



The Dynamics of Digital Finishing



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INTRODUCTION

In many respects, says Nate Milliken, “the printing is easy. It’s the finishing that’s hard.”

He doesn’t mean it’s hard in terms of handling the volume. His company, Epsilon, which he serves as Vice President of Operations for the St. Louis, Mo., production facility, is a master of manufacturing direct mail in runs of millions. What’s challenging is making sure that the finishing can change in the same way as the printing has been transformed—into a flexible, adaptive process that plays to all the strengths of the digital presswork it supports.

Partnership makes it possible, and this white paper examines the cooperation among Epsilon, MBO America, and Screen Americas that sets Epsilon’s direct mail capabilities apart. It is a story of what happens to productivity when high-speed, high-volume digital inkjet printing is complemented by the dynamics of modular finishing—a new approach that isn’t constrained by the norms of conventional postpress. It also tells how Epsilon progressed from a cut-sheet color printing workflow to continuous-feed color production, dramatically improving throughput and efficiency as it did so.

PROGRAMMATIC AND PRAGMATIC

Epsilon, a \$2 billion, global, data-driven marketing innovator with U.S. print production facilities in St. Louis and Chicago, Ill., views finishing as integral to the success of its continuous digital production capabilities. Worldwide, Epsilon has 70-plus locations and the two U.S. digital print production facilities serving a critical channel of the company’s multichannel marketing business.

The company’s St. Louis facility is a continuous digital production center that prints, finishes and mails long-run jobs, including self-mailers, postcards and letter packages for clients in the automotive, financial, insurance and nonprofit markets.

Epsilon doesn’t sell printing. It creates and executes complex programs consisting of data management, production, mailing and fulfillment, and quality control. In this highly programmatic environment, there’s little of the unpredictability that characterizes job-shop work. Epsilon knows exactly what its projects will entail, at what intervals they will occur, and what will have to be done to complete them on schedule. This makes the workload manageable, even when the printing and finishing run to millions of pieces.

For a number of years, Epsilon relied on toner-based, cut-sheet digital presses to get the color portion of the work done, eventually acquiring a fleet of 10 of these devices. The output quality of the toner presses was good, but they were slow to print, expensive to operate, and ultimately incapable of keeping up with the demands of a rapidly growing business that was increasingly focused on quick-turn, high-margin opportunities.



TRUEPRESS HD GETS THE NOD

In 2015, Epsilon began replacing them with the Truepress Jet520HD High Definition Inkjet Web Press platform from Screen. Epsilon made the choice after a complex buying process that took nearly a year and included blind tests of image quality, cost analysis, input from salespeople and customer service representatives, and many other kinds of evaluation.

Coming under scrutiny for the final selection were a dozen sets of test prints from various vendors. Epsilon deemed the output of Screen's Truepress Jet520HD High Definition Inkjet Web Press superior to the rest. To date, Epsilon's St. Louis facility has installed a total of three Screen Truepress Jet520HD digital inkjet webs to replace all but one of its toner-based, digital color presses.

For jobs on coated paper, the first two Truepress Jet520HDs that Epsilon acquired ran a pretreated coated inkjet paper from Mitsubishi Paper Mills. The most recently installed Truepress Jet520HD can print on any standard coated offset stock with Screen's SC inkjet inks, providing a substantial savings over and above the superior cost efficiency of the Truepress Jet520HDs vs. the toner equipment they replaced.

Epsilon's first two Truepress Jet520HDs are being converted to use SC inks, which are non-toxic, VOC-free, and hot air dryable. SC inks will enable the company to print using up to 5 percent less ink on U.S. mill-produced standard coated or commodity-grade uncoated offset papers instead of the premium inkjet treated paper used in the past.

With the help of Truepress Jet520HD inkjet printing from Screen and dynamic finishing technology from MBO, Epsilon can operate in a highly efficient, white-paper-in workflow that has none of the extra touches that cut-sheet production used to involve. One-pass printing that proceeds directly to one-pass, offline finishing dramatically compresses production timelines, enabling Epsilon to fulfill its SLA (service level agreement) requirements that much more efficiently.

The resulting increase in throughput has been remarkable. A run of one million pieces that took 20 days to print on a toner device now could be run in just two days on a Truepress Jet520HD—a tenfold improvement in productivity. Thus equipped, Epsilon produced 98 million 8.5" x 11" digital pages in 2015 and 292 million pages in 2016, with 350 million forecasted for 2017.

While Epsilon prints nearly 100 percent variable data on its Screen continuous digital inkjet equipment, the company still operates six continuous mono printers for the production of shell forms and mono imaging to the tune of 123 million mono feet or 268 million mono pages annually. This output also contributes to the challenge of keeping the finishing in step with the printing—a challenge met with a solution based on operating all of the presses at or close to peak productivity.

RELIANCE ON ROLL-TO-ROLL

Epsilon's objective was to run roll to roll on all of its presses to feed multiple finishing lines that could be quickly adapted to the requirements of successive jobs. The result would be the



uninterrupted movement of jobs from print to finishing, helping Epsilon to streamline its transition from a cut-sheet to a continuous-feed color production workflow.

Epsilon considered its finishing options in consultation with MBO and Screen to determine the best way to integrate its printing and finishing technologies. It became clear that offline finishing was the key to maximizing both press performance and uptime.

The St. Louis facility, an MBO shop for more than 28 years, now has five MBO finishing lines in varying lengths and configurations to support the output from all of its digital presses. Each of the lines has core components—an unwinder, a cutter, and a folding unit—that remain fixed in place. Epsilon can then modularize the lines by moving in task-specific units for whatever additional finishing steps the job calls for, such as perforating, scoring, gluing, and high-speed letter folding and insertion.

Epsilon has more than 50 pieces of MBO finishing equipment that it can deploy in this way. The movable components stay in a “parking lot” (a staging area) until they’re needed. As a job is running on one of the lines, another line can be set up for the next incoming job. Caster wheels on the movable units make it easy for Epsilon’s finishing personnel to swap them in and out.

MBO, the leader in high-performance finishing solutions for conventional, digital, and hybrid print operations, began developing digital web finishing systems in 2009. Its modular finishing technology is fully compatible with all types of printing equipment from all of the major OEMs. According to Milliken, Epsilon’s investment payback on its MBO finishing systems is about 18 to 24 months, depending on the degree of utilization.

Because it can be modified on demand, Epsilon’s press to finishing workflow is geared to completing large volumes of work in very short periods of time. If need be, the entire production floor can be dedicated to processing the application in hand. The workflow also makes it possible to reap all of the productivity that a high-output platform like the Truepress Jet520HD is capable of delivering.

UPLIFTING UPTIME

Another way to say “press productivity” is “press uptime.” Epsilon increases it by positioning MBO rollstands at the press to feed and take up the printed roll as rapidly as the press can put ink onto it.

Each Truepress Jet520HD press is fed from an MBO unwinding rollstand, sending the web to a take-up rollstand after printing. The take-up rolls then can be transferred straight to the finishing lines, which can process the rolls even faster than the press can print them at the speed of its highest-resolution output.

Epsilon typically runs the presses at 1200 x 600 dpi with a consistent rate of 246 fpm (feet per minute) for self-mailers and postcards, and up to 492 fpm when running letters at 600 x 600 dpi. The MBO rollstands can handle rolls up to 60” in diameter and support roll weights in excess of 1,250 lbs. This heavy-duty performance decreases the number of roll splices needed and helps to keep the press in continuous operation.



Printing straight to roll maximizes top-end capacity and gets the workflow closer to full utilization of the press. By separating the presswork from the postpress, offline finishing lets the presses run non-stop or close to it.

In this way, thanks to the continuous progression of rolls from press to postpress, the finishing has no trouble maintaining the same rate of throughput as the presswork. The result, says Milliken, is that there are no bottlenecks at all between the printing the job and post-processing it into a finished product—nor any of the delays that hold back postpress in non-digital production environments.

DOCUMENTING THE GAINS

For the kind of high-speed, high-volume inkjet printing that Epsilon routinely does, roll-to-roll printing and offline, modular finishing are the most efficient methods of production. There is no press downtime in this scenario as there would be with inline finishing, because there is no waiting to change inline finishing setups between jobs. The presses run continuously, enabling Epsilon to derive maximum productivity from them. The finishing lines, meanwhile, can be set up for whatever the presses send them next.

Epsilon has made the most of the combination. For example, says Milliken, by including high-speed digital folders from MBO in the finishing lines, it was possible to consolidate three production activities (score, cut, then folding) into one process (roll to mail tray) on the folders. This decreased labor cost by 60 percent.

Production figures cited by Milliken tell a story of steadily increasing job throughput. The company produced 45 million self-mailers and postcards in the last nine months of 2015, its startup year for digital production with the Truepress Jet520HD press platform from Screen and modular finishing from MBO. The number more than tripled to 136 million in 2016. In the first eight months of 2017, Epsilon ran more than 3,000 rolls, digitally producing more than 110 million mailers.

The company has been able to broaden its business base as well, according to Milliken. Sending all of the Truepress Jet520HD output through the MBO finishing lines increased Epsilon's volume on the digital printing side by 197 percent from 2015-2016, thanks to the reliability of the presses and the unwind-rewind systems. The company's overall annual mail volume increased 13 percent from 2015-2016 and is on track to increase 24 percent in 2017.

CONCLUSION

Epsilon's story is inspiring—all the more so because of the message of opportunity it sends to other printers whose businesses are evolving in the same direction. Production inkjet is coming into its own in nearly every commercial, packaging, and industrial printing application, with direct mail in the vanguard of its progress. As Epsilon has demonstrated, the right way to leverage the potential of inkjet is to pair it with finishing systems that operate as nimbly and efficiently as it does.



MBO has been in the finishing business for decades, primarily as a supplier of postpress equipment for traditional offset production. Today, with its dynamic finishing technologies for digital printing, the company also offers new solutions for adding value to printed pieces without the time- and labor-intensiveness of conventional postpress.

This can mean fewer touches, reduced staffing, faster processing, and improved throughput for printing businesses of all types and sizes. In this way, MBO technology fully aligns finishing with the pace, productivity, and profitability of digital printing. To learn how achieve this kind of alignment in your company, please contact Lance Martin, Vice President, National Accounts, MBO America: 609-267-2900; lance.martin@mboamerica.com.

ABOUT EPSILON

Epsilon® is an all-encompassing global marketing innovator. We provide unrivaled data intelligence and customer insights, world-class technology including loyalty, email and CRM platforms and data-driven creative, activation and execution. Epsilon's digital media arm, Conversant®, is a leader in personalized digital advertising and insights through its proprietary technology and trove of consumer marketing data, delivering digital marketing with unprecedented scale, accuracy and reach through personalized media programs and through CJ Affiliate by Conversant®, one of the world's largest affiliate marketing networks. Together, we bring personalized marketing to consumers across offline and online channels, at moments of interest, that help drive business growth for brands.

Recognized by Ad Age as the #1 World's Largest CRM/Direct Marketing Agency Network, #1 Largest U.S. Agency from All Disciplines, #1 Largest U.S. CRM/Direct Marketing Agency Network and #1 Largest U.S. Mobile Marketing Agency, Epsilon employs over 8,000 associates in 70 offices worldwide. Epsilon is an Alliance Data® company. For more information, visit www.epsilon.com and follow us on Twitter @EpsilonMktg.

ABOUT SCREEN AMERICAS

Since 1967, Screen Americas (a SCREEN Graphic and Precision Solutions group company) has provided a wide range of solutions to meet graphic communications needs, with a strong focus on production-class inkjet printing technology. Screen's versatile, reliable product portfolio includes Truepress inkjet printers and presses, PlateRite thermal platesetters and PDF/JDF-based workflow solutions for computer-to-plate and print-on-demand.

Screen digital solutions are known for their ability to streamline printing processes and significantly improve output quality. These exceptional features continue to make Screen solutions leaders in commercial printing, book publishing, direct mail, packaging, labels, and wide-format signs and displays.

ABOUT MBO AMERICA

MBO America was established in 1984 in order to bring MBO (Maschinenbau Binder Oppenweiler of Germany) to the growing US market. Through the acquisition of specialty finishing



provider Herzog + Heymann in 2000, the MBO Group became a comprehensive single-source provider of postpress finishing solutions.

Strategically located in Marlton, N.J., just outside of Philadelphia, MBO America fulfills specialized needs upon request for cut-sheet and web digital finishing applications, commercial finishing, pharmaceutical folding, packaging, and diecutting throughout the Americas. MBO and MBO America are internationally renowned for superior customer service and technical support, as well as for top-notch business consultation programs.

ABOUT THE AUTHOR



Patrick Henry is a Senior Editor in the Printing and Packaging, Publishing division of NAPCO Media, the publisher of *Printing Impressions*, *packagePRINTING*, and *In-Plant Graphics*. Henry has covered the graphic communications industry for more than 30 years and is the holder of numerous awards for editorial excellence and industry service.

