CHAPTER 4

Selection of Suitable Needle and Threadfor various fabrics and suitable stitch per inch (SPI)

Objectives:

At the end of the chapter, the students shall be able to:

- *Know different types of needles*
- *Know parts of needle*
- *Know different types of threads*
- *Select suitable needle for different fabrics*
- *Select suitable threads*
- *Select suitable stitch per inch*

Introduction

We have to select correct size thread and needle to get perfect finish of the garment.

Threads

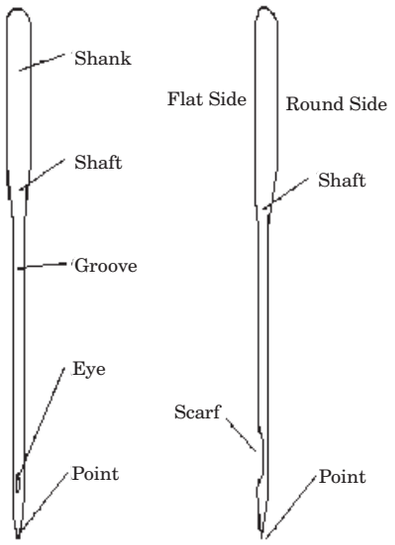
The selection of thread available for sewing seems to grow on almost a daily basis. New colors, unique finishes and interesting textures can add to the style of our project, but there are other considerations that make a difference in our thread selections. Long staple thread is smoother and creates less lint in our machine. Made of short stales, the thread is uneven in texture and the result is less than perfect stitching. Strong thread that is good for construction, especially on natural fibre fabrics. Mercerized cotton has been treated to be smoother and straighter with less fuzz than other cotton threads. Polyester embroidery thread has a high sheen and is abrasion resistant. Silk thread is strong and lustrous. This thread is used for construction and stitched details such as buttonholes and top stitching.

Needle

In the apparel industry, there are literally thousands of different machines, each requiring a different needle type. On most newer machines, the needle type for that particular machine

is identified on the machine head. However, each needle manufacturer identifies its needles in a different way; and needles for the same type of system may have several different names or numbers, depending on the manufacturer.

Needles are of various types. Needle are selected according to their application. The sizes mainly depend on the structure of the fabric and the sewing threads used. The needle size can be as small as 0.6 mm or 2.5 mm. The metric size (Nm) describes the diameter of the needle blade in hundredths of a millimeter. If the needle is too fine, it will abrade the thread, bend, break, affect the loop formation, and cause skipped stitches. If it is too coarse, it will damage the fabric, produce an unattractive seam, cause the seam to pucker, affect the loop formation, and cause skipped stitches. Generally the best choice is the smallest size that will not skip stitches.



Sewing Machine needle and parts

1. **Butt:** A small pyramid at the upper end of the shank. It is designed to make a single-point contact with the hole in the needle bar.

2. **Shank:** The upper end of the needle that is held in the needle bar by the needle screw. The shank is usually round, but it can have one or two flat sizes. Designed to support and stabilize the needle blade, the diameter of the shank is usually larger than the diameter of the blade.

3. **Shoulder :** The beginning of the shank just above the needle blade.

4. **Blade:** The thin section of the needle that extends from the shank to the eye. It is easily bend and should be examined for straightens periodically.

5. **Scarf:** A small indentation above the eye that permits the hook or looper to pick up the thread loop. On some needles, the scarf is elongated and / or deeper to ensure that the needle thread loop will be large enough to prevent skip stitching.

6. **Land:** A small hump on the blade immediately above the eye. Used instead of a scarf its purpose is to enable the needle thread to make a larger loop and form a stitch.

7. **Eye:** An opening in the needle blade at the lower end of the long groove that carries thread into the material to the hook or looper to make a stitch. The size of the eye is proportional to the diameter of the blade.

8. **Point:** The tapered end. It is often considered the most critical aspects of the needle. The most common needles have a round point, ball point, or a cutting point. Generally round points and ball points are used for woven and knit fabrics because they can penetrate the fabric by spreading the fibres or deflecting the yarns without damaging them. By contrast, needles with cutting points are used for leather.

Sewing machine needles can affect the performance of a machine more than any other part, causing skipped stitches, poor stitch formation, and even damage to the machine itself when the wrong needle or bent needle is used. If straight stitch is the soul of the machine, the needle is the heart.

Sl. No.	Weight of the fabric	Type of cloth	Thread Size	Needle Size	Stitch-es Per 2.5 cm
1.	Light	Muslin, cambric and other thin fabrics	50	9-11	14-20
2.	Medium	Shirting, poplins, etc.	40-50	14	12
3.	Medium heavy brocade, corduroy	Light woollen	40	16	10-12
4.	Heavy upholstery fabrics	Woollen	20	18	8-10

Questions

1. Name five parts of machine needles?
2. What is the correct needle size for stitching poplin cloth?
3. How many stitches per inch should be used for cotton fabric?

SUMMARY

Different types of needles, parts of needle, different types of threads, suitable needle for different fabrics, suitable threads and suitable stitch per inch are illustrated in this chapter. Correct size thread and needle are required to get perfect finish of the garment.

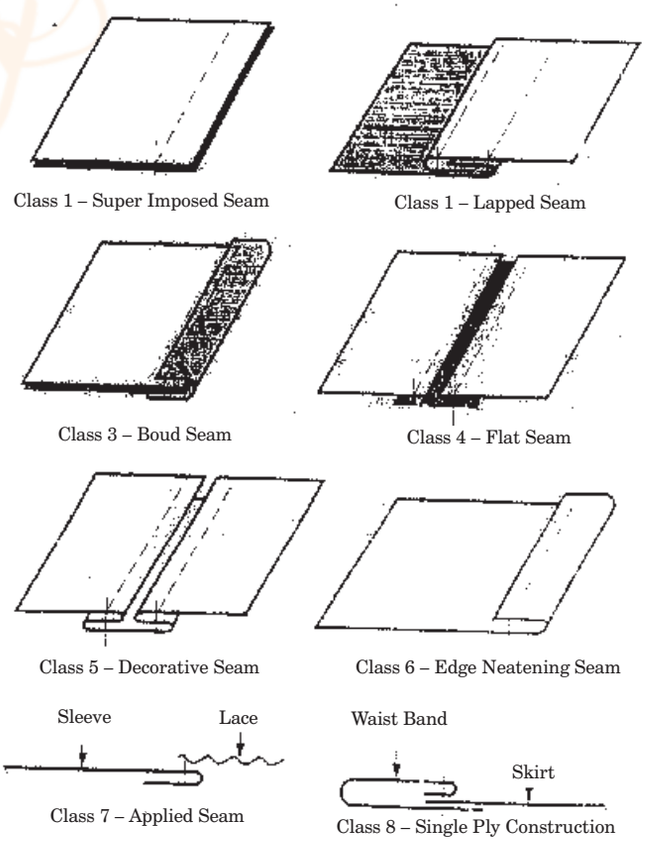
CHAPTER 5

Seams & Seam Finishes

British Standard 3870:1991 classifies seam constructions under eight headings. Typical examples are shown.

The simplest way to define the seam is to get preliminary taste of what it is, though each one of us is well familiar with it. A formal definition is a seam is the

application of a series of stitches or stitch types to one or several thickness of material for parts of seams.

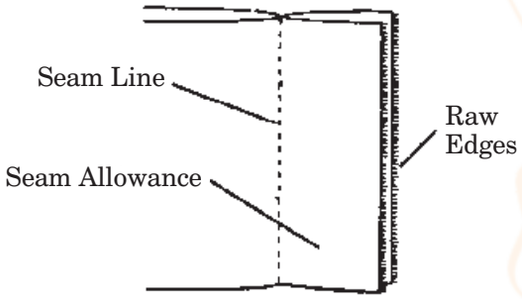


Seam Type

The choice of seam type is determined by aesthetic standards, strength, durability, comfort in wear, convenience in assembly in relation to the machinery available, and cost BS 3870 : Part 2 : 1191, referred to above, allows for eight different classes of seam, including some where only one piece of fabrics is involved. Examples are the hem of a garment folded up on

itself and a raw edge, which has been neatened by means of stitches. This alters the traditional concept of a seam as a joint between fabrics.

The British Standard divides stitched seams into eight classes according to the minimum number of parts that make up the seam. These parts can be the main fabrics of the garment or some addition item such as a lace, braid or elastic.



To indicate how the various seam types are formed, several styles of diagram can be used. The one, which most clearly relates to garment parts as sewn shows a perspective view of a section of the seam and, when the various stitch types are being discussed, it is useful to show a section of the reverse side of the stitch.

Seam diagram

The diagram shows two pieces of fabric laid one on top of the other and sewn close to the edge. The straight lines to the right are the edges which are relevant to the parts, of no importance to the seam under consideration. When seam types are elaborate, especially on complicated seams. Once familiarity with seam types has which shows a cross section through the fabric represented by lines, with short lines at right angles showing the point of needle penetration of the stitch. Once familiarity with stitch types has also been established, the British Standard stitch number, as given in BS 3870 : part 1 : Classification and Terminology of Stitch Types, can be used.

Schematic diagram