

Get Perfect Prints on Fleece

When printing on fleece, follow these guidelines to select the best mesh counts and tension settings for various types of artwork.

By Charlie Taublieb, Contributing Writer

As winter approaches, printing on fleece becomes more common, bringing with it a series of familiar questions:

- Do I need to increase my off contact?
- What is the optimal mesh count?
- What squeegee should I use?
- Do I print dark-colored fleece differently than light-colored?
- If I print the same design on T-shirts and fleece, do I need two sets of screens?

Before any of these questions can be answered, it's important to recognize that there are two types of artwork that can be used: vector and raster. Besides artwork type, separation type and fleece quality also play major roles when decorating fleece. In the end, the smoother the finish, the easier it will be to print.

VECTOR VS. RASTER ARTWORK

Vector artwork, which is created in programs such as Adobe Illustrator or CorelDraw, yields finished artwork that is made up of smooth-edged solid areas. Often, when printing more than one color, a complete low-bleed underlay is flashed and then the remaining colors are printed on top of the underlay. Sometimes the design is flashed between each color, although it usually is not necessary if the job is put together correctly. Printing vector artwork requires a different approach from raster artwork.

Typically, raster artwork is produced in programs such as Adobe Photoshop and Corel PhotoPaint or Painter. Raster images usually are three dimensional in appearance and comprised of a series of pixels, which are commonly output as halftone dots. Though the approach to printing raster vs. vector images is different, there are similarities.

Before determining whether to increase the off contact, there are a few additional questions to answer. Most printing problems occur on dark-colored fleece, as opposed to light-colored. So if a design works well on dark colors, it will work well on light ones, too.

SCREEN SETTINGS FOR RASTER ART

Though many printers use vector art for printing on fleece, the easier route is using raster images. When printing raster images, the type of screen frame you use — retensionable or rigid — determines the mesh count and tension. If the



This Jerzees® Super Sweats® full-zip hooded sweatshirt was printed using a 156 mesh count at 35 N/cm². Made from pill-resistant, 9.5-ounce 50/50 cotton/polyester NuBlend fleece, it features increased stitch density for a smooth printing surface and a seamless body with set-in sleeves.

fleece is not smooth and you're using a retensionable screen frame, use a 110 mesh at 35 N/cm² for the underlay, working with separations that are 45 lpi or less. If the fleece is smooth, use a 156 mesh at 35 N/cm².

For rigid frames, lower screen tension requires lower mesh count. Pushing high-opacity ink through fine mesh by using a lot of pressure — which is necessary with low-tension screens — will result in smearing the ink and constantly wiping the bottom of the screens. It's common to use an 86 mesh count with 100 micron thread, which has roughly 45% open area. Another option is to use an 83 mesh with a 70 micron thread, which allows the ink to pass easier. The 83/70 mesh also requires less squeegee pressure because it has an open area of about 60%. For this screen, the stencil would have to be built higher by using additional coats of emulsion, but it probably would be worth it. The lpi should be less than 45 degrees in order to avoid moiré. Often, two squeegee strokes are enough to produce this print, whether on an automatic or manual press with high or low tension. The low-tension screen stands a good chance of smearing more often than the high-tension screen, but not as often when using an 86/100 mesh.

To print on top of the underlay with a retensionable screen frame, use a 230 mesh at 35 N/cm². For rigid frames, drop to a 156 mesh. The main differences between retensionable and rigid screen frames are the amount of ink used, the clarity of the print, the hand, wiping the bottom of the screens and the amount of effort needed to get the print done.

Working on a manual press, use a 70 durometer sharp, straight squeegee regardless of the frame type. When printing on an automatic, use a 65/90/65 sharp, straight squeegee for the underlay. Usually, the same blade can be used for additional colors. Typically, the squeegee angle for the underlay is very inclined — 25 to 30 degrees — so you can carry a large load of ink and get a good deposit. Your squeegee angles will vary with the other colors, depending on the color of the ink and the amount of ink you need to deposit. If the squeegee is too angled, it will start to smear the image. When printing raster images, the underlay should be flashed and all other colors should be printed wet on wet.

Jobs that require printing on T-shirts as well as fleece can be done using the same screens and off contact if the mesh is tight. Low tension might require two sets of screens, two off-contact settings or both.

SCREEN SETTINGS FOR VECTOR ART

With raster images, so much is going on that you focus on the overall design and not separate colors. But with vector images, you identify each color separately, and each one needs to be crisp and smooth. Here, too, the type of fleece is a factor, as is the screen frame and tension.

For printing underlay with a high-tension screen, use a 110 mesh. It may be necessary to print/flash/print to get the desired solid, flat look, which possibly can be done with one print stroke each time. On an automatic, use a 110 mesh for the first screen, flash, then use a 156 mesh for the second one, with the possibility of one stroke on each screen. The squeegee angle should be 25 to 30 degrees on an automatic. Use just enough pressure to clear the ink out of the screen.

Use a similar technique for printing on a manual. The squeegee specifications and the printing on top of the underlay are the same as with raster images. The only differences are periodically flashing between certain colors with a high-tension screen and flashing between all colors with a low-tension screen.



JERZEES[®]
© 2008 Russell Corporation
JERZEES.COM

NUBLEND[™]
THE FIRST VIRTUALLY
PILL-FREE FLEECE

- 8 & 9.5 oz blend fleece
- Tighter stitch density
- Exceptional ink coverage

JERZEES[®] knows fleece, producing fabric innovations that yield optimal decorating performance and comfort since the early 1900's. The softer, heavier NuBlend[™] fleece is no exception.

HIGH-TENSION SCREENS

- **Underlay:** 110-156 mesh at 35 N/cm²
- **Additional Colors:** 230 mesh at 35 N/cm²
 - Flash only after the underlay when using raster art
 - After the underlay has been flashed, flash after three to four colors when using vector art
- **Squeegees**
 - **Manual:** 70 durometer, straight and sharp
 - **Automatic:** 65/90/65 durometer, straight and sharp
- Off contact should be the same for fleece and T-shirts
- Print light- and dark-colored fleece the same
- Vector art may need a print/flash/print/flash of the underlay

LOW-TENSION SCREENS

- **Underlay:** 86/100 or 83/70 mesh with multiple coats of emulsion
- **Additional colors:** 156 mesh
 - Flash after every color
- **Squeegees**
 - **Manual:** 70 durometer, straight and sharp
 - **Automatic:** 65/90/65 durometer, straight and sharp
- Off contact should be higher for fleece than for T-shirts
- Print light- and dark-colored fleece the same
- Vector art may need a print/flash/print/flash of the underlay

Step by Step

Printing fleece doesn't require any changes from printing T-shirts, if you're using high-tension screens. This fleece hoodie was printed using the same 156 mesh at 35 N/cm² for the low-bleed white underlay and the additional color. The same design was printed on light-colored fleece at the same specifications.



STEP 1 With fleece, you must spray your pallets more often than T-shirts, but not after each garment. After spraying, let the adhesive dry for a moment so it doesn't make the inside of the garment sticky.



STEP 2 Slide the garment onto the pallet, keeping it straight. Don't worry about smoothing the garment, as this wastes time. The first screen down will keep the garment from moving and smooth it out.



STEP 3 Keeping your screen elevated, flood the screen with pressure. This will load the ink into the mesh, making the print look brighter. Pushing a 70 durometer squeegee will make it easier to get a good lay down of ink, as well as reduce fatigue and improve ergonomics.



STEP 4 Print a double stroke of the underlay, then flash long enough so that the print is not tacky. Depending on the quality of the coverage, it may be necessary to put a second layer of white down on dark-colored fleece and then flash again.



STEP 5 Flood the second color and print after the shirt has cooled a little. Lift the screen to make sure you have good coverage. You may want to flash so you don't smear the ink when taking the shirt off.



STEP 6 Grab the shirt at the shoulders, remove it from the pallet and place it on the conveyor belt.

STEP 7 Once the hoodie is removed from the dryer, it's finished. These dark- and light-colored fleece hoodies were printed using the same settings.

Fleece hoodies decorated at Invisible Ink Illusions, Castle Rock, Colo.



Charlie Taublieb is a screen printing consultant with more than 32 years' industry experience, and a popular speaker at The Imprinted Sportswear Shows. For more information or to comment on this article, e-mail Charlie at drprint@aol.com.