

Screen Printing on Nylon Bags

Follow these tips to get exceptional results on a treated substrate that has a reputation for not being printer friendly.

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There typically are two types of screen printers that are prevalent when it comes to printing on sporting goods or apparel made of nylon: those that do it and those that don't. Based on either the garment type or lack of preparation invested into the process prior to production, it can be very easy for a textile screen printer to have a negative experience when attempting to print on this substrate.

Although nylon has a reputation of not being printer friendly, you can make the venture an easy, successful and profitable one simply by having a clear understanding of the fabric and ink you'll be using.

This article will review the variables involved with printing on nylon and the correct procedures needed to ensure a winning product each time. For the printing demonstration, I will use American Apparel's Nylon Pack Cloth gym bag (style B540). It features a nylon zipper closure and webbing straps, as well as dual handles. Its 100% medium-weight nylon construction also provides an ideal surface for yielding good screen printing results.

NYLON CHARACTERISTICS

Unlike the common cotton and cotton/polyester fabrics that you probably print every day, nylon is non-absorbent. Known for its durability and versatility, it is used in gym bags, machine parts, sports apparel, backpacks and many other applications.



B540 Nylon Pack Cloth Gym Bag in Emerald/Silver:

A durable, versatile and water-resistant bag designed with dual nylon webbing straps and a nylon zipper closure. Constructed from 100% medium-weight nylon with a polyurethane coating, this fabric is exceptionally strong, washable and stain-resistant. Available in 13 colors.

Nylon also can be treated to add a water-repellent property, depending upon the intended application of the fabric. For our purposes, we will be working with a gym bag that has been treated for water repellency so that contents stay dry in adverse weather. Knowing this in advance is important.

When working with water-repellent fabrics, you must use ink intended for printing on nylon. (Note: When printing on apparel such as football or hockey jerseys, which contain nylon but are not treated for water repellency, you can safely print directly onto the fabric.) Since the bag being printed has been treated for water repellency, nylon catalyst must be used to ensure proper bonding between the ink film and substrate surface. Not doing so can result in poor ink adhesion to the substrate and, thus, poor abrasion resistance and durability.

The nylon catalyst acts like a glue between the ink and substrate. Some printers recommend wiping the print area with rubbing alcohol to remove the water-repellent treatment from the fabric's surface. However, I discourage

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NYLON GYM BAG



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this because by doing so, you risk creating a ghost image in the print area, resulting in a slight discoloration.

When adding nylon catalyst to ink, remember to add the correct amount by weight; use a scale, if possible, to ensure this. Also, only mix the amount of ink needed to complete the current job. The ink will harden by the next morning, rendering the remainder unusable. Likewise, wash out the residual catalyzed ink from the screen as soon as the job is completed. If left overnight, it will harden in the screen, which means it can't be salvaged. The mesh will have to be removed and the screen re-stretched with new mesh.

PRINTING PARAMETERS

The first thing to realize is that the error factor with nylon is not as forgiving as that of 100% cotton or cotton/polyester blends. For example, when printing on a red 100% cotton shirt, if your first stroke doesn't sufficiently cover the fabric, you can always re-hit (double stroke) the image to improve its opacity. However, when printing on nylon, if your first hit doesn't render the desired results, a double stroke will greatly increase the potential for shadows or misprints.

Mesh Selection — In this scenario, we will be printing with a 156 monofilament mesh. Although nylon may not be as forgiving during the printing process as an absorbent knitted T-shirt, the fabric's non-absorbent nature ensures the printed ink film lays on the fabric's surface and is not pressed into the knit of the substrate. This allows for increased opacity for the ink film even though a finer mesh count is being used compared to T-shirt screen printing. Additionally, when working with nylon, high-tension screens are a definite benefit.

We are printing a graphic that has only 1 inch of space between its outside edges and the straps that are sewn into the bag. For this reason, you must ensure the graphic is properly centered, as the addition of the straps can easily show any variation in the placement of the bag if it's not properly centered.

Raised Printing Surface — The bag's nylon straps will add height to the distance the screen will need to be depressed into the fabric surface in order to print properly. Because of this, I cut a piece of 1/16-inch cardboard intended to fit inside the nylon straps, thus eliminating them as obstructions.

Having the print surface of the bag raised and the straps of the bag recessed to allow for an even printing surface



will permit ease of printing without the threat of smeared-edge prints caused by the straps. The cardboard is cut to fit just inside the straps.

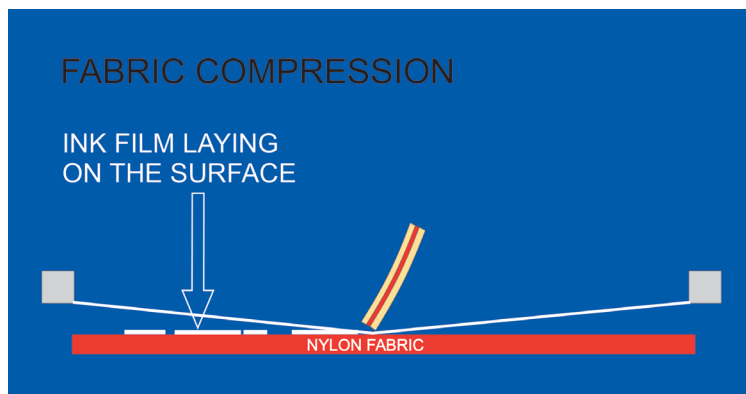
Squeegee Selection — Because we want to achieve the desired imprint with a single stroke, we will use a hard, sharp (80/90/80) squeegee. The sharp edge will cut the ink film off neatly and create a minimal amount of squeegee drag on the screen's surface. This will minimize the potential for shadowed images. This will hold especially true if your screen is not sufficiently tight.

Ink Selection — The printing characteristics of nylon screen printing inks can vary widely from manufacturer to manufacturer. For any nylon ink you use, look for two primary characteristics. First, make sure it has a smooth, creamy consistency that requires a minimal amount of effort to press through the screen. This will minimize squeegee drag from pressing too hard, allowing for crisp prints. Also, try using ink that has good flashing characteristics.

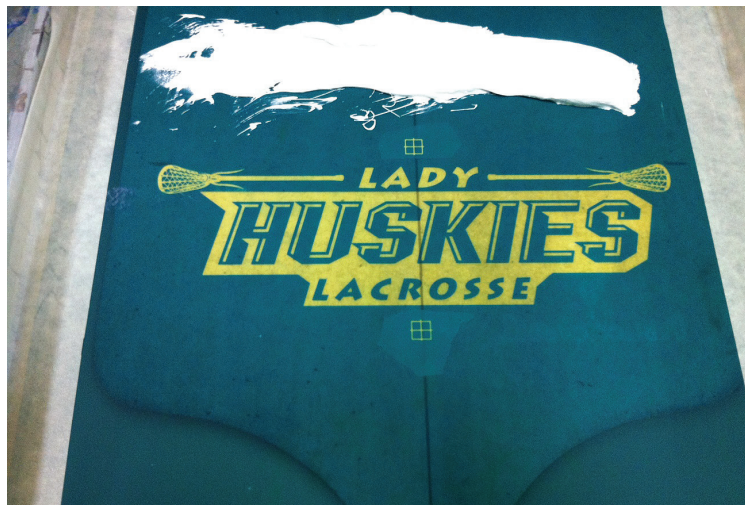
Another objective in printing on nylon is to minimize the amount of heat to which the fabric is exposed. Although you must ensure the ink is properly cured, do not allow the fabric to get too hot because it will start to wrinkle or melt. This also applies to the flashing process on a manual or automatic press.

Printing on nylon bags or fabrics doesn't need to be a specialty process within your shop. Once you identify the procedures required to produce a quality print, you can establish them as standards and easily build these products into your everyday offerings.

STEP-BY-STEP



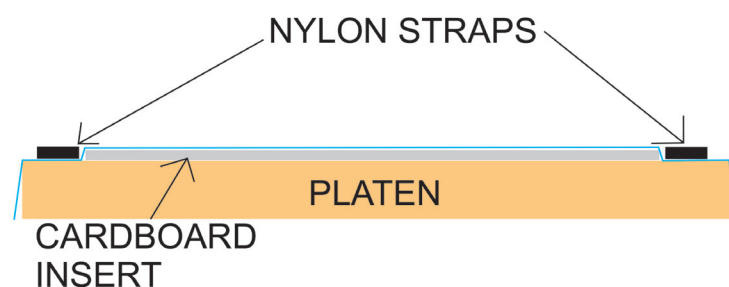
STEP 1 This graphic shows the ink film being deposited onto the fabric surface with no absorption on the fabric's behalf.



STEP 2 The screen needs to be perfectly centered when placing the graphic close to two straps.



STEP 3 Due to the excessive off-contact that the nylon straps introduce to the process, we use a cardboard sheet to raise the print area and minimize off-contact.



STEP 4 This graphic shows how the cardboard insert allows for the nylon straps to be recessed from the bag's surface print area.



STEP 5 Here is the finished printed bag. Note the recessed straps, which allow for an even printing surface.