ROAD TO SUBLIMATION SUCCESS

New Printers Hit the Road!

By David Gross

I keep a bucket list of all the things I want to do with sublimation. One thing that I placed on my list, day one, was to be able to offer the perfect desktop printer for sublimation. What do I consider a perfect dye-sub printer? A printer that is actually designed for sublimation transfer with features such as fast print speeds, awesome quality, vibrant color, a reasonable price, low operating costs and superior reliability. I wrote something similar to that about six years ago when our sublimation world first embraced the Ricoh GelJet printers. Since then, Ricoh GelJet printers have become dominate in the desktop sublimation world, and with the help of a handful of other companies (e.g., Sawgrass, UNISUB, Vapor and others), have pushed our industry to go viral.

NEW MODELS FOR THE ROAD

Six years ago, the Ricoh GelJet printers entered our world of dye-sub transfer. To impress Ricoh's office printing clients, the company incorporated several interesting technologies into these printers including a large industrial Piezo printhead for fast, reliable printing. Additionally, Ricoh incorporated an electrostatically charged belt system to transport the paper through the printer at speeds that rival color laser printers.

Perhaps the biggest innovation of all, Ricoh's new high viscosity "gel" ink allowed for extremely efficient and economical printing at high speeds. All of these features made the GelJet printers interesting candidates for our world.

After I published my first article in 2009, I received word that the chairman of Ricoh in Japan (he was the product champion of the GelJet printers) had read my article and was enchanted that our strange dye-sub industry was using

The Sawgrass Virtuoso desktop sublimation printer series.

ALL IMAGES COURTESY THE AUTHOR

These new printers are built on last year's successful SG3110 and SG7100 models.

GelJet printers for a purpose other than office printing. Ricoh saw the tremendous success their printers were having in our world and developed a true partnership with Sawgrass. As a result of that partnership, a new chapter has begun as Sawgrass (with Ricoh's help) has introduced the first out-of-the-box desktop sublimation printer family called the Virtuoso series.

MEET THE FAMILY

These new printers are built on last year's successful SG3110 and SG7100 models (the "SG" stood for "System GelJet"—not "Saw Grass"). I describe the printers as having GelJet 4.5 generation technology because it's sort of like having a new, upgraded car on the inside while using the previous exterior body style. The new printers are easy to install and operate and will give you awesome results.

On the outside, the biggest change to each printer was the removal of the duplex unit (a duplexer provides the ability to print on both sides of the paper). The duplex unit is not needed for dye-sub printing and can be damaged during shipping, so getting rid of it saves space and weight and removes one thing that can go wrong!

The inside of the printers is where the real work was done. Ricoh, with input from Sawgrass, focused on improving the consistency and quality of printing. They did this by upgrading the electrostatic transport belt used to move the paper and by re-engineering the print head by upgrading its M-Dot technology (provides improved dot size and placement). Combined, these changes provide noticeably improved print quality.

WHERE THE RUBBER MEETS THE ROAD

The Virtuoso family consists of two printers with the basic functional difference being how "big" they can print. Each printer has one built-in 250-sheet paper tray with an optional 100-sheet bypass tray and/or optional extra 250-sheet bottom tray. The optional bottom tray holds the same sizes as the built-in tray, allowing the flexibility to have two paper sizes loaded in the printer at the same time.

The SG400's standard 250-sheet paper tray and optional 250-sheet paper tray can handle a maximum paper size of 8.5 inches by 14 inches. Its optional 100-sheet bypass tray can handle 8.5-by-21-inch cut sheet paper (and banner lengths up to 50 inches), which allows you to take advantage of the typical 16-by-20-inch heat press platen when pressing substrates such as neckties, scarves and lanyards.

The SG800's standard 250-sheet paper tray and optional 250-sheet paper tray can handle a maximum paper size of 11.7 inches by 17 inches; 11.75-by-17-inch cut sheet paper sizes can achieve a full bleed of 11 inches. I recommend purchasing the SG800's optional 100-sheet bypass tray that handles the 13-by-21-inch paper size, giving you the ability to transfer to larger substrates such as apparel, socks and large glass cutting boards.

Hard Substrate Update

My dye-sub bucket list is filled with all sorts of interesting things such as a guitar pick, sublimating to cotton, and sublimating to real wood. Although several companies have introduced coated wood products, all have had limited success. Now, the folks at UNISUB have introduced ChromaLuxe Natural Wood Prints.

Natural Wood Prints are made from MDF (Medium Density Fiberboard) with a .625-inch thick maple veneer face. The maple veneer features a low gloss version of the ChromaLuxe coating that allows the natural beauty of the wood grain to show through while also being hard and durable. Transferred images look fantastic and can be hung on a wall vertically or horizontally using the pre-drilled keyholes on the back. Natural Wood Prints are currently available in seven sizes ranging from 8 inches by 8 inches to 30 inches by 40 inches with more sizes to come.

Since maple has a distinctive light brown color, images with minimal or light color backgrounds are the best candidates for this new substrate. Dark-colored backgrounds tend to cover up the beautiful wood grain that we're trying so hard to show off. To achieve best results from those photos with dark backgrounds, you will need to become good at using the magic wand and/or eraser tools in Corel Photopaint or Adobe Photoshop. I personally like to remove backgrounds from images using onOne Software's Perfect Layers (www.ononesoftware.com).

Once your image is prepared, it will need to be sized/cropped to the panel's size plus a small bleed on each side. Minimizing the bleed is necessary because you only want to transfer to the front of the panel, not overlap onto the edges.

Next, print your transfer and mist it with Pro Spray. I don't recommend heat tape in this case because it increases the chances of transferring a portion of the image to the edge of the panel. Either way, minimizing the size of your bleed will help minimize the problem. Place the transfer face up on a table and lower the wood panel over the transfer, making sure that the panel's keyholes are correctly orientated. Once correctly aligned, run your hand over the backside of the transfer to make sure it is properly adhered to the surface of the wood.

Open your heat press, place a piece of protective paper on bottom, add the wood panel (face up) with attached transfer (face down), and cover with another piece of protective paper. Adjust your press height to provide medium to heavy pressure and press for 400 degrees F for about 1:30 to 2:30, depending on your heat press and the panel's size (be sure to document your results). To dial in your settings for each size, I recommend transferring a solid black image (RGB of 0,0,0) to the wood.

The natural wood color of the maple will distort colors towards the yellow/brown spectrum, but that's what folks should expect from maple. I think Natural Wood Prints are great for photographs, but they also make unique and high value presentation/award plaques.

The SG400's standard 250-sheet paper tray and optional 250-sheet paper tray can handle a maximum paper size of 8.5 inches by 14 inches.

Both printers also support smaller sizes of paper. Note that neither printer will do edge-to-edge printing, so you must allow for a 1/8-inch margin on each edge.

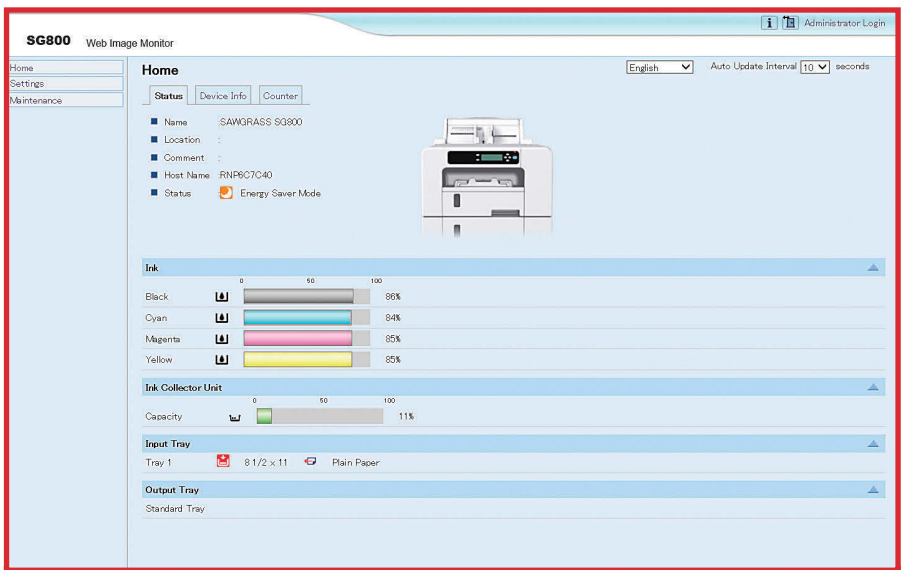
The paper we use in the Virtuoso printers is not plain or transfer paper—it's "sublimation release paper." It's designed to carry the sublimation dyes from the printer to the heat press and, once heated, do a good job of letting go of the sublimation gas so that it can enter the open pores of the substrate. Keep in mind that not all sublimation release paper is compatible with the SubliJet HD inks. Many older sublimation papers dry too slow and will leave "tractor wheel marks" on the paper.

Sublimation paper has a bright white side and a not-so-bright side. Always print onto the bright white side! In the case of the Virtuoso printers, the paper should be loaded with the bright white side face down in the bottom tray(s) and face up in the bypass tray.

ALL DRIVERS WELCOME

Both printers are supported on Macs from 10.5 and up and on PCs from Windows XP forward. I have tested the printers extensively with both Adobe and Corel products.

Each printer supports USB (a USB cable is included) and Ethernet connectivity. The two connectors are located on the left side of the printer inside a hidden removable panel. Be sure to double check that you are plugging the USB cable into the correct port on the printer. Never use an external USB hub for connecting the printer to the computer as this will usually cause printing issues. Neither printer supports wireless printing. Although USB hook-ups are easy, I recommend connecting via Ethernet (if possible) because it makes sharing the printer trivial and you'll be able to access the built-in web server via your favorite web browser to see such things as real ink levels. Connecting via Ethernet will require an Ethernet cable.



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(Above) Sawgrass went back to the drawing board to create its new SubliJet HD sublimation ink.

(Right) A dye-sub ink cartridge's performance cannot be guaranteed past its expiration date and should be replaced.

charge." This process will take about seven minutes and moves ink from the cartridges into the tubes that connect the cartridges to the print head. Once completed, this process will have pulled about a third of each standard size cartridge's contents into the tubes. Although this does not waste ink, the yield on your first set of cartridges will be less than your second set.

An "initial ink charge" begins with 400 percent of ink (100 percent of each cartridge X 4) and concludes with about 267 percent. Producing an 8-by-10-inch high-coverage print will use about 1 percent of the ink—about 267

HIGH OCTANE FUEL

Sawgrass went back to the drawing board to create its new SubliJet HD sublimation ink. It provides about 12 percent more dye and a 26 percent increase in the color gamut—all packed in cartridges provided by Ricoh for maximum reliability and accuracy. These new inks are not compatible with existing Ricoh brand gel printers.

The Virtuoso printers are four-color printers using individual SubliJet HD cartridges. Both printers support standard size cartridges while the SG800 also supports high-capacity cartridges. Standard and high capacity cartridges can be mixed on the SG800 and provide about a 20 percent cost savings compared to standard size cartridges.

The SubliJet HD ink is a high-viscosity "gel" ink that is highly efficient. My repeated tests since 2009 indicate that one ml of gel dye-sub ink is equivalent to three ml of standard dye-sub ink.

The first time cartridges are installed, the printer will perform an "initial ink

8-by-10-inch high-coverage transfers can be printed from the first set of standard cartridges. Keep in mind that this is based on equal use of each color, which isn't possible because one color will always run out before the rest.

A good rule of thumb is that ink costs about $.01 per square inch of full color. Our heavy-coverage 8-by-10-inch transfer will therefore cost $0.80 plus the cost of paper. If you have the SG800 and are using the large cartridges, you get about a 20 percent cost savings.

A dye-sub ink cartridge's performance cannot be guaranteed past its expiration date and should be replaced. Each SubliJet HD cartridge and box is stamped with a "Use By" date.

A cartridge should only be replaced when the printer says to replace it, not because the cartridge ink level is low (exception: the cartridge has reached its "Use By" date). If you are having problems, replacing a cartridge because of its low level will not likely remedy the situation. With so much tubing between the cartridge and print head, it will take a fair number of prints for any new ink to arrive at the print head. Unless you do a large amount of printing, I generally do not recommend stocking replacement cartridges until you get a low ink warning.

PRINT QUALITY AND COLOR MANAGEMENT

There are two approaches to achieving accurate color and great quality. First is Sawgrass' Power Driver for Windows. This is a printer driver that, once installed, provides the necessary color management and quality settings for accurate color. The second approach is to use the Virtuoso's ICC color profile in your application along with the appropriate driver settings.

Will transferred colors match the colors on my monitor? No. If you need to match spot colors like a Pantone color, school color or color on a business card, use color charts.

WARRANTY AND SUPPORT

One of the best things about the Virtuoso printers is the warranty! Sawgrass warranties each printer for use with SubliJet HD inks for one year. An extended warranty can be purchased that will provide a total of two years. I recommend you purchase the extended warranty, as the cost is quite low. If you are having trouble with your printer, please contact your distributor. If necessary, they can then pass you to Sawgrass so they can assist you with a replacement printer. I suggest you contact the company you purchased the printer from as soon as you receive it.

ROAD TEST: SPEED, QUALITY, COLOR

Even though I expect improvements with each and every new generation of printers, I have no interest in printer specs. All I care about are the results! I think the new Virtuoso printers produce color and quality rivaling more expensive eight-color printers. Although the normal print mode speed is about the same as the Ricoh SG3110 and SG7100, the Virtuoso printers support two new quality modes: HQ and Advanced Photo. These new modes provide additional detail for substrates that have a close viewing distance such as jewelry. The HQ mode seems to be my universal favorite for hard substrates. In regards to color, the new inks live up to Sawgrass' details about more dye and a larger color gamut.

COST OF GETTING ON THE ROAD

I think sublimation decorating technology is by far the best value when compared with other technologies such as DTG (Direct-to-Garment) and DTS (Direct-to-Substrate) and is a complement to other technologies like laser engraving. Typical cost of a complete system (printer, heat press and substrates) ranges from $1,200 to $3,000. Considering the high profits of sublimation decorating, you can quickly pay for your system in a matter of months. Many folks are able to pay for their systems in a few short weeks. If you already have a heat press then you greatly reduce your beginning investment.

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