

High performance
solid ink technology
Printers and
multifunction systems



The Solid Ink Advantage

A sustainable strategy to improve
your business output



Solid ink: A competitive business advantage

Four key reasons why solid ink has successfully won business from alternatives like color laser for the past twenty years:

- Improves your **competitive edge**.
- Increases your workgroup's **productivity**.
- Delivers **premium value** at a **very competitive cost**.
- It's substantially **better for the environment**.

This white paper will explain exactly how and why.

The solid ink advantage

Better results without the fuss

Make every impression count

Whether you're presenting your ideas or proposals to clients or colleagues, it's smart business to make the most of every opportunity. Color helps you stand out from the crowd. Research shows the use of color provides substantial improvement in attention, comprehension, recall and response. And solid ink produces the most impressive, most vibrant, most consistent color in the office.



Vivid, saturated colors

Combined with Xerox's 2400 FinePoint™ technology, solid ink ensures exceptional print quality. This technology enhances print quality using sophisticated algorithms to intelligently augment dot patterns. The software uses halftone and post-processing techniques to optimize the image as it is applied to the print drum while smoothing out fills and transitions to eliminate disruptive patterns, characteristic of laser prints.

Because solid ink is transferred from the print drum to paper in precise state, the ink does not spread into the paper. This makes its color quality far less dependent on the paper's surface, allowing it to maintain excellent color quality on the broadest range of papers and media types.

Xerox solid ink printers offer four print modes for the utmost flexibility in quality and speed.

Users can choose settings that range from Photo Mode to Fast Color Mode.

From page-to-page solid ink has exceptionally consistent color quality, an important attribute for long print jobs or multiple prints of the same page. The quality of an image depends on consistent dot size and placement. Solid ink does both extremely well.

Color laser printers frequently fail to maintain precision. The dot size varies (laser dots are clumps of toner particles that can scatter on the paper) and there's sufficient jitter in the laser system so that misplacement of dots occurs. As a result, color shifts occur with laser, as well as banding within areas of solid fill color.

During printing, the print drum in a solid ink printer smoothes the solid ink, creating a flat surface that's ideal for reproducing rich, saturated color.

Color gets results

Independent research shows that using color in business documents provides measurable results.

- Color increases comprehension by up to 73 %.
- Color increases learning and retention by 78 %.
- Color can boost survey participation by 80 %.
- Color increases motivation by up to 80 %.
- Color can improve brand recognition by up to 80 %.

Sources: Studies: Loyola College, Maryland, U.S.A., by Ellen Hoadley, Ph.D., Laurette Simmons, Ph.D., and Faith Gilroy, Ph.D.; Case & Company, Management Consultants; Bureau of Advertising, Color in Newspaper Advertising; Maritz Motivation, Inc., Southern Illinois. Published material: *The Persuasive Properties of Colour*, Marketing Communications; *What's Working in Direct Marketing*; *How to Use Color to Sell*, Cahners Publishing Company; *Grasp Facts Fast with Color Copying*, Modern Office Procedures

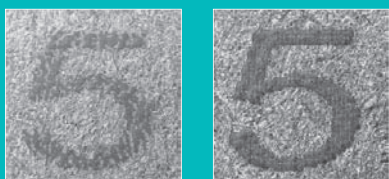


Designed for color printing

Physics, chemistry, electronics and manufacturing expertise all come together behind the scenes in solid ink printing technology. Solid ink has the unique property of remaining in solid form until heated to a very specific temperature whereupon it turns to liquid, then instantly turns back to solid when printed.

The solid ink is applied through a precise stainless steel print head with tiny holes smaller than a human hair. It uses 1,236 nozzles jetting more than 30 million drops per second. Years of investment, research and experience have yielded inks and print heads that work together as an integrated system.

The ink is jetted from the print head to a heated drum where it remains in a malleable state that ensures precise transfer to the paper. This reduces the amount of ink that can wick into the paper fibers and controls dot spread.



Highly magnified views of color laser (left) and solid ink (right). Note the gaps in the printed areas in the laser image versus the dense, crisp image of solid ink printing.

Defining ease of use

Advances in technology are at their best when they are intuitive and extremely easy to use. That sums up solid ink quite nicely. Solid ink devices enable productivity without a learning curve and without getting in the way of your daily work.

Refills couldn't be easier

Solid ink printers are remarkably easy to use and maintain. The unique, shape-coded ink sticks are simply dropped into their shape-coded slots in the top of the printer. Even a child can easily replenish the ink supply. There's nothing to spill or vacuum out of the carpet. Solid ink can be added at any time, even during printing.

Reloading on the fly is not possible with any other printing technology that stores ink or toner in sealed containers inside the printer. When the ink/toner is exhausted, printing is interrupted.

Solid ink printers require few user interventions for maintenance. The skill level required is a fraction of that required by even the simplest of color lasers. The only mechanical consumable in solid ink printers is a long-life maintenance kit. The environmentally friendly replacement kit lasts up to 30,000 pages and can be installed in less than a minute.

These features make solid ink an ideal choice for the majority of users, who are concerned about getting their prints, not about maintaining their printer.

Color By Words* color adjustment

Have you ever wanted to adjust a single color in a printout without affecting the rest of the page? With the Color By Words feature there's no need to go back to square one and manipulate source files. You simply select the desired color adjustments you want from a drop-down list in the print driver, and Color By Words makes the improvements you want. A real boost to productivity, Color By Words makes it easy to ensure your documents always make a great impression.

*ColorQube 8570 and 8870 printers only



Original photo not right? Use the Color By Words drop-down list and choose "yellow-green colors a lot more green," and "red colors a lot more saturated." Picture-perfect results.

Focused on office productivity

For a printer to be truly productive in a busy workplace it must be easy to set up, easy to use and easy to share. The hidden costs of printer downtime, user frustration and delayed print jobs can be enormous. For example, purchasing a low-cost but underpowered or hard-to-share color inkjet printer can be far more costly in the long run than investing in the right tool for the job. Likewise, the complexity of using and maintaining a high performance color laser can create significant productivity bottlenecks.

Affordable performance

Solid ink printers are available in two models. One with the lowest possible purchase price, and one with the lowest possible long-term operating cost for workgroups that consistently print more than 2,000 color prints per month.

How long is a print job?

Xerox research indicates the majority of office print jobs are less than five pages in length. In fact, many are only one or two pages. In most cases, the first-page-out time actually becomes more important than the overall page per minute speed.

Solid ink is fast

The most complete measurement of print speed is called “throughput”—the time between clicking the “print” command on your PC and seeing the printed page slide into the printer’s output tray.

The combination of color-optimized architecture and fast controller/processor delivers a key advantage for everyday office color printing: fast first-page-out time. Since most office documents are five pages or less, the time it takes to print the first page is a significant factor in total printing throughput.

Solid ink excels in overall throughput by delivering fast first-page-out time. The first page prints as fast as five seconds—significantly faster than most color lasers. At full speed, the solid ink printer prints at up to 40 ppm. Speeding the process further, the Intelligent Ready feature monitors past printing activity for each day of the week and readies the printer prior to the anticipated first page of the day.

The printer’s controller is based on a 1 GHz processor paired with 512 MB of standard memory. This heavy-duty combination is powerful enough for complex graphic arts applications, so it makes short work of general business printing.

A color laser printer must synchronize its imaging components, warm up its fuser roller and set the paper path which lengthens the print time. In fact, color lasers typically achieve their rated speed only on multiple copies of the same image.

Solid ink printers are designed from the ground up to be color-optimized. Color laser technology is essentially a monochrome (single color) print technology that has been adapted to print with four colors, using cyan, magenta, yellow and black toners. In many ways, it is like putting the complexity of four printers into one device.



ColorQube® 8570
solid ink printer

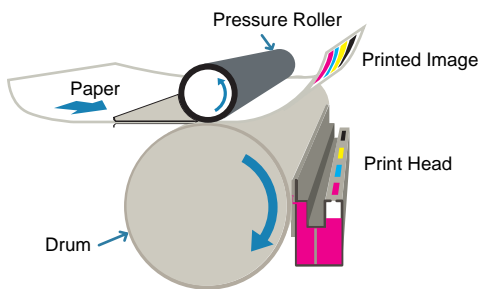


Phaser® 8560MFP solid ink
multifunction system

Reliable engineering

A solid ink printer consists of only three major assemblies: the print head (applies ink to print drum), the print drum (transfers image to paper) and the controller (the brain of the printer that converts data from the computer to information required to print the image on paper). Add exterior panels and a paper tray and you have a solid ink printer.

This simplicity is responsible for the high reliability, ease of use and low cost of solid ink. With fewer parts, there's simply less that can go wrong. In short, solid ink printers do a lot more with a lot less.



Major components of a solid ink printer.

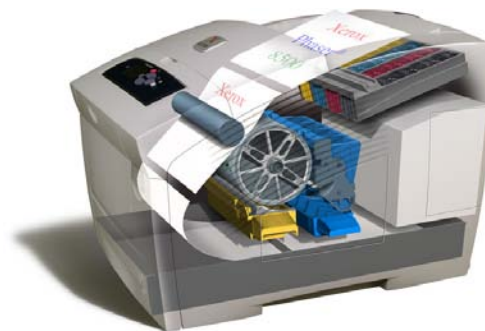
Built better

Rather than using the more common bent sheet metal, Xerox uses a one-piece, injection molded frame in its solid ink printers. This allows for tighter mechanical tolerances that yield both improved mechanical reliability and print quality. The solid construction also contributes to the printer's durability and long-haul robustness.

Solid ink printing technology requires fewer parts than laser technology. Lifetime components with a high duty cycle give a clear maintenance and operating advantage to solid ink.

Stringent manufacturing

Xerox manufactures the solid ink print head in clean rooms to ensure performance, consistency and reliability. Xerox operates a world-class chemical plant to produce solid ink, with a state-of-the-art controller to ensure batch consistency. To deliver the reliability that solid ink has become known for, Xerox employs 100 percent inspection rather than the common statistical sampling—every ink batch must meet stringent quality control specifications before it is shipped.



Cutaway of a solid ink printer.

Laser printing options

Color laser printers create an image by fusing powdered toners to paper—the toner is melted onto the paper. Depending on the architecture, lasers can have almost three times as many parts as solid ink printers. Traditional color laser printers typically include parts such as photoconductors, transfer rollers, fuser rollers, fuser oilers, waste toner bottles and four toner cartridges, all of which wear out or whose contents are consumed during printing. The life expectancy of these components is tied to either the number of pages or the amount of each color printed. Frequently, these parts need to be replaced independently of each other so there are many more times when the printer requires maintenance to function.

The simplicity of the solid ink printing process is an advantage itself. In addition to fewer places where things could go wrong, solid ink accepts a wide variety of print media, which can be fed through one of the printer's main trays. All of these attributes contribute to an exceedingly simple automatic two-sided printing capability. After printing the first side of the sheet, the paper is re-fed from the exit rollers back into the printer through a very short path. It then quickly passes through the high-speed printing process a second time and is delivered to the output bin.

What about liquid ink jet?

Liquid ink jet technology does not work well in multi-user network environments. The major issues are slow print speed, low consumables capacities, high levels of user intervention and high print cost. Low acquisition cost might make liquid ink jet printers appear attractive, but they present a case of false economy for workgroup use as organizations discover how much attention they require and how surprisingly expensive they can be to operate.

Total waste produced
from printing 4,000
pages per month
for 4 years.

Solid Ink: **19 lbs.**
Laser: **246 lbs.**



Designed to fit your space

With a small footprint, solid ink printers offer versatility in the office. They work well on desktops, counters or small tables.

With fewer mechanical parts inside than a laser printer, solid ink devices also provide front access for virtually all user interactions. When ink or paper needs to be replenished users don't need to move the printer. Even on the rare occasions when a paper jam needs to be cleared or the maintenance kit needs replacement, the access is front and center. The area surrounding laser printers often needs to be cleared, and the printer turned in order to open their multiple access panels and doors.

Looks great on (any) paper

Solid ink provides its remarkable color quality on the broadest range of papers, including cardstock, envelopes, and transparencies, as well as recycled paper and custom paper sizes. It easily supports papers from 16 lb. bond to over 80 lb. cardstock. The bottom line is that solid ink provides premium image quality on even ordinary, inexpensive papers. Color quality of laser printers will vary and often limits your printing options within a narrow range of paper types.

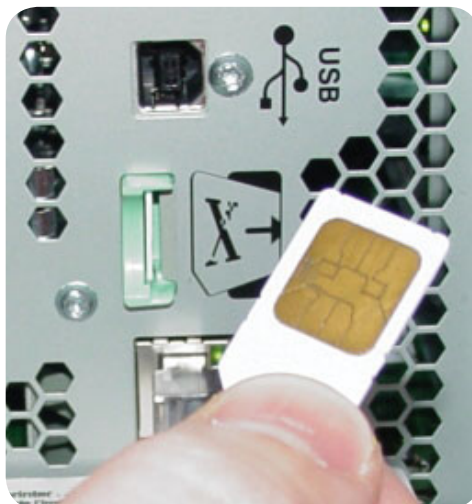
Additionally, solid ink printers include a configuration card, making hot-swaps and feature upgrades a no-hassle process. Just install the card into a like printer and the new device takes on all the preferences and attributes of the original. The low-cost card is just another time saving feature designed to keep you focused on your work instead of the printer.

Premium color without the premium

With solid ink printers you can choose the model that fits your budget. Select our lowest priced model for low to medium quantities of color printing. Select our high-volume model for workgroups that print 2000 color prints or more every month.

Better for business and the environment

Another attribute of solid ink that benefits business is its cartridge-free design. Over a four year period, your office can reduce the amount of waste in packaging and printing consumables by 90 % with solid ink. A ColorQube printer's carbon footprint is 30 % smaller than a comparable color laser, with 30 % less energy consumption over its life cycle.



The solid ink advantage

Won't smudge or stain

Solid ink sticks are clean, safe, and toxin free. With no liquids or powders, there's nothing to spill or leak. Solid ink won't stain your hands, clothing, or carpet. How much productivity is lost due to a single spill of toner powder?

Saving pages adds up

Available features like automatic two-sided printing and N-up substantially reduce paper use and eventual waste.

With every solid ink printer or MFP you buy, you can download GreenPrint software with our compliments. GreenPrint automatically identifies and removes unwanted pages—like pages with only banner ads, logos, URLs or mousetype—from your print queue, saving volumes of unwanted prints.

Recycled paper never looked so good

Solid ink provides the same vivid, saturated color on unbleached recycled paper as on bright, white premium paper. Now you can support sustainability without sacrificing color quality or the impression your work deserves.



It's time to rethink your ink

Why would a company built on xerography and laser printing advocate an alternative technology like solid ink? It's simple. Solid ink delivers substantial benefits that no other color printing technology can provide.

- **Impressive**—vivid, memorable color quality
- **Productive**—fastest printing of most typical office documents
- **Simple**—unsurpassed ease of use
- **Reliable**—fewer parts, simpler product design
- **Compact**—small footprint, easy access to refill
- **Flexible**—handles the broadest range of paper types
- **Value**—low acquisition cost with superior quality
- **Savings**—low cost for consumables
- **Responsible**—90% less waste than laser



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