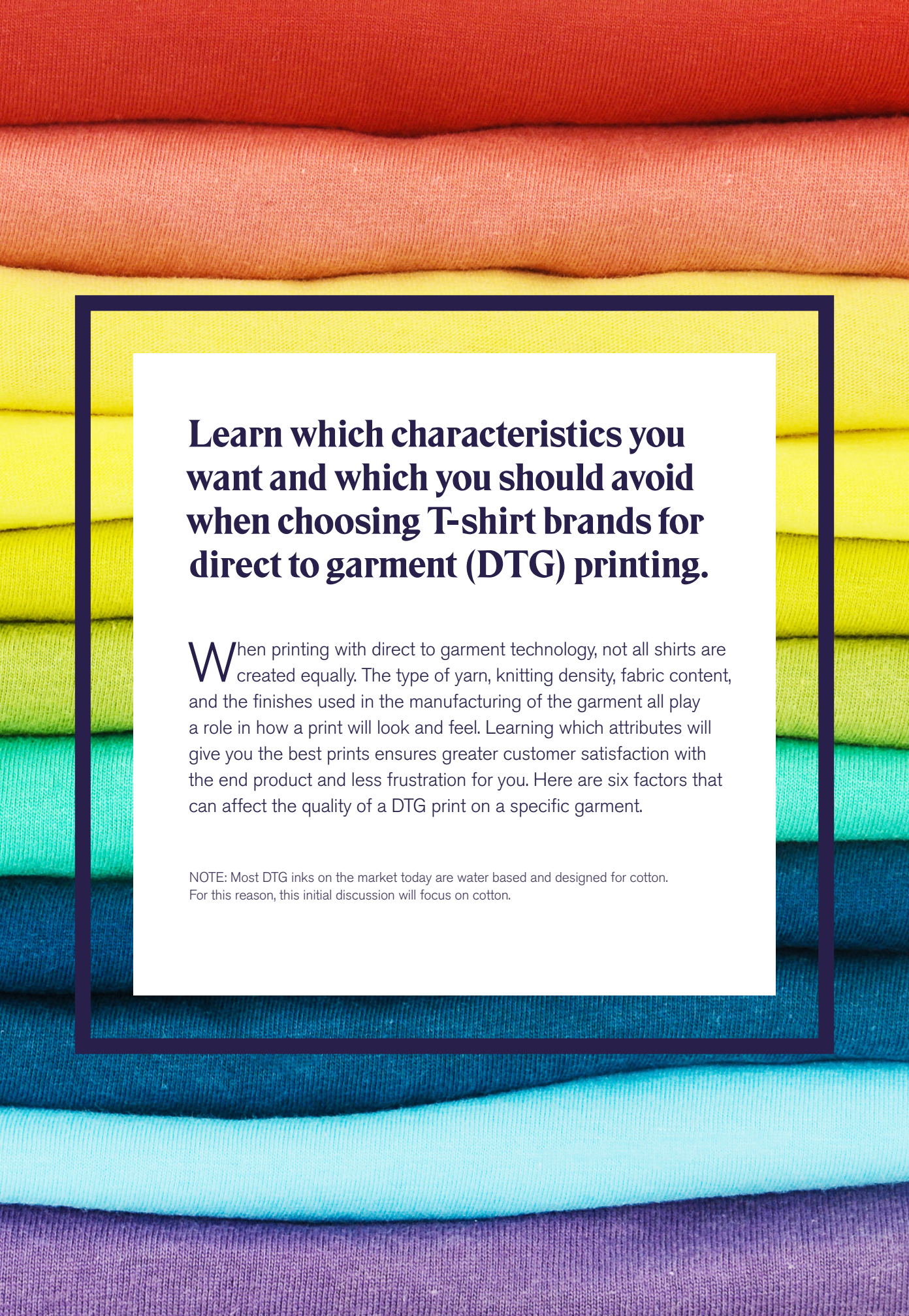




Selecting the Best Shirt for DTG Printing



Learn which characteristics you want and which you should avoid when choosing T-shirt brands for direct to garment (DTG) printing.

When printing with direct to garment technology, not all shirts are created equally. The type of yarn, knitting density, fabric content, and the finishes used in the manufacturing of the garment all play a role in how a print will look and feel. Learning which attributes will give you the best prints ensures greater customer satisfaction with the end product and less frustration for you. Here are six factors that can affect the quality of a DTG print on a specific garment.

NOTE: Most DTG inks on the market today are water based and designed for cotton. For this reason, this initial discussion will focus on cotton.

Factor 1

What kind of yarn is used to make the shirt?



T

here are two primary types of yarn used to make T-shirts: open end and ring spun. The difference between the two comes from the yarn-spinning method. For a variety of reasons, ring-spun cotton is considered the better choice when it comes to digital printing.

“It is an additional process where the fibers are twisted resulting in additional softness and a tighter knit, which benefits the printer and the wearer,” says Mindy Anastos, Vice President, Production Planning for LAT Apparel in Ball Ground, GA.

The more involved production for ring-spun yard creates the need for additional labor causing it to be more expensive than open-end options.

“Open-end yarns tend to be coarser, more loosely bound and rougher thread,” adds Ken White, vice president of sales, Cotton Heritage. “There are a lot of carded open-end

products out there. The determining factor is price. Giveaway and promotional T-shirts are generally carded and open end.”

“Even with the appropriate amount of ink for a digital print, I have seen carded, open-end garments look like there wasn’t enough coverage,” says White.

A third yarn making process known as vortex spinning closely mimics the hand and performance of ring-spun yarns. But according to Gary Bell at Gildan, “It uses significantly less energy and creates less waste than ring-spun yard, therefore, it delivers better value to consumers.”

Factor 2

What smoothing method is used on the yard?

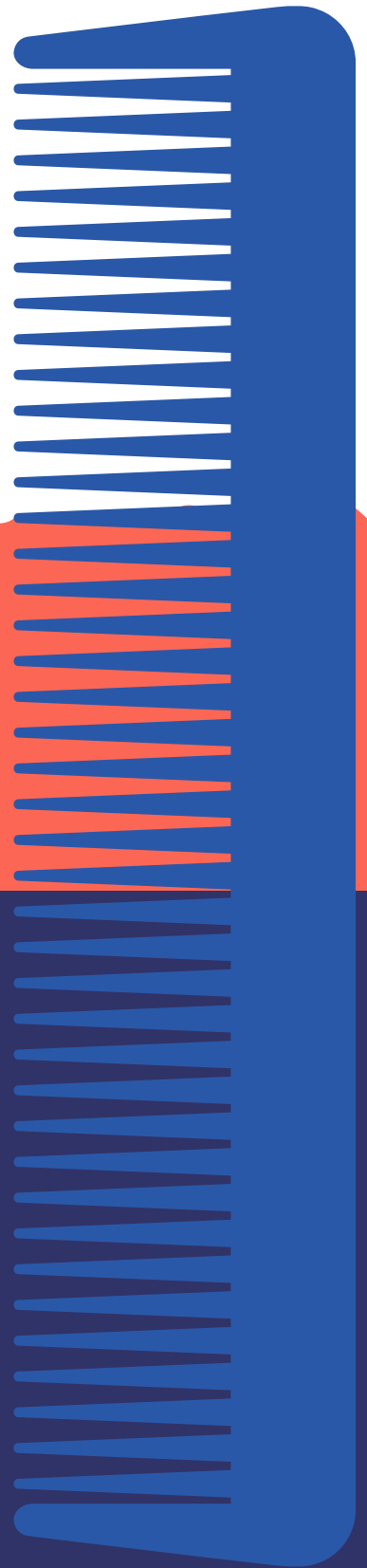
A

second factor that affects shirt suitability for DTG printing is the smoothing method used on the yard. The more desirable process is called combing.

“Combing makes a smoother, stronger yarn and gives you a much better surface to print on,” claims White. “If you were a painter and you were going to paint a masterpiece, you’d want the best canvas you could paint on. In terms of T-shirts, that’s going to be combed, ring-spun cotton.”

Unlike combing, carding is a simpler process that merely sweeps over the yarn without aligning the threads or eliminating the shorter, roving fibers.

“Think of it in terms of combing your hair with a comb or a card,” proposes White. “The comb is going to sink in and align your hair so you’ll have a smoother, cleaner look as opposed to a card that is just skimming the top.”



Factor 3

What is the level of fibrillation?



F

ibrillation, which is when the fibers of a shirt stick through the applied ink, can be one of the biggest challenges with any type of garment printing. This is because thinner inks that result in a softer print make it easier for the fibers to stick through.

Combed yarn, either ring-spun or vortex, has the least amount of fibrillation.

“While fibrillation can occur in an unprinted fabric, ideally when inks are applied, they effectively flatten down individual fibers and hold them to the surface of the shirt,” according to Garry Bell, Vice President of Corporate Marketing, for Gildan.

“Unfortunately, upon physical manipulation of the garments (shirts rubbing against each other in the washing machine), the inks

that were holding down these fibers are removed, and the fibers stick up through the print.”

These fibers can cause the appearance of a newly printed shirt to look worn and to diminish the vibrancy of the color. The quality and type of shirt chosen will determine to what degree, if at all, this problem appears.

One way manufacturers reduce fibrillation is with an enzyme wash. However, this process can cause the garment to wear out faster than normal.

Factor 4

What finishes have been applied to the shirt?



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s DTG printing grows, manufacturers are racing to produce fabric finishes that attempt to create molecular bonds between the inks and the treatments embedded in the fabrics. But not all treatments are created equally.

“Many fabrics now being developed for DTG printing are laden with silicone softeners, which creates a flatter, softer-feeling hand,” notes Bell. “But because softeners are topically applied, these can wash out in the first or second laundering.”

“Water-based inks do not work well or bond with the fabric if there is any silicone on it,” agrees White. “It gives it a softer smoother feel, but that’s not a shirt you to want to print on, especially for DTG.”

“Other treatments that some manufacturers use is starch with

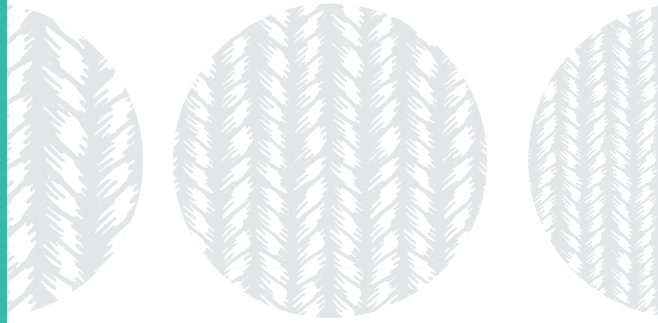
the idea that it is going to compact those yarns. The problem is it quickly washes out, and you’re going to have a very different feel to that garment.”

Finishes and treatments used will be driven by two factors: cost and garment use.

According to Anastos, “Any extra treatments you apply to fabric have a cost. So the question has to be asked, ‘What is the garment’s purpose?’ If the shirt is going to be digitally printed, you want to only use treatments that won’t affect the printing process.”

Factor 5

What is the diameter of the yarn used in the garment?



F

iner knits create a smoother surface for printing. Thus the yarn diameter has a significant impact on how well a shirt accepts a digital print. Higher singles weights, such as 30, perform better and are more desirable than lower weights because the diameter is smaller. A smaller diameter provides a flatter base for printing on than a larger diameter.

“The bulk of our business is between 20 and 30 singles,” says White. “They’re both great for DTG printing. If I had to, I would give a bit of a nod to 30 singles being slightly better than the 20.”





Factor 6

How does your fabric react to pre-treatments?



If applied to the wrong type of shirt, DTG pretreatment can cause discoloration or staining of a shirt. That's why it is critical to print on shirts that have been created with nonreactive dyes.

"You often see discoloration caused by pretreat when shirts have been processed with reactive dyes," says White. "As a manufacturer, you have to know what the shirt is ultimately going to be used for in order to make sure you are using the right recipe when you're creating those dyes."

Bell added, "Almost all of the machine manufacturers have developed guidelines that are effective in addressing this, but it is always best if printers run test prints and develop their own library of what works well for them."



Know your equipment, know your substrates.

Ultimately every situation is unique. Understanding your customers' needs and expectations will help you choose a shirt with the proper ratio of price and performance. But to help you get there, consider the advice of these shirt manufacturers and test several brands and develop your own library of products that work for specific situations.

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