

How and Why to Set Your Sewing Machine's Stitch Length

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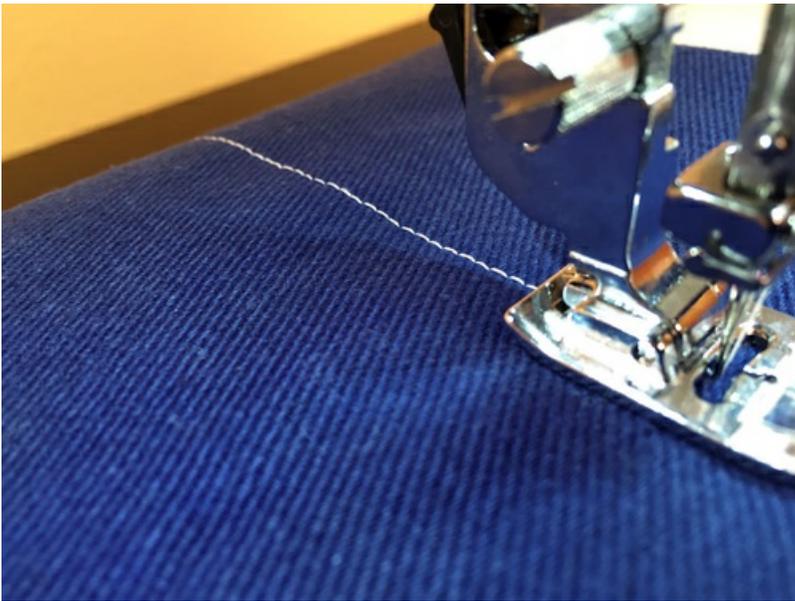
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Adjusting stitch length isn't necessary for every project, but as you experiment with different types of fabrics and start using stitches for embellishment as well as construction, a few quick tips will come in handy. When working with today's machines, which can zip along at up to 1000 stitches per minute, you can see how a little length goes a long way.

A bit of math

The majority of sewing machines indicate stitch length in millimeters. A 2.4 stitch length means each stitch will be 2.4 mm long.



Sometimes, you may run into a pattern or tutorial that is very specific about stitch length, indicating a critical setting in either millimeters or stitches per inch. You have to do a little bit of math, but going back and forth between millimeters and stitches per inch is quite easy.

Start with the knowledge that there are 25.4 millimeters in one inch. To go from metric to inches, the formula is: 25.4 divided by the metric length of the stitch equals the number of stitches per inch.

In our 2.4 example, that would equate to: 25.4 divided by 2.4 equals 10.58 stitches per inch. You'd likely round up to 11 stitches per inch.

To go the opposite direction, if a pattern requests 10 stitches per inch, divide 25.4 by 10 to get the millimeter setting of 2.5.

The long and the short of it

The theory behind stitch length is pretty straight forward. The shorter the stitches, the more will be packed into each inch of stitching, creating a tighter seam. The longer the stitches, the fewer within each inch, therefore, the looser the seam. Short equals tight; long equals loose. Another way to think about it is: short equals stronger and permanent, long equals weaker and temporary. This is simply a rule of thumb. Sometimes a longer stitch length can be just as permanent as its shorter counterpart. In the photo below, the bottom stitch line is 2.4 and the upper stitch line is 1.0.



When you adjust the stitch length, it's not the needle that is changing, it's the feed dogs (those little grippers in the center of the needle plate below the presser foot). The machine alters how much fabric the feed dogs will move before making the next stitch.



Shorten the stitch and that reduces the amount of fabric fed under the presser foot before the needle comes down. Lengthen the stitch and the feed dogs increase the amount of fabric moved under the presser foot before the needle plunges in again.

A tighter stitch works well on fine or delicate fabrics. It also helps keep curves smooth and corners sharp. Check out our tutorials on [Sewing Curves](#) and [Creating Corners](#) for more details.

Since long stitches are holding the fabric together with less tension, they are used for machine basting and gathering. Most knit sewing benefits from a longer stitch length due to the need for more stretch. Check out our tutorials on [Machine Basting](#), [Gathering by Machine](#), and [Sewing with Knits](#) for more details. A longer stitch is also better on thicker fabrics or when sewing through multiple layers.

We are also big fans of lengthening stitches when doing topstitching for a more visible decorative effect, such as we did on our [Split Skirt Gardening Apron](#) below.



Your sewing machine's manual is likely to have a handy stitch chart of suggested settings and uses for the available stitches on your model.

Most machines have what are called "default stitch settings." These are length and width settings the manufacturer feels are optimum for most situations. For example, on the [Janome Skyline S5](#), the stitch length defaults to 2.4. In *most* situations, on *most* fabrics, this is the recommended setting.



That said, you can adjust the length to best fit your situation, fabric or technique. The most common stitch length range is from 0.0 to 5.0, with 5.0 being the setting for machine basting or gathering and 0.0 the option for free-motion quilting with the feed dogs lowered. In the photo below, you can see our three lines of test stitching, from bottom to top: 5.0, 2.4, 1.0,



Setting stitch length on a computerized model

First, you'll need to figure out where the stitch length adjustment indicator is on your machine. On the [Janome Skyline S5](#) there is a generous touchscreen, so it's easy to see the digital stitch length. The plus and minus arrows quickly adjust the length. The amount of fine-tuning between settings will depend on your machine. The most common increment is .5 mm.



If your machine has a smaller LED screen, there may simply be an indicator light to one side of the screen, such as on the Janome Magnolia shown below. When this light is next to the stitch length symbol (often a dashed line) you can use the plus and minus buttons to increase or decrease the stitch length.

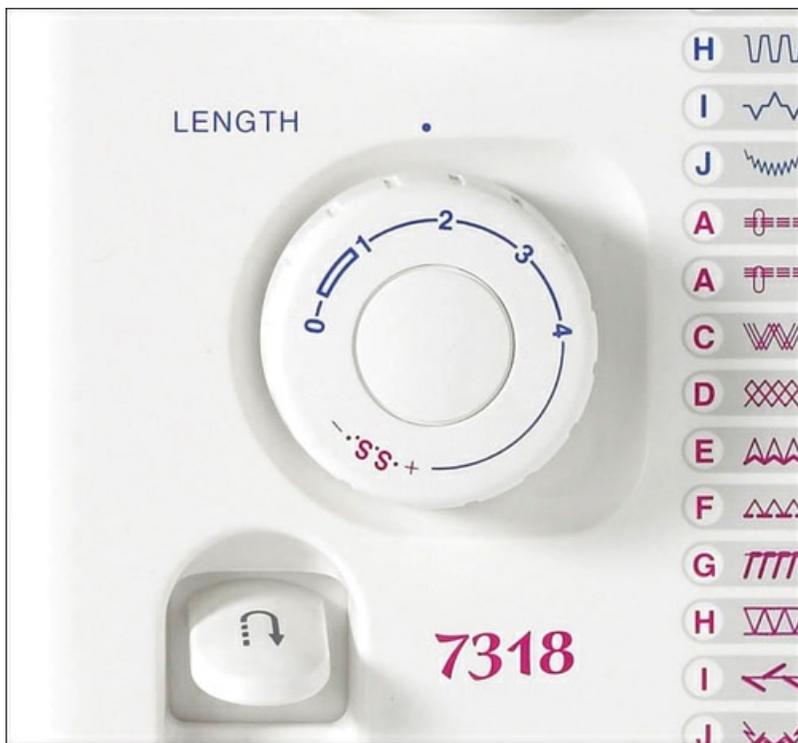


Setting stitch length on a mechanical model

If you have a mechanical model, your stitch length will most likely be controlled by turning a knob, as seen on the Janome Magnolia 7318 below.

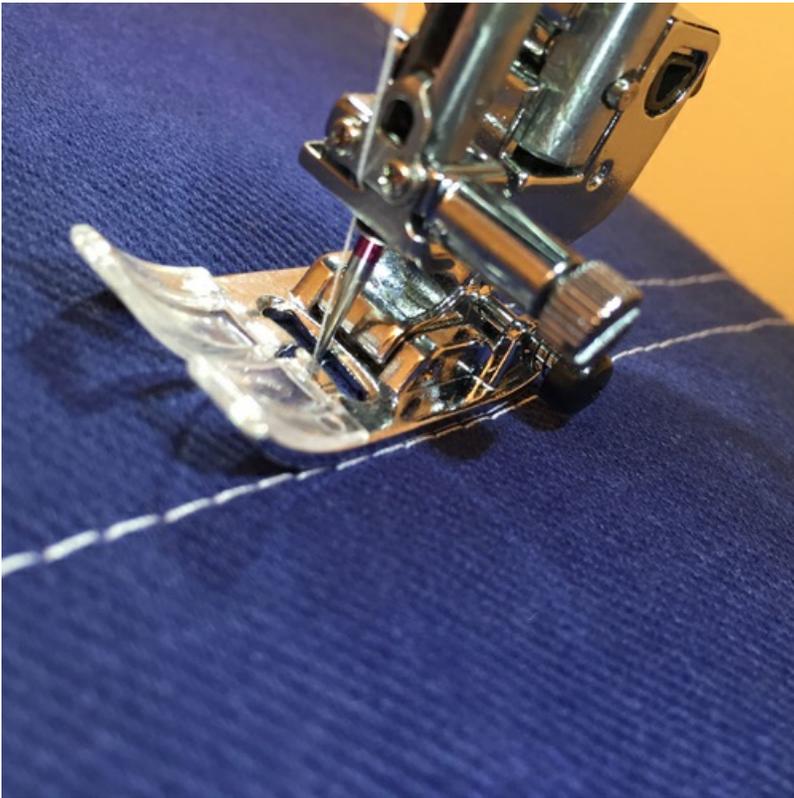


The smaller number (Number 1 below) is the shortest stitch length, and larger number (Number 4 below) is the longest. Turn the knob to set the stitch. As always, test the setting by stitching on a fabric scrap.



Additional adjustments

Though the features described above will vary slightly by sewing machine brand and model, these basic rules apply to selecting and setting your stitch length. Some very high-end machines, like those offering embroidery or featuring more advanced computer and memory options, will have more in-depth methods for adjusting stitch length. For these, your best bet is to hunker down with the manual.



It's *always* a good idea to test your stitch settings on scraps of the actual fabric you will be using for your project to determine the settings. Remember, the seam ripper takes no prisoners! The more stitches per inch, the more stitches to remove. Not that *you* would ever need to rip out a seam, but say you had a friend who made a mistake...

Sewing Tips & Tricks

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