

CONSIDERING AN IN-HOUSE PRINTING STRATEGY FOR CORRUGATED SHIPPING CONTAINERS

Today's large character ink jet printers feature higher print quality, self-maintenance

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North American product manufacturers and contract packagers are always looking for ways to reduce cost and maximize time and space economy. One strategy that is receiving more interest is using large character ink jet printers with piezo technology to print logos, lot information and even ingredients lists on generic secondary packaging (i.e., corrugated containers).

The vast majority of manufacturers and packagers typically order pre-printed boxes, then use a large character printer to add a bar code before shipping. An in-house printing strategy can realize significant cost savings because it's easier to print all variable information on generic boxes, rather than maintaining appropriate amounts of pre-printed packaging and finding adequate space for it. This is especially true when there are multiple brands and product lines under one roof. Though the low cost of pre-printed corrugated boxes is enticing, whatever a company is saving may very well be spent on extra warehouse space to store it. Additionally, the growing trend toward more private-label brands, combined with improvements in piezo ink jet printing, has made the economics of an in-house printing strategy more favorable.

In the past, large character ink jet piezo printers were not able to print with high enough resolution to supplant the high-quality marks of pre-printed boxes. But today's variable-data printers are capable of up to 600 dpi – compared with 64 dpi a decade ago – and some feature the ability to automatically purge ink through the printhead before

every print, ridding it of dust and other contaminants and allowing for consistent print quality. This also makes an in-house large character printing strategy a cost-effective solution.

Finding space

A recent survey conducted by Videojet Technologies Inc. found that 72 percent of North American companies have pre-printed information on their secondary packaging. One reason for choosing pre-printed corrugated boxes is the economics of the situation – manufacturers of those containers traditionally have been flexible on both pricing and delivery, to maintain volume and, by extension, their customer base.

But when touring an average product manufacturing or contract packaging facility today, it's usually common to find a floor-to-ceiling rack, or even a separate warehouse, full of pre-printed boxes, all of which have to be organized for fast and seamless acquisition when needed. Managing such a large amount of material can be challenging based on the number of brands, products and SKUs a facility handles – basically, the more there are, the more space is necessary, and the more challenging the logistics of ordering and working-capital consequences of stocking become.

For example, if a flour manufacturer is making only three SKUs of product each day – perhaps 5- and 10-pound bags and larger bags for food service – stocking three types of pre-printed corrugated boxes for those products isn't difficult. But a contract packager may be responsible for multiple manufacturers, each with multiple brands and dozens of SKUs under each brand. Suddenly, the facility has to account for 30 types of corrugated boxes. Ordering and stocking so many types of packaging can become complex, more time-consuming and space-intensive, as adequate amounts of each different package must be available for yet-to-be-scheduled production.

It's important to note that the consolidation of multiple companies or divisions into single manufacturing facilities creates issues similar to the aforementioned contract packaging example. With consolidation comes complicated secondary packaging issues – more SKUs under one roof, all of which have to be shipped. Renting warehouse space for pre-printed boxes isn't cost-effective in the long run.

Improved resolution

Offset printing offers very high resolution, which is the technology that manufacturers of pre-printed corrugated containers use. There is perceived value in such high quality, particularly if the boxes will be displayed at retail locations such as warehouse stores, where they will be seen and handled by end-user customers, thus making what is printed on the box in effect a marketing tool. However, the vast majority of boxes are never seen by end users, which means that very high resolution is probably not critical in most cases.

Conversely, the resolution of large character ink jet printers has improved greatly over the last decade. In the late 1990s, the best resolution these printers could achieve was about 64 dpi. That increased to roughly 96 to 150 dpi by 2002. Today, such printers are capable of 180 to 600 dpi with a variety of technologies. That means large character printers are now being effectively employed by product manufacturers and contract packagers to do the same work as offset printers.

The increase in resolution alone has created some compelling reasons to shift to an in-house printing model:

- **Space savings.** For a product manufacturer adding a new product line or a contract packager taking on a new customer, a key consideration is not where all the new pre-printed corrugated boxes will be stored. Instead, the focus is on

preparing the appropriate variable data, which is templated on a PC, then stored in the printer and called up as necessary. Because the variable data for multiple brands and SKUs is available virtually, the manufacturer or packager simply needs to order and store generic boxes.

- **Improved time to market.** When a manufacturer adds a product line or makes a major change to an existing line, creating pre-printed corrugated boxes with new designs typically takes weeks. But with an in-house large character printer, design changes can be completed much faster, which can be especially beneficial for short-run projects. Plus, with variable data stored virtually for corrugated boxes, upgrades, alterations and special requests are seamless. For example, if a beer manufacturer desires to run a special promotion during a holiday or a big sporting event, the company can create a design in house and print boxes based on demand, which is more cost-effective than paying the corrugated container manufacturer to complete those tasks.
- **Less waste.** Pre-printed boxes with “old” variable data, due to a defunct product line, a major brand change or a promotion that ended, typically become waste. With an in-house printer, adjustments to the variable data are made virtually and are printed on demand, which eliminates waste.
- **Easier importation of data.** It’s also important to note that the ability to import logos and other images to printers has improved. Five years ago, a purpose-built industrial controller was necessary for large character printers, and importing data to the printer was extremely challenging. Today, an operator can simply connect a flash drive to the printer’s USB port and download images directly.

Maintaining high resolution

Though the resolution of modern large character printers has radically improved in recent years, that improvement only matters if high-resolution codes can be replicated consistently. For example, if a printer is printing at 150 dpi but the printhead is fouled with corrugate dust, it causes lines to appear through the print. This creates an unprofessional look, which may cast doubt on the products contained within the box and can ultimately hurt the brand.

In the past, an operator typically needed to purge the printhead of a piezo printer to rid it of contaminants to maintain high-quality printing. This periodic maintenance caused downtime, and the purging process also was messy, typically leaving costly, wasteful ink under the printer.

But the advent of automated self-maintenance systems on some printers has eliminated those concerns. Such printers automatically purge the printhead before each print, ridding the printhead of any contaminants, like dust and debris, that interfere with consistent print quality. Some more advanced printers also have the ability to filter the purged ink back into the system for reuse, which means less ink is used over time and none ends up on the floor as waste.

Consistently crisp, clear coding is particularly important for bulk products sold to food service. For example, many people are allergic to peanuts, and if a food product that includes peanuts is being transported in a box, it's critical that the ingredients list on it be clear and crisp, so personnel at the final destination can note that the product contains peanuts. This can help prevent an inadvertent allergic reaction.

Choosing an in-house printing strategy

Today's business climate is fraught with constant change – be it through consolidation of companies or divisions, introduction of new products and obsolescence of others. To stay competitive, cost savings and waste reduction are of prime importance. There are countless ways to meet these objectives, but considering an in-house large character printing strategy can be a major contributor, by providing consistent high quality and eliminating concerns about where to store pre-printed boxes for that new product line.

But deciding whether such an in-house printing strategy is right for a company requires assessment by printer specialists who have the experience to review all factors, including those that aren't readily apparent. They will then be able to recommend the best solution that will fit both current and future needs.

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