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Printing on Nylon Spandex Performancewear

Use these tips for perfecting printing on a sports bra and fitness pant.

By Rick Davis, Contributing Writer

The Performance Sportswear Collection is cut and designed to give the most comfortable fit while working out. It is constructed from a high-performance Supplex Nylon knit for maximum agility, support and sweat absorbency. Bottoms feature a hidden pocket in the waistband for convenient storage of handheld items.

Past installments of the *Impressions* Tech Tips Newsletter have addressed the wide variety of new fabrics that apparel manufacturers are continuously producing. These new fabrics, in turn, are lending themselves to various improvements in finished garment styles.

As a departure from the typical step-by-step review of decorating one particular garment, let's review the challenges and processes for printing on two new garments from American Apparel.

I'll first examine printing in a small space on the American Apparel sports bra (style RSAAK301), followed by an explanation of printing on the leg of the American Apparel fitness pant (style RSAAK300). Both garments are made of 90% nylon/10% Elastane (Lycra spandex), which gives the fabric the elasticity required of high-performance sportswear. This also will require a high-elongation ink type to meet the fabric's performance parameters.

THE SPORTS BRA

The objective for the sports bra involves placing a print in a limited fabric area. In this case, printing will be done on the base hem of the garment. This medium-sized garment has a hem that measures 1 inch high and the imprint will be centered on the front.

Artwork is the first step. Since the printing area has a maximum printing height of 1 inch, it's ideal to limit the maximum image to a ½-inch height. Since the American Apparel logo will

be printed across the front, the overall image will be 7.4" x 0.5".

The sports bra's hem is a two-ply material, so it's best to use a small specialty clamp platen to hold it tight and in place for printing. This will minimize the possibility of the fabric separating and creating smears during the printing process. This clamp is used as an "insurance policy," although standard platen adhesives also will suffice.

When working with a limited printing area, placement and alignment are crucial. The different methods of ensuring proper placement onto a garment's hem range from basic to high-tech. They include using a straight piece of tape marked with a straight edge or a straightedge piece of cardboard, or using laser locators.

In this example, I will use a straightedge piece of cardboard that will be adhered to the platen. This method will serve two purposes: It ensures a straight and even edge for aligning the fabric and adds off-contact support to meet the two-ply fabric thickness of the bra hem. This method also can be easily done in house with available materials. Once the finished assembly is in place, it's time to print.

In this setup, I will print the image in its normal (inverted) mode and load the garment in the standard hem-first fashion. The hem is placed evenly against the edge of the cardboard and centered on the platen.

The ink used is a high-elongation/high-opacity plastisol made for performance fabrics. This relatively small printing area requires simply double stroking the image with a 110-monofilament screen mesh with no flash. However, you have the option of flashing the print to minimize the risk of smearing it when removing the garment from the platen.

Once the print is completed, carefully remove the garment from the platen and place it on the dryer belt for the final cure. Successfully printing apparel that requires an impression within a limited area simply is a matter of proper press setup and optimizing your printing conditions to achieve the desired effects.

This process also could be achieved with a heat-transfer application as long as the transfer possesses the high-elongation characteristics required to meet the fabric's performance parameters.

THE FITNESS PANT

The American Apparel fitness pant's fabric composition enables it to be form-fitting with a high degree of elongation. The finished fabric yields a tightly knit, smooth finish, which, in this case, simply optimizes the embellishment process. For this example, I will print the word "Fitness" down the left leg of the garment.

For the artwork, I will use a 12-inch-long "Fitness" print laid out in a vertical format with a Collegiate font. Another advantage to this format is that it can be printed on either leg should the client prefer it. Although it is a straightforward and simple format, printing text or a graphic on a pant leg is only limited by your imagination.

Press setup is important. For this example, I will print on 4-inch-wide sleeve platens. Here, I simply must determine where on the platen I want the print to fall. The image will be centered, so the final determination should be where I want the print to fall on the platen/leg.

The screen for this print will include a 155-monofilament mesh stretched on a retensionable frame. As with most textile screen-printing applications, I want to deposit a thin ink film on the fabric surface. There are a couple of reasons for this.

First, the thinner ink film will flash faster, if needed, than a thicker ink film. Second, thicker ink films are more difficult to cure. And in this scenario, a proper cure is necessary to have not only proper ink elongation characteristics, but also proper durability. The high tension offered by

the retensionable frame will allow me to easily deposit the desired ink-film thickness onto the fabric surface with minimal squeegee pressure.

Printing the pant leg is straightforward. Due to the high-elongation characteristics of the fabric, I will use a high-opacity/high-elongation plastisol, which will easily cover the performance fabric and withstand its stretchy characteristics. The print requires two smooth strokes to properly cover the fabric.

For this print, I used a 70-durometer squeegee with a sharp edge. The tension offered by the screen allows for a clean "snap-off," leaving a smooth, sharp image. These printing parameters will allow minimal squeegee pressure and a clean release of ink from the stencil.

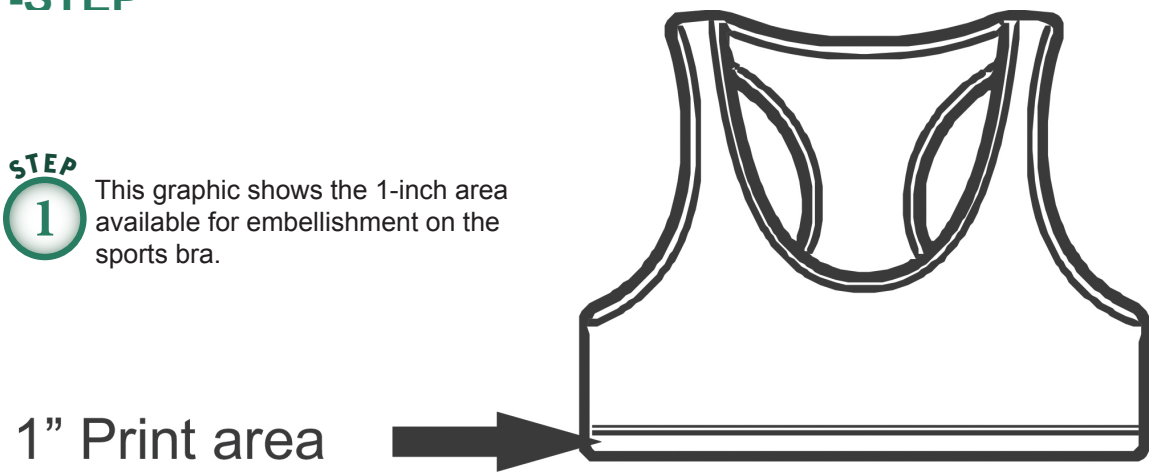
Should you need to flash and hit the print a second time, always minimize the time and temperature of the flash unit. The objective here is to simply dry the ink, not cure it. Once flashed, a single second pass or overprint should suffice.

The new fabric/garment combinations being offered by today's apparel manufacturers bring new challenges to textile screen printers on a daily basis. They also offer exciting opportunities to increase market reach by offering design applications on these new fabrics. It is important for today's printers to stay abreast of these new fabrics and their characteristics to understand how they will perform in the printing environment.

The new styles and cuts being offered also challenge you to have the tools, creativity and versatility to print in small and unusual locations to accommodate customers' requests. This will result in the ability to print on any garment/fabric combination that may come your way.

STEP-BY-STEP

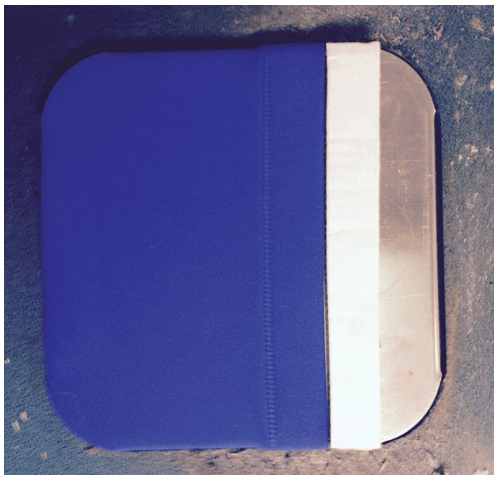
STEP 1 This graphic shows the 1-inch area available for embellishment on the sports bra.



STEP 2 In this small area, the imprint will be centered on the garment's front hem.

STEP 3

The sports bra's hem is made of two-ply material, so we will use a small specialty clamp platen to hold it in place for printing.

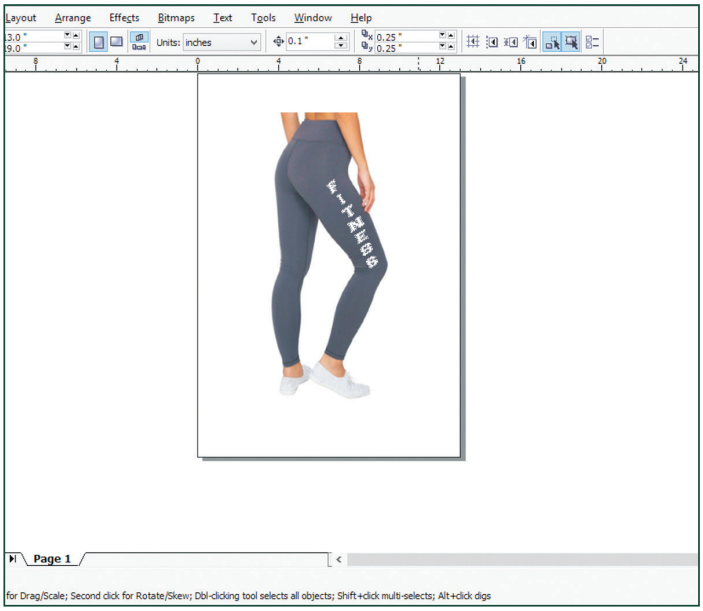


STEP 4

A straightedge piece of cardboard is adhered to the platen for aligning the fabric and to add off-contact support for the bra hem.

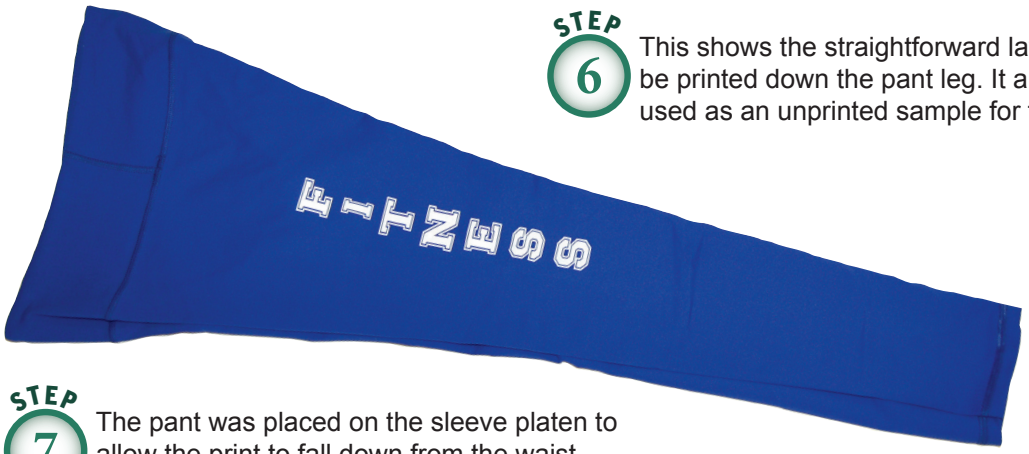
STEP 5

This graphic shows the sports bra's finished print prior to curing.



STEP 6

This shows the straightforward layout of the text to be printed down the pant leg. It also could be used as an unprinted sample for the client.



STEP 7

The pant was placed on the sleeve platen to allow the print to fall down from the waist.

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