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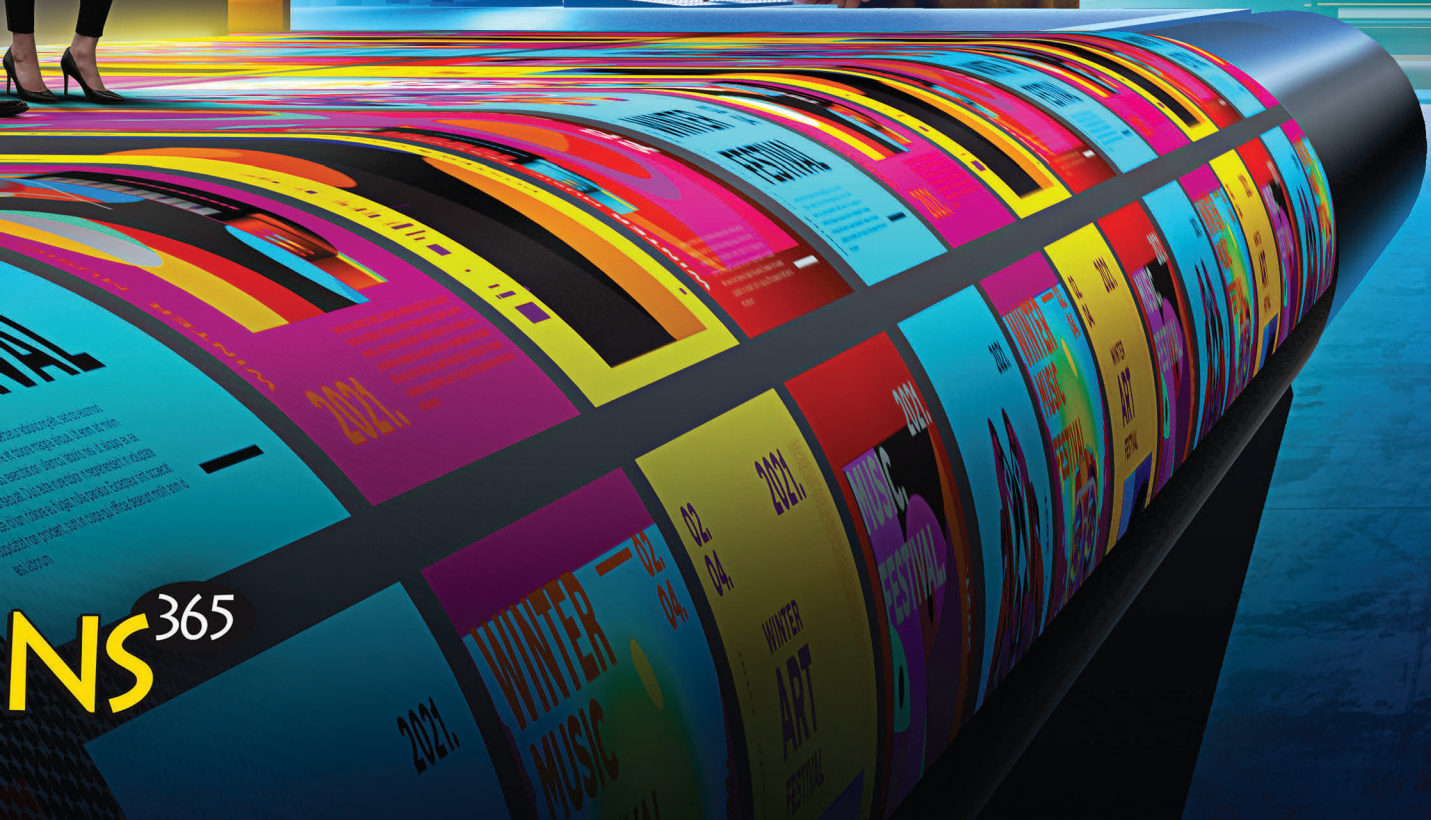


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Looking to Get Ahead? Then Start Here

START HERE is an annual publication dedicated to entrepreneurs who want to start up a new business or take their current business into new and profitable directions. If you are thinking about entering or expanding your graphics business, then you can find valuable information in these pages to help you get started in the right direction from your first step.

If you are looking for a new opportunity, then this magazine is for you. These entry-level guides will give you an idea of what goes into taking that first step in a new direction and what that direction could mean for your business.

Each of the fields we discuss in this magazine is a proven profit center for many businesses across the country. But like any business, to be profitable, you must know what you are getting into.

This year's magazine has helpful articles on entering these very lucrative areas of the graphics market:

- T-shirts
- Heat Transfer
- Direct-to-Garment Printing
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- Roll-to-Roll Printing
- Plus, can't-miss business topics

START HERE magazine is a product of National Business Media, creators of GRAPHICS PRO EXPO, GRAPHICS PRO magazine, and the GRAPHICS PRO DAILY eNewsletter, all of which are fantastic resources for putting a spark into your business endeavors. Be sure to check out graphics-pro-expo.com for a list of events near you in 2022. Also, keep an eye out for START HERE Academy, featured at GRAPHICS PRO EXPO.

START HERE Academy is a 101-level educational conference that provides valuable start-up resources for makers and crafters interested in turning their hobby into a business. Enrollees receive information on popular production methods for apparel decoration, personalization, and signs and digital graphics. This night-school-style conference provides attendees and exhibitors an opportunity to share ideas, explore new products, workshop their challenges, solutions, and hear from industry influencers regarding today's craft business market.



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THE ULTIMATE T-Shirt Guide

Your go-to glossary for Ts

By Allee Bruce



Allee Bruce is the managing editor of GRAPHICS PRO magazine, and previously served as the digital content editor for Printwear magazine. She's reachable at abruce@nbm.com.

Heather Ts offer a pattern of color that creates a multidimensional look. (Image courtesy SanMar)



Whether you're new to garment decorating or your customers have questions, you'll want to keep this go-to glossary on hand to break down all the elements of a T-shirt from the type and fit to wash and fabrication. Thank you to Cotton Heritage, Gildan, HanesBrands, Lane Seven Apparel, Royal Apparel, S&S Activewear and SanMar for contributing to the glossary.

T-Shirt Types

Crewneck: A T-shirt with a rounded neckline and no collar. Nabeel Amin, Lane Seven Apparel, says crewnecks can range in weight from 4.3–6.5-oz., but the most common weight for a standard, quality, and well-fit T is 5.3-oz.

Heavyweight: "Heavyweight is typically any T-shirt category that is over 5.8-oz. or a sweatshirt category over 9-oz., in either ring-spun or open-end fabric," says Summer Scott-Samuel, Gildan.

Henley: A shirt without a collar that features a button-up placket and a neckline like a T-shirt.

Fun Fact: "Waffle fabrics are a popular choice, as it allows the garment to be a little more fitted due to the stretch and recovery characteristics of waffle knits," says Marcus Davis, HanesBrands.

Lightweight: A lightweight T can fall anywhere within the 3.4–4.5-oz. range. Lightweight Ts are known to be softer, have a nice drape on the body, and be more breathable. "It will usually be knitted with a finer gauge of yarn and a tighter knit," says Ken White, Cotton Heritage.

V-neck: A T-shirt with a neckline that forms a 'V' at the front. Glen Brumer, Royal Apparel, says it's a good option for "most body types and appeals to younger generations."

Consideration: Decoration options include a chest placement, a sleeve print, or even a design that runs across the opening of the V-neck.

T-Shirt Fit

Arms: The arms of a T-shirt fit different depending on the weight of the fabric used. Heavyweight Ts tend to have looser, wider sleeves compared to a lightweight or standard T.

Consideration: "If the fabric is thicker, the sleeve may end up being too close to the body, and it potentially can feel rather uncomfortable," says Scott-Samuel.

Missy: A missy fit is one tailored for a woman's body with the use of slightly tapered side seams. This fit is also commonly accompanied by cap sleeves, baby rib, and, in some cases, a scoop neck.

Shoulders: Like the arms of a T-shirt, the shoulder fit varies



Some tri-blend Ts incorporate a mix of eco-materials like recycled PET plastic. (Image courtesy Royal Apparel)

(Right) The shorter the cross-shoulder measurement is on a T-shirt, the slimmer it fits. (Image courtesy Cotton Heritage)



depending on the style. However, typically, the shoulder seams of the shirt should lineup with the wearer's real shoulder line.

Fun Fact: “Thanks to the trend of loving styles from the ‘80s and ‘90s, drop shoulders are back. If the fit of the body of the shirt is boxy and cropped, and the shoulder of the T just slightly drops off the natural shoulder, this makes it a perfect style for a high waist jean,” says Vicki Ostrom, SanMar.

Torso: The torso focuses on the cross-shoulder measurement, taken from the neckline to the point where the sleeve meets the body of the garment. The shorter this measurement, the slimmer the T fits. “It will determine the fit of the sleeve and how the garment hugs or drapes on the body,” says White.

Unisex: A unisex T is suitable for men and women in terms of fit and usually comes in a wide range of sizes to accommodate all bodies. It can run as small as 2XS up to 3X.

Consideration: This wide range of sizing appeals to “wholesale customers who want to run one style rather than have to purchase a men’s and a woman’s style,” says Brumer.



Most often, heather T-shirts come in a cotton/poly or cotton/ rayon blend. (Image courtesy Delta Apparel)

Typically, shoulder seams lineup with the wearer's actual shoulder line. However, the drop shoulder is back in style. (Image courtesy SanMar)



“No two burnouts are ever alike, and the amount of burnout depends on how long the solution stays on the fabric.”

— Milissa Clark, Lane Seven Apparel

T-Shirt Washes & Textures

50/50: Also known as poly/cotton, a T-shirt that contains a blend of 50% polyester and 50% cotton. These Ts typically have a heather look to them.

Burnout: A burnout garment is usually one of 50/50 cotton/poly or poly/cotton/rayon that receives a sodium bisulfate treatment, which burns the cotton away and only leaves the synthetic fabric content. Burnout Ts usually fall in the weight range of 3.5–4.1-oz.

Fun Fact: “No two burnouts are ever alike, and the amount of burnout depends on how long the solution stays on the fabric,” says Milissa Clark, Lane Seven Apparel.

Consideration: “It’s best to advise a client that you will get a distressed or vintage print with this kind of garment. If your customer wants a bulletproof solid print, this is not the right fabric for the job,” says Jason Peters, S&S Activewear.

Carded cotton: A type of cotton fabric made up of yarn that has been cleaned and formed into a parallel strand to remove impurities in the fibers. Carded cotton does not go through additional spinning, like combed or ring-spun cotton, which explains its coarser texture.

Combed cotton: Cotton that has a softer feel than carded cotton due to additional spinning. It does not have any impurities or short protruding threads, which are prone to breakage. After combing, the straightened fibers tightly join, minimizing fraying.

CVC: ‘Chief Value Cotton’ refers to bi-blends with more than 51% cotton content. “Within our industry, it’s typically known as a standard heather shirt that is not a tri-blend,” says Clark. “Brands vary on the content from 50/50 and 60/40 to 52/48.”

Enzyme-washed: This wash treatment, either mechanical or chemical, uses a solution to remove the fine fibers from the surface of the fabric. This treatment results in a clean surface, as well as a soft hand. The color is slightly worn but does not look washed out.

Consideration: “The enzyme finish makes garments ideal for DTG printing, which has become a fast-growing type of decoration in the industry,” says Scott-Samuel.

French Terry: Knitted terry fabric that features loops and soft piles of yarn, typically on the interior of the garment, leaving the other side flat. It comes in either 100% cotton or a blend.

Garment-dyed: A fully constructed untreated garment that is dyed all at once.

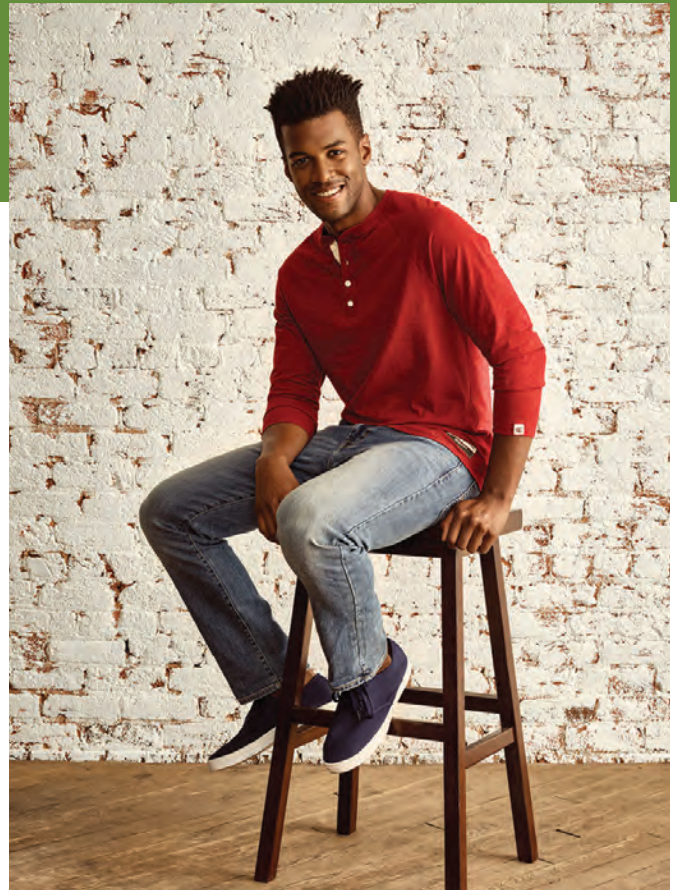
Fun Fact: “The garment comes out of the dye bath with that great already washed appearance and hand-feel that will eventually make for someone’s favorite T,” says Ostrom.

Garment-washed: A process that takes a finished garment and applies a special wash. There are several different washes, including a pigment wash or a burnout wash, used to soften, preshrink, and/ or change the look of the garment.

Heather: Depending on who you talk to, a heather T-shirt can take many forms. Most often, it is a cotton/poly or cotton/rayon



If a mineral wash is used, it's applied after the garment is dyed and sewn. (Image courtesy Lane Seven Apparel)



Henley shirts offer the look of a nice placket without the collar. (Image courtesy HanesBrands)

blend, which creates a multicolored, non-solid, blurred effect. “It’s a creative process where the color effect is created both at the fiber level, and at the time the fabric is created or dyed,” says Ostrom.

Jersey: A T-shirt knit with a flat, smooth surface and has some stretch to it. It can take on a lightweight or heavyweight form, and it’s the type of fabric used to make most T-shirts.

Fun Fact: “It was first produced in Jersey, in the Channel Islands — hence the name,” says White.

Mineral-washed: This wash process happens after the garment is dyed and assembled. The mineral wash “chips away at the dyes creating a cloudy effect on the T-shirt giving it a worn and vintage look,” says Amin.

Fun Fact: A mineral wash goes through five different processes to achieve its finished look, according to Amin.

Modal: A fabric made up of synthetic fibers that has an extremely soft hand and has a bit of a flounce to it. Modal is often used to create tri-blend Ts.

Fun Fact: Modal comes from the cellulose fibers of the beechwood tree. “The benefit of using beechwood trees is that they quickly recover after harvesting, which makes them an ideal sustainable resource,” says Davis.

Pigment-dyed: A form of garment dye applied to a fully assembled T-shirt where the dye sits on top of the fabric, like a coating of color, rather than penetrating it. A binder is applied to the T-shirt, which makes the color stick and results in a weathered look. Pigment-dye is most often used on 100% cotton but also works with blends.

How to style a graphic T

Here are three simple styling rules to pair the perfectly printed graphic T with the right ensemble.

Tuck it: “The iconic T-shirt has been elevated to fashion status. It is being styled with a tailored suit or blazer and worn to the office as often as it is worn casually with jeans or shorts,” says Vicki Ostrom, SanMar. Whether you go for either the full or partial French tuck, dress it up with a blazer, trousers, or even a patterned skirt, or dress it down with a pair of jeans or a denim jacket.

Accessorize it: The graphic T is the “new standard in American fashion,” according to Milissa Clark, Lane Seven Apparel. “Take it from day to night by pairing it with the right accessories to “kick up the look.”

Don't limit it: No matter if it's the office, brunch, or a business meeting, a graphic T can have its place in any scenario. “Depending on the graphic used, there's no limit on the styling. It's a personal choice,” says Summer Scott-Samuel, Gildan.

Consideration: “As far as decorating a pigment-dyed garment, the best rule to keep in mind is to make the print match the look of the fabric. This can be achieved with water-based ink or a based-out plastisol ink,” says Peters.

Rib knit: Knit fabric made up of rows of knitted loops, which look like vertical lines. This knit has a considerable stretch to it while also retaining its shape.

Fun Fact: It's most commonly used on the collars, cuffs, and trims of garments.

Ring-spun cotton: Cotton that is created by twisting and spinning fibers of yarn around a spindle, which outputs a finer, tighter, and longer length yarn compared to carded or combed.

Slub: A slub T-shirt is one made from slub yarn, which is twisted and spun irregularly to create lumps in the yarn. These irregularities in the thread create an enhanced knitted fabric and can give the appearance of a burnout T.

Tri-blend: Tri-blend Ts are ones that feature a combination of three different materials. An example would be 50/37/13 poly/cotton/rayon. The mixtures result in texture, stretch, and softness that varies depending on the ratio of materials.

Yarn-dyed: A process where the yarns of the T-shirt are dyed ahead of the knitting process.

Fun Fact: “This helps to create different effects on the completed garment such as stripes or heather effects,” says Davis.

T-Shirt Odds & Ends

Tubular: A seamless T-shirt construction where the fabric forms a complete circle without any side seams.



Graphic T-shirts can be worn both casually and formally. (Image courtesy Gildan)

The pigment-dye process is often used on 100% cotton Ts and results in a vintage look. (Image courtesy US Blanks)



“Garments that are completely dyed-to-match work well when you want to apply a graphic or attribution and have the graphic become the total focus of the garment.”

— Marcus Davis, HanesBrands

Consideration: “It is a cost-effective and sustainable way of making a garment. It reduces fabric waste as the tubular knitting is made to order,” says Scott-Samuel.

1 X 1 Rib: A knit typically used for the neck and binding on most T-shirts. In some women’s fashion, it’s referred to as baby rib.

Fun Fact: “The first number reflects the thickness of the rib. The larger the number, the wider the space between the next rib,” says Clark.

Shoulder taping: Fabric tape that is sewn over the seams of the shoulder, inside of a T-shirt, to reinforce the stitching. It also protects the wearer from any uneven stitches or potentially scratchy edges.

Side seams: Seams that join the front and back of a shirt together. If a shirt does not have side seams, it is tubular. Side seams add structure and offer a more tailored fit.

Double-needle stitching: A finishing seam that features a double-row of stitching, commonly seen on sleeves and bottom hems, to give the garment a finished look while adding durability.

Preshrunk: Preshrinking refers to a fabric treatment performed before the assembly of the T-shirt. The uncut fabric runs through nubbed rollers, which forces the material to tighten up. This process allows shrinkage to occur once the garment goes through a wash. Moreover, the fabric is preshrunk, not the finished garment.

Dyed-to-match: Refers to details on a garment that match the color of the garment, like buttons, thread, zippers, or linings.

Consideration: “Garments that are completely dyed-to-match work well when you want to apply a graphic or attribution and have the graphic become the total focus of the garment. Garments that have contrasting components tend to work best when you want the graphic and the garment details to work together and complement each other,” says Davis.

Singles: A numerical value that indicates the thickness (quality) or diameter of yarn. It’s measured by the number of individual fibers in a twist. The lower the number, the thicker the yarn. “Popular qualities are 30 singles and 20 singles,” says Amin. 🍷



Consider the look of a pigment-dyed T when applying decoration. (Image courtesy S&S Activewear)



The fun thing about burnout Ts is that no two are ever the same. (Image courtesy US Blanks)

HOW TO FIND YOUR PERFECT

Heat Press

By Cassie Green

Updates in machines mean more options for decorators



Cassie Green is the former executive editor of *GRAPHICS PRO* magazine, and previously served as the editor for *A&E* magazine.

There are a variety of heat presses currently available, including swing-away and clamshell. (Image courtesy Geo Knight & Co. Inc.)



When both large quantities and size of substrates are a requirement, only large-format presses can do the job. (Image courtesy HIX)



As processes such as heat transfer and sublimation have grown in popularity to customize both hard and soft substrates, improvements in the equipment have also increased. When it comes to the heat press itself, changes have been made to size availability, quality, and even substrates that can be pressed. From specialty presses to clamshells and more, heat presses have become a must-have piece of equipment for most graphics businesses.

Major Changes

It might seem like the heat press is a simple piece of equipment, but when you start looking at features such as temperature control, pressure, platens, and even specialty designs like mug presses, it's clear that these are more than just a heating device. "The major changes in heat presses over the last few years have been in size, quality, and product range," states Aaron Knight, Geo Knight & Company Inc.

Knight notes that a lot of factors have come into play when it comes to the changes these machines have seen. "The quality of heat presses over the past few years has actually plummeted, with the advent of a plethora of competing overseas machines competing with each other for the low-end cost

range of machines," he believes. "Sub-

sequently, an industry reaction to that product market has been to depend far more exclusively on USA-made equipment that has immediate and thorough product support available, and the ability to keep machines up and running for many years of heavy use."

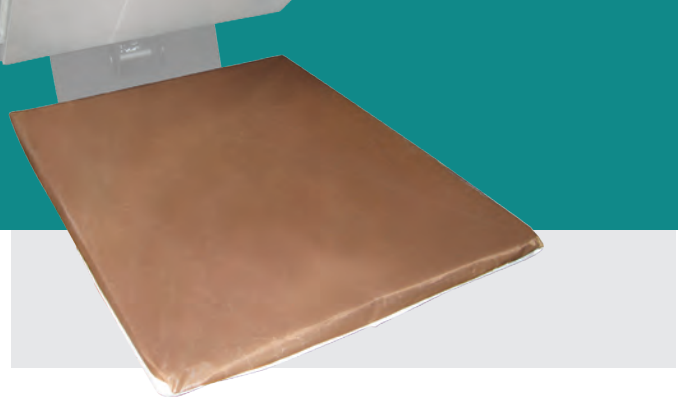
"Integrated digital controls are now almost uniformly incorporated in all but the most basic presses," adds Henri Coëme, HIX. "This has provided the user with better control over temperature, time, and pressure and made it easier to achieve repeatable results."

On the size side of the equation, there are also some emerging trends and changes happening. "An explosion of large-format sublimation full-color printing onto textiles and metals has caused large-format heat presses to increase in popu-

Shops should think beyond their immediate needs and plan for the future when deciding what kind of heat press to purchase. (Image courtesy Stahls' Hottronix)



Keep the pad safe from transfer inks and the impact of harder substrates by using pad protectors. (Image courtesy HIX)



Clamshell Versus Swing-Away

By Ben Robinson, Stahls' Hotronix

With so many heat presses on the market, it's hard to choose the right starter press for your new or expanding business. Do your research and determine which features and benefits will help maximize your investment. The first question: "Should I choose a clamshell or swing-away type/design heat press?"

CLAMSHELL

The type of heat press you choose is largely based off the size of your business, personal preference, and workspace. Let's dive into the positives and negatives of most clamshell heat presses:

PROS:

- More portable frame and build
- Fewer moving parts
- Lower price tag
- Compact size for more table space
- Easy to use

CONS:

- Users have to work directly under the heat
- Reduced layout area for apparel decoration

SWING-AWAY

Next, we'll look at swing-away heat press machines. These types of presses offer a few extra features and functionalities, so it's smart to look at the pros and cons for these presses as well:

PROS:

- Full layout and work area
- Heat-free working space
- Easier to achieve even and level pressure
- Works well with thicker garments

CONS:

- Requires more space to fully use swing-away function
- Not as portable due to it being heavier than a clamshell

larity," Knight states. He adds that presses can accommodate more and more substrates with features like increased interchangeability, bottom heat, and specialty platens.

Ben Robinson, Stahls' Hotronix, expands on the platen topic. "Heated lower platens ... are designed to reduce the risk of scorch marks on heat-sensitive polyester or synthetic fabrics," he specifies. On challenging garments such as polyester, this feature also reduces the risk of dye migration. He also draws attention to the threadability feature. "The threadable platen design allows you to drop seams, zipper fronts, and button areas off the press, providing a smooth, even print surface," he notes. "This feature cuts down on the need for additional accessories such as pillows or pads."

Best For Business

All of these features should be on the radar of any graphics shop looking to invest in a heat press. Like any equipment purchase, research is at the top of the to-do list before making a move. "Shops should look beyond their immediate needs and consider future expansion and demand," Coëme suggests. "A press that does simple transfers now may need to be more versatile tomorrow."

One place to start is educating yourself on the types available and what your shop plans to decorate, both now and in the future. Knight lists clamshell, swing-away, automatic swing-away, and large format as some of the basic models currently available. Each have their own benefits.

Investing in a specialty press such as a hat press is a great option if your customers consistently ask for caps and hats. (Image courtesy Stahls' Hotronix)



(Image courtesy Geo Knight & Co. Inc.)

“An explosion of large-format sublimation full-color printing onto textiles and metals has caused large-format heat presses to increase in popularity.”

— Aaron Knight, Geo Knight & Company Inc.

“Swing-away presses lend themselves more to time-consuming projects like sublimation on garments and on firmer substrates,” says Coëme. “Clamshell presses provide a smaller footprint and greater production speed, especially semi-automatic and air-automatic presses.”

For the hobby or home-based business, where certain constraints apply, Coëme also has a few suggestions. “Analog presses are easier on a start-up budget and provide excellent value for money,” he believes. “They are simple and fun to manipulate for first-timers.”

But for shops that need something extra, like a large-format press or even a specialty press, there are other factors to consider. “Large format will require more power, be used for larger image areas, and is not necessarily the most efficient way to print very small areas, due to much longer loading times and heat platen idle times,” Knight points out.

“Your business model will dictate what type of press you need,” Robinson adds. “Most people are fine purchasing the largest platen for a normal garment press, a 16" X 20" size. This size offers a lot of flexibility, allowing you to print oversize jerseys, jackets, team uniforms, and more.”

The same mindset applies to shops looking at cap or mug presses. “Most people will purchase a cap or mug press when their customers consistently ask them, ‘Do you print caps/mugs,’” says

Robinson. If there’s a profitable market for caps, then it makes sense to purchase a cap press.

Beyond the size and style conversation, maintenance also has a place in a shop’s discussion. While heat presses are fairly simple when it comes to maintenance, the top priority is cleanliness. “Make sure the press is kept clean, especially the silicone padding and heat platen,” emphasizes Knight.

“Even the best machine can use a little grease now and then,” adds Coëme. “Keep your machine clean and the pad safe from transfer inks and impact of sometimes harder substrates by using pad protectors.”

But when it comes down to it, Robinson has one simple piece of advice for those purchasing a heat press: “Always purchase the best quality press you can afford.” There are so many ways a shop can use this equipment, and so many opportunities for expansion, that this makes perfect sense.

“Ultimately demand will drive production,” Coëme finishes. “Investments in these techniques can be high, but there are entry-level solutions for both, and well within the range of print shops who (are) considering an expansion.”

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THE

DTG Explosion

Direct-to-garment is thriving; has your shop considered it?

By Brian Walker



Brian Walker got started in the garment decorating industry in the mid-1980s when he learned screen printing while in high school. Over the years, he has started several direct-to-garment-related businesses, including I-Group Technologies that makes the Viper pretreatment machines, Image Armor (pretreatments and inks), as well as RTP Apparel, which produces ready-to-print garments that require no pretreatment to be printed.

Direct-to-garment (DTG) ... It used to be a fringe edge of the decorating industry. One of the new fads that would never replace screen printing because it was too slow, the inks too expensive, and wash durability just wasn't there, said some. That is not the case today.

Everything about DTG has matured into a vibrant, growing, and vital part of many decorating businesses. If you have not looked into DTG as an addition to your business, you might want to reconsider.

DTG Past To Present

It the early days, direct-to-garment printing was limited, and the printers were notoriously slow. Printing with only CMYK



From a single printer in a bedroom to full production shops with hundreds of DTG printers printing tens of thousands of shirts per day, direct-to-garment has found its place in the apparel decorating industry. (Image courtesy OmniPrint International)



With the ability to print single, one-off designs, DTG has opened entirely new segments of the apparel printing market for on-demand printing. (Image courtesy Brian Walker)

Inks on white or light shirts was normal. White ink printing was non-existent or just coming onto the scene. Inks, wash durability, and cost per print weren't that great, and machine maintenance was a real pain.

However, since the early 2000s, the DTG industry has come a long way. It used to be that if you didn't print every day with your DTG printer, it would turn into an expensive paperweight. Today, the machines are much more reliable.

Machine manufacturers have continually developed and improved how the printers function, handle white ink, maintenance cycles, and increased the print speeds to where production capabilities of some of the higher-end DTG printers are approaching that of screen printing equipment. Throw in the improvements in pretreating, new ink formulations, and ease of use, and DTG has become a powerhouse in garment decorating.

Screen printing has its origins in China around the year 221 A.D., has been around for thousands of years, and today is well-known for production capabilities and wash durability. However, screen printing can be a lengthy, cumbersome, and expensive process for jobs that require a lot of colors, multiple imprint locations, and smaller quantities.

There is a break-even point where it is just not economically feasible to screen print a certain job. It might be a multicolor print on a medium- or large-sized order of shirts (this has and always will be debated as to the break-even point where DTG or screen printing is better). The time it takes



Direct-to-garment allows people to customize their own shirts, and you to print them with ease. (Image courtesy Brian Walker)

There is a break-even point where it is just not economically feasible to screen print a certain job.



A hand-controlled pretreatment machine spraying a shirt; pretreating correctly is a big issue to overcome. (Image courtesy Brian Walker)

to print film positives, coat screens, expose the screens, washout, dry, block-out, tape out, line up on press, ink up, print, and then reclaim the screens makes it a time- and labor-intensive process.

Introduce direct-to-garment, and that six-color job of 18 shirts can be done in an hour or two start to finish. Who in screen printing hasn't experienced the customer that comes back to your shop and claims you shorted them a shirt or two (or they forgot to order it) — all after you've torn down the job from the printing press? Solution solved with DTG — just pull up the artwork, grab your shirt, pretreat, and print. Another satisfied customer — and all that can be done while they wait.



If the past growth in innovation, speed, ink improvements, and other advancements are any indicator, we will see direct-to-garment become even more prevalent within the decorating industry. (Image courtesy Brother)

What makes DTG more alluring is the versatility. Direct-to-garment allows for more colors in the print (unlimited, but no special effects or special colors like neon or a specific spot color); the ability to print on demand (you can have 10,000-plus different designs and hold no inventory except blank shirts and print what you need, when you need it); you can resize the printed design on the fly (print a 4XL adult shirt, then immediately a baby onesie with the same design); and generally it is cleaner than screen printing.

In other words, DTG is like having the ability to get immediate gratification and see what the print will look like without having to worry if you will need to reburn multiple screens because of a mistake in the artwork. DTG also makes customization like names and numbers on shirts super easy. Just change, click print, and go.

Learning Curve

As with any printing technology, there is a learning curve and much of it comes down to experience. Many times, people new to the decorating business are wowed by the ease and simplicity of direct-to-garment printing presented to them at a trade show. However, after they put their money down and get the printer in, they realize that it may not seem as easy as originally presented.

Don't get me wrong: DTG printing is relatively easy, but you need to do the basics and build upon your experience as you grow with the business. It is not as easy as "load a shirt and hit the print button."

One of the biggest hurdles most people getting into DTG face is learning how to do the pretreating correctly. Pretreating is the process of applying a solution to the printed side of the shirt to give the inks a base to print upon, similar to priming drywall before you actually paint the wall. Pretreatment is the "primer" for DTG printing — especially white ink printing. Pretreating is also beneficial to enhance CMYK-only prints for better vibrancy, image clarity, and wash durability.

Learning to pretreat correctly is paramount to being successful in DTG and where roughly 80% of all DTG printing issues derive from. Inconsistent pretreating results in poor wash durability, varying degrees of how the white ink appears on the shirt, and other issues.

Some people learn to pretreat by hand but that is often messy, and you don't have a good idea if you have applied the correct amount of pretreatment, nor can it be replicated exactly for each subsequent shirt. Utilizing a pretreatment machine will help you consistently apply the correct amount of pretreatment to every shirt so that every print will look the same. But even with a pretreatment machine, one needs to learn the correct amount of pretreatment to apply for a particular color, brand of shirt, and for the job at hand.

Direct-to-garment is currently one of the fastest growing segments of the apparel decorating industry.

Learning how your DTG printer performs will only come by experience. Keep a record of jobs printed, the brand of shirt, the amount of pretreatment applied, etc., so you can refer to that when you are printing future jobs. Over time, you will learn how your printer prints, how the pretreatment affects the look and wash durability of the shirts, and you will be able to instantly make a good judgement call on the fly as you print.

But this only comes by experience. There is no shortcut to becoming proficient in DTG printing. You can get some good advice to get started, but every shirt is different just as every piece of artwork and job is different.

How DTG Has Grown and Improved

Direct-to-garment is currently one of the fastest growing segments of the apparel decorating industry. With the ability to print single, one-off designs, DTG has opened entirely new segments of the apparel printing market for on-demand type printing, from small shops operating out of a bedroom to print shops like Custom Ink. A single shirt — or dozens of shirts — printed and delivered within days; single color or full-color photographic reproductions ... this is the beauty of DTG.

With improvements in inks, ready-to-print shirts that require

no pretreating, printing machine speeds increasing, and automated software making it easy to set up an online store to full production management of artwork and shop streamlining — DTG has grown from being the new kid on the block to a serious player in the decorating industry. From a single printer in a bedroom to full production shops with hundreds of DTG printers printing tens of thousands of shirts per day, direct-to-garment has found its place.

That place is in many screen printing and embroidery shops looking to expand their capabilities as well as brand new, all-DTG-printing shops catering to the masses or individual niche markets. DTG is here to stay and continue its growth trend as it continues to open new markets in the decorating industry.

Where will DTG be in a couple of years? If the past growth in innovation, speed, ink improvements, and other advancements are any indicator, we will see direct-to-garment become even more prevalent within the decorating industry. The question is, will your shop be a part of it? 🌐

Wondering how to price your DTG-printed T-shirts? Adam Tipe, DTG Connection, shares 5 questions you need to answer when creating your pricing strategy: <http://gpro.link/pricedtg>



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A USER'S GUIDE FOR

Applying Heat-Seal Emblems

The basics of heat-seal emblem application

By Randy Carr



Having joined World Emblem, founded by his father Jerry in 1983, Randy Carr has done everything from running embroidery machines, to customer service, to his position today as president and CEO.

By following these recommendations, you ensure that your heat applied patches will survive laundering, wear and tear, and always look professional.

Heat-seal emblems are a great option for adding a logo, mascot, or identification to a wide range of apparel and accessories. They are fast and easy to apply, and application is less expensive because there are fewer steps, less equipment, and less labor than embroidered. You also have greater flexibility with location because they do not have to be hooped.

Knowing how to properly apply them ensures there is a strong bond and that they perform as expected for the life of the garment. All you need is a heat press, a cover sheet, and possibly a pillow or pad. Thermal tape to hold the patch in place is a plus.

In most cases, you'll get the best results from a professional, commercial heat press versus a hobby-quality machine. However, it will depend on the job, the quantity, the substrate, and how it will be used.

Emblem Adhesive

Most emblem suppliers offer two types of adhesive backing. Low-melt glue is designed to be used on heat-sensitive fabrics like polyester, rayon, or silk. If the label says "do not iron" or "cool iron" that is a clue. This type adheres at a lower temperature, 315-325 degrees F, which reduces the risk of scorching or damaging the fabric.

Low melt can be adhered with a household iron, although make sure you press down hard enough and completely cover the entire emblem to ensure a secure bond.

The second type, known as industrial adhesive, offers a stronger, more permanent bond, and is ideal for apparel that will be commercially laundered or subjected to a lot of wear and tear like a contact sport, construction, or outdoor labor. It is recommended to apply this type only with a commercial-quality heat press. The temperature will be in the 400-degree F range if you are using a pad.

One characteristic to be aware of is that heat-applied adhesives will not properly adhere to fabric with a waterproof coating as well as some other types of finishes. A good rule of thumb is to confirm with the apparel manufacturer if it has a coating or to test before you start production. In some cases, a waterproof coating can be removed with alcohol. For example, if you wanted to adhere an emblem to a treated fabric umbrella, you might be



Want to reuse an existing emblem? Heat-seal strips, which are polyurethane adhesive on carrier sheets, allow you to reapply any patch to most types of fabrics. (All images courtesy World Emblem)



A patch made of polyvinyl chloride, such as the one shown, is backed with a low-melt adhesive that can go on heat-sensitive materials.



To get a good bond and protect the emblem, it's best to use specially designed rubber pads. These come in different sizes and thicknesses so be sure to find out which one is best for your application.

able to remove it in only that area and get a successful heat seal.

All emblems come backed with some type of adhesive, and no matter which one you choose, the pricing is the same. There are situations in which a client may wish to remove an emblem and replace it with a new one. This can happen when an employee leaves a company, but the owner wants to change out the embroidered name patch versus buying a new uniform. In car racing and sports, there are many sponsors that will have their logos on a uniform. These can change from year to year and again, rather than scrap a perfectly good uniform, it is less expensive to remove the old emblem and replace it.

Tips for Replacing and Applying an Emblem

The good news is that a heat-seal emblem is not difficult to remove. In many cases, it's a matter of reheating the emblem to the same temperature at which it was applied and, once the glue has melted, pull it off. Then the replacement can be easily applied over the same area.

There are several aids designed for just this purpose. A product called Glue Blockers is designed to cover the glue residue left on a garment. It resembles a blank patch with no border. These come in stock colors and sizes, and for a minimum quantity, custom colors and sizes can be ordered. Simply apply the blocker over the location, and it is ready for a new emblem to be applied.

You also can remove an emblem and apply it to another garment in a similar fashion. This is done with the use of heat strips. These are carrier sheets with polyurethane adhesive that are offered in a variety of stock sizes. Choose the size you need and heat press at 300-320 degrees F for 20 seconds to reattach any patch. The bond of the reapplied emblem will be as strong and durable as the original application.

A pillow or pad is not always needed, but they help ensure a better bond if the emblem is being sealed to a surface that is not perfectly flat or you want to protect the emblem itself.

Two emblems where a pad is recommended are those made of PVC (polyvinyl chloride) or three-dimensional embroidered emblems. A thin specialty pad is recommended that helps these types retain their texture and height better, and you avoid any chance of damaging the emblem.

A tip to ensure you obtain a strong bond is to preheat the garment. This is not true in all cases, so testing may be necessary to determine if it is helpful or not. By preheating the garment, you



When heat sealing a patch to apparel, not all types are applied the same way. When applying a three-dimensional emblem, you do not want to mash down the height or texture, so it is recommended to use a thin heat-seal pad for best results.



Help customers get longer life from their work uniforms with the use of a glue blocker. This resembles a patch without a border that is heat sealed over the area where an old emblem was removed hiding any glue residue.



An industrial melt adhesive is ideal for heat sealing emblems that will be subjected to commercial laundering or any activity that will involve a lot of wear and tear. It offers a stronger bond and longer durability than any other type of adhesive.

For jobs requiring heat-sensitive fabrics, a low-melt adhesive is the best choice. This type is ideal for polyester, rayon, and silk. When in doubt, always do a test print and evaluate the results.



One of the most common mistakes is to test the heat-sealed bond before it has completely cooled. If it is still hot or warm, you may be able to peel it off. Wait a sufficient amount of time before testing.



With patches that have a thick merrowed edge, the heat-seal adhesive does not extend over this border. Do not be alarmed when the edges are not sealed. If properly applied, the emblem will still maintain a secure bond for the life of the garment.



A handy accessory for applying heat-seal emblems is thermal tape. It can be applied prior to pressing to ensure the patch stays in place.

may not need to have as long of a dwell time, which in some cases reduces possible damage to the garment or the emblem.

Preheating can also release retained moisture, fabric softeners, or other finishes that might interfere with a good bond. If the garment happens to be wrinkled, it ensures a nice flat surface for the patch. Three seconds is usually enough to accomplish all of these goals.

A common mistake is to test a newly applied emblem by tugging on it before the adhesive has had enough time to cool. Be sure to wait until it is cool to the touch before trying to lift it to test the bond.

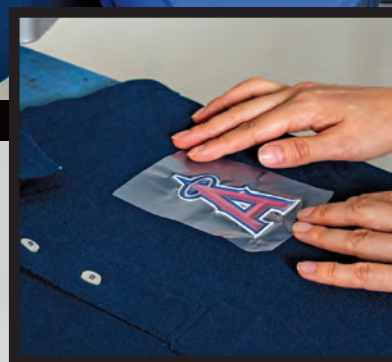
Also be aware that on patches with a thick merrowed edge, the heat-seal adhesive does not extend over this border. Only the flat body of the patch has heat-seal adhesive on it. This is sufficient to securely hold the patch onto a garment, but the border will not also be glued down.

Finally, you should always follow your supplier's instructions for temperature, time, and pressure; however, there are often factors like humidity and shop temperature that can impact these recommendations. The type of fabric and press you use also can require slight adjustments. For the best outcome, test following the recommendations and then adjust accordingly based on the results. 🌐



If you are not using a pad or a pillow, always cover the decoration with a piece of kraft paper or a silicone sheet before heat pressing. This protects the emblem from scorching and keeps excess adhesive from sticking to the upper platen.

Know Your Options for Emblem Creation: From pre-decorated patches and kits to creating them from scratch, get to know your emblem options at <http://gpro.link/emblemoptions>.



Step-by-Step Heat Emblem Application Instructions

- 1** Following your supplier's recommendations, dial in the correct settings for time, temperature, and pressure on your heat press. Make sure your press has reached the recommended temperature before starting.
- 2** Load your garment onto the platen and pre-heat for three seconds.
- 3** Place the emblem in the desired location. To speed up production, you may choose to use a laser alignment system that shows exactly where to place the emblem every time.
- 4** To ensure that the patch does not move when the platen comes down, you can secure it with one or two pieces of thermal tape.
- 5** Depending on the type of patch, you may want to use a pad or pillow on top of the emblem.
- 6** If you don't use a pillow or a pad, always use a silicone cover sheet or kraft paper on top. This protects your platen from excess adhesive, damage from zippers and buttons, and prevents the emblem from getting damaged from the heat.

- 7** Bring the top heated platen down and lock it. If you have an automated press, it will pop up at the prescribed time, otherwise, you will need to manually lift the platen after the appropriate dwell time.
- 8** Remove the garment from the platen and allow sufficient time to cool before testing the bond.

HOW TO CREATE Embroidered- Edge Patches

Bring small-run sampling and patch production in-house

By Erich Campbell



Erich Campbell has more than 18 years' experience as an award-winning digitizer, e-commerce manager, and industry educator. He empowers decorators to do their best work and achieve a greater success. A current educator and long-time contributor to industry trade publications, Erich takes every opportunity to provide value to the industry.



Extremely detailed custom shapes like the one seen here are difficult or even impossible to edge with a standard Merrow machine; for these shapes, an embroidered edge, whether commercially executed or done in-shop, is the best option. (Image courtesy Erich Campbell)

Hot knife cutting sees the patch cut from a span of polyester thread using a hot knife tool as seen with this scrap sample piece. They would usually be stitched in multiples on a complete span, including borders, after which they would be carefully cut by dragging the tip of the hot knife's chisel point along the edge of the stitched border, melting the polyester fabric to both remove it from the span and seal the edge against any fraying. (Image courtesy Erich Campbell)



Though many decorators elect to leave larger scale patch and emblem production to companies that specialize in the field, more and more are looking to bring small-run sampling and patch production in-house. Though you can invest in specialty equipment to create the traditional overlock-stitched edge that we've seen in classic patches, you can start creating small-run patches with little more than your embroidery machine and the addition of some specialty support materials, scaling up to equipment that increases throughput or automates processes as you produce more patches.

In this article, I cover some simple methods for making patches and a couple of the simplest methods with a brief, step-by-step guide at the end.

Embroidered-Edge Patches

We'll refer to any patches we edge without the use of the traditional Merrow overstock machine as embroidered-edge patches. These can be either made with a base fabric or use thread and a special non-fabric substrate to create the body of the patch, but all are edged in-hoop. These patches require relatively little manual labor depending on the method used to create them, and can be made in virtually any shape, bucking the limitations of sharp points, thin structures, or through-holes that traditional overlock patches can't address.

Their weaknesses are that embroidery's "interlock" stitch leaves visible bobbin thread rather than the full color "wrap" of the traditional overlock edge, and they require either precise cutting or the use of specialty stabilizers to achieve their custom shapes.

Embroidered-Edge Patch Making Methods

Heat Cutting: With small-run heat-cut patches, the patch and edging run are stitched directly through a hooped span of polyester patch material. Once the design is completed, the full material sheet is unhooped, placed on a sheet of glass, and manually cut with a tool reminiscent of a woodburning pen, often referred to as a

This commercially stitched patch was made from an embroidery file I provided the patch company. This piece uses an embroidered edge and was cut post-edging. (Image courtesy Erich Campbell)



hot knife. This melts the polyester at the edge of the patch, as the person cutting carefully runs the point along the outer embroidered border.

After it is cut, the patch is often rubbed against the hot barrel of the knife tool to smooth the edge and hide any stabilizer or material still extending beyond the edge of the patch. This method doesn't require special stabilizers, and the digitizing is less specialized than other methods. It does require a fairly time-consuming and potentially error-prone manual process.

Soluble Stabilizer: The soluble stabilizer method creates a clean edge with no excess material and is somewhat less difficult to achieve. In this method, we hoop a layer of water or heat-soluble stabilizer, run a placement line for the patch material to allow precise placement either of pre-cut pieces or a span for the hand-cut applique version of the method. After this material is tacked down, the design material and edge are embroidered, leaving a miniscule margin between the patch material and the finished edge.

After embroidery, the stabilizer is dissolved, leaving a clean-edged patch that approximates the wrap of overlocking. This method requires additional work in digitizing to account for the placement and tacking of cut materials, special stabilizers, and exposure to either water or heat to dissolve said stabilizer, making for a less manual, but still somewhat involved process.

For the pre-cut version of this method, nonedged blank material bases can be created with traditional plotter-cutters and pressure-sensitive sheet or roll mounted twill, or pre-cut with a laser for later placement. For the applique method, the central design area can be stitched on a span of material without a finished edge, often with several badges in a single span of material, cut from the span either manually or with a laser



Though you can use almost any sufficiently stable fabric for patch-making, the classic choice is a polyester twill. (Image courtesy Erich Campbell)

“No matter which method of production you choose, small-run patches can be a fantastic answer to decorating the occasional hard-to-hoop or hard-to-stitch item.”

and stitched on the soluble material just for the edging process in a second embroidery run.

Plastic Substrate: The plastic substrate method requires either a commercially developed plastic frame system or hooped 20-gauge clear vinyl. In either case, a hooped plastic substrate is used, on which stitchers either place a pre-cut fabric base as in the previous method or render the “base” of the patch’s coverage entirely in thread. Thread-only patches require digitizers to create a particular type of underlay and fill that provides sufficient body to make up the base of the emblem. After emblems are stitched on plastic substrates, they simply rip away from the span, often requiring little finishing.

Due to the substrate being clear, even the small amount of material that can show is usually unobtrusive. That said, this method has the most tendency for the emblem to separate or tear away from the hooped substrate before the design is complete, resulting in complete failure of the emblem.

Minding Your Materials

Soluble Stabilizer: For this method I prefer a fibrous-type water-soluble stabilizer as it is more able to stand up to the stresses of stitching than film-type soluble stabilizers and some plastics.

Fabric: Though you can use almost any sufficiently stable fabric for patch-making, the classic choice is a polyester twill. Many early patch-makers think that the stiffness of commercially produced emblems requires thick, hard fabrics, thus they use heavy, coarsely woven fabrics. This results in distorted fine detail and poor satin stitch edge quality due to needle deflection and texture.

The stiffness of a classic commercial patch is usually the result of support materials like crinoline or the addition of an adhesive layer. Commercial patches are usually made of finely woven polyester material that resists fraying somewhat, takes fine detail, and can be cut with a hot knife/laser.

Thread: Some patch producers use 60-weight thread for fine detail and tiny text on emblems; with fine, stable woven material



These patches were created using the applique-style method, stitched without edging and manually cut from a span. (Image courtesy RJ Silva, Eyekandy Designs)



Both of these patches made for Vietnam veterans were created from embroidery files I created but stitched by large emblem companies. In both cases, the patches were cut after stitching. In the Run for the Wall patch, the textured background took some explaining and testing to get the company on the same page as we were for execution. Though that slowed the order somewhat, for the large number of patches we needed to produce, outsourcing made more sense. (Image courtesy Celeste Schwartz)

as the base of the patch, it's easier to use thin threads and to carry the detail seen in seals and badges. Just remember that designs need to be digitized for 60-weight thread, as any satin or fill stitch will need approximately 25% more density to reach the coverage of 40-weight thread in the same circumstances. For hot-knife cutting, some advise using a rayon thread for edging as it doesn't melt at the same temperature as the polyester fabric.

Bobbin: When possible, use a bobbin thread that is as inconspicuous as possible for patches. The key is cutting down on contrast. Frequently, this means using an easily found pre-wound black bobbin, but you can also use a custom-wound colored 60-weight thread bobbin to enhance the wrapped look of a patch edge.

The Digitizing

You'll need stitch files made for patch creation. Though the specifics are outside the realm of this article, it's not difficult to achieve. If you do the digitizing, run all decoration or central material in the design before edging with any of the methods in which patches are stitched in a single step. This prevents premature tear-out by reducing the amount of stress placed on the substrate once the edge becomes perforated with the final satin stitching.

Most outsource digitizers should be able to create the necessary

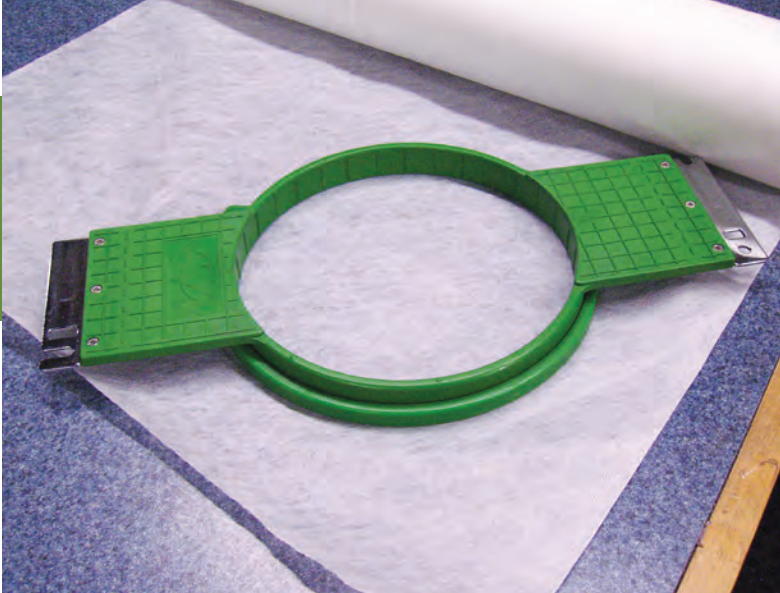
files and/or cut lines for your cutter should you be pre-cutting fabrics blanks. Just let them know the method you'll use to create the patches. You may even be able to have them use specialty stitch types to create a decorated border that more closely resembles overlock stitching or that adds a textural detail that sets it apart from a standard satin-stitched edge.

Failing that, you can always look to stock design companies; many sell patch borders in standard sizes and shapes that you can use to make any appropriately sized logo into a patch with some simple resequencing and compositing of stitch files.

No matter which method of production you choose, small-run patches can be a fantastic answer to decorating the occasional hard-to-hoop or hard-to-stitch item through the use of adhesive applications, let alone their current popularity for their compelling retro style. If you embroider, there's no reason not to try patch making. 🍷

For certain types of orders, embroidered patches offer advantages over direct embroidery. Find out when that might be the case at <http://gpro.link/emblems>.

7 Steps to Create Patches on Soluble/Removable Stabilizer

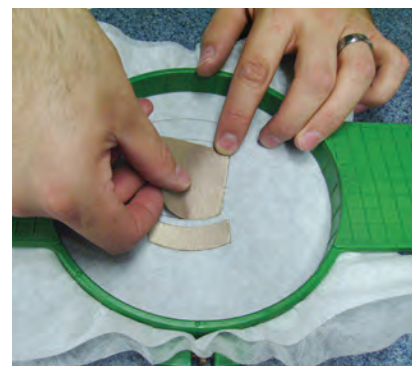


Hoop up a double layer of a fibrous, water-soluble stabilizer. (Images courtesy Erich Campbell)

- 1** Hoop the proper stabilizer or other support material.
- 2** Stitch your placement line.
- 3** Place the patch material in the hoop, carefully aligning any pre-cut piece with the placement stitching to cover that initial outline. You will likely want to adhere the patch material to the support material in some way. I have used pressure sensitive pre-adhesive coated twill, but other materials require a light spray of embroidery-specific adhesive to secure them.
- 4** Stitch your tackdown zigzag or your cut line. If you are using pre-cut material, this is your last chance to correct improper placement; if your zigzag isn't fully catching the edge of the material or your patch has somehow shifted during the run, it's relatively simple to remove the loose zigzag stitching and move the material into the proper alignment and re-run the tackdown before continuing. If hand-cutting your material, carefully remove the hoop and cut the material away from the cut line after this step, getting as close to the stitched line as possible to avoid threads falling out of the final covered edge.
- 5** Run your central design. Again, the main decorative body of the design should run before the outline, as the satin outline has the most chance of compromising the stabilizer through closely aligned, dense perforations. With the stresses of the central design causing the patch to shift as it degrades, compromised stabilizer may deform the border of the patch or prematurely tear out and entirely ruin the emblem, particularly with plastic films.
- 6** Stitch the final, full-density satin-stitch border.
- 7** Remove the patch from the hoop and remove the excess stabilizer by washing/rinsing it in the case of water-soluble stabilizer or tearing it away in the case of plastic films.



Run your placement lines.



Using an adhesive, place the cut pieces on the stabilizer.



Run the tackdown stitching.



Run your design and border.



Rinse out the soluble stabilizer.



The finished patches.



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One of the top complaints among screen printers is, “My white ink is not opaque enough.” (All images courtesy International Coatings)

HOW TO SCREEN PRINT THE

Perfect White

Master your white prints — every time

By Kieth Stevens



Kieth is the Western regional sales manager for International Coatings (ICC). He has been screen printing for over 44 years, teaching screen printing for over 12 years, and is a regular contributor to the International Coatings blog. Read the ICC blog at internationalcoatingsblog.com. Contact Kieth at kstevens@iccink.com.

You’re a beginner at screen printing or have been printing for years, yet your white prints often have jagged or “blurry” edges. Don’t despair. Here are some tricks and tips to help you achieve a clean print — every time.

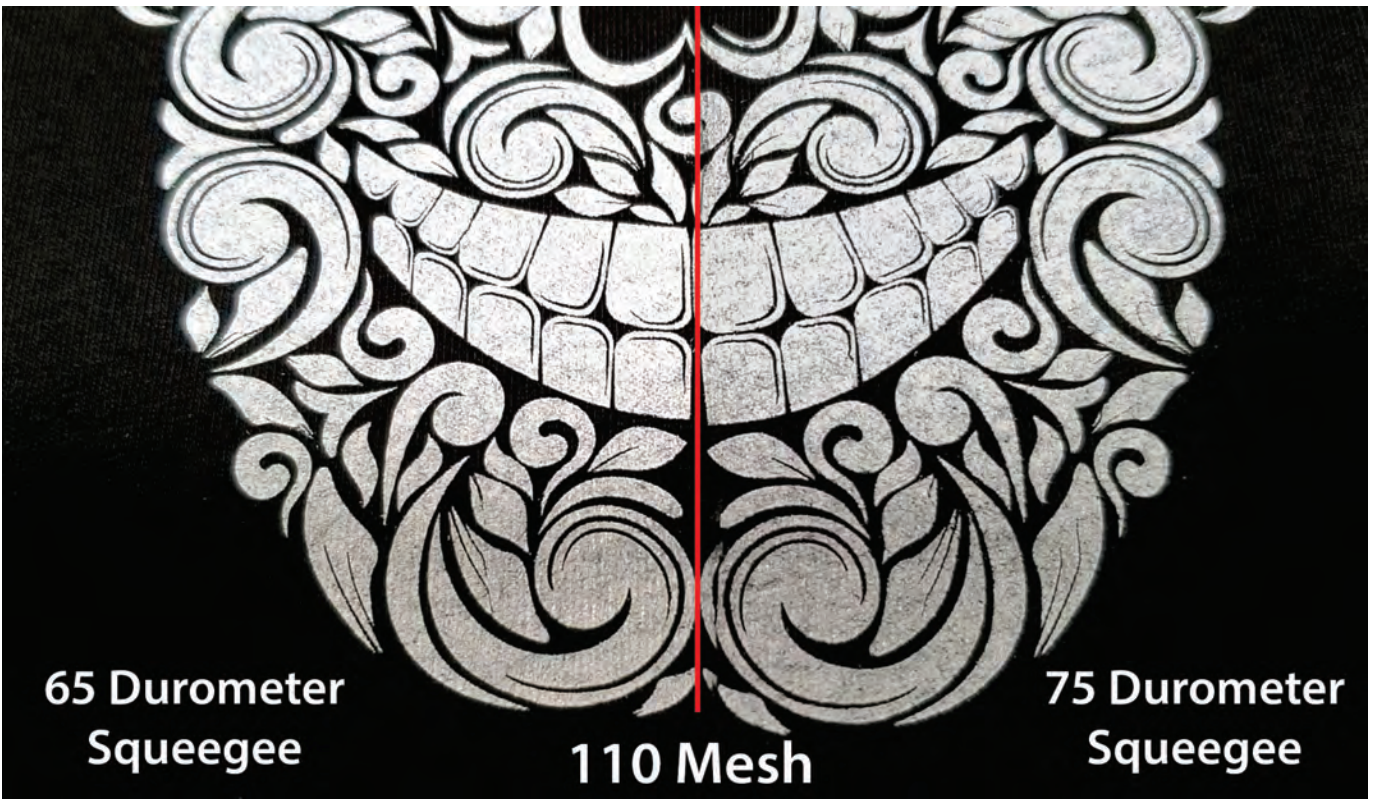
One of the complaints I hear the most is, “My white ink is not opaque enough.” Although it may be true of some inks, I find that most of the time, it’s the printing technique that is causing the lack of opacity or the jagged edges. Each piece of equipment or tool you use in your printing can make a difference in how your final print turns out.

Screen and Mesh

Let’s start with the mesh and screen. The tighter the mesh, the easier it is for the ink to flow through the mesh and the sharper and more defined the print. The screen should clear the platen right after the stroke. If the mesh is loose, the mesh allows too



Proper emulsion coverage is measured in EOM (emulsion over mesh) and should be around +/- 20%.



To deposit a good amount of ink and thus increase the opacity of the resulting print, try a 65/70 durometer (medium) squeegee for the underbase and the highlight white print.

Ink is usually the most consistent part of the equation but is blamed for 90% of the problems.

much movement during the stroke process and can cause the ink to smear. A loose screen can also cause issues with registration when using multiple screens and result in blurry or jagged edges.

Be sure to use the correct mesh size (larger for the underbase and smaller for a highlight color). Typically, I prefer a 110 mesh for the underbase white and a 160 mesh for a highlight white. Some use a 160 mesh as the base white and then a 230 mesh for the highlight white for highly detailed prints.

Emulsion Coating

Next, let's examine the emulsion. Sufficient emulsion coverage is crucial to obtaining an opaque, crisp print. Proper emulsion coverage is measured in EOM (emulsion over mesh) and should be around +/- 20%. Be sure to coat the underside (shirt side) of the screen thicker than the ink side. A thicker emulsion coating acts like a stencil wall that allows the ink to only go where it's supposed to, like a gasket. A thinner emulsion coating may not block ink as effectively, letting ink meander into pockets caused by the mesh texture. The resulting print image may show messy edges or smearing.

Squeegee Hardness

The squeegee is an excellent tool for controlling the amount of ink deposited onto the garment — a softer squeegee deposits

more ink than a harder squeegee. To deposit a good amount of ink and thus increase the opacity of the resulting print, I recommend using a 65/70 durometer (medium) squeegee for both the underbase and the highlight white print.

Dense Film

Another critical aspect of achieving a crisp and clean print is the film. The artwork should appear as black as possible. When you hold the film up to a strong light, does it show through the dark, positive areas? If it does, your image may not translate well onto the screen. Be sure to start with a film that shows the design as opaque as possible. Similarly, the "clear" part of the film should be very clear and translucent instead of milky (such as vellum). This is especially crucial when working with detailed artwork.

Heated Platens

After the screens are mounted, and squeegees prepared, warm up the platens for about 5-10 minutes before printing. This is important as the heated platens improve the adhesion quality of the platen adhesive and can help make the ink flow better.

Mat-Down/Flattening Screen

Another "tool" is a mat-down/flattening screen, used right after the underbase print is exposed to the flash. The mat-down screen



Another "tool" you can use for crisp, white prints is a mat-down/flattening screen. Used right after the underbase print is exposed to the flash, the mat-down screen "irons" the still-hot ink and pushes down fabric fibers, creating a smooth print.



Always test after curing by first doing a stretch test. Cured ink should not crack or flake when the fabric is stretched.

fewer strokes, less time to “fix” issues during production, and faster printing speed.

Choose the right ink for the job! This is crucial, depending on what you are printing on. Don't use a cotton white to print poly blends or 100% polyesters. Nor should you use a poly white to print cotton shirts. Inks are specifically engineered to function for specific types of textiles. A cotton white, for example, usually does not have bleed-resistant characteristics. Similarly, a poly white may cause ghosting issues when printed on cotton.

Curing Process

When curing, follow the manufacturer's suggested temperature and time parameters. There are low-cure or regular-cure inks nowadays but test with a temperature gun to make sure the entire surface of the ink reaches the desired/required curing temperature. Depending on the size of the print area or the thickness of the ink deposit, you may need to increase the dwell time in the dryer to make sure that the entire ink layer has reached the cure temperature.

Always test after curing by first doing a stretch test. Cured ink should not crack or flake when the fabric is stretched. The second test I recommend is to wash the garment 24-48 hours after curing. Properly cured ink should not come off or flake off in the wash. The 24-48-hour lapse is crucial as the ink continues to cure during this time and may come off in the wash if washed sooner than 24 hours.

Practice makes perfect. If you keep these pointers in mind and use them, you'll master your white prints in no time! Consider that for a good paint job, most of the work is done upfront or in preparation. When done correctly, the actual painting is easy. The same goes for screen printing. When you have perfectly prepared screens, the actual printing can be fun. As the old saying goes, if you find something you love to do, you'll never work a day in your life. I've had a lot of fun over the years. 🍷

sort of “irons” the still-hot ink and pushes down fabric fibers, creating a smooth print. To create a mat-down screen, coat a 160-mesh screen with emulsion, dry it, and expose it to harden. Use general purpose lubricating grease in place of ink and a hard squeegee.

The trick to successfully achieve a smooth print is to flash the ink just until the ink is gelled or dry to the touch. Then, immediately “print” using the mat-down screen while the ink is still hot to smooth the print. Use extra off contact on this screen to help the mesh peel away from the image before lifting the screen. If the ink sticks too much, it may be under or over-flashed. With the correct settings, you will notice the improved difference.

Be careful that the ink is not over-flashed or cured. Otherwise, you may end up with intercoat adhesion issues. That's when the next layer of ink will not adhere to the cured layer below and may crack or come off in the wash.

Ink

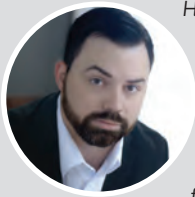
Ink is usually the most consistent part of the equation but is blamed for 90% of the problems. Be sure to invest in quality ink. What do I mean by that? Quality ink may cost a bit more but generally contains fewer fillers. That means the ink usually performs better, is more opaque, and may leave less residue on the screen. For the printer, it may mean a better-quality print,

HOW TO INCREASE

Sublimation Business

By Howard Potter

What you need to know to expand your sublimation offerings



Howard Potter has been working in the promotional industry for 17 years, from designing to building brands and a family-owned business. He is the co-owner and CEO of A&P Master Images LLC with his wife Amanda. Their company offers graphic design, screen printing, embroidery, sublimation, vinyl graphics, and promotional items. Howard, his family, and the business reside in Utica, New York. For more information, please visit masteryourimage.com.

Does your company offer sublimation? If not, that's OK. This article is for you. Not sure what to add to your sublimation product line and why? This article is also for you!

Sublimation, like many other processes, has thousands of products to choose from and it can be overwhelming to know what and how much to offer. As business owners, we need to look at what equipment we have to work with, research the product, size of our production space, who are our customers, and how we are going to market to them.



Consider equipment needed, product research, and production space before making any decisions. (All images courtesy Howard Potter)



Your goal should always be to maximize your profitability within your workspace.



Make sure the new product you bring in has a fair profit margin that you can produce quickly per hour within your workspace.



Before you add a new product to your sublimation offerings, do your research. Is it a fad? Is it easy to sublimate? Do you have the right customer base?



Knowing what your equipment is capable of is important when selecting new products to sublimate. If you do not have the equipment for the product you want to bring in, then you have another cost to add.



The Product

Our company owns three heat presses that only heat press flat surfaces, a hat press, a convection oven, and a sublimation printer. Knowing what your equipment is capable of is important when selecting new products to sublimate. If you do not have the equipment for the product you want to bring in, then you have another cost to add, so it is important to take a step back and double check that your equipment can handle any new product(s).

Researching the product is important. Is it a fad or not? Is it easy to sublimate? How is the stock on this item? If something is a fad, be cautious. Make sure that you get in early on the trend and don't carry too deep of stock or you could be stuck with it. If you get in early enough on the fad, you can capitalize and make a healthy profit quickly, but just keep your eyes open and pay attention to how sales are moving to reduce any backend potential loss in stock of the item.

If the item is not a fad, that is usually a safer item to move to next. Just be aware that your competition will most likely have this product, too, so make sure you print that product as good as them or better. Making sure this item is easy to sublimate is a must no matter the size of your company. The last thing you want to do is bring in a new product that is not easy to work with. It can create a massive error rate and loss of income — order six to 12 pieces to test on. The easier the product is to work with, the easier you make it on yourself and your staff.

Research the stock of this item. Make sure you know how many wholesalers or manufacturers produce it. Order samples if they are not the name brand and compare pricing. Always create a backup plan in case your vendor runs short, and make sure your pricing structure covers all pricing for both vendors in case you have to switch on the fly to keep orders getting done on time. You don't want to increase pricing for your customer or have to take a loss in profit.

The Space

What is the size of your production space? Each new product takes up a certain amount of space along with your equipment, so your goal should always be to maximize your profitability within your workspace.

Make sure the new product you bring in has a fair profit margin that you can produce quickly per hour within your workspace. In our case, for example, our sublimation room is only 14' X 14' with our computer/print station, heat presses, oven, production tables, and stock shelves. In that little space, one person can keep the printer printing, load the convection oven with up to 24 mugs, and in between run a heat press. By setting a room up like this, you create a productive workspace for any new products you bring in, it takes fewer people to be productive, and makes your space more profitable.

The Customers

Knowing your customers has been talked about forever, but it is important. Knowing your customers and their needs is another



Talk to your customers. Get to know them. What do they wear? How often do these items need replacing?



If you want to be successful with a new product, you have to put the time in and do the research.

form of data analytics that help you take controlled, calculated risks. Talk to your customers. Get to know them. What do they wear? What items do they use in their line of work? What are common items that everyone uses? How often do these items need replacing?

Knowing all of this information gives you a head start on picking new items that will most likely have an 80% success rate versus not studying your customers and picking a new item with only a 20% success rate. Your basic research is the cheapest and most valuable information that you have. If the item is used often or is popular, guess what happens? Your sales naturally increase out of the gate and become steady.

Once you understand your customers, you can work on a marketing plan to educate them on your new product(s) that you offer. Everyone works with a different size marketing budget and that is OK. No matter your size, you should always look to gain the largest return with the least amount invested.

For example, our company did \$2.4 million last year and spent around \$20,000 on marketing, which is under 1% of our gross sales. Focus on selling a quality product with top-notch customer service and turnaround time.

Once you have built pricing for your new products, create sales flyers for them right away. You can add these to your website, give them to customers as they come in, email them to customers, and post them on all of your social media platforms. Think about all of the different ways to promote simply with a sales flyer.

Another great way to promote a product is to existing clients. If they spend a certain amount with you, throw in a free gift with their logo on it using the new products. Spending \$10 to \$20 to promote directly with that customer can lead to a \$250 to \$1,000 order in most cases, but you will never know that if you do not try. It is easier to promote to an existing customer than a new one. That is another simple low-cost way to promote a new product.

Radio, TV, and SEO for websites are great tools, but costly, with no guarantee on your return of your investment, nor do you know how many people or who will walk through your door to order based on those ads. So, it is important to market to who you want as a customer.

Remember, if you want to be successful with a new product, you have to put the time in and do the research, which can take a lot of effort. But in the end, you will typically create stronger sales and improve your profits per item that you want to bring into your customers.



You can create stronger sales and improve profits by adding the right products to your sublimation services.



Sublimation Graphics Software Basics

By Jennifer Foy, Unisub

Graphics Software

When starting in sublimation, you need the heat press, printer, inks, etc. But something many people don't think about is the software for editing graphics and formatting artwork. The top two programs to use are CorelPHOTO-PAINT and CorelDRAW, or Adobe Photoshop/Illustrator. Training videos and tutorials can be found on Adobe and Corel's websites as well as YouTube and platforms like Lynda.com.

File Formats and Color Modes

Sublimation image/art files work best in RGB color mode over CMYK. File formats for printing are commonly JPG or PDF. Resolution or quality for your files should be a minimum of 200 DPI (dots per inch); however, are ideally 300 DPI.

Templates, Bleeds, and Tools

Part of formatting files for printing/pressing includes adding $\frac{1}{4}$ " to the item dimensions for printer bleed so the image goes across the entire product. If it's a 5" X 7" photo panel, then your file format should be 5 $\frac{1}{4}$ " X 7 $\frac{1}{4}$ ". On smaller items, you'll notice you can use slightly less bleed, or on larger, thicker items like MDF photo panels/signs, you may want to add a thicker bleed of $\frac{1}{2}$ " to be able to see the bleed and properly center the blank product onto the printed transfer.

On designs that have a white or light background, add a thin black border so you can see your image area and not have to guess, creating a waste of not only a transfer but also a product that you sublimated off-center.



Image courtesy Unisub

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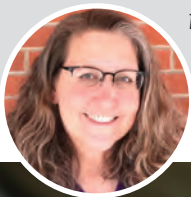
UV-LED flatbeds provide a variety of options to print to a wide range of substrates, such as signage, posters, wayfinding, decorative panels, and more. (Image courtesy Mimaki)

GETTING STARTED IN

UV-LED Printing

Applications and processes for this quickly growing segment of the graphics industry

By Paula Aven Gladych



Paula Aven Gladych is a freelance writer based in Denver, Colorado. She can be reached at pgladych@gmail.com.

UV-LED printing has been around for 20 years, but it has only been the last five to 10 years that have seen the industry really come into its own because of advances in inks, print heads, and light sources. This technology is rising in popularity, in large part because shops can print a project and package it immediately because the inks dry so quickly under the UV or LED light.

The sign industry was an early adopter of UV technology because it “skips a lot of manual processes they had to incur,” says Michael Maxwell, Mimaki USA. Another segment that was an early adopter of UV-LED was the point-of-purchase and package prototyping industry. “UV curable created an opportunity to create a mockup in a short period of time, a day or two, or a couple of hours, depending on the need,” he adds.

Jay Roberts, Roland DGA, says that he loves the fact that he can print on a product, like a keychain, and it is ready to go immediately. You can pull it off the printer, wrap it up, and ship it out instantaneously. He adds that the processes have gotten faster, and the textures of the images have gotten better.

What is UV-LED Printing?

UV-LED printing is a one-step process, unlike heat transfer printing and dye-sublimation where heat presses are necessary to set the inks. In UV-LED printing, a thin layer of ink is spread over the printable surface and instantly cured or hardened using ultra-violet or LED lamps, which makes the overall process versatile and quick.

As technology has developed, decorators have been able to print on more and more items, including golf balls. (Image courtesy Roland DGA)



UV lights have always been too intense to use on paper goods or thinner substrates, but LED heat lamps can do the job without burning or warping the thinner materials. That advancement paved the way for UV-LED flatbed printers that can do everything from printing on cardboard packaging to car wraps. (Image courtesy Roland DGA)



Image courtesy Roland DGA

Other types of large-format printing require numerous passes to achieve a multi-colored image, whereas on a UV-LED printer, all colors can be laid down at once because the ink dries so quickly. These machines remove steps other technologies must take to print an image, cutting back on time and cost. “The UV printing process has a trifecta of ingredients that create the mechanics of the machine; they involve the lamp, the print head, and the ink. If any of these are out of whack, then you have to reformulate, regroup, or renew,” Roberts says.

Ink Advancements

If a printer manufacturer wants its ink to have better adhesion to a specific substrate, certain chemicals come into play that make them bond better to metal, steel, Teflon, or glass. Those bonding agents do impact how fast the ink can travel through the print head and how they are cured by the heat of the lamp. And the work is never done. Manufacturers work closely with customers to rework their inks to better serve specific needs so the innovation will continue.

Mimaki is just one company in the printing industry to originally dedicate effort into the UV-LED space. “The ink technology was the biggest stall in the whole chain of events here,” states Maxwell. “Mimaki engineering decided to invest in LED technology and manufacture the inks in-house, creating our own chemistry. We streamlined the process.”



UV-LED printers can print on some pretty unique surfaces, including metal, steel, glass, and even on sporting equipment. (Image courtesy ColDesi)



Image courtesy Mimaki



These printers can create different textures and even two-dimensional images using different drop sizes and layering. (Image courtesy Direct Color Systems)



Image courtesy ColDesi

The company dedicated its resources to making inks that would work well with different printers and a variety of substrates. Many other companies around the industry have done and still do the same thing. “I’d say we hit a renaissance of ink technology. The chemistry started to come together (as well as) the ability of the machines and the range of things you could do with UV curable inks. The market exploded,” Maxwell adds. Canon, Roland, and others are just some of the other companies working within the UV-LED printing market.

The Print Head

“We use a multi-drop system, which allows the current heads in our current platform to be able to give different drop combinations,” says Lon Riley, LogoJET Inc. “It gives us a lot more granular control over the specific application we are using. That’s



Image courtesy Roland DGA



Image courtesy Direct Color Systems



Image courtesy LogoJET



Image courtesy LogoJET

the big deal with this technology. We can do so many things with it.” That means that the printers can create different textures and even two-dimensional images using different drop sizes and layering.

“As the technology develops and gets better and better, those capabilities will expand,” Riley continues. LogoJET got its start printing on golf balls 15 years ago and golf balls still make up a large chunk of its business, but it also has expanded out into sporting equipment like baseballs and footballs. “We can print on some pretty unique surfaces. We can print on a lot of different things,” he says.

UV-LED printers are known for being able to lay down a layer of white ink before layering other colors on top. The white ink allows the printer to lay down a clear, crisp image, even on a shiny surface. Gloss ink can be used to embellish certain parts of the print to create an embossed effect, Roberts says. “The wow factor comes into play,” he notes when talking about the capabilities.

The Heat Sources

LED lamps revolutionized the technology again. UV lights were always too intense to use on paper goods or thinner substrates, but LED heat lamps can do the job without burning or warping the thinner materials. That advancement paved the way for UV-LED flatbed printers that can do everything from printing on cardboard packaging to car wraps.

“Most of the machines have already migrated to LED as the light source,” says Roberts. Mercury halide lamps were less expensive than



Image courtesy Roland DGA



Image courtesy Roland DGA



Image courtesy LogoJET



Image courtesy LogoJET



Image courtesy Mimaki

LED but only lasted about 800 hours. LED lasts 10,000 to 15,000 hours, “so the cost really becomes irrelevant,” he continues. “They are smaller, use less heat and energy, so really every manufacturer has almost completely migrated to LED light sources.”

Another development that helped fuel the rise of the UV-LED market was the shift to “more industrial components like heavy-duty motors, belts and chassis, things designed to take some abuse in production environments,” says Riley. The same things apply to a lot of other technology. “We are seeing major advances in head technologies, thin film technologies coming out from major players; more granular control, longevity, and better throughput, leading to faster print speed,” he adds. Costs also have started to come down, making more industrial offerings available even to smaller print shops and graphic artists.

COVID’s Impact on the Market

The retail market, which is one of the printing industry’s biggest users of large-format printers, has seen the whole industry turned upside down because of the COVID-19 pandemic. “Retail as we know it changed drastically. There is a lot less brick-and-mortar activity and a lot more online shopping,” Maxwell points out.

But, even with the pandemic and limits on how many people can be in a retail location at a time, big box stores and grocery stores are still demanding floor and wall graphics, particularly graphics that tell people where to stand or that they should be social distancing, wearing masks, and using hand sanitizer. “The big challenge is everyone wants something tomorrow. UV gives us the ability to deliver,” Maxwell states.

The flatbed market saw a huge influx of business in 2020 because retailers changed the graphics they were ordering from double-sided signs that hang from the ceiling to more floor and wall graphics. “People are more focused on looking down, staying six feet apart,” Maxwell adds.

As current events and advances in technology continue to change, UV-LED will continue to play a role in the graphics industry. 🌐

Turn Out the Light!

By Steve Mills, Direct Color Systems

You must always store your inks away from light. Even though typical ink packaging is opaque or “light-blocking,” my experience is that there is always some amount of light penetration. Some good practices to start using:

Do not store in a location with sunlight, either through windows, skylights, or direct. The lighting in the area should have UV light filters installed. There are many options here, such as UV filters applied to fluorescent light bulbs and windows.

Leave the bottles of ink in the corrugated packaging when they arrive. It’s another layer of protection and doesn’t cost anything. If you unpack the bottles, it’s always best to use a lower shelf where they are shielded from overhead lighting.

One of the worst things you can do when handling inks is to use a flashlight to look in a bottle. This light can quickly turn a perfect ink into a destabilized mixture — an expensive mistake for any printer owner.



Image courtesy Roland DGA



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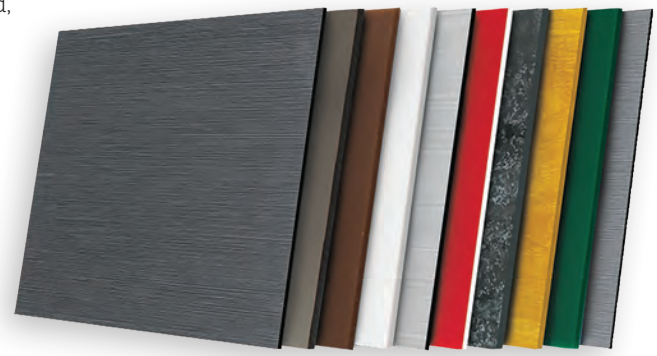
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Laser Engraving

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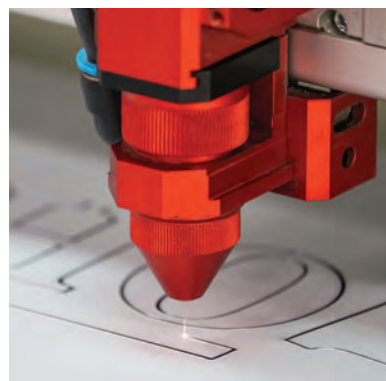
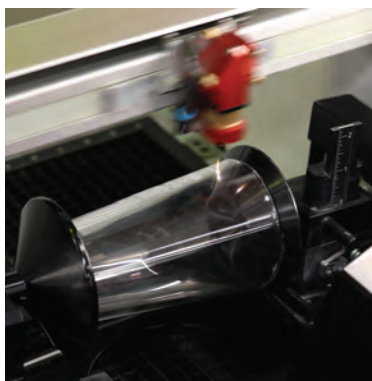
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COMPANY PROFILE:

Trotec Laser is a leading provider of world class laser systems known for its wide range of processing capabilities and features such as high-speed processing, high-quality components, and a patented low maintenance design. Among these systems are the Speedy Series laser engraving and cutting machines, the fastest and most productive laser engravers on the market. They are designed to process a wide variety of materials such as wood, acrylic, plastic, metal, paper, and textiles for all kinds of applications in a number of industries. Trotec also offers large format CO₂ laser cutters and high speed CO₂ and fiber galvo marking laser systems, as well as an extensive line of laser and engraving materials and free laser resources. Discover how adding a Trotec laser system to your business can increase your production, broaden your product offerings, and improve your competitive position.

Trotec was originally founded in Wels, Austria in 1997 and established in the United States in Mississippi in 2002. Now headquartered in Plymouth, Michigan, the U.S. business has grown to 10 times its original size, with a growing number of support facilities located throughout the United States, including California, Arizona, Texas, Georgia, Florida, North Carolina, Illinois, New Jersey, and Washington.



trotec

HOW TO

Sandcarve a Unique Gift

A colorful, niche golf award project



With over 40 years in the glass business, Ruth Dobbins offers experience in all glass-etching techniques as well as in fused and cast glass. Ruth holds a master's degree in art and has been a partner in an art glass wholesale supply and studio company in Europe, which also placed great emphasis on a training program, before joining forces with Norm. You can reach Ruth by email at ruth@etchmaster.com, or by phone at 505-473-9203.

Not too long ago, a previous customer of ours approached us to create another award for a golf tournament. OK, I thought, remembering the one we had done for her multiple times: a Martini glass with the winner's name etched into it. But no — she said this time it was going to be different. One of the ladies playing at her golf club had passed away and there was going to be a memorial golf game in her honor.

She described the woman as a very colorful one in many ways, but she had one defining identifier: she always wore colorful high heels to the club house. These shoes were her trademark so to speak, and the customer wanted me to include that phenomenon in the award. Little did I know at that time that the “award” was not one in the general award sense, but it was going to be a fairly expensive crystal decanter from Villeroy & Boch, with very convex surfaces.

This decanter was an elegant and obviously expensive item, and the thought of adding a colorful shoe to it did not sit well with me initially. But it was for a good customer, and so I was not going to say no right off the bat. We said we would think about a concept and get back to her with a layout.

Assessing the Layout

First of all, we needed to get an actual decanter from her because of all the curves in the glass object and the group had already purchased them ahead of the tournament. So, in view of COVID-19 and all, we met like masked bandits in a parking lot halfway between our locations to receive the decanters, seven in all.

By Ruth Dobbins



The decanter with all the curved surfaces. (All images courtesy Ruth Dobbins)



The stencils applied, and the decanter covered with shrink wrap and tape ready for blasting.



My painting stand was a cling wrap box with holes cut into it. You can see the blasted stoppers and my sample of the colored shoe.



All shoes painted; the bottom line in silver represents a silver platter.

After I returned to the studio with the decanters, I realized what I would be up against: not just curves, but planes that curved away from any straight-on view, which would make it somewhat difficult to see what might be etched on the surface. The best bet was the wider transition area between the large container for the libation and the neck of the decanter itself.

The spout of the decanter was crowned with a heavy crystal stopper that had a flat surface. We had to establish the circumference of the decanter and the curvature to be able to get the text to line up with the curved surface. We created the layout so that the text would wrap around the neck of the decanter on the only relatively flat surface of the object. Besides the text, we added a silhouette of the shoe the customer submitted to either side of it and, in addition, we also added the shoe to the flat surface of the stopper.

When we submitted the design to the client, she wondered if

all the shoes could be represented in color. Looking at the elegance of the decanter, I decided that that would make the whole object look a bit gaudy considering all the colors that were present in the shoe. It did not take much to convince the client of that and so the decision was made to only color the shoe on the stopper.

Blasting

The blasting process was, as usual, the least time-consuming step of the overall project. It took much longer to apply the stencils to the curved area and make sure that the text appeared more or less in the same spot on all decanters.

After the stencil application, the next step was also crucial: covering up any and all parts of the decanter that should not be blasted. At \$100 each, I did not want to have any mishaps and be responsible to replace any of the items. We used quite a bit of



A close-up of the painted shoe and platter with the stencil in place.



The painted stopper inserted into the decanter.

cling wrap and masking tape to make sure all non-stencil parts were adequately covered, including the stoppers as well.

The decanters were fairly thick, so I was able to blast some depth into the surface. The shoe on the stopper especially needed to be blasted deeply in order to create a subsurface good enough for the paint to be applied. After the blasting process, the decanters were cleaned off, being careful to not let any water or cleaner get into it. The stoppers had to be cleaned by blowing the surface off to remove all dust from blasting but leaving the stencil in place for the painting process.

Painting

The actual area to be painted was small and required many colors, so spray paint was not a viable choice. After thinking about this for some time, I came to the conclusion to use an unconventional method of achieving the color: Sharpies.

I had to keep in mind that the stopper would be handled and also cleaned every now and then, so I was not going to use the Sharpie straight up. I needed to protect the color from being touched and also seal it in to ensure it would not wear away from cleaning. I decided to spray the deep blasted area with a clear UV protectant first, then paint, let the paint dry well, and then spray the surface with the protectant again.

To see if I liked the result, I made a couple of samples on clear glass first. This way I could also decide on the colors. Even though the colors could be quite random, I wanted to have all the stoppers to be more or less the same, which meant using each color on each stopper, one after the other. The bottoms of the stoppers were not flat, however, and so I had to resort to a simple aid to handle the stoppers during painting and also keep them level during the process.

I got out a dispenser for shrink wrap and cut six holes into the top of the box, which would serve as my painting stand. Then I proceeded with the treatment: first the clear UV coat, then the individual colors, and then another clear coat. It is always important to let each layer dry well before proceeding with the next. Also, when mixing products from different manufacturers, it is always prudent to make a sample so that you can see if the products get along with each other or not. You surely do not want to find out about that after you thought you were finished with the project and all stencils are removed.

After any painting project, we keep the items in house for at least 48 hours to make sure that there are no issues and that the paints are actually cured, not just dry to the touch. Only after I was sure that all was well did I remove the stencil and wrapping from each stopper.

The project was completed, with the decanters back in their special boxes and ready to be delivered. Another meeting like drug dealers in a parking lot, and the decanters were in the hands of the client, who just loved the outcome. It is still nice to see the delight in customers' eyes when they are happy with the products we make. 🍷

For more pointers on how to apply a stencil to an odd-shaped item, visit <http://gpro.link/sandodd>.



The finished decanter.

Quick Tips for Creating Artwork for Sandcarving

By Mikaela Hernesman, IKONICS Corporation

High-quality, accurate artwork is essential in creating successful high-detailed and deep-carved images.

Artwork programs: If you feel overwhelmed by all the options and settings in other artwork design programs such as Adobe Illustrator and CorelDRAW, you may want to look at software specific to sandcarving. They require fewer steps to meet your basic artwork needs for sandcarving.

Front blast vs. back blast: You set up your artwork differently depending on where you are sandcarving. If you are sandcarving on the front of your substrate, you print your artwork

right-reading (so you can read it on your screen). If you are sandcarving on the back of your substrate (but will view it through the front), you need to mirror your artwork before printing.

Vector artwork: Vector artwork with crisp lines set to 100% black will give you the best results when sandcarving.

Artwork for compound curves: When setting up artwork for a compound curve, such as a wine glass or martini glass, you need to match the curve of your artwork to the curve of the glass so that the final result looks straight.

HOW TO GET THE MOST OUT OF

Laser Engravers

By Paula Aven Gladych

Tips on determining what laser is right for your business



Paula Aven Gladych is a freelance writer based in Denver, Colorado. She can be reached at pgladych@gmail.com.

Image courtesy Trotec Laser



Like other equipment used in the graphics industry, laser engravers continue to improve. In the past five years, a number of innovations have taken place that make these devices not only useful to the industries that have always been attracted to them but to new ones as well. Laser engraver manufacturers get a lot of their inspiration from their customers and base many of the machines' improvements on their suggestions, says Mandi Smallwood, AP Lazer.

Sign makers, woodworkers, and awards and engraving industries are still some of the biggest users of laser engravers, but a handful of new industries have realized just how useful these devices can be, including the funeral monument industry, which has learned that it can laser engrave photo-quality images on headstones and monuments.



One step to take before purchasing a laser machine is to decide which products and market you want to serve. One popular segment in the graphics industry is personalized products, such as drinkware. (Image courtesy Epilog Laser)



A laser engraver is capable of producing high-quality photographs on a variety of substrates, including anodized aluminum. Note that there are certain metals that cannot be marked by a CO₂ machine without a marking agent. (Image courtesy Kern Laser Systems)



When the laser hits glass, it chips the surface. Adjusting the settings helps ensure a quality finished product. (Image courtesy Epilog Laser)



Image courtesy Trotec Laser

New to the Industry

Shops that are new to laser engraving should determine what types of products they want to engrave before purchasing a laser. If they want to engrave on a variety of substrates, a CO₂ laser is a good option. While it can engrave on plastics, wood, glass, and leather, it can't engrave on bare metal, though it can leave black marks on coated metals.

If your main mission is to engrave directly onto base metals, a fiber laser is your best choice. Fiber lasers can engrave on silicon, gemstones, plastics, polymers, ceramics, thin films, and stone as well.

Many companies want to get into engraving personalized items like insulated mugs, glasses, or leather items. Before attempting to personalize any of these products, Adam Voigt, Kern Laser Systems, recommends doing a test run with different wattages and speeds to find the right settings.

Mike Dean, Epilog Laser, agrees, saying that learning the power and speed settings is something easy to do that becomes intuitive after a while. The settings recommended by each laser manufacturer are a good starting point. From there, the shop can play around by changing the power and speed until they get the desired result.

Another point new users should consider is graphics. Laser engraving is “very straightforward and pretty simple. The learning

**Having trouble deciding on a laser?
Ask yourself these simple questions:
<http://gpro.link/laserpurchase>.**

“Learning the laser is 5% of the process. Anybody that knows CorelDRAW or Illustrator can be up and running in a matter of a few minutes.” — **Mike Dean, Epilog Laser**



curve is in creating designs,” says Smallwood. “The graphic design side is where people get hung up.”

To help, most manufacturers offer training for their users. For example, every person that buys a laser machine from AP Lazer gets eight hours of training, two hours on the laser and learning about laser maintenance and the other six hours on CorelDRAW, iD Works, and Photograv, the software programs that come with its laser engraving machines.

Epilog Laser offers its customers a training suite that walks them through a couple of exercises to teach them how to operate the laser. “Learning the laser is 5% of the process. Anybody that knows CorelDRAW or Illustrator can be up and running in a matter of a few minutes,” notes Dean. “Over 90% of our customers already have graphic experience because they are doing sublimation or something along those lines.”

David Stevens, Trotec Laser, agrees that learning the graphics software is the hardest part. “If the user is already well-versed with a graphics program, the next step is the preparation of the designs specifically for laser processing,” he says.

Different Substrates

It is important to learn how a laser reacts to a variety of materials, which can take time and some trial and error. “Some manufacturers offer additional online educational resources as well as in-person workshops that will support your ongoing laser knowledge. With these means, the user can learn quickly and easily from step-by-step tutorials, get their questions answered promptly, and become comfortable with the laser,” Stevens states.

Some offer customers cheat sheets with the speed and power necessary to engrave on different substrates. “For instance, wood is typically medium speed and high power because the wood absorbs laser energy so you have to slow the machine down, unless you have a 120 watt and then you can run full speed,” Dean says. “For lasers that are 50 watt or 60 watt, you have to slow the laser down so that you get enough depth into the wood.”

But if a laser engraver goes too slowly over wood, it can leave a charred mark, notes Voigt. It also depends on the type of wood being cut or engraved. Some woods are more porous than others and will leave grains behind when engraving. Hardwoods are always a good choice.

Engraving plastics is different. “Vaporizing the cap sheet on engraver’s plastic can be done at high speed. Those are the two primary variables that control the laser: speed and power,” Dean states.

For glass, the laser should be on medium speed and high power, but Dean says you might want to adjust the artwork to 70% or 80% fill as opposed to being 100% because when the laser hits the glass, it chips the engraving surface. If you reduce the fill, you aren’t applying as much heat to the glass overall and it doesn’t chip as much.

It is important to learn how a laser reacts to a variety of materials, which can take time and some trial and error. For example, wood requires different settings than marble. (Images courtesy Trotec Laser)



Image courtesy Kern Laser Systems

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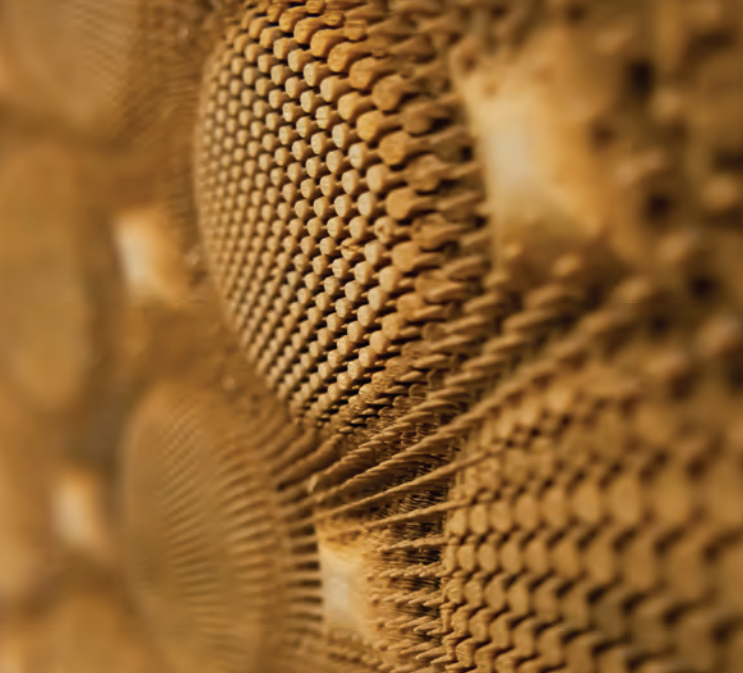
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| SETTING NEW STANDARDS



If you want to cut materials or do more advanced techniques, such as 3D engraving, it is beneficial to have a laser with more power. (Image courtesy Kern Laser Systems)



Image courtesy Trotec Laser

If you want to use a CO₂ laser on metal, you need to first apply a metal-marking spray onto it. When the laser hits the coated surface, it creates a thermochemical reaction that bonds the spray to the metal, producing a permanent black mark, says Dean.

Other metals, like anodized aluminum, produce a nice white contrast when engraving without applying a metal-marking spray first, Dean adds. Powder-coated metals can also be lasered. The laser vaporizes the paint and exposes the shiny subsurface beneath it. Most colored stainless steel mugs are powder coated.

Leather is a great product for both cutting and engraving. Shops can laser engrave a logo onto leather for keychains or luggage tags and then cut them out. Set your laser to high speed, low power and it will produce a nice, charred mark on the leather which creates a high contrast, Dean states.

Stone is yet another popular substrate for engraving. Granite and marble are used for headstones and monuments. Typically, the names of the deceased will be sandcarved onto the stone and then a photo or saying will be laser engraved onto it. It is much easier to engrave a picture or design with a laser than to develop a stencil for sandcarving, believes Smallwood. A 50- to 100-watt laser can engrave on granite and marble.

Another big industry for engraving is bricks. Hospitals, schools, and even sports complexes sell engraved bricks to help raise funds for projects. In the past, those items were only sandcarved then painted. With a laser engraver, the intense heat turns the engraved area black, so the engraved area doesn't need to be painted or touched up down the road. "Bricks are a huge moneymaker in the business," notes Smallwood.

On the bigger side of things, Kern's lasers are used for many industrial purposes, like large point-of-purchase displays, shower and bathroom doors, lighting, and aerospace. Much of it is laser engraving UPC bar codes or parts numbers on ID tags, tools, and control panels.



Image courtesy Trotec Laser

It's clear each substrate has its own set of guidelines. "It is important to use the appropriate laser parameters for each material to achieve the best result," adds Stevens. "For example, engraving paper usually requires less power than engraving wood or engraving plastic, and when engraving acrylic, you typically achieve the most uniform results when using lower power. It's also important to note that going too slow could result in a fire depending on the material, which is why using the appropriate settings is so important."

Laser Engraving Improvements

Over the past few years, laser systems have seen a steady increase in size and the speeds of both engraving and cutting. "More user-friendly, web-based operational software has begun to offer more control and ease of use, improved material settings, and features like cameras and vision systems have expanded the ability and diversity of markets for laser engraving," says Stevens.

Laser systems started out small in size with little to no customizable features or options. "Most were difficult to use, slow, required skilled maintenance, and were extremely expensive," Stevens adds. Over the years, new accessories have been developed, and the sizes and wattages of the lasers have increased. Laser engravers today are much easier to maintain and can reach speeds 20 times faster than the original laser engravers that came on the market.

These are all capabilities to consider when deciding what to purchase. "Laser power is going to determine speed and processing capabilities. For basic and straightforward engraving applications, a lower wattage may be sufficient, but if you want to cut materials or do more advanced techniques, such as 3D engraving, it will be more beneficial to have a laser with more power," Stevens finishes. 🍷



Images courtesy Kern Laser Systems



Top 5 Application Tips for the Beginner

By Aimee McGee, Trotec Laser

- Make sure you're using a laser with the appropriate capabilities for your application.
- Make sure you're using laser-friendly materials. Some materials, such as vinyl for example, emit noxious fumes when they are processed with a laser.
- Make sure you have proper exhaust and ventilation.
- Focus your lens appropriately for safety and better processing results.
- Test your speed and power settings.

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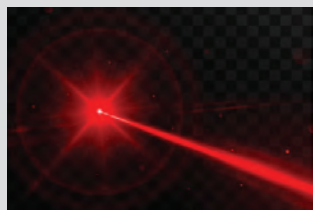
AP LAZER
LEADING THE WAY

What Kind of Laser is Right for You?

By Tom Tamburrini
CEO, Radian Laser Systems LLC

The term “laser” is widely used in the engraving and cutting industry, but many may not know that it’s an acronym for “light amplification by the stimulated emission of radiation.” Sounds cool, doesn’t it? A laser is a special kind of light that has proven to be useful for many different applications.

Most people also don’t realize that there are different types of lasers. You often hear the terms “fiber,” “CO₂,” or “UV diode” laser as well as many others. In the simplest form, these terms are typically related to the technology associated with how the laser light is produced. For example, in the case of the fiber laser, it is a “solid-state” device that uses low power laser diodes to pump light into fiber optics. These fibers are then combined to generate the useful laser beam. A CO₂ laser uses carbon dioxide “gas” inside of a glass



Each type of laser produces a different wavelength (or color) of light. (Images courtesy Tom Tamburrini)

or metal tube that is used to create the laser beam. Think of this as a special kind of lightbulb.

Each of these types of lasers produces a different wavelength (or color) of light. For instance, the fiber laser produces a 1064nm wavelength, and the CO₂ is typically either a 9.3µm or 10.6µm wavelength. These colors fall into the near infrared range, whereas UV lasers produce ultra violet light, which is on the other end of the visible spectrum.

CO₂ and Fiber Lasers

Most businesses in the graphics industry are familiar with CO₂ lasers and likely even have one or more in their shop already. If so, it’s probably a flatbed machine from one of the many industry brands.

It’s important to note that the different colors of light are the main reason that different materials react differently depending on whether it’s a fiber or CO₂ laser. Fiber lasers tend to react best with metals, ceramic, and many industrial plastics. On the other hand, CO₂ lasers tend to be better suited for organics such as wood and paper as well as acrylics, powder coatings, etc. There are many exceptions and some common areas where both do well, such as when marking anodized aluminum.

Fiber lasers are extremely effective at deep engraving metals such as aluminum, stainless steel, titanium, gold and silver alloys, etc. This makes them particularly well suited for marking on knives, awards, firearms, jewelry, etc.

Lower-power CO₂ systems on the other hand are extremely effective at marking and cutting wood, paper, acrylics, and many fabrics. They are also effective at removing many types of paints and powder coatings.

It’s important to note that not only are there differences between a fiber and CO₂ laser, but there are differences in how the laser beam is *delivered* to the item being cut or engraved.

As mentioned already, most people are familiar with a flatbed or what would be referred to as a gantry-style laser. With this type of system, the beam is delivered using a gantry system that carries beam routing mirrors and a focusing lens assembly moving over the item to be cut.

A flatbed laser is especially good at cutting because the beam is delivered from above the item to be cut in a vertical orientation that produces relatively straight cuts. This type of cutting machine can also be used for engraving, but because of the relatively large and heavy gantry and lens, engraving tends to be a bit slow. A flatbed laser can be thought of as a cutting machine that also marks (engraves). A flatbed laser can be configured with CO₂ or fiber, or both.

On the other hand, another type of popular approach to engraving is a galvanometer (galvo)-based laser. Galvo-based systems can be used with either fiber or CO₂ lasers, but typically both.

This type of system is different from a gantry system because instead of moving a large lens over the work piece, the system uses moving mirrors to deliver the beam. A galvo system is especially fast at marking since moving small mirrors is much faster than moving a heavy lens/gantry. Marking speeds are sometimes up to 10 times faster than when using a flatbed.

Although these systems can be used for cutting, because the beams tend to hit the part at angles, cuts are not as straight as with a gantry. So, unless the material to be cut is paper or fabric, the results are not as desirable as with a gantry. You can think of a galvo system as a marking (engraving) machine that also cuts.

I like to make this distinction as it helps customers decide what type of system best suits the applications they are serving.

You can see that there are quite a few things to know about fiber and CO₂ lasers as well as flatbed or galvos. Many shops have both of these systems since each brings advantages that can help grow their business. 📍

Do you know what laser specifications you need? Engraving pro Bob Hagel offers some insight on laser table size, power output, and maintenance at <http://gpro.link/laserspecs>.



Lower-power CO₂ systems are extremely effective at marking and cutting wood, paper, acrylics, and many fabrics.



A galvo system is different from a gantry system because instead of moving a large lens over the work piece, the system uses moving mirrors to deliver the beam.

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Wrapsesh, aka, Vinyl Vixen Wraps, Episode 9

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HOW TO USE

CNC Machines

TO GROW YOUR BUSINESS

By Paula Aven Gladych

Routers and finishing systems open many avenues



Paula Aven Gladych is a freelance writer based in Denver, Colorado. She can be reached at pgladych@gmail.com.

CNC routers have been around forever, but these days sign and digital graphics shops, and even other graphics shops, are getting more creative in how they use them. From three-dimensional signage to channel letters and point-of-purchase displays, companies are finding that the number of specialty items they can create with this versatile machine is only limited by their imagination.

There has been a merging of the print service provider (PSP) and the industrial sign shop over the past few years, meaning that sign shops are now offering digital printing and digital print shops are expanding into making more three-dimensional signage. Shops



The material on the machine dictates what tool is used to cut it. (Image courtesy Antares)



CNC routers have been around forever, but these days graphics shops are getting more creative in how they use them. (Image courtesy XYZ International)

need to determine what specialty items they want to produce before deciding whether they need to purchase a full-size industrial CNC router or a smaller CNC digital finishing system.

Basic Features

Both CNC routers and CNC digital finishing systems have “knife cutting capabilities and routing capabilities,” says Russell Boudria, Multicam. Shops wanting to get into this side of the business should look at the types of substrates they want to cut before making their decision.

If the shop wants to cut sheet material, dense, hard, or raw materials, they will want to purchase a CNC router machine. If the bulk of the shop’s intended applications involve knife cutting materials, especially roll-to-roll, textiles, vinyl, and banner material, they should purchase a digital finishing machine, Boudria advises.

Chuck Donaldson, Antares Inc., agrees, saying that it is “the materials driving the industry more than the equipment.” Antares manufactures cutting tools that are used for engraving, sign, and mold making on both CNC machines and engravers. The biggest difference between engraving tools and tools for a CNC is length of tool.

“CNCs have better spindles than engraving machines, a tighter hold, and they turn faster,” says Donaldson. “CNCs have become higher in precision, in speed, and volume and output than engraving machines — that is why people are spending three times more for a CNC than an engraver.”

The material on the machine dictates what tool is used to cut it or what the customer wants the end product to look like. “If a customer wants bigger products, larger format, or multiple copies ... a CNC is certainly going to make life easier,” Donaldson says.

A business must balance what it wants to use a CNC for versus the space available in their shop. Another consideration is that CNCs use a higher voltage than smaller engravers or digital finishing systems.

Digital Finishing Systems vs. CNC Routers

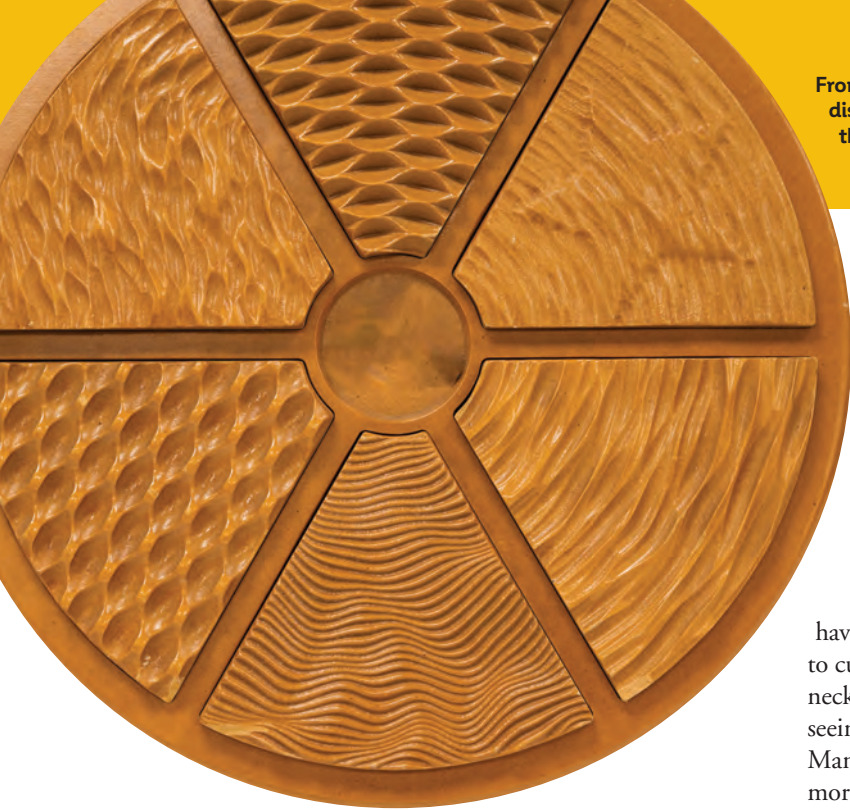
Digital finishing systems can produce point-of-purchase displays and outdoor signage, but there has been “tremendous growth in interior design with wallpaper, pillows, and upholstery,” says Mark Packman, also of Multicam. ADA signage, clothing, and textiles



Most CNC routers can cut a variety of different materials from plastics like acrylic, polypropylene, and polyethylene to materials like foam, aluminum, non-ferrous metals, wood, and composites. (Image courtesy CAMaster)



Customers today expect to be able to go to one shop to get all of their graphic needs fulfilled. CNC routers and digital finishing systems help meet that demand. (Image courtesy Vision Engraving & Routing Systems)



From three-dimensional signage and point-of-purchase displays to custom items for the home, companies are finding that the number of specialty items they can create with a CNC machine is only limited by their imagination. (Image courtesy Multicam)

are also in huge demand, so it's important that shops that want to get into these markets invest in the right cutting system for their product line.

"For digital finishing, styrene, foam core, thin paper products, corrugate for packaging, rubber, or foam insulation board — if you are doing all that — the majority of your business should be digital finishing," says Packman. "The speed of knife cutting

is faster on a digital finishing system." To cut through wood, non-ferrous metals, thicker aluminum, and composite materials, shops should look at a CNC with a larger spindle on it, he adds.

"The beauty of the grand format and CNC marketplace has to do with invention — daily invention of new substrates," continues Packman. "That allows you to be much more creative with what you can manufacture. There is daily new product development for our industry. It is fantastic."

Technological advances in the grand-format printing industry have put some pressure on shops' ability to keep up when it comes to cutting. Instead of the print side of the shop being the bottleneck, now it is the cutting side. That's why Multicam believes it's seeing more customers purchasing more than one cutting system. Many are buying CNC routers *and* digital finishing systems or more than one of each type of machine to keep up with the speed of the printers.

"There are so many markets out there, it is amazing to see what our customers bring to us to help them with," says Boudria. "We've seen everything from making train batteries to ship building, (and) cabinet shops to channel letters. It is amazing the products we're involved with and get to help make."

CAMaster's industrial CNC router can also act as a digital finisher, says Cody Smith of CAMaster. "We provide versatility for the customer. They can do aluminum dimensional letters but then on the same machine could direct print vinyl and cut out decals with the oscillating knife."

Cesare Magnani, Biesse, adds that most CNC routers can cut a variety of different materials from typical plastics like acrylic, polypropylene, and polyethylene to more dense materials like foam, aluminum, non-ferrous metals like bronze, wood, and composites. That means that shops can use their routers to cut out small components, machinery parts, covers or tops, and structural elements.

CNC machines have drag knives and oscillating knives as well as routing bits for carving. "We can not only work with a 3-axis machine carving vertically, but we have 4- and 5-axis solutions they can take to a different level of carving. They not only work vertically but inclined also. It has been a revolution. The machines today are not only more powerful but more affordable than they used to be. They have more capabilities and many different sizes," Magnani says.

In the past, routers came with a 4' X 4' table, then 4' X 8', and then 5' X 12'. Now there are huge machines — up to 7' X 40' — depending on the application.

Specialty Items Made With A CNC

In looking at projects that are a bit outside the box, many CNC machines can produce specialty items. For example, Biesse's 5-axis machines can make intricate components for aerospace and automotive applications, says Magnani. Many CNC machines come with a vision system that can detect reference points on a print so it knows exactly where to cut. These systems work with just about any design software. "When we talk about quality of

Cool CNC Projects

By Cody Smith, CAMaster

One of the most unusual items a customer made with one of CAMaster's CNC routers was a life-size chess set, which is on display in downtown Columbia, South Carolina. Each chess piece is six feet tall and two feet thick.

Shadow boxes are another unique thing, which are perfect for active-duty military or military members who are retiring but want to display their medals or branch insignia. They can make traditional boxes or get creative.

One of CAMaster's clients made a shadow box in the shape of the Star Wars characters Mandalorian and Baby Yoda.

CNC routers are also in big demand in the marine and mobile fabrication industry. Car audio shops use their routers to make custom subwoofer boxes, instrument panels, and speaker boxes. Custom boat shops use their CNC to make consoles, instrument panels, and custom foam flooring for boat decks that are soft and waterproof.

Video: 10 Tips for Starting a CNC Business

Ryan Drapela, the owner of Texas-based Drapela Works, talks about competitive advantage, knowing your equipment and competitors, and more. Tune in at <http://gpro.link/cnctips>.

Q&A with Kristina Vanderwater, Bouncing Off The Walls

cut, quality of frame is important, tools are important, also the way the routing is executed is important,” he adds.

For cutting plastic materials and even wood, it is important that the bits don't get so hot that the material melts or burns. Routers can also be used to score aluminum or plastic so that “we can bend it with precision,” Magnani says.

The 5-axis machine makes it possible to cut out something that is truly three-dimensional. People have made 3D statues using their CNC router, depending on the size. Larger statues can be carved in pieces and then assembled.

The COVID-19 pandemic opened up other possibilities for sign shops. Demand for personal protective equipment (PPE) was high in 2020 with hospitals, schools, shops, and retailers looking for ways to manufacture face shields, sneeze guards, and plastic barriers to help keep students, front line workers, and customers safe, says Smith. Many sign shops stepped in to fill that void, producing PPE from the substrates they had available in their inventory.

Routers also can be used to make custom wood signs, dimensional sign letters, carve HDU sign foam into the 3D marquis signs that are popular in shopping complexes, or to brand products instead of laser engraving them, Smith continues.

“Here's the magic secret: it is all in the finishing. Most good-quality CNC routers will create a good product, high quality, and look good,” Smith says. But it is really how a shop makes the end product look good that matters. That means having great additional skills, like painting and sand-carving. “That's what separates a good sign shop from an average sign shop. Anyone can print a decal and cut it out,” he adds.

Donaldson notes that one of his company's customers uses their CNC to cut out wooden snowboard cores. Another shop is cutting acrylic for backlit signage.

Customers today expect to be able to go to one shop to get all of their sign and digital graphic needs. Having a digital finishing system not only helps them build a revenue stream from cutting but also increases their revenue potential in the digital printing market, says Packman. 🌐

To get a picture of how some shops use their CNC machines in unique ways, we sat down with Kristina Vanderwater of Bouncing Off The Walls in Alberta, Canada.

Q: What does your shop do/what kinds of items and markets do you serve?

A: At Bouncing Off The Walls, we create meaningful, sentimental artwork and signs for nurseries, home decor, and businesses. We also supply sign backers and unpainted lettering to other businesses and DIY crafters.

Q: What do you use your CNC machine for?

A: We use the CNC machine to cut out all of the names and lettering for our nursery signs as well as the shapes/backers for all of my resin artwork and signs. We also use it for engraving logos and designs into plaques or signs that require detail work.

Q: How long have you been in business and how long have you owned your CNC machine?

A: We have been in business for 16 years and have owned our ShopBot CNC for 12 years.

Q: What's your favorite part about creating projects with your CNC?

A: I love the transition of taking an idea from initial concept and turning it into a piece that someone loves as well as the ability to create unique products.



Image courtesy Kristina Vanderwater

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TIPS FOR DESIGNING EFFECTIVE BANNERS

By Lily Hunter

Answer some questions about application and design



Lily Hunter currently serves as senior product manager for Irvine, California-based Roland DGA, where she manages the company's textile and dye-sublimation printer portfolio, media offerings, and e-commerce. Before joining Roland DGA in 2013, Hunter held various sales support and product management positions over a 14-year period with Arlon Graphics.

Have you ever passed by a banner and had no idea what it was advertising? It doesn't matter if a banner features beautiful graphics, eye-catching colors, and clever slogans; if the audience doesn't know what to do with what they see, it's a moot point.

Of course, the opposite can also be true. A banner with a clear written message but is all text with little to no graphics will not grab the audience's attention. Generally speaking, following the "keep it simple" rule is good practice, but it becomes ineffective if the banner is too simple. So, how do you design an attention-grabbing banner that accomplishes what you want it to do? Here are some valuable tips.

Before you start designing your banner, try to answer a few basic questions about the **application**:

1. Where will this banner be viewed from — indoors, outdoors, at a distance, up close, from a moving vehicle?
2. What size should the banner be?
3. How long will this banner be displayed?
4. Will it be reused?

Once you have the application questions answered, then answer some questions about the **design**:

1. Who is your target audience? Youth or adults? Professionals or retirees?
2. What is your message?
3. What is the call to action?
4. Are there specific branding elements and/or color schemes that you should incorporate?
5. Will the banner be reused?

First, let's unwrap the application questions and discuss their importance.

BANNER APPLICATIONS

Why is the location of the banner important?

This affects both the design and banner media selection. There are quite a few banner media available to choose from, ranging



If banners are reused, then the message should not include specific dates. (All images courtesy Roland DGA)



There are quite a few banner media available to choose from, ranging from traditional PVC banners to paper banners to fabric/fabric/soft signage.



An outdoor banner or a pole banner will require heavier material to stand up to the elements.

from traditional PVC banners to paper banners to fabric/soft signage. For example, an indoor banner designed to be viewed up close may require a higher quality, super-smooth PVC or fabric banner. These types of banners can also add a certain upscale look and feel to the surrounding environment. When it comes to the actual graphic design, you can incorporate specific details and effects, or use certain fonts and font sizes, to achieve the desired appearance. However, keep in mind that it's still best to keep things simple and stick with no more than two different fonts and sizes.

However, these same design elements are not the best if the banner is viewed at a distance or from a moving vehicle. There is a short window of opportunity for an audience to view the banner in these situations, so the message must be clear and easy to read. Also, an outdoor banner or a pole banner will require heavier material to stand up to the elements.

The last thing you want is to use the wrong type of media that can be easily destroyed by the environment. The location of your banner will also help you choose the correct banner size. Sizes will vary but choosing something too large or too small for the space can potentially make your banner an eyesore. Also, just because you've decided to go with a bigger banner doesn't necessarily mean you should add more text and graphics. Remember, the design must always have a purpose – a clear message and a clear call to action.



When it comes to design, are there specific branding elements or color schemes that you should incorporate?



The banner must resonate with those you are trying to reach, so choosing the appropriate image(s) and the right words is imperative.

Generally speaking, following the “keep it simple” rule is good practice, but if the banner is too simple, it becomes ineffective.

Choose the right color schemes based on the location of the banner.



Why do you need to know how long the banner will be displayed?

This will affect banner choice. Short-term banners can be low-cost banners, while long-term or reusable banners should be higher-quality banners. Also, if the banner will be reused, keep in mind that it's best to choose media that can be easily stored and “refreshed.”

DESIGN ASPECTS OF A BANNER

Who are you trying to reach, and what response does your customer want?

As previously mentioned (and it's worth repeating), keep the design simple. However, a simple banner can still be pleasing to the eyes and appropriate for the target audience. The banner must resonate with those you are trying to reach, so choosing the appropriate image(s) and the right words is imperative. Don't overload your banner with too much information and text that can cause confusion. The focal point should be a message with a clear call to action that creates a sense of urgency, combined with graphics that help attract attention.

Examples of clear and precise calls to action include:

- Donate here
- Come inside and SAVE!
- Call us now at 555-555-5555

- Volunteer with us today
- Sale on NOW!
- Enroll here
- Talk to us today

Is there branding or color schemes that you need to incorporate?

Choose the right color schemes based on the location of the banner. The banner should stand out because the design is eye-catching, not because it's too busy. Incorporate branding and corporate color schemes as needed. If the banner will go indoors, choose colors and design elements that complement the interior decor.

Will the banner be reused?

If banners are reused, then the message should not include specific dates. You can, however, refer to the season or time of year, like “Summer Cook-Off” or “Winter Festival.” The call to action has to be clear, and the information must be accurate. Reusing a banner can save money, but I generally don't recommend reusing a banner more than once. It's always best to change things up and introduce a banner with a fresh new design.

Now take this information and execute effective banners for your customers! 🍷



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GETTING INTO THE

Wide-Format Printing Business

By Bill Schiffner

Suppliers offer advice and tips for opening or expanding a wide-format business



Bill Schiffner is a freelance writer/editor based in Holbrook, New York. He has covered the imaging industry for 29 years and has reported on many evolving digital imaging technologies including wide-format printing and newer electronic digital signage. He was the editor for several imaging publications and websites. He can be reached at bschiffner@optonline.net.

Perhaps you own a small print shop and are looking to expand your services, or you are new to the market and are considering buying an existing wide-format business or starting one from the ground floor up. Whatever your situation, there are several points to consider and a lot of homework that needs to be done before putting up your “Open for Business” sign.

Buying an existing shop requires less work in start-up costs and finding a location. Starting a wide-format business from scratch will





Invest in equipment that allows you to print and customize a greater variety of items. (Image courtesy Roland DGA)

The first thing you need to do is create a business plan.



Alphagraphics, a shop in Roseville, California, uses a 4' X 8' UV-curing flatbed printer offering durable prints for both indoor and outdoor use. (Image courtesy Mimaki USA)

take more time, but it could allow you more flexibility in choosing a location, equipment, and the work you want to produce.

What Goes Into a Business Plan?

The first thing you need to do is create a business plan. This plan should have an ROI (return on investment) model. Create a spreadsheet and a letter explaining the new business plan. Include actual numbers with a timeline that shows how, in time, the business will start to make money. The business plan should review the basics such as payroll, rent, overhead (electric, heat, etc.), marketing, capitol (equipment), future expansion, expected material costs, vehicles, and anything else needed to make the business successful.

Dave Conrad, Mutoh America, says the business plan should look at basics like market strategy, competitive analysis, a SWOT analysis (strengths, weaknesses, opportunities, and threats), short- and long-term goals and what you will do to attain them.

“This is your blueprint for the business,” Conrad says. “It is important to understand where you are, what you have and what opportunities you have to grow to where you want to be. A well thought out business plan is your launch pad for the business.”

Should You Buy or Lease Your Location?

“Cash is king, and unless you have it growing on trees, it is a wise decision to rent your facility to get started,” says Conrad. “So many factors will come in to play where you may not have control over and not having to worry about common area maintenance and the day-to-day upkeep of a property will free you up to focus on your business and growing it.”

Javier Mahmoud, Fujifilm Graphic Systems, declares that depending on cash flow, if you can buy a brick-and-mortar location, do it.



Who Should You Hire?

Conrad suggests hiring people with knowledge of this business and marketplace. “For the production floor you don’t want to spend months training and creating waste, upsetting customers and backing up your workflow. Be sure the operators are well trained and can hit the ground running to get things off the ground early and fast. The face of your business and the product you produce should be of utmost importance. You only get one chance to make a first impression, so hire wisely.”

Depending on the type of business and the markets you plan to serve, you may need to look at a variety of printers with a variety of ink types. (Image courtesy Mutoh America)

Should You Buy or Lease Your Equipment?

“Because equipment tends to go down in value over time, most people lease. Unless you’re a not-for-profit organization, most shops will lease,” notes Mahmoud.

Michael Maxwell, Mimaki USA, says they see leasing as the preferred method of financing because it enables customers to protect their cash, overcome budget limitations and acquire the right printing equipment for existing jobs as well as future growth.

“Mimaki Financial Services offers affordable monthly payment plans that can be customized to meet almost any budgeting needs,” Maxwell says. “A comprehensive online resource center provides the tools necessary for pre-approval, credit decisions, document preparation, and contract commencement. Customers will know within hours — rather than days — of their credit approval status,” he explains.

Daniel Valade, Roland DGA, points out that most people get started with a five-year equipment lease. “The decision to lease or buy typically depends upon a number of factors, however, including the buyer’s available funds and financial situation. It should be noted that when it comes to leasing, some leasing companies will work with customers so they can upgrade their equipment before the current lease is up. This can be beneficial if the lessee outgrows his or her current equipment, requiring machines that allow for increased productivity or greater versatility.”



Large-format printing equipment is available in a wide range of sizes and shapes. (Image courtesy Mimaki USA)



A printer/cutter can help you cover the applications currently in highest demand, like signage, decals, and vehicle wraps. (Image courtesy Roland DGA)

Your First Printer and Initial Output Expectations

Maxwell believes it's important to find out what your target applications are before discussing an entry point. "Different technologies serve an array of applications — what suits one may not suit another; getting a good handle on target applications, production volumes and a growth forecast is necessary," he says. "Will the primary applications be indoor or outdoor? Signs and banners? Soft signage? Rigid graphics or printing on objects? What's the minimum width required? What are the projected volumes in 3, 6, 12 months and beyond?"

Conrad notes its best to buy for next year. "If you are setting up a sign shop to print banners and displays, but know you'll be growing into vehicle wraps a year from now, don't skimp on the 54" printer when you really need a 64" wide printer. Stepping over nickels to pick up pennies is not a good habit to get into. If you have the ability to finance with a good program or if you have the extra capital, be sure to invest in the equipment you need now that will also handle expected output demands over the next year or three, so you are not struggling to keep up with client projects," he explains.

Valade says that when purchasing your first printer, you should consider who your customers will be as well as your output requirements. "In the case of an existing business that's expanding, rather than just starting up, additional factors should be considered. If a print service provider already has clients, it's important to think about how quickly your printer purchase will help you ramp up production and/or expand your product offerings. Conversely, if we're talking about a startup shop, productivity needs may not be as urgent.

It's important to find out what your target applications are before discussing an entry point.



Consider UV-LED inkjet printers with the combined functions of both printing and cutting. (Image courtesy Mimaki USA)

In both cases, however, there are fundamental factors that buyers should take into consideration, including printer width, speed, cost of operation, reliability, durability, and ease of use. You'll want to purchase a quality printer that's ideal for the products/services you want to provide and will serve your needs as your company grows."

What Types of Printers Should You Look at and Why?

Depending on the type of business and the markets you plan to serve, Conrad says you may need to look at a variety of printers with a variety of ink types. "UV-curable inks for specialty and promotional printing and package design, eco solvent inks for outdoor signs, banners and wraps, dye-sublimation inks for T-shirt or apparel and home decor — all of these are options that you need to evaluate to make the right choice for your business. Maybe you can use the eco solvent printer for your signs, banners, wraps, displays, and vinyl transfers for your T-shirts or apparel business until you grow into another separate dye-sublimation printer in the future? A UV-LED hybrid can accommodate your rigid and your roll media for indoor signs and packaging prototypes until you can afford a true flatbed to designate strictly to heavy production runs? All of these are factors you need to address."

Maxwell points out that the type of ink (water-based (aqueous), eco-solvent/solvent, UV cure, latex, etc.) and platform (roll-fed, tabletop, or flatbed) are determined by the types of applications to be produced. "There is a wide array of equipment to suit just



Image courtesy
CET Color

There is a wide array of equipment to suit just about any application in accessible price ranges.



One can get started in wide-format digital printing with a relatively modest investment. (Image courtesy Mutoh America)



about any application in accessible price ranges. For a roll-to-roll printer, eco-solvent is a good first choice because it is versatile in application (indoor or outdoor use), can print onto hundreds of media types, and can be run in an office environment. If a flatbed is the choice, UV-cure technology in a dedicated flatbed platform (not a hybrid) would be our recommendation. Entry-level dye-sublimation printers are also available for transfer applications such as short-run textiles (soft signage, fashion designs, etc.) or transfer to hard surfaces (awards, promotional items, etc.).

“If you don’t already have a roll-to-roll type printer, invest in a hybrid. This will satisfy both flat goods (substrates) as well as roll printing such as banners,” explains Mahmoud.

Valade poses, “Do you want to specialize in unique applications, or will you need a printer that can handle a wide variety of applications?” He adds that for a typical startup sign shop, an affordable, reliable eco-solvent printer or an equally affordable printer/cutter will cover the applications in highest demand. These include signage, banners, POP, decals, labels, and vehicle. He adds that for people looking to do unique applications or print unusual substrates, a quality UV printer, allows users to print and customize a greater variety of items directly.

Customization is a huge growth market, and UV printing is leading the way, but with sublimation being another “high growth market,” according to Valade, equipment buyers may also want to consider purchasing a quality dye-sublimation printer to decorate soft signage, apparel, hard goods with vibrant, eye-catching graphics.

What Finishing Equipment is Needed?

You need a laminator for durable outdoor graphics. If you want to offer dye-sublimation or heat transfer products/services for cre-



Buyers may want to consider purchasing a dye-sublimation printer to decorate soft signage, apparel, and hard goods with vibrant graphics. (Image courtesy Roland DGA)

“If you don’t already have a roll-to-roll type printer, invest in a hybrid. This will satisfy both flat goods (substrates) as well as roll printing such as banners.”

**— Javier Mahmoud,
Fujifilm Graphic Systems**



Image courtesy
Roland DGA



Image courtesy CET Color

ating custom apparel, you need a heat press. For those interested in UV printing to rigid or semi-rigid substrates, a CNC router or digital table cutter will help you create custom shapes. “Eco-solvent printers pair up nicely with cold or heat-assist roll laminators for car wraps, mounting and other simple finishing applications,” explains Conrad. Mahmoud adds, “Most folks have a laminator, a flatbed cutter, and some form of stitching option.”

When Can You Expect to Make a Profit?

Having a realistic idea of when your new business will make a profit is important. Conrad says a big part of your business planning should look at your break-even point and beyond. “Don’t set your plan to strict goals since your business will change and evolve as you go. Be diligent enough to stick to your plan but flexible enough to react to new market opportunities for increased growth or market penetration.”

Maxwell says there’s great variance and too many components to provide a comprehensive answer. Location (overhead costs), labor rates, financing, machine and ink type, consumables, software, media, finishing, etc., can affect production costs to varying degrees. “Low cost-of-entry doesn’t always translate into better value because of hidden consumables, service or other printer-related expenses,” he says.

Maxwell also adds that “Once a printer/ink type is determined, we recommend preparing an ROI that takes into consideration monthly costs for equipment, labor and overhead, and calculate that to return a ‘cost-per-day’ to run. Then determine a realistic ‘sellable-per-day’ square footage rate from that data, to get a good idea of production needs, costs, and return. This is a highly simplistic model, but it will help start the conversation about how much is needed to sell in order to achieve a good ROI. Printer manufacturers and experienced dealers can be very helpful in developing an ROI expectation based on an individual business.”

“Don’t set your plan to strict goals since your business will change and evolve as you go. Be diligent enough to stick to your plan but flexible enough to react to new market opportunities for increased growth or market penetration.”

—Michael Maxwell, Mimaki USA



Factoids for Getting Started

What is the estimated cost of entry?

“In most cases, a shop can get started with about a \$50,000 investment in equipment. That would include a printer/cutter (or a printer and stand-alone cutter), a laminator, a heat press (for dye-sublimation applications) and any other required hardware,” says Daniel Valade, Roland DGA.

Dave Conrad, Mutoh America, says you can get a 54” or 64” printer, laminator, RIP software, start up sign materials like vinyl and banner and laminate, your PC/monitor and ink and materials for under \$40-50K. “If you are looking at high production printers with better features like dual print heads, faster print speeds, wider print widths, or even dye sublimation where you may need other heat presses or calendar devices or steamers that can run the cost up quickly,” he adds.

What are the basic equipment needs?

“Remember input, throughput, output and finishing. You’ll need a PC with a heavy-duty processor for ripping files. You’ll need a good RIP to process the files and manage your workflow. You’ll need a reliable printer to handle the workload

you plan to send it. You will want a stand-alone cutter for all your cut jobs, do not get a print/cut all in one. The only time that makes sense is if you physically do not have space for a printer and a cutter. You’ll also need a laminator to finish the work as well as a nice multi-function worktable, maybe a tabletop trimmer and some straight edges. That will get you started,” Conrad explains.

How much total space is required?

Valade says this will depend upon several factors, including the square footage needed for equipment and workspace, space required for finishing and design, storage space for media and other supplies, etc. “Give yourself plenty of space to work around the printer, cutter, laminator and table,” says Conrad.

Michael Maxwell, Mimaki USA, says, “Though there is no strict rule. The generally accepted range described as ‘large-format’ falls between 24-96” wide. For roll-based printers, 54” and 64” printers are the most popular sizes. Room for the printer, a computer and software to drive it, plus space to store rolls or sheets of media will be required. A finishing area

may also be needed for trimming, laminating, grommeting, etc.”

How much time is needed to become proficient?

“You best be proficient within the first three months,” Mahmoud suggests. Conrad says everyone will learn at their own pace and “repetition will make the learning process much shorter.”

Maxwell says most printers can be up and running within hours of installation, and a basic operation tutorial should be provided before the installer leaves the customers’ facility. “Shops should use all the tools available to learn about large-format color printing available from their dealer, printer manufacturer or software vendor, or from industry organizations. Most shops can be up and running pretty quickly — inside of a few weeks — if they’re producing relatively simple signage. Mastering more complex signs may take more practice, as shops begin to learn the art and science of color profiling. Knowledge of the content-generating software (e.g., Adobe Illustrator, InDesign, etc.) is very helpful,” he concludes.

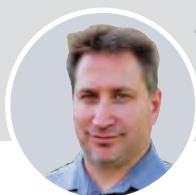
HOW TO GET STARTED IN

Roll-to-Roll Printing

By Matt Dixon



Taking your first steps into the field with endless opportunities



Matt Dixon is the executive editor of GRAPHICS PRO magazine. He can be reached at mdixon@nbn.com.

The roll-to-roll printer is a gateway to offering a wide variety of graphics to your clients. Adding such a printer means your shop can engage in offering indoor and outdoor signage of all kinds — including banners, wayfinding signage, billboards, vehicle wraps, floor graphics, canvas/fine art, stickers, POP signage, backlit graphics, and more.

“As personalization demands increase and more companies move to just-in-time production, wide-format printers have become a great way to add a new revenue stream,” says Michael Maxwell, Mimaki. “The continuing trend of e-commerce solutions and entrepreneurship make printing an attractive addition or startup investment.”

Today’s roll-to-roll printers have years of proven success on the market, and they offer print shops a vast number of options.



Picking Your Printer

To get the process started of adding a roll-to-roll printer to your shop, you must first commit to a printer. There are numerous manufacturers and distributors who will help you on your way, and the perfect place to see these printers in action is at a trade show. An interactive environment to see, touch, hear, and even smell the printer in action is worth its weight in gold. You can get your questions answered, do

comparison shopping, and even build relationships that will help you long after the show is over.

With in-person trade shows just getting going again this year, some manufacturers are offering demos and small group classes to interact with their machines. And to truly maximize your investment, match up your printer’s best features with the applications and end uses you plan to target most.

Keeping up with current trends and perfecting your ability to create industry staples such as banners and wraps should keep your roll-to-roll printer working steadily. (Image courtesy Mutoh)



A good industry rule of thumb is that your printer should last you at least seven years before new technology and options make it less profitable to continue without a replacement or upgrade. (Image courtesy Epson)

Prepping For The Printer

So where do you begin the process of adding one to your shop? First thing is to look at the configuration of the printer you want to purchase and make sure you have the space, power, and internet connectivity available to operate the machine.

“Make sure you have the physical space to load and operate the printer in an efficient manner,” says Ken Parsley, Mutoh America. “Most shops with a roll printer will also want to have a laminator and a vinyl cutter to optimize the products they offer. “Customers need to make sure they have an adequate environment for their machine, which includes having the right power, climate control, ventilation (if needed), space, etc., specified by the manufacturer.”

The printer manufacturer or distributor you decide to work with will have the necessary documentation with space requirements. Most printer experts recommend getting as large a printer as you can to be able to handle the most possible applications.

Keep in mind that print width does not equal machine width. For example, when you bring a 72" printer into your shop, the actual machine width will be closer to 100".

You'll also need to decide what kind of ink you want to print with. “Roll-to-roll printers support the widest range of inks,” Maxwell says. “Customers can choose from eco-solvent and UV-LED options for the longest outdoor capability, or latex and sublimation for more personalized and interior applications.” Your ink decision will also determine factors such as your need for ventilation, curing, cartridge versus bulk, as well as OEM versus third party.

Lastly, you'll want a strong computer. “Keep in mind that the better computer specifications you have, the faster the RIP can process images and start printing,” says David Lopez, Epson America Inc.

Once you have your machine picked out, the process moves pretty quickly. “Typically, plan on about 10 to 14 days assuming that all the pre-installation work has been done and (is) ready to go,” says Tom Wittenberg, HP.



The Epson SureColor S40600 can produce banners at 215 ft² per hour. Keep in mind that print width does not equal machine width. (Image courtesy Epson)

Printer Pre-Purchase Considerations

- Internet line installation
- Computer/networking installation
- Electrical power installation
- Vent line installation
- Air conditioning (if needed)
- Lighting
- Safety equipment
- Layout
- Media storage



Adding a roll-to-roll printer means your shop can engage in offering graphics of all kinds. (Image courtesy Mimaki)



Today's roll-to-roll printers have years of success on the market and offer print shops a vast number of options, including packaging labels. (Image courtesy of Mimaki)

Entry Level vs. Advanced Roll-to-Roll Printers

When upgrading your roll-to-roll printer, you can expect increases to most or all of these factors:

- Cost
- Printing width
- Speed
- Productivity gain
- Operating software
- Hardware sophistication
- Floor space required for end-to-end processing and the printer itself
- Operator training

Once your hardware and material handling situation is established, then you can focus on the software. Your printing software is one of the most important pieces of the roll-to-roll equation because it will determine how efficient your workflow is. “Most of the software today that runs the printer (i.e., RIPs) are designed with ease of use and simplicity in mind. This said, you can get training on it from the software suppliers. And with a little work, one can quickly become proficient,” Wittenberg says.

Getting Up To Speed

Even if you have zero experience running a digital printer, most people who jump into the business are able to immediately begin creating sellable products and have been able to become proficient in a matter of weeks.

“Most printer packages allow the user to easily produce standard products right out of the box, but specialty items, items that are leading edge, may take longer to become ‘proficient,’” says Randy Anderson, Mutoh America.

“The time it takes to become proficient on both the hardware and software can vary from business to business based on the amount and range of printing applications,” Lopez says. “A safe range is approximately one to three months but can be accelerated by choosing a reseller that will provide training both on-site and virtual.”

Shops will also want to take this time to perfect their workflow and develop the best strategies for material handling and storage. While most materials can be easily stowed for use at any time, many consumables such as ink and substrates have a limited shelf life, and it's important to know use-by dates to guarantee performance and stay within manufacturer warranties.

It's also important to keep in mind the physical location of your printer and items such as your laminator or plotter so that your workflow from design to print to finish is as smooth as possible.

Ready To Roll

So, once your shop is all set up with its new printer, what can you look forward to producing right out of the gate?

“During 2020, we saw a sharp increase in retail and residential signage as society as a whole shifted the way it operated,” Lopez says. “Given new state and community regulations, retail shops increased signage and displays to relay information on new business hours, take-out capabilities, and safety regulations required by the CDC. There was also a big jump in residential signage as families and neighbors practice social distancing, (and) birthdays, graduations, baby arrivals, and more were celebrated by printing and displaying custom lawn and neighborhood signs.”

Keeping up with current trends and perfecting your ability to create industry staples, such as banners and wraps, should keep your roll-to-roll printer working steadily.

The Next Step

Planning for the future is always a smart idea, so what will the future of you and your roll-to-roll printer bring? First, you need



You'll need to decide what kind of ink you want to print with when selecting a roll-to-roll printer. Selections include eco-solvent, UV-LED, latex (seen here with the HP Latex 365), and sublimation. (Image courtesy HP)

to understand just how long that printer will last. With a little TLC, that can be a long time.

“Printers are designed to last for very long periods of time,” says Lopez. “The key is making sure that all the recommended maintenance is done on time and consistently. Overall life expectancy will depend on how often the printer is used.”

“The lifespan of a roll-to-roll machine can vary depending on the parts the manufacturer uses when building the machine,” says Chris Padilla, also of Mutoh America. “Some roll-to-roll machines use parts that are only designed to last a couple years or so, and some use more industrial parts to ensure that machine is going to perform for many years to come.”

A good industry rule of thumb is that your printer should last you at least seven years before new technology and options make it less profitable to continue without a replacement or upgrade. That doesn't mean your printer won't continue to be a workhorse for you long after that, it's just unlikely to be as efficient in comparison to other options on the market that your competition might possess.

Like we've seen over the last couple years, planning for the future isn't an easy thing to do. But when things go well, you'll find yourself wanting to move beyond the introductory machines and into a more advanced machine. In that case, what can you look forward to from a more advanced model of roll-to-roll printer?

“Today's product lineup usually offers similar features at every price point,” Maxwell says. “The more expensive products, though, will offer faster throughput and expanded capabilities with ink.”

“Typically the biggest difference between an entry level roll-to-roll machine and a high-end roll-to-roll machine would be the amount of workload it can produce in a short period of time, i.e., print speeds,” Padilla says. “Entry level roll-to-roll and high-end roll-to-roll machines generally share the same capabilities as one another, but if the customer needs a machine that is capable of producing prints at a higher rate, then they are most likely going to be looking at higher end machines to accomplish this.”

Avoiding Workflow Bottlenecks With Film Laminators

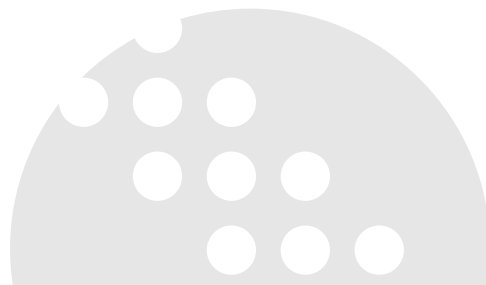
By Edwin Ramos, GBC

Changing rolls to accommodate a variety in finished product widths or finishes can take time for the operator. To avoid or minimize these bottlenecks, stage your work to reduce change over and setups. Run all your same size width prints together or same finish together, then switch over versus changing over for each size/finish.



The Mutoh RJ-900X is a printer that helps shops get their start into dye-sublimation. (Image courtesy Mutoh)

Visit <http://gpro.ly/rolltoroll> for a more in-depth look into the technical aspects of roll-to-roll printers and which features your shop truly needs.



MARKET DOMINATION:

3 Ways to Become a Go-To Decorator

By James Andres

Get to know your end-user better than they know themselves



James Andres is the content manager for S&S Activewear. He is reachable via email at jandres@ssactivewear.com.



Let's say your market research tells you customers are focused on eco-friendly apparel or sportswear. Reach out to your apparel suppliers to learn more about those garments and start stocking those items. (Image courtesy S&S Activewear)

While many businesses have survived and even thrived during COVID-19, now isn't the time to relax. Instead, see this new year as an opportunity to dominate your niche market.

Here are three main ways for you to become the go-to decorated apparel provider in your chosen markets.

Know and Understand Your Buyer

This point can't be overemphasized. Every other technique for dominating your market starts with you knowing your buyer better than they know themselves. To that end, follow these five steps:

Learn as much as you can about your customers on a personal level. You need to know where they hang out, what magazines and newspapers they read, what websites they visit, what they like, and what their biggest problems are (the ones you can solve). All this demographic information will be valuable when it comes to buying ad space or sponsoring events.

Once you know more about your target customer, you'll also have a better idea of what they can afford to spend and what types of decorated apparel and hard goods products they can use. This will ultimately inform your pricing decisions and help you choose what products to carry (or at least what items you should put a sales emphasis on). For example: If your niche market is fitness clubs, then your customers are athletes, members as well as instructors, and trainers. Even kids who come in with their parents to use the gym could be a potential customer base if the gym offers a kids' center. You need to gather as much information as you can about these different groups of people to develop a laser focus approach for marketing to them.

Now that you know who your primary demographic is, explore their product needs. What type of apparel do they wear? If they are athletic, what kinds of water bottles or bags do they take with them to the gym? How do they like things decorated?

To get to know your customers even better, regularly send out e-surveys or perform focus groups. This will give you insights into their biggest interests, current pain points, and other bits of data you'll want to gather. With this, you can tweak your offerings to fit their current needs.

By "tweak your offerings," here's what we mean: Let's say your surveys show your customers are now focused on eco-friendly

If you want to be the go-to decorator in your chosen market, you need to know the buyer better than they know themselves. (Image courtesy S&S Activewear)



apparel. Reach out to your apparel suppliers to learn more about their sustainable garments and start stocking those items. Then, communicate with your clients to let them know you carry the product and care about what they want. Another example: If your customers are looking for a decoration option that you don't offer, subcontract this out to keep the customer. Then you can explore whether it makes more sense to add this imprinting technique in the future or keep subbing it out.

Create and Develop a Strong Brand

The next step in market domination is creating and then developing your brand. Whether you're a local shop or have an online website with orders from all over the country (or world), you want people to hear your shop's name and know what to expect.

Your brand can center around top-notch customer service and problem-solving, creative or witty designs, or top-of-the-line products. But whatever your main selling point is, it should be synonymous with your brand in your customers' minds. This is what sets you apart from the pack.

Maybe you're really good at fast turnarounds, an expert at printing mixed media, or a pro at print-on-demand and fulfillment. These are examples of just some of the things that some really successful shops have focused on.

Centering your brand around a cause is another route you can take as well. Athleta, known for being affordable and creating timeless sportswear, is a good retail example of this. The brand creates educational content centered around making the world better by



Image courtesy S&S Activewear

Image courtesy S&S Activewear



being all-inclusive and addressing current issues, like Black Lives Matter and other important social causes.

If you print a lot for schools and park leagues and have a passion for helping kids stay active after school, you might want to center your business around a particular cause, like donating to youth sports. That will help reinforce your brand in the minds of the customers who do business for you.

Decide what your brand is and should stand for in your customers' minds. Develop that brand by investing time and resources into being the best in the area you choose. Research your competitors to learn if they're offering what you are and, if so, how you can do it better than them. This is where you need to know your competitors' strengths and weaknesses, so you can get to the top, dominating the market.

Improve Your Marketing

Essentially, marketing is about getting the people you identify as your customer to know who you are, the solutions you offer, and encourage them to buy your product. Below are some ways you can get started doing this.

Analyze your data. Use the data you've pulled on your customers to decide where to buy ads as well as events you should sponsor. Also, take time to learn about the other businesses they shop with, so you can partner with them. If possible, get to know the social issues important to your customers and become involved there. Here's an example: If you know your customer base is athletic, partner with a fitness center. You can offer "Get back in shape in 2022" T-shirts for free. You can include your logo on the shirt to further your branding efforts and let patrons know who to thank.

Connect and engage. Stay connected to your customers and grow new customers by using the power of social media. Create new content that engages your audience. If you're not sure what that is, experiment. As soon as you begin to see reach and engagement increase on your social channels, stick to posts your audience responds to. Highlight your brand and what makes you unique while also showing you truly know and understand your customers.

Once you decide what your company's main focus will be, getting a piece of that market share will put your business in a position to thrive for the long term. If you haven't already, give some of these tips a try and start dominating your market today. 🍷



Centering your brand around a cause is a route you can take as well. Decide what your brand is and should stand for in your customers' minds. (Image courtesy Howard Custom Transfers)



Maybe you're really good at fast turnarounds or a pro at print-on-demand and fulfillment. These are examples of some of the things some really successful shops have focused on when it comes to creating and developing a strong brand. (Image courtesy ColDesi Inc.)

This point can't be over-emphasized. Every other technique for dominating your market starts with you knowing your buyer better than they know themselves.



Explore your target demographic's product needs. If they are athletic, what kind of bags do they take to the gym with them? (Image courtesy S&S Activewear)



Once you know more about your target customer, you'll also have a better idea of what they can afford to spend when it comes to decorated apparel and items they'll use and wear. (Image courtesy S&S Activewear)

THE MYTH OF THE

SOLOPRENEUR

By Dana Curtis

Relax, nobody does it alone

Dana Curtis is the founder and CEO of Biztools, a strategic consulting firm that helps small businesses multiply revenue through improved customer experience and pivot to new markets. Visit his website at www.biztools.coach/graphicspro or contact him via phone at 602-529-4562; or email at biz@gmail.com.

It's a common misconception about ridiculously successful people — Jeff Bezos, Steve Jobs, Warren Buffett, Sam Walton — achieved financial success in the world of business by sheer force of will. John D. Rockefeller began what would become Standard Oil with a partner, then multiple, starting in 1859. He eventually bought them all out — but he didn't do it alone!

Even in the classic “Christmas Carol” by Charles Dickens, Ebenezer Scrooge is haunted by his partner Jacob Marley.

“They do it all, and they bootstrapped their own success.”
This. Is. False.

The Classic Model

The doer and the thinker. More appropriately, the business guy and the creator. The one who worries about the books and the one doing the making of the thing. It doesn't need to be simplistic, but it should be realistic. Division of responsibility allows for focus — which is what any small business needs to survive. Most artists hate accounting, and they think marketing is a gimmick. Most businesspeople are great at sales and numbers but aren't very creative. It's a match made in heaven.

3 Things Form The Foundation

A successful business, no matter how you define success, is a group effort. You need three things: an idea, capital, and labor.

Sometimes all three of these things come from you, but eventually, you need to scale this business beyond a hobby, and that will require bringing on extra help. A business requires specialization. Humans are specialized, whether we choose to admit this fact or not. We are good at different things as a function of our evolution. We think differently — culturally, logically, emotionally ...

The DiSC assessment, astrology, and Myers-Briggs models remain in practice today because we recognize individuality in each other and ourselves. That person just thinks differently than I do.

That is a strength for your business. One person cannot do everything successfully.

You can be the idea/capital person or the idea/labor person. You can certainly partner or hire a capital/labor person. Bottom line: you need all three. That means more than one person.

Idea


This is the business. Sometimes called the core competency. The idea is the product or service, and somebody needs to dedicate themselves to it. Let's be clear: the idea is not necessarily the CEO's problem. For every Jeff Bezos, Larry Ellison, and Elon Musk, there are a bunch of successful business stories where the person at the top wasn't responsible for the product:

For Apple, it was Steve Wozniak, not Steve Jobs.

For Microsoft, it was Paul Allen, not Bill Gates.

For Berkshire Hathaway, it was Charlie Munger, not Warren Buffett.





Even if you are the sole employee and 100% equity owner, you can wield an army of specialists to help you run the business.

Capital

This is money, tools, and anything needed to help run the business — usually referred to as resources. This is accounting software or capital expenditures like property/plant/equipment. The garage where many Silicon Valley unicorns begin falls under this category. Securing funding from investors for operations and securing revenue through sales all come under this category. IPOs, lines of credit from the bank, operating expenses, CapEx — all qualify as capital.

Labor

All businesses run on people. You need humans to scale. This may be a piece of the puzzle much later in your time with the business, but no less important. By bringing on others, you can continue to focus on what you are exceptionally good at and hand it off to others. The business owner needs to continually remove themselves from the business, or at least the parts of the business they are not good at. Labor is the key to turning your income into equity. Someone else needs to work in the business. You need to eventually work on the business. You cannot do both.

What Is Wealth?

Wealth = time. Robert Kiyosaki, author of “Rich Dad, Poor Dad,” famously defined wealth as the number of days you can survive on your income. For example, if you make \$100,000 per year, but your monthly expenses are \$10,000, you may be considered rich, but you are not wealthy. You will run out of money in 10 months, leaving you searching for extra income two months out of the year. A business owner making \$50,000 per year with monthly expenses of \$3,000 is a wealthier person. They can relax a little bit. They can enjoy the fruits of their labor. After all, what good is earning it if you can't spend it? You got into this to be your own boss, right?

Most Ventures Begin With One

According to Forbes, over 70% of small businesses in the United States are owned and operated by a single person. Over 50% of them are home-based. Over 500,000 new businesses get started each month. On paper, small business owners are doing this all by themselves. The truth is that 1 in 3 small businesses never make it to the two-year mark, and only half make it to five years.

A weekend warrior grinding out a side hustle is great for extra spending money — you want to build something.

Leverage The Gig Economy

Got a quarter, a dime, or any other U.S. coin in your pocket? Notice the words E Pluribus Unum? It's Latin for “one from many.” Even though you are the sole employee and 100% equity owner, you can wield an army of specialists to help you run the business. Fiverr, Freelancer, and Upwork are just three of the most famous. There are also individual freelance networks for specialties like legal, HR, and supply chain. Need a handyman? Porch.com. Need a media buyer for an ad campaign? Bark.com.

Hiring an employee is a great long-term solution, but it's not the only solution. In today's economy, you have options.

Cash Flow Will Always Kill Your Dream

It's not resources or a failing product. Tons of great ideas are gone because the business could not keep its doors open. Innovation does not sustain a business; cash flow does. Almost 1/3 of small businesses in the United States use credit cards to finance operations. Having an equity partner can help spread out your risk and make sure you have enough working capital for emergencies, like lack of demand.

Be Your Own Boss

The No. 1 reason given for starting a business is to “be your own boss.” The top dog. The one that calls the shots. Most wake up one day to realize that they no longer have a supervisor, but they still work for someone — the customer. The grass isn't greener; it's just different grass.

Don't go it alone. Your success and wealth depend on being smart about your time and your resources. Leveraging partnerships can eliminate the early risk and build momentum. If one day, like Rockefeller, you decide to buy out your partners and go it alone, at least you will have a solid foundation to stand on, and you can really be your own boss. *That* is living the dream. 🍷

Tune in to Ep. 28 of The GRAPHICS PRO Files at <http://gpro.link/danacurtis>. Dana Curtis shares advice on mistakes to avoid and reasons to take the plunge and start your own business.

TURNING YOUR

Hobby into a Career

By Vince DiCecco

Important steps to turn your talents into a business



Vince DiCecco has more than 40 years of experience in sales, marketing, and training, including running *Your Personal Business Trainer Inc.* — a business he dedicated to coaching and consulting small- to mid-sized businesses.

Have you ever been told “You know, you are so talented at (insert your favorite pastime passion — e.g., cooking, arts and crafts, sport or game, animal rescue, etc.), you should start your own business”? Imagine if you could turn your favorite leisure activity into a successful business venture.

Many Americans are now turning to what they love to earn income, whether it’s enough to quit their day job or just a fun way to cover their costs. If you are passionate about a craft or other activity, your money-making opportunities are virtually endless these days. Here are some things you will need to consider, if you are thinking of turning your hobby into a viable, profitable business.

Start with a Self-Examination

Are you entrepreneurial by nature? Or are you maybe just sick and tired of seeing most of the profits from your great ideas and hard work go into someone else’s pockets?

Maybe, you are contemplating owning your own business at some crossroads in your life, such as, facing retirement or in a dead-end job in a shrinking industry. Today, the start-up costs for even a modest business — equipment, operating supplies, raw materials and so on — *could* begin at \$50,000 and go up from there. And it takes more than a business license and new business cards to become CEO of a corporation — large or small.

Regardless of whether you are thinking of getting into business ownership, your new life as an entrepreneur should be about *striking a balance* — a balance between your physical and mental well-being and your fiscal and interpersonal decision-making aptitude.

Get Down to Business

Once you’ve determined you are ready to go into business for yourself, you must find your business niche. Take some time to make an inventory of your interests, abilities, and experience. Often successful business ideas spring from the founder’s passion. What are yours? Look closely at what you’ve done in the past and what occupies your time and thoughts lately, and you may find some business ideas that you can develop.

Regardless of the results of your self-examination — both physical and mental — you must eventually identify an *unmet* market need of a geo-demographic group of prospective customers. Simply stated, you must be able to locate *people with money* who are willing to part with it to *satisfy a particular business or personal need*.



A Tax Reseller number permits you to purchase products wholesale, and those purchases aren’t subject to sales tax until they are resold. (Image courtesy Cheryl Kuchek)



If you are passionate about a craft or other activity, your money-making opportunities are virtually endless these days.

This next statement may seem harsh, but it has proven to be true time and again. If you do not have a unique idea that satisfies an unmet market need, consider buying a franchise. If you are going to create a new enterprise that emulates a well-established business, you are, at worst, likely to fail and, at best, be gobbled up by the competition. If you do decide to purchase a franchise, conducting due diligence is critical. In short, know everything about what you are getting into before you sign anything.

To determine your market niche, talk to potential customers, competitors, and suppliers. Ask prospective clients to make comparisons between similar offerings available on the market and what would be of added value to them if improvements were made. No matter how great a new idea is, if no one is motivated to buy it at the price you must sell it for to make a profit, you don't have a business.

Taking the Plunge

To turn an activity into a business, you don't need to reach a certain level of sales or income. To have a business, all you really need is a reasonable expectation that you'll make a profit from the activity.

As far as the Internal Revenue Service (IRS) is concerned, you are supposed to report income "from whatever source derived." This means that whether you consider something a hobby or a business, if you are making money, you need to report it on some form of tax return — either your personal one (in the case your

"business" is a sole proprietorship), or a business version (if you decide to create an LLC or S-Corp).

Have I confused you or begun to scare you off? Hopefully, I have not, but this is a perfect time to make you aware of a very valuable (and no-cost) resource you need to utilize — your nearby Small Business Development Center (SBDC). Go to www.americassbdc.org, enter your zip code, and locate one of nearly 1,000 SBDC offices that offer no-cost business consulting, help with writing a business plan and applying for Small Business Administration (SBA) — the U.S. agency that funds SBDCs — loans and grants, and low-cost training for startup and newly established businesses.

At very least, every business should have a plan. A good business plan consists of a strategic, tactical, and financial overview. It should answer the following questions:

- What are you planning to do? (The goals)
- Why are you doing it? (The motivation)
- How are you going to accomplish this? (The methodology)
- How much money do you need? (The means)
- Where will the money come from? (The resources)

A business plan should help you recognize the risks and challenges as well as the opportunities and strengths of the concept behind your business. There is no set format for the business plan. It is just important that every business have a sound, thought-out, goal-oriented plan — then refers to, is guided by, and executes that plan daily.



There are many advantages to running a business from home, including flexibility of setting your own hours, saving money and rent, and no wasted travel time. (Image courtesy Cheryl Kuchek)

Hobby vs. Business

A hobby is something you do at your leisure. When you make it a business, you must show up for work (have established operating hours and dress and act the part). Think of your hobby turned business as your “second job” and make it a priority in your life.

Still, the hobby versus business question boils down to how you handle your expenses and what to do if your activity loses money. For example, let’s say you sell custom gifts and promotional items to the country club crowd — you know, golf, tennis, and swimming enthusiasts — in your spare time. If you actually lose money from this endeavor, when you factor in all the related expenses like sub-contracted goods, materials and marketing, the IRS will let you deduct this loss to offset your other income (i.e., your regular day job), if your “budding enterprise” is considered a business. You cannot deduct a loss if it’s a hobby.

According to the IRS, an activity is a “business” if it has made a profit in three of five consecutive years. Until you have five years under your belt, the IRS will look to see if you’re taking the activity seriously and treating it like a business with the primary goal of making a profit. For example:

- Do you keep financial records for your business?
- Do you have a separate bank account for your business?
- Do you have a business name?
- Do you invest in advertising and marketing?

If you are interested in learning more about how the IRS determines a profit motive for a business, you can go to the IRS website and search for the article “Tips for taxpayers who make money from a hobby.”

Nobody’s Business But Your Own

Let’s say you’ve come this far in reading this article and either you haven’t been dissuaded or you are now more fired up than ever to get started. When you’re ready to move your activity beyond

a fun pastime, you need to get serious about managing it.

Here are six key steps toward launching an official business:

1 Pick a business name: It marks the beginning of your new brand. You’ll want to choose something that’s easy to remember and reflects what exactly you are all about. Conduct a search to see if a domain website address is available and claim it. Be sure to perform a free business name search with your Secretary of State to make sure your proposed name is available and not taken by a business in a similar industry.

2 Determine your business entity: If you prefer not to form an LLC or corporation, you can register your business name with the state via a DBA (Doing Business As) filing and operate

as a sole proprietorship. You may decide to take your business to another, more serious level later.

3 Register your business and apply for a Federal Tax ID number (aka Employer Identification Number or EIN): If you incorporate or form an LLC (Limited Liability Company) for your business, your personal assets are shielded from creditor claims against the business. In addition, formalizing your activity as a corporation or LLC helps show the IRS you are serious about the business.

4 Obtain the necessary business permits and licenses: Depending on the specific nature of your business, you may be required to get one or more licenses or permits from the state or local government. The most common requirement is the Resale License (and the proper way to collect and report sales tax). You might also need a general business operation license, health department permit, or zoning or home-based business permit.

5 Open a business bank account: Once you have registered your business and obtained an EIN, you can open a business bank account and accept checks made out to your business name. In addition, a business bank account keeps your personal and business finances separate — a must for corporations and LLCs and a wise practice if you go the sole proprietorship route.

6 Learn about marketing: Establishing a new company is not a “Field of Dreams” mentality of “If I build it, they will come.” You can be the best in the world at what you’ve chosen to do, but if you don’t market your business, you’ll never get enough customers to turn a profit long-term. Read up on small business marketing and observe carefully how other similar yet successful businesses promote themselves.

Don’t Forget the Bare Essentials

All businesses, regardless of size or legal structure, need outside support. This means retaining the services of an accountant,

*Once you make the final decision to go into business,
all your other interests must take a back seat.*

lawyer, and financial advisor. These professionals can best advise you on how to minimize your exposure and liabilities.

In business today, everybody needs an online presence to generate activity. This means creating and maintaining a website, social media profiles, and everything else that goes into branding yourself as a professional. A few people will stumble across you online, but a lot of business success happens via word of mouth and networking. You must be prepared to be active on this side of self-promotion as well.

Find clubs, conferences, and groups in your specialty that cater to other professionals in the niche. You'll learn a lot at these events (such as Chamber of Commerce expos and industry trade shows like **GRAPHICS PRO EXPO**) and get the chance to mingle with people who are at the same stage as you, and preferably a little further. Just be sure you have an elevator speech prepared for moments like those.

Secure your "first client," even if you have to work for free. Your first customer will give you confidence in your business idea and

make it psychologically easier to market yourself. If you do decide to make that first order on the house make sure it's in exchange for a nice online review, testimonial, or some sort of barter that you could use later.

Some things you may want to discuss with your SBDC advisor to help you better understand your financial picture include creating a startup expense chart, building a cash cushion, developing a sound cash-flow budget, and completing a break-even analysis. The philosophical approach here is to plan for the worst and hope for the best. Once you make the final decision to go into business, all your other interests must take a back seat. I mean all of them, including and especially your regular full-time job.

Business ownership can be wildly rewarding and painfully stressful at the same time. If you take the time to do your homework and learn from other people's experiences, you should be able to reap many of the benefits of owning a company without the head- and heartache of trial and error. Good luck. 🍀



*According to the IRS, an activity is a
"business" if it has made a profit in three
of five consecutive years.*

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