



# Quilting 101

## An Introduction To Quilting Techniques

---

**Quilting is the stitching that keeps all the layers – backing, batting, and quilt top – together. The stitched design can be simple or fancy, subtle or eye-catching, enhancing the elements of the quilt top or ignoring them completely.**

---

### PREPARATION

*To prepare your project for quilting, first create a "quilt sandwich" – a layer of batting between the quilt top and backing.*

- Cut the backing fabric a few inches larger than the top, allowing for some shrinkage during the quilting process. Cut the batting the same size as the backing.
- Place the backing *right side down* on a flat surface; use masking tape to keep the backing flat and smooth. Layer the batting on top of the backing, smoothing it to remove any wrinkles.
- Center the quilt top right side up on the batting, making sure that the batting and backing extend beyond all sides of the top.
- Baste the layers of the quilt together using a machine basting stitch, quilters' safety pins, or temporary fabric adhesive spray (also called quilt basting spray).
- Create a large, flat area around the machine to support the weight and bulk of the quilt. This helps prevent distortion of stitches that can be caused by the quilt pulling away from the machine. For a small wall quilt, it may only be necessary to attach a slide-on tray or table or lower the machine into a cabinet. For a large quilt, consider setting a table behind and/or to the left of the machine.
- Large projects can be rolled along one side so that quilting can begin at the center of the project. Secure with quilt clamps or bicycle clips. *Note: An alternative technique is to loosely accordion-fold one side of the quilt to get it under the needle, stopping as you stitch to move and maneuver the bulk.*

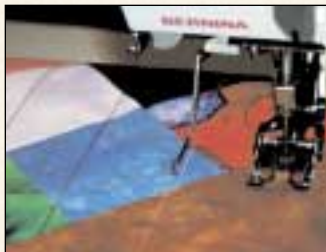
**STITCH-IN-THE-DITCH**

An easy, machine-fed technique utilizing straight lines of stitches to define the seamlines of the patchwork.

- Attach standard sole to Walking Foot #50. Thread machine with cotton thread in the bobbin and cotton or clear monofilament in the needle. Select a straight stitch with a length of about 3mm.
- Beginning at center of quilt, align a seam with the center needle position mark on the foot. Stitch, guiding fabric so that the needle sews in the “well” formed between blocks and/or patchwork pieces.
- Edgestitch Foot #10 can also be used, depending on the batting; Foot #10 foot also works well to secure a binding in place.

**CHANNEL QUILTING**

Cover the quilt surface with parallel lines of machine-fed stitching, filling defined areas and creating texture.



- Start the quilting stitch with tiny stitches which eliminates tie offs and then at end of row press Pattern Begin to get the tiny stitches back again.
  - Use a temporary or wash-away fabric marker and a long straight edge to mark a line from side to side across the area to be quilted, parallel to the edges or at an angle. Attach the standard sole to Walking Foot #50. Select a straight stitch or hand-look quilting stitch; thread machine as desired for selected stitch.
  - Starting in the middle of the quilt, stitch along the marked line from the center to one side. Repeat for the remaining half of line.
- Attach right side seam guide; set to desired distance between rows. Working from the center toward the sides, sew parallel rows of stitching, aligning the guide with the previously stitched lines.

**GRID QUILTING**

Similar to channel quilting, but a second set of perpendicular lines creates squares, rectangles, or diamonds.

- Sew the first set of lines as for channel quilting. Mark the centerline for the second set of lines; stitch as for channel quilting, positioning the Walking Foot guide as desired.

**ECHO QUILTING**

Similar to outline quilting, but with multiple lines creating an effect like that made by a stone thrown into a pond.

- Stitch first ring as for Outline Quilting. Repeat as desired.

**OUTLINE QUILTING**

Give definition to pieced, printed, or appliquéd motifs by adding a machine-fed or freemotion stitched outline.

- *Machine-Fed* – Use Walking Foot #50 and a straight or handlook quilting stitch. For a closely spaced outline, adjust needle position to one side and use edge of foot as a guide. For larger spacing, attach a seam guide. Stitch around shapes as desired.
- *Freemotion* – Use Freemotion Quilting Foot #29/29C, a straight stitch, and lowered feed dog. Stitch around or inside shapes as desired, using outer edge of foot as a guide.

**FREEMOTION STITCHING**

Freedom to create and place stitches where you want them!

- Drop feed dog and select a straight stitch. Insert a Quilting needle and thread needle and bobbin with 50-weight cotton thread. Attach Freemotion Quilting Foot #29/29C.
- Prepare a small practice piece, about 18" x 18", with top, batting, and backing. Once you've mastered the technique, you can move on to larger pieces.
- Place the practice piece under presser foot. Lower the foot; even though it doesn't touch the fabric, the foot must be lowered to engage the tension discs.
- Sew one stitch, stopping with needle up. Pull needle thread to bring up the bobbin thread. Take a few stitches in nearly – but not quite – the same place to secure stitching. Clip tails.
- Before continuing, set a timer for 15 minutes and make sure you won't be disturbed. This will help keep you from wondering how long you've been practicing.
- Place hands on either side of the needle area as a “hoop”. Begin stitching, running the machine at a moderate speed while moving your hands in a smooth, controlled manner to form even, consistent stitches.
- Practice making simple, repetitive shapes, and then try your hand at the freemotion quilting techniques described on the following page.



### CONTINUOUS LINE QUILTING

The long, unbroken lines of these intricate patterns are easily stitched by machine.

- Use straight stitch with lowered feed dog, and Freemotion Quilting Foot #29/29C or Freemotion Embroidery Foot #24. Mark stitching lines using a temporary method: chalk, wash-away marker, or other technique. Stitch on marked lines.

### STIPPLE QUILTING

While lines seem to be randomly placed, there are a few rules, which ensure the uniformity of the stitched shapes:

- Lines of stitching should be evenly spaced, about  $\frac{1}{4}$ " apart
- Curves and loops should be of the same scale the size of which depends on the area being stippled.
- Traditionally, stipple stitches resemble puzzle pieces - smooth even curves with lines that do not intersect.

This can be tricky! Keep a small pad and pencil in your pocket or purse for practicing "stipple-doodling" in odd moments. Another way to practice stippling is with a pencil and coloring books that have a motif in the center of the page only; sewing on coloring book pages with no thread is also great practice!



### "DOODLE" QUILTING

Think of this technique as controlled doodling! Squiggles, swirls, leaves, thunderbolts, hearts...any and all shapes and figures are acceptable.



### THE BERNINA® STITCH REGULATOR

Now freemotion stitching is easier than ever!

The new BERNINA® Stitch Regulator (BSR) with two stitching modes, is standard for the **aurora** 440QE. It offers regulated, even stitches, no matter the speed or direction in which the fabric is moved. A "beep" signals if the fabric is moved too quickly.

When using the new BERNINA® Stitch Regulator, the BSR adjusts the needle movement to coordinate with the movement of the fabric, aiding in the production of consistent, regular stitches. All you have to do is lower the feed dog and move the fabric!

The BSR operates with a camera-like sensor that reads the fabric through an optical lens in the foot. The sensors "looks" at the fabric, senses the movement, and calculates the distance – then directs the needle to stitch depending on the selected stitch length settings. For example, if the stitch length is set at 2.5mm, the sensor calculates the distance and stitch frequency, repeating stitches with regular precision regardless of the speed at which the fabric is moved.

The BSR works on fabrics with a variety of surface textures – including velvet, lamé, fleece, corduroy, and denim – making it perfect for a wide range of quilting applications.

The BERNINA® Stitch Regulator is constructed with the famous BERNINA® hopper mechanism – as are all BERNINA® freemotion feet – ensuring precision stitching. When the needle enters the fabric, the freemotion sole moves upward; as the needle leaves the fabric, the sole is lowered so that the fabric is not raised with the needle, thus preventing flagging and uneven stitches.

Three soles are included with the BSR to handle all your freemotion stitching needs:

- Closed Metal Sole – Similar to Darning Foot #9, with the needle centered and visible.
- Open Metal Sole – Like Freemotion Embroidery Foot #24, this sole gives an optimal view of the needle.
- Transparent Sole – Glides easily over all fabrics – including layers of batting – in every direction. Marked with cross-hairs for easy visualization of the needle position; great for outline and echo quilting!



### QUILTING WITH MACHINE EMBROIDERY

With the ever-growing popularity of the home embroidery machine, it was inevitable that machine embroidered techniques would be added to the list of stitching methods used to create quilts. Whether one selects from the nearly infinite number of embroidery designs available for purchase, or digitizes her own designs using a computer and embroidery software, there are many ways to incorporate embroidery into quilt designs. Embroidered motifs can create the focal point of each block and set the tone or theme for the quilt. They can embellish blocks, or be used as quilting to secure the layers together. The “in-the-hoop” quilting method described here is appropriate for all skill levels and eliminates many of the obstacles that may occur when blending quilting and embroidery techniques.

Quilting stitches secure the layers of the quilt together (top, batting, and backing); outline motifs are often used to accent open areas of the quilt. The machine embroidered decorative quilting is stitched through the top of the quilt and batting only. This eliminates any thread tension issues on the back and also takes care of any aesthetic issues with thread tie-offs, as they are hidden when the backing fabric is added to the quilt. Leaving the tension tight on the bottom causes the outline designs to “puff up” a bit more than if the tension were balanced.

Once the decorative quilting is completed, the backing is spray-basted in place. “Utility” quilting stitches (such as channel, ditch, and grid quilting) are sewn through all three layers as described on the previous pages. This visually balances the decorative quilting and adds texture to the back of the quilt.

#### *Hooping and Stabilizing*

For the best results when embroidering, the project must be hooped and stabilized appropriately. Outline quilt designs are very light, making water-soluble stabilizer the perfect choice. The water-soluble stabilizer rinses completely away, leaving the quilt soft and stabilizer free.

To hoop the quilt, the screw on the outer ring is loosened significantly, the quilt is placed over the outer ring, then the inner ring is gently pushed into the outer ring. Forcing the inner ring may distort the seam lines on the quilt. *Tip: Use a quilt basting spray to temporarily bond all layers of the quilt together. This eliminates any shifting of the layers during the embroidery process.*

As an alternative for small designs, a layer of water-soluble stabilizer is hooped, sprayed with temporary adhesive, then the quilt is affixed to the hoop. For large or intricate designs, hooping is the best option. When using the adhesive method, the quilt is basted to the hooped stabilizer for additional stability. The basting stitches are removed when the quilting is complete.

*Tip: Create a basting file using your embroidery software program. Simply digitize an outline around the inside perimeter of your hoop; use a long stitch length for ease in removal. (Hoop files for all BERNINA® embroidery machines may be downloaded from [www.berninausa.com](http://www.berninausa.com) > What's New > Free Downloads.)*

#### *Design Placement*

Accurate design placement is essential to the success of the finished project. Design templates may be copied or printed, then trimmed to fit the quilt block. Multiple designs may be combined for quilt blocks larger than the machine's maximum hoop size, then pinned or adhered to the quilt with double-sided tape. *Tip: Print templates on transparencies for maximum visibility.* The plastic hoop template is used to keep the project aligned correctly in the hoop. The Check function of the machine is used to adjust the design position if necessary. *Tip: Use quilt block seam lines to help position design templates and as reference lines for the hoop template.*



## CONTINUING EDUCATION

Take classes as often as possible and indulge in reference books for your quilting library. If you have an opportunity to attend a quilt show, study the quilts on display. Make note of the things that make the quilts successful. Ask questions of other quilters, quilt teachers, and staff at your local quilt shop. Remember, quilting is a leisure time activity. Experiment with techniques until you find the ones that give you the best results with the least amount of frustration and the most pleasure and satisfaction.

Take a tip from some nationally known quilting experts, award winners, authors and designers:

"My best tip for improving the overall appearance of the finished quilt is to hand-baste it with water-soluble thread. I further baste by machine to anchor the straight lines in the top by stitching-in-the-ditch with water-soluble thread." Ricky Tims

"If I only could tell you one thing about machine quilting it would be that you must be comfortably in control of all three layers of the quilt sandwich, and the best way to accomplish this is to use a Flynn Multi-Frame when you machine quilt." John Flynn

"Be sure you are sitting high enough to be comfortable while you are quilting. Think about elementary school penmanship, fluid motions, and control." Holice Turnbow

"I quilt using the "fluff and stuff" method rather than rolling the quilt into a tight roll. The quilt needs freedom to move under the needle." Paula Reid

"Never make a quilt to match an ugly carpet." and "A quilt won't ever be finished if you don't work on it." Marianne Fons

"Don't forget to breathe. Relax while quilting – remember this is supposed to be fun." Laura Cater-Woods

"Needles lose their points quickly and are not the place to pinch pennies. When it comes to needles, if in doubt, throw it away." Sharon Schamber.