Specifying the Optimum Case Identification System — Print and Apply Labeling, Inkjet Marking & Laser Coding

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A long run of the same product, whether it is one brand of cookies, a single type of cooking oil, or one size of condiment jar, is a thing of the past. Today’s realities in retail are variation, choice, and short lifecycles. To accommodate these realities, packaging lines are becoming more flexible than ever before.

End-of-line case marking has had to become flexible as well in order to cost effectively identify secondary packaging by date, lot, quantity, barcode, and other information. **Print and Apply Labeling** prints a label and then automatically applies the label to the product. **Inkjet Technology** prints the information directly onto the shipping case thereby circumventing the need for a label. **Laser Coding** prints directly on a carton that has a laser receptive coating applied to it. There is no one optimum solution for every application. Knowing when and where **Print and Apply Labeling** vs **Inkjet Technology** vs **Laser Coding** will deliver lowest operating cost, fastest return on investment, and highest overall customer satisfaction.

**Print-and-apply label systems**

Today’s print-and-apply label systems are faster and less expensive in terms of price/performance than ever before. Some of these systems can print and apply one or more labels with unique identification information at rates of more than 100 cases per minute. Reliability is higher and downtime lower with today’s machines. These newer systems offer greater flexibility than in the past in terms of network communications with wired and wireless Ethernet. The speed of the processors has improved along with the speed of communication, which means more real time status information is available.
for the machine and line. Information for labels can be downloaded directly to the system from a production supervisor’s office. Newer systems offer improved methods of applying labels that ensure greater consistency in placement and permanence.

**Print and Apply Label Applicators** are typically selected over the other technologies when the clarity of the printing must be of the highest quality, for example, where a 2D (two-dimensional) barcode is required or when a high density GS1-128 bar code must be printed. The dark print on a white background offers the highest contrast and consequently the more reliable scan of 2D and high density barcodes. Many times, printer/applicators are selected because retailer customers charge back on barcode miss-reads and or fine vendors that do not meet a specific bar code quality. There are also some retailers that simply specify labels over other technologies.

Print and Apply Label Applicators do not require as precise of material handling as Inkjet and Laser Printers which can lower the initial capital costs when using this technology.

Print-and-apply label systems are typically lower in price than Inkjet Systems with a cost range on average from $13,000 to $35,000. Units with higher speeds, multiple applicators, and/or wash-down enclosures typically are at the higher end of the price range. Printer/applicators typically have a higher operating cost than Inkjet or Laser printers because of the cost of labels.
Inkjet Printers

Inkjet printers have come a long way since the technology’s widespread introduction in the 1990s. Today’s inkjet printers feature the latest Windows operating system, similar processing and communication speeds and options as printer/applicators, and, like print-and-apply label systems, a high degree of flexibility. Many inkjet systems now feature automatic cleaning for the print head, which reduces labor and extends the service life. Systems without automatic cleaning typically require repair or refurbishing on average of once every ten months. Self-maintaining and self-cleaning models run on average for more than three years before major service is required. Many of today’s better inkjet printers do not require a compressed air connection, a feature that helps to reduce cost and maintenance issues.

Inkjet Systems are capable of printing a four-inch high block of information and graphics, including barcodes, use by/sell by dates, lot numbers, product names, descriptions and product ingredients. Systems can be specified with multiple print heads for printing on multiple sides of the case. Like the Printer/Applicator, inkjet printers give packagers the ability to eliminate or reduce the number of pre-printed secondary cases, which cuts material, transportation, warehousing, and material handling costs.

For high-volume end-of-line operations where the typical barcode is 30 characters or less, today’s inkjet printer may be the most effective solution. If complex graphics are not required, then neither are labels, and no labels equals lower cost. For example, it may cost 2.5 cents to print and apply two 4 inch by 6 inch labels on a case. Printing directly on the case may cost 1.25
cents per case, a savings of 50 percent. The typical inkjet system costs
between $20,000 and $25,000. Adding print heads to the system for printing
on multiple sides of a case adds to the cost.

**Laser coders**

Laser marking requires a special coating be placed in specific areas on
the shipper. The laser burns lines and graphics into the coating to create a
visual contrast. This is similar to laser coders on primary packaging for date
and lot codes. Laser coding does not require consumables on the packaging
production line and therefore the production line does not need to be stopped
for replenishment. Additionally, there are less moving parts and downtime
associated with maintaining Laser Coding Systems. The downside will be a
higher equipment capital cost ($35,000 - $55,000) than inkjet printers or print
and apply label applicators. Additionally, fume extraction equipment must be
purchased to remove air particles created by laser coding onto corrugated.

Product handling will be very important for a laser coding system and
products will have to be transported on a smooth belt conveyor and be a
consistent distance away from the laser printer.

The laser receptive coating will need to be applied at the corrugated
converter and will cost roughly $.01 per 24 square inch patch thus the laser
coating is in between the cost for inkjet and labels on a raw consumable
basis.
**Working with the supplier**

Because there are in actuality no standard solutions for every application, it is important to work with a supplier that has a successful track record of implementing Print and Apply, Inkjet printers and Laser Coding systems. A supplier with expertise in all technologies will ensure the right system for the job at hand — they won’t be pushing one over the other because that is the only system they offer. Installation expertise equates to application experience.

The supplier should visit the plant in order to gain understanding of the overall environment, how the unit will be mounted, and potential enclosure requirements. The supplier of choice should perform a motion study and discuss future scenarios for the line in terms of production increases and the potential for changes in case size and graphic requirements such as 2D barcodes. With any and all of the technologies, special care must be taken during a site evaluation to ensure proper product handling is in place, enough space is available, production line speeds can be achieved and the customer bar code quality requirement can be met.

The supplier of choice will also be prepared after researching the line’s needs to provide a serviceability plan. For example, if the line absolutely must not go down, then an automatic problem detection system and a redundant system may have to be specified. If downtimes of five to ten minutes would be acceptable, then the most common modules and parts should be on hand. In any event, the supplier should have most parts available via next day air and support technicians on call 24 hours a day, seven days a week. The
supplier of choice should also provide reference accounts — customers with similar applications to the one being considered.

Knowing the strengths and costs of print-and-apply label, laser coding and inkjet systems as well as what to look for in a supplier will help to ensure the optimum solution over the lifecycle of the system.

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**About ID Technology**

ID Technology, a division of Pro Mach, designs, manufactures, and integrates custom identification systems and is recognized as a leading single-source provider for labeling, coding and marking equipment, expertise, service, and supplies. ID Technology is based in Forth Worth, Texas, and operates 15 regional offices across the United States. For more information or to locate one of the ID Technology nationwide sales and service centers, call 888.438.3242 or visit [www.idtechnology.com](http://www.idtechnology.com).