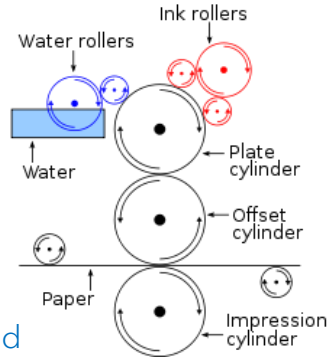
Printing

Offset lithology:

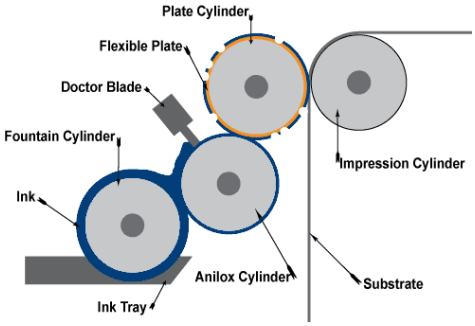


1. Digital files are broken down by colour separation
2. The image is etched onto an aluminium plate for each colour, through a laser.
3. Each image plate is then loaded onto a plate cylinder.
4. The plate cylinder will dampen the non-image area of each file with water.
5. A vegetable oil-based paint solution will then be added successively to the plate to imprint the colour.
6. The plate cylinder will transfer the colour to another cylinder which is equipped with a rubber blanket that will print it directly onto the paper.

Advantages	*Disadvantages*
• High image quality • Suited to higher volume print runs of 1000 or more • Quick/easy production of printing plates • Printing plates last a long time	• Expensive set-up • High running costs for small quantities

Uses: Books, business forms, magazines, posters

Flexography:



1. The plates are normally made of either plastic, a polymer or rubber.
2. The plates have a raised surface image and are fixed or mounted onto Printing Cylinders.
3. Ink is applied through the Fountain cylinder & Anilox cylinder
4. Applied ink can be evened out and cleaned using a doctor blade
5. Each colour uses a different printing plate.

Advantages	*Disadvantages*
• High print speed • Ideally suited for long runs • Prints on a wide variety of substrate materials • Low cost of equipment and consumables	• Printing plates are expensive • Time consuming to change the print content • Waste material can be high

• Low maintenance	

Uses: Newspapers, comics, cartons, carrier bag

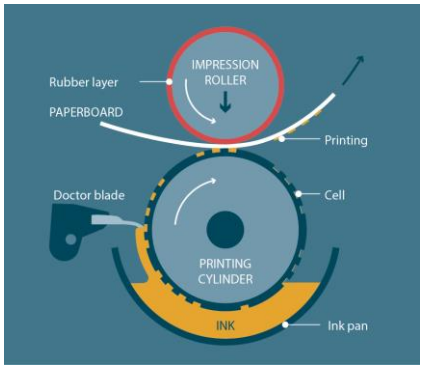
Screen-printing:

1. A mesh screen stencil is created
2. To create multi-coloured products, the printer must make multiple stencils for each colour
3. The screen is then placed on the printing press.
4. The item or garment being printed is laid down flat onto the printing board, underneath the screen.
5. Ink is added to the top end of the screen, and a squeegee is used to pull the ink along the full length of the screen
6. The printed product then passes through a dryer, which 'cures' the ink and creates a smooth, colourfast finish.

Advantages	*Disadvantages*
• Low set up cost • Print onto range of different surfaces • Screens are rapidly made using emulsion so efficient for small production runs • Screens are reusable to can be used for later batch runs	• Slow process • High cost per product • A different screen is required for each colour • Colours can become inconsistent after many runs which leads to low quality print

Uses: Posters, display boards, textile T-shirts

Gravure printing:



1. The Printing cylinder rotates in the ink pan where the engraved cells fill with ink.
2. As the cylinder rotates excess ink is removed by the doctor blade.
3. The cylinder is brought into contact with the substrate, which is pressed against it by the rubber covered impression roller.
4. This results in the direct transfer of ink from the cells in the printing cylinder to the surface of the substrate.
5. As the printing roller rotates back into the ink pan, the printed area of the substrate proceeds through a dryer and onto the next printing unit.

Advantages	*Disadvantages*
• Quick print times • Gravure cylinders are extremely durable (long print runs) • Consistent quality finish	• Only viable for long runs due to cost of engraving cylinders • Expensive set up cost • Longer lead times than offset lithography

Uses: Wallpaper, gift wrapping