



DIGITAL PAPERS

WHAT'S A DIGITAL PAPER?

HOW BIG IS THE MARKET FOR DIGITAL PAPERS?

These questions are not as simple to answer as they appear.

To answer the first question we could say that digital papers are papers used for digital printing. Right. But, what is digital printing?

Put most simply, digital printing can be any printing done directly from an electronic file. Of course, this includes the e-mails and Word and PowerPoint files you print on your home or office computer. Here we are talking about desktop printers and ordinary copy paper, and the market in North America for these products is mature, at about eight million tons with growth of less than two percent per year.

The other category for digital printing is production on-demand, black-and-white and colour, and for our purposes we'll focus on this commercial digital printing segment that includes copy shops, quick printers and commercial printers.

A 2005 paper consumption study by Pira International divides the digital market into Document Presses, Colour Copiers, Colour Inkjet, Digital Colour Presses and Digital Imaging (DI) presses. We'll exclude DI presses, since they are really offset presses with digital imaging of litho plates on press and use regular offset papers.

The North American market for digital paper in 2004 was estimated at just under 1.5 million tons (see Table 1),

with growth of 15 percent per year projected to 2010. Pira's study shows the colour ink jet segment as the smallest, but fastest growing.

More interesting is the digital colour press segment. This segment includes presses like the HP Indigo, Kodak Nexpress, Xeikon and Xerox iGen3, which are capable of short-run colour on demand as well as variable data colour. With growth projected at 20 percent per year, paper usage in digital colour presses will approach one million tons by 2010.

What kind of papers do these various digital presses require? At the risk of oversimplification, all of the devices referred to in the chart use either inkjet or a version of toner technology. Since inkjet remains relatively small, this article will focus on toner technology, which

requires that the toner be attracted to the paper via electric charge, and then in most cases fused to the paper with heat. These requirements put a number of demands on the paper.

First, it should be noted that these presses often come in sizes that fall between conventional sheetfed offset (17-1/2 x 22-1/2 and larger) and copiers (11 x 17 and smaller), using a format of 12 x 18 or slightly larger to accommodate the metric A3 size with a full bleed. Initially, some merchants and converters began to cut offset sheets down to size, and printers used the paper grades they normally used for offset printing. However, Dennis Essary, director of office papers at Stora Enso North America, cautions that printers should make sure that paper is properly cut. Amy Kearns, manager, worldwide product planning and marketing strategy for the Xerox Supplies Business Group agrees that this is critical, and adds that Xerox includes converting in its rigorous qualification process to assure reliable performance of its branded papers.

Stora's Essary acknowledges that in some cases ordinary papers will perform reasonably well, but also advises that printers should be sure to use papers

TABLE 1

NORTH AMERICAN PAPER CONSUMPTION (000 TONNES)

	2004	2010	CAGR
Document presses mono	167	367	14%
Document presses colour	738	1,773	16%
Digital colour copiers	256	186	-5%
Colour inkjet	19	277	56%
Digital colour presses	312	923	20%
Total	1,492	3,525	15%

Source: *The Future for Digital Printing Papers*, Pira International 2005.



Xerox Color Xpressions is designed for performance on high-end digital toner devices.

labeled “laser” or “colour copy”. Runnability, toner adhesion and print quality are key considerations, and the wrongly coated paper can even damage the press. Due to the heat of fusion, blistering can be a problem with coated papers. The HP Indigo press presents a different challenge in that a special “sapphire” coating is often required to ensure that the “ElectroInk” adheres properly to the paper. Stora’s Futura Laser is certified for use with Indigo technology and is also designed with the proper electrical conductivity and moisture content for performance on other digital presses and colour copiers.

David Easley, brand manager office papers for International Paper’s Hammermill brand confirms that digital colour printing provides an array of challenges for coated papers, and adds that not all presses are the same. Requirements for moisture and electric conductivity vary from press to press, and Hammermill launched a new product with a patented coating formulation, Hammermill Color Copy Gloss, to meet the challenge. Color Copy Gloss is also designed to perform well on offset presses. Xerox’s Kearns adds that Xerox offers a complete line of papers with both silk and gloss finishes, all using a proprietary coating formulation that ensures images that are bold and vivid with superior toner adhesion.

Uncoated papers also present challenges in digital printing. Smoothness is important, but very smooth papers with poor formation can produce poor print

quality, with mottle or “galvanizing”. Mark Favus, group product manager for printing and publication papers at Domtar reports that many of Domtar’s uncoated grades are designed to produce excellent results on digital presses and colour copiers, and adds that Domtar’s Titanium and Microprint lines are available in digital sizes and guaranteed for both offset and laser printing. Indigo remains the exception, but Domtar expects to have Titanium certified for Indigo without the Sapphire



International Paper enhanced its Carolina Digital line with new calipers and sheet sizes.

coating later this year. Xerox’s Kearns echoes the need for formation and smoothness, adding that Xerox Color Xpressions is designed with formation and smoothness optimized for image quality.

For printers, of course, runnability is key, and so I asked Kearns what causes paper jams, and what qualities prevent paper jams. In addition to proper sheeting, she replied that critical properties are stiffness, curl, friction and porosity. Paper must be stiff enough to feed properly without wrinkling in the press, but not so stiff that it cannot bend around

drums and rollers. Paper must not curl excessively, and it must also have the proper porosity to ensure adequate performance in vacuum feed mechanisms.

One might think that the final, overarching consideration is cost. But is it?

Look around your office. Look at the folders, binders, reports and other documents. How much did it cost to produce all that material? Think not only of ink and paper, but also of the cost to research, design and write those reports, not to mention the time spent in meetings.

Indeed, the cost of documents is significant, but paper is a smaller share of that cost than one might think. A recent study by InfoTrends, formerly CAP Ventures, suggests that only 10 cents out of every dollar spent on producing documents is the cost of “hard output”. A presentation by Hammermill’s Easley at the 2006 ON DEMAND conference in Philadelphia (May 15-18) takes this concept even further, suggesting that if the document is a presentation or client proposal, and you include the cost of time and travel to present the material, the cost of “hard output” is less than one percent of the total cost.

The message is clear: document costs must be controlled, but the real savings will be found in document management, not squeezing pennies out of paper and printing.

Use the right paper on your digital press. In addition to the paper grades mentioned here, a number of papers are suitable for digital printing, so check with your merchant or mill representative. In any case, be sure to use a high quality paper—a few pennies saved on paper is not worth much if you lose a customer. **CP**

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