



CHOOSING THE BEST MEAT PROCESSING CODING SOLUTION

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INTRODUCTION

The US meat processing sector is a significant and important part of the food and drink industry, employing over 500,000 people in meat packing, meat processing and poultry processing.¹ Revenues in meat processing are expected to reach \$250 billion in 2015, up from \$212 billion in 2014.²

With US meat and poultry prices some of the most affordable in the world, consumption is expected to remain strong. 95% of Americans make meat or poultry a regular part of their diet.³ However, there is a trend among consumers to eat more chicken and pork and less beef.⁴

At the same time, there are important opportunities in export markets. For example, China's rising middle class means there is an increasing percentage of the population which can afford high quality food products. US companies have respected reputations regarding food safety and product quality and, with concerns over contamination and ingredients used in domestic produce, Chinese consumers are willing to pay a premium for quality.⁵ Many multinational companies are already capitalizing on this opportunity to move into the Chinese market.

THE NEED FOR THE RIGHT CODING SOLUTION

Maintaining high quality standards brings its own set of challenges, and certainly coding in the meat and poultry industry is becoming increasingly complex, with the introduction of new product types as well as new code regulations leading to more coding requirements and combinations.

Increased regulatory scrutiny of food safety has created enhanced product and date code requirements that vary by region. Where simple Julian dates were typically acceptable in the past, codes today may require country of origin, country of slaughter, country of cutting/deboning, allergen information, product identification numbers, lot numbers, animal reference codes and even bar codes. For example, the United States Department of Agriculture began requiring Country of Origin Labeling in 2009, mandating that all meat and poultry products list the source of the food along with the sell-by date.

Traceability requirements in the US have evolved significantly over the past decade. At a minimum, a supplier must assign a batch/lot number for case-level traceability. Additionally, the Food and Drug Administration (FDA) has gained new powers as a result of the 2012 Food Safety Modernization Act, including the ability to issue mandatory recalls.⁶



One way to achieve the increasing traceability requirements is through the use of barcodes. Barcode scans can effectively capture all traceable information and store it within an ERP or warehouse management system. Member organization GS1 in the US now recommends the installation of point of sale hardware and software systems at retailers in order to scan and process these barcodes.⁷

In this fast-moving, dynamic and competitive market, meat processors need to be able to react quickly to changing trends, customer demands and legislation, while keeping their costs down. The right coding and marking equipment can play an important role in ensuring that all the necessary requirements are met reliably and consistently.

In most instances, the coding process will be a relatively simple task, but failure can be costly in an industry where perishable goods cannot always be recoded, resulting in expensive scrapping.

As a result, it is important that companies carefully consider their particular requirements and assess all available options before selecting their coding equipment.



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FACTORS TO CONSIDER

Choosing the right coding solution for meat processing is not easy. No two applications are exactly the same and the following are all factors to be considered when deciding which coding solution to choose:

- Code content –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 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 – consider the range of materials you need to code onto e.g. rigid or flexible plastic containers, coated card or labels for outer packaging, 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 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

Linx's own Voice of Customer research in 2014 revealed that the key drivers behind coding purchases in the meat processing industry are: the ability to ensure traceability by coding accurately and reliably even in a washdown environment; selecting printers which keep working without costly downtime; and printers which are easy to use and switch between products. These factors, and others, are often inter-connected.

Accurate and reliable in washdown environments

Traceability is imperative and industry audits can happen without warning so you need to know your coding meets regulatory and customer standards at all times. IP55-rated coders help maintain the highest possible hygiene on production lines and can prevent wet conditions affecting the coder and bringing production to a halt. IP55-rated coders offer ultra-reliable operation and will maintain code integrity even in damp or refrigerated conditions.

Code accuracy is a major consideration. As legislation and consumer demand for reassurance lead to a requirement for more information and specific font sizes, the amount of space available for this functional information such as durability dates continues to be squeezed.

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.

Smudged codes result in wasted product. Specialty 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 through to traditional plastic products, secondary packaging and labels.

The wet or cold conditions on typical meat processing 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, such as those used for packaging sliced meats in trays, then traversing printheads are what you require.





Versatile and adaptable for less downtime

Code quality needs to be consistent whatever the substrate, which can cause problems when switching quickly between products. Quick and frequent line changeovers, or product changes on the same line, mean downtime can be very expensive. Even cleaning printheads is time that can ill afford to be lost.

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.

Easy-to-use coders reduce the chance of manual errors or mis-coding affecting your bottom line. As regulations change, modern coders can accommodate new message information, helping you future-proof your production line and respond to the ongoing demand for more traceability.

Ease of Use

Feedback from Linx research across the meat processing industry and other markets suggests 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, for example, easy-to-use message selection tools such as code selection and content editing using a barcode scanner. 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.⁸



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)

Perhaps the most cost effective choice, 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 colors 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.

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.

Thermal Transfer Overprinting

TTO's wider ribbon gives it the ability to print longer messages for ingredients, logos and marketing information. This means that it delivers a variety of benefits for printing on packaging such as flow wrap plastic, creating labels or printing on gloss card. However in an industry where cost efficiency is especially crucial, it may not be the most simple or cost-effective solution for smaller operations.



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 their low downtime, high-speed capability and the fact there are no 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.

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.

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CONCLUSION

Traceability, reliable coding in tough washdown environments, machines which minimise downtime and can switch quickly between products are all important factors to consider before making your choice.

Further, as legislation continues to alter the amount or size of information required on a pack, and the associated traceability requirements, 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 coated card, labels and cardboard boxes.

Printers developed for the demands of meat processing, with washdown capability, low overall ownership costs and ease of use, can help deliver the reliability and versatility needed in this industry.



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