DIGITIZER'S 101 CHEAT SHEET

1. What is Digitizing
2. The 3 Main Stitch Types
3. Density
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5. Understanding Distortion
6. Proper Registration
7. Pathing / Mapping
8. Color Changes and Trims
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The Building Blocks of Quality Embroidery

1. What is Embroidery Digitizing:

The process of using your software and your software tools to create an embroidery design that runs flawlessly on your machine. The key is to create a design without unnecessary trims or jumps ensuring the machine runs smoothly.

2. The Three Main Stitch Types: Running, Satin, Fill

Can be used for designs with fine detail or realistic features

Running Stitch:

Is the foundation stitch and can also give you the most creativity by controlling the stitch length

Minimum stitch length - 0.5 mm
- if you go below this the machine will think it is stitching in the same place creating stitch intensive designs and thread breaks

Safe zone - 1 mm - promotes smooth running designs

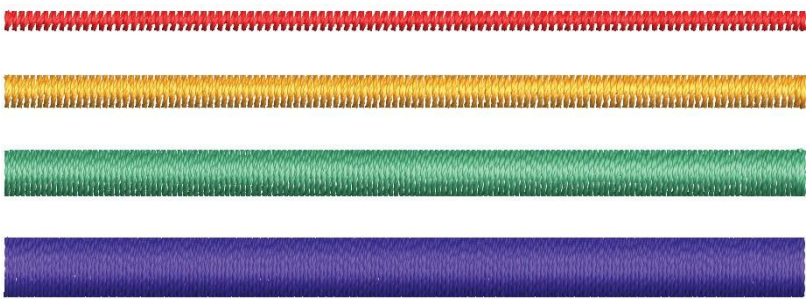
Maximum zone - 1.5 mm - there are two maximums depending on whether the item is to be wornor not
For wearable items - 5 mm to 7 mm. Any longer and the stitches will loop and snag
Non-wearable items - 7 mm to 12.1 mm If longer the machine will auto trim the stitches

Satin Stitch:

Follow the same rules as the running stitch, don't let your stitches become too far apart

Depending on the fabric and whether it's a wearable or non-wearable item.

1 mm space between stitches will be smooth and sit on top of the fabric but fabrics with a high pile like terry cloth or sherpa fleece will need more space.



1.5 mm is the safe zone

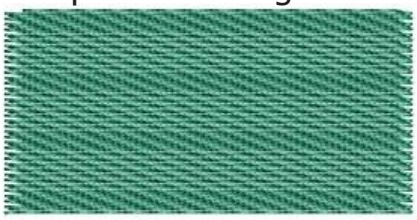
1.5 mm up to 5.7 mm for wearable
7 mm to 12.1 mm for non-wearable

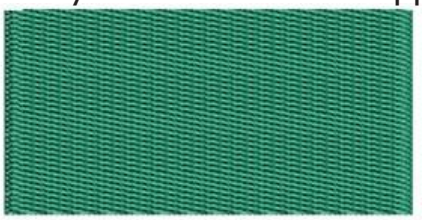
You can control the direction and spacing of the stitch, this is the density. Which is meant to be changed depending on the width of the stitch or the type of fabric you are putting it on.

Fill Stitch:

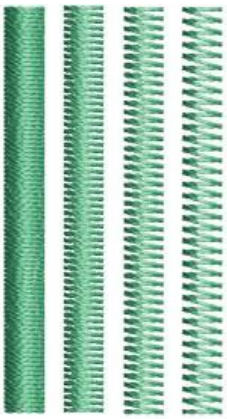
Meant to cover large areas. Minimum length - 4 mm

Keep stitches longer as too many short stitches will ripple or waffle after laundering





Control the random effect to create a smooth, texture or pattern fill



3. Density - Space Between Each Stitch

The default is 0.4 mm which is slightly larger than the width of a thread so it looks like you have full coverage on a garment.

You may need more or less density depending on the fabric type

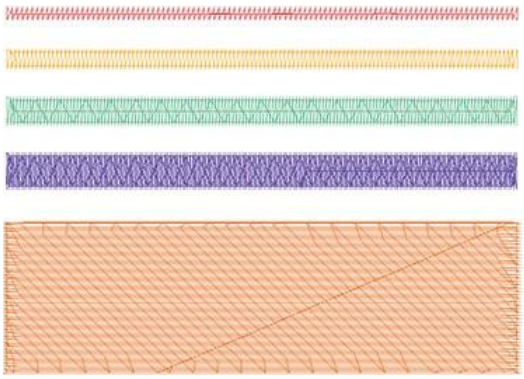
Vinyl or leather requires less density - too much will puncture holes in the fabric

Fabrics with high pile like, sherpa fleece and terry, require more density

Density is meant to be changed!

4. Understanding Underlay

You don't see it but it's the most important part of the design. It's the foundation to lay everything that is on top. There are many types of underlay including combinations of underlay depending on the stitches it's supporting. Underlay acts as a break wall keeping the stitches looking clean and helps with distortion.

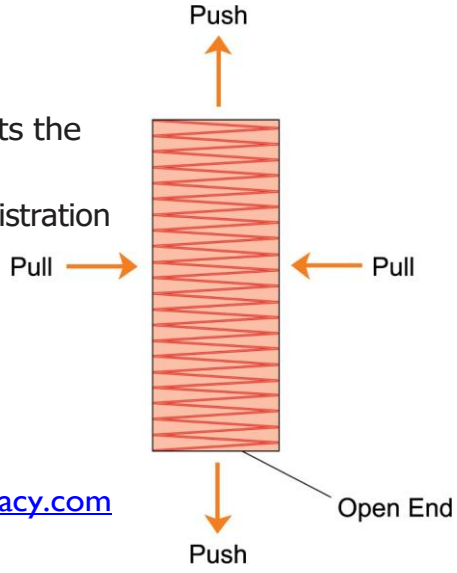


5. Understanding Distortion

Proper tension creates flat smooth stitches; too much tension and your design will look distorted. Two types - pull compensation and push compensation. Adjust pull compensation in your machine settings depending on the fabric type. The top thread and the bobbin both create tension.

Pull compensation

Push compensation effects the open ends of the design.
Distortion is improper registration



6. Proper Registration

Proper registration is achieved when the design is mapped / pathed out correctly from start to finish.

Notice the space or overlap of the black outline

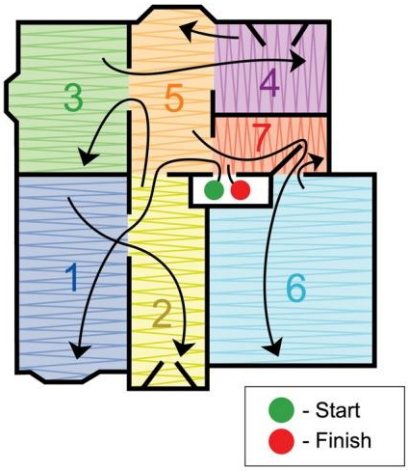
out of registration

The stitches all line up and are perfect registration.

perfect registration

7. Pathing / Mapping

A design needs to be logically thought out so the design is not jumping from place to place.
Look at the design and decide on the best place to start and stop to get to the next object.



8. Color Changes and Trims

Correctly used this promotes good registration.
Sometimes an extra color change is necessary to finish areas as you move forward (Proper Pathing).
Unnecessary trims result in lost production time.
Each time there is a trim the machine has to slow down, stop, trim, cuts, moves over, ties in, then speeds up, that's a big waste of time, when unnecessary trims can be avoided.

9. Fabric Recipes

An EL Digitizing built-in software tool for the .JDX format that changes all the properties to run better on certain fabrics with just one click.

10. Theory for Beginners

Learn the "why" behind every stitch with our beginner-friendly Theory for Beginners Course. You'll discover the essential rules every digitizer needs to create smooth-running, high-quality designs—so you can stop guessing and start digitizing with confidence.