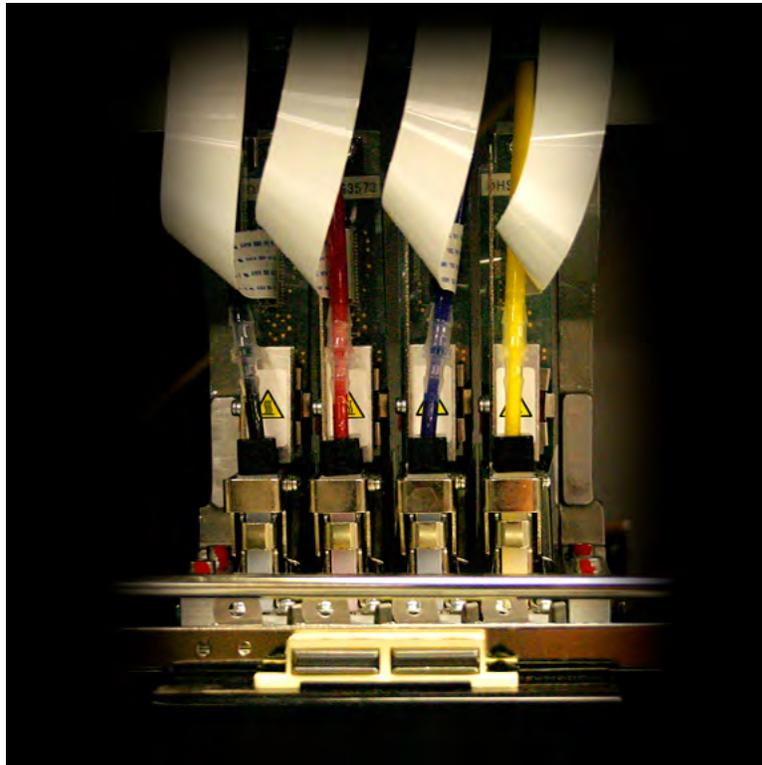


THE BASICS OF DIGITAL



PRINTING ON APPAREL

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SHARPRINT
MANUFACTURERS OF DECORATED APPAREL

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INTRODUCTION

Clothing, apparel, and accessories can be decorated, embellished, and customized using a number of different processes. The most popular methods for custom decoration are [screen printing](#), [embroidery](#), and [digital printing](#). Each process has its advantages and disadvantages and being knowledgeable about the pros and cons of each process can make all the difference in whether your custom decorated apparel is stunning, or...just decorated.

Digital printing, AKA direct-to-garment printing, is the most recent innovation in custom apparel technology. Because of this, most folks have little or no experience with the process and product. This guide has been created to give you some background on how the printing process works, a heads up on best practices, and tips on the things you should avoid.



HOW DIGITAL PRINTING WORKS

Digital printing on fabric is very similar to the way an [inkjet photo printer](#) prints on paper. There are cyan, magenta, yellow, and black (CMYK) ink jets that spray the design onto a substrate. These inks are translucent and the amount of each color that is sprayed on the material determines the end color produced.

When printing digitally, re-creating the color you see on a computer monitor is a pretty easy process, mostly because the computer does all the calculations to determine the amount of cyan, magenta, yellow, or black needed to reproduce that color. By comparison, with screen printing a highly skilled [color separator](#) selects the amount of inks that will be transferred to the garment, and how they will be layered. It is a much more labor-intensive process.

Another important difference to note regarding the printing of a garment using digital technology versus screen printing, is precision of the inks. A digital printer only uses CMYK inks to create the target color. If you are screen printing, CMYK inks can be used, but [Pantone](#) specific ink colors can also be designated, mixed, and applied during the process. Pantone inks tend to be brighter, more opaque and can be used to achieve very specific colors. Exact Pantone matches cannot be guaranteed when printing digitally.



FABRICS FOR DIGITAL PRINTING

The inks used in direct-to-garment printing are water-based inks and act like any liquid when it comes to application on fabric. Any garments that have a Teflon or stain resistant coating will repel the inks used for digital printing in the same way they are designed to repel coffee, cranberry juice, or any other liquid. Many aprons, tablecloths, and work uniforms, such as in the mechanic or food service industry, are not suited for direct-to-garment printing.

Polyester and poly-blend fabrics, that are often used to make t-shirts, do not work well with digital printing. Polyester fibers are essentially plastic, and as you probably know, water is not absorbed by plastic. Even if the image is transferred to a polyester or polyester-blend garment, the ink does not set and will lose integrity when washed.

100% cotton is by far the best material to use when it comes to digital printing. However, it is important to remember that all cotton tees are not created equal. The visual quality of the print is noticeably degraded when printing on the cheaper, rougher generic tees that are available. For the best looking print, you want to stick with the smoother, softer shirts. Apparel made from ring-spun cotton is a good choice.

There are other fabrics beyond cotton that can produce amazing results when printed direct-to-garment. Such fabrics include twill, canvas, silk and [linen](#). It is highly recommended to inquire about possible testing of garments and fabric other than cotton. If the decorator does not have experience with a particular garment, complications could arise, and it's best to troubleshoot right off the bat.



ART FOR DIGITAL PRINTING

Once you've got a good substrate to print on, put some [art](#) on it! Any artwork, napkin drawings included, or art file can be printed on apparel digitally. It is simply a matter of converting the file to the proper format. Your decorator can take care of that part for you, however, there may be an associated art charge. To avoid any redraw or conversion charges, submit your file in one of the following formats:

- Adobe Illustrator (ai, eps, pdf) - Fonts should be converted to outlines and linked files embedded or supplied separately.
- Adobe Photoshop (psd, eps, tiff, jpg) - Images must be created or scanned at a minimum of 150 dpi at the size images will print.

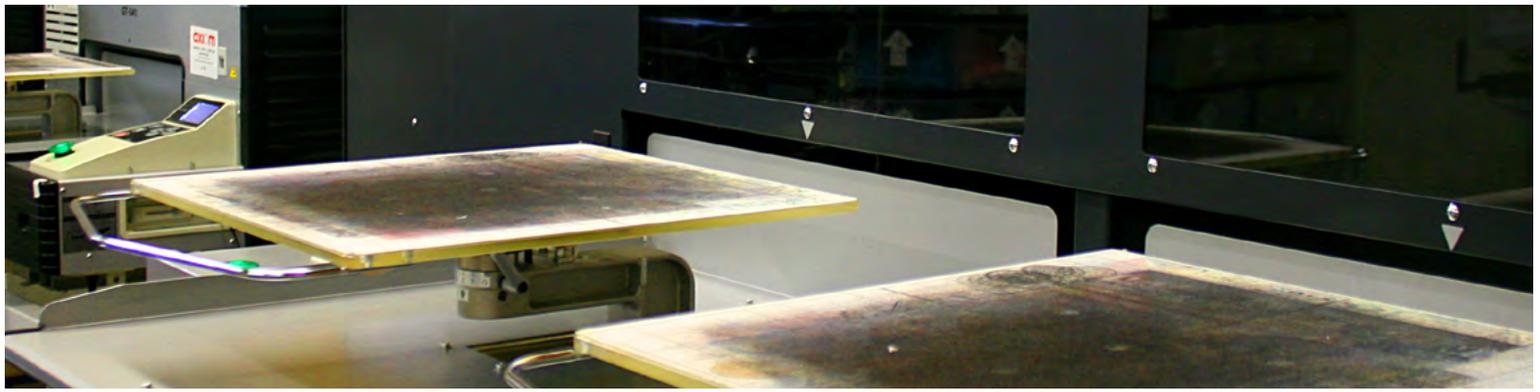
Digital printing on apparel is ideal for reproducing painterly designs and photographic images. Some solid fill areas print beautifully, but not all colors you view on your computer monitor are able to be replicated exactly when direct-to-garment printing. The computer approximates the target color based on what the printer can accomplish with mere CMYK colors. Bright blues, purples, browns, and dark greens tend to appear muddy. This is most noticeable when designs or logos have large fill areas of specific colors.



DIGITAL PRINTING ON DARKS

Digital printing on dark t-shirts or garments is not quite the same as printing on white or light ones. The direct-to-garment process is similar to screen print in that a white foundation or white under base must be printed first, allowing the design colors to be visible. Color may not look quite as bright when an under base is used, and the feeling of the printed shirt is not as soft.

In the process of direct-to-garment printing there is an additional step involved with printing the under base. It's called "the [pre-treat](#)." Colored or dark garments require the print area to be sprayed or treated, with a non-toxic primer. This primer facilitates the bond between the white ink and the garment or material surface. Depending on the design, a pre-treat can double the amount of time it takes to produce a digital print order. Although the pre-treat solution is non-toxic, it can leave a faint residue on the shirt, and it is strongly recommended that these shirts be washed before wearing.



WHEN TO REQUEST DIGITAL PRINTING

Always [consult with a decoration expert](#) when you are considering digital printing. Sometimes small orders can be better for the budget if printed digitally, but the print quality will be considerably better as screen print. A common misconception is that digital printing is only suited for 36 pieces or less. Not true! Large orders can also be affordable and fast when printed direct-to-garment.

Here are some tips for when you might want to consider direct-to-garment printing, however, keep in mind that these are not the only factors to consider:

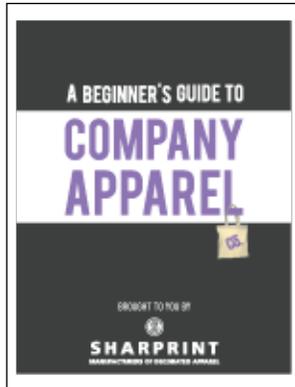
- your image or design is photographic or painterly
- the order is small
- you need the order quickly
- you need a spec samples for a larger digital print order
- the order involves customization of names or numbers
- your order will be on 100% cotton
- you want to print over zippers or buttons

Here are some instances in which you may want to avoid direct-to-garment printing:

- you are decorating polyester, poly-blend, or stain resistant fabrics
- your design has large solid fill areas
- your design has bright blues, purples, dark greens, or brown
- you need spec samples for a larger screen print order
- your design calls for exact Pantone matches

RESOURCES

If you found this guide useful, you may want to check out some of our other resource publications:



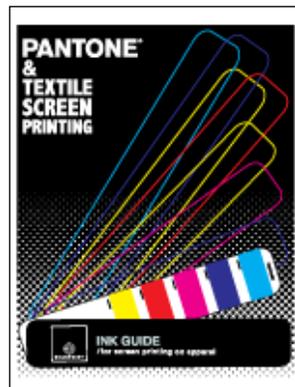
BEGINNER'S GUIDE TO COMPANY APPAREL

Branding your uniforms, t-shirts, or promotional apparel with personality can help develop a strong company image that people will remember.



ECO-FRIENDLY APPAREL CHEAT SHEET

A quick reference guide for distinguishing the difference between sustainable, organic and recycled fabrics along with the leading eco-friendly substrates and their advantages.



PANTONE & TEXTILE SCREEN PRINTING

A guide to give you a heads up on the trouble colors, explain why discrepancies occur and offer alternatives and solutions.