

What is the difference between offset and digital printing?

The technology of offset printing

Today's offset printing press is based on a technology called lithography - literally, writing with stones. The image to be printed was engraved on a flat plate made of stone that was inked and put in contact with the sheet of paper. To keep ink away from the areas of the plate not engraved, the plate was flushed with water. Because water and ink repel each other, the ink adhered only to the engraved area of the plate.

Today's offset press uses the same basic technology - ink and water don't mix, and a plate is required to carry the image. In original lithography, the plate containing the image contacted the sheet directly, whereas in offset printing the image is transferred from the inked plate to a rubber blanket that contacts the sheet. The image offsets from the plate to the blanket, then offsets again from the blanket to the paper.

The technology of digital printing and high speed copying

When we talk about digital printing, we are referring to high-speed laser printing. Laser printing uses a single source of concentrated light to expose the image on to photosensitive material located on a drum or belt. Electrically charged toner is attracted to the image on the drum or belt that has an opposite charge. Finally, the toner particles are transferred to the paper and fused to it with heat and/or pressure.

In the past decade, most copier manufacturers developed digital printer/copiers. These machines combine laser print engines with high-speed scanners to enable image capture in digital format instead of the electro-photographic method of analog copiers. Thus, all printing is from digital images, whether provided by the scanner or by a computer file. These machines also have copier features such as image manipulation, collating, stapling and booklet making.
