of the material to be coded, as some materials are more difficult to mark with laser than others and this affects the speed of printing. For example, bare metals cannot be coded with CO2 lasers as they reflect the laser light, so an absorbent coating is required. Some plastics transmit CO2 laser light and cannot be coded so it is necessary to include additives in the plastic which absorb the light, or to use a laser with a different wavelength eg an Nd:YAG laser.

Steered beam laser systems are however highly versatile as they provide 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, depending on the material being coded. The permanent nature of the code is also a vital tool in the fight against counterfeiting.



Since their introduction into coding and marking, the advances in technology and efficiency means that the initial purchase price has significantly reduced.

Add to this the low cost of ownership due to no consumables and relatively low maintenance, laser coders are now a viable choice for bottling applications.

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.

Continuous Ink Jet

CIJ maintains an important place in the market as it can print on almost any substrate including metal cans. A wide range of inks is available to use with CIJ printers. Choices include inks of different colours to ensure legibility on any colour substrate, removable inks for internal traceability or returnable bottles, wet-bottle adherent inks, UV-readable inks for anti-counterfeiting, and many more, adding yet another dimension to the coding process.

From cardboard to glass, plastics to metal, CIJ can print from one to multiple lines of text and simple graphics at speeds of over 2600 characters per second. Further versatility is given 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 increasingly being produced, 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.

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 are versatile enough for use on a variety of surfaces and materials. Easy to set-up and adjust, their reliability and predictable cost of ownership endear them to production lines in a range of industries.

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BRAND PROTECTION

Beverage brands, particularly high-end alcohol, are at the sharp end of product counterfeiting. High profile cases have seen cleaning fluid contained in 'vodka' bottles, and the global alcohol counterfeiting industry is growing, particularly in countries where taxation of genuine alcohol has risen steadily. A UK survey suggested almost one in five UK consumers had bought counterfeit alcohol.[13]

Brand owners are constantly looking for ways to combat this threat. In addition, many manufacturers are looking for effective and unobtrusive ways to track products throughout the production and packaging processes. Counterfeiting also represents a real problem to end users, who want assurance that the product is what they purchased and will be effective and not harmful.

The coding and marking industry is able to offer some solutions to the problem of counterfeiting. These include:

- complex high-definition digital graphics from thermal inkjet or large character printers for secondary packaging
- special security inks for Continuous Ink Jet printers
- laser coders which mark an indelible code

Serial numbering of packs can help the end user to identify that their purchase is genuine, through the use of codes that can be linked back to a central warehouse for authentication.

However at a basic level it is possible to duplicate a serial number and make a counterfeit product look genuine. So hiding the identification or serial number in an encoded format such as a Data Matrix barcode makes it more difficult for these codes to be reproduced.

Combining this with supply chain management, whereby individual products are scanned as they migrate from manufacturer to end user, can provide added security and highlight from where counterfeits may be originating.

CONCLUSION

Make sure you have explored all the options in order to select the coder that meets your exact requirements.

Both main types relevant to bottle coding – laser and CIJ – have advantages. If you are looking to apply high quality permanent codes without putting any additional substances on the product, then laser coding could be the answer.

The versatility of CIJ for coding onto different substrates, such as the lighter weight plastic many beverage bottlers are turning to, also makes it a powerful option.

And remember line speed, code content, the coding environment and true cost of ownership are all important factors to consider before making your choice.

For more information on Linx coding and marking solutions go to http://www.linxglobal.com/en-gb/coding-solutions/industry-solutions/beverage

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