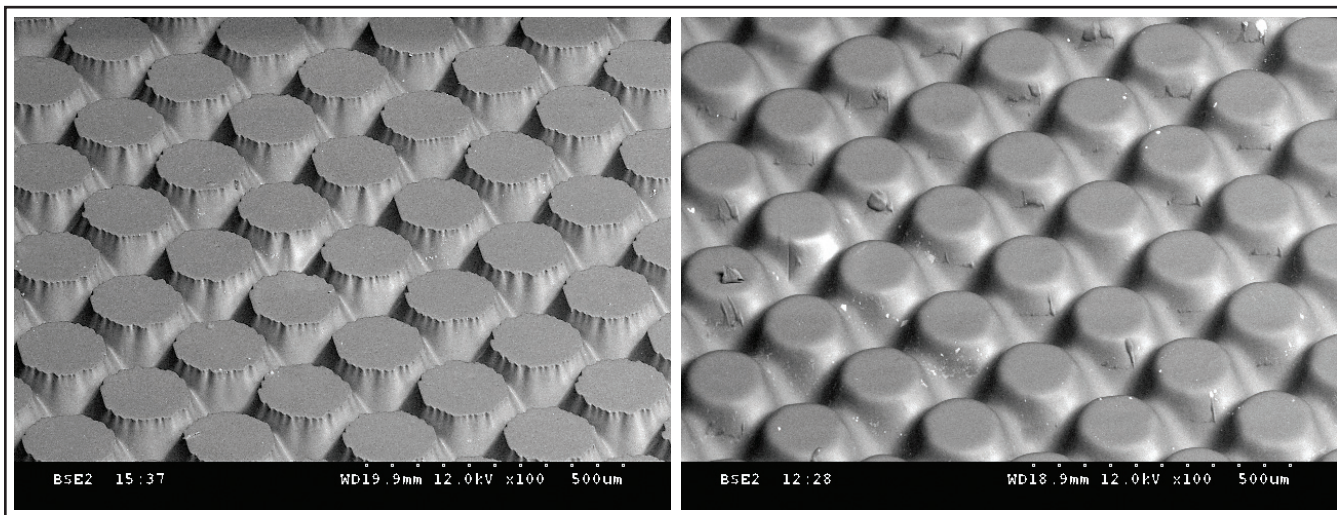




Going 100% Digital

CSW Works with MacDermid to Enhance Workflow

By Marek Skrzynski and Karen Leet



New generation digital platemaking technology (left) creates sharper 50 percent dots.
All art courtesy CSW Inc. and MacDermid Printing Solutions.

In January of 2009, Laura Wright, president of CSW Inc., decided to purchase a digital platesetter. It was the company's first digital imaging device, which is a milestone to say the least. But for CSW, it was much more than that—it was the beginning of a journey. Wright had decided to challenge her production team by moving CSW's entire workflow to a completely digital state by eliminating silver-based film from its production process.

"I know that's quite a leap, going from zero to 100 percent, but we needed to respond to requests from existing customers and new prospects. Also, a 100 percent digital implementation would increase our efficiency through a streamlined workflow and lower inventory levels," recalled Wright. She also cited better waste control and the elimination of film's heavy metals as a way to meet the company's sustainability goals.

In order to make such a radical change, CSW faced several technical obstacles, such as finding a replacement for imagesetter film in liquid photopolymer production, ensuring flat-tipped dots for corrugated customers, and the ability to preserve the use of thousands of legacy production files archived at CSW. Having the flexibility to produce round-tipped dots was also very important, since CSW was already providing some web customers with 1-bit tiff files and wanted to expand its offerings for this segment to include

digital plates. At that point, CSW's business mix was about 50 percent corrugated, 45 percent wide and narrow web, and 5 percent other. With the purchase of the digital plate system, they would initially be able to satisfy only about 20 percent of their existing customer base.

Among its customers, CSW was well known for quality analog plates, rendered at very high resolutions (up to 212lpi) and able to hold strong dots at screen percentages far below published press specs. "We did not want to lose these features by going digital," said Marek Skrzynski, CSW's director of graphics, R&D. "Maintaining equivalent print quality was critical to our customers, especially for reorders." Therefore, the preservation of a linear output and an invisible transition from analog to digital plates for most of CSW's customers was added to the initial project goals.

In February 2009, CSW installed an inkjet film plotter. According to Mark Buchanan, CSW's printing plate production manager, "This solved our first challenge. Finally, liquid plates could be made without any need for an imagesetter. We always envisioned this system having a maximum of 65lpi output, but today's inkjet technology surpassed that."

Next, CSW's R&D team evaluated several digital plate making systems that were able to produce flat-tipped dots. Most were rejected due to limitations such as size, consumables cost, production time, or restrictive contracts. The team ultimately chose an Esko platesetter. After delivery and installation in April 2009, CSW's R&D team began testing exposure methods to assure that its previous plate quality would be achievable with the digital system. "We tried every technique known to us, but came up short of accomplishing our goals," said Buchanan. "Results from one of our point light exposure units were initially very promising, but, in the end, did not yield consistent results."

Tips for Going All Digital

- Collaborate with vendors and customers on R&D.
- Carefully research and test all options before investing.
- Look beyond the immediate implications of making one change in your workflow, to how it can create a domino effect of innovation.

"Mark has 16 years of experience with flexo platemaking, and knew that the presence of oxygen was preventing us from rendering the desired dot surface and shoulder angles that we were accustomed to seeing on our analog plates," said Skrzynski. During the next few months of experimenting with various digital plate materials and processing methods, CSW attracted the interest of MacDermid's Technical Team, which at that time was already advancing the development of flat-tipped digital dots. MacDermid's method ultimately included laminating a transparent membrane to the surface of ablated plate material during the exposure process. Preventing oxygen interaction with monomers in this way results in flat-tipped dots with great relief.

"It just happened that CSW's interests coincided with our existing R&D initiatives," noted Steven Kenney, business director at MacDermid Printing Solutions.

"The combination of our 'dot engineering' research program and CSW's practical platemaking experience was remarkably productive. It drove us to leverage years of fundamental investigation of digital plate behavior into a practical and improved system," explained Dr. Timothy Gotsick, director of innovation at MacDermid Printing Solutions. "CSW and MacDermid pushed one another hard to go beyond the current state of the art. Both teams were driven by what this new generation of digital plate making has to offer: accuracy, expanded gamut and predictable printing results. Ease of use and integration with existing systems was an added bonus."

Armed with this new platemaking technology, CSW approached several customers who agreed to test it in a production environment. "The initial results were stunning, but we did not want to jump to any quick conclusions," said Skrzynski. "More testing at longer runs, faster speeds and on various substrates were required. We wanted to make sure that our results were repeatable, as well as achievable without any additional capital investment on the converter's part."

The picture that emerged from many postproduction evaluations was more than promising. "Not only did we run cleaner, longer, and with greater latitude, but we also reduced fluting, and almost doubled the resolution," said John Lehtomaki, print production manager at New England Wooden Ware, one of CSW's earliest test sites. "It seems like digital platemaking technology finally has something to offer to corrugated printers."

Reduced fluting on corrugated board and improved printability of small copy and reverses were not the only benefits of this new technology. CSW worked together with Bemis' Poly-

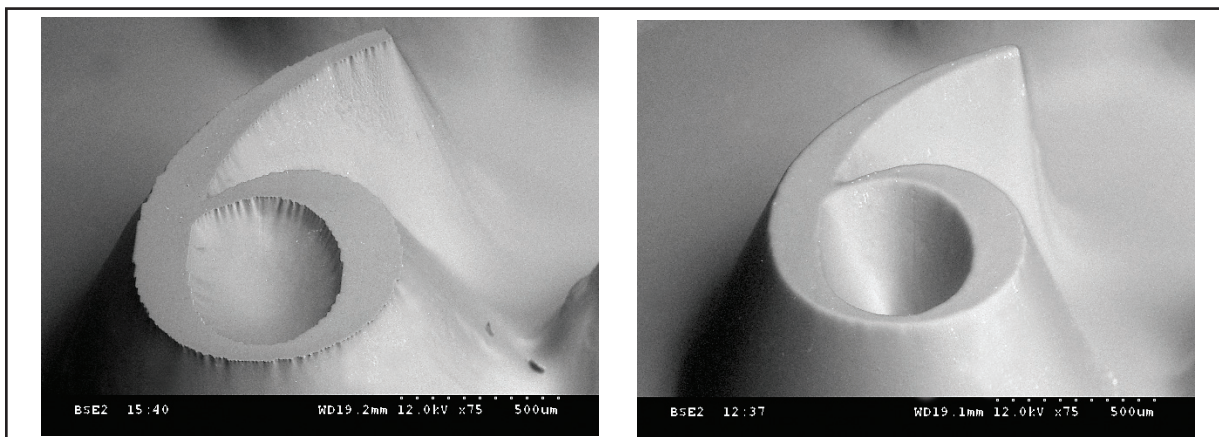
ethylene Division in Terre Haute, IN and managed to impress some of the most demanding brand managers. The designs for a set of shrink-wrapped cases of bottled water were rich in details, with highly saturated colors and challenging gradients. CSW was able to output these as linear files, with no bump curve at 120 to 170lpi. HD-XM screening technology rendered vignettes down to 0 percent, without any hard edges, while keeping shadows open at 98 percent. According to Vic Corenflos, printing manager at Bemis, "We knew that CSW would do their best to image engineer this job, but the results have surpassed our expectations. This is one of the best flexo pieces we have seen yet on our shrinkable film."

By combining HD-XM screening, a state-of-the-art color management system, and MacDermid's plate processing system, CSW developed a solution that can help users compete head-to-head with offset and gravure print quality. CSW is now in the process of removing all imagesetters from its Ludlow location and expanding its plate department to the area previously occupied by the darkroom. Skrzynski concluded, "This is an end of an era. It's amazing that such a simple innovation could be integrated with a proven workflow and lead to a total game change." ■

ABOUT THE AUTHORS: For the past 11 years, Marek Skrzynski has been working as a director of graphics and R&D at CSW Inc., headquartered in Ludlow, MA. Born and educated in Poland with additional study at Pratt Institute and Clemson University, he has 20 years of hands-on experience in high-end color reproduction and flexography, as well as 15 years of managing experience across multiple prepress and graphic design functions. Skrzynski is often a speaker and lecturer at various academic and printing industry events. He occasionally writes technical articles for *Corrugated Today*, *Package Printing* and **FLEXO Magazine**, as well as contributes to military history periodicals.

Karen Leet is graphics and marketing communications manager at CSW Inc. After earning a BFA in Communication Design from Massachusetts College of Art, Karen worked for several corporations as a designer of consumer products, exhibits, print collateral, and packaging. She has been involved with production planning and marketing coordination at CSW for the past 12 years.

This article references LUX digital platemaking technology developed by MacDermid Printing Solutions.



An example of 6pt. type produced on digital technology implemented at CSW Inc., compared with traditional digital imaging devices.