

## Tips for Punching and Embroidering with FS 45

Some customers are confused with the "45" thread count, especially if they compare the dtex of FS 40, FS 35 and FS 45. The weight of FS 45 (and this is what the dtex tells) is the same as FS 40 but the volume of the thread can be compared with FS 35. This means the thickness/volume of the FS 45 thread is very similar to the FS 35 but the FS 45 has less metallic than its other family members FS 40 and FS 35.

The following pictures display in theory how the thread would look when cut lengthwise in half.

The micron thickness of the metallic wrapping on the FS 35 and FS 45 is the same, but the distance between the wraps on the FS 45 is larger. The FS 45 shows more of the core thread than all the other MADEIRA FS metallic.



## How to Punch for FS 45

You can use the same stitch distance as for FS 40 which is 4.0 - 0.4, based on one tenth of a millimeter. The problems begin when the stitch distance of the underlay stitches is too dense or too many layers of underlay are used. Short stitches are also a problem - stitches < 2 mm for FS 45 are a problem and this shows up when being sewn on larger machines with multiple heads. The stitch length for FS 45 is best when set at 3 mm in length for fillings or for running stitches. If you are having problems even when the stitch length is at 3 mm then you must check to see if in the underlay or on the border of the fillings, there are small stitches which are 1 mm or under. This happens with most automatic stitch programs - the underlay or the stitches on the border of fillings can become too short in some areas. If this is the case, you must edit them out but only in the places of the design where the thread on the machine is breaking.

FS 45 is not recommended for small lettering or designs with thin elements which are 1 mm wide because of the threads thickness.

## Embroidering with FS 45

The needle size used must be a number 90 because FS 45 is as thick/voluminous as the FS 35. Smaller needle sizes do not have a large enough eye needed for the thread to be pulled up and down through the different types of fabrics. Alternatively, you can use the MADEIRA special needle strength 80 with a size 90 eye. Thread Tension should be less than for standard thread types. Thick stiff backing can in some cases cause problems, because the metallic foil can be caught on the fibers of the backing and pull the foil away from the core thread. The machine speed should be slowed down to 700 - 850 per minute.



If you would like to try the FS 45 thread, please feel free to ask for thread samples and free test programmes (in .dst format) from MADEIRA!