



## LABELS VS. DIRECT CODING OF CORRUGATED CASES AND CARTONS



One of the many solutions used in today's production facilities to meet the needs of identifying cases of various products is the use of labels, both pre-printed and printed on-demand.

With **pre-printed labels**, each SKU is assigned a self-adhesive label that was printed by an external printing company with whatever information is required – e.g. the product name, logo, bar code and plant information. The label is then applied to a case by hand or with a label applicator. Any variable information, such as a date or lot number, is applied afterwards using a stamp or coder.

For **on-demand printing of labels**, a label file is assigned to a product SKU, matching the required size of the label with the corresponding case. The label is then printed with both the “fixed” (product name, logo etc.) and the variable (date, lot number etc.) information. Labels can be printed offline and applied by hand, or they can be printed inline and applied automatically in a single step using a label printer-applicator.

While meeting companies' needs, these solutions can be cumbersome and costly to implement and maintain. Direct case printing with an inline ink jet printer is an attractive option for companies looking to reduce costs, add flexibility to their production and increase uptime.

### Pressure-Sensitive Labels

Pressure-sensitive technology can be a versatile and flexible labeling method. It allows customers flexibility to modify shapes, sizes and label content as their product offerings grow and change. Pressure-sensitive labels contain an adhesive coating on one side that sticks to a surface when you apply pressure on it. The benefits of labels include a variety of materials they can adhere to, a wide range of adhesive performance levels, and control of the printed surface which allows for printing high quality print and bar codes, if needed in multiple colors.





### Disadvantages of Pre-printed Labels

Using pre-printed labels appears to be a very straightforward solution to meet the SKU coding requirements. However this apparent simplicity is often deceiving and comes at a high financial cost. As the facility increases its number of SKUs, the demands on the label inventory increase as well. This can create high inventory costs, space concerns, label inventory management issues and label obsolescence due to product changes. There can also be significant changeover costs as labels need to be changed every time that the product on the production line changes.

Last but not least, in addition to the pre-printed labels there still needs to be a method to apply *variable* data, such as the production date or batch number, to the packaging. This can be done through a case coder, a hot stamp, or a variety of other ways. However each of these methods and systems carry costs as well.

When all of these factors are put together, the seemingly straightforward pre-printed labels are often the least (cost) efficient solution for case identification.

### On-demand Label Printing

Printing labels on-demand resolves some of the drawbacks of pre-printed labels: inventory costs, space requirements, obsolescence and changeover costs are lower as fewer label types will be used. And variable data can be printed as part of the label, eliminating the need for a separate system.

However, there are also additional costs, such as the acquisition of a label printer, or printer-applicator, and the expense of printer ribbons. In most cases these costs will be less than the savings versus using pre-printed labels.

However, on-demand printed labels do not address the greatest expense of using labels: the cost of the labels themselves. Pressure sensitive labels consist of a substrate with an adhesive layer and a release liner. Sometimes they may also contain a coating to enhance printability or provide a visual effect (e.g. gloss). The result is that labels typically cost many times more than today's direct case coding alternatives.

## Direct Case Coding

High resolution, direct to carton ink jet printing eliminates many, if not all of the concerns experienced with labels. A typical system consists of two to six high resolution (150 dpi or more) case coders, networked together. The number of coders depends on the height of the information printed and whether the box is printed on one or two sides. A common print height for high resolution case coders is 50-70 mm (2.0 – 2.8”).

Because case coders are digital printers, variable data can be printed at the same time as the unchanging information. Unlike pre-printed labels, inline coding provides enormous flexibility. Messages are quickly changed, and new messages can be created and stored for immediate or future use. The printers are very compact and take up minimal space on the production line. They can print logos, graphics, large and small text and a wide range of linear and 2D bar codes, including the increasingly popular GS1-128 bar code. State-of-the-art printers feature the ability to automatically purge ink through the printhead as often as between every print, ridding it of contaminants to provide consistently clear, high resolution codes.

## Benefits of Switching to Case Coding

The key benefits of moving from pre-printed cases to an in-line case coding solution are:

- Eliminate labels and all associated costs, including inventory cost, changeover costs and obsolescence.
- Reduce changeover time: simply call up the new code in the printer, and off you go. No labels and ribbons to find and move to the production area, saving time and getting you into production faster.
- Improved market response: no longer will you need to wait for labels and ribbons to arrive before producing a new SKU. Simply edit your message template with the new information and start production. Quick and easy.
- Reduce waste: while some waste will remain due to rework, much of the cost associated with the waste will be eliminated as the expensive label will be removed from the equation.
- Lower costs: pre-printed labels can cost as much as 10 cents each, while a direct to case ink jet system can produce that same code for less than ½ of a cent.



The table below shows a comparison of how the cost levels of the 3 alternatives typically compare.

	Pre-printed labels	On-demand printed labels	Direct case coding
Label cost	\$\$\$\$\$	\$\$\$	-
Ink/ribbon cost	\$	\$\$\$	\$
Inventory cost	\$\$	\$\$	-
Obsolescence cost	\$	\$	-
Changeover cost	\$\$	\$	-
Equipment cost	\$	\$\$	\$\$

**Example**

A simple example illustrates the benefits of moving from labels to inline ink jet case coding. In this example, the company is using two label printer-applicators to print and apply 750,000 labels per year to 375,000 cases. Other assumptions are:

- The cost of labels is \$0.04 each
- Ribbon cost is \$0.02 per label
- The cost of ink for the case coder is \$0.005 per message

Based on these assumptions the company could save more than \$41,000 annually in the cost of labels and ribbons alone.

Annual cost (USD)	Annual volume	Labels		Case coder	
		Cost each	Total	Cost each	Total
Labels	750,000	\$0.040	\$ 30,000	-	-
Ribbon/ink	750,000	\$0.020	\$ 15,000	\$0.005	\$ 3,750
<b>TOTAL COST</b>			<b>\$ 45,000</b>		<b>\$ 3,750</b>

**Savings \$ 41,250**

In addition to these, there are several other areas of real savings that companies can realize, such as inventory space savings, less operator and maintenance intervention, as well as those explained in the in the summary of benefits listed above. Costs for implementing in-line ink jet printing will vary based on number of production lines, amount of data being printed and number of shifts of production.

Production managers are faced with constant changes and mounting pressure for cost reduction and increased agility. There are many ways to meet these objectives, but considering a direct to case coding strategy can be a major contributor. Deciding which solution is right for a company is best achieved through an in-depth evaluation by coding specialists who have the experience to review all factors, including the less obvious ones. They will be able to recommend the best solution for both current and future needs.

For more information about in-line printing of corrugated cases and cartons, please contact Videojet Technologies Inc. at 800-843-3610 or visit our website at [www.videojet.com](http://www.videojet.com).

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