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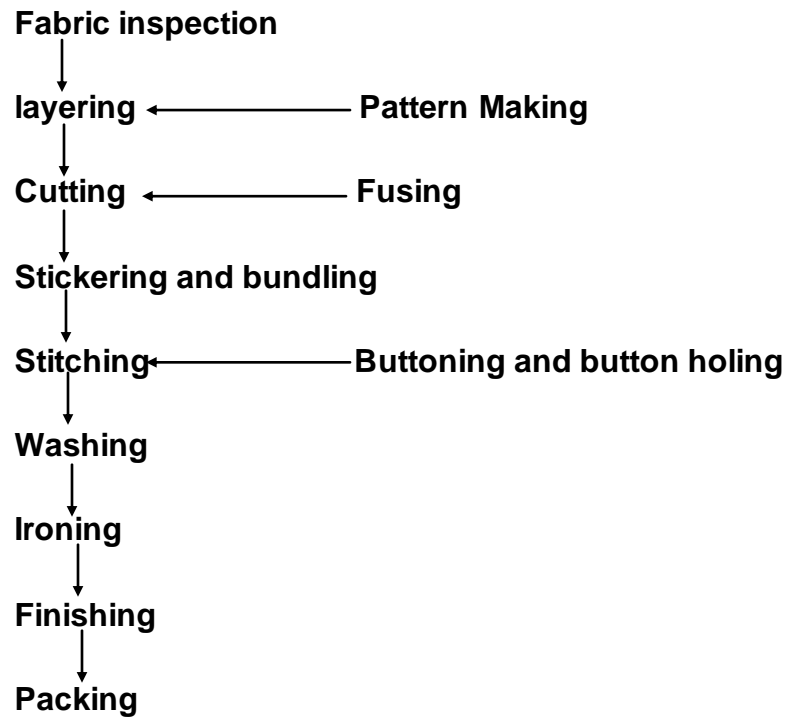
## 1. Basic Textiles terms

Yarn	Basic raw material for weaving/Knitting
Type of yarn	Single ply, double ply and multiply
Yarn count	Defines thickness of yarn. Higher the count, finer the yarn
Warp	Lengthwise yarn in the fabric.
Weft (filling)	Width wise yarn in the fabric.
Selvedge	Edges of the fabric running lengthwise
Woven Fabric	Woven fabrics are made by using two or more sets of yarn interlaced at right angles to each other.
Knitted Fabric	Knitted fabrics are formed by series of interlocking loops (example: knit wears)
Sewing Thread	Sewing Thread is a type of yarn used for sewing.

## 2. STITCHING

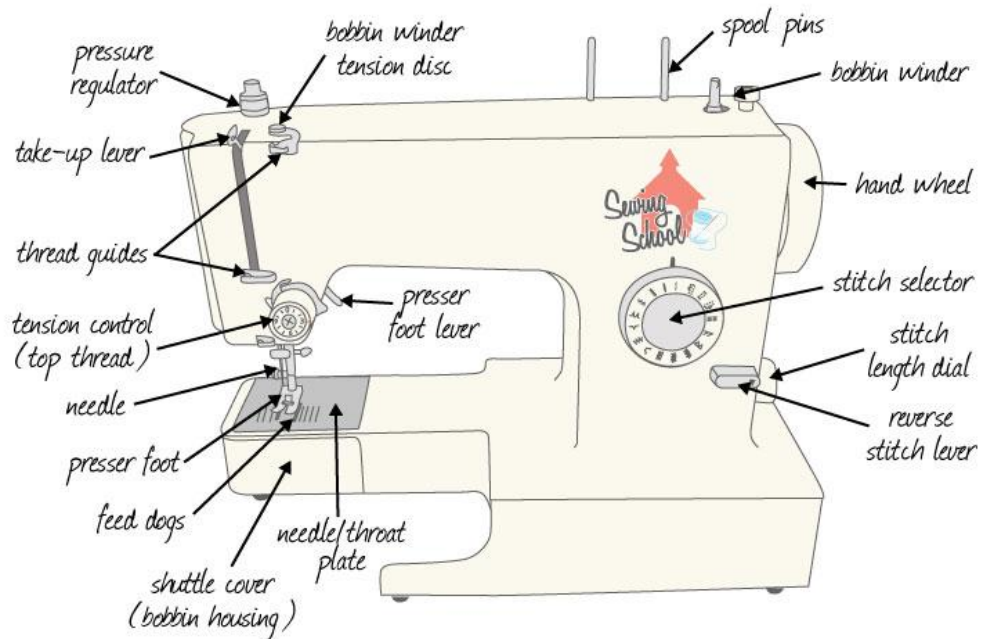
- Stitching is the process of producing garments by joining various components of fabric, either woven or knitted
- This is being done in **stitching machines**.

➤ **Sequence of Operations In Garment production**



### 3. IDENTIFICATION OF PARTS OF SEWING MACHINE

#### Anatomy of a Sewing Machine



1 **Hand wheel:** Turn this wheel to adjust needle height. Always turn the hand wheel toward you.



2 **Spool pin:** The spool pin keeps the spool in place while the thread feeds through the machine. Some machines have both horizontal and vertical spool pins



3 **Spool cap:** The spool cap slips onto the end of the spool pin and holds the spool in place.



4 **Bobbin pin/winder:** Built-in bobbin winders may be found on the top, front, or side of a sewing machine. Most winders consist of a bobbin pin to hold the bobbin while the thread is being wound, thread guides for maintaining tension, and a start/stop lever. Some bobbin winders have built-in thread cutters.



5 **Thread guide:** Thread guides may be hoops, discs, or flat metal shapes that pinch or direct the thread to feed it through the machine without tangling and at the correct tension.



- 6 **Take-up lever:** The take-up lever is a metal finger with a thread guide that moves up and down, pulling thread from the spool and feeding it through the machine.



- 7 **Stitch selector:** Use the stitch selector to choose which stitch you'd like to use. Many machines feature a number of built-in stitches: straight stitch, zigzag, buttonhole, blind hem, etc.



- 8 **Presser foot:** The presser foot works with the feed dog to move fabric evenly through the machine. When the presser foot is lowered, it engages the tension discs and presses the fabric beneath the foot against the feed dog. The upper part of the foot, called the ankle, is usually screwed onto the machine securely; the lower part may include a quick-release mechanism for changing presser feet.



- 9 **Presser foot pressure control:** This control adjusts the amount of pressure the presser foot applies to fabric as it feeds beneath the needle. Increase pressure when sewing heavy fabric and decrease pressure when sewing lightweight or thin fabric



**10 Presser foot lifter:** This lever, located above the presser foot at the back or side of the machine, raises and lowers the presser foot. When the presser foot is lifted, the tension discs are disengaged, and the fabric will not feed through the machine.



**11 Needle:** The needle carries the upper thread through the fabric to create a stitch. Specialty needles are available for specific stitching needs.



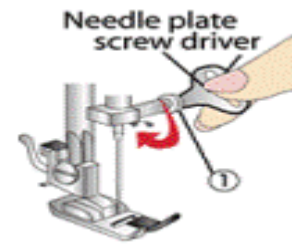
**12 Needle threader:** Some machines have built-in needle threaders. Threaders have a tiny hook that swings through the needle eye catches the thread, and pulls it back through the eye when the threader is released.



**13 Thread cutter:** Some machines have a built-in thread cutter near the needle area. To use the cutter, raise the presser foot and remove the stitched piece from the machine. Pull both the threads over the cutter's shielded blade to cut them.



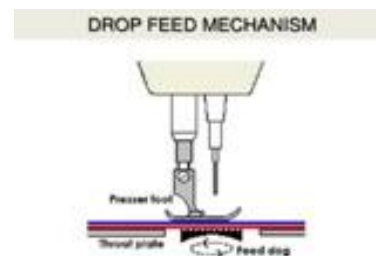
- 14 . **Needle clamp screw:** Tighten and loosen this screw to release or secure the needle in place.



- 15 **Stitch plate:** The stitch plate, also called a needle or throat plate, is a flat metal piece below the presser foot. Slots in the plate allow the feed dog to push the fabric along. A hole or slot admits the needle carrying the top thread through the fabric.



- 16 **Feed dog:** The feed dog is a toothed metal piece below the stitch plate that moves up and down to push the fabric along, beneath the needle. Stitch length is controlled by how much fabric the feed dog moves.



- 17 **Throat:** The throat of a machine refers to the open space between the needle and the machine housing. A large throat is helpful when sewing bulky fabrics and large projects like quilts.



- 18 . **Bobbin cover:** The bobbin cover is a plate or hinged door that protects the bobbin mechanism. Open the bobbin cover to replace the bobbin and clean the bobbin area or case.

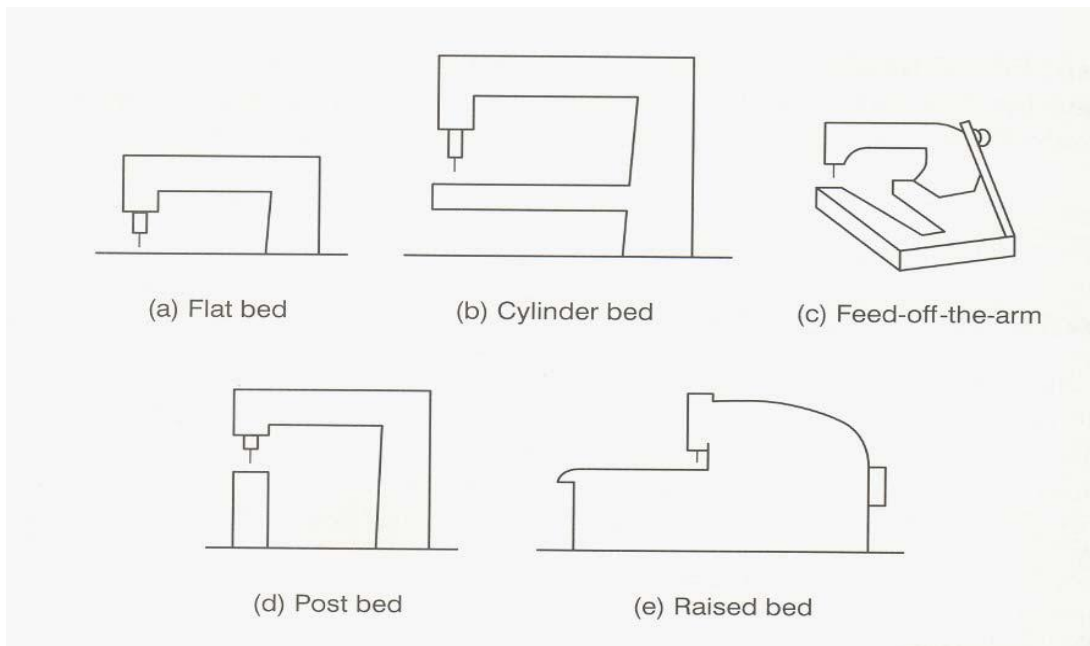




19 **Foot control:** Like the gas pedal in a car, the foot control regulates the machine speed.



#### 4 Different types of machine beds



<b>Types of Sewing Machine</b>	<b>Stitch Type</b>	<b>Features and Uses</b>
Flat bed machine (basis type)	Lockstitch, Chain stitch	The large working area allows a wide range of application; the material can easily be guided around the needle and the presser foot. This basic type is used for all kinds of flat sewing work.
Raised bed machine	Lockstitch, Chain stitch	The bedplate is in the form of a plinth. It facilitates the assembly of pre-sewn parts and is especially suitable for the fitting of accessories and special attachments. This is the basic form for various specialized machines such as buttonholers.
Post bed machine	Lockstitch, Chain stitch	This type has an increased working height. Special applications are found in the working of three-dimensional products. e.g. shoes and bags. The post bed makes it easier to work on tight curves and corners, to sew in sleeves and to complete large, half-assembled products.
Cylinder bed machine	Lockstitch, Chain stitch	This type has an increased working height and a bed in the shape of a horizontal arm. It is especially suitable for working on tubular parts, such as cuffs, sleeves, and trouser legs, and also for button sewing and bar tacking. It is used extensively in the making of clothing from knitted fabrics.
Side bed machine	Chain stitch, Over-edge	Machines which are specialized for sewing at edges need only a small working area

### **Preparation for Stitching**

Before starting actual machining, one should check that the needle of the machine is of correct size, is sharp and correctly set. The bobbin should be evenly set. Briefly, the various steps of preparation are:

## Winding the bobbin



**Start Up of Sewing Machine Step 1**



**Putting Bobbin for Winding Step 2**



**Mounting Thread on the Bobbin Step 3**



**Start Winding on Bobbin Step 4**

## Upper Threading on Sewing Machine



**Threading on Stitching machine Step 1**



**Threading on Stitching machine Step 2**



**Threading on Stitching machine Step 3**



**Threading on Stitching machine Step 4**



**Threading on Stitching machine Step 5**



**Threading on Stitching machine Step 6**

- Drawing the Under bobbin thread



**Removing the under bobbin case Step 1**



**Fitting the bobbin in the case Step 2**





**Putting filled under bobbin case Step 3**



**Drawing of Bobbin thread Step 4**

**Tension Adjustment, Pressure Foot lifter and Control Pannel**



**Setting of Tension Adjuster**



**Control Panel**



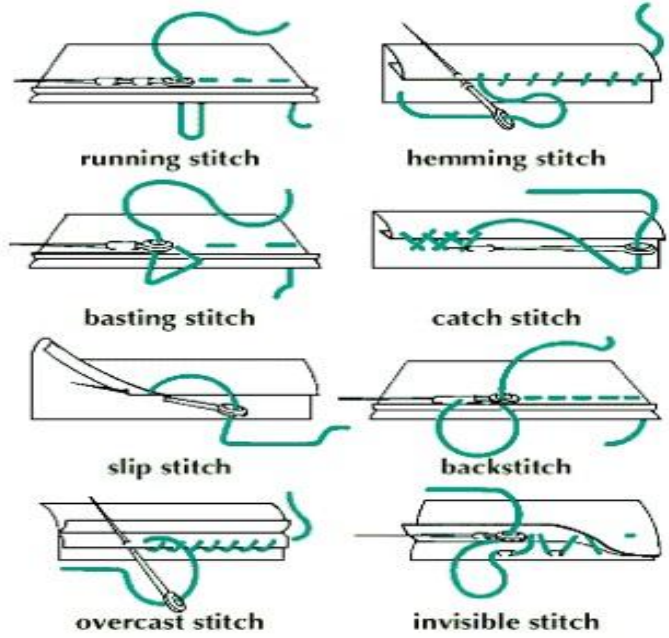
**Emergency Pressure Foot Lifter**

➤ **Stitch Classification:**

According to the Portuguese standard, for instance, 6 classes are defined, namely:

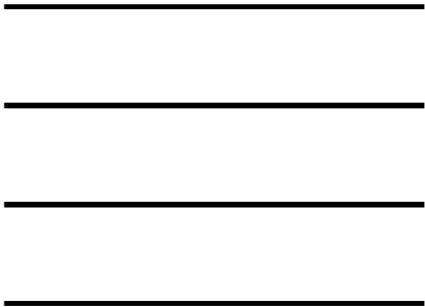
- Class 100 - Simple chain stitch
- Class 200- Manual stitches (stitches normally performed by hand)
- Class 300- Lockstitch
- Class 400- Double Chainstitch
- Class 500- Overedge or overlock1 stitches
- Class 600 - Interlock or covering stitches

Some Important Stitch Types

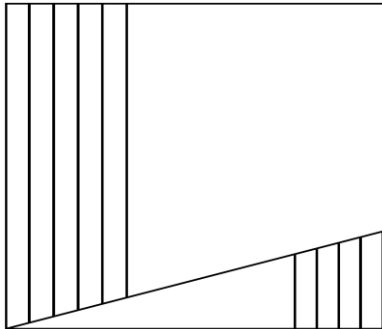


**5 SEAM PRACTICE ON DIFFERENT PATTERNS**

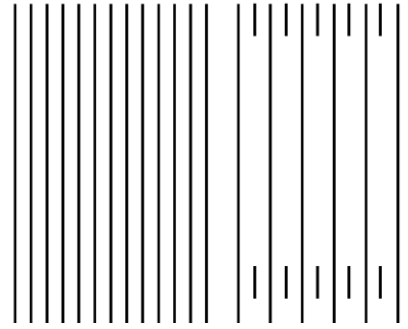
Straight seams



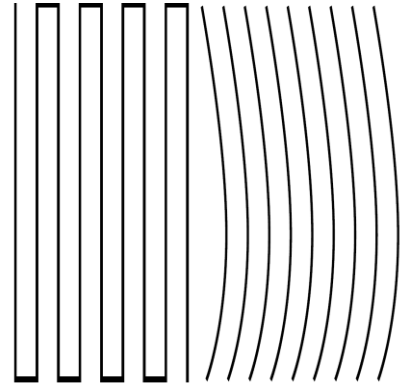
Straight seams end at a cross seam



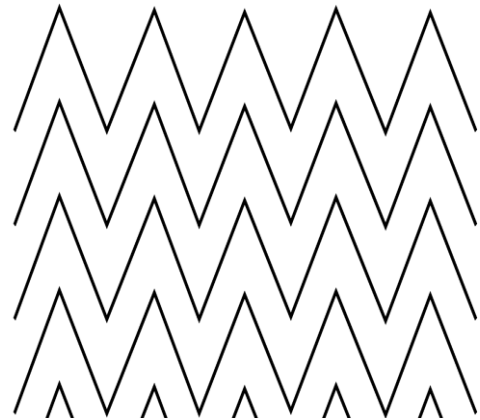
Straight seams with bartacking stitches



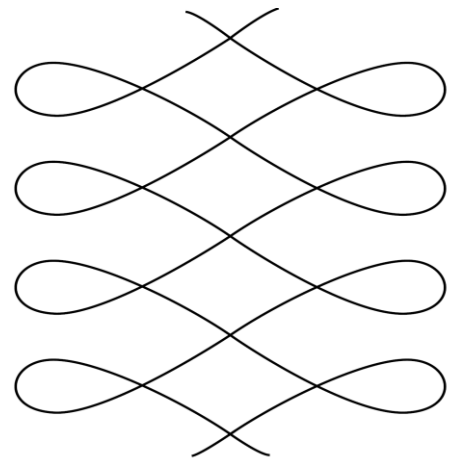
Meander seams, arched and sinusoidal seams



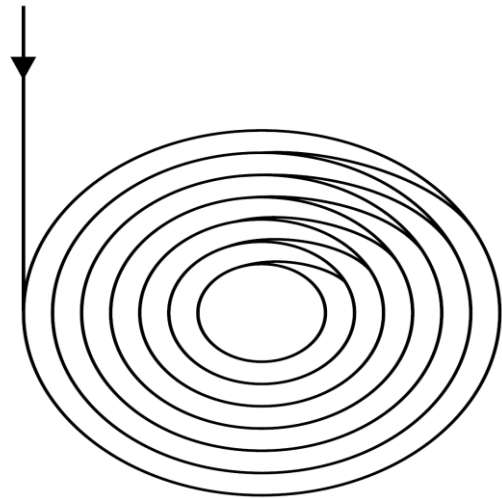
Short zigzag seams



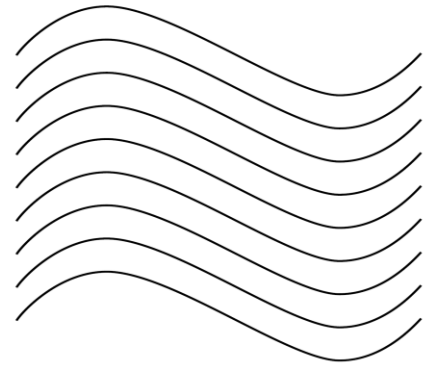
Curved seams in left and right sewing direction



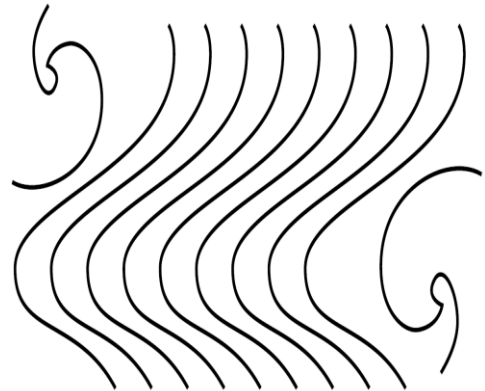
Spiral seams



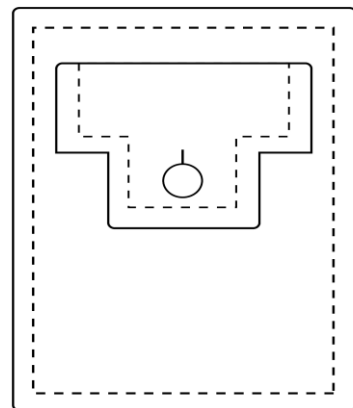
Sinusoidal seams



Various decorative stitches of shoe branch



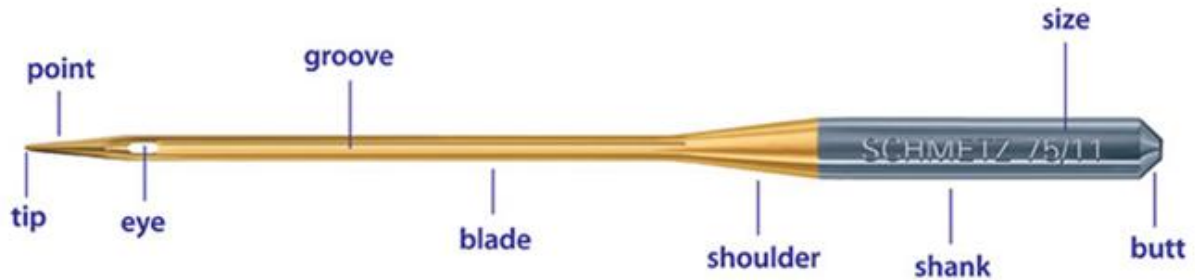
Decorative stitching on an pocket



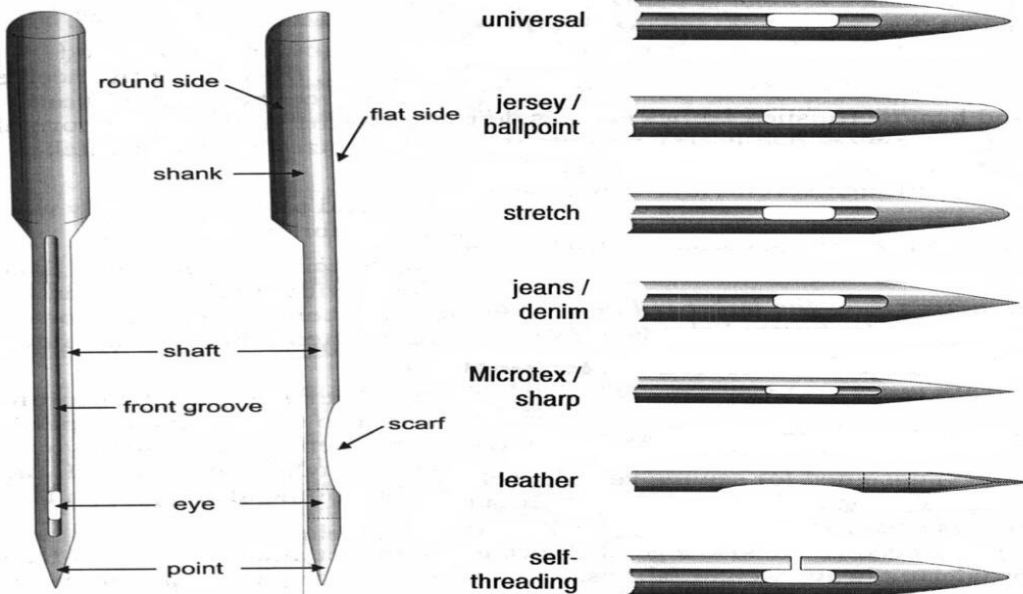


## 6.Types of Needle used to sewing different fabrics

Select the type of needle based on the textile construction (i.e knit vs woven), and the needle size is determined by the thickness of the thread and the weight of the fabric used for sewing.



There are two needle sizing system :American and European. American Needle sizes range from 8 to 19, and European sizes range from 60 to 120. Larger the number, the larger the blade of the needle.



Commonly used needles and their uses as below:-

Needle	Fabric Uses	Sizes	Description
Ball-point	Knits	70/10 – 100/16	This needle has a medium tip that is a slightly more rounded than a universal needle and passes between the fabric threads instead of piercing them. Ball-point needles ensure more even stitches on coarse and heavy knits and won't damage spandex, interlocks and other knits that snag or run easily.
Sharp/ Microtex	Finely woven fabrics	60/8 – 90/14	These needles feature a narrow shaft and sharper point to pierce the threads of woven fabrics. Use for stitching smooth, finely woven fabrics, such as silk, chintz, lightweight faux suede and microfiber fabrics. Because these needles enable perfectly straight stitching, they're also ideal for heirloom stitching, topstitching, pintucks and edge stitching.
Universal	Knits or woven	60/8 – 120/19	Point is very slightly rounded for use on knits, but sharp enough to pierce woven fabrics. These needles are available in the widest size range. Use when stitching Synthetic or natural woven and knits.
Denim/ Jeans	Heavy wovens and denims	70/10 – 110/18	These needles have a thick, strong shaft and a very sharp point. They are used for stitching denim, canvas, duck and other heavy, tightly woven fabrics. They are also ideal for stitching through multiple fabric layers without breaking.

## Determining the Right Needle for a Thread

Here's a quick way to determine if the thread and the sewing machine needles are compatible:

1. Take half a metre of the thread being used on the machine and thread it through the eye of a loose needle.
2. Hold the thread vertically with the needle at the top.
  - If the needle is too big, it will drop to the bottom of the thread
  - If the needle is too small, it will stick at the top of the thread
  - If the needle is the right size, it will slowly spiral to the bottom of the thread

However, a larger-than-normal needle may have to be used to penetrate thicker fabric, or stitch over the top of pronounced or bulky seams.

## 7.Measurement Techniques

### Measurement Tools and Equipments

**TAPE MEASURES:** This plastic tape is 60" long with small metal tips on either end. Most tape measures have imperial measurements on one side with the metric equivalent on the other

**RULERS:** These come in a variety of sizes, the most common being the 18" and a yard/meter stick. The 18" ruler is generally made of clear plastic with a 1/8" grid, which allows the technician to see the fabric while he is working.



**SEAM or SEWING GAUGE:** These small 6" metal rulers have a sliding distance indicator. The seam gauge is used for quick, accurate measurements of small areas such as hems, buttonholes, pleats and trim.

**L or FRAMING SQUARE:** These 90 metal squares are used for finding and aligning the grain of fabric or to establish the true bias. They are also used in pattern drafting and alteration.

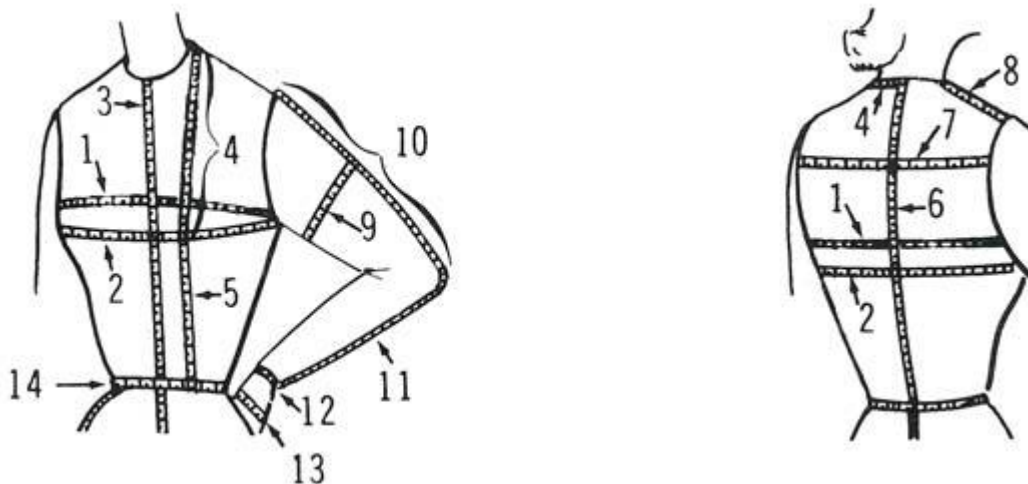
**FRENCH, HIP and MISCELLANEOUS CURVES:** These tools, plastic or metal, are also used in pattern drafting and alteration. They are also useful for trim or detail application where a curved line is necessary.

➤ **WHERE AND HOW TO TAKE MEASUREMENTS**

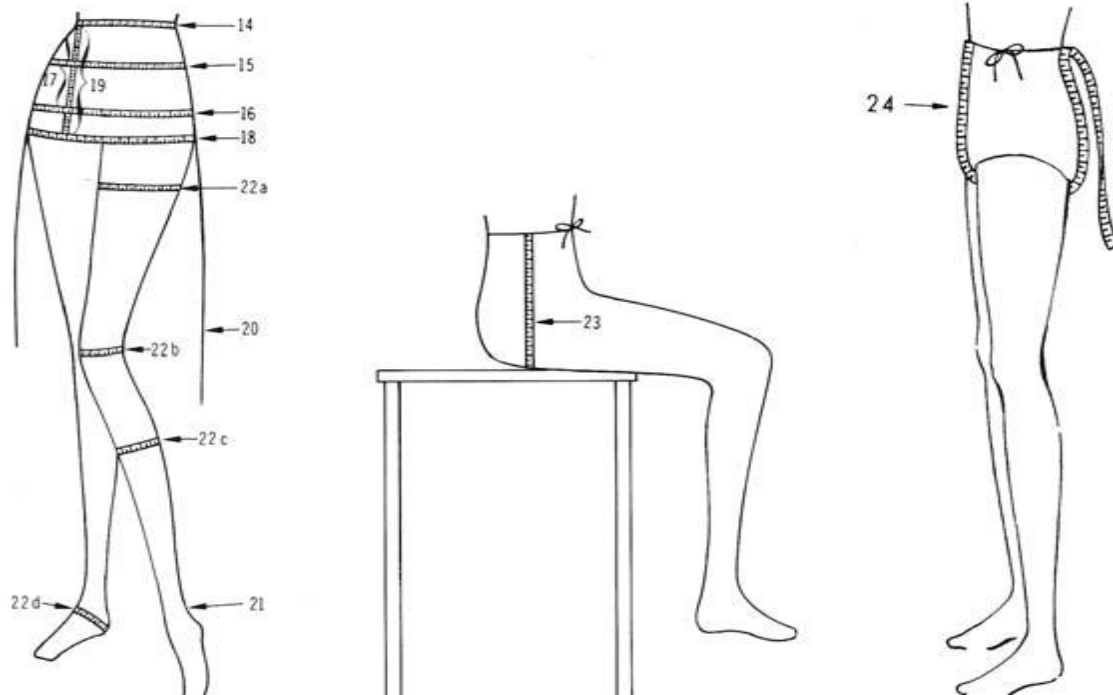
Measurements can be taken directly on a person for whom the pattern is to be developed

**A. Upper Bodice Measurements:**

1. High bust: measure around back and chest just above bust, keeping tape parallel to the floor across back.
2. Bust: measure over the fullest part of bust.
3. Center front bodice length – measure center front from base of neck to waistline tape.
4. Length from center back neck to tip of bust – measure from tip of bust around neck to tip of other bust and divide the measurement into half.
5. Length from center back neck over bust to waistline – measure from waistline over tip of bust around neck over other bust to waistline.
6. Center back bodice length – measure center back from base of neck to waist line tape.
7. Back shoulder width – 4 inches below base of neck at center back, measure distance from armhole to armhole, keeping tape parallel to floor and arms relaxed at sides.



8. Shoulder length – neck to arm socket – measure shoulder length from base of neck to arm socket.



### **B. Sleeve Measurements:**

9. Upper arm circumference – with arm bent and fist clenched, measure around fullest part of the upper arm.
10. Arm length - shoulder to wrist – with arm bent, measure from arm socket over elbow to wrist bone.
11. Wrist circumference – measure around wrist below wrist bone
12. Hand circumference – touch thumb to little finger, then measure at the position of greatest circumference.

### **C. Lower Body Measurements:**

13. Waistline – measure waist circumference. Allow enough ease for comfort in wearing finished garment.
14. High hip – measure high hip circumference 3 inches below waistline tape. Keep parallel to floor

15. Hip at fullest part - measure fullest part of hip keeping tape about 7 inches down from waist and mark this point midway between side and center front tape parallel to floor.
16. Waist to fullest part of hip – measure from waistline tape to hip as determined in step 15.
17. Thigh – slip tapeline down to largest measure of thighs, keeping tape parallel to floor.
18. Waist to thigh – measure a distance from waist to thigh as in step17.
19. Skirt length – measure from waist to floor at center front, center back, right side and left side. Subtract the number of inches skirt is to be worn from floor. Add hem allowance as needed.
- 20.Pants length – measure from waistline along side seam to desired length for pants.
21. Leg circumference – measure the fullest part of thigh, bent knee, calf, and instep

## 8. Stitching Defects

Sewing defect can be classified as three groups:

- Problems of stitch formation.
- Problem of pucker.
- Damage of fabric on seam line.

### Problems of stitch formation:

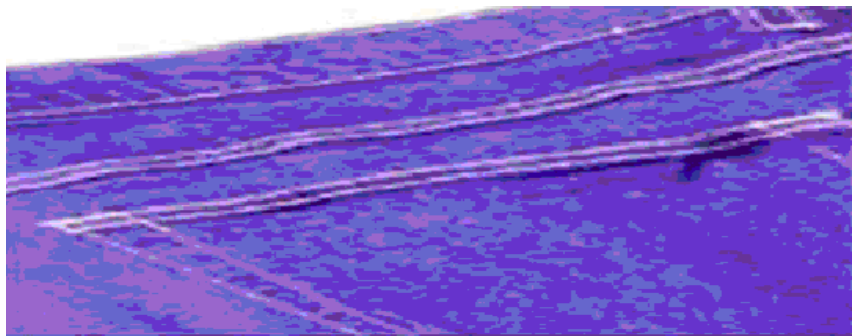
**Slipped stitch:** Stitches in the seam line are present in a regular manner. If the interloping or interlacing between top & bottom thread of stitch does not take place or missed is known as slipped stitch or skipped stitch. This is serious defect in case of chain stitch than lock stitch. The followings are the causes & remedies of slipped stitch formation.



No.	Causes	Remedies
01	If hook or looper & needle are not inserted in loop of thread in time.	Examine the setting & timing between needle & hook or looper. Placing the needle properly. More secure needle should be used.
02	Irregular thread tension on upper or lower loop.	The tension of the thread should again be adjusted.
03	Needle deflection.	Needle to be changed.
04	If needle thread loop size is too small.	Needle size & thread size must be adjusted.
05	Flagging of fabrics during sewing.	The pressure of pressure foot must be adjusted accurately. The hole of throat plate & needle size must be adjusted.
06	If the sewing thread is not capable to form loop.	Thread to be changed

### Staggered stitch:

If the stitches produced by needle are not parallel or become curvy to sewing line is known as staggered stitch.



No.	Causes	Remedies
01	Needle deflection.	Increase the needle size Tapered needle should be used.
02	Due to wrong blunt needle point.	Needle to be changed.
03	Wrong adjustment of needle & thread size.	Needle size & thread size to be changed.
04	Deflected motion of feed dog.	Motion of feed dog to be adjusted.
05	If fabrics are not controlled properly in the feed mechanism.	The pressure of pressure foot must be adjusted accurately. Feed mechanism to be changed.

**Unbalance stitch:** This type of defect is found in lock stitch machine. If the interlacement of threads do not take place in the middle (i.e. if the interlacement is taken place in the upper or lower position from the middle) of two layers of fabrics then it is known as unbalance stitch.

No.	Causes	Remedies
01	Wrong tension of sewing thread.	Setting of proper tension to the sewing thread. Proper care to the twisting of the thread during sewing.
02	Used wrong thread path	Use of right thread path.
03	Wrong adjustment of needle thread path.	Use of right thread path.
04	Snagging of needle with bobbin case & positioning finger.	Bobbin case to be smooth. The positioning finger to be set again.
05	If the thread are not lubricated.	Better qualities of thread must be used. Thread must be lubricated.

**Variable stitch density:** Stitches per unit length should be uniform, If it is not then it is called variable stitch density. The main cause of variable stitch density is irregular feed of fabric due to insufficient pressure of pressure foot. The following are the cause & remedies of variable stitch density formation





No.	Causes	Remedies
01	Improper unwinding of thread from package during sewing.	The position of thread guide must be 2.5 times higher than the position of thread package. Also proper care should be kept to the thread package not to tiling
02	Twisting of needle thread in the bottom of the thread package.	Foam pad must be used to the bottom of the thread package.
03	Snarling of thread before tension disk.	Winding of more threads in the thread guide & to keep less tension to the tensioning disk.
04	Twisting of thread in the thread guide.	Proper threading of sewing thread during sewing.
05	More tension to the thread.	The tension of thread should be less or use high strength threads.
06	Use of broken check spring.	Check spring to be changed.
07	If the edge of the throat plate, hook point, needle guard, bobbin case, needle groove, needle eye & so on are sharpened.	The edges must be smooth & needle must be changed as needed.
08	Fraying of thread in the needle.	Fine thread must be used or use heavy needle.
09	Thread gets heated more	High quality needle must be used. Needle lubricant must be used. Needle cooler must be used.
10	Hook gets heated more	Lubricant must be available. Examine the distance between the needles & hook.
11	Use of low quality threads.	Thread to be changed.

**Frequent thread breakage:**

Frequent breakage of thread especially, when there needs to open out the sewing to solve the problem. The following are the causes & remedies of frequent thread breakage.



No.	Causes	Remedies
01	Wrong winding of threads on to the bobbin.	Proper winding of threads on to the bobbin. Pre-wound bobbin may be used.
02	More tension to the bobbin threads or more rotating of bobbin.	The tension must be adjusted to the bobbin threads. Use of washer to prevent more rotation of bobbin.
03	If the edges bobbin case, looper eye & so on are more sharpened.	The edges to be smooth.
04	Wrong fitting of bobbin case.	Examine the size & type of bobbin. Examine the damaging of bobbin case.

**Broken Stitches:** When stitches are broken during sewing is called broken stitch.

**Cause:** Where the thread is being broken where one seam crosses another seam (ex: bar tacks on top of waistband stitching, seat seam on top of riser seam.)

**Remedies:**

- Where the thread is being cut, use a large diameter thread on operations.
- Make sure the proper stitch balance is being used.
- Use needles with appropriate needle point.
- At regular intervals on operations, change the needles where they occur frequently.

## Problems of pucker:

Puckering is a wrinkle appearance along a seam line in a smooth fabric. It is one of the frequently occurring defects. Puckering shows that as if there is too much fabric & not enough thread in the seam & as if the thread is drawing the seam in. This is the reason why sewing thread is often blamed for causing puckering though there are other factors as well as for promotion of puckering. They are given below:

1) Fabric structure. 2) Seam construction. 3) Needle size. 4) Material feeding problem. 5) Wrong thread tension & 6) Unsuitable thread.

### Reasons of Puckering

Fabric dimensional instability. Extension of sewing thread. Sewing threads shrinkage. Structural jamming of fabric. Mismatched patterns.

## Variable or uneven stretch on fabric plies:

### Causes:

There is a great possibility of occurring seam pucker in case of more plied of fabrics when sewing together.

Due to variable stitch on fabric plies they will not feed equally to sewing m/c & create seam pucker.

This type of pucker is seen for limitation of feed mechanism.



### Remedies:

- Taking proper care during sewing.
- Using proper feed mechanism.

## Fabric dimensional instability:

### Causes:

If the shrinkage of sewn fabric plies are not same or equal then Seam pucker will create after washing.

If the shrinkage percentage of area of two pieces of fabrics is more than 2, then seam pucker will occur after sewing the fabric together.

### Remedies:

- Use suitable feed mechanism, Maintain shrinkage and take extra care during sewing.

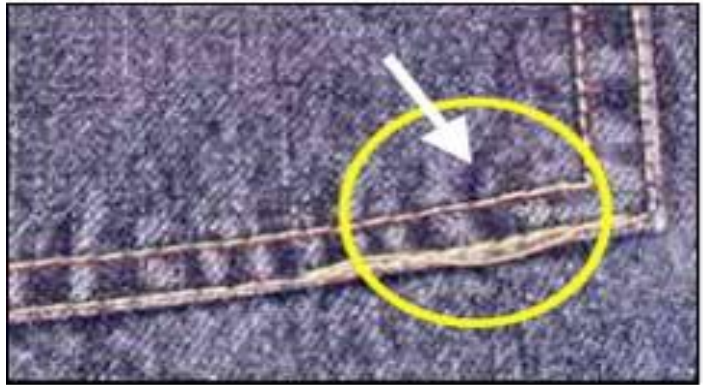
## Extension of sewing thread:

### Causes:

If the tension on needle thread is higher than the under thread, then seam pucker will be produced or relaxed.

Due to tension, the length of thread is extended slightly. When the fabric is displaced or descend from the machine after sewing, shrinkage of thread & fabric occurs due to their tendency of coming to original position.

If the shrinkage percentage of thread is higher than the fabric seam pucker happens.



### Remedies:

- To give sufficient thread tension.
- To maintain shrinkage.

## Unraveling Seams:

**Cause:** Generally occurs on 401 chain stitch seams where either the stitch has been broken or a skipped stitch has occurred. Unless the seam is re-stitched, this will cause seam failure.

### Remedies:

- Ensuring Proper machine maintenance and machine adjustments.
- Sewing operators to follow correct material handling techniques.

**Re-stitched Seams:** Where there is a "splice" on the stitch line. The seam does not appear to be 1st quality merchandise, if this occurs on topstitching.

### Causes:

Thread breaks or thread run-out during sewing. Cut or broken stitches during a subsequent treatment of the finished product (i.e., stone washing).



## Remedies:

- Use a better quality sewing thread and minimize sewing interruptions
- Use higher performance thread specifically designed for that purpose.
- Ensure sewing machine adjustments and proper machine maintenance.
- Observe sewing operators for correct material handling techniques.

## Damage of fabric on seam line:

A garment can be rejected due to damage of fabrics or yarn of fabrics in the seam line. This happens due to wrong needle selection or needle damage. The fabrics are damaged due to defective needle. But it may happen in case of new or fine needles. There are two types of fabric damaging are available given below:-

1) **Mechanical damage:** Damaging of fibres or yarns in the fabrics by needle is the entire defects of mechanical damage. The followings are the steps to be taken to keep the fabrics free from this type of defect:

By using perfect size & shape of the needle & needle point without any defect.

By reducing the speed of sewing machine.

By using lubricant.

By testing sewability before sewing fabrics.

2) **Needle heating damage:** The damage of fabric due to friction occurring between the needle & fabrics. The resulting temperature due to friction in the needle is very high. The fabric can get damaged in that temperature. There is less damage in case of fabrics made from natural fibres. The following are the steps to be taken to keep the fabrics free from this type of defect:

By reducing sewing speed, generation of heat to the needle will be less. But it affects production speed and does not suit for large production.

By changing needle Size & shape so that there is less generation of heat to the needle.

By sewing smaller length at higher speed.

By blowing cool air on the needle during sewing so that the temperature can be controlled.

By using lubricant to the needle.

By using Teflon coated needle.

Defects occurring due to handling, for instance spoilage, staining etc.

Defects occurring due to oil mark.

Defects occurring due to dirty spot.

**Size Measurement Faults:** During manufacturing of garments size of some parts are measured as per requirement. After assembling full garments also dimensions are measured to ensure that the dimension of garments is as per specifications. Faults occurring at this stage is can be reduced very much. During size measurement the parts which are measured are – 1) Chest 2) Waist 3) Shoulder 4) Sleeve length 5) Sleeve opening 6) Body length 7) Neck width 8) Front neck drop 9) Back neck drop 10) Collar Height 11) Arm hole 12) Placket length 13) Pocket length 14) Pocket width 15) Bottom part and 16) Hem opening etc.,

**Garment Twist** A rotation, usually lateral, between different panels of a garment resulting from the release of latent stresses during laundering of the woven or knitted fabric forming the garment. Torque or spirality may also be used to refer twist.

### **Sewing thread shrinkage:**

#### **Causes:**

Due to variable shrinkage % of sewing thread & fabric, Seam pucker will create after washing or ironing.

Cotton threads develop puckering when wet or after wash.

#### **Remedies:**

- To use synthetic thread.
- It is good to know about the shrinkage % of fabric & thread before selection to sew.

### **Structural jamming of fabric:**

#### **Causes:**

When sewing is done by needle to densely woven fabrics or in which no. of warp & weft yarns are more in one inch, seam pucker happens due to shrinkage of fabric.

#### **Remedies:**

- By using finer thread & needle.
- By minimising stitch density.
- By cutting & sewing on bias angle.
- By using chain stitch instead of lock stitch.
- To change fabric (if necessary).

## **Mismatched patterns:**

### **Causes:**

Seam pucker will create when two different size of patterns are sewn together.

The designer is responsible for this. It can also occur due to wrong selection of patterns.

### **Remedies:**

Experienced pattern designer is needed.

Change or rectify the pattern.

## **9. Maintenance of sewing machines**

### PREVENTATIVE MAINTENANCE

1. Blow air on machines every day to remove lint and trash
2. On lockstitch machines, Blow air on the hook regularly during the day to prevent lint or dirt from building up in the oil ports
3. Check to see that the machines are being lubricated regularly.
4. Check Oil levels daily and add additional oil to top up, if necessary.
5. Randomly check the oil levels in the machines
6. Use high quality white machine oil which will not stain.
7. Check to make sure that the oil is not contaminated.
8. Check to see that oil reservoir pump filters are cleaned regularly.
9. If compressed air is used, make sure the air system is regulated properly and has humidity dryers, filters and lubricator in the air lines.
10. Check for rusted areas in the machine due to excessive moisture in production area.
11. Check the Machines periodically for wear & tear on critical moving parts.
12. Check for any shake in needle bar due to worn out needle bar.
13. Check for excessive movement in stitch forming devices, etc.
14. Check the condition of critical screws
15. Check for any missing screws
16. Check for defective screws that are difficult to tighten properly

## 10. Safety Measures:

- When in doubt, ask the instructor.
- Report any injuries or accidents immediately to the instructor. Also, Report a breakage to a tool or m/c to the instructor. If the equipment does not operate properly, notify the instructor immediately.
- Wipe up any oil spillage on the floor immediately to prevent anyone from slipping. Keep aisles clear at all times.
- Operate only the machines you have been trained to operate and when the instructor or supervisor/ assistant is present.
- Operate machines only with permission.
- Always inspect the m/c before starting to work. Be sure it is clean and threaded correctly, with no loose threads on the pulley belt and all guards in place.
- Make only adjustments you have been trained to perform
- When sewing on a power m/c, wear low shoes & close-fitting clothing. Avoid loose fitting sleeves, sweaters, jewellery, ties, and ribbons when operating the machine. If your hair is long, tie it back.
- Always practice proper posture to reduce fatigue, help prevent accidents and increase efficiency. If possible, adjust the chair height so that your feet rest flat on the floor.
- Do not pull your chair forward or toward while operating the machine.





**Using of Mask**



**Using waste boxes for collecting loose threads**



**Using of Needle Guard**



**Ensuring of Motor Pulley**

- Use both hands to raise & lower the machine head.
- Always keep your head above the table.
- Keep your feet off the treadle when you are setting or threading the needle.
- Turn off and unplug your sewing machine when you are away from it for more than a few minutes.