

Resizing Fonts for Small Lettering

Guidelines with Instructional Exercises

The purpose of this booklet is to offer some basic small lettering guidelines, to teach how-to reduce fonts created at a larger size and provide instructional exercises to reinforce the basic concepts.

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Lettering that is between 1/8" / 1.375mm and 1/4" / 6.3mm in height is considered small. Several factors such as the choice of fabric, the font, backing, topping and underlay all play a part in the appearance of the finished product.

Small lettering can be created by resizing letters that were created/digitized in a larger size or they can be created as a new font in the Designer Level 4 software. The focus of this booklet is resizing text that was created in a larger size.

Key Elements in Small Lettering

Fonts

Choosing the right font to resize is of utmost importance. Avoid fonts with narrow columns or serifs. Use a block font or a font that was created for small lettering. The narrow columns in small lettering tend to "pull in" when stitched out unless the fabric is very stable. Some script fonts can be successfully sewn at 1/8" / 1.375mm to 1/4" / 6.3mm if proper adjustments are made.

Some fonts that are conducive to size reduction to 1/8" to 1/4" are:

ALBERTUS EXTRA	Revue
Helvetica Condensed	Block
Helvetica Bold	Mini Monoscript
Magic Block	Helvetica Medium

The size the original font was digitized at makes a significant difference. When resizing an existing font, a rule of thumb to follow for adjusting lettering height is 20% up or down from the original digitized size. For example, Helvetica Medium Large was digitized at 0.984" / 25mm (see Digitized Size on the Text Properties Screen). This means the font can be adjusted up or down approximately 0.197" / 5mm. This indicates that the Helvetica Medium Large font is not a good candidate for small lettering unless the Text Properties and other factors are adjusted to compensate for the size reduction.

Letters stitched-out at more than about 20% larger or smaller than the original digitized size need one or more text properties modi-

Small Lettering Exercise 2

Design: C0101.10o
Font: Helvetica Condensed
Text: "TINY TIM'S"
Baseline: Arced
Arc Radius: 1.0" / 25.4mm
"Small World"
Baseline: Straight



Short Stitches On
Word Spacing: 109%
Follow Baseline: On
City: 57" / 2.247mm
Bottom Arc: Off
Character Size: 0.20" / 5.0mm
Character Spacing: 0.039" / 1.0mm
Character Width: 120%
Column Width: 100%

Den-

Stitch Length: 0.039" / 1.0mm
Underlay: Center Walk
Trim: Word
Lock Stitch: Letter
Pull Compensation:

This design was tested on 5 ounce pique with SuperSoft 375 backing and top film.

8. Next bring your cursor into the box and hold down the left mouse button and move the text until it is centered around the design.
9. Next click on the Center Design icon. Now click on the Prepare For Embroidery icon. Write down the Job # and sew out your embroidered design.

This design was tested on 5 ounce pique with SuperSoft 375 backing and top film.

Lettering Exercise 1 Modified for Small Lettering

Design: V0029.10o
 Font: Block¹
 Text: YELLOWSTONE
 NATIONAL PARK

Note: The bus will need to be resized to fit within the lettering.

Baseline: Arced	Word Spacing: 97%
Arc Radius: 1.114" / 28.3mm	Line Spacing: 1.102" / 28mm
Follow Baseline: On	Density: 57" 2.247mm
Bottom Arc: Off	Stitch Length: 0.039" / 1.0mm
Character Size: 0.20" / 5.0mm	Underlay: Center Walk
Character Spacing: 0.016" / 4mm	Trim: Word
Character Width: 104%	Lock Stitch: Letter
Column Width: 100%	

This design was tested on 5 ounce pique with Super Soft 375 backing and top film.

fied to sew well.

Other text properties of the lettering do not change automatically when Character Size is changed. Therefore, stitch density, underlay, pull compensation and other factors may need adjustment as well.

Stitch Density

The stitch density default setting for 1" / 25.4mm letters is 66.667" / 2.632mm. When resizing letters down, the density will generally need to be decreased slightly (see Table 1). Script lettering requires even less density than block letters especially in the smaller sizes. Although scripts are not generally recommended for small lettering, some basic density guidelines were presented in Table 2.

Table 1: STANDARD LETTERING – A general guide for density

Size	Density	Stitch Length	Underlay
1" / 25.4mm	62-67" / 2.44-2.63mm	.1575" / 4.0mm	Edge Walk
¾" / 19.1mm	60" / 2.36mm	.1378" / 3.5mm	Edge Walk
½" / 12.7mm	60" / 2.36mm	.0984-.118" / 2.5-3.0mm	Edge Walk
¼" / 6.3mm	55-60" / 2.17-2.36mm	.039-.0787" / 1.0-2.0mm	Center Walk
<¼" / 6.3mm	55-57" / 2.17-2.25mm	.039" / 1.0mm	Center Walk

Table 2: SCRIPT LETTERING – A general guide for density

Size	Density	Stitch Length	Underlay
1" / 25.4mm	60" / 2.36mm	.1575" / 4.0mm	Edge Walk
¾" / 19.1mm	50" / 1.96mm	.1181-.1378" / 3.0-3.5mm	Edge Walk
½" / 12.7mm	45-49" / 1.786-1.93mm	.0787" / 2.0mm	Center Walk
¼" / 6.3mm	40" / 1.575mm	.039" / 1.0mm	Center Walk

Underlay

Underlay should be used carefully in small lettering. Excessive underlay places too many stitches in a small area blurring the appearance of the letters. Thread breaks can also be caused by too many stitches piling up. When underlay stitch length is too long, it tends to spill out on rounded areas of the letters. The default setting is 0.039" / 1.0mm. When embroidering small lettering you may need to reduce underlay and adjust stitch length smaller. Center Walk is generally the underlay of choice in small lettering.

If you have digitizing software, you may create a Complex Fill stitch to sew behind the small lettering to give it lift. Use caution, however, when working with a customer logo. It may not be possible to add Complex Fill without changing the appearance of the customer's approved logo.

Fabric

The more plush the fabric, the greater stitch density is needed. Textured garments like pique, knits, herringbone, or terry are a challenge because stitches sink in to the texture of the fabric. Denim and canvas are very forgiving for small lettering because they are not textured. Pull Compensation may need to be on, especially when using fabric that slips. Level 2 software users and above, turn on Pull Compensation to 0.002" – 0.004" / 0.1mm. Level 1 users do not have the Pull Compensation feature, however, a like effect can be created by increasing Character Width or Column Width 5-20%.

Backing and Topping

The right backing is crucial to small lettering. The smaller the stitch, the sturdier the backing should be. Super soft 375 is generally excellent. Polymesh is also good especially on light colored fabrics where heavy backing may show through.

Use Topping/Solvie when hooping to help keep the stitching from sinking in on textured garments.

Other

Some embroiderers use a lighter or heavier weight thread depending upon the size of the lettering, stitch length requirements, and so on. When using lighter or heavier weight thread, density and underlay requirements will be effected.

Always do a test sew to make sure you have the right combination of elements involved in producing small lettering. Proper hooping is also important; fabric that slips stitches irregularly. Many embroiderers recommend using the machine table when stitching small lettering to reduce vibration and thereby stabilize the fabric.

Take special care also to both upper and lower (bobbin) tension on the embroidery machine. Too tight upper tension will tend to pucker the fabric while too low tension will cause looping and bird nests on the reverse side. When the bobbin tension is too tight, little or no bobbin thread will show. Approximately 1/3 of the width of the column underneath should expose the bobbin thread. When the bobbin thread is too loose, bobbin thread will be exposed on the front side of the fabric.

The guidelines presented herein are not absolutes that will be exact for every font in existence. Small lettering presents a variety of challenges since there are so many elements involved. Careful attention to the details will however produce beautiful results.

The exercises that follow were intended to teach some of the basic concepts and serve as a review. All test sews were done on 5 ounce pique since the majority of lettering is on left chest pique shirts.

Large Lettering Exercise 1

1. First left click on the Design Database icon. Under Category choose MIX 2 and then click on file V0029.10o. Now click on Open This Design.
2. Once the design is on the Work Area Click on the lettering icon, now bring your cursor onto the work area and left click. This will take you into the text properties screen.
3. Choose Albert's Extra for the font. Next click in the Text box and type in YELLOWSTONE and hit enter. This will drop you down so that a second line of text can be typed in. Type NATIONAL PARK.
4. Now choose the Arced line type and set arc radius to 2.0" / 50.8mm and make sure there is no checkmark in Bottom Arc. Set the Character Size to .48" / 12.2mm, Character Spacing to 0.059" / 1.5mm, Word Spacing to 97%, Line Spacing to 0.945.
5. Next click on the Stitch Generation tab. Here you need to set the Density to 57.727" / 2.273mm, and the Stitch Length to 0.114" / 2.9mm. Choose Center Walk for underlay, make sure the Lock Stitch to Letter and the Trim to Word.
6. Click OK.
7. Once you are back on the Work Area left click on the Y in Yellowstone. A pop up menu will appear. Click on No to put a box around the entire text on screen.

