

WORKING WITHIN THE LIMITS

Sheetfed presses are fed cut sheets of various sizes depending on the press. Although slower than web presses, they are able to maintain very tight registration and can deliver very high quality color reproduction.

Color capabilities: Larger presses may print six to eight colors on one or both sides of the sheet, depending on the press. Because sheets can be fed in multiple passes, it is possible to print in a virtually unlimited number of colors.

Typical run lengths: High-quality sheetfed presses are generally most economical in runs of up to 100,000 impressions. Smaller presses can be economically run in very short runs.

Speed: Larger sheetfed presses are exceeded in speed only by web presses and can deliver up to 10,000 impressions per hour.

Special attributes: Compared to webs, sheetfed presses can generally handle much heavier stock, even heavy board stock.

Size: A six unit (color) sheetfed press can run 40-50 feet long and weigh about 45 tons.

PRINTING TODAY

Sheetfed Offset Printing: The Press and How it Works

Sheetfed offset is a popular method of printing and can be found in many small and large printing plants. Individual sheets of substrate are fed through the press and printed by the process of offset lithography. Lithography is a planographic process in which the printing surface is flat and not raised. It utilizes the principle that grease and water do not mix. By use of a chemically treated plate, the image is exposed and developed prior to hanging on press. When ink and fountain solution (water with chemical additives) are applied to the plate in the right proportion, the image area accepts ink and repels fountain solution. All of the non-image area (background area) attracts fountain solution and repels ink. From the plate, the image is transferred to a rubber canvas called a blanket. The blanket serves as a compressible image carrier, and when in contact with the impression cylinder, the image transfers (or offsets) on to the substrate.

Wide range of capabilities

Sheetfed presses can print from 4,000 to 18,000 sheets per hour. The printed products it produces are enormous and cover most items printed, with the exception of certain types of packaging and long runs of magazine publications. All sheetfed presses can print a single color on one side of the sheet; however, larger presses are capable of printing full color on both sides of the sheet in one pass through the press.

Various sizes

Standard sheetfed presses can be grouped into three size ranges. The first is described as "small off-set" and prints on paper up to 14-by-17 inches. Many instant printers and small local printers use these presses, and the products produced consist of business cards, stationery, flyers, and short-run business forms.

The second category includes presses that print on paper up to 25-x-38 inches. Most print two or more colors and are used by medium to large commercial printers for printing brochures and medium runs (5,000-20,000) of general color work.

The last category is the largest sheetfed press and is capable of printing on paper up to 49-x-74 inches or larger. These presses are often used for long runs (up to 100,000) of color work.

High quality

Sheetfed offset is capable of producing high-quality printed products on a range of light and heavy-weight stocks. Color variation is a common problem and is caused by fluctuations in the ink and water balance. Sheet-to-sheet registration and overall image quality is usually superior to web offset printing. Modern sheetfed presses have sophisticated electronic controls for adjusting color and register. This technology will often shorten set-up time (make-ready) and reduce printed waste, and, in a competitive market, the result is an economical product.

