



The Digital Paper World

In the realm of the printing industry, digital printing is currently only a tiny player in the market – amounting to approximately five percent of the commercial printing done in the U.S. Nevertheless, industry experts agree that digital printing has finally come of age. And with shorter print runs becoming increasingly popular, there is nothing to stop its growth.

That's reason enough for us to take a closer look at digital printing, in general, and consider what it takes to be a good digital paper.

Digital printing has been around for more than 15 years, but it hasn't really caught our eye until a few years ago, when the first high-speed digital presses achieved printing qualities that started to rival their offset counterparts.

We could go into a whole spiel about how designing for digital presses differs from designing for offset presses, but we'll keep that for another day. Today, we want to talk about digital papers, the substrates that make all this new technology possible and feasible for you and me.

What does digital mean?

First of all, let's clarify what we mean when we talk about digital printing. In the true sense of the word, it means every form of printing that uses digital technology. This includes everything from the laser and inkjet printers in your office to a full-length Xerox iGen3. And even Direct Imaging presses (Heidelberg DI) would fall into this category, as they produce plates on press using digital technology.

To simplify: The main difference is that offset presses work in a moist ink-based environment, while digital printers work in a warm, toner-based one. Just think of the cozy warmth that evaporates from a sheet of paper when it first comes out of your laser printer.

Digital papers versus digital papers

No, this is no typo. Remember I mentioned that "digital" refers to any printer from your laser printer to high speed ones. In many cases, when mills call out papers as "digital," all they are referring to is cut size sheets that work well in your laser and inkjet printers – 8.5 x 11", 11 x 17", you get my drift.

We are purely talking size here, as your desktop printer is generally a very forgiving breed when it comes to surface and weight.



Making paper fun

High-speed digital presses, the ones you and I think of when we hear the term “digital,” are a very different kettle of fish.

Digital B&W Production Printers

Among the digital printers, we differentiate between B&W and full color ones.

B&W printers, like the Canon imageRUNNER series or Xerox’s DocuTech, imprint pages at speeds of 150-180 pages a minute. They only imprint one color and are generally fairly lenient when it comes to substrates they can print on.

Papers that are suitable for laser or inkjet printing, as well as those suitable for color production presses, work well on these machines.

Digital Color Production Presses

Now we are talking! This is the technology that we think of when we hear the word “digital.”

HP Indigo, Xerox iGen3 and Kodak NexPress, the most commonly used models, are also referred to as digital production presses. Hear the word “presses” in the terminology. They provide images in full color, high quality and run at much higher speeds (70-100 pages per minute) than your average desktop printer.

Papers for these presses have to endure much more stress, having four colors applied to the sheet – often on both sides – and being chased by the high speed of the press.

Truly digital papers

Due to the enhanced stress placed on these substrates, mills have responded by designing papers that are precision cut, with a specially formulated surface to retain the toner (or inkjet ink) and increased moisture levels of four-to-five percent.

This involves much more than just cutting an existing sheet to size. The development of a truly digital paper can take anywhere from six months to a year.

A driving force behind the growth in digital printing is targeted marketing, but it is not just variable data printing that has taken off. Just think of amazon.com, who is now offering to print complete books on demand.

And for the everyday designer like you and me, the growing demand for shorter print runs has created an all-time high in new equipment placement, as well as encouraged printers that have offered digital printing for years to utilize their presses on more than one shift.

And with the increased demand for digital printing, mills are responding with increased paper offerings.



Making paper fun

Coated versus uncoated

As 80 percent of any printing done these days is done on coated sheets, you will also see a larger variety of coated papers available for digital presses. The formulas for coatings change from mill to mill, paper line to paper line, and some of these coatings have proven to be naturals when it comes to printing on digital presses.

Coated papers are nice, but there are printed pieces whose design would be enhanced greatly if they were printed on uncoated stocks. Some of the presses mentioned already work with a limited variety of uncoated stocks. But, those that don't require a special surface treatment.

For example, uncoated sheets needed a special sapphire treatment in order to run on Indigo presses for years. This treatment was expensive and caused the paper to yellow within six months, which did not allow the paper to be stocked and, in turn, limited availability.

Always up for a good challenge, Domtar is working on the next generation of uncoated papers with a new surface treatment that is less expensive to apply and will not cause any yellowing.

Digital printing and the environment

With the rising concern about sustainability, digital printing has proven to be less invasive to the environment when it comes to inks and general waste, and it also dramatically lessens the excess in paper waste that goes hand in hand with offset printing.

Digital printing, or printing on demand as it is often referred to, allows anyone to print as many brochures or manuals as they need at any given time.

But sustainability does not only refer to waste, it also embraces the question of recycled content and FSC certification. Mills that have a strong commitment to sustainability make a special effort to ensure that any new paper included in their offering also matches their environmental stance.

As the demand for digital grows steadily, watch out for more papers becoming available for these amazing presses. The wider the variety of available paper, the more specifically you can choose a paper to truly enhance your design. And, we think that is a very good thing indeed.