Laser Coding

CIJ Coding

Thermal Transfer

Five tips for selecting coding and labelling equipment

Zultec, leader in product coding & packaging technologies, discusses tips to choose the best equipment for your coding needs.

1. Discuss and evaluate all aspects of the application

No single solution will be suitable for every application. To ensure the codes and labels remain intact and legible, make sure you know exactly how your product will move through the supply chain and how your customers will store your product. Apart from the basic application details like line speed, product substrate/surface, message, message format etc, key questions to ask include:

How will your customer store the product?

Whether your product is destined for the fridge, freezer, mi¬crowave or can be left out in the sun all day, it's important to ensure the labels and codes remain as clear as the day they were applied.

How long will the product remain on the shelf?

Labels and codes need to remain legible for at least as long as the product is on the shelf - and ideally for as long as it's in the consumer's keeping as well.

How long will the consumer retain the packaging?

Is the product designed to be consumed in one sitting, like a chocolate bar, or might it sit in a cupboard for weeks or even months, such as UHT milk?

For carton labelling, consider direct transfer vs thermal transfer labels:

- System Suitability Direct transfer Suits products with less than 12 months' shelf life (label doesn't need to last long).
- Print fades after about six months and does not handle heat, humidity, sunlight and direct friction.
- Ideal for perishable products.
- Thermal transfer Suits products likely to endure friction, temperature changes or dampness.
- Print is also resistant to chemicals, humidity, UV rays and abrasion (label needs to be more durable).
- System offers higher print speeds.
- Ideal for products to last more than six months, such as 'long-life' goods.

Some other questions that need to be answered before you can make a choice are:

- Are you looking for equipment for one production line or will it be moved to other lines as well?
- What is the range of products that the equipment needs to code?
- What is the physical space available for the coding system?
- What is the current process? And will it need to be modified?

You also need to consider legal and compliance require¬ments, if any, as directed by the government, standards organizations as well as your customer.

2. Ascertain message and legibility criteria

The message you need to code will depend on the product itself, any legal requirements and any internal traceability needs you have. So it could be just a simple date/batch code, an internal barcode or a more complex date/batch code plus a nutrition and ingredients panel.

Unsurprisingly, different systems do different things better than others. Whether your product requires only a simple numeric code or a longer, more complex message will de¬termine which system is best for you. Consider these points:

Does the code have to conform to strict legibility standards?

Some codes have well-defined guidelines. Pallet labels are a good example, with very specific formatting and rules defined by GS1, as well as retailers, which enables the smooth flow of product through the supply chain.

Does the code need to be scannable?

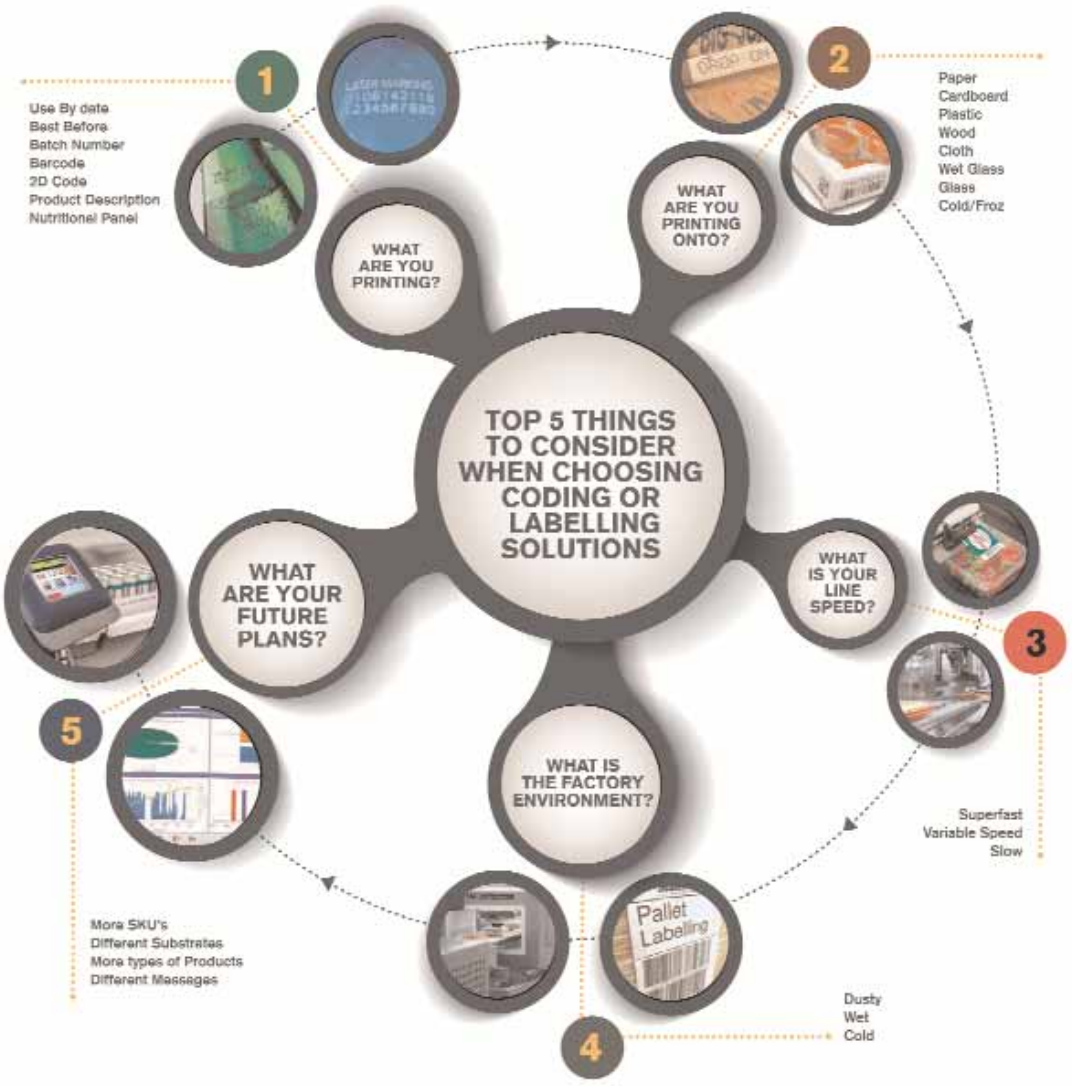
Whether it's directly coded or on a label, an unscannable bar¬code not only wastes time at the cash register or warehouse, it can have costly implications for the supply chain - and many retailers are intolerant of products that cause scanning errors.

Is your container a dark colour?

Legibility can be an issue on dark containers; some ink col¬ours are just too difficult to see, in which case you'll need a light-pigmented ink to ensure your code is legible. But even if you don't have a dark-coloured container, it's wise to take into account whether your packaging colour or substrate may change in the future, and if so, you may need to consider a coder that can code with lighter pigments.

Does your code or information need to be indelible?

Some coding needs to be indelible - for example, that on food products. Indelible coding won't fade, run or be rubbed off during normal conditions of use and storage. Depending on your application, laser coders or continuous inkjet (CIJ) coders or thermal transfer overprinters (TTOs) could be a good choice.



3. Look at various options to achieve the same result

CIJ vs TTOs

CIJ and TTOs, for example, will give similar results - but which will work best for your situation?

In CIJ printing, tiny, electrically charged droplets of ink are expelled from a print-head nozzle to form a character or pattern. It is a non-contact form of printing which permits coding on a range of sizes, shapes and substrates.

A benefit of CIJ printers is their wide range of printing speeds, extensive substrate adhesion compatibility and ease of installation. Be aware, however, that CIJ printers require regular maintenance and housekeeping, plus a supply of ink and solvent consumables. CIJ can code variable information and is suitable for:

- Product-identification codes
- Batch numbers and date codes
- Graphics, such as logos
- Text, including upper and lower case, and large characters

TTOs are suitable for coding on flexible packaging films and self-adhesive labels. A thermal print-head melts ink based on wax or resin from a thin thermal transfer ribbon coating onto the substrate to be printed. TTOs are most commonly used in the snack food, confectionery and fresh produce sectors.

TTOs are often used for printing simple date and batch codes, but can also be used to print:

- Logos

- Product descriptions
- Ingredients lists
- Nutritional panels
- Fully compliant barcodes

Laser vs inkjet

As in the comparison above, inkjet and laser technologies perform a similar end result, yet one could never completely do the job of the other, nor fully replace the other. Rapid advancements have widened laser applications to the point they can now mark clear and legible barcodes; while changes in inkjet technology continue to be incrementally steady - for instance, improvements to two of its former weak¬nesses (maintenance and ongoing consumable costs) have made those points its strengths. Laser technology has a higher capital cost, but a major strength is its lower operational costs - no consumables - making it a cost-effective solution over time.

So which is better for your application?

Laser technology:

- creates a very sharp, indelible mark, and is often used for aesthetic purposes;
- is most suited to high-volume applications, typically those operating two shifts a day with production rates higher than 100 products/minute;
- can mark fully compliant barcodes on secondary packaging when coupled with laser-reactive inks preprinted on the packaging substrate (while ink costs are higher, savings can be made with generic cartons);
- can also mark flexible packaging material where no special laser field exists - the original field for a small character inkjet code often suffices - so can be used on snack food and confectionery packaging (this applies to fibre YAG lasers only, not CO2 lasers);
- other applications include food, beverage, cigarettes and pharmaceuticals through to heavy industry.

Inkjet technology can code on primary and secondary packaging (including fibre cartons and shrink wrap) to code:

- date and batch codes
- human-readable text
- graphics

The best hi-res inkjet printers can print scannable barcodes. Applications vary broadly across sectors, from food and beverage, to pharmaceutical and cosmetics, through to auto¬motive and timber.

4. Look beyond upfront cost when researching

The initial money you hand over when buying new equip¬ment isn't all you'll end up paying. Be sure you also consider direct, indirect and hidden costs.

Direct costs include consumables, routine maintenance, corrective maintenance, spare parts and installation costs.

Indirect and hidden costs include downtime if equipment fails, downtime due to routine maintenance, operator training and cost of disposal to name just a few.

5. Analyze available support, operating costs and maintenance procedures

Available support

Buying equipment from overseas might seem like a good idea while it's working well, but once it runs into issues, you might start wishing you'd bought from a local distribu¬tor. What you save on the purchase price can be very quickly eaten up in lost production, spare parts, the cost of corrective maintenance (particularly if return-to-base repair is required) and labour costs.

Then there's the frustration of dealing with a manufacturer in a different time zone, manuals translated from another language into English (losing some of the meaning along the way), conflicting public holidays and so on that could see your downtime further blow out.

Operating costs

Consider the costs of things like consumables, power, disposal of waste, routine maintenance, servicing and labour costs as¬sociated with set-up and changeover.

Particularly for small operators, a single machine may be called on to code or label for a range of products, each with different information, sizes and colours. As we know all too well, time is money, so if changing over the set-up for different products is difficult, perhaps it's not the best one for your purposes.

Maintenance procedures

Some points to consider:

- Maintenance frequency: How does this fit in with your planned maintenance schedule?
- Who does the job: Can your staff be trained to carry out maintenance in-house, or will you need to pay for - and organize - a technician from the manufacturer or distributor?
- Accessibility: Does the entire machine need to be taken to pieces to maintain or replace a single part, further blowing out your downtime? Or does it contain drop-in/ drop-out components, which can save both downtime and a technician's fees?

Whenever your labeller or coder is out of action, the entire production line grinds to a halt, or builds up as a backlog. Do your research on new equipment before you purchase - or risk being caught out when you need your line to be up and running.

About Zultec

Zultec Group is Head Quartered in Saudi Arabia with offices spanning around 23 global locations. We are the leaders in food processing and packaging technologies, serving some global conglomerates since last 30 years. Zultec partners with world known leaders in end-to-end packaging machines for meat, poultry, dairy, fruits, vegetables, ready meals etc. Our portfolio includes completely automated end-to-end processing and packaging lines starting from the point your products are processed to making them packed in retail ready packs.◆