Print Outside the Box: A Guide to Printing Specialty Graphics
Offer Something New and Unexpected

As consumer and business products become more personalized and customized, new opportunities have opened for print service providers. Smart and resourceful graphics businesses are diversifying their offerings to include printing on unique and highly profitable materials.

In this specialty graphics guide, we’ll highlight the products and processes that can put your business ahead of the pack.
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WHAT ARE SPECIALTY GRAPHICS?

Ideas and Possibilities

Specialty graphics can be best categorized as the printed graphics which most commercial printers don’t, or often can’t produce. Think beyond banners and posters—customized items such as tabletops, personal electronics, bottles and ceramic tiles are just a few of the types of unique items that specialty print service providers are producing to take advantage of the customization and personalization market.

Specialty graphics is occasionally used to describe vehicle wraps, signage and other relatively common applications, however in the context of this guide, the term is more appropriately applied to highly unique applications that are more “outside-the-box.” With the right printing equipment, there is little that is not possible in specialty graphics production.
What Are Specialty Graphics?
Opportunities in Specialty Graphics

Major advances in technology have meant that product customization and personalization is easier and more affordable than ever. The introduction of digital UV printers has meant that print providers no longer have to rely on expensive, time-consuming screen-printing or other traditional methods. Short-run customization can now be done digitally with little to no set-up, adding logos, patterns, photos and custom designs to a wide range of objects and materials.

Technology changes have resulted in increased customer demand for product personalization. Over the last five-years, custom graphics providers have successfully utilized UV printing, going from selling items like T-shirts and custom apparel to providing hundreds of specialty graphics items that include smartphone covers, shot glasses, flasks, jewelry and much more. Digital UV printing is also happening on a manufacturing level, with major companies in industrial design, film production, and signage using UV printers to print graphics on prototypes, props and special order products.
One of the most significant opportunities in specialty graphics exists online. Online storefronts are opening up and achieving quick success in places like Shopify, Etsy, Big Cartel, Art Fire, Bonanza and countless other online marketplaces that sell custom items.

Offering customized products is particularly useful to businesses setting up online because digital UV printing supports variable data printing and allows storefront owners to fulfill multiple product orders in one print run, as well as offer a high level of customization.

Places like Etsy are the home for many small businesses that are using UV printing technology to sell custom wood items and other specialty graphics.
QUICK CUSTOMIZATION

From storefronts to mall kiosks, exciting new retail opportunities exist for specialty graphics providers. The “instant gratification” of personalizing electronic items, giftware, photo products and other items is a fun, new experience for shoppers and represents a major growth area for manufacturers and graphics professionals. With a small UV flatbed printer, quick customizations are simple and inexpensive to do. Many kiosks and retail shops also offer online stores to fulfill custom orders in person and on the web.

Above: Quick customization examples include French hypermarket Leclerc who offer “personalization while you wait” – representing a largely unexploited opportunity in North America.

UV printing technology enables users to customize items in different colors, different designs and with variable text in a single print run.
SPECIALTY SERVICES AND STORES

Imagine a customer in the souvenir shop no longer needing to search for a specific name, and store owners not needing to carry an inventory of preselected names. With a UV printer, souvenir, trophy, art and framing, party supply, photo lab, and other specialty stores can offer product customization on demand. With the ability to quickly turnaround custom printed awards, giftware items, canvas prints and more, businesses can differentiate themselves from the competition. Whether it's an online or brick and mortar model, a UV printing device gives business owners and their customers a better product and service.

UV printing opens up brand new avenues of profit and personalization for art and framing stores, trophy stores, and other specialty shops.
SIGN AND GRAPHICS SHOPS

Sign shops are using UV printers to quickly add graphics to a wide range of unique and raw materials. With the ability to print directly onto woods, metals, plastics and sign boards, new ideas can be explored for tradeshow graphics, décor, point-of-sale, packaging and more. In addition, UV gloss ink enables the creation of sophisticated, high-end graphics that are sure to impress clients and viewers alike, while adding value and profit for the print provider.

UV printing technology opens up many fast-turnover possibilities for sign and graphics businesses that include décor, point-of-sale, packaging and more.
HOW SPECIALTY GRAPHICS ARE CREATED

There are multiple types of digital imaging technologies for creating specialty graphics. Inkjet printer/cutters are ideal for printing and contour cutting on vinyl materials, while dye-sublimation printers allow for heat-transferring to giftware, sportswear and textiles. As effective as these technologies are for specific customization, the most versatile technology for the widest range of specialty graphics, is UV printing with flatbed technology.
The UV Print Difference

UV printing differs from other digital inkjet printing in the way the printed ink dries. Instead of having solvents in the ink that evaporate into the air and absorb into the substrate, UV inks are exposed to the printer’s ultraviolet lights, turning it from a liquid to a solid. There is significantly less evaporation of solvents and much less absorption of the ink into the substrate. UV inks adhere to a greater range of surfaces than other ink types, making them ideal for printing directly on a wide variety of non-porous materials.

The term “flatbed” simply means that the printer prints on materials which lay on the flat surface of the printer bed, under the print head which moves across and prints the ink. This opens up opportunities to print on dimensional items up to 6-inches thick with larger UV printers and up to 4-inches thick with desktop printers.
**Flatbed UV Printers**

Roland VersaUV flatbed printers are designed with laser alignment, height sensors and advanced distance print mode features to allow for printing onto three-dimensional objects easily and efficiently. A set of simple keypad controls adjust the print head heights to compensate for curved surfaces and height variations so that images can be successfully printed onto irregular shapes and different material heights with consistent, high quality results. Once the user has created the ideal configurations for a particular job, it can be saved in the printer’s memory for future production.

**RIP Software**

With RIP (Raster Image Processing) software, users are able to set-up image files that have been digitally created in design software such as Adobe® Illustrator and Photoshop, for printing directly onto three-dimensional objects and substrates. Used in combination with Roland's VersaUV printers, users can set up files in Roland VersaWorks Dual RIP or Roland PrintStudio RIP. Roland’s RIP software offers advanced productivity combined with ease-of-use, with features including file set-up for variable data printing, tiling, nesting, color control and repeat job functions.
Jigs and Fixtures

When printing with UV devices, the most effective way to add graphics onto multiple items is via a fixture that exactly spaces each item and holds it perfectly in-place to ensure consistent registration. These fixtures can be fabricated with the right equipment such as a CNC router, but can also be purchased from sites like DigitalBlanks.com which supply stock fixtures and also offer custom fabrication for specific items and quantities. Typically, template design files in Photoshop (PSD) and Illustrator (AI) are provided with these fixtures so users can easily set up design files for RIP software output.

Example of print fixture from DigitalBlanks.com to fit the LEF-200 for custom coaster printing.

Rotary Print Attachments

Other popular fixtures for UV printing devices include the RotaPrint attachment that was created specifically for printing around bottles and cylindrical items with the Roland VersaUV LEF-200. By utilizing the printer’s existing feed system, the RotaPrint enables the LEF to print precisely around cylindrical glass, plastic, metal and ceramic items. This creates exciting direct labeling opportunities for small bottling and packaging businesses, as well as for customizing flasks, sports bottles, drinks holders and other cylindrical products.
MEDIA AND SUBSTRATES

Materials for UV printing can be split into two distinct types—pre-manufactured and manufactured. The following comparison displays the two types of specialty graphics production and the Roland UV machines that are ideal for each:

**Pre-Manufactured vs. Manufactured**

<table>
<thead>
<tr>
<th>Pre-Manufactured</th>
<th>Manufactured</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full-sheets of MDF, Cardboard and plywood.</td>
<td>Product blanks such as trophies, promo items and smart device covers.</td>
</tr>
<tr>
<td>Metal, wood and other heavy sheet materials weighing up to 220 lbs.</td>
<td>Standard products such as headphones, skateboards and other items.</td>
</tr>
<tr>
<td>Full-sheets of Coroplast, foam boards, Sintra, acrylic.</td>
<td>Small pre-made canvases, frames, pictures and signs.</td>
</tr>
<tr>
<td>Leather and other heavy fabric materials for décor and specialty product production.</td>
<td>Leather purses, belts and other manufactured material products.</td>
</tr>
<tr>
<td>Heavy materials for fabricating tabletops and furnishings.</td>
<td>Direct label printing onto bottles, and other similar applications</td>
</tr>
</tbody>
</table>

Although large flatbed machines like the LEJ-640FT are perfect for users who are looking to print large quantities of manufactured items, they are even more suited for sign shops and print providers who want to diversify into pre-manufactured specialty graphics. Businesses that have fabrication equipment available to produce their own large format décor, POPs, signs and other specialty graphics will get the ultimate benefit from a large flatbed machine.

Printing onto existing products and manufactured items is the perfect model for start-up graphics businesses and custom graphics providers who don’t want to commit to larger and more expensive machines. With the growing availability of digital blanks, plus an almost limitless choice of giftware and product possibilities, a benchtop-sized UV printer is the ideal option for building a specialty graphics business around.
Media and Substrates // 14

VersaUV LEF Series Benchtop UV Flatbed Printers
FROM BLANK TO BANK

Although UV printers are able to print on many everyday objects, the easiest and often most profitable results can be achieved when printing on blank products that have been created for use with UV printers. These products are available to purchase from multiple websites, dedicated almost exclusively to digital printing items. By buying blank items at wholesale prices and selling them to customers as custom goods, specialty graphics providers can make major profits.

In addition to dedicated sites, there are product blanks being sold on thousands of online storefronts such as Amazon and Alibaba.com, specialty supply stores, and wholesale manufacturing sites.

- Retro Lunch Boxes
  Available from DigitalBlanks.com
- Metal Belt Buckles
  Available from BuckleStock.com
- Unique-Shaped Awards
  Available from DigitalBlanks.com
- Boomerangs
  Available from DigitalBlanks.com
- Natural Color Notebooks
  Available from Consumer Crafts
- Beer Bottles
  Available from Kinnek Beer Bottle Suppliers
- Skateboard Decks
  Available from Blankdecks.com
- Mint Pots
  Available from DigitalBlanks.com
FROM WOOD TO ELECTRONICS

The manufactured and pre-manufactured materials that can be used with UV printers are many and varied. Large flatbed printers, such as the LEJ-640FT, allow users to print onto oversized items, such as guitar cases and dining room tabletops.

Flatbed printers like Roland’s LEJ-640FT and LEF series also handle printing directly onto sensitive electrical items, like laptops and iPads without harming their delicate inner-workings. This enables users to offer a one-of-a-kind personalization services that very few other businesses are able to provide.
Because of the unique curing process of UV inks, stunning effects can be achieved on everything from packaging prototypes and wooden signs to personalized gifts and custom products.

To create spot UV varnish and emboss effects, gloss ink is layered on the media surface – on top of or beneath the colored ink printing – and immediately dried by the UV lamps to create matte or gloss finishes.

Gloss ink effects are specified in design software or directly in the RIP as a separate layer. Repeat passes of gloss ink builds up on the surface and produces a sophisticated raised emboss effect. The more passes of gloss ink, the higher the texture.

Because of the unique curing process of UV inks, stunning effects can be achieved on everything from packaging prototypes and wooden signs to personalized gifts and custom products.

Gloss ink effects can be used to create some really “wild” texture effects, such as replicating water droplets or mimicking alligator or snake skin. These effects can elevate your print work and make it more distinct, desirable and profitable. Users can choose between matte and gloss finishes for different UV enhancements of the printed material.

In Roland VersaWorks® RIP software (included with VersaUV printers) a library of 72 ready-to-use textures are included, and compatible with Adobe Illustrator for integrating into designs and producing intricately textured patterns. Textures can be added as subtle effects or created with multiple print passes for greater depth and stand-out impact.

Effects such as glass mosaics and realistic water droplets are just a couple of the many possibilities using gloss UV ink.
Raised Text
Using gloss UV ink to embellish text produces super-stylish results. As well as being perfect for adding flair to custom products, it also provides a fast and effective solution for traditional raised text applications like braille and ADA signs.

Use of White Ink
As well as gloss UV ink, Roland UV devices feature additional white UV ink options. This is an exceptionally useful feature for not only adding impressive white highlights and attractive finishes, but also as a base-color for printing onto clear items like acrylics and glass, and onto dark items like black leather and dark wood. With the ability to prep items for printing, users can achieve excellent color results on the most challenging items.

Other Uses for UV Gloss Ink
In addition to using gloss UV ink to add style and texture to your print output, it can also be used to make intricately designed custom stamps for leather stamping, or traditional embossing and craft applications.
The Advantage of UV Printing

Flatbed UV printing is a streamlined process without the set-up time or costs typically associated with traditional printing. And because it’s a direct printing method, UV printing is an excellent solution for service providers who don’t want the hassle of applying vinyl or heat transferring materials.

### LEF-12i

<table>
<thead>
<tr>
<th></th>
<th>8 iPhone cases</th>
<th>8 iPhone cases</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Inks</strong></td>
<td>White + CMYK</td>
<td>CMYK</td>
</tr>
<tr>
<td><strong>Time to print</strong></td>
<td>30 minutes</td>
<td>10 minutes</td>
</tr>
<tr>
<td><strong>Blank item cost</strong></td>
<td>$4.80 ($0.60 each)</td>
<td>$4.80 ($0.60 each)</td>
</tr>
<tr>
<td><strong>Cost of ink</strong></td>
<td>$0.50</td>
<td>$0.26</td>
</tr>
<tr>
<td><strong>Cost to produce</strong></td>
<td>$5.30</td>
<td>$5.06</td>
</tr>
<tr>
<td><strong>Retail price</strong></td>
<td>$200.00 ($25.00 ea.)</td>
<td>$200.00 ($25.00 ea.)</td>
</tr>
<tr>
<td><strong>ROI per hour</strong></td>
<td>$389.40</td>
<td>$1,169.64</td>
</tr>
</tbody>
</table>

### LEF-200

<table>
<thead>
<tr>
<th></th>
<th>17 iPhone cases</th>
<th>17 iPhone cases</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Inks</strong></td>
<td>White + CMYK</td>
<td>CMYK</td>
</tr>
<tr>
<td><strong>Time to print</strong></td>
<td>14 minutes</td>
<td>7 minutes</td>
</tr>
<tr>
<td><strong>Blank item cost</strong></td>
<td>$10.20 ($0.60 each)</td>
<td>$10.20 ($0.60 each)</td>
</tr>
<tr>
<td><strong>Cost of ink</strong></td>
<td>$1.99</td>
<td>$0.76</td>
</tr>
<tr>
<td><strong>Cost to produce</strong></td>
<td>$9.13</td>
<td>$7.90</td>
</tr>
<tr>
<td><strong>Retail price</strong></td>
<td>$425.00 ($25.00 ea.)</td>
<td>$425.00 ($25.00 ea.)</td>
</tr>
<tr>
<td><strong>ROI per hour</strong></td>
<td>$1,663.49</td>
<td>$3,545.31</td>
</tr>
</tbody>
</table>
The Advantage of UV Printing // 20

ROI

The following Return on Investment examples provide estimates of the small investment and large profit potential in creating specialty graphics with UV flatbed printers.

<table>
<thead>
<tr>
<th>LEF-300</th>
<th>22 iPhone cases</th>
<th>22 iPhone cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inks</td>
<td>White + CMYK</td>
<td>CMYK</td>
</tr>
<tr>
<td>Time to print</td>
<td>11 minutes</td>
<td>6 minutes</td>
</tr>
<tr>
<td>Blank item cost</td>
<td>$9.24 ($0.42 each)</td>
<td>$9.24 ($0.42 each)</td>
</tr>
<tr>
<td>Cost of ink</td>
<td>$3.89</td>
<td>$1.36</td>
</tr>
<tr>
<td>Cost to produce</td>
<td>$13.13</td>
<td>$10.60</td>
</tr>
<tr>
<td>Retail price</td>
<td>$550.00 ($25.00 ea.)</td>
<td>$550.00 ($25.00 ea.)</td>
</tr>
<tr>
<td>ROI per hour</td>
<td>$536.87</td>
<td>$539.40</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>LEJ-640FT</th>
<th>3 Boards(30'x13')</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inks</td>
<td>White + CMYK</td>
</tr>
<tr>
<td>Time to print</td>
<td>1 hour</td>
</tr>
<tr>
<td>Board Cost</td>
<td>$36 ($12.00 each)</td>
</tr>
<tr>
<td>Ink cost</td>
<td>$643.50 ($214.50 each)</td>
</tr>
<tr>
<td>Cost to produce</td>
<td>$690.30 ($230.10 per each)</td>
</tr>
<tr>
<td>Retail price</td>
<td>$7,312.50 ($2,437.50 ea.)</td>
</tr>
<tr>
<td>ROI per hour</td>
<td>$6,622.20</td>
</tr>
</tbody>
</table>
Alexandra Gramatikas entered her business plan for custom printed button covers in the University of Central Florida’s entrepreneur competition, and took first place. Subsequently, she decided to create a start-up company based on the business model of producing custom printed button covers as fashion accessories for coats, shirts, sneakers, bags and other items. A year into running her new business which she named ALTR, Alex decided to move production in-house with the purchase of a Roland VersaUV LEF printer.

“Our LEF is doing the same thing as printers that cost a lot more money. It has been a game changer for us – we completely revamped our business model and now we can do one box or hundreds.”
ALTR’S office space measures a cozy 14 feet x 10 feet, so the LEF’s compact size is a plus, as is the fact that the printer does not require a clean room. She also found it really straightforward and easy to use.

Alex runs ALTR’s online store through the company website, madetoalt.com and handles orders from individual and corporate clients across the country. Her LEF printer is ideal for fulfilling product orders because it is affordable to purchase and operate, and allows ALTR to customize products for a broad demographic; encompassing everyone from guys purchasing buttons for sports teams, to businesses adding logos, to teenage girls wanting cool fashion accessories.

“The print quality of the LEF is amazing. Our small button covers measure only .6 inches, and we’ve even printed the Mona Lisa on them – the detail is phenomenal.”

Alex has enjoyed great success recently, launching an exclusive custom button cover maker for Zazzle.com. She is also working on collaborations with other online retailers.

Alex represents an exceptionally creative and savvy businesswoman who had a great idea and made it happen with drive, ambition and the right tools to ensure success.
There are multiple UV printer options for businesses and individuals wanting to get into specialty graphics. Roland DG supplies a selection of machines to suit specialty graphics businesses of many types. The following chart will help determine which machine is right for you.

### A Buyers Guide to VersaUV Technology

<table>
<thead>
<tr>
<th></th>
<th>LEF 12i/200 12”/20” UV Flatbed Printers</th>
<th>LEF 300 30” UV Flatbed Printer</th>
<th>LEC Series 30”/54” Printer/Cutters</th>
<th>LEJ-640 64” Hybrid Printer</th>
<th>LEJ 640FT 64” Flatbed UV Printer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Material maximum height</td>
<td>0.94 in</td>
<td>3.94 in</td>
<td>1 mm</td>
<td>0.5 in</td>
<td>6 in</td>
</tr>
<tr>
<td>Between $15,000 and $30,000</td>
<td>✔</td>
<td>✕</td>
<td>✕</td>
<td>✕</td>
<td>✕</td>
</tr>
<tr>
<td>Between $30,000 and $55,000</td>
<td>✕</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✕</td>
</tr>
<tr>
<td>Over $55,000</td>
<td>✕</td>
<td>✕</td>
<td>✕</td>
<td>✕</td>
<td>✔</td>
</tr>
<tr>
<td>Blanks and small items (i.e. golf balls and giftware)</td>
<td>✔</td>
<td>✔</td>
<td>✕</td>
<td>✕</td>
<td>✔</td>
</tr>
<tr>
<td>Mid-sized items (i.e., snowboards and small tabletops)</td>
<td>✕</td>
<td>✔</td>
<td>✕</td>
<td>✕</td>
<td>✔</td>
</tr>
<tr>
<td>Large items (i.e., surfboards and doors)</td>
<td>✕</td>
<td>✕</td>
<td>✔</td>
<td>✕</td>
<td>✔</td>
</tr>
<tr>
<td>Rigid sheets of material (i.e., Sintra™ and Coroplast™)</td>
<td>✕</td>
<td>✕</td>
<td>✕</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Roll media (i.e., shrink film, and cardstock)</td>
<td>✕</td>
<td>✕</td>
<td>✔</td>
<td>✔</td>
<td>✕</td>
</tr>
<tr>
<td>Print/cut film and paper</td>
<td>✕</td>
<td>✕</td>
<td>✔</td>
<td>✕</td>
<td>✕</td>
</tr>
<tr>
<td>Gloss ink</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>White ink</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Gloss ink embossing</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
</tbody>
</table>
USEFUL LINKS AND RESOURCES

Product images and other image sources (courtesy of):

digitalblanks.com
madetoaltr.com
alibaba.com
consumercrafts.com
kinnek.com
blankdecks.com
bucklestock.com

Inspiration
madetoaltr.com
www.artguitar.com
www.etsy.com/market/wood_print
www.prettyinpolkadots.com
www.bricknowlogy.com
www.ministicks.com
www.ajjcornhole.com
www.kidsfit.com

Roland Academy
Roland Academy offers workshops created specifically for the design and production of UV print graphics. Roland experts offer hands-on instruction to help you quickly get to grips with Roland UV printing technology and software, and to get you producing and profiting in UV printing.

www.rolanddga.com/UVwebinar/archive

Roland VersaUV Printers
www.rolanddga.com/versauv

UV Blank Products
www.digitalblanks.com
www.bestsub.com
www.blanksUSA.com
www.alibaba.com

Print Jigs
www.digitalblanks.com
www.metaza.com
Just think of all the things you can customize with a UV flatbed printer