

## S2: SEWING HINTS AND TIPS

### SEWING MACHINES:

For most projects, any sewing machine will do. Be sure it has been cleaned and oiled recently, and that the needle is new, sharp and properly positioned.

An industrial sewing machine is a heavy-duty machine generally very powerful, fast, and typically more single-task suited than a regular sewing machine. Industrials also have separate motors which are built into a large table that takes up quite a bit of space. If you are going to be sewing heavy materials, multiple thicknesses of heavy fabrics, or quantities of items, an industrial machine might be a good investment. A "walking-foot" (dual-feed) helps with heavy projects.

The problems with using a home machine for heavy work are generally not enough 'piercing power' for many heavy fabrics, an inability to feed difficult and thick fabrics properly, and an inability to use heavy thread that is recommended for strength.

### Sewing Machine Set Up

Set up the sewing machine so that the upper tension is correct and that the fabric is supported and does not pull on the needle or feeder. When sewing thick fabric it needs quite a lot of upper thread tension so that the loop of the stitch is pulled up tight against the bottom of the seam and into the cloth. A larger needle can help this as the needle creates a larger hole into which the knot can be pulled, but this obviously makes it harder to waterproof the cloth if necessary. The upper tension on a sewing machine is adjusted by simply turning the upper tension knob above the needle. If it is not possible to get enough tension place extra washers under the spring of the upper tension knob to compress it more so exerting greater friction on the tread running between the tension disks.

### Stitch Quality

It can be hard to keep the spacing of the needle and stitch lengths equal when sewing a large section of fabric. Keeping the fabric supported as mentioned above can help this. Putting your machine on the floor makes the effect of a big table and all the cloth is supported but this can be a tricky to accomplish! If this is not possible or too uncomfortable, add extra tables to the sewing table in front and behind the machine and even get another person to help support the fabric through, for very cumbersome parts when you need one hand for the machine and one to 'steer'. Also try putting the cloth over your shoulder to help support the cloth and move it with you as you lean into the machine.

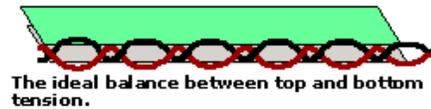
Consistent stitching can also be helped by increasing the pressure on the presser foot, which holds the cloth down. There is often an adjustment at the top of the machine to increase spring pressure downward on the presser foot. If this is at the maximum it can often be increased by taking the mechanism apart and either replacing the spring with a heavier one or inserting a sleeve of copper tubing to act as a spacer to compress the current spring harder.

### THREAD AND NEEDLES:

Use a top quality, 100% polyester thread. For sewing anything heavy, such as packs and webbing, we recommend our RP60 Polyester thread. If you have a heavier machine use the RT69 series of braided polyester threads. Use a big needle with these threads, at minimum a #90.

The problem that most people have with heavier thread is that the bobbin case machining does not allow for the extra thickness of the thread. Loosening your bobbin tension (only for the experienced), or purchasing a separate bobbin case just for heavy duty thread solves this.

Adjust the stitch balance with the top tension first. Only adjust the bobbin tension if you absolutely can't balance the stitch with the top tension knob.



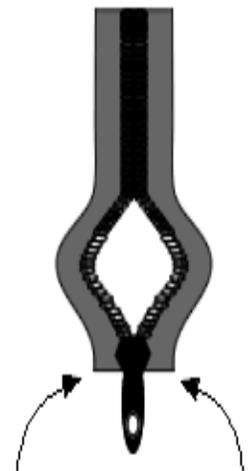
If you have to adjust the bobbin's tension screw, do so very gradually. It doesn't take much to damage the tension mechanism of the bobbin casing. Mark the setting of the bobbin's tension screw before making any adjustments so you can easily go back to its original setting.

When the tension is adjusted correctly, the 'lock' part of the stitch is right between the two layers of fabric as shown in the middle picture.

Do not use old or burred needles, incorrect sized needles is another source of problems and frustration. Synthetic fabrics dull needles very quickly.

## USING CONTINUOUS ZIPPER

1. Cut the zip to the length required plus 1".
2. Separate the zipper teeth about two inches. Slide the pull onto the tape and align the two ends of the tape. Keep adjusting until the two ends of the tape line up; it may take some fiddling to get the ends even. As you pull the zip closed make small up and down 's' motions to help get started.
3. Coil Zips have a top and bottom so make sure that the sliders are the correct way.
4. Once the slider is installed and the ends lined up, separate the rest of the zipper and then use the zipper pull to zip up the zipper to within a few inches of the end
5. To cut back on the zipper's bulk in the seam install a zipper wedge as follows: Cut a piece of fabric 1.5" by the width of the zipper. Pin the fabric to the zipper and then sew across the bottom as close to the stop as you can get without having it run under your zipper foot. Then fold back the wedge and sew again.
6. If you don't care about a little bulk, you can sew the zip into the seam without the bottom wedge.



Keep adjusting until the ends of the zipper tape line up

## SEAMS AND SEAM SEALING:

### SEALING SEAMS

The old stand-by method is to use a seam glue, Seamgrip being the best product available.

Iron-on tape - this works by ironing the tape directly onto the seam by heating the tape enough to bond itself to the coating of the cloth. It is important to undertake tests of the fabric and tape prior to application of the tapes to ensure their suitability. Trials on spare fabric are essential as temperature is important.

Protect fabric from heat with brown paper or teflon sheets, taking care not to overheat the fabric as this will affect the coating and breathability

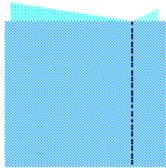
Do NOT use on heavy, waxed, PVC, uncoated fabrics or fabrics treated with silicon: e.g: Ref NR2 or D10.

You iron the tape directly onto your seam allowance, the goal being to heat the tape enough to bond the tape to the laminate without melting it. Every iron has its own temperature range, so experiment for the best results. Too hot will melt everything, and too cool won't activate the adhesives for a good bond.

## SEAMS TYPES

Panels should be sewn where possible by placing the panels with the right sides together and sewing the seam approx 1.5cm in. The panels should then be turned out and viewed as to be applied. The seam should be orientated where necessary so that any water will run off the seam and not into it so making it more waterproof. This is achieved by turning the seam so that the seam allowance is turned to the 'uphill' side of the panel. Sew this seam flat with a row of stitching. If this makes it bulky under the arm roll the cloth up and sew 15/20 cm at a time. Use double sided adhesive tape where possible to ensure that any panels etc are positioned correctly and do not move when sewn.

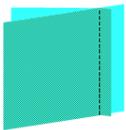
### Basic seams for making your own gear



**Simple seam:** The seam allowance is the distance between the stitching and the edge of the fabric.

This seam - doesn't protect the raw edges from fraying

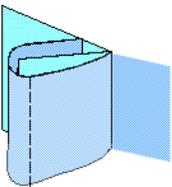
- is not as strong as the felled and french seams.
- It is easy to make and works well for many applications.



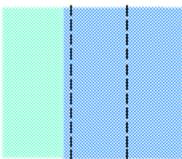
**Felled seam step 1:** The lower fabric's seam allowance is twice that of the top fabric. Lay down a line of stitching just like in the simple seam.



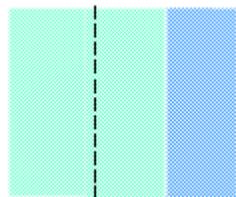
**Felled seam step 2:** Open up the fabric. The longer seam allowance edge is going to be folded around the shorter one in the next step.



**Felled seam step 3:** You can see how the longer seam allowance folds around the shorter one. Lay down the second line of stitching close to the edge as shown in the diagram. It should secure all three layers of the seam allowance to the bottom layer of fabric.



**Felled seam step 4:** This is what the felled seam looks like from the inside. You see two lines of stitching.



**Felled seam step 5:** This is what the felled seam looks like from the outside. You see one line of stitching.

## Sewing Waterproof Breathable Fabrics

The face of the fabric should be on the outside of the garment. Coated fabrics for clothing have their coated surfaces on the **inside** of the finished garment

- Use a new sharp needle -
- Change your needle frequently. Nylons and polyesters dull it quickly.
- Use 100% Polyester thread
- Use a longer stitch - your garment isn't tight so seams aren't under great stress so as to minimize the number of little holes.
- Keep your fabric taut but not tight! Practice your topstitching on a scrap.

If the fabric puckers or sticks try using a Teflon presser foot or a walking foot.

If these are not available try sewing a sacrificial layer of tissue paper, greaseproof paper or other removable layer to help. Also spraying with a non staining Teflon spray such as Ambersil helps remove sticking.

If when sewing urethane coated fabrics the needle gums up and clean with alcohol.

## Sewing Fleece Fabrics

Fleece fabric such as Polarfleece® is a lightweight synthetic fabric that is very warm and comfortable. It is an easy-to-care for fabric that is machine washable and can be tumble dried. The fabric has a nap, so we recommend cutting out the fabric in the same direction. This is especially important for garments so that you do not get different shading.

- Use a new sharp needle - size 12/80
- Change your needle frequently.
- Use 100% Polyester thread
- When sewing on a standard sewing machine, loosen the pressure on the presser foot and use a slightly longer than medium stitch length with a slight zig zag stitch.
- The fabric does not fray and the edges do not need to be finished. However, if the raw edges show, a garment can be bound with Lycra edging tape (WL1). You can also hand stitch the edges with either a blanket stitch or a whip stitch using yarn.
- If stitches are very close together, place a piece of tissue paper under the fabric on the wrong side to prevent the fabric from stretching. Remove the paper when you are finished.

## Sewing Kites

- Use a soldering iron for heat sealing raw edges to ensure they are more durable
- Straight and zig-zag stitches are all that are required.
- Use double sided tape (DS6 or DS9) to make sure that the seams stay together and do not slide over each other
- Allow as much working room on the sewing table for big kites as possible, if you place the machine about 20 cm from the front and on the right side of the table you have a perfect working area
- Check the tension of the thread as discussed above. As ripstop is thin, tension differences are noticeable.
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