Make Die Cutting Work for You

Steps to automating your finishing systems.

By Dave King

David King is "Commander of Results" at MarketKing, a team of professionals specializing in the creation of aggressive marketing and educational programs for companies that offer products/services that are typically more complicated than commodity-based products. Visit www.themarketking.com for details.

I purchased my first flatbed printer back in 2005. At the same time, I also purchased a flatbed digital die cutter. I just assumed the only reason to own the die cutter was that the UV-cure inks were soft when they were first laid down on the boards, and to do the job properly I should have the cutter. I've never regretted my decision and highly recommend that anyone with a flatbed printer pick up a good digital die cutter, such as those made by Zünd, Kongsberg or any good flatbed digital cutter equipped with the MGE i-cut vision system.

WHAT DO YOU DO?

We tried out a lot of things with our new flatbed printer. We went to Home Depot and purchased doors, panels, and just about everything I could find that I thought I might want to print on. The printer ran nicely on just about everything, and we naturally printed onto all the materials around our shop. Again, the printer did a great job.

The next fun was to start cutting and see how far we could push the cutter. So we cut everything from banner material all the way to sheets of Dibond. The challenges arose regarding how to really make this new cutter perform and make more money and/or cut down labor costs. First, I'll discuss various die-cutting blades and tools and their applications.

Kiss-Cut Blade – This very simple vinyl cutting blade is designed for cutting everything from standard colored vinyl to digitally printed vinyl.

Drop-Cut Blade - This is a much harder and stronger blade designed to cut polystyrene (up to .030-mil), polycarbonate (up to .030-mil), foam board (up to 3/16"), and many other thin materials.

Reciprocating Blade - This is a long, thin blade that moves up and down very fast and cuts through Gator board and other thick, softer paper-based boards.

Router - Our Zünd cutter had two router options — the 400 and the 1000. The 400 is a slower router designed for a shop that does not have speed requirements when cutting boards. The 1000 router is a high-speed router designed for high productivity. Routers, regardless of speed, are ideal for cutting through Sintra, Dibond, Lexan, PETG and Gator sheets that have an inkjet or lambda print mounted to them.

Crease Tool - This tool is designed to help with the creation of boxes and other packaging items that need to have creases in them for folding.

Other cutter options that I believe are needed include: a rotary tool to cut fabric while welding, dimensional router heads that can travel both X-Y and Z planes simultaneously, and tools that can cut on angles. Now that we've discussed cutting tools, let's go through some print-and-cut challenges.

DOUBLE-SIDED PRINT/CUT

The first hurdle I had to overcome was the design of double-sided images. Many customers (and some designers) have a difficult time comprehending the fact that, in order to be correctly cut, an image printed on one side must be a mirror image of side two. But logos and type can't be flipped. This involves educating the clients on the problem and in many cases fixing the images in software.

The next problem is attaining perfect alignment on the second side before cutting. When printing double sided, just over-bleed the second side, or both sides, and the error gets lost in the black outline. Another issue involves images that have a white edge on one side. Overcome this by over-bleeding the

A flatbed UV-curing printer and the high-productivity of a flatbed digital die cutter is a winning combination.

A good digital die cutter can improve shop efficiencies and become a powerful money maker.
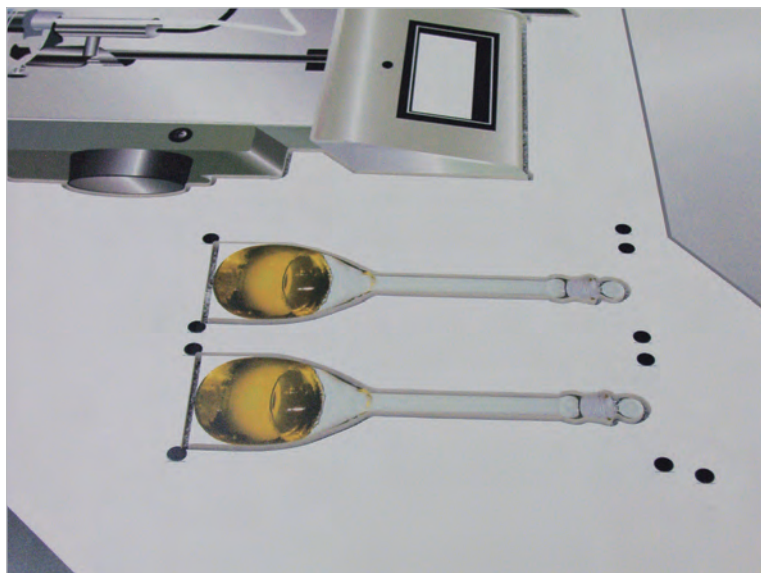
Be sure that your RIP is compatible with your cutter so that it can create cut paths on the fly and can nest images to keep waste at a minimum.

second side and telling the cutting software to pull the cut line in a millimeter or two. This cuts into the image a little, but removes the white edge.

SMALL PRINT & CUT OBJECTS

Orders for hundreds or thousands of just about anything in large-format digital printing is exciting. Well, what about 3,000 small drink coasters for a tradeshow? While an order for 3,000 double sided 3" round coasters on Sintra at $2 each sounds great – that's $32 per square foot. Unfortunately, the width of the blade, combined with over-printing the second side, results in a low yield from each sheet. Plus, many die-cut vacuums aren't strong enough to hold down a 3" circle without moving, resulting in a lot of nicks. The lesson: when taking jobs

that are less than 10" x 10", *test* the cutter first.

HARD AND/OR DEEP PRODUCTS

Some flatbed digital printers today can print on material up to 6" thick; but the question remains, can you *cut* something that thick? *No!* The thickest material that can be cut today is about 1". For applications where the material is thicker, use the router option.

For direct print, use the upward spiral blade so the material is pulled up and away from the board. The base of all routers has a vacuum ring that takes all the debris away from the blade and cools the blade and motor as it runs.

For a very hard and thick material, take

a few passes, lowering the blade further into the material until you get to the bottom. Don't try to "hog" out too much material at once or it can burn the blade or melt the material. Remember to consider blade cost, as it isn't uncommon to break blades while running a job. Good blades are expensive.

KISS-CUT & DROP-CUT

Kiss-cutting is probably the fastest function of a cutter, and the one I like the best. Kiss-cutting is very simple, but the table must be *flat*. When installed, these machines are leveled by the installer, but if the table gets a few low spots, you can *kiss* kiss-cutting goodbye.

Drop-cutting is another great function. Take a material like polystyrene, score the material with the drop-cut blade, and it just

A good flatbed cutter can make short work of signage printed onto rigid sheet.
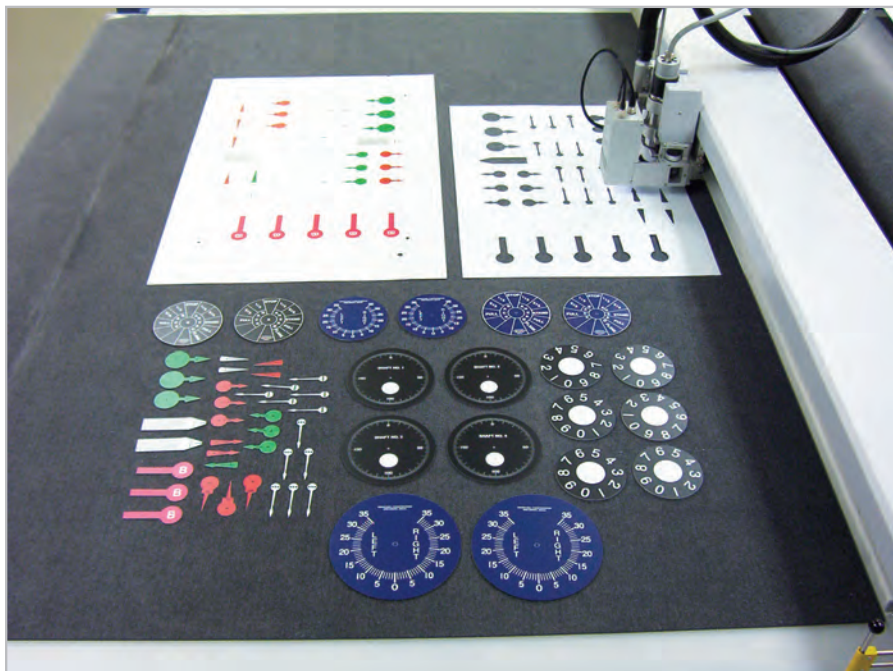
With the right blade and cutting system, even very small items can be cut, but consider your substrate choice well to ensure good yield per sheet.

comes apart. Most thin materials like 080-mil polystyrene, 020-mil Lexan, 1-mil Sintra or less are ideal for this blade. One hint: when setting up the cut file, have the blade cut to the edge of the sheet so the scrap is easier to discard.

SUPER-FAST TOOL

Shortly after buying a new flatbed and cutter, you'll realize that the cutter sits idle most of the day because it's so fast. This will make you think, "What else can I do with this great cutter?" Here is one suggestion: When doing Sintra or Gator signs, layout the prints so they can all be mounted to a 4' x 8' sheet of board. Print the jobs in 8' lengths, then mount the whole sheet of prints. Take the mounted sheet to the cutter and cut it. Use the downward spiral blade. I had a client who would order 600-1500 12" x 16" pieces. Before the cutter, we could mount about 40 per hour. With the new system, we could mount and cut about 500 pieces per hour. A digital die cutter can take the place of two people in a fast-paced shop.

RANDOM THOUGHTS

Here are some random thoughts to consider, hopefully to help make your flatbed printer/digital die-cutter combo a consistent, money making profit center.

• Rigid sheets come in 4' x 8' and 5' x 10' sizes, so just about everything fits into these two sizes. Most people do not request boards over 1" thick.

• Some die-cutter tables offer a conveyer belt system and some offer a feed system for the boards. Make sure your printer can print fast enough to keep the feeder busy. It's worth the investment to get a production-grade printer.

• Always set price based on the print speed of the *sellable* prints — not the machine's maximum printing speed.

• The heavy duty 1K router is worth the money. I had the smaller one at first and

burned through four units in two years.

• Keep lots of router bits in stock; they will break!

• Purchase a rack system for your rigid substrates and keep them clean. Do not handle sheets with your bare hands, always use gloves. Oil from your hands will spoil prints.

• Order boards by the case and put the whole case on the shelf. Cut the end of the case and slide sheets out when needed.

• Coroplast is a difficult material to print to. When purchasing a machine to print to this, be sure to test it properly. Do a full bleed with black to all four sides, then cut it right away. If it doesn't chip, it might be a winner.

• Get an extra vacuum and keep it next to the cutter, and *keep your cutter table clean*!

• Since most digital die cutters have a large, noisy vacuum motor. Consider relocating it to another part of the building and running the wires and hose to the table.

• Make the boards easy to get to and close to the printer. Hire a person strong enough to lift the boards without help. One person can run the printer *and* the cutter.

• Work on a plan to eliminate trash. Find a recycling company that will drop off large metal containers. Rather than cutting up the boards, just throw them into the bins.

AND FINALLY...

The final part of die-cutting success is having a good RIP and good training for designers, prepress people, and clients. Find a RIP that can make cut paths on the fly and that nests images to keep waste to a minimum. And last but not least, take the time to document the setup rules for clients on how to set up cut paths in both Illustrator and Photoshop. This will save hundreds of hours on the front end. DG

Hey, you can make those cool guitar cutouts that you always see at the tradeshows. No joke. The ability to create interesting custom giveaways for clients gives you another leg up on the competition.

Be sure your printer can keep pace with your cutter. You don't want your cutter to sit idle while you wait for prints to be completed. Productivity can be maximized when you have a seamless operation.