

Ensuring your machine has perfect tension is a skill that takes practice to gain. Use this checklist to remember the steps needed to make sure your tension is great.

## ■ Select Your Materials Carefully

Different materials can affect your machine's tension differently.

- Make sure you use a full quilt sandwich—quilt-backing, batting, and quilt-top. Also, thicker batting makes tension more even. Consider using a double layer of batting to get it thick enough.
- Use good quality thread. Older thread is more likely to break, which can affect the consistency of your stitches. See your machine manual for more information about thread, including how to test your thread before you use it.
- Fill your bobbins with thread that has a similar weight and fiber content to your top thread.
- Remember to prepare your pre-wound bobbins by removing 3–5 yards from them before use. Pre-wound bobbins are often coated in glue and overfilled to help with shipping.

## ■ Clean Your Machine & Frame

Debris on your machine or frame can affect the tension by disrupting your machine's movement.

- Make sure you regularly clean the following parts of your machine and frame:
  - Frame tracks
  - Bobbin case & hook assembly
  - Bottom carriage tracks
  - Large & small tensioner discs
- Don't use any soap or chemicals. You can use slightly damp cloth if you want.

## ■ Adjust Your Rail Height

Properly adjusted frame rails are key to good fabric and stitch tension.

- Make sure the take-up rail is set as close as possible without touching ( $\sim\frac{1}{4}$ " ) above your machine's bed. See your frame manual for details on how to adjust your rails.
- For a rolling frame, you might have to adjust the rail height in the middle of your project. See your frame manual for information about rolling your quilt.
- For a hoop frame, your rail height remains constant throughout your project.

## ■ Oil Your Machine

Like a car, your machine needs regular oil maintenance. See your machine manual for details on oiling your machine.

- Make sure you oil your machine at the start of each project.
- Oil your hook assembly at the start of each project and after every other bobbin change.

## ■ Check The Encoders & Cables

Your encoders directly affect stitch regulation. The cables make sure your machine has power and all parts of your machine are connected.

- Double-check that your encoders are in working order—the lock collars are facing up and the wheels are on the tracks.
- Confirm that all cables on your machine are plugged in to the correct ports and attached in a way that won't affect your machine's movement on the frame.

## Move Your Machine

Sudden restrictions of your machine's movements can throw off your tension.

- Before you start quilting, move the bottom carriage and the machine all around the frame, checking that they move smoothly on the tracks and that nothing can be caught in the wheels.

## Replace Your Needle

The type and wear of your needle affects your machine's tension.

- Use a new needle for each project to ensure it's straight and sharp. See your machine manual for instructions on replacing your needle.
- Select a needle that matches your thread type. See your machine manual for a chart that details which needle to use with which thread.

## Check Your Machine's Foot Height

When you quilt with thick fabric or batting layers, the hopping foot might press down on the quilt too tightly and cause drag. Alternatively, if the hopping foot is too high, your machine can skip stitches.

- Check the hopping foot height when you start a project. See your machine manual for instructions.

## Check Your Bobbin Tension

Correct bobbin tension leads to correct overall tension.

- Wind your bobbin correctly. See your machine manual for details.
- Load the bobbin case so the bobbin turns clockwise when you pull the thread. See your machine manual for details.
- Check your bobbin case tension when you start and when you change your bobbin. See your machine manual for more details and for steps to correct the bobbin tension if needed.

## Thread Your Machine Carefully

The tension on the top thread is heavily influenced by how you thread your machine.

- Make sure the top thread is threaded properly through the tensioners and thread guides before it gets to the needle. See your machine manual for details on threading your machine.

## Test Your Tension!

You can't have perfect tension if you don't measure it and adjust it as needed.

- Use the edge of your quilt or a scrap quilt sandwich similar to your quilt to test your tension.
- Try stitching with straight lines in various directions and some curved lines and loops.
- If your tension seems off, use your machine manual to adjust the top tension. If you're still having tension issues, check out the tension troubleshooting guide.