

Clothing and TEXTILES

UTAH STATE UNIVERSITY COOPERATIVE EXTENSION PROGRAMMING

Creating a Well-Constructed Machine Stitch

The quality of a finished clothing or other sewing constructed project depends on the use of a well-constructed stitch—either machine or hand. The ideal stitch has balanced tension. This occurs when there is an equal amount of top thread and bobbin thread linked together with a layer of fabric between. Achieving a well-constructed machine stitch can be difficult, but knowing how a stitch is formed and how tension is created in the machine will help to know what adjustments should be made to achieve appropriate balance.

How A Stitch Is Formed

The threaded needle penetrates the fabric and reaches its lowest point, which is in the bobbin area. As the needle rises the top thread forms a loop for the shuttle hook to catch. The shuttle hook is the circular piece in which your bobbin rests. This circle is not complete, one end is rounded and the other is a jagged hook that catches the loop formed by the upper thread. The shuttle hook carries the upper thread around and under the bobbin case as it rotates. The loop slides off the hook and up from the bobbin case, however, it is still looped around the bobbin thread which gets pulled up with the top thread. The two threads looped together in this way are set into the fabric as a lockstitch.

Tension

Tension is the tightness with which thread passes through the machine. Correct tension happens when an equal amount of both top and bobbin threads form a link that will rest in the middle of your fabric layers. The stitches formed will be even and fabric will lie flat. When your stitch is anything but correct most likely tension needs adjusting. Tension for the top thread is controlled with the tension dial. In some machines the bobbin thread can also be adjusted, but this varies so consult your owners manual for further information. Do a tension test. Before you start sewing with cut out pattern pieces, thread the machine and use a scrap of the same fabric to test that the tension is correct. If the top thread is too tight the links will show on the top of your fabric.



Figure 1. Sewing machine.

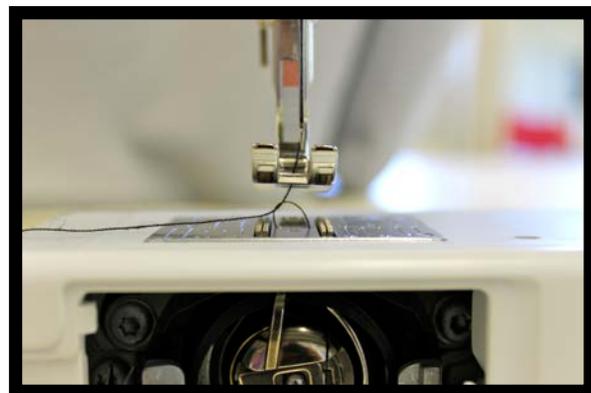


Figure 2. Upper thread and bobbin case thread meet.



Tension Dial

Top thread tension is controlled with the tension dial on the outside of the machine. The tension dial controls tension discs, which open and close to have a spectrum of a tight to loose grip on the top thread creating more or less tension. There are a variety of labeling systems for different machines, but fundamentally the higher the tension dial is set the greater the tension while the lower settings create less tension.

If top thread tension is too tight the link formed by the two threads will lie on the top layers of the fabric. The goal here is to decrease top thread tension to bring the link down toward the center of your fabric. Turning dial to a lower number will lessen the pressure on the thread from the tension discs.

If top thread tension is too loose the link formed by the two threads will lie on the bottom layers of the fabric. Now the goal is to increase top thread tension to bring the link up to the center of your fabric. Turning the dial to a higher number will increase the amount of pressure on the thread from the tension discs.

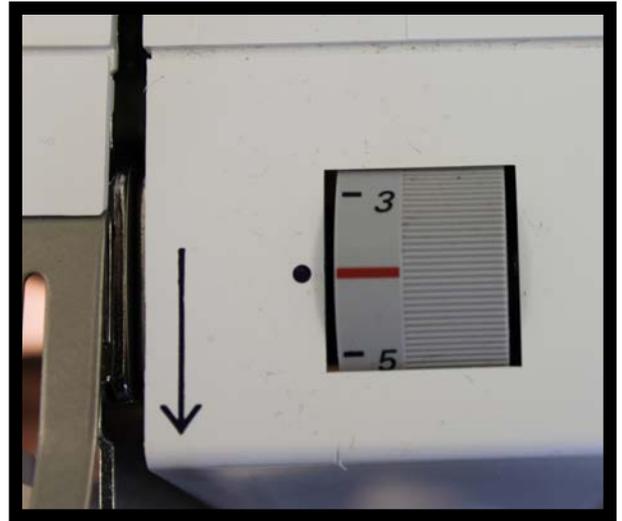


Figure 3. Tension dial.

Well-Constructed Machine Stitch Standards

A well-constructed machine stitch should:

- Utilize appropriate needle and thread for fabric being used. Needle holes should only be visible where the thread for the stitch is. Excessive holes should not be visible.
- Be consistent with the fabric used for the project. Specifically, if using a heavy fabric the stitch should be longer in length.
- Have balanced top and bottom threads applying the thread tension information above. The stitch should look the same on the front and back of fabric.
- Be secured at the beginning and end of the stitch applying the forward three stitches, back three stitches to start and finish a stitch.
- Be placed at an appropriate distance from the edge of the fabric depending on purpose of stitching.
- Be free of loose threads, straight, and functional or decorative (depending on purpose).

References:

Creative Publishing. (2009). *The complete photo guide To sewing*. Minneapolis, MN: Creative Publishing International.

Reader's Digest. (2010). *The new complete guide to sewing: Step-by-step techniques for making clothes and home accessories*. New York, NY: Reader's Digest Association.

Cole, J., & Czachor, S. (2009). *Professional sewing techniques for designers*. New York, NY: Fairchild Publications.

Written by:

Sarah Geer, USU Extension Intern

Lindsey Shirley, PhD, Clothing and Textiles Extension Specialist

Wcj "Ucv'Wpkgtuk\ 'ku'eqo o kvf "q'r tqxf lpi "cp'gpxkqpo gpv'htgg'htqo "j ctcuo gpv'cpf "qj gt'hqto u'qh'kngi cni'
f kuetko kpcvkqp'dcugf "qp'tceg."eqmt.'tgrki kqp.'ugz.'pvcvkpcn'qtki kp.'ci g'62"cpf "qif gt+.'f kucdkk\.'cpf 'xgvtcpau'ucwu0
WUWau'r qre{ "cnuq'r tqj ldku'f kuetko kpcvkqp'qp'vj g'dcuku'qh'ugz.wcn'qtkpvcvkqp'kp'go r nq{o gpv'cpf 'cecf go le'tgrv'gf "
r tcevegu"cpf 'f gekukqp0'
"

Wcj "Ucv'Wpkgtuk\ 'go r nq{ ggu'cpf "uwf gpw'ecppqv."dgecwug'qh'tceg."eqmt.'tgrki kqp.'ugz.'pvcvkpcn'qtki kp.'ci g."
f kucdkk\.'qt'xgvtcpau'ucwu.'tghwug'q'j k g=f kiej cti g=r tqo qv=f go qv=vgtto kpcv=f kuetko kpcv'kp'eqo r gpucvkqp=
qt'f kuetko kpcv'k'gi ctf lpi "vgo u.'r tkxkngi gu.'qt'eqpf kkpqu'qh'go r nq{o gpv.'ci ckpu'cp{ 'r gtuaq'qj gty kug's wcn'k'gf 0'
Go r nq{ ggu'cpf "uwf gpw'cnuq'ecppqv'f kuetko kpcv'kp'vj g'encuatqo . 't gulf gpeg'j cmu.'qt'kp'qp lqhi'eco r wu.'WUW
ur qpuqtgf "gxgpw'cpf "cevxkkgu0'
"

Vj ku'r wdrkcvkp'ku'kuwgf 'kp'hwvj gtcpeg'qh'Eqqr gtcv'xg'Gzvgpukqp'y qtm'cew'qh'O c{ ': "cpf 'Lxpg'52.'3; 36.'kp"
eqqr gtcvkqp'y kj 'vj g'WUOF gr ctwo gpv'qh'Ci tlewwtg.'P qng'GOEqengw.'Xleg'Rt gulf gpv'ht'Gzvgpukqp'cpf "
Ci tlewwtg.'Wcj "Ucv'Wpkgtuk\ 0HE IE nqj lpi (Vgzv'rgu4234/49r t+ "
"