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Printips

It's Your Choice...
Offset or Digital Printing

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Inside

As a printer, our job is to have the right kind of equipment available to produce your printing project. Years ago, being a printer meant having offset printing presses. Today it also means having digital printing equipment and high-speed copiers.

For some printing projects, the choice of which equipment to use is strictly a production consideration – which piece of equipment has an opening in the production schedule at the appropriate time. For other projects, there is only one piece of equipment that can be used. And for yet others, the choice of equipment is a complicated decision based on a variety of factors.

In this issue of *Printips*, we'll explore how the technology of each type of equipment helps determine its range of use.

The technology of offset printing

Today's offset printing press is based on an old 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.

	Offset Printing	Digital Printing
Image acquisition	Not available	Scanner or computer file
Image carrier	Plate	Drum
Image resolution	2400 x 2400 ppi	600 x 600 ppi
Makeready	Required	Not required
Reproduction speed	2500-9000 iph	2000-5500 iph
Color range	CMYK or PMS match	CMYK, PMS or RGB
Paper selection	Wide	Limited
Cost per image	Declines as quantity increases	Fixed throughout run

Table 1. Comparison of Factors Affecting Choice of Offset or Digital Printing

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 onto 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 electrophotographic 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 bookletmaking.

"Remember that the image carrier for offset printing is a printing plate."

For showcase printing, offset is the clear choice

For showcase printing projects, the overriding consideration is print quality. So even though digital printing technology has improved immensely over the past decade, offset printing is still the leader in image quality for showcase printing projects such as fine art prints. This is because an offset press plate can be imaged to a higher resolution than a digital printing image carrier and because ink is a film while toner is particulate. Ink film will adhere more exactly to a fine line or small dot than a particle of toner, whose size may be larger than the line or dot it is adhering to.

"Therefore, the program used to create the file must support color separation."

For business printing, the choice is less clear

Unlike showcase printing, business printing projects often must accommodate factors in addition to print quality. Cost is one, as is the amount of time to produce the job, the quantity required, the kind of paper that must be used, color fidelity, or the format of the original.

The strengths of offset printing are image resolution, reproduction speed, paper selection, and the declining cost per image as the print run lengthens. In general, we will recommend offset printing when you are printing large quantities; when the image contains fine lines, photographs, screens, or tints; and when you want to use a thick or coated stock.

The strengths of digital printing are that once the image is at the printer, nothing more is required to produce the first print; the sheets can be handled, folded, cut, or padded immediately after being printed; and an RGB color image can be printed. In general, we will recommend digital printing when you need your project quickly, especially if bindery operations (such as folding, cutting, or padding) are required immediately; and if you need only a few copies.

The effect of document file preparation

Depending on how you prepare the document for your printing project, you may unintentionally prevent us from being able to use the best technology for the specific job. Remember that the image carrier for offset printing is a printing plate. Each color in the job requires a different plate. Therefore, the program used to create the file must support color separation.

Page layout programs that support color separation include Adobe PageMaker and InDesign; Quark XPress; and Microsoft Publisher. Programs that do not support color separations include Microsoft Word, Microsoft PowerPoint, and Microsoft Excel. If you create a document in any of these programs and want it to print in more than one color, or if you include Microsoft Metafiles as graphics, we will not be able to make press plates from the file. In addition, since these programs are not for page layout, we are likely to encounter other problems even if the job is printing in only one color.

Finally, offset printing ink is either the four process colors (cyan, magenta, yellow, and black) or solid colors mixed using the Pantone® Matching System. Files using RGB color have to be converted to CMYK to make press plates.

Bring us in early

To be sure you have the most options and prepare your files correctly for the technology we will be using, bring us in early in the planning process. We'll discuss the pros and cons of each technology for your specific job and give you tips for file preparation. Call *(513) 248-2121* for more information.

Q. *What file formats do you accept?*

A. For documents, our standard file formats are PDF (portable document format), Quark XPress™, Adobe PageMaker®, Adobe InDesign®, and Microsoft Publisher®. For single color printing or for digital output, we also accept Microsoft Word® files.

We support both Windows® and Macintosh® operating systems. We are an Adobe® Service Provider, and a Microsoft Publisher® Service Provider.

We recommend that you create your document files in one of our standard programs because these programs are designed for page layout, assembly, and publishing. They also support color separations. This will give you the most flexibility when it comes time to decide whether to use offset or digital printing.

We have accepted and successfully printed documents created in Adobe Photoshop® (a image editor program), Adobe Illustrator® (a drawing program), Microsoft PowerPoint® (presentation software) and even Microsoft Excel ® (spreadsheet software). However, this adds time and cost to the production process and severely limits our ability to produce the best quality printed product.

Q & A
questions and answers

"This will give you the most flexibility when it comes time to decide..."

The Proofing Process

A proof is our way of ensuring that we understand your instructions for design, layout, typesetting, and color. Depending on the complexity of your project, several rounds of proofing may be required. We do not proceed to print until you are completely satisfied with your proof and have authorized us to proceed.

We have several ways to provide proofs: soft proofs are PDF (portable document format) files sent to you as an attachment to e-mail or viewed via a link to our web site. Hard proofs may be sent or FAXed to you, or you may come to our shop to view them. We recommend soft proofs as you will be able to check color and can easily share the proof with others in your organization who may need to see it.

Even if you have provided a print ready electronic file for us to use as artwork, we will still provide a proof. This ensures that nothing irregular has occurred during transfer of the file to us and provides a chance for you to see how our raster image processor has rendered the file. Although this step may seem unnecessary, we feel it is better to take a little extra time than to try to recover from an error caught on press.

TRICKS & tips

"We do not proceed to print until you are..."

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Please Route to the Printing Buyer

It's Your Choice...

Offset or Digital Printing

Digital Printing Papers

IDEA CORNER

"The characteristics of a digital printer that affect its range of papers include..."

One of the limitations of digital printing is the kind of paper stock that can be used in the printer. The characteristics of a digital printer that affect its range of papers include the heat generated by the fusing rollers, the paper feed system, and the paper path. Here are our recommendations for paper to use when you select digital printing:

- For bond papers, a 24# basis weight paper tends to move more smoothly through the paper rollers, resulting in better feed and less change of skewed sheets.
- A smooth textured paper produces a superior image, while a paper with a heavy texture risks uneven toner laydown, resulting in broken type and spotty image reproduction.
- Papers for digital printing are manufactured with a lower moisture content than paper used in offset printing. This counteracts the curl generated by the heat of the fuser rollers.

Be aware that coated papers and some cover stocks may not feed well or may travel inconsistently along the machine's internal paper path. For this reason, we may ask you to limit your selection of these papers to very short print runs (100 or less).