



The Canon ColorStream:
An Evolution of Innovation

Canon



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INTRODUCTION

The Canon ColorStream is the most installed inkjet web press in the world¹ and Canon's partnership with its customers plays a significant role in that achievement. Many of the innovations in the product line are the result of listening to customers and incorporating their needs into the press.

The recent launch of the Canon ColorStream 8000 series represents the next stage in the evolution of this flagship production inkjet press.

This report will focus on the heritage of innovation of the ColorStream product family, the latest product in the series, and the experiences of customers.

The ColorStream's Legacy of Innovation

Since its launch in 2010, the Canon ColorStream has become a dominant webfed inkjet press option. Canon reports there are more than 1,500 ColorStreams installed worldwide with more than 40% of those customers having more than one ColorStream press.

The success of the ColorStream product family traces back to the launch of Canon's JetStream line in 2007 — the company's first entry into continuous-feed inkjet.

Reflecting on Canon's history of developing the webfed inkjet presses, Ed Jansen, vice-president of category marketing for Canon Solutions America (CSA) reports, "The development of the first ColorStream press was a combination of what we learned from our first entry into the continuous-feed inkjet world with the JetStream family, our long history in producing continuous-feed toner devices, and discussions with our customers."

Jansen also points out that carrying through each generation of the ColorStream is Canon's more than 40 years of experience in developing production digital presses and its commitment to integrating customer requests in product development. Another validation point of Canon's commitment to innovation is that for 36 years, it has ranked in the top five for the number of U.S. Patents issued².



The ColorStream 8000 can print a broad variety of applications from brochures to booklets to transactional materials.

¹ Source: "CF Inkjet and CS Inkjet Machines," 2021 Quarterly Tracking Program (InfoTrends, March 2022).

² IFI CLAIMS Patent Services, see [Canon Learning | Innovation | Canon U.S.A., Inc.](#)

The first generation ColorStream, the 3000 series, was aimed at supporting customers in making the transition from high-volume monochrome digital printing to color. It was designed for providers looking to gradually ramp up their color print volume in transactional materials, direct mail, books, and manuals. Table 1 highlights the ColorStream evolution timeline.

Table 1: ColorStream Evolution Timeline

Year	Event	Key Innovations
2010	First generation ColorStream 3000 Series launched	See page 4. Plus, offered an option for providers printing only monochrome work to add color and those printing high volume color an option to expand capacity.
2013	Security printing features added to ColorStream line	ColorStream 3000 series adds MICR, fugitive, and UV-fluorescent ink options.
2014	Second generation ColorStream, the 3000Z Series introduced	Press modified with more compact design to reduce floor space requirements by 30%, with same quality, speed, and reliability as prior model. Also, offers high-speed monochrome imprinting and built-in Simplex Z-fold stacking.
2016	Third generation ColorStream, the 6000 Series introduced	Features faster running speeds than the 3000 series, introduces printhead calibration, and a PreFire feature that circulates the ink inside the printhead without firing — the feature helps ensure consistent droplet size and positioning to yield smooth ink coverage for large areas of dense color.
2021	The next level in the evolution, the ColorStream 8000 Series introduced	Additional automation features and designed to help achieve uptime of over 90%. 1,200 dpi print heads and water-based pigment ink set with latex polymer to expand color gamut. Can print a broad range of applications and substrates.



Game-Changing Features

Jansen reports the ColorStream’s inkjet heads were a critical factor in the device’s development. He says Canon selected Kyocera piezo inkjet printheads because they offered the best print quality, the longest life, and highest level of reliability.

The printheads have evolved since the ColorStream's introduction to increase speed and enhance resolution. The printheads of the first generation of ColorStream were 30 kilohertz (kHz) and printed up to 246 feet per minute (fpm), followed by the transition to a 40 kHz printhead in the 3000 series. Now the 8000 series uses a 64 kHz printhead that offers 1,200 dpi native resolution and prints up to 525 fpm.

Part of what made the introduction of the ColorStream a game changer in inkjet print production was its ability to provide an end-to-end manufacturing process (white paper in/finished product out), eliminating the need to print on preprinted rolls. Jansen says that a variety of factors contributed to this innovation including a reliable web transport system, the Kyocera printhead technology, and Canon's Scalable Raster Architecture controller (SRA), which provides raster image processing (RIPing) of complex variable color files on the fly at rated press speeds.

When the ColorStream was launched, it debuted the following features, which remained core elements in future press generations:

- **HeadSafe** technology that caps color nozzles during monochrome printing. This enables transitioning between monochrome-only and full-color work without nozzle clogging, lengthy purging processes, manual cleaning, or reducing uptime.
- **InkSafe** uses passive RFID technology to help ensure operators place the correct ink bottle in the right slot, enabling ink loading while the press is in production mode.
- **DigiDot** drop-on-demand multi-level modulation imaging technology dynamically varies the sizes of ink droplets that make up each element of a printed image to result in smooth gradients and crisp text.
- **Waste-free print pause** allows operators to pause the machine during short production breaks for web inspections, and then restart without paper waste.
- **Printing in speed ramps** is a key productivity enhancer and waste minimizer because salable work is produced at startup, while the press is ramping up to its full speed.

Putting these initial ColorStream features in perspective, Lucy Perez-Sierra, CSA's category marketing manager for the ColorStream, says the focus from the onset was to enable customers to increase efficiency. She explains, "The waste-free print pause and printing on the ramp features help ensure customers are maximizing productivity, minimizing paper waste, and reducing overall production costs, all factors our customers value."

These features were developed in response to customer challenges. As Scott Scheffer, CSA's advisor, service project management, explains, "Innovations such as HeadSafe and InkSafe came about because our initial transactional printing customers told us it was difficult moving from printing monochrome toner to full color inkjet and so we provided options to make that transition easier."

An Application Evolution

As the ColorStream has evolved, the list of applications it can produce has multiplied. While transactional applications were the ColorStream's initial focus, today, the product line can print books, brochures, election ballots, direct mail, manuals, transactional, transpromo, flyers, magazines, product inserts, pharmaceutical inserts, newspapers, and envelopes.

Examples of personalized direct mail printed on the ColorStream 8000.

“As the ColorStream line evolved,” Perez-Sierra explains, “we’ve been able to meet our customers’ changing needs and give them flexibility to pursue other applications.”

Perez-Sierra notes the variability of ink types for the ColorStream line also played a role in expanding

applications. Depending on the press model, ink types include MICR, dye, pigment, fugitive, and invisible. Canon develops and tests all its inks.

Another factor expanding application options on the ColorStream series is its ability to print on a wide variety of substrates. The ColorStream 8000 series expanded the paper options from 60 to 160gsm to 40 to 160gsm with an expanded range of less than 40 gsm and up to 9 Pt with media testing for both uncoated and inkjet treated paper; it can also print on recycled paper. This media expansion enables producing applications requiring lighter weight papers.

In addition, the ColorStream 8000 press’s 22" print width enables printing shells that can be converted into envelopes. This is an important benefit as organizations look for more creative ways to enhance mailed communications and face shortages in obtaining envelopes.

The Next ColorStream Generation Makes Its Mark

The ColorStream 8000 series marks the fourth and latest generation of the technology. It builds on solid innovations from previous versions and expands on application range, automation features, output quality, substrate capabilities, imposition options, and productivity. Here is summary of key innovations:

- Print speeds up to 525 fpm
- High-quality pigment-based inks
- 1,200 dpi output
- MICR and fast MICR capable
- Ability to print on a wide variety of paper stocks
- Designed to reduce paper and ink waste



- Increased operator productivity through automation advancements with an automated print head cleaning
- Integrated web cleaning
- Data-driven predictive maintenance
- Reliability designed to achieve uptimes exceeding 90%
- Developed with low energy consumption

Jansen says, “We are a customer-first company and new features of the ColorStream 8000 are in direct response to customer feedback on challenges corporate and commercial print operations are facing.”

With the ColorStream 8000 series, Canon builds on the strengths and innovations of previous generations and continues its heritage of customer-driven evolution.

The ColorStream 8000 series represents the next stage in the evolution of the press family.

According to Perez-Sierra, “Our motto for the ColorStream 8000 series is ‘elevate efficiency and accelerate their growth’, two key aspects customers tell us they need to succeed.”

The ColorStream 8000 series expands on features that contribute to productivity and efficiency. Here are examples:

- **Printheads:** Native 1,200 dpi Kyocera printheads for high-resolution and consistent print quality. In addition, an automated printhead spray cleaning unit was incorporated to help reduce manual tasks and ink usage. A cleaning liquid is sprayed onto the heads from underneath and a wiper blade removes the ink residue.
- **Ink sets:** A new water-based pigment ink set with latex polymer to expand the ColorStream color gamut.
- **Substrates:** The machines can print on a wide variety of uncoated, recycled, and inkjet treated papers from 40 gsm to 160 gsm as standard, and on selected papers up to 220 gsm. The ability to print on lightweight papers broadens applications the press can print to include publishing and packaging inserts.
- **Format:** The press features a maximum web width up to 22.5” with a print width of 22”.
- **Automation:** An integrated web cleaner offers a new approach with a sticky roller and vacuum extraction for paper dust. It has the potential to improve uptime and quality, while allowing for use of lower cost paper grades as paper dust is minimized.
- **Waste reduction:** A waste-free, 60 second print pause feature enables short production breaks without having to incur paper waste. The press automatically resumes after 60 seconds or can be restarted by the operator and it begins printing exactly where it left off, without introducing any blank pages.



The ColorStream 8000 represents the next stage in the evolution of the press family and is designed to elevate efficiency and accelerate growth.

The ColorStream in Action

The real testament of the ColorStream's success is in the experiences reported by those organizations that have invested in the press. Here is sampling of customer stories representing various ColorStream options.

Venture Solutions: Surpassing Customer Expectations

Venture Solutions, a printer service provider of personalized critical customer communications in Arden Hills, Minn., purchased multiple ColorStream 8000 presses to support its multi-plant operation. In addition to Arden Hills, the company has print manufacturing locations in Columbus, Ohio; Charlotte, N.C.; Fort Worth, Texas; and Sacramento, Calif.

According to Rachael Reiling, Venture Solutions' director of strategy and market development, "The ColorStream 8000 presses are delivering faster throughput, high quality output, and the ability to print on a wider range of material. The new printers improved our level of performance to surpass client expectations, even those with critical color requirements, and attract new business."

Reiling reports the company continually invests in technology to meet customer needs with the best possible quality and cost. All of the company's products can be produced on the ColorStream 8000s and 60% of the company's jobs are produced on the devices.

The ColorStream 8000 is helping Venture attract new business and Reiling describes its output quality as "next level." Expanding on the value the press is delivering, she says, "The extensive functionality of the ColorStream 8000 gives Venture Solutions the ability to produce more in less time, easily handling production peaks. In addition, the 1,200 dpi printheads produce consistently stunning print quality with smooth gradients and striking clarity at high speeds."

The new inkjet presses, Reiling says, are supporting Venture in meeting transactional mail customers heightened focus on branding. She explains, "The output quality of the ColorStream 8000 is outstanding and enables us to support our clients as they expand branding efforts to transactional documents."

Reiling says one of her job roles is to write request for proposals (RFP's). She says Venture believes so strongly in the value the ColorStream 8000 will bring to customers its features are included in RFPs.

She says the Venture sales team is using its investment in the ColorStream 8000 to capture new business and expand work with current clients.

According to Reiling, the ColorStream is helping to achieve Venture's aggressive growth goals and Canon Solutions America has been a great partner. She explains, "We are gaining new business because of the efficiency and output quality capabilities of the 8000. We've been a Canon user for some time, and we continue to see the dedication of the Canon team to our business success."

DMM: Pursing New Opportunities

DMM, Inc., headquartered in Scarborough, Maine, recently became a 100% Canon shop, adding two additional ColorStream 3900s. The business was founded as a data service bureau 40 years ago and has since evolved into a document solutions provider specializing in transactional printing, mission-critical document output, direct mail production, marketing communications, and fulfillment distribution services.

It added its first ColorStream 3900 in 2018 to onboard an important Fortune 100 insurance company with approximately 250 unique applications and very complex workflows. As a result of its success with the press, DMM has continued to invest in Canon inkjet technology and added the varioPRINT i300 cutsheet inkjet press and a second ColorStream 3900.

The company operates two innovation centers located in Scarborough and North Wales, Pa.; both have redundant equipment to load balance production volume and offer customers continuity assurance. In 2021, DMM converted to a 100% Canon shop.

Most of DMM's print work supports clients' efforts in meeting regulatory compliance requirements, including insurance, healthcare, utility, and financial services providers. Having the right print production workflow is critical for DMM in meeting the strict guidelines and daily SLA's on federally regulated client work the company manages today.

John Cloutier, DMM's president and CEO, reports, "A key reason we added the ColorStreams was to offer customers high-speed, high-value color output to improve the overall effectiveness of their client's communications to their customers, thus improving their relationship and life-time value."

While DMM's inkjet presses are mostly used for mission-critical print work, the company plans to increase its production of marketing communications on the presses.

Cloutier explains, "We recently added two new contracts to our portfolio which will increase our annual inkjet production by over 1.2 billion images annually."

Since adding the ColorStream, Cloutier reports DMM increased print capacity, improved time-to-market, decreased operating costs, and improved its ability to customize jobs.

Cloutier reports, "Our biggest differentiator is our ability to understand quickly and integrate complex business-critical output into our innovation centers with best-in-class software, automated workflows, and Canon technology utilizing Prisma-to-Prisma load balancing between our innovation centers to achieve and maintain 100% SLA compliance."

DMM plans to continue to invest in Canon inkjet technology. According to Cloutier, the company is focused on helping its clients improve the effectiveness of their documents with color and customization. He shares that the company gained several new business opportunities as a result of its Canon ColorStream 3900s. Lastly, Cloutier notes that the company has the capacity to handle 10,000,000 images daily and 1,000,000 packages between its two innovation centers that operate 24 hours a day, 7 days a week.

Expanding Opportunities with the ColorStream 8000

With challenges spanning demand for faster turnaround, a reduced labor pool, and an evolving communications landscape, print service providers need innovative solutions to meet customer needs for high-quality products at competitive prices. The features and benefits of the ColorStream 8000 series help address today's key competitive challenges, while opening new opportunities. Consider the following key advantages:

- 1 Accelerate Growth with New Revenue Streams**

The press expands the ColorStream family's application options well beyond its initial target of transactional applications to include books, brochures, election ballots, direct mail, manuals, transactional, transpromo, flyers, magazines, product inserts, pharmaceutical inserts, newspapers, and envelopes.
- 2 Improve Customers Communication Results**

Communication buyers and influencers are looking for providers that can improve the effectiveness and efficiency of their printed materials with personalization, quality, and color. The ColorStream 8000 features 1,200 dpi resolution and an ink set to expand color gamut. Combining personalization with high quality output and additional color options enables producing printed communications that help deliver results.
- 3 Meet Demands for Speed while Pursing Profitability.**

The automation, productivity (uptime of more than 90%), and speed (up to 525 fpm) of the ColorStream 8000 can meet customers ever increasing demands for faster turnaround, while
- 4 Expand Color Options**

Offering more color options can lead to increases in work from current customers and the addition of new customers.
- 5 Easing the Effects of Labor Challenges**

The automation features of the ColorStream 8000 series ease operator requirements. Finding skilled workers is an ongoing industry challenge and more automated processes can help reduce the amount of labor needed to achieve production goals.
- 6 Builds on the Heritage of Proven Technology**

With more than 1,500 ColorStreams in production worldwide, the latest version of this platform – the ColorStream 8000 – takes game-changing innovations to the next level with higher-resolution, wider color gamut, faster speed, high uptime, expanded substrate options, and more automation.

PCI Group: Inkjet Investment Powers Success

Canon ColorStream presses are a core part of the PCI Group's printing arsenal. The company, a provider of mission critical print and mail communications, operates two facilities in Fort Mill, SC, and Dallas, TX that annually print 3 billion images, over 450 million packages, and 85 million checks.

In 2016 the company added its first ColorStream 3900. With the recent addition of a ColorStream 6900, PCI operates a total of seven ColorStreams, along with VarioPrint i300 and iX sheetfed inkjet presses.

According to PCI Group President Christian Kropac, Jr., "The ColorStreams are very reliable and deliver consistent color. The color on page one is the same throughout. While all of these features are important, reliability is critical because we cannot have downtime. Our ColorStream presses do not go down."

Kropac says that he invests in printing technology that is reliable and produces quality output, but it must be accompanied by service. He explains, "A key reason we are long-time Canon customers is because of the level of service we receive. I've worked with other digital press providers and didn't have the same experience."

PCI Group is a 24/7 operation that must meet challenging service level agreements (SLAs). Kropac says the level of service Canon delivers to his company gives him peace of mind. He explains, "We have to meet SLA's every day and can't afford extended press downtime. I know we can count on Canon if we have a problem."



The ColorStream 8000 printed paper company Sylvamo's "Apollo and the Treehouse" storybook. The AR-enhanced book promotes environmental responsibility and sustainability.

Canon views service as an essential component of its products and offers customers preventive and predictive maintenance based on collecting actual press operating data to help detect and prevent potential problems based on a customer's specific usage.

Scheffer explains, "Proactive service and support are vital to our ongoing commitment to customer-first innovation. It includes developing and deploying tools to help our customers take equipment performance, engine uptime, and ROI to the highest levels."

Kropac says when the PCI Group transitioned from a toner roll-to-fold workflow to full color roll-to-roll inkjet, Canon supported the move from inception to completion.

According to Kropac, "There is no one in the industry leading the ink charge like Canon Solutions America."

Expect the Evolution to Continue

The success of the ColorStream is deeply rooted in Canon's focus on matching technology features and innovations with customers' operational and business development requirements. As for the future of the ColorStream product family, Jansen says, "Inkjet is a major investment area for Canon and our evolution of the ColorStream to date is just the beginning." Stay tuned.

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