LETTERPRESS VERSUS FLEXO PRINTING: HOW TO CHOOSE THE BEST OPTION FOR YOUR BUSINESS
More and more, labels become a way for brands to achieve a market specific approach late in the supply chain. This means shorter runs, and the ability for label converters to turn around a job quickly, given late-stage new designs, personalization of labels and/or label functionality requirements. These are also the forces driving digital press adoption.

Label companies see a shift from basic labels to high-end applications. In the FINAT Radar of 2018, FINAT states: ‘The continued growth in demand for packaged consumer goods, especially in growing economies, raises the demand for materials with which end-users try to distinguish their brands on the shelf.’

High volume sectors such as food, health and beauty products also drive the demand for labels with high quality (transparent) product decoration in high speed. This trend encourages manufacturers of self-adhesive labels to also start producing high-end packaging such as pouches, sleeves and other flexible packaging. These trends challenge label printing companies to achieve and maintain a lucrative cost price per square meter in their overall label and packaging print production.

Common challenges are:
- Shorter print runs
- Processing different types of labels
- More diversified jobs

A changing customer behavior and a rapidly changing industry are driving these challenges. This also is the reason digital print is gaining in popularity. With the ability to personalize, make short runs and diversify, digital printing technology is a strong competitor for traditional letterpress. Letterpress technology, on the other hand, has been around forever.

A BRIEF HISTORY ABOUT LETTERPRESS PRINTING

Letterpress printing is a relief printing process that initially utilized raised metal type and engravings to imprint words and designs on a page. It originated in the 1400s and was the primary form of printing for over 500 years.

In the late 1980s, letterpress printing was popular among printers aiming to achieve the tactile, handmade quality that offset printing did not provide. It wasn’t until the 1990s that it became popular among individuals for their personal printing needs.
Letterpress printing is also called relief printing, where images are printed with a relief image plate. The print plates are inked over an ink roller set, controlled via ink-key settings. The image is transferred directly from the plate to the substrate using pressure.

In letterpress, graphics are built using dots - the smaller the dots, the lighter the color; the larger and closer the dots are, the darker the color.

A skilled operator will vary the pressure. Carefully balanced pressure is very important for the quality of the picture, as too much pressure creates a halo effect and too little pressure creates gaps in the graphic because of missing dots.

This is also how you can recognize a printed image produced by a letterpress:

1. Indentation on the back of the substrate.
2. The halo effect when too much pressure was applied.
LETTERPRESS IN THE LABEL PRINTING MARKET TODAY

The use of letterpress in the commercial print market is now small and shows a declining market usage, however letterpress is still of importance in the self-adhesive label sector. The label industry trend towards shorter runs has created a market for intermittent feed letterpress technology on shorter run jobs which require complex in-line multi-process printing, embellishing and conversion.

Typical applications have included short runs of high added value wine, spirit and cosmetic labels. A lower capital investment makes it a popular process in the developing countries and while the quality of letterpress printing has never been in question, over the last two decades it has been displaced by other printing techniques. Preparation time for letterpress can be quite lengthy, and its use is being overtaken with faster and more efficient printing methods such as offset lithographic and flexographic processes.

In the more mature European labels markets, surveys show UV flexography has overtaken letterpress as the leading narrow web process in the global narrow web market. But it would be wrong to think that this is an obsolete technology, as there is still a large base of both rotary and intermittent fed letterpress machines running label work on a daily basis.

The development of semi-rotary, servo-driven systems makes the process very competitive on short runs that require complex embellishing and converting, particularly when matched with flatbed die-cutting. Converters are often reluctant to make the shift from letterpress to flexography because of the need to change technologies and the more expensive ink and plate systems associated with ether printing methods.
ADVANTAGES OF LETTERPRESS

Cost-efficiency of the letterpress printing process is a key factor in considering which printing press is more suitable for your business. As mentioned, letterpress has some advantages compared to flexo such as low tooling costs allowing it to combine processes such as UV, stamping/embossing, hot and cold foil, reverse printing etc. Although digital is rapidly growing, many printers still prefer letterpress because of its very fast change over, print quality comparable with digital and because it is ideal for small jobs.

Also, letterpress continues to develop in pre-press plate making, ink trays, sleeves etc., making it a process that still has a large role to play in the label printing industry. Yet today, letterpress is in the throes of a full-blown revival for printing shorter runs, processing different types of labels and more diversified or personalized jobs. Many print houses still own a letterpress and with new methods of plate making and the characteristics of digital, the letterpress is gaining in popularity. This revival brings new developments, as Typography specialist Erik Spiekermann explains in his Spiekerblog. He developed a new printing process, which he calls ‘post-digital printing’, which uses a combination of new laser plate cutting technology and letterpress. But letterpress has its challenges, too.

COMMON CHALLENGES FOR LETTERPRESS PRINTERS

- Letterpress printing is a real skill. Therefore the result is depending on the operator.
- Letterpress printing costs considerably more than flexo printing.
- Letterpress works best for shorter runs. Large runs can be done, but are not very economical.
- With letterpress, multi-color jobs require multiple runs, which greatly increases time and effort. 1-color and 2-color jobs are best for letterpress printing.
- Letterpress works best for typography, illustrations, line art, etc. Halftoning/screening images is possible, but would not provide the results that flexo can provide.
- Letterpress printing comes with a lot of waste, as the ink rollers wear out quickly.

As highlighted earlier, high volume sectors such as food, health and beauty drive the demand for high volumes of labels with high quality (transparent) product decoration in high speed. For this, the letterpress is economically unsuited.
THE FLEXO PRINTING PROCESS

Based on letterpress-printing principles, flexographic presses are composed of the same basic elements as letterpress cylinder-to-cylinder presses; that is, the cylinder covered with a rubber packing and an inking system. Flexographic presses are usually roll-fed rotaries that can reach large dimensions and high printing speeds. They consist of a group of several identical units that print an equal number of colors. Flexography provides economical printing, either of solid lines or with quite a coarse screen, on unfinished surfaces, paper, cardboard, plastic film etc.

FLEXOGRAPHIC PRINTING IN LABEL MANUFACTURING

For many years, flexographic printing was considered an inferior printing process and serviced the lower end of the label market. Labels requiring higher quality were generally printed using the offset litho or letterpress processes.

In the last three decades, considerable progress has been made in the manufacturing of highly engineered flexo presses and developments in printing plates, anilox rollers and printing inks, now making flexo the leading process for the manufacture of self-adhesive labels.

The introduction of UV ink curing has also made a big impact on the flexo process. In particular, the switch from aqueous and solvent based inks to UV cured ink has improved print quality and made it easier to print filmic and metallic substrates, and has reduced the usage of solvents.

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**TYPES OF FLEXO LABEL PRESSES**

There are three configurations of flexo presses used in the label industry: the stack press; the common impression press; and the in-line press. All these presses can be equipped with solvent, water-based and UV drying systems depending on the press specification. The press configuration most widely used for label manufacture is the in-line press.

**FLEXO PROCESS**

Flexography is a relief or raised image printing process using the same principle as letterpress. A flexible rubber or photopolymer plate is mounted onto the plate cylinder using a filmic double-sided adhesive tape. The plate image is inked with a liquid ink which is transferred from the anilox roller, direct to the surface of the image area and then printed onto the substrate, using a very light controlled pressure (impression).

The basic flexo printing unit comprises of an ink tray or duct, the ink applicator roller, the anilox roller, the plate cylinder and the impression roller.

The image below illustrates the layout of a standard flexo unit. The applicator roller runs in the liquid ink held in the ink tray. The ink can be manually poured into the ink tray or alternatively pumped into the tray using a circulatory system to ensure that the ink viscosity is maintained. The applicator roller applies ink to the anilox roller and the pressure between these two rollers can be adjusted to increase or decrease the ink film to the printing plate.

Flexo printing has evolved to be one of the most popular printing processes in the label industry, and can now provide low-cost, high-quality printing with a simple process and no need for additional work and cost. That is why more and more printers are switching to this technique.

However, when switching to a new printing technique, you need to consider a number of factors, such as tooling, operator training, and the overall cost price per label.

To avoid losing your existing customers, it’s smart to also take into account your current order package.
**ADVANTAGES OF FLEXO PRINTING**

- Flexo presses have short set-up times, minimum waste, and guarantee high-quality output.
- The need for additional work and cost is eliminated with flexo printing. The press automates additional tasks in-line that are most commonly needed for labels, such as die-cutting and lamination. Letterpress printing requires performing these processes on separate machines after completing the printing, requiring additional time and manpower.
- The principle of flexo printing is simpler. It’s a relatively straightforward and more controlled printing process that requires less-trained operators to achieve high-quality output.
- Flexo printing gives less waste than letterpress.

**DISADVANTAGES OF FLEXO PRINTING**

- The price of flexo printing plates is relatively high compared to other types of plates, but they last for millions of impressions if they are properly cared for.
- Version changes are time-consuming to make compared to digital printing.
HOW TO SWITCH FROM LETTERPRESS TO FLEXO PRINTING

THERE ARE THREE WAYS TO MAKE THE SWITCH FROM LETTERPRESS TO FLEXO PRINTING:

1. Invest in a flexo machine to use next to your letterpress. This requires an additional investment, but gives you the opportunity to tap into a whole new market, and make use of the high volume, and high speed flexo offers.

2. Replace your letterpress with a flexo press: This requires a short-term investment and you need to train your operators on a new print technique. This transition will be challenging, but will result in lower costs in the long run.

3. Embrace hybrid printing as your main printing technology. If flexo printing is the future, hybrid printing is the ‘future’s-future’. This innovation merges the capabilities of flexo and digital printing, integrating the reliability and efficiency of flexographic printing with the creative possibilities of digital printing. The payoff? Access to the high print quality and low cost of flexo printing, and the flexibility and rapid change-over times of letterpress via the digital printing unit.

IS FLEXO PRINTING A BETTER OPTION?

Flexo printing has become very popular because of its ability to print on almost any flexible substrate material. This includes paper, cellophane, metallic films and plastics – thus making it ideal for printing labels, pouches and packaging.

Flexo printing presses are also very efficient and cost effective. A modern press can print at a rate of up to 400m per minute – a phenomenal speed compared to letterpress. It also has the advantage of using a variety of ink types such as water based, solvent & UV inks which makes it ideal for almost every application including those having a high level of health & safety regulations such as food packaging.

To make the best decision for your business, consider the above comparison of the two printing techniques, and how to switch printing techniques in three easy steps.
MORE INFORMATION?

If you would like to know more about letterpress – or flexo printing, or to further discuss options for your own business, please contact us.

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ABOUT MPS
MPS, a Netherlands-based solution-oriented flexo and offset narrow web press manufacturer, with years of flexographic printing expertise, recognizes the challenges facing label printers. Through the use of knowhow and capabilities, MPS continuously helps customers enhance their printing processes. With more and more digital and hybrid solutions being introduced to the market, MPS tackles the question of whether hybrid solutions are hype or the future.

To gain more insight into digital printing, MPS partnered with digital expert Domino to join expertise of the two companies and together examine in which scenarios a hybrid solution is the viable solution.

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