



# HOWARD PRINTING NEWSLETTER

## DEFINING DIGITAL

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**W**HEN THE WORDS DIGITAL AND PRINTING BECOME linked, a whole new imaging workflow comes to mind for printing professionals. In many instances, digital printing is a viable alternative to offset printing; short-run color items with little or no bindery work are top candidates for digital printing. However, many print buyers are still confused about the differences between offset and digital printing and when digital is a better option. Confusion abounds, in part, because the graphic arts industry has been flooded with digital printing devices in the past five years. A \$200 Hewlett-Packard desktop ink-jet printer is digital, but so is a \$250,000 Indigo press. How does a print buyer know which is suitable?

### Offset or Digital?

Offset printing is an analog process that involves printing plates. Plates carry the image to be printed and transfer ink to the paper's surface. One printing plate is required for each color printed. A CMYK (cyan + magenta + yellow + black) brochure will use four printing plates, and a two-color (PMS color + black) newsletter will need two printing plates. Plates can be paper, plastic, rubber or metal. High-quality commercial printing companies use metal plates, because most of their work requires precise register of multiple ink colors. Paper and plastic plates are suitable for simple register and one-color printing. Rubber plates are most often used for printing on metal or plastic substrates.

The digital process does not use printing plates. The printed image is applied directly to paper by computer-driven imaging heads. These printing heads can be ink-jet, die-sublimation or toner. Color toner is the most popular digital imaging method. The elimination of printing plates is the main reason that digital printing costs less than offset printing for low quantities. However, there is a point where offset printing becomes more economical. This point depends on several factors, but for small flat sheets or simple folded items, 500–1000 appears to be the break-even point for offset versus digital printing.

### Toner or Ink

Most digital printing is an electrostatic toner-based printing process. Toner offers the advantage of very fast drying times, so most digital orders can be cut and folded on the same day they are printed. This speeds up production times and deliveries.

Offset printing uses liquid or paste inks that are applied to paper using a printing plate. While ink requires 12–24 hours of drying time, it has the advantage of being more stable than toner. This resilience results because inks can penetrate a paper's surface, while toner lies on top of the sheet.

### Coatings and Laminates

Offset printers often overcoat inks with varnish or aqueous coatings. Doing so can enhance drying times and add more scratch- and fingerprint-resistance. Varnishes also offer visual special effects. Pairing gloss varnish and dull varnish creates a whole new visual dimension. Aqueous is usually applied as an overall coating, while varnish is frequently "spot" printed.

Digitally printed sheets cannot be varnished or aqueous coated. Film lamination is used in place of coatings for digital orders. Lamination is a very thin sheet of clear plastic that is bonded to the printed sheet's surface by heat and pressure, resulting in extreme scratch- and moisture-resistance. The single disadvantage of lamination is its high cost.

### PMS vs. CMYK Color

Toner-based printing uses only CMYK color to produce the full spectrum of color found in digital photography and "built" color that designers create using page layout software programs. Every digitally printed order is a CMYK color job. Offset printing offers a wider range of color choices. Offset can print using CMYK color or special mixes called PMS ink colors. Offset equipment can also print metallic, pastel and fluorescent ink colors.

Why use PMS inks when a full spectrum of color is available in CMYK? Two reasons. Because the printed spectrum

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## EDITOR:

Patty Smetana



## PRODUCTION NOTES:

This newsletter was not produced digitally because the quantity was too high. It is printed on a 20-inch Heidelberg Speedmaster five-color press using process inks and Sappi Lustro Offset Enamel Gloss Cover Basis 80.



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has limitations. Many shades of certain colors, such as bright oranges, clean purples and very light colors, are hard to hit with CMYK color combinations. When the exact color MUST be matched, a PMS ink mix is the only option. Secondly, PMS colors may save money. If a company's corporate identity color is PMS 286 blue and a one-color direct mail piece is being designed, why use four colors to achieve a one-color result?

## Paper Selection

Digital imaging devices have more limited paper choices than offset printing. Toner-based equipment does not print on laser-compatible stocks because the dry toner cannot stand up to future exposure to the intense heat of laser printers. Many digital presses cannot print on very thin or very thick paper weights. Highly textured paper surfaces also pose problems for digital equipment.

The best way to prepare for these limitations is to simply plan on using a standard, mid-weight, smooth-surfaced paper for digital orders. Save the unique paper, highly textured cover stock and other exotics for offset printed orders. Digital printers will be able to advise you on what standard papers are available at the time you request a quote. Offset printers will be able to print on anything you request. ■

### Choose Offset Printing for

- long runs
- PMS or CMYK printing
- metallic, pastel and fluorescent inks
- heavy-weight papers
- heavily textured paper surfaces
- large sheet sizes
- varnish or aqueous coatings
- special effect or tinted varnishes

### Choose Digital Printing for

- short runs
- CMYK or black-only printing
- small sheet sizes
- variable data printing
- jobs not printed on exotic paper
- transparencies

## FTP (file transfer protocol)

Many print buyers are now using FTP sites for file transfers. If you have not yet used this process, you will be pleasantly surprised at how easy it is to transfer large files. Howard Printing's FTP site starts at our Web site.

To access it:

- 1) Go to: [www.howardprinting.com](http://www.howardprinting.com)
- 2) In the upper right, click: "Send Us Your Digital Files"
- 3) Follow instructions using an assigned password\*

\* Get a password by calling (269) 329-0022.

## PDF File Conversions

After proofing and making final edits to your document, convert it to a PDF saved for PRINT, with embedded fonts. (Lower resolution Web or monitor PDF files will not work for printed items!) The top three reasons for doing this are:

- 1) PDF files encapsulate your document, making it unchangeable and program-independent
- 2) PDFs do not require supporting photo, logo or other native files for linking
- 3) PDF conversions create smaller file sizes that are easy to e-mail or post to an FTP site

## How to Order Digital Printing

- 1) Create a document using your favorite layout program
- 2) Proofread, proofread, proofread and correct
- 3) Convert it to a PDF saved for "PRINT" with embedded fonts
- 4) E-mail files less than 7 megs or post files more than 7 megs to our FTP site
- 5) Hard-copy proofs are NOT provided for digital orders

# Introducing Our New Xerox DocuColor® Digital Press



## FINALLY

### A Digital Press Worth Talking About

After months of test driving document files and analyzing demo press sheets, we have found the ideal digital press. It hasn't been easy finding a technology that performs side-by-side with our offset equipment. Demanding clients with high expectations for color accuracy on both offset and digital playing fields has led us to the installation of a DocuColor 5000.

Cross-process color calibration was the key to success. Our state-of-the-art offset printing workflow system's color management technology can now be applied to DocuColor's digital imaging system. Being able to predictably print a color file either digitally or using offset was the baseline requirement for a successful companion system. Xerox now offers that technology.

Call us for a sample pack of offset vs. digital samples. You will be amazed at the quality!

## ..... SPECIFICATIONS .....

### Resolution and Speed

- 2400 dpi resolution
- 600 line screen halftones
- 50 8.5x11 pages/minute running speed
- 25 11x17 pages/minute running speed

### Paper Sizes and Weights

- Maximum sheet size: 12x19
- Maximum image areas: 12x18
- Coated paper finishes: gloss, matte, dull, silk
- Uncoated papers: offset, cover, labels, NCR
- Minimum weight: 20# bond/50# offset
- Maximum weight: 100# cover

### Xerox Technology Advances

- New registration technology for tighter color control
- Traction-driven engineering to reduce color banding
- Stochastic screening for dotless printing



# GLOSSARY

**Analog Printing** — Use of a “plate” to apply the printed image to paper. In offset printing, the plate has an ink-receptive image on its surface. The image is transferred to the paper’s surface. One printing plate is required for each ink color printed.

**Aqueous Coating** — A water-based clear coating that overprints press sheets. It protects the printed surface from scratching and fingerprinting, reduces drying times and adds a glossy finish to the printed item. Aqueous is most often an overall coating.

**CMYK Color** — The acronym for the four basic colors used in four-color process printing: cyan + magenta + yellow + black.

**Color Separations** — The breaking down of a full-color image into CMYK, the four basic colors used in four-color process printing. When digital photography is not available, a color photo or piece of artwork must be converted into digital art through scanning. The color original is exposed to laser lights and a series of four color filters that read and record the amounts of cyan, magenta, yellow and black that are present. The recorded data are converted into a digital form and saved to a computer for further processing in Photoshop or page layout programs.

**Digital Printing** — Direct printing by plateless imaging systems that are driven by digital data.

**Electrostatic Printing** — An electrically charged process that draws colored powder (toner) from a storage cartridge and applies it to paper as directed by digitally driven data.

**Ink** — Liquid or paste imaging material used in offset printing. Printing plates apply printing ink to the paper.

**Lamination** — A plastic film bonded by heat and pressure to a printed sheet for surface protection or appearance.

**Offset Printing** — (short for offset lithography) The process by which a printing plate first transfers the inked image to a rubber blanket before the same ink image is “offset” onto a piece of paper.

**Page Layout Programs** — Computer software that allows a graphic designer to create page layouts using digital data. InDesign, Quark, Pagemaker and Publisher are examples.

**PDF** — Portable document format. A format for the transfer of designs across multiple computer platforms. PDF is a universal electronic file format that is device- and resolution-independent. Documents in the PDF format can be viewed and printed from any computer, regardless of the fonts or software programs used to create the original. It is the preferred file format to submit to printing companies for digital printing. It is important to make sure all fonts are embedded in PDFs.

**Pantone Matching System** — A system of color communication and measurement tools developed by Pantone, Inc. The system allows graphic designers, printers and clients to accurately communicate color targets and outcomes as ink is put on paper.

**PMS** — The acronym for the Pantone Matching System. Each PMS ink has a unique number and color mix formula.

**Plate** — A metal, plastic, paper or rubber sheet with a planographic or raised surface that designates where a printed image will appear on the printed sheet.

**Register** — The process of fitting two or more printing images in exact alignment with each other on the press sheet.

**Substrate** — The material on which ink is applied. A brochure’s substrate is paper, and a T-shirt’s substrate is cloth.

**Toner** — Powdered color imaging material used in plateless printing.

**Variable Data Printing** — Printing letters, flyers or any document with unique data on each one. Offset presses cannot print variable data.

**Varnish Coating** — A clear ink that is applied to a printed sheet for protection or appearance. In addition to overall coverage, press sheets can be “spot” coated with varnish. A combination of two varnishes on a sheet, such as glossy varnish in one area and dull varnish in another area, creates a unique visual effect.

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