



## Thread Tension

Proper thread tension on the embroidery machine is critical for beautiful, smooth and even embroidery.

The stitch is created by interlacing the top thread and the bobbin thread. This so-called two-thread system is responsible for an even embroidery pattern, comparable to the seam pattern in sewing.

It is therefore important to check and adjust not only the top thread tension, but also the bobbin thread tension.

The **top thread** tension is directly influenced by the selected thread and its weight, e.g. 40 count, 60 count, 30 count, 12 count, etc.

Other influences on the top thread tension are the motif (embroidery program), the base fabric and the embroidery machine used.

The **bobbin thread** can be chosen as thin as possible: the thinner the bobbin thread, the easier the stitches will lay, because this gives more space for the top thread.

In addition, more bobbin thread fits on the bobbin and thus ensures a longer running time of the machine.

**Rule No.1: Check the top and bobbin thread tension before you start embroidering!**

**The top thread tension is the actual thread**, which we adjust according to the top thread thickness. If we tighten the top thread tension, we see less bobbin thread, if we loosen the top thread tension, we see more bobbin thread on the reverse side.

The top thread tension is correct when the embroidery pattern is even, no loops are visible on the top, the fabric around the embroidery does not pucker and lines are exact and straight. If this is not the case, look at the reverse side and adjust the top thread tension until approximately the ratio 1/3 to 2/3 is achieved.

However, this rule of thumb should only be used as a guide for 40 or 60 weight threads. Thicker threads, such as 30 or 12 weight threads, are considerably more bulky and do not allow the bobbin thread to be seen to any great extent.

**Rule No.2: The ratio of top thread to bobbin thread, should be 1/3 to 2/3 on the wrong side of the fabric (back side), i.e. 1/3 bobbin thread, 2/3 top thread.**

The **bobbin thread tension** is only set once, and can be checked from time to time during the course of the day, but otherwise does not need to be adjusted.

Wear due to use in the machine and dropping of the capsule and/or bobbin can negatively affect the even unwinding of the bobbin thread.

**Rule No.3: Check the bobbin case and the bobbin for sharp edges or unevenness at regular intervals.**

**Tip:**

The **bobbin thread tension** is correct when the bobbin case with the bobbin inserted just holds the weight of the bobbin case when the thread is held between the fingers (as illustrated below).



Gently jerk the thread, the bobbin case should slightly move downwards.

If it doesn't move at all then most likely the tension is too tight.

If the bobbin case moves downward by just holding the thread, then the tension is too loose

We had a test pattern, in the shape of a square, digitized to help you set the correct **top thread and bobbin thread tension**. The motif contains two decisive criteria:

- Embroidery is done in longitudinal and transverse direction (x- and y-axis)
- Embroidery of the two most important basic stitches: backstitch and satin stitch

The square is saved at [www.gunold.de](http://www.gunold.de) for the most important thread counts (40, 60, 30, 12) in different densities.

You will find it under the respective "Top Thread" in the download section under "Test Pattern".

It is best to work with contrasting colors when testing.

Now you can check that all the directions the machine embroiders are set at the correct thread tension: pay attention to the 1/3 to 2/3 rule for satin stitch, and a flat embroidery pattern for backstitch to avoid any loops.

We wish you lots of fun and success!