



CHOOSING THE BEST DAIRY CODING SOLUTION

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INTRODUCTION

Weight management is one of the major global trends affecting product development and ingredient use in the dairy sector. It is driving the demand for portion control, which has led to the growth of products such as 'snack packs' for the lunchbox market.¹

An increasingly health conscious aging population is another major trend affecting the dairy sector in the US. Health concerns are having a huge impact on dairy sales in the US. 34.6% of yogurt and 32% of milk consumption volume is tied to consumers' age requirements, with older purchasers increasingly looking to dairy products for their nutritional benefits to combat the risk of osteoporosis, promote heart and brain health as well as maintain strong oral (teeth) health.²

And by providing health and wellness benefits, as well as a wide range of flavors and convenience, yogurt and sour milk products continue to grow. Consumer demand for Greek yogurt and kefirs remains strong, with Greek yogurt moving from a niche product found only in health food shops to a mainstream product in supermarkets and convenience stores.³

2013 saw growth in flavored milk products, fueled in part by the introduction of shelf-stable varieties, while non-dairy milk alternatives grew by 10% through products such as rice and almond milk.⁴ US dairy processors themselves are countering declines in fluid milk consumption by processing non-dairy beverages.⁵

All of the trends mentioned above have influenced packaging in the Dairy market. Unit volume sales of dairy products packaging increased by 2% in 2013, reaching 34.3 billion units. PET bottles grew by 7% mainly due to flavored milk drinks, while the popularity of yogurt pushed unit volume sales for thin wall plastic packaging up by 3%.⁶

HDPE bottles and gable top liquid cartons remain major pack types for fresh milk, conveying greater product freshness and a higher positioning, and their larger sizes are justified by the ability of consumers to refrigerate. However, in these mature markets, the need to differentiate may open up opportunities for PET bottles and pouches.⁷

Zip/press closures enjoyed growth in 2013, largely from unpackaged cheese products, while brick liquid cartons also performed well and are expected to continue to grow thanks to the popularity of non-dairy milk alternatives. Two-compartment tubs have been popular for yogurts and there may be great potential for alternative pack types, such as flexible aluminium/plastic containers that are currently used in baby foods and canned preserved fruits.⁸

For buyers of coding and marking equipment, this adds up to an environment where printers must be ready to deliver accurate, durable codes at high speeds, on a variety of packaging formats, often with a printhead traversing across multiple lines.

Printers are also being required to code onto more varied substrates, and at different angles, to reflect changing pack shapes and sizes. Accuracy is vital since the wrong code or



even the print being delivered outside the correct area of the pack can lead to product scrappage – particularly costly in an industry where perishable goods cannot be recycled.

Clean and accurate

Recent Voice of Customer research illustrates the challenges faced by coding and marking machinery to deliver clean and accurate codes in dairy production.

Naturally hygiene is crucial, with machines often needing to operate in a chilled or damp atmosphere. Although codes are not generally complex, tending to be durability dates and batch codes, production lines work fast, often at constant speeds of 180ppm or more.

Added to that are unpredictability issues such as operator error, for instance selecting the wrong code, perhaps due to the large variety of products, high line speeds and quick changes.

Code quality needs to be consistent whatever the substrate, which can be challenging when switching frequently between products. And further complicated by the growth of smaller lunchbox packs which have reduced the area on the pack available for the code.

Quick and frequent line changeovers, or product changes on the same line mean that the ease and speed of performing the changeovers is critical to eliminating expensive downtime. Even self-cleaning printheads is time that can ill afford to be lost.



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Coders should be able to operate across multi-lane production lines and print while traversing in both directions to maximise output.

A robust printhead and flexible conduit help ensure reliable operation in both static and moving printhead applications, for example where the printhead is traversing across lanes.

Coders need to meet hygiene requirements, with an IP55 rated or stainless steel enclosure, with no dirt traps or doors to open. Operation must be reliable even in humid or cold environments.

In a fast moving production environment, manufacturers need to know that their coding equipment can be trusted to perform its basic task without interruption.

This is an area where making the right choice of coding and marking equipment can help, for example by choosing machines that have easy-to-use picture-based interfaces, which can reduce the likelihood of error, and speed up changeover times.

Additionally, major customers such as supermarkets may require to oversee early production personally to satisfy themselves that their quality requirements can be met immediately – another reason why coding machines must be able to deliver straight from start-up, with the first print as good as the last.

Future-proof coders, which allow add-ons to be integrated at any time, mean dairy users can react quickly to changing trends, customer demands or legislation without having to trial, test and gain expenditure approval for more machines.



FACTORS TO CONSIDER

So even after taking into account the hygienic or refrigerated environment, choosing the right coding solution for dairy applications is not easy. No two applications are exactly the same and the following are factors to be considered when deciding which coding solution to choose:

- Code content – dairy codes are reasonably simple at present, but with future food labelling legislation always containing an element of uncertainty, will a simple, one-line date and batch code continue to be sufficient? 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 – consider the range of materials you need to code onto eg. rigid or flexible plastic milk drink, ice cream or yogurt containers, coated card or labels for cheese, or 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 colors of the materials you want to code onto: could one coding solution be suitable for all?
- Line speed – will the coding solution keep up with your high line speeds? Will the print be compromised if it cannot? Do you need to code across multi-lane production lines now, or will you need this capability in the future?
- Factory environment – if your coding environment is refrigerated and hygienic, for example, ensure that your 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. Is leasing a better option, as a revenue rather than capital cost? During seasonal peaks in production, will rental give you flexibility to meet coding demands?
- Testing – will your coding and marking provider offer a free trial? You need to be sure the machine is capable of meeting the demands you will put on it

Our own customer research has suggested that the key drivers behind coding purchases in the dairy industry are code accuracy and durability, as well as selecting printers which are easy to set up and use, essential features for quick and frequent changeovers. These factors, and others, are often inter-connected.



Code accuracy at high speed

Code accuracy is a major consideration. As dairy pack designers seek new ways to provide on-shelf impact, the amount of space available for functional information such as durability dates continues to be squeezed.

Set against this may be a legislative requirement on food products for the code to be printed using characters of a certain size. Combined with the growth in smaller pack sizes for snacking or portion control, this means printers have to be able to deliver the code accurately into what may be a small area.

Flexible coding equipment gives the option to print onto differing substrates, allowing you to meet fast-changing requirements from customers who, in turn, may be responding to shifting consumer demand.

Different types of pack may require the code to be printed at different angles – from the top, side or bottom – so a printhead which can deliver from various angles is a huge advantage. Add a printer's potential to be switched easily from coding onto one pack and substrate, to another, and the value of versatile equipment is soon obvious.

Codes that stay put in the right place

Smudged codes result in wasted product, so choose a coder with a quick drying ink. Specialist inks have been developed specifically to ensure the codes do not rub off, even when there is moisture on the packaging.

With the right coder, you can code consistently onto everything - from the latest flexible packaging, HDPE bottles and multipacks through to traditional plastic products, secondary packaging and labels. Cut-away printheads, for example, allow codes to be placed accurately onto gable-top cartons.

The wet or cold conditions on typical dairy production lines can also affect code integrity. And if your production line handles a range of products, and you need a coder with the flexibility to code across multiple lines, then traversing printheads are what you require.

Ease of Use

Feedback from Linx research across the dairy industry and other 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 – another occasion when an error can result in costly wasted product or downtime.

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 per cent of respondents deemed financial risk from recalls as significant to catastrophic, while 58 per cent had been affected by a product recall event in the last five years.⁷

THE DIFFERENT CODING TECHNOLOGIES

There is a range of coding technologies available, each with its own particular strengths in different applications.

Continuous Ink Jet

CIJ maintains an important place in the market as it can print on almost any substrate. A wide range of inks is available to use with CIJ printers including inks of different colours to ensure legibility on any color substrate and food grade inks for applications where the code may come into contact with the product itself. Many more inks are available, adding yet another dimension to the coding process.

From cardboard and plastic, to paper, metal, and glass, 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. They are also a cost effective alternative to pre-printed boxes or labels.



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. Laser coders are suitable for a wide range of substrates at any line speed. They are particularly attractive due to low down-time, high-speed capability and the fact there is no use of consumables.

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, for example to blend in with the style of pre-printed packaging.

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 a viable choice for dairy 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.

Thermal Inkjet Printers

TIJ printers also offer a flexible coding solution for both outer cases and primary packaging. Although offering a smaller print area than case coders, the high resolution coders offer superb print quality for premium packaging, and are a cost effective solution for slower production lines or where production is not 24/7.

CONCLUSION

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

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

Further, as consumer preference drives demand for varied pack types, be sure the printer you choose will deliver clear, robust codes at various angles onto a wide range of substrates from rigid or flexible plastics to glass, coated card and labels to cardboard boxes.

Printers specifically developed for the demands of the dairy industry, with washdown capability and traversing printhead functionality to code across multiple lines, can help deliver the reliability and versatility needed in this varied industry.

References

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