

# User guide: Printing methods

Printing has come a long way since Gutenberg's invention in 1440, and there are still many different techniques, but in today's commercial printing there are just two main ones: **digital** and **litho** printing.

## Digital Printing

Digital printing is still quite a new technique in terms of the print industry having only really started in 1991.

Digital printing has a very quick set-up time. The design is uploaded onto a computer and after pressing "Print" and the printing begins - just like with the office printer. Quick and easy. Once the print has begun, commercial digital printing machines can print off around 4,800 sheets per hour.

There are two common digital printer types: **laser** and **inkjet**:

- **Laser printers** use laser beams, electrical particles, heat, and a plastic particle called toner to create the text and image, whereas
- **Inkjet printers** spray ink from cartridges directly onto the paper.

## Litho Printing

Compared to digital printing, lithographic (or "*litho*" for short) print is long established. The term derives from Greek – "*lithos*" meaning stone and "*graphein*" meaning to write. It was invented in 1796 by German author Alois Senefelder as a cheap way to publish theatrical works.

Modern lithographic printing is a method in which inks are transferred onto aluminium plates to make an impression.

Litho printing utilises the fact that all printed colour images are made up of primary colours: CYAN (blue) MAGENTA (red) YELLOW and the Key colour Black (CMYK).

The design (text and artwork) is set-up on a computer and all the colours on the artwork are separated into CMYK and sent to the plate making facility.

The artwork, now split into 4 individual colours, are exposed just like a photograph onto photosensitive aluminium sheets, known as "*plates*".

As each colour is reserved for one Plate, there are 4 plates that are inserted into the press by clipping them onto separate rollers.

Each plate is coated with its corresponding colour by a smaller ink roller. The coloured image is rolled or “*offset*” onto a cylinder (blanket), which makes an impression on paper being fed through the press.

As the paper moves through each set of rollers, the colours mix to create a full colour image on the page.

So unlike digital printers, that can be quite compact (as most of us will have digital printers even at home), litho printing machines are quite large.

Because the aluminium plates are custom-made, each new job demands new plates. Therefore, the preparation required is totally unique to that specific project with plates created in separations for the colours being used. Any changes to the original text and design will impact on timescale and cost, as new plates may have to be made.



*Litho printer showing CYAN rollers*

Overall, when it comes to litho printing, the setup takes a lot longer as the design has to be made on printing plates; however, when this process has been done, litho printing produces more prints - at 18,000 per hour.

The finish of the print is also very different; when it comes to litho printing the ink used soaks into the paper, whereas with digital printing the ink (or toner) sits on the surface of the paper. This means that the same image could look different if printed by litho and digital printing, with lithographic printing quality being sharper and more consistent.

However, printing technology has evolved massively over recent years and today the lines between what can be achieved with digital printing and traditional offset litho printing have blurred.

At Warwick Print, we work primarily with modern **digital printing presses**, as they offer several **key advantages**:

- **quicker delivery:** digital printing offers a quicker response time due to its minimal press setup. It simplifies the printing process, plates are redundant, there is no press make-ready needed, no plate mounting, no registration adjustments and no ink keys. There are less steps and people involved in the printing process, and as result the final product can be delivered quicker. This means that the printing process can begin at the time of order – great for when you need your digital print in a hurry!
- **lower cost:** digital printing does not incur any of the additional costs required to create specific printing plates.
- **small volume production:** without the need to re-create plates it is easier to produce small print runs

- **wider choice of media:** the digital flat bed press can also print on to materials up to 50mm thick which makes it versatile for a wide range of substrates where litho presses would struggle.
- **changes are easier to facilitate:** individual graphic and text can be customised on a print-by-print basis. This is particularly of use for business owners who may want to tailor and personalise their direct mail campaigns based on their target audience.
- **customization:** digital printing provides the best solution to customize marketing materials, direct mail pieces and letters, business cards, and more.
- **archiving can be paperless:** when wanting to store old print jobs, it's simply a matter of finding room on the Cloud. No longer are file cabinets and overflowing storage closets required!
- **environmentally friendly:** with the plating process bypassed, as well as the other processes, equipment and materials in the pre-press setup, much energy is conserved that would otherwise be spent, reducing the carbon footprint. In addition, digital printing reduces ink wastes because it ejects ink/toner only to the parts to be printed. It also has no need to clean plates after printing.

However, we can arrange also bespoke litho printing.