From tried and true to new…

Sizing up Stencil Systems

BY HEATHER B. FRIED

As the digital era furthers its reaches to touch and transform more aspects of everyday life, those in this and every industry are faced with options to stick it out with the old or take a chance on the new. The latter represents a potential lapse in productivity at the outset in exchange for efficiency down the line, whereas already installed and reliable machinery may continue to meet the basic needs for which it was purchased. Digital developments in stencil making have produced a computer-to-screen alternative to conventional methods and, while this novel equipment may not be for everyone, the technology is certainly worthy of a comparative look here.

Classical

"In a traditional process, color separations are printed to vellum or film using an image setter, laser printer or inkjet printer," remarks Phillip Wanzong, OYO Instruments LP. "The image created on this film will become the image mask that blocks UV light during the exposure of the screen." The image positive is then positioned on the coated screen, secured and placed in a vacuum frame where air must be drawn from between the film and screen to ensure proper exposure, adds Wanzong. Once exposed, the film is removed and the unexposed emulsion washed out, leaving the image ready for press.

Between traditional and more technological stencil-making systems, today's screen printers have no shortage of options. (Image courtesy A.W.T. World Trade Inc.)

An offshoot from here is the projection method, whereby a smaller positive is placed into a projection unit, blowing up the image to screen-appropriate proportions, explains Michael Green of A.W.T. World Trade Inc. "This will reduce your film costs by using less film," Green says. "The projection unit then exposes the coated screen and you wash out the unexposed emulsion."

Besides an actual direct-to-screen unit, equipment differences between the two stencil systems boil down to a vacuum table, which draws film and mesh airtight—a step skipped in computer-to-screen's scheme as the image is applied directly to mesh. Vacuum draw-down can be a drawback, sources say, as not only does the procedure take time, but also, the glass in these frames have been known to create problems. Wanzong mentions its tendency to become dirty and scratched, causing pinholes that must be touched up after exposure.

Even given these shortcomings, "Price is the main advantage with conventional, and there still is a better quality using film," in Green's estimation. "Also, it is very easy to use, low cost to get into and less expensive to maintain." On the supply side, the disparity from orthodox to updated methodologies can be expressed in one word: Film—the presence or lack thereof plays into each process' pros and cons.

For film

In film's favor is its history within the screen-printing process; printers take comfort in knowing that artwork issues can be resolved on film/vellum rather than on press. "Many shops rely on film for a final proof check before a job is sent to press. This step is eliminated with a CTS [computer-to-screen system] since there is no film produced," Wanzong says, also

also mentioning workflow adjustments. "Usually, most pre-press activities occur in the art room. With a CTS workflow, some of the pre-press operations may be shifted to the screen room. This requires a certain skill level that may not have existed before." While "art guys" don't necessarily need to be present in said room, some of their skills may need to transfer to screen-room personnel, including navigating a file structure to locate the job and operating the RIP software, which could entail setting job-specific parameters like halftone specs, image placement and dot calibration.

Another plus for film, in the eyes of Print This Inc.'s Jason Ballash, is its ability to be hands-on manipulated if a printer is so inclined. "Let's say your customer says they want to change something or you need to burn two screens and you're going a cut the film apart, you can do that when you have film. You cannot do that whith direct-to-screen, so you have to go back to the art department and have it fixed and redone."

Foe film

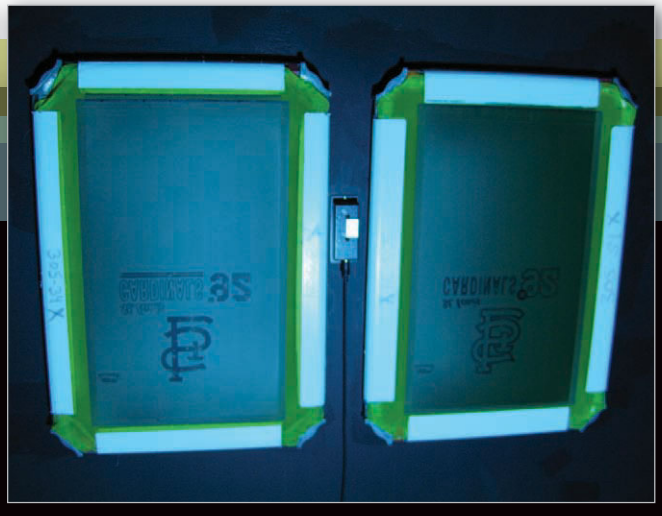
The arguments for film were a big part of what positioned Dave Filip of Bimm Ridder Sportswear against the rest of his operation in his battle to incorporate direct-to-screen. "I fought my case with *everyone* in our organization. The artists fought 'til the bitter end. My faithful lead press man was even against it," he reports. "The art department hated the idea because they knew they wouldn't have film to look at to catch their mistakes." His rebuttal? "This machine will force you to be better at your job." As it turns out, it *did*. Although mistakes are most often caught only once the job is on press, thus necessitating a whole new screen, his artists rose to the challenge, becoming stronger at their jobs and rendering said mistakes a rare occurrence.

Once film is missing from the process, it may never be *missed*, sources tell *Printwear*. "We don't have a single piece of film in this building anymore," states Filip. "No one has to cut it, archive it, retrieve it or look for that one missing piece. Just getting rid of film has so many benefits." Among those, he mentions simple changes made digitally, and a new, triple-backed-up archiving system, a far cry from his previous multi-thousand bags of film.

Ballash brings up another advantage—subtract film, and undercutting is no more: "Film undercuts because the light's allowed to bend around it," huge in this industry, he adds, especially when coating screens with high-density or capillary films and carrying out highly-detailed work. Green also points out that, environmentally speaking, film waste is unfriendly and using digital provides easier screen-to-screen registration.

Computerized

Wanzong agrees, seeing precise placement of color separations on screen as a critical advantage. "A CTS system combined with a registration system on press can dramatically reduce press setup times." Another advantage, he says, is the workflow and precision of a CTS system. "Skipping the film



After pleading his case for a direct-to-screen system at his shop, Dave Filip eventually won, and now his colleagues wouldn't have it any other way. (Image courtesy Bimm Ridder Sportswear)

step streamlines the process of getting art from the computer to the press. In a busy shop, any extra step slows things down and impacts the number of jobs per day that can be produced."

With digital screen making, Green explains, mesh is coated conventionally. "Then you put your screen into the digital make, and the machine will apply your image in wax to the emulsion or film," he says. "After applying the image, you still need to expose and washout as with conventional screen making."

Once the image is on screen, Filip's process continues by hanging the frames on 2 X 4 blocks screwed into a black-painted wall opposite his light source. "The wall is painted black to reduce light scatter. Since the image is directly on the emulsion, intimate contact is assured," he remarks. "By losing the glass and film, the exposure times will be reduced by forty to sixty percent."

Variables available within the computer-to-screen category include orientation—horizontal or vertical—size, and ink versus wax, the latter of which Filip prefers. "The I-Jet uses wax rather than ink. I like this mainly because we image a day ahead of time. I don't have to worry if the screen sits imaged—not exposed or developed—for hours or days." A downside to wax, however, is cost. Though he's yet to replace one, Filip anticipates spending between $3,000 and 4,000 for the head. Despite what he has and will pay for CTS, Filip still sees the savings. "I saw so much potential for labor savings, supply savings, all the way through the system, faster set ups, less down time, I could just see the whole process speeding up tremendously and costing less to run," he reports. "Just looking at everything I imagined direct-to-screen could do, it did." Proof of this lies with his colleagues. As hard as they fought against direct-to-screen, "Now you would have the fight of your life if you tried to take it away from us!" he says.

Currently using both techniques, Ballash and associate Lon Winters are on board with CTS at their shop, pro technology as it moves forward, and, in their opinion, gets better along the way. Where film output is a typical pre-press charge that multiplies as the colors do, printers utilizing CTS can charge a nominal number for the wax or water-soluble ink, saving the customer money and providing a competitive advantage, according to Ballash.

With CTS, the coated screen becomes a print surface and care must be taken to ensure a screen is coated properly, evenly and with little contamination. Keeping the environment clean and climate controlled is important for consistent quality, according to Wanzong and fortunately, any changes improving this area also improve the quality of the printed image on press, CTS system or not. (Image courtesy OYO Instruments LP)

Convert contemplations

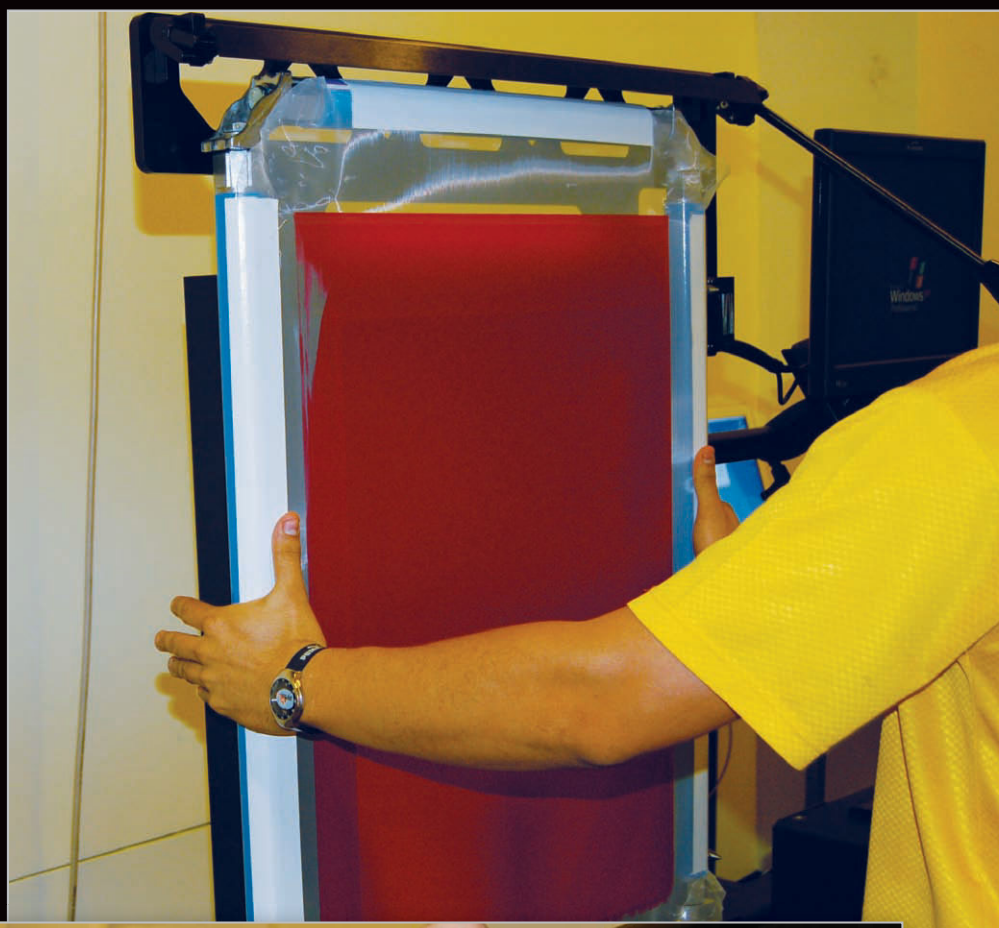
Fairly new to the marketplace with high prices compared to film-production equipment, Wanzong says direct-to-screen purchases can be justified by how much consumable and labor savings there will be in implementing the system.

A direct-to-screen imaging system removes the need for film, an expensive consumable, but at some point a buyer must justify the higher expense of these machines to do this, and Green suggests conducting a cost analysis of sorts. "The break-even has to do with film costs, the number of screens per day/week/month and labor costs," he offers. "Digital also can be faster depending on the machine's size and speed. Of course, the larger and faster, the more expensive the machine. Take all into consideration as you are eliminating the film, but picking up the cost of wax to make the screen." It's likely, Green goes on, that a printer is considering digital for numerous or very large screens.

While this technology does make more sense from a production standpoint—an attribute most establish over time—Ballash notes the advantage in early adoption. "If you're a bigger operation starting up with a couple automatics, it's best if you start right off the bat with one, therefore you don't have to go back and deal with archives," he explains. "As you move forward, if you're committing to these technologies

and you want to stay ahead of the game, it's probably best to get involved as soon as possible, because otherwise you're going to be left in the dust."

Between traditional and more technological stencil-making systems, and all choices therein, today's screen printers have no shortage of options. What's more, these aren't the only games in town, with alternatives, such as the XpresScreen system void of chemicals and emulsions, making the market even more interesting. Posing unique pros and cons, these processes present different scenarios to different decision makers who, regardless of their position along the old-to-new spectrum, can count on one thing: apparel-decoration technology will continue in forward motion.



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