

Top 5 tips for great product coding: An in-depth guide for new and growing businesses



Whatever your industry, you need to code your products to enable safe usage. In the food and beverage industry, this could be best-before-expiry dates. In another example, temperature, wattage and compliance information might need to be put onto wires and pipes.

Starting or growing, a business is challenging enough, without having to worry about how to code your

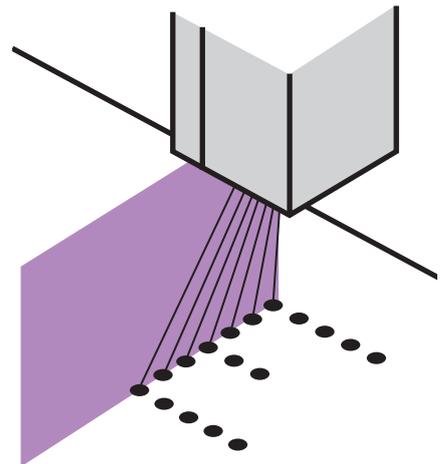
products reliably and cost-effectively with the quality you want for your developing brand.

That's why we've put together this guide with tips on picking the right printer for end-user unit coding. While we're experts on all coding technologies, we're focusing here on continuous inkjet since this technology tends to be the best entry point for companies of your size. It's also generally the market's most commonly used technology.

Small to medium-sized businesses make common mistakes, which we'd like to help you avoid... so you can focus on more important things like delighting your customers and driving your business forward, with as few roadblocks as possible, now and through the years.

What is continuous inkjet coding?

In this type of coding, a high-pressure pump directs liquid ink through to a nozzle which creates a continuous stream of ink droplets generating letters, numbers or symbols made up of tiny dots. There is no contact between the printer and product.



Why is it the most popular option for product coding?

So long as the object moves in a straight line, CIJ coders can print on anything, at the highest conveyor speeds, regardless of material type or shape, provided a suitable ink and additive are chosen to deliver the desired adhesion and contrast. While other options exist, such as laser, they often come with speed or packaging material limitations. The upfront costs can also be higher.



1

Identify potential “hidden” costs

It's best to consider the total cost of ownership from the very start. By focusing mostly on initial equipment costs, many growing companies don't realize, until it's too late, that a cheap printer is usually more expensive over time. Don't worry if you think you can't afford a high quality printer – see Tip 2!

Let's have a look at these in further detail.

Inefficient consumable consumption

Regardless of supplier, in industrial coding applications, you need two consumables: inks and additives. The additive's role is to stabilize the technical properties of the ink. The right combination helps deliver quality codes.

One-off savings from a “low-cost” printer are usually wiped out by greater ongoing costs in the form of extra ink and additive consumption as well as extra disposal costs. See Table 1 for an example.



Table 1. Like-for-like comparison with another major supplier, Competitor A

Competitor A	1 printer using 750 ml MEK-based additive cartridges with MEK-based ink at 20 °C	Markem-Imaje
	Additive consumption is higher at 8 ml/hr versus only 3 to- 4.6 ml/hr when using a Markem-Imaje additive, depending on the number of hours and ink chosen	
	So, you would need nearly two additive cartridges to code the same packaging with Competitor A compared with Markem-Imaje	
	Per year this can equate to your operator needing to change consumables 20 more times	
	Additionally, you would have 19 kg of extra waste to dispose of annually as Competitor A's cartridges are bigger and more complex to recycle at 184 g versus only 47 g for Markem-Imaje	



To do a similar comparison yourself, and bearing in mind cartridge volumes differ by supplier, just divide the hours of printing per cartridge versus the printing time expected per cartridge.

As you can see from Table 2, two different competitors with larger cartridge volumes also give you less printing time per hour versus the Markem-Imaje benchmark provided, meaning you'd need to use twice as much to do the same level of printing.

Table 2. How much printing time do you get from various additive cartridges?

MEK-based consumables at 20 °C

Supplier Equipment	Cartridge volume	Print time per cartridge	Comparable print time per cartridge
Markem-Imaje 9330	750 ml	164 hr	0.22 hr/ml
Competitor A	750 ml	94 hr	0.13 hr/ml
Competitor B	1000 ml	143 hr	0.14 hr/ml
Competitor C	1200 ml	171 hr	0.14 hr/ml

With one Markem-Imaje additive cartridge, you can print for nearly twice as many hours compared with these competitor cartridges.

Scrap

You should also look for printers with features to minimize waste since scrap is expensive in terms of time and money. Coders with automated printhead cleaning systems can ensure the expected quality from the very first print, even after weeks of storage. Using ones with smart consumable systems will minimize cost and hassle from spillage and operator error (e.g., selecting the wrong ink for the machine).

It's also worth using a good quality ink that has been calibrated for the equipment you're using. If you don't, your coder's printhead is likely to clog which will lead to poor prints and rework, not to mention increased downtime due to more unplanned maintenance.

Equipment uptime and maintenance

If the coder has the automated printhead cleaning system mentioned earlier, your uptime will be greater as start-ups will be quick and easy.

And, the longer a printer can run, the greater your uptime, so avoid ones with short service intervals. A good quality coder should have well-proven reliability and give you at least 8,000 hours of non-stop production before needing preventive maintenance.

You should also consider the ease of maintenance. Some inkjet printers are so complicated you need the supplier to service and troubleshoot your equipment.



Others can be serviced yourself, but it takes a long time to access the parts you need so you lose valuable production time. Before buying a printer, have the supplier demonstrate what's involved.

Markem-Imaje's 9330 coder's **Intelli'Swap** design, for example, makes changing its all-in-one ink circuit so simple it can be done in less than six minutes, without spillage or waste. Operators just click it out and in with the tool supplied.

2

Avoid tying up your capital

To meet your growth objectives, you need to protect your cash, using it where it will most benefit your business.

To help you avoid upfront coding equipment costs and unpredictable operating and maintenance expenses, some companies, like us*, offer turnkey rental programs which are customizable and scalable as your needs change.

With a fixed monthly or quarterly payment you can have the exact bundle of equipment, consumables, software and coding solutions to meet your precise needs... without a hefty upfront capital investment. You can even have your preventive maintenance covered as part of the package. No surprises – financial or otherwise! Just hassle-free coding with minimal impact on your cashflow.



3

Scrutinize code durability and quality

Choosing the wrong ink or printer combination can lead to codes which are incomplete, smudge, fade or rub off, making them unfit for purpose.

Spotted at the factory, this results in waste. In the market, illegible or missing codes jeopardize traceability, potentially leading to fines from retailers or governments. They can also negatively impact your brand by not providing people the information they need to use or consume your products safely, and by opening the door to counterfeiting or product tampering.

Bad codes can result from poor quality equipment and consumables, or from a mismatch of ink to the packaging material. Choosing a supplier with proven performance, as well as a wide portfolio of inks, is critical to avoid problems.

Given we discussed the importance of ink quality in the scrap section of the first tip, and we address the issue of matching inks to packaging in the next tip on future-proofing, here we'll focus on equipment choice. Things to ask yourself about the supplier you're considering:

- How strong is their track record?
- What features does the coder have to ensure print quality?
- What customer references are available in terms of reliability and outcome?



For example, we've been in the coding business for decades, so we know continuous inkjet technology inside and out. Hundreds of thousands of our CIJ coders have been used in sites around the world, in all sorts of industries. And, when we launch new products, they are built on this existing bedrock of knowledge and technological know-how.

All our CIJ printers, for example, have proprietary **Intelli'Jet** technology, which automatically adjusts ink pressure. In particular, our sensor controls, measures and adjusts the speed of the jet, in light of environmental conditions, to ensure perfect drop placement, quality and code consistency. Every time.

* Availability varies by country

4

Minimize future costs by future-proofing investment

When first starting out, your coding needs can be quite simple.

For a fruit and vegetable supplier, for example, this could be a best-before date on a bag or carton. Over time, product diversification is likely. This could be making fruit purees in small PET containers and juice in glass bottles across two more lines, for different product varieties. Case and pallet printing will also become more important. Marketing efforts to increase sales through QR gaming codes might be needed as well as solutions to meet growing sustainability concerns in the marketplace. Exporting to other countries is likely, bringing with it compliance considerations related to ink usage. Additionally, sales growth, with associated production line expansions, will make overseeing operations a lot more complex.

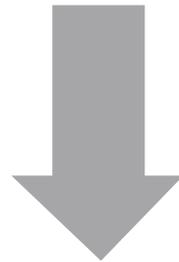
Choosing the wrong coding solution early on can hamper your growth. It might not be flexible enough to cope effectively with different packaging materials and market requirements, or it might be unable to support automation and digitalization – issues which become increasingly important the bigger you become.

To avoid the disruption and costs of swapping to a new coder when your needs change, ask the following questions.

How extensive and compliant is the supplier's ink portfolio?

A common mistake is to assume that an ink suitable for one packaging material will work as effectively on another. Often this isn't the case. A mismatch of ink to material caused by a limited ink portfolio can lead to poor code adhesion with the problems mentioned above in Tip 3.

Color is another factor. A supplier with a small range could restrict your ability to choose the best packaging color for your products as the contrast between the code and material may be insufficient.





Also, in a bid to cut costs, some suppliers may provide inks which are compliant now, or in specific locations, without adequately considering cross-border standards or how the market is moving. Making the wrong choice could lead to fines and reputational damage, now or in the future.

Working with a supplier like us lessens your risk. Our ink selection is big enough that, whatever you need to code – plastics, cardboard, metal, foil, paper, glass etc – we have an ink which will provide a durable and compliant code. We even offer a competitively priced MEK-free solution which reduces VOC emissions, enhances employee safety and simplifies paperwork, particularly when exporting. Additionally, we have inks suitable for returnable packaging delivering codes

which last until the container is returned, but can be removed so a new code can be applied once refilled.

Furthermore, our inks comply with key legislation and recommendations around the world related to packaging such as REACH†, HACCP‡, EuPIA Policy and Guidelines, the Swiss Ordinance and the Nestlé Guidance Note on Packaging Inks. Not only that, where certificates of conformance are available, we have them... unlike some suppliers who say their inks are produced according to certain guidelines, but without third-party confirmation. The more global your business gets, and if you become a subcontractor to a multi-national company, with us, you have the peace of mind to know you're covered.



Our philosophy is to go beyond compliance, to not only consider existing regulations, but also to consider where they are headed so our customers know they are covered, today and tomorrow. For more information on this, please see our white paper "How packaging inks can contribute to safety and sustainability initiatives: Marking the new generation".



†Registration, Evaluation, Authorization and Restriction of Chemicals ‡Hazard analysis and critical control points

How easily does it scale and work with other equipment?

As sales increase, you'll need more printers to code individual products, either with similar specifications or capable of handling faster speeds. You may also need to print more sophisticated codes e.g., barcodes, 2D datamatrix, QR etc. You'll also need coding equipment to handle case and pallet printing.

The more familiar the equipment, the easier it will be for your production staff to operate, particularly if you have high turnover and/or unskilled workers.

Markem-Imaje's 9330 coder is suitable for lines up to 4.4 meters/second (14.4 feet/second) and produces several code types (including 2D datamatrix), making it a great fit for small to medium-sized companies. Our 9450 continuous inkjet coder handles lines up to 6.6 m/s (21.7 f/s) and a huge range of codes, including the most sophisticated ones. We're also one of very few companies that offer complete solutions for case and pallet printing as well. And, given all our equipment has a similar look and feel, switching from one to another is straightforward so training and mistakes are minimized.

As your product portfolio gets more complicated, automation to improve efficiency, accuracy and profitability might be desirable. As a bigger target for counterfeiting and product diversion, you may even want solutions to protect your brand against these risks.

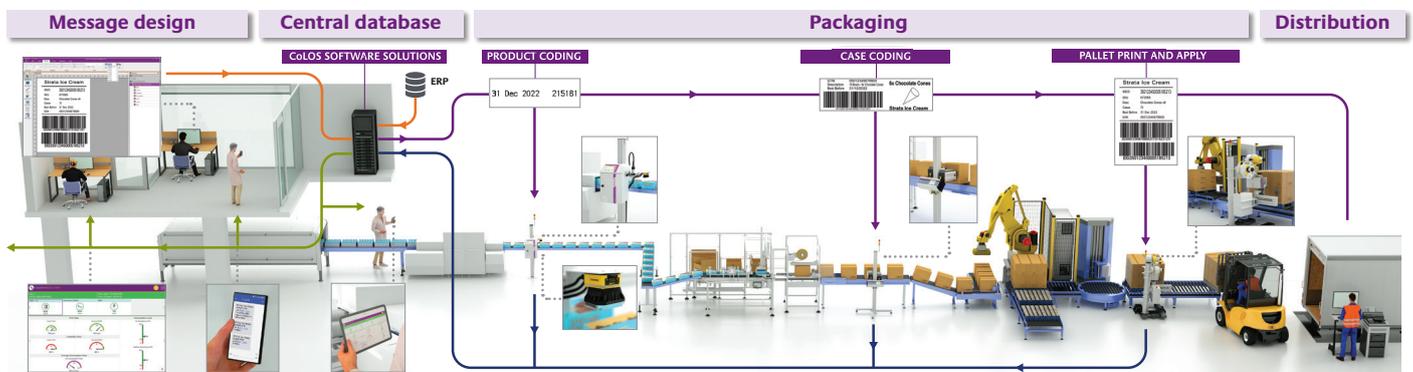
There will also be greater the expectations on you to quickly trace your products in the event of a recall. A successful company will probably need sophisticated IT systems to share information to help with this, and other aspects of your business. For example:

- An Enterprise Resource Planning system to collect, store, manage, and interpret data from many business activities. ERP systems integrate all processes needed to run a company from consolidating product data to tracking resources like cash, raw materials and production capacity and managing business commitments like orders and payroll.
- A Warehouse Management System to guide inventory receiving, optimize order picking and shipping, and advise on inventory replenishment. It can also manage supply chain operations from production to the warehouse and then

to a retailer/distribution center etc. A WMS system can be a standalone application or part of an ERP system.

Picking a coding partner early on, who you know is capable of seamlessly integrating with your back-office system(s), while providing protection against recalls, product diversion and counterfeiting, will save you many operational and financial headaches later. Things to look for in a coding information management supplier:

- Can their system automatically insert SKU details from your central ERP product data to minimize human error?
- Can messages be sent to all printers and packaging devices automatically or with very few clicks?
- Does it offer code verification capabilities to doublecheck the right code is on the right product?
- What anti-counterfeiting and serialization options are available?
- Can it send production data back to ERP and WMS systems automatically, ideally in real-time?
- Is the supplier heavily reliant on third-party partners to deliver the above, increasing your risk of integration problems and delays?



Markem-Imaje provides the market's most complete, most proven and most seamlessly integrated coding equipment, consumables and software solutions for hassle-free integration and best-in-class performance.

5

Assess the level of support you'll receive

Sometimes things go wrong. Even with the best products. And some issues can't be addressed by you. When this happens, you need problems fixed fast. You should carefully consider the support services of prospective suppliers:

- How fast are they in delivering replacement parts?
- How big is their technical team?
- What are their promised response rates?
- What kind of warranty do they offer?
- As you grow and expand production nationally, and eventually internationally, do they have the reach and capacity to fix your problems?



Conclusion

If you follow the five tips outlined above, you'll be set up for coding success, not only today, but also in the long term. It'll be one part of your business you won't have to worry about, freeing you up to focus on more important business priorities.

We hope you've found this guide helpful. If have any questions, please get in touch! We'd love to hear from you.



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