TRANSILWRAP COMPANY, INC.

Printing Methods Outline & General Overview

From Transilwrap Company, Inc.

In today's print world, there are a variety of printing systems and processes. The four most widely used are lithography (planography), letterpress, gravure and flexography. Of particular interest to Transilwrap and its customers is flexo, which we'll cover here (along with a brief outline of letterpress and gravure print processes,) and litho, which is outlined in a separate overview, and can be found in this "Technical Help" section of our web site.

Flexography — is a specialized process whereby a unique rotary press (letterpress) prints flexible substrates in web form. One of the fastest growing areas in the industry, this process was initially used primarily by packaging firms; today, flexo is used to print books, newspapers, paperboard, and many other materials.

Flexographic printing provides multi-color images at a reasonable cost, and allows overcoating for enhanced graphics, such as high gloss or special effects. In fact, flexo presses that can print ten or more colors have many advantages over traditional 4, 6, and 8 color presses.

Flexographic printing is the #1 process for packaging materials today. It's also used for printing beverage labels, paper bags, envelopes and, more and more, newspapers.

There are three types of flexo presses:

1. ***Stack*** – uses two or more color units arranged vertically; used to print flexible packaging, milk cartons, etc.

2. ***Cylinder*** – used on films, this type involves separate plate cylinders working against one larger impression cylinder.

3. ***In-line*** – uses several printing stations (similar to letterpress) and is used for heavier substrates such as corrugated materials and cartons.

Today's flexo market is a sophisticated arena. Applications have expanded from yesterday's basic to today's brilliant, and the search for better material alternatives is never-ending. Transilwrap supplies a variety of nonsupported films manufactured just for flexo printers.

Letterpress — is one of the oldest and most diverse types of printing processes, going back to its beginnings in the 15th century when it was introduced by Gutenberg. Letterpress equipment is used for all types of press runs: short, medium or long, and uses an embossed cylinder with raised type above the non-print areas. Ink rollers only contact the raised areas and the inked image is transferred (or pressed, literally) directly onto the substrate.

Letterpress printing usually involves three types of presses:

1. ***Platen press*** – utilizing a flat plate and a flat surface.
2. ***Cylinder press*** – for short run work, whereby each sheet of the substrate is rolled over the plate on a rotating impression cylinder.
3. ***Rotary press*** – the fastest and most efficient type; ideally suited for long runs of high quality material.

Letterpress is gradually declining in use; more commercial and newspaper firms use web offset or flexography, which provide greater production capacities and faster print speeds.

Gravure — is used for large volume, higher quality, high speed print runs for publications, magazines, catalogs, newspaper supplements, gift wraps and advertisements. The process is opposite the other print processes we've outlined in that is has a raised surface. The image to be printed is etched or engraved into the chromium-plated surface of the printing cylinder of a web rotogravure press. This process is done photographically by an acid etching process, or electronically, in the engraving method by diamond cutting.

The high cost of producing cylinders is a disadvantage for gravure printing due to the consumption of high-solvent inks, which are necessary for this process. However, there is a niche for gravure printing, i.e., commercial reproduction of art works, printing paper and plastic films for flexible packaging, and it is excellent for reproducing pictures. In addition, because a gravure press can perform die-cutting and embossing in-line, it is popular for publications and package printing. Also, gravure printing processes are best for printing metallics.

Source: The Rauch Guide to the U.S. Ink Industry, 2002-2004 Edition; About, Inc., 2003; The Columbia Electronic Encyclopedia, 2003.