

Decorating on Tri-Blends

Best practices for embellishing this fashion-forward fabric.

By Rick Davis, Contributing Writer

During the past decade, there has been a new revolution in garment-manufacturing technology. Consumer demands have necessitated new fabric and style development using a wide variety of different organic and synthetic fibers.

One of the results of this consumer-driven demand is the tri-blend tee, which is fabricated with a combination of cotton, polyester and rayon. The latter has a comfortable fit with excellent stretch or elongation; polyester allows for excellent washfastness and the ability to hold its color; and cotton allows for a soft feel.

In this edition of the *Impressions* Tech Tips Newsletter, sponsored by ANVIL®, I will be working with the ANVIL® Adult Tri-Blend Tee and addressing different embellishment applications to which this garment lends itself.

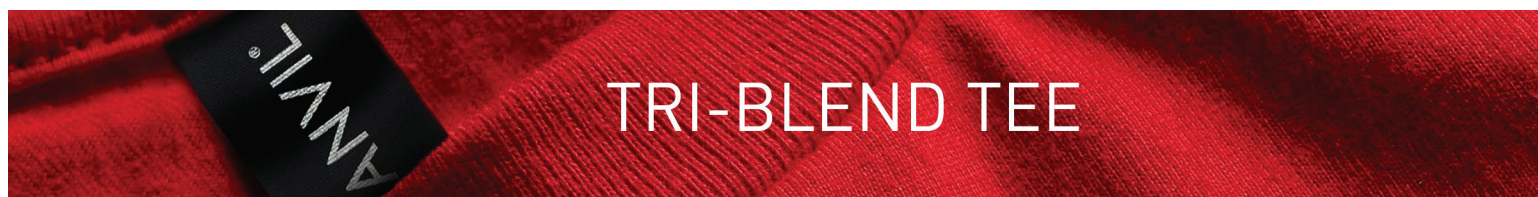
The ANVIL® Adult Tri-Blend Tee is made of 4.7-ounce fabric and contains 50% polyester/25% combed, ring-spun cotton/25% rayon. It is soft, comfortable and lightweight, allowing for easy embellishment and longevity. Here, I will review the different applications that can be used to achieve maximum effects on this shirt.

SCREEN PRINTING

Since the ANVIL® Adult Tri-Blend Tee is made with 4.7-ounce fabric, the objective is to produce the softest print by using the thinnest-possible ink film. An excessive ink film takes away from the fabric's hand or drape, so it's best to maintain the garment's soft feel as much as possible.



ANVIL® Tri-Blends offer an ultra-soft fabric in flattering silhouettes. Made from a balanced blend of 50% polyester, 25% combed ring spun cotton and 25% rayon, they feature a smooth drape. The fabric boast a high stitch density for a smooth printing surface. Available in companion styles for both men and women in sizes XS-3XL, in up to 24 color options.



Here, I will reproduce a four-color process graphic for the white ANVIL® Adult Tri-Blend Tee. The art originally is laid out and separated for digital output. For this example, I will output to a computer-to-screen imaging system. Four-color process or photographic reproduction work well on this kind of fabric and allow the garment to maintain its soft hand.

Screens and Inks — Good screens are key to ensuring the desired results when producing a thin ink film for such applications. Here, I am printing with 305 monofilament screens tensioned to 28 N/cm². Higher screen tensions are desired to print with minimal off-contact and squeegee pressure. The result is a thin ink film deposited onto the fabric’s surface, resulting in a soft hand.

Since most four-color process inks are manufactured with pigment loads that are stronger than usually needed, the inks are cut with a halftone base to achieve the desired color intensity for the graphic being printed. Because I am printing a basic multicolor graphic, I cut the process yellow, magenta and cyan by 25% across the board with a halftone base.

Heat-Related Printing Parameters — In this application, I am printing a simple, four-color process graphic directly onto the fabric. This calls for a straightforward four-color, wet-on-wet application without the need for additional flashing. However, when printing on darker-colored fabric, an underbase may be required.

Use caution when printing on tri-blend fabric, as it can be adversely affected when exposed to excessive heat. This scenario also can be affected by the type of flash unit used. Fused quartz flash units will output a far greater heat



intensity that, when not controlled, can scorch the fabric. Some precautions to take include:

- Using a low-temperature/faster-fusing ink, which will flash at a cooler temperature.
- Lessening the flash time and/or output to minimize the potential for scorching.
- Ensuring the dryer will not overheat the fabric during the curing process. This holds especially true for radiant heat dryers.

Although some tri-blends offer heat-related challenges, they easily can be managed through proper heat control and printing applications.

STEP-BY-STEP

STEP
1

The artwork is separated into the four respective colors and converted to 55-line halftones.



STEP-BY-STEP



STEP
2

Screens are imaged with a direct-to-screen (DTS) imaging system.

MINIMAL OFF CONTACT SETTING

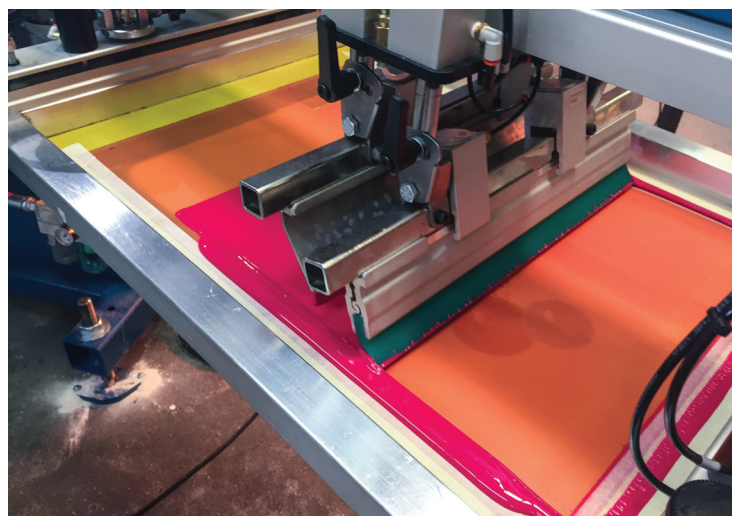
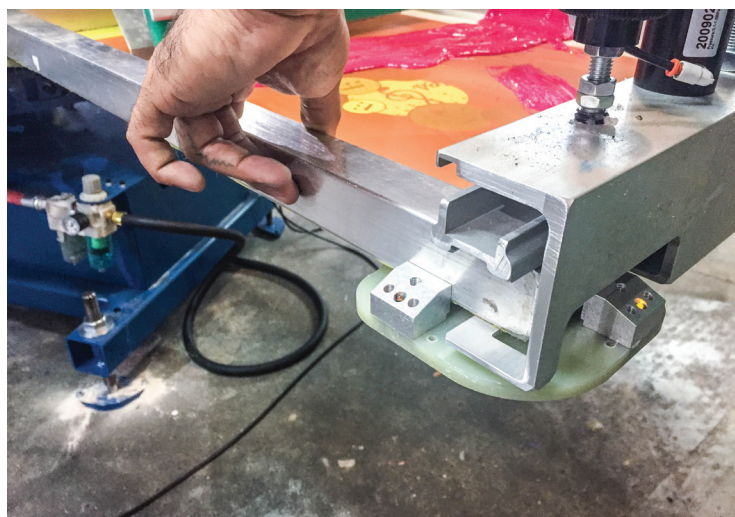


STEP
3

The off-contact on this production run is less than $\frac{1}{16}$ -inch, allowing the optimum printing conditions.

STEP
4

All screens are pre-registered and aligned on press with a three-point registration system.



STEP
5

The garment is printed wet-on-wet using minimal squeegee pressure to maintain a soft hand.



STEP
6

The finished four-color process print.

EMBROIDERY

Like all forms of apparel embellishment, embroidery is an art. In working with the ANVIL® Adult Tri-Blend Tee, the key to correct embroidery lies in proper graphic selection, digitizing, backing selection and application. The image should be light and pliable, similar to its appearance with screen printing. This makes the graphic selection and digitizing process critical to the quality of the finished product. Some primary points to consider in this scenario are:

- **Artwork** — When working with a full-front image, use a light design and minimize solid image areas. Open-area stitching leaves the embellishment light and will minimize puckering.

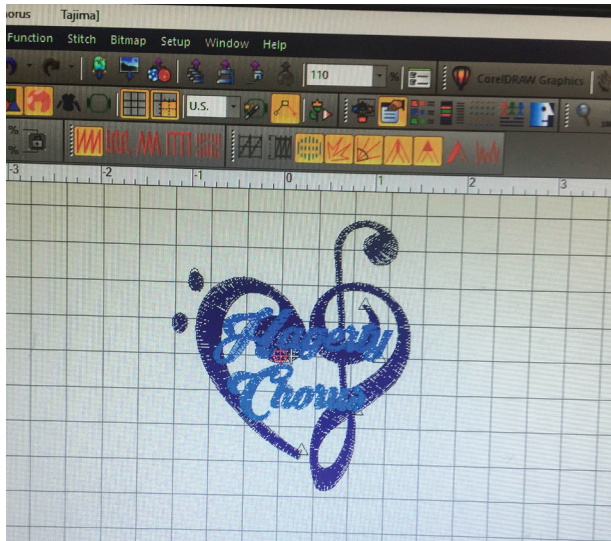
- **Backing** — Use a light tearaway backing to stabilize the fabric during the embroidery process. It also will minimize puckering.

- **Thread** — Polyester thread will retain its color and have greater wash resistance.

When digitizing your own graphics, you have the creative control to produce something that is both aesthetically pleasing and production friendly. Should you outsource digitizing, you'll need to edit the final file to minimize the stitch count. Correctly engineering and digitizing the art to ensure a light and aesthetically pleasing embellishment are central for embroidering on tri-blends.

STEP-BY-STEP:

Editor's Note: All embroidery work and supplies are courtesy of Atticus Screen Printing and Embroidery, Oviedo, FL.



STEP
2

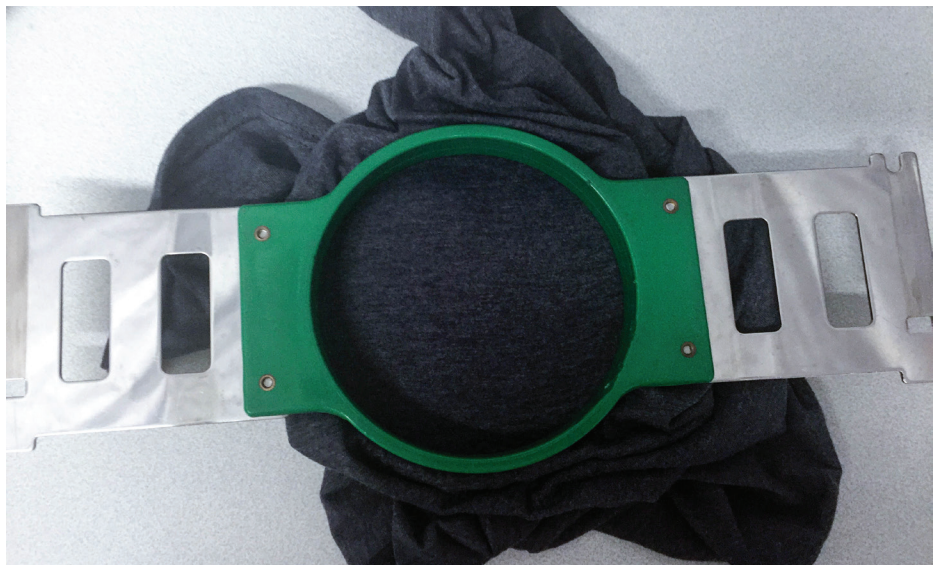
During the digitizing process, the graphic is engineered to minimize stitch count and be production friendly.

STEP
1

This image that is broken up, has a minimum stitch count and works well on a dark heather garment.

STEP
3

The garment is hooped to hold the fabric tight and in place during embroidery.



STEP-BY-STEP:



STEP
4

The product is embroidered, trimmed and excess backing is removed.

STEP
5

The finished left-chest embroidery on the ANVIL® Tri-Blend tee.

DIRECT-TO-GARMENT (DTG) PRINTING

Direct-to-garment applications have mushroomed over the years, as has the process's ability to be applied to different fabrics. Whereas original DTG applications were limited to 100% cotton, decorators now can use them on many different fabrics thanks to advanced pretreatment development. Tri-blend fabrics have a heather-type finish, so the image produced on them by a DTG printer will have a rustic appearance.

This type of effect currently is popular, so including tri-blends in your DTG program will diversify your garment offerings. It is important to note that a tri-blend's performance during embellishment with the DTG process

can vary based on fabric content and the pretreatment being applied. Check with your pretreatment solution manufacturer for application recommendations. Here, the ANVIL® 6755 adult Tri-Blend heather grey $\frac{3}{4}$ -sleeve raglan tee has been printed.

It is important to follow curing recommendations for the pretreatment and inks so that the print is properly heat set, thus ensuring longevity. With the current popularity of the ANVIL® tri-blend and the proper application procedures for embellishment, you can widen your product offerings to clients and increase overall sales.

STEP-BY-STEP:

Editor's Note: All DTG printing and supplies are courtesy of Go Big Tees, Orlando, Fla.

STEP
1

The artwork is properly sized and set up for four-color output on the DTG printer.



STEP-BY-STEP:

STEP

2

When printing on colored fabrics, a white underbase is applied first.



STEP

3

The garment is then printed with full color over the underbase.



STEP

4

The finished DTG print.

Rick Davis is a 30-year veteran of the textile manufacturing and screen-printing industry. His background includes consulting, plant management, process troubleshooting. Rick also is a member of the Academy of Screen and Digital Printing Technology. For more information or to comment on this article, email Rick at rickd5050@yahoo.com.