

Customizing t-shirts has never been easier or more popular, in part due to the many different types of printing methods that can be applied to a tee as well as the wide selection of tees and fabric contents available. Some of the most common blends include 100% cotton, cotton and polyester blends and 100% polyester. Each of these tee blends has its benefits and limitations when it comes to which printing methods work best.



**DTG PRINTING, DIRECT-TO-GARMENT**, is where ink is applied directly to a garment through a specialized inkjet printer. The digital artwork is sent directly to the printer, enabling single garment prints or small production runs without having to clean up inks or screens between jobs. The best tees for DTG printing are anything 100% cotton, which will give you the greatest results coming off the machine and after multiple washes.



**HEAT TRANSFER VINYL PRINTING, HTV PRINTING**, uses a specialty vinyl polymer with an adhesive backing that is applied to garments with a heat press. The vinyl is available in small sheets or large rolls and is cut into the shape of what will be applied to the garment. There are many vinyl transfers available that work on all types of fabrics, depending on the heat setting. Low heat applications are ideal for polyester tees, and higher heat applications will work best on 100% cotton.



**SUBLIMATION** is a dye transfer process where an image using dyes has been printed onto a specialty paper or plastic sheet that will then be used to transfer the image to a garment through a heat press machine. The heat press activates the dyes and changes them from a solid to a gas, which bonds with polyester fibers. These dyes will only permanently bond with polyester, so for best results use white 100% polyester tees.



**SCREEN PRINTING** is achieved by squeezing ink through mesh screens allowing color to pass through open areas creating the design. Different inks each have their own temperature requirements for curing which allows for printing on all types of fabrics. 100% cotton tees are the most popular choice due to high curing temperatures and minimal quality issues. When screen printing on cotton blends and 100% polyester tees, special care should be given because of the heat sensitivity of synthetic fibers. Some inks even have stretch and recovery characteristics specially designed for high-performance polyester garments.



**DTF PRINTING, DIRECT-TO-FILM**, is a new printing method that combines features of DTG printing and heat transfers. The image is printed on a clear polyester film by machines, much like a DTG inkjet printer, and then transferred to apparel by a heat press. Because it combines inks and application, DTF printing can be applied to all types of fabrics. DTF offers vibrant colors and strong colorfastness after laundering. Plus the polyester film graphic can be stored and quickly applied to any tee, which is beneficial for repeat orders that require print-on-demand or fast turnaround.

## GENERAL GUIDELINES & TIPS

Whenever possible, sample the design with a pre-production sample to ensure the quality and performance of the garment and decorating material, including washing some samples after printing to check on durability, adherence and dye migration. Maintaining your dryer's temperature is also important, because proper temperature is critical for curing inks as well as avoiding damaged garments.

### POLYESTER HEAT SENSITIVITY

Polyester fabrics are more sensitive to heat than cotton fabrics and are prone to shrink and become damaged when subjected to extreme heat. To properly screen print on polyester, be sure to manage your heat setting during the curing process to avoid excessive shrinkage, dye migration and scorching. It is best to monitor the surface temperature of the garment with a thermo-probe, and follow the ink manufacturer's print parameters.

### DYE MIGRATION

Temperatures needed to cure screen printing inks or apply heat transfers may also convert some of the dyes in the polyester into a gas, changing its original shade. To avoid this, use inks or transfers that are bleed resistant. Since dye migration can appear instantly or take several hours to manifest, it's advisable to wait 24 hours before shipping if you are unfamiliar with the garment, inks or transfers.

### GHOSTING

Ghosting is when a printed image is transferred to another shirt stacked on top of it before it has fully cured and cooled down. Ghosting could also be the result of not using a cover sheet on the heat press, which helps prevent ink from accidentally being transferred from one garment to another. To avoid ghosting, allow shirts to fully cool before stacking or packing and use a cover sheet.

**TEES**

	SCREEN PRINTING	DTG PRINTING	HEAT TRANSFERS	EMBROIDERY	SUBLIMATION
<b>Beefy-T® 100% U.S. grown ring spun cotton jersey<sup>1</sup></b> 5180   518T   5190   5186	✓	✓	✓	✓	✗
<b>Perfect-T 100% U.S. grown ring spun cotton jersey<sup>2</sup></b> 4980   498L   SL04   S04V   S04LS   498Y	✓	✓	✓	✓	✗
<b>Authentic-T 100% cotton jersey<sup>3</sup></b> 5250   5590   5586   5596   5450   5546	✓	✓	✓	✓	✗
<b>EcoSmart® 50% U.S. grown cotton / 50% polyester</b> 5170   5370	✓	✓	✓	✓	✗
<b>Essential-T 100% cotton jersey<sup>4</sup></b> 5280   5286   5680   5780   5480	✓	✓	✓	✓	✗
<b>Perfect Triblend 60% recycled polyester / 30% U.S. grown ring spun cotton / 10% rayon<sup>2</sup></b> 42TB   42VT	✓	✓	✓	✓	✗
<b>Workwear 60% recycled polyester / 30% ring spun cotton jersey / 10% rayon<sup>5</sup></b> W110   W120	✓	✓	✓	✓	✗
<b>Cool DRI® 100% Polyester</b> 4820   482L   4830	✓	✗	✓	✓	✓

<sup>1</sup> Ash 99% cotton/1% polyester, Light Steel/Clean Mint Pepper Heather/Mauve Pepper Heather/Sapphire Pepper Heather/Red Pepper Heather 90% cotton/10% polyester, Charcoal Heather/Grape Smash Heather/Heather Navy/Heather Red/Military Green Heather/Oxford Gray 60% cotton/40% polyester

<sup>2</sup> Ash/Marbled Cantaloupe/Marbled Green Clay/Marbled Ice Fall/and Marbled Pale Violet 99% cotton/1% polyester, Light Steel/Red Pepper Heather 90% cotton/10% polyester, Body Blush Heather/Brown Sugar Heather/Cactus Heather/Charcoal Heather/Grape Smash Heather/Heather Navy/Heather Red/Jade Pine Heather/Lemon Meringue Heather/Mauve Heather/Military Green Heather/Oregano Heather/Poppy Red Heather/Pumpkin Heather/Purple Rain Heather/Regal Navy Heather/Silverstone Heather/Wow Pink Heather 60% cotton/40% polyester

<sup>3</sup> Ash 99% cotton/1% polyester, Light Steel 90% cotton/10% polyester, Charcoal Heather/Oxford Gray/Safety Green/Safety Orange 60% cotton/40% polyester

<sup>4</sup> Ash 99% cotton/1% polyester, Light Steel/Red Pepper Heather 90% cotton/10% polyester, Charcoal Heather/Oxford Gray/Safety Green/Safety Orange 50% cotton/50% polyester

<sup>5</sup> Light Steel 90% cotton/10% polyester

**POLOS**

<b>Cool DRI® 100% polyester</b> 4800	✓	✗	✓	✓	✓
<b>Workwear 65% polyester / 35% cotton jersey<sup>6</sup></b> 055P	✗	✗	✓	✓	✗
<b>EcoSmart® 50% U.S. grown cotton / 50% polyester</b> 054X   054Y	✓	✓	✓	✓	✗

<sup>6</sup> Light Steel 90% cotton/10% polyester

**SWEATS**

<b>EcoSmart® 50% U.S. grown cotton / 50% polyester</b> P160   P170   P180   P650   P360   P473   P480   P450	✓	✓	✓	✓	✗
<b>Ultimate Cotton® 90% cotton / 10% polyester<sup>7</sup></b> F260   F170   F280	✓	✓	✓	✓	✗
<b>Perfect 80% U.S. grown ring spun cotton / 20% polyester<sup>8</sup></b> RS160   RS170	✓	✓	✓	✓	✗

<sup>7</sup> Light Steel 85% cotton/15% polyester, Charcoal Heather/Oxford Gray 65% cotton/35% polyester

<sup>8</sup> Light Steel 78% cotton/22% polyester, Charcoal Heather 50% cotton/50% polyester