

Relief Printing

Letterpress
&
Flexography

Relief Printing

- Image Carrier - printing from a raised surface

Prints directly from type

Type raised above non-printing surface



Early Efforts

- Ninth Century
 - China - hand carved wood blocks, clay
 - Korea - experimented with cast metal type
- Gutenberg - 1458
 - Cast movable type

Gutenberg - 1458

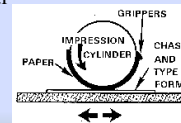
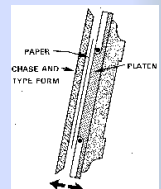
- Cast movable type
- Method of locking type together
- Press - wine press
- Paper
- Ink
- The Bible

Sources for Relief Type

- Wood type - large letters
- Hand-set type or foundry type
- Line cast
 - Linotype - 1898
 - Keyboard line, matrices dropped, line cast
- Engravings
- Photopolymer

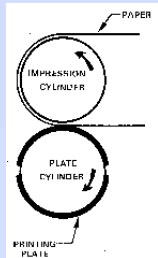
Types of Presses

- Platten - clamshell
- Cylinder
 - Horizontal
 - Vertical



Rotary

- Most common with Photopolymer plates



Letterpress

- About 6% of the printing market
 - Continued decline
- Products
 - Packaging
 - Books
 - Numbering

Special Finishing Applications

- Perforating
- Creasing
- Embossing
- Die cutting
- Foil Stamping
- Numbering

Flexography

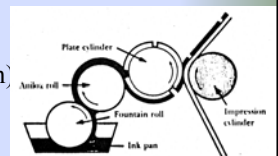
- About 18% of the market and growing
- Products
 - Flexible packaging
 - Newspapers
 - Labels
- Early 1900's

Flexo Plates

- Rubber
 - Molded
 - Type to phenolic thermosetting board
 - Board to rubber plate
- Photopolymer - exposed from film
 - Liquid
 - Sheet

Flexo Presses

- Simple system
- Ink - very viscous (thin)
- The press
 - Ink fountain roll
 - Anilox roll - engraved to carry ink
 - Plate cylinder
 - Impression cylinder



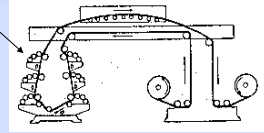
Flexo Presses

- In-line
 - One printing unit behind another
 - Die-cutting and other operations



Flexo Presses

- Stack press
 - Printing units are stacked on top of one another



Flexo Presses

- Common Impression Cylinder Press
 - High quality register

