Guide to Digital and Flexographic Printing

A look at the print technologies that bring your labels to life
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Introduction

Label printing is a dynamic industry that links product manufactures with consumers through communication with words, images, and ideas to consumers using primary product labels. Every product on store shelves relies on label printers to help convey branding messages to the target customer.

The diverse range of products in a global market offer the consumer so many choices, making it increasingly difficult to differentiate your brand from the competition. Using the proper label is essential in making your products stand out.

Since consumers have more choices about what they buy, the label is often the first indicator of quality and can differentiate the product from other similar offerings. Marketing research indicates that consumers develop their first impressions of a product’s quality and value from the label’s look and feel. That is why it’s so important to partner with the right printer who can match your branding requirements with the appropriate printing technology.

Printing technology has evolved in recent years, offering a wider range of options and capabilities. The two types of label printing that have benefited the most from these advancements are flexographic and digital printing. So how do you know which is best for your needs? Begin by understanding the factors of each technology so you can choose a labeling solution that enhances your product to drive consumer purchasing.

Factors That Influence Purchasing

The way the color, font, and logo appear on a product helps to shape the perception of your product or brand, and they play an important role in the design of labels and the psychology behind the consumer’s purchasing decisions.

Important factors of label and package design decisions include:

- **Color**, which can create a mood for the product.
- Background imagery that attracts attention and encourages further investigation of the product.
- High quality, innovative materials that attract the consumer and enhance the perception of a product’s value.
- Fonts that complement the product’s appearance and connect with the target consumer.
- Composition that established brand identity and name recognition, as well as delivering information important to the consumer.
- Innovative or custom packaging materials and shapes that add value to the product, such as making the product easier to use, carry, or store.

An infographic illustrating the factors that influence purchasing behavior.
Digital Printing

Digital printing refers to the transfer of a digital art file directly onto a substrate without using a fixed image plate or engraved print cylinder.

Digital printing technology allows for fast and cost-effective printing on a wide variety of substrates. Additionally, since there are no intermediary plates or cylinders required, up front pre-press costs tend to be lower than flexographic printing.

Digital printing technology gives product manufacturers more flexibility to manage their label requirements. Production runs are still cost effective at lower order quantities, and copy changes don’t usually apply to digital labels. Therefore, digital printing is the ideal way to print short run orders while mixing many different SKU’s. This flexibility is particularly beneficial to manufacturers who find themselves updating their label art frequently and those who have short demand planning windows or an inability to forecast in advance.

Given the increasing innovations in packaging materials and shapes, like bags, envelopes, pouches, foil and pliable paper materials, digital printing gives package developers a more diverse range of printing options for so many applications.

Features of Digital Printing

Digital printing fits the need for short to medium length runs. Since there are no plates, rolls, or inks to set up or change, production startups and changeovers are quick and efficient.

Digital printing is perfect for short-term or trial applications. A launch of a new product, an extension to an existing product line, or a special holiday or seasonal product is the perfect type of application for this technology.

Digital printing offers vibrant colors. Digital printing offers extended gambit color options, consistent color quality, and ultra-high resolution output. These attributes give marketers and graphic designers the ability to utilize photographic quality design elements that pop while targeting consumers.

Digital printing can be variable. The backbone of digital technology is the ability to add variable text, numbers, barcodes, and images into label designs, making every label printed within a single production run unique. Variable design elements are most often used for serialization, anti-counterfeiting, and consumer personalization. The possibilities are limitless.

Digital printing offers quick speed to market. Traditional print technologies, such as flexographic, gravure, and offset requires longer preparation and setup times. Digital printing can get new label and package designs on store shelves much quicker, essential for seasonal or promotional items.
Some Drawbacks to Consider

Digital printing is not right for every application, so it is important to consider the following.

Digital printing uses four / six color process printing to build images. In some cases, matching an exact Pantone color can be challenging.

Adding decorative cold foils or embossing generally involves secondary production steps in addition to the printing process, sometimes resulting in higher costs.

Some digital presses use heat to accelerate the curing process of their inks. Often this creates a conflict with direct thermal substrates and making such media incompatible with certain digital presses.
Flexographic Printing

Flexographic printing uses analog printing plates made of a specialty polymer to transfer ink. The plates are mounted inline on a “flexo” press that will generally be equipped with 4-10 print stations. Each plate is mounted in its own print station and is responsible for printing a single color. Composite images are built as the label substrate material that is being printed on progresses from one print station to the next.

Prior to running a flexographic label job, the printer must make (or outsource) the printing plates. This involves a specialty process whereby a graphic art file is converted into vector images and then each color within the file is separated onto a separate layer. Each layer will eventually be made into a separate printing plate. Once a plate is made, it can be used numerous times, but it will eventually wear and need to be replaced.

Long run production efficiency and substrate versatility are the hallmarks of flexographic printing. An experienced printer using flexo technology can generate labels that are vibrant, consistent and properly Pantone color-matched.

Quality and versatility are the hallmarks for flexo printing. Labels printed with this technology are vibrant and sharp and remain vibrant.
Features of Flexographic Printing

Flexographic printing can be done on any substrate. Flexo is used on a wide range of substrate materials, including direct thermal media, yielding superior quality graphics and ANSI A grade barcodes.

Flexographic printing is not heat sensitive. Heat sensitivity of the materials to be printed on is not an issue with flexographic technology.

Labels are more durable. Labels that need a long shelf life, or are exposed to harsh environments or weather must be printed with a flexographic printer. A UV varnish or film over laminate can be added to protect the print.

Production speed is fast. Flexographic presses run at several hundred feet per minute and use fast-drying inks so that colors can be added one after another without an extended drying time.

Cold foil, embossing, and other embellishments are generally integrated. Production is continuous because labels do not need to be moved from the press to secondary operations, saving time.

Color matching is precise. Pantone color matching is more easily achieved with flexographic inks and metering tools.

Low cost for large runs, high-speed, and high-volume make this technology affordable for large runs.

Some Drawbacks to Consider

Although flexo offers several advantages, there are some drawbacks to this print technology:

The cost of printing plates can be high, especially when there are many SKU’s within a product family. Each color printed on the label needs its own plate, making the cost for short runs high.

Each SKU requires a separate job setup to change plates, inks, and establish registration. This process takes time and can be costly.

Registration marks are used to overlap colors and build composite images. Maintaining perfect registration over the course of a production run can be challenging when considering press speeds, material tolerances, and other industry variables.

Is Flexo Printing Right for You?

- High-volume runs
- Mass marketed product
- Label design unlikely to change

In-line Flexo Printing on Medical Device Packaging
Label Printing Solutions by ID Technology

Whatever the scope of your label project, ID Technology has the printing resources to bring it to fruition on time and in budget.

HP Indigo Digital

Offering the flexibility and quality of digital printing, combined with high volume output, ID Technology's HP Indigo WS6600 digital press ensures that your projects move from concept to fulfillment in a quick and cost-effective way.

Capable of combining six color process with spot color printing, the HP Indigo system is the only digital press that can match the quality of gravure. This distinct advantage allows ID Technology to comfortably handle even the most complex printing jobs.

The HP Indigo uses ElectrolInk, which uses charged particles to attract the ink to the specified locations. ElectrolInk is safe to use on all products and prints better on a far larger variety of surfaces than inkjet printers.

Unlike flexo printing, the HP Indigo uses a light-sensitive plate, called the HP Indigo Photo Imaging Plate. The ElectrolInk is transferred to the plate electronically. This plate can change the pattern for the image as often as needed and does not require the creation of plates in advance. For example, it can change a name or address for each individual label. The Photo Imaging Plate then transfers the ink to a heated blanket that will apply the ink evenly onto the surface.

Stepping from HD to Full HD Flexo technology provides all the HD advantages, along with enhanced quality in solids and whites; spot colors can be printed with higher vignette quality. This is particularly noticeable when reproducing skin-tones for labels destined for beauty products.

Our process starts in the Esko CDI Spark system where our customer's artwork files are imaged onto photo-polymer material. From there, the flexo printing plates are produced in our LAVA Thermal Plate Processing System, which can make press ready plates in less than one hour.

The HP Indigo uses only one surface cylinder, because the ink is transferred from a blanket, making it more space- and time-efficient than traditional flexo printing. Our 100% digital workflow allows for fast, efficient production runs - perfect for your time sensitive labeling jobs.

Full HD Digital Flexo Platemaking

HD Flexo delivers exceptional printing throughout the entire tonal range; dazzling highlights, stable midtones, smooth gradients and higher solid ink densities.

With HD Flexo, the screen rulings in flexo printing can be increased, while at the same time reducing the size of the smallest printable dot. This is achieved using a special screening technology and a higher imaging resolution, resulting in sharper images, smoother tints and a greater color gamut.

The HP Indigo Digital Press
As part of this process, we can also produce digitally calibrated proofs of the print job in a fraction of the time taken in the past. This Full HD Flexo installation represents a major investment for ID Technology and it is part of our continuing commitment to high quality flexographic printing.

Hybrid Printing

Hybrid printing combines the advantages of digital presses with the advantages of flexo presses to create the best possible printing solution. It attempts to minimize the challenges seen in both flexo and digital printing. Hybrid printing includes the ability to match specific Pantone colors and add variable data. It keeps a happy medium between the long run flexo economies of scale and the short run efficiencies of digital technology.

If you need to have variable data printed on your flexo labels – sequential numbering, linear or 2D barcodes, text, images or addresses – our wide array digital UV inkjet system is mounted on a 10 color flexographic press. This hybrid capability is the perfect solution for ticketing, promotions, license plate barcodes and many other data that it can be used on driven applications.

Summary

Given the complexities and variety of printing technologies, you’ll need to work with a label manufacturer who can help you select the best options for your needs. We have the expertise and knowledge to help you make the right choice between digital and flexo printing options.

With 6 label converting facilities strategically located across North America, ID Technology offers shorter lead times, lower freight costs and custom stocking programs. No matter what your labeling challenges are, ID Technology, can help you develop a solution tailored to your needs.
Nationwide Service & Support

We pride ourselves in providing responsive nationwide customer service and support from any of our 17 regional sales, service and stocking facilities.

ID Technology technicians are PMMI Certified Trainers to ensure the highest standards of quality training are being met and unparalleled value is being given to the customer.

Our field service personnel are factory trained to service and support our full range of labeling, coding and marking equipment.

In addition to the field service team, ID Technology employs factory trained bench service technicians to accommodate timely depot service.

ID Technology boasts six label converting plants across the US and Canada that produce top quality labels and tags with local support.

Complimentary Limited Lifetime Equipment Warranty

For customers using ID Technology labels with our labeling systems, we provide a lifetime limited equipment warranty free of charge. Just ask us for details!