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## General Digitizing Steps and Tips for Puff Embroidery

Puff embroidery can add dimension and flare to almost any design with large enough elements to support the foam. There are just a few guidelines to follow to further the effectiveness of your puff designs and the success of your sew-outs. The first section covers digitizing the design, and the following section covers the OS and machine settings.

## Basic Rules for Puff

1. The portion of the design that will be puffed must be the last section to sew. You will be laying down a piece of 3-D foam, so all flat sections of the embroidery must be sewn first.
2. The needle penetrations perforate the foam and allow for the excess to be pulled away upon completion of the sewing.
3. In addition to being the last section to sew, the segment of the design that will take on the raised appearance must be hefty enough to allow the foam to work its magic. **Only satin stitches will give the raised puff look**. A satin stitch width of between 3mm and 11mm should be used.
4. Alphabet text can be used as a starting point for puff letters, but they must be modified to work with Foam due to the "open ends" of traditional alphabet letter stitching.
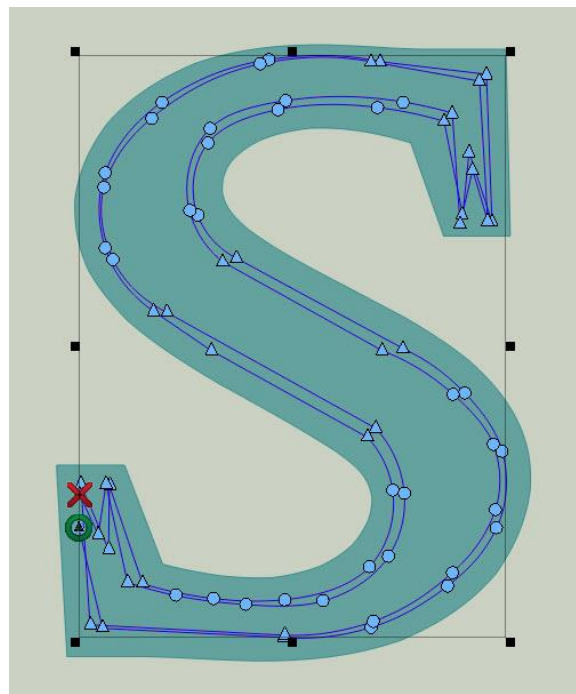
## Digitizing Steps

1. In DesignShop open the electronic art file making sure that it is sized to the final dimensions. In this example, we have sized the art to 2.5" high for a high profile structured hat.
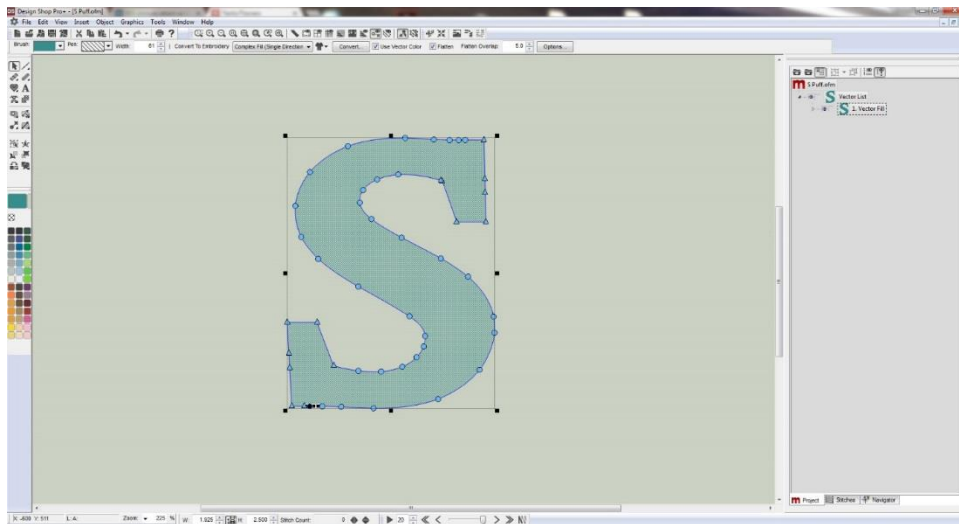
2. Next, set your tie stitch defaults for this project by **right** clicking on the walk Input Tool located on the left side of the screen towards the top and select Properties. When the Object Properties window appears, left click on the Tie In And Tie Off tab in the Object Properties window. Turn on Tie-In and Tie-Off and set the number of stitches to 5 for both fields. We use 5 Tie In and Tie Off stitches due to the increased thickness of the foam to make sure the thread is completely secured.
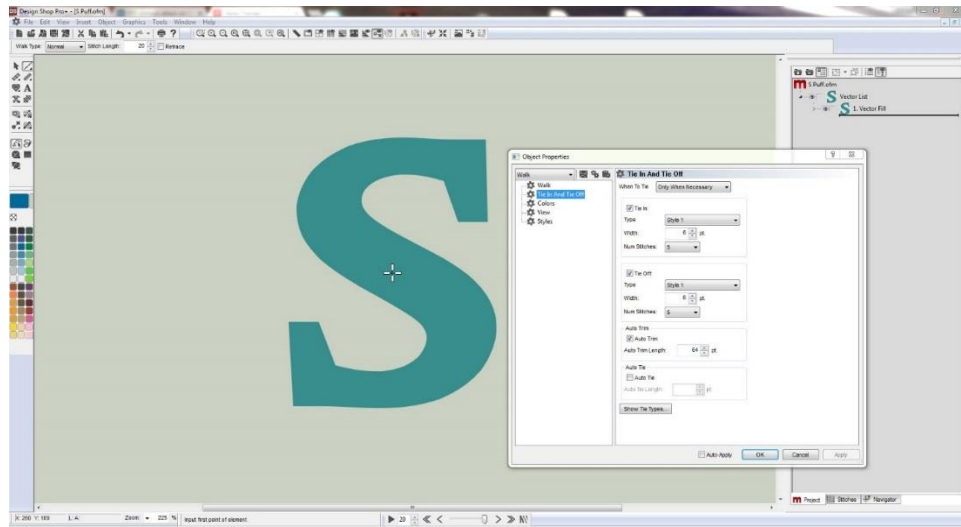


3. After the tie stitch values are set we can begin digitizing the letter. Start by digitizing a 20 point walk stitch element which will tack the foam to the garment. Best results are achieved when the Walk Stitch element is inside the edge of the puff shape, and two layers are digitized (twice around the inside of the shape).

4. The next step in the digitizing of this design is to "close the ends" of the satin stitch element that will cover the foam. In puff embroidery we rely on the needle penetrations to cut the excess foam from the garment and satin stitches only have needle penetrations on their sides. Because of this we also need to add stitch penetrations to the top and bottom of the satin or the foam won't release completely from the garment. There are two methods for "closing the ends" of satin elements, they are **capping** and **pinching**. Capping involves digitizing a smaller satin stitch perpendicular to the ends under the final top satin stitch. Pinching involves simply changing the normal stitch direction of the final top satin stitch so that there are needle penetrations completely around the entire shape. We will use the capping method for digitizing this design, but either method would work for closing the ends here. Digitize a capped end at both open ends of this letter by using one of the column tools. We connect the two capped ends by digitizing a walk stitch between them in the thread path. A density of about 3 points will work well.
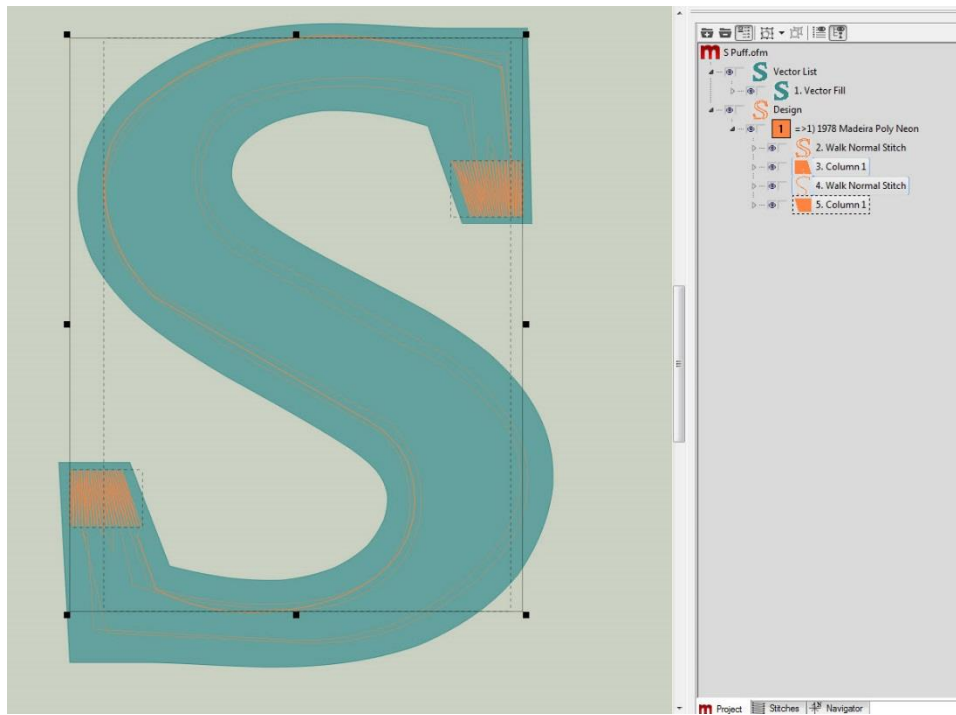
5. After digitizing the capped ends we can digitize the final top stitch satin. Column 2 is a good column type to use for puff, as it keeps the density even throughout the shape. Finally, select the top stitch element and set its properties to those shown in the oval below. We will use a density of 1.8 points, a "Use Fill for stitch lines greater than 200 points, and we will turn off Short Stitches. Center the design, save the file and the digitizing is now complete.
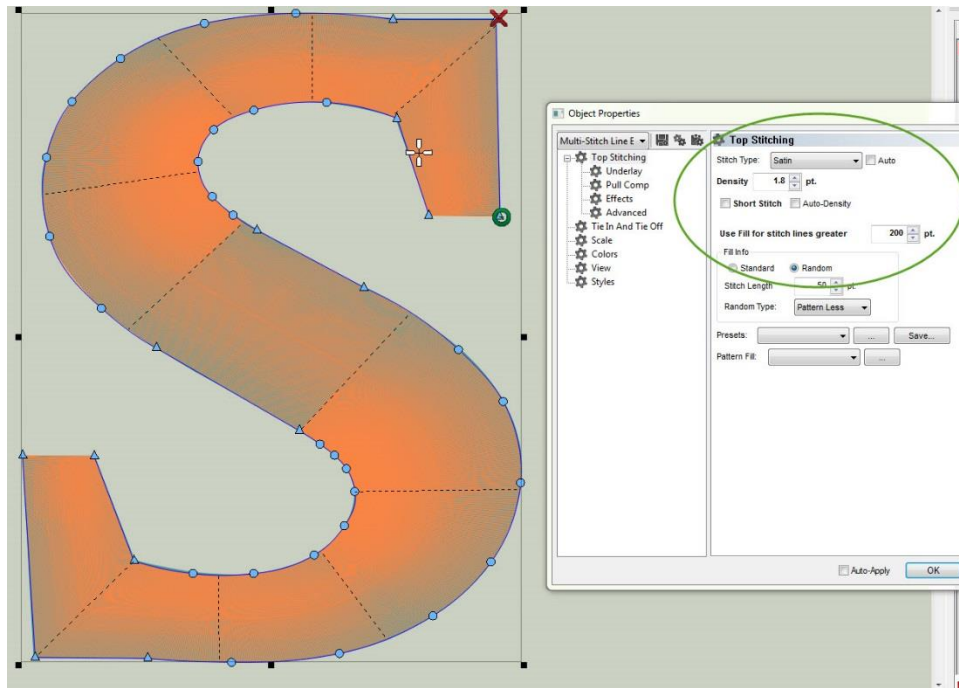


Now that the design has been digitized, here are some tips and the proper OS settings for embroidering the design.

General Tips for all Machines:

1. Leave the presser foot at the usual setting for the non-puff colors in the design, but raise it **all of the way** to its highest setting for the puff color.

2. Insert the Hold command in the color sequence just before the puff color. This will stop the machine so you can set the foam piece on top of the garment. Applique pause also works, but there is really no need to have the hoop feed out since the foam is cut oversized and doesn't have to be placed accurately.

3. Don't tear off the foam until after the puff color is finished. If you get foam "crumbs" peeking through the embroidery you can make them shrink away by using a heat gun.

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# OS Settings:

MOS Simplified View

Drag the puff icon on top of the puff color in the color sequence. This will give you the sewing properties required.
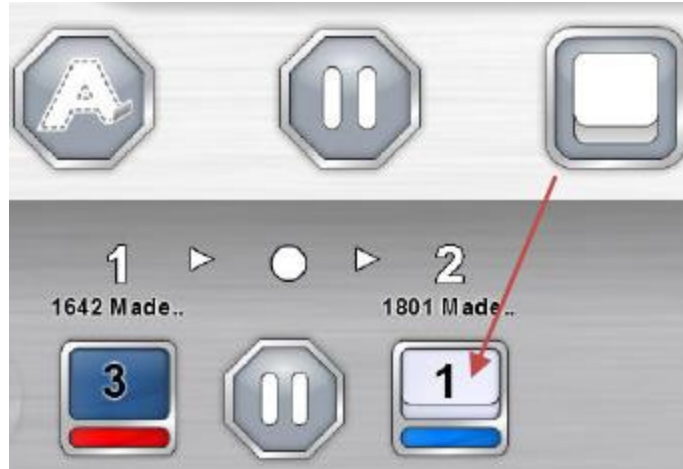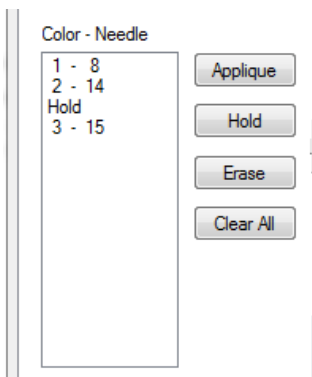


MOS Advanced View

After entering the color sequence, highlight the needle that will be used to embroider the puff foam and check the box in the center of the window for either puff (2mm) or Puff (3mm). This will give you the sewing properties required.
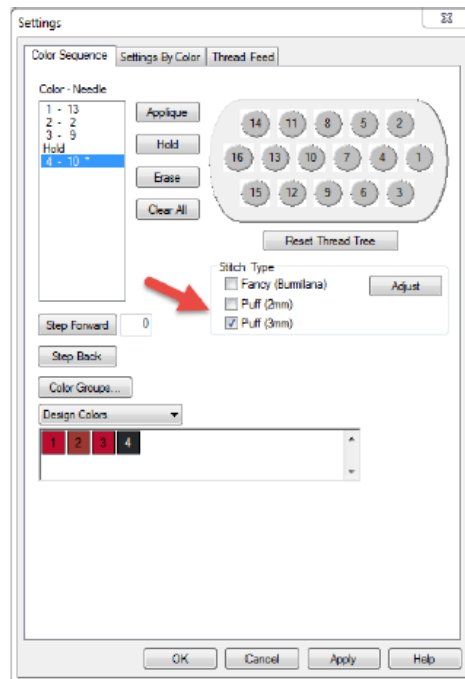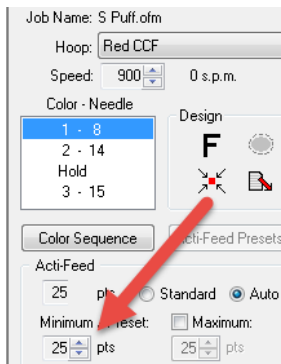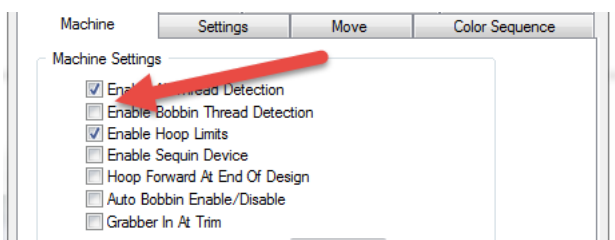
Bravo OS

1.  Put the Hold command in the color sequence as previously stated.



2.  When the machine stops for the Hold command place the foam on the garment and raise the Minimum / Preset value to 25 pts in Bravo OS.



3.  Finally, click on Tools>Settings and uncheck "Enable Bobbin Thread Detection".



Remember to lower the presser foot, lower the Minimum / Preset value to the normal setting, and enable Bobbin Thread Detection before you start the next garment.

With your new-found puff knowledge, you'll be creating stellar designs with extra dimensions in no time!

Happy sewing,

The Melco Applications Team