

Silk Screening Explained – Or, “So that’s how my logo got on our tote bags.”

And no, it’s not done by a bunch of elves with markers down in the basement at night.

Screen-printing has its origins in simple stenciling in Japan where it was called *katazome*. Designs were cut into banana leaves; ink was forced through the design holes onto textiles, mostly for clothing.

Modern silk-screening originated with a fellow named Samuel Simon in England in 1907. Silk-screening became widely used during WWI as an industrial process for printing flags and banners. Today it’s used to decorate almost any material from textiles, to glass, plastic, ceramics and more. This newsletter will focus on silk-screening textiles such as tote bags and apparel.

The “screen” in silk-screening is a piece of finely woven material (polyester) stretched over a frame of wood or aluminum. The original material was indeed silk but since the 1940’s the screens have been made from polyester. (Interestingly, if you look at a highly magnified silk mesh you’ll see lots of little “hairs” on the silk strand, this would make the edges of the image a bit fuzzy and blurred.)

The screen is placed over the item to be decorated and then covered with ink. The operator uses a squeegee to transfer the ink from the mesh and onto your tote bag. Your tote bag then goes through a dryer to set the ink and voila! Your tote bag has your logo on it!

Sounds simple, yes? Well actually no, it’s quite a complicated process with lots of elements that have to be done correctly in order for your logo to be printed with crisp sharp edges and no smudging or blurring of your colors.

Let’s start with getting your logo onto the screen. It all starts with your artwork, the electronic file (usually an eps file) that has your logo. Your logo is printed onto a transparent overlay made of acetate. The area that’s your logo is opaque, all else remains transparent. The acetate is placed over the screen that has been coated with a light sensitive emulsion, filling in all the little holes in the mesh. The acetate is then exposed to ultraviolet light. All of the areas that are transparent become hardened. The areas not exposed to light, your logo, dissolve and are washed away leaving a positive image on the mesh. That’s your logo and that’s where the ink goes through the mesh to print your logo on your tote bag.

OK, so that’s it, right? Not exactly. *Let’s take a look at the screen.* The mesh is not always the same size or “gauge.” For simple, large designs the mesh would have fewer and larger openings. For fine lines, small details, etc. the mesh would have more and smaller openings.

The type of material be decorated and the type of ink being used, (like thick metallic inks) also determine the gauge of the mesh.

Now the screen has to be placed over your tote bag. It has to be centered, registered and straight. (Registered means that the different parts of you logo that are different colors all line up where they're supposed to be and don't overlap or leave gaps.) Oh, and by the way, the tension on the screen has to remain the same so that the size of the mesh openings doesn't get bigger or smaller than they're supposed to be.

Now it's time to put the ink on the screen. But what kind of ink? How thick or thin should it be? Well, that depends on the garment being decorated (material, color) and the nature of your logo.

Plastisol is the most common ink it can be transparent for process printing too very opaque to cover dark materials without a white under print. (i.e. the color won't get muddied by the dark color of the garment showing through). It allows for good graphic detail.

Water-based inks penetrate the fabric more, creating a softer feel.

PVC/Phalate free inks are relatively new, print like Plastisol but don't have the two toxic ingredients.

Is my tote bag done yet!? *Almost, we just have to squeegee the ink onto it.* Here the skill of the operator comes into play. The angle of the squeegee, how much pressure is applied, applying the pressure evenly all across the area all combine to create a uniform and consistent appearance or one where the ink globs up in one place and is too thin in another.

Now your tote bag goes through a dryer (a big heating unit with a conveyer belt running through it). Not too hot, not too cold. It all depends upon the type of fabric, the type of ink. Once the ink has been cured you can have your tote bag!
Whew!

So that's how my logo got on my tote bags!

*Our most grateful thanks to Matt Hallahan, Christie Miselis and Ken Elwell of **Gemline** who gave us a tour of Gemline's facilities and patiently explained (over and over) the silk-screening process. This newsletter is loaded with their explanations and facts and is much for the better because of their input.*

Gemline is one of our favorite suppliers and you can see the entire line at www.gemline.com