



DIGITAL PAPER  
The Unsung Hero!

# Digital Paper

As technology continues to change the way we think about and use paper, there is one thing that is certain...we are far far away from a truly paper-less world. In a recent Nielsen survey, close to 70% of shoppers say they look at printed paper material at least once per week in their quest for sales and promotions. In this same survey almost 90% of consumers said they want to receive future advertisements via direct mailers.

Businesses of all sizes are seeing the power that paper still holds in communicating with their customers. And with great power comes great responsibility. So more and more companies are turning to high-production digital printers or copiers to produce their own professional quality marketing materials and company collateral.

**But the equipment is only half the story, the paper matters too.**

*The rest of this guide will give you a high-level understanding of digital paper and how digital paper products work with your printer.*

# What is Digital Paper?

In the paper industry, digital paper does not mean electronic or interactive paper. When paper companies use the term "Digital Paper", 99.9% of the time they are referring to paper of a specific size 12x18 or 13x19 - essentially the sizes that can be run in production color copiers or digital presses. However, when Kelly Paper talks about "Digital Paper", we are talking about paper specifically designed to deliver optimal performance from your digital printer or copier - *regardless of size*.

It's important to note that the term digital paper is used to describe a broad range of paper products and not just one brand, style or shape. Future guides will go into more detail around all the different categories of digital products.

## Why you need to know

Digital paper allows you to get more out of your printer/copier than you probably knew was possible or at least not without the help of a magician. Printing on digital paper products can make the colors much brighter, projects more unique and the printer more efficient.

You can think of digital paper as the visual magic used in a movie. Without those sweeping camera angles, beautifully planned photography shots, or a little CGI, a movie can seem rather boring and uninteresting. Paper plays the same role in making a printed project more interesting and valuable. The character and quality of the paper are just as important as the writing and the design.

# What is **a** Digital Paper?

Digital Paper is all about optimal performance in a print device, but before we can talk about the paper we need to talk about how the digital printer actually works. We will save the techie talk for Wikipedia but essentially all digital printers use the same basic method.

- 1) Ink or toner is applied to the paper sheet
- 2) Ink or toner is fused to the paper using heat and pressure

There are about a thousand other things (informally called “magic”) that need to go right for steps one and two to work, but let us assume everything works as the engineers planned and your beautifully designed marketing brochure slides out of your print device. We don’t give it much thought but that newly printed piece of paper just ran a marathon adventure and then was cooked on its way back out into this world.

The marathon is the path through which your machine takes the paper and wraps it around rollers, sends it through tight u-turns and s-curves; sometimes traveling as much as 5-10 feet before leaving the machine.

The “cooking” part is the paper having the ink or toner physically fused to the paper fibers by means of heat and pressure. In some devices the temperature may be close to 200°F.

Our poor little piece of paper just survived the unforgiving world of rollers, feeders and sensors and then was cooked and sent through the machine again because, oh yeah, we want a two-sided brochure. Yet he still comes out looking like a hero with your beautifully designed brochure printed all over him.

“So, why can’t I use any regular paper?” That’s like saying why can’t I leap tall buildings in a single bound or be faster than a speeding bullet. The simple answer is that the marathon adventure through the printer is not an easy one. Lucky for us our little paper hero is equipped with **five powers** to help him accomplish his mission.

## Power #1 - Size

It is a little cliché but the size does matter in digital printing. By that we mean the correct sheet size. Digital printing devices are precision instruments and as such require precision cut paper. Digital papers are cut to closer tolerances than other papers to help the papers feed properly through the printer. In addition, precision cutting produces less paper dust that can contaminate your printer and affect the eventual print quality.

## Power #2 - Sheet Smoothness

Think about the hero in your favorite movie. He probably had smooth skin and a great tan. Sheet smoothness is something like that but even more important because in digital printing, the smoother the sheet the better the image. Since the toner actually sits on top of the paper, any surface flaws will be replicated in the final image. Digital papers are “calendared” to a smoother finish than other non-digital papers.

## Power #3 - Grain Direction

Paper has a grain direction very similar to the grain of a piece of wood. Why this is important in digital printing is that the marathon adventure our paper will embark requires very tight turns, and if the paper is too stiff it could jam and misfeed. The grain direction affects the sheet stiffness, so by orienting the grain direction properly it will help the printing process. The two terms to describe grain direction are short and long. They indicate what direction the grain goes. In paper terms, the grain direction is always the second dimension. So on an 8.5 x 11 sheet of paper the grain will run parallel to the 11” edge - this is said to be grain long.



## Power #4 - Moisture Content

It may be odd to think about paper containing moisture but this is one of the most critical features of digital paper. Regular paper used in traditional printing contains about 5-7% moisture but digital papers usually contain 3-4% moisture. Where moisture affects digital printing is in the cooking process of our hero's marathon adventure. His temperature goes from about 72°F to approx 165°F in less than one second. This intense heat cooks most of the water from the sheet. If the sheet contained too much moisture in the beginning then it would warp very badly due to the quick loss of more water. Think about what happens to newspaper when left in the sun. Newspaper has a very high percentage of moisture content so when left to heat quickly it warps. The same thing can happen inside your printer.

## Power #5 - Stay Fresh Packaging

As we just talked about, the moisture content is key. Without proper packaging, digital papers would dry out and may cause misfeeds and jams inside your printer. To prevent moisture loss, all digital papers come in a ream that has a plastic liner. If it comes in a bulk carton, the carton will either be plastic lined or have a tightly fitting lid to reduce moisture loss.

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Each one of these powers has a very specific role and when all these powers combine, they become digital paper! If you're looking to produce your own professional quality materials for your business, school, church...etc., than you need a hero with the powers to get the job done right. Digital paper is that hero!